

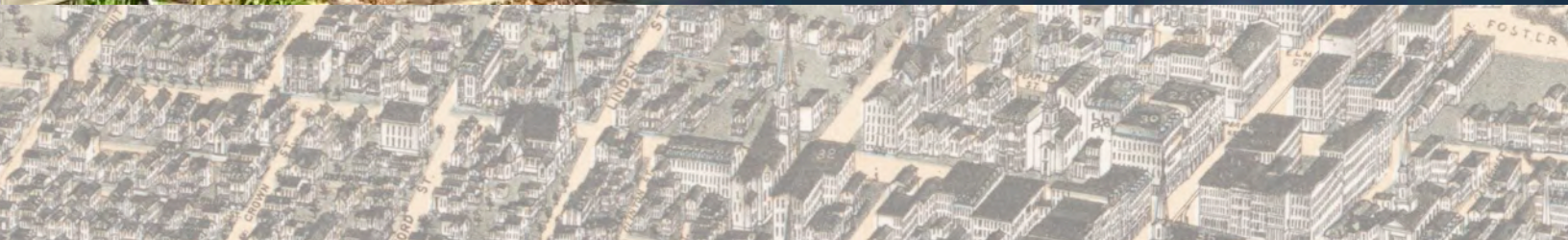
Design Review Guidelines

City of Worcester

Worcester, Massachusetts

Worcester Historical Commission

March 2024






DESIGN REVIEW GUIDELINES

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March 2024

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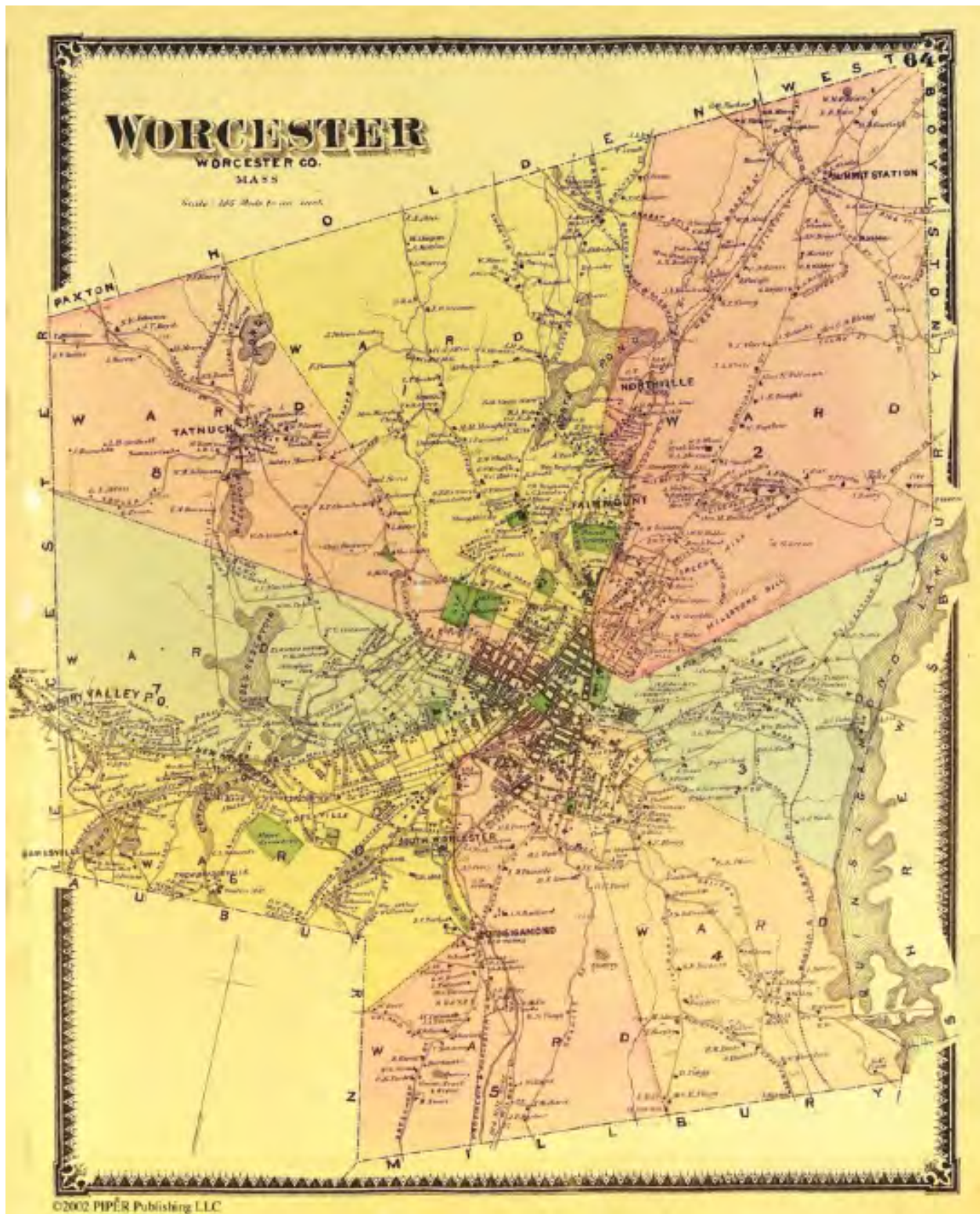
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Map of Worcester, 1870; Atlas of Worcester County, Massachusetts, F.W. Beers & Co.



CHAPTER 1 – INTRODUCTION

The City of Worcester has grown and expanded as an urban manufacturing and transportation center serving Central Massachusetts and the nation since the early 19th century. Worcester’s downtown core is located in the valley and headwaters of the Blackstone River with residential neighborhoods radiating outward over the surrounding hills.

While Downtown Worcester has changed dramatically over time, the surrounding historic neighborhoods retain a high degree of integrity that speaks of the periods in which they were developed—ranging from the 1830s for neighborhoods closest to Downtown to today’s outlying suburbs furthest away. Worcester’s historic neighborhoods present a visual record of the city’s growth, development, and architectural expression representing all periods, styles, and types of buildings associated with the city’s history.

Worcester’s historic neighborhoods have distinctive character directly related to the city’s quality of life. Preservation and strengthening of historic neighborhood character has been a city goal as growth and change continue to occur. The city’s designation of some neighborhoods as local historic districts and implementation of a demolition delay ordinance in which proposed changes to historic buildings in neighborhoods are reviewed are two tools through which the preservation of historic neighborhood character is encouraged.

These Design Review Guidelines are intended as a resource to guide change in Worcester's designated local historic districts and in the review of impacts on historic buildings related to the proposed demolition of historic building fabric. They are to be used by property owners in planning proposed work prior to application for review by the Worcester Historical Commission, helping property owners understand the issues and approaches of interest to the Historical Commission and the city.

The Design Review Guidelines also serve as a community-wide resource for the owners of historic properties generally, helping to inform decision making about appropriate changes to historic buildings from all eras throughout Worcester. The design principles outlined in the guidelines and their suggested application to specific types of features, materials, and conditions common to historic buildings assist property owners in the appropriate treatment of their properties.

1.1 WORCESTER'S HISTORIC CHARACTER

The center of historic Worcester is located within a broad north-south trending valley where Middle River and Mill Brook join to form the Blackstone River, which flows south to Providence and the Atlantic Coast. Surrounding the valley are numerous round-topped hills, which remain visible topographic features in the landscape today. Worcester developed in the mid-19th century as a transportation hub and industrial powerhouse, first, as the northern terminus of the Blackstone Canal and, later, as the intersection of multiple railroad lines extending out in all directions.

Architecturally, Worcester is significant for the character of its historic residential neighborhoods, which have grown outward from the city's commercial and industrial center. Historic neighborhoods largely retain their historic character and integrity and have been the focus of preservation efforts within the community.

Beginning in the 1830s and 1840s, residential development pushed out of the central valley onto the adjacent hills as commercial activities took over Main Street, which had, up until then, been a primarily residential corridor. Residential neighborhoods that developed on the hills west and east of the central valley remain intact the further they are from the valley and were infilled and greatly expanded in later years. Gable-front, side-hall plan houses were a common vernacular building type in the city's oldest neighborhoods.

Residential expansion was facilitated by the development of an extensive streetcar network that operated between 1870 and the 1920s. The complex radial network of street railway lines connected the center of the city with outlying residential and industrial areas as well as with surrounding towns. The spread of streetcar suburbs and outlying manufacturing districts extended built-up areas toward the eastern and western borders of the city as well as into the highland north and south of the central valley. The historic residential neighborhoods that expanded through the streetcar network survive relatively intact. Schools, churches, and other civic buildings serve as landmarks in and adjacent to these neighborhoods.

Worcester's development continued in the decades before the Depression of the 1930s as the city reached a state of maturation as an urban center. As the use of automobiles increased, the city's streetcar network became obsolete and was abandoned. By the mid-1920s, Worcester had become the center of a radial, regional/interregional automobile highway system which significantly impacted development patterns. Automobile suburbs expanded in all directions, filling out existing neighborhoods and creating new ones beyond. Concentrations of high- and middle-income, single-family residences developed in the western and northern sections of the city.

Worcester's record of development is visible in the growth of its neighborhoods, which expanded and filled in over time. While some buildings were demolished as the neighborhoods become denser, many buildings from periods postdating 1830 survive, leaving a rich record of architectural design and city development.

Most of Worcester's residential buildings are of wood construction, including both vernacular building types and high style, architect designed homes. While architect designed residences are usually customized in plan and form and intentionally feature a particular architectural style, vernacular building types tend to loosely follow national and regional trends, applying popular stylistic details to common vernacular building types. Sometimes several styles are used in the same vernacular building, making them interesting to study.

The appreciation and appropriate care of individual historic buildings and of historic neighborhoods enhances property values and quality of life in Worcester.



As described in Chapter 2, historic maps depict the growth of Worcester over the decades. This detail of the center of the city is from the 1870 Beers Atlas.

1.2 LOCAL HISTORIC DISTRICTS

The City of Worcester has designated four of its most significant historic neighborhoods as local historic districts, formally recognizing and preserving their historic character through a process of design review. While representative of the city's historic neighborhoods generally, these four neighborhoods are particularly notable because of the type, quality, and integrity of their buildings. The districts are predominantly residential, of high style design, and of wood construction.

Worcester's Crown Hill and Elm Park Neighborhood Local Historic Districts are comprised of historic cores of consistent and high-quality residential character and are surrounded by edges that are more complicated and have less integrity—multiple different building types and uses, some inappropriate changes, and unbuilt areas where new infill construction may be expected in the future. Designation as local historic districts helps preserve the character of the core areas of the Crown Hill and Elm Park Neighborhood districts while encouraging the revitalization and strengthening of the surrounding edges.

In contrast, Worcester's Massachusetts Avenue and Montvale Local Historic Districts are comprised of consistently high style residences with a high level of integrity that are unique within the city and worthy of special recognition. Local historic district designation helps assure that these distinctive neighborhoods will be preserved and maintained with a high degree of care.

Other neighborhoods within the city would also be worthy of designation as local historic districts in the future. Whether or not formally designated, the preservation and appropriate treatment of historic buildings within these neighborhoods should be encouraged and will continue to strengthen and enhance neighborhood character. Worcester's historic neighborhoods and designated local historic districts are discussed further in Chapter 2 of these Design Review Guidelines.

1.3 PURPOSE OF THE DESIGN REVIEW GUIDELINES

These Design Review Guidelines were created principally to assist property owners within Worcester's local historic districts in planning to undertake needed work subject to review by the Worcester Historical Commission. As noted, they are equally helpful to the owners of historic properties elsewhere in the city.

The Design Review Guidelines outline the character defining qualities and features of buildings within historic neighborhoods and provide guidelines for accommodating needed change while preserving and enhancing those qualities and features. They emphasize best practices of historic preservation and specifically address issues associated with preservation and stewardship within historic neighborhoods.

Maintenance and the appropriate treatment of authentic historic fabric is a key aspect of stewardship. Recognizing that change will continue to occur, the

Design Review Guidelines provide guidance for adaptations to historic buildings when necessary as well as for additions and new construction.

The Design Review Guidelines are a resource to inform decision making about change over time. Rather than providing an answer for every situation, the guidelines outline concepts and principles important to the character of historic buildings and suggest how they may be applied. Every situation presents a combination of issues and opportunities that may differ depending upon their context. The information and guidelines included here will help property owners and designers appreciate and respond appropriately to varying situations and issues.

The chapters and sections of the Design Review Guidelines can serve as a checklist, outlining items that should be considered when contemplating change within a neighborhood's historic context. The guidelines provide a strong philosophical foundation that is nonetheless flexible and adaptable to varying circumstances.

Additionally, guidelines can sometimes inspire creative and sensitive solutions that were not envisioned when a project was first proposed. The best outcomes are those that meet the needs of residents while preserving the elements that define historic building character.



Design guidelines provide useful information for needed alterations to historic buildings that allow change while retaining the building's historic character, such as in the conversion of this former residence on Cedar Street into a community center.

1.4 USE WITHIN WORCESTER'S LOCAL HISTORIC DISTRICTS

As discussed in Chapter 4, *The Design Review Process*, the Design Review Guidelines guide the Historical Commission in the review of proposed construction projects in Worcester's four designated local historic districts. City ordinance requires that proposed projects within local historic districts undergo design review by the Historical Commission to assure that the proposed work is appropriate to the character of the historic building and neighborhood. In addition to projects requiring building permits, some proposed work not requiring building permits such as installation of fencing, stone walls, and paving also require design review. These design guidelines will be applicable to future local historic districts as well, including potential single property districts.

Property owners and designers working on projects within the local historic districts should use the Design Review Guidelines when planning their construction projects, as they will provide them with guidance in best practices in historic preservation as they consider how to undertake needed changes. Early consultation with city planning staff and the Historical Commission regarding proposed changes is strongly recommended.

During the design review process, the Historical Commission will consider how proposed changes are to be implemented, assuring that best practices are being applied and that the building's historic character is being preserved. The design guidelines outline the criteria by which applications to the Historical Commission will be considered. Upon approval, the Historical Commission will issue a Certificate of Appropriateness, and a building permit may be issued.

1.5 USE WITHIN WORCESTER'S OTHER HISTORIC NEIGHBORHOODS

Aside from their use in the design review process associated with local historic districts, the Design Review Guidelines are a resource for the owners of historic properties throughout the city. The topics outlined and guidance provided in the design guidelines are applicable to any historic building and historic neighborhood and will inform decision making when any maintenance or construction project involving a historic building is being contemplated.

Worcester's Historic Building Demolition Ordinance requires that the Historical Commission review any proposed demolition of a designated historic building, as well as the removal of historic building fabric on designated historic buildings to assure that such demolition or work is not detrimental to Worcester's historical or architectural heritage. If a negative determination is made, the Historical Commission may impose a delay in the project of up to twelve months while alternatives are considered. Consideration of the best practices outlined in the Design Review Guidelines will help inform decision making regarding such demolition and removals to avoid a negative determination by the Historical Commission.



Residences from Worcester's four local historic districts characterize the city's history and development.

1.6 ORGANIZATION OF THE DESIGN GUIDELINES

These Design Review Guidelines are organized into seven chapters. The first four chapters provide background and context. The final three chapters outline the design guidelines and are illustrated using examples from Worcester's historic neighborhoods.

Chapter 1, Introduction, provides a brief background, summary, and overview of the Design Review Guidelines.

Chapter 2, Worcester's Local Historic Districts, describes Worcester's historical development and four designated local historic districts outlining their character, context, and how they have changed over time. The chapter includes an overview of historic building types and architectural styles found within the local historic districts and other historic neighborhoods.

Chapter 3, Design Principles for Historic Preservation, presents the philosophical basis and ideas for best practices in historic preservation that are then applied to conditions and features in Chapters 5 through 7 of the Design Review Guidelines.

Chapter 4, The Design Review Process, outlines the review process conducted by the Historical Commission for proposed projects within designated local historic districts as required by city ordinance as well as review of projects involving the demolition of historic building fabric in inventoried historic buildings city-wide by Worcester's Historic Building Demolition Ordinance.

Chapter 5, Historic Building Materials, reviews common issues and appropriate treatments for types of materials commonly used in historic buildings, including various roofing materials, wood, masonry, stucco, and metals.

Chapter 6, Historic Building Features addresses issues and treatments associated with key features in historic buildings, such as roofs and related features; siding, detailing, and trim; entrance and doorways; windows and window treatments porches; and site features.

Chapter 7, Additions and New Construction, provides guidelines for the design of additions to historic buildings and the design of new buildings in an existing historic context.

It is the hope of the Historical Commission that these design guidelines will prove useful not only to homeowners within Worcester's local historic districts but to owners of historic residences throughout the city. The Historical Commission appreciates the care and respect that residents have for Worcester's historic character and looks forward to assisting property owners in preserving that character through the common stewardship of the city's historic resources.



CHAPTER 2 – WORCESTER’S LOCAL HISTORIC DISTRICTS

The City of Worcester is the second largest city in Massachusetts and the principal regional center of Central Massachusetts. Worcester developed in the mid-19th century as a transportation hub and industrial powerhouse, first, as the northern terminus of the Blackstone Canal and, later, as the intersection of multiple railroad lines extending out in all directions.

Worcester is known for its diversity and as a magnet for immigrant populations seeking opportunities in employment and quality of life. In the mid-19th century, Irish workers were drawn to the city’s manufacturing and industrial operations, soon followed by Swedish, Finnish, German, Polish, and Italian immigrants. More recently, Vietnamese, Brazilians, Albanians, Puerto Ricans, Ghanaians, Dominicans, and others have arrived.

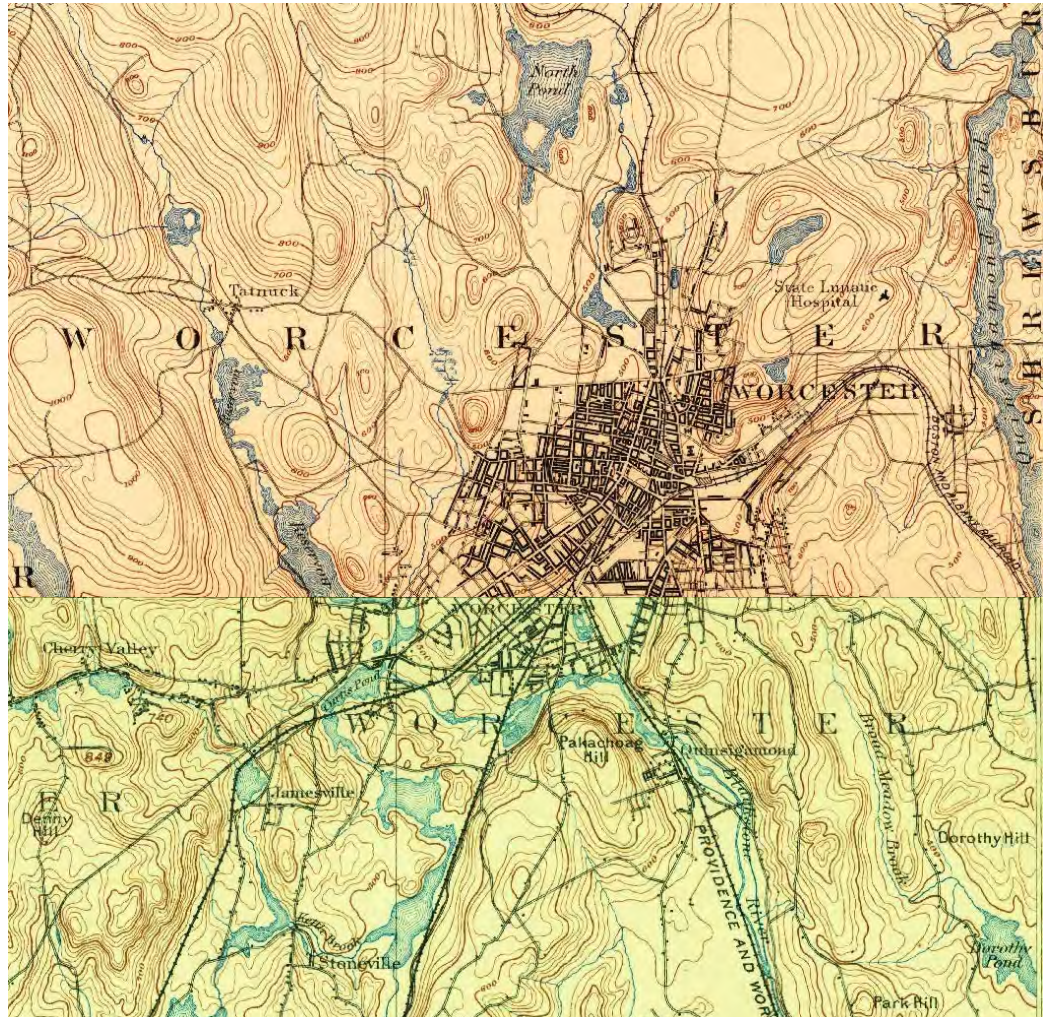
Though manufacturing and industry declined in the late 20th century, Worcester’s population is again increasing, and the city is known as a center for higher education, healthcare, and biotechnology. With the rapid growth of Eastern Massachusetts in general, today Worcester marks the western edge of the Greater Boston Metropolitan Area.

Architecturally, Worcester is significant for the character of its historic residential neighborhoods, which have grown outward from the city’s commercial and industrial center. Encompassing all periods and all income and ethnic groups, these neighborhoods largely retain their historic character and integrity and have been the focus of preservation efforts within the community.

2.1 WORCESTER'S HISTORICAL DEVELOPMENT

The center of historic Worcester is located within a broad north-south trending valley where Middle River and Mill Brook join to form the Blackstone River, which flows south to Providence and the Atlantic Coast. Surrounding the valley are numerous round-topped hills, which remain visible topographic features in the landscape today. Glacially formed ponds and wetlands are found along the brooks between the hills, many of which were historically dammed for waterpower and as reservoirs for the growing city.

Prior to settlement by Europeans, the region of Central Massachusetts including Worcester was occupied by peoples of the Nipmuc Tribe, with villages and base camp sites primarily along waterways and on adjacent uplands. Several potential village sites in the vicinity of Worcester have been identified—Pakachoag, Tatnuck, and Wigwam Hills are noted—but most potential Native American sites within the city have been disturbed by later development.



Historic 1886 USGS topographic maps of Worcester showing the early city within the Blackstone River Valley with surrounding hills, brooks, and ponds.

2.1.1 Founding Colonial Settlement

In 1668, the Massachusetts General Court issued an eight-mile square grant for the Quinsigamond Plantation centered on the valley for settlement by Europeans, and in 1674 a purchase of the area was agreed to with sagamores of the Nipmuc peoples. In 1673, some thirty individuals initiated settlement in six or seven homesteads believed to have been laid out mostly along the Connecticut Road, now Lincoln Street. This initial settlement was abandoned two years later with the onset of King Phillip's War.

Resettlement of early Worcester occurred in 1684 at which time the town was incorporated. For defensive purposes, small, 100-foot square houselots were established within a palisade located within the vicinity of Main Street with larger ten- and twenty-five-acre tillage lots outside. A second abandonment, however, took place in 1702 during Queen Ann's War.

In 1713, Worcester was settled a third time, this time permanently, with fifty-eight houses and about 200 individuals reported in the settlement by 1718. Worcester grew rapidly during the Colonial period, reaching 1,478 individuals in 1765 and 1,925 in 1775. Designation of Worcester as county seat in 1731 raised the town's regional importance with respect to the courts and related social, business, political, and market interests. As with other towns within the region, agriculture was predominant, with surrounding ponds providing sites for waterpowered grist, saw, and other mills. A map from 1795 shows waterways, roads, and the core historic village.



Detail of the 1795 Peirce and Andrews map of Worcester showing buildings concentrated along Main Street between the Commons and Lincoln Square. North Pond, today's Indian Lake, is shown at the top of the map.

Through the late 1700s, Worcester remained a relatively small town despite its status as a county seat. Its economic base was primarily agricultural with a number of small craft shops, stores, and taverns. The majority of the town's land was still woodland or unimproved. Beginning in 1789 and continuing into the early 19th century, a number of small waterpowered textile, wool, and other factories were established.

Historic resources remaining from the Colonial period include the region's topography, primary road alignments, community sites such as the Common and Lincoln Square, and a handful of traditional center chimney farmhouses and other dwellings. The radiating road network depicted in the 1795 map demonstrates Worcester's growing importance as a regional center.

2.1.2 Emerging Transportation Center

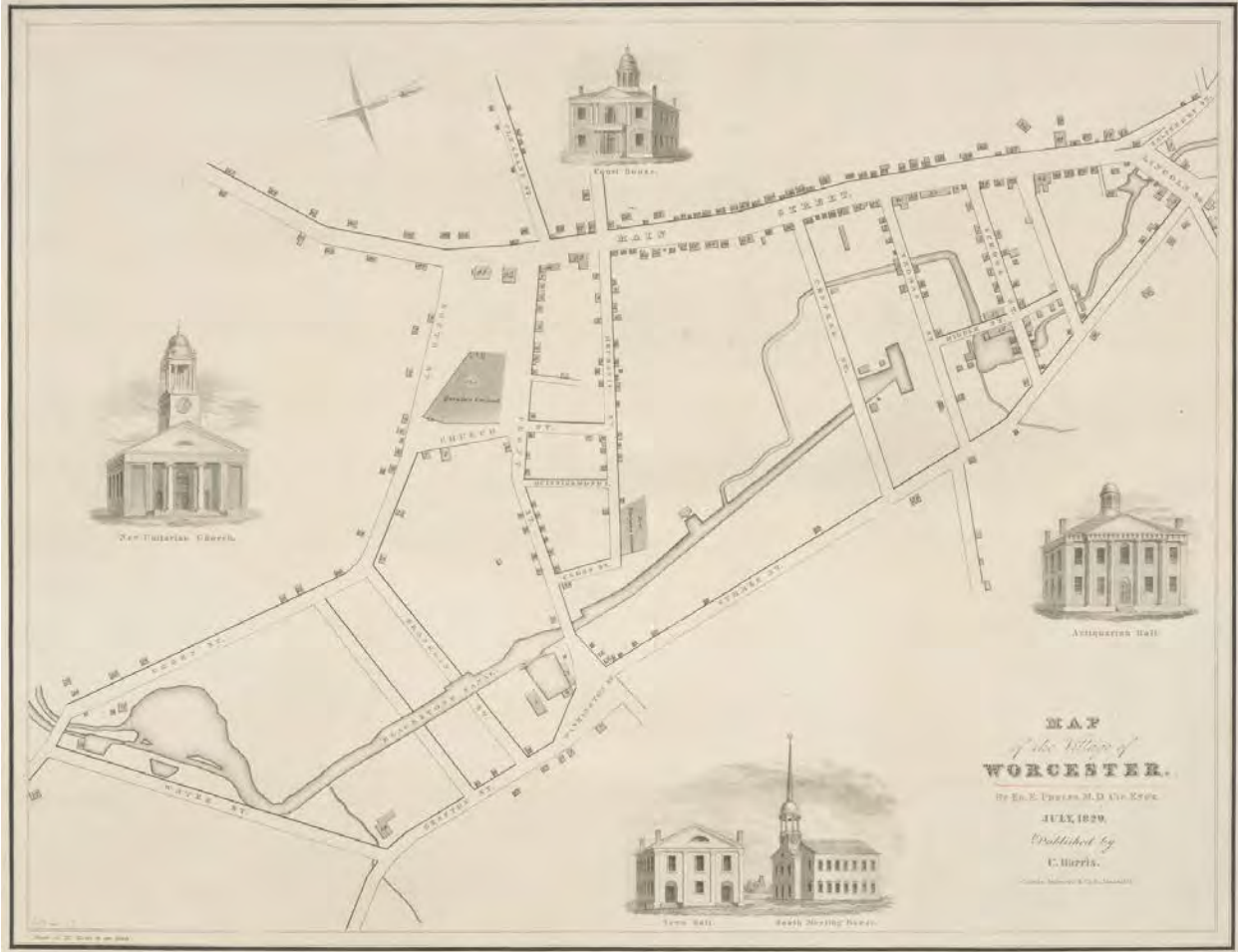
Worcester's importance as a regional transportation and economic center increased with the completion of the Blackstone Canal in 1828 with the city serving as its northern terminus. Impetus for construction of the Blackstone Canal was initiated by merchants in Providence, Rhode Island, who wished to capture commerce from Central Massachusetts. Supported by Central Massachusetts interests, the Blackstone Canal Company was established by the Massachusetts state legislature in 1823. Construction began in 1825 and was completed in 1828.

Maps prepared during the period of the Blackstone Canal's operation show the layout of the canal in the center of today's downtown Worcester and related development. The head of the canal was located just east of Main Street between Central and Thomas Streets. The canal ran south parallel to Summer and Grafton Streets and then southwest parallel to today's Harding Street. A major holding basin was built at what later became Washington Square.

The 46-mile-long canal connected Providence with Worcester at the head of the Blackstone River and provided convenient access to businesses and the port in Providence, a tremendous improvement from the previous overland wagon transport to Boston. The canal brought immediate prosperity and influence to Worcester as a collection and distribution point for goods to and from northern and central Worcester County.

Boston merchants sought to recapture the trade moving down the canal by opening a railroad to Worcester in 1835, then a very new technology. Railroad connections were established west to Springfield (1839), south to Norwich CT (1840), and north to Nashua NH (1848). In 1847, a railroad to Providence was constructed paralleling the canal, and in 1848 the Blackstone Canal was closed. Though only twenty years in duration, the Blackstone Canal spurred Worcester's transformation into a regional railroad hub, which solidified the city's role as a transportation, economic, and emerging industrial center.

Maps show Main Street developing into the town's commercial center. While residential buildings continued to exist along Main Street between Lincoln Square and the Common, new commercial two- and three-story brick commercial buildings lined the street. Only three buildings from this period remain.



The 1829 Phelps map of the Village of Worcester shows the layout of the Blackstone Canal in the town along with the development of commercial, industrial, and institutional buildings.

2.1.3 Early Industrial Development

Presence of the Blackstone Canal within the Village of Worcester fostered the establishment of industrial and commercial development leading to the region's first industrial boom. Construction of the five railroad lines between 1835 and 1848 radiating out from the center established Worcester as a regional transportation hub and led to expansive industrial and manufacturing growth. A distinct manufacturing district developed in Worcester's central valley around the head of the canal and in the vicinity of the railroad lines, with their stations around the central core at Lincoln Square, Washington Square, and along Foster and Green Streets.

Industrial growth marked the beginning of changes in the town's character. Worcester's population increased four-fold in the twenty years, from 4,173 in 1830 to 17,049 in 1850. This increase was particularly rapid during the 1840s, when the rate of growth equaled 127%. An important factor in this growth was the continued migration to the town of foreign-born people, particularly the Irish, which began with the construction of the canal, continued with the construction of the railroads, and filled out the need for an expanding industrial workforce. By 1855,



The Walling map of Worcester from 1857 shows the extent of the city's expansion during its first industrial boom from the opening of the Blackstone Canal to the Civil War. The radiating and expanding network of railroads was the driving factor in the city's rapid growth.

the Irish population of Worcester exceeded 4,000 individuals, by far the most numerous of the foreign-born residents and over 25% of the total population.

Worcester was officially chartered as a city in 1848. Main Street during this period became almost exclusively commercial between Lincoln Square and Madison Street and was paved with granite stones in 1849-50. Industrial expansion filled the central valley east of Main Street and south of Lincoln Square. Manufacturing and industrial sites increased in number and in size, particularly along the rail lines. After 1840, coal imported by rail enabled the use of steam power and replaced waterpower as an energy source, allowing the

further concentration and expansion of industrial facilities within the emerging urban core. Rental factories, first introduced in the 1820s and continued into the 1840s and 50s allowed small manufacturing businesses to get a start before moving to their own larger sites as they grew.

Residential development began to push out of the central valley onto the adjacent hills in the 1830s and 1840s as commercial activities took over the old Main Street residential corridor. Residences were constructed west up the hill between Highland and Elm Street as far as North Ashland Street. New homes for high income earners developed on Crown Hill and, to a lesser extent, east of Summer Street on Chandler and Belmont Hills. Scattered homes on newly established outlying streets laid the ground for later residential expansion.

Workers' cottages infilled the central valley south and west of the Common. Irish communities created strong clusters in the valley in the Green Street/Temple Street area adjacent to the railroad, to the east along Shrewsbury/Pine Street north of the Pine Meadow Burial Ground, and to the southeast on the west slope of Vernon Hill along the Ward/Millbury Street axis.

Residential neighborhoods expanding onto the hills west and east of the central valley remain intact the further they are from the valley and were infilled and greatly expanded in later years. Neighborhoods within the valley have been replaced with later commercial and manufacturing development. A few pre-1860 commercial and industrial buildings have survived later redevelopment within the valley.

2.1.4 Late 19th Century Industrial Expansion

A second industrial boom in Worcester was brought on by the Civil War, stimulating rapid population growth in a pattern that continued into the early 20th century. This period of growth, initially fueled by wartime demands for arms and supplies, continued after the war as the manufacturing districts established earlier expanded and came to be dominated by large owner-operated companies in large factory complexes. Railroads continued to play a critical role in the city's prosperity as railroad infrastructure intensified. Worcester's manufacturing base greatly expanded, making the city second only to Boston as a manufacturing center in Massachusetts.

Expansion and intensification through the second half of the 19th and early 20th centuries transformed Worcester's central valley into a complex urban nucleus. High density development covered the central valley as manufacturing complexes expanded. Peripheral industrial complexes developed along the radiating rail corridors, especially where rail corridors merged. Major growth occurred in the metal working industries, including wire; guns; machine tools; paper, wood, textile, and metalworking machinery; agricultural tools; railroad cars; and structural and architectural iron.

Simultaneously, residential neighborhoods continued to push up and around the surrounding hills. Residential expansion was facilitated by development of an extensive streetcar network that operated between 1870 and the 1920s. Horse-drawn streetcar service was introduced along Main Street in 1863.

Steam-powered streetcars were introduced in the early 1870s, and electric service was introduced in the early 1890s. Over time, a complex radial network of street railway lines connected the central city with outlying residential and industrial areas as well as with surrounding towns. The central focus of this network was the Washington Square Railroad depot, Lincoln Square, and the Salem Square/Common area, all connected along major downtown streets.

Dramatic transformation in the urban landscape continued as a new, larger scale of settlement was achieved, with both an intensification of activities in the central area and extensive industrial and residential expansion. The spread of streetcar suburbs and outlying manufacturing districts extended built-up areas toward the eastern and western borders of the city as well as into the highland north and south of the central valley.

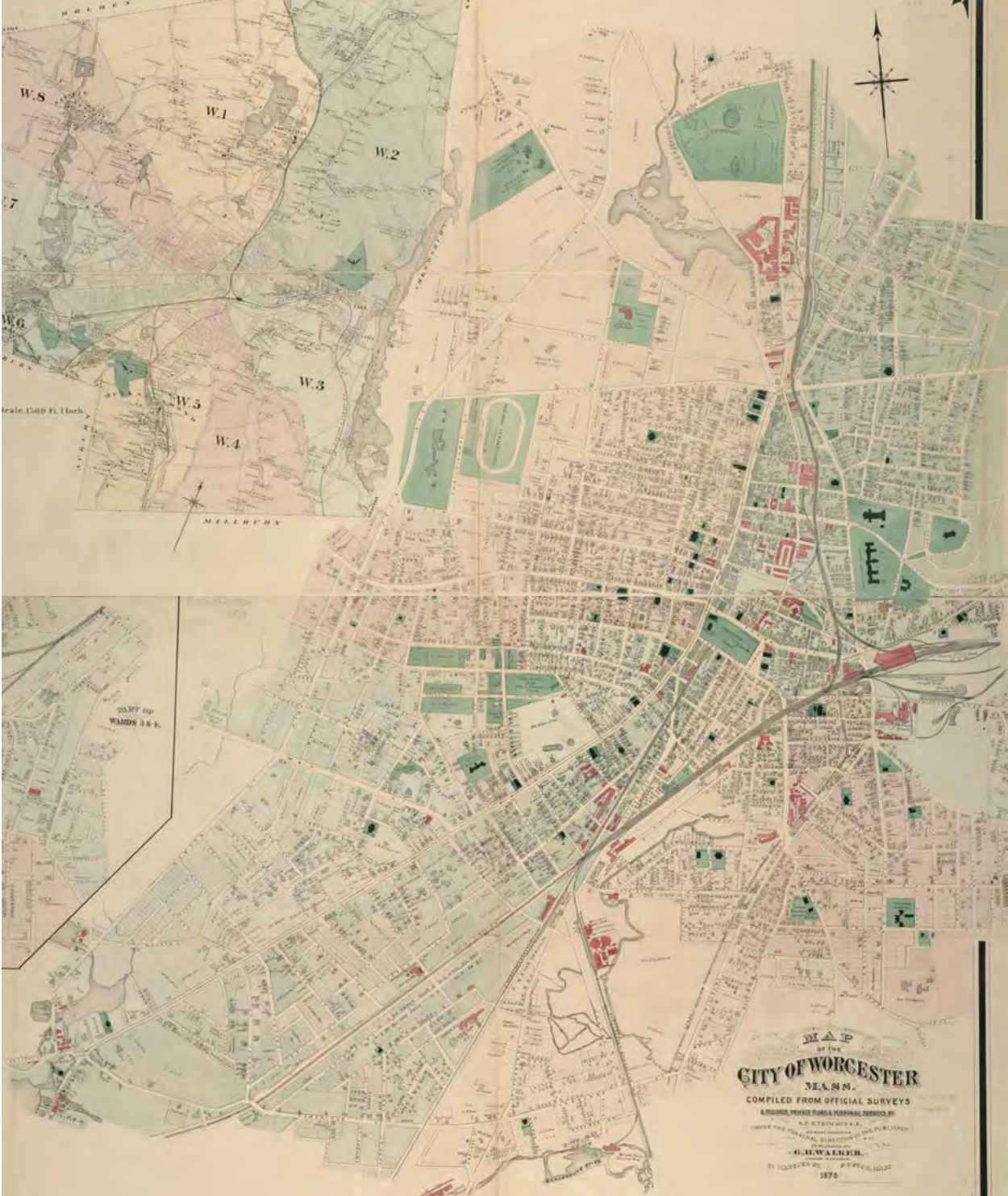
To the east, development spread up Chandler Hill and out along the Belmont Street and Shrewsbury Street corridors, and suburban growth began in the Lake Park area west of Lake Quinsigamond. To the north, the Lincoln Street area extended out to Burncoat Street. Separate, outlying clusters developed further north along West Boylston Street at Greendale and on the east shore of Indian Lake.

To the northwest, suburban expansion took place along Salisbury, Highland, Pleasant, June, and Chandler Streets, and on Richmond Avenue. To the west of the central district, the entire sector between Park Avenue and Main Street was developed, with extensions into Columbus Park east of Coes Reservoir and west along Main Street toward Cherry Valley.

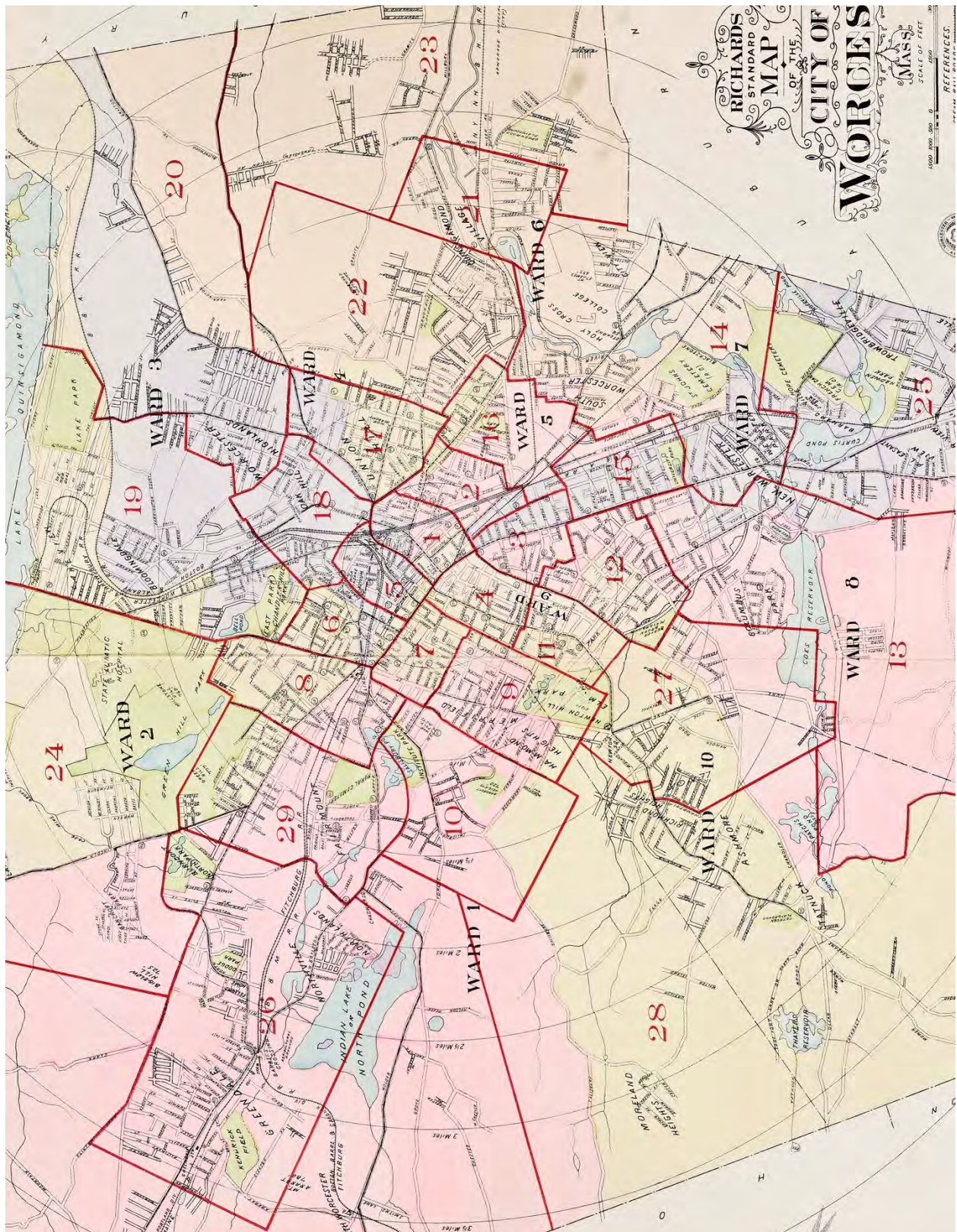
Development spread and intensified in the lowland fringe region between Main Street and Millbury Street southwest to Cambridge Street. East of Millbury and Water Streets, settlement pushed up Vernon Hill and Grafton Hill and extended on Hamilton Street beyond Plantation Street. To the south, a development cluster emerged at Quinsigamond Village.

Intensification and vertical expansion continued in the central district with the growth and multiplication of banks, office buildings, department stores, and manufacturing establishments. The three- to six-story commercial blocks of downtown were overshadowed after the late 1890s by a number of ten- to eleven-story steel-framed structures.

Monumental Union Stations were built east of Main Street in 1875 and 1909. Central civic landmarks were rebuilt on a larger scale, including City Hall (1898) and the Worcester County Courthouse (1843, 1878, 1906, 1957). Central high schools were added, and massive brick and masonry churches were built west of downtown and southwest of Main Street. Hospitals, colleges, universities, and academies were constructed on prominent hilltop sites around the edge of the central district. Industrial development continued in the central district and



The 1878 Triscott map of Worcester shows the extent of the city's development into the middle of the late 19th Century. Residential development has extended west through Crown Hill and much of Elm Park and to the east covers much of Belmont, Union, and Oak Hills.



Index map of the City of Worcester from the 1911 Richards Atlas suggesting the extent of urban development and expansion during the city's period of industrial growth. Detailed plates in this and other period atlases allow for block by block and building by building examination of the city's growth. (North is to the left.)

outward along the radiating valley rail corridors, and major new complexes were built to the north, west, and south.

Worcester's continued growth is reflected in the city's four-fold increase in population from 41,105 in 1870 to 162,697 in 1915. Growth was particularly large between 1895 and 1900, when the city added 20,000 to its population.

Immigrants remained an important factor in the city's growth during this period, making up 70% of the city's blue-collar workers, and the composition of Worcester's foreign-born population changed significantly. To the already large populations of Irish and French Canadians were added communities of Swedes, Russian, Finns, Poles, and Italians. Not only did the number of groups coming to the city increase, but their origin, outside Canada and the British Isles, made them particularly unfamiliar to the native population.

Ethnicity was demonstrated through segregation of the workplace as the Irish and French moved into the more skilled jobs in the boot and shoe industry, Swedes into iron, Yankees in machining, Poles and Finns into unskilled factory work, Italians into non-factory unskilled work, and Jews into small businesses. The variety of cultures was expressed most clearly through the formation of churches and ethnic civic organizations, which reinforced language and ethnic culture and separated the working class into a number of exclusive communities.

Worcester's surviving historic building infrastructure and character stem largely from this late 19th and early 20th century period. Within the central district, a significant number of surviving commercial, institutional, and industrial buildings date from this period. By the mid-1890s, Main Street was fully developed as a commercial center. Beginning in the late 1890s, the traditional row buildings gave way to classically inspired skyscrapers, a number of which survive. Significant period industrial structures survive in the Southbridge and Sargent Streets manufacturing area to the south, Washburn and Moen manufacturing area to the north, and other locations along the rail lines.

Historic residential neighborhoods that expanded through the streetcar network survive relatively intact, including neighborhoods of all income levels and ethnic makeup. Schools, churches, and other civic buildings serve as landmarks in and adjacent to these neighborhoods.

Apartment houses began to be constructed in the 1870s around Lincoln Square, Pleasant Street, Chandler Street, and in the Main South neighborhood around Wellington Street. Three-deckers became a predominant housing type in the industrial areas south and east of the central business district, providing reasonably priced worker housing. Though concentrated in the central district, examples survive throughout the city. Many of the city's three-deckers have been demolished, and most of those that survive have undergone exterior alterations.

2.1.5 Mature Urban Center

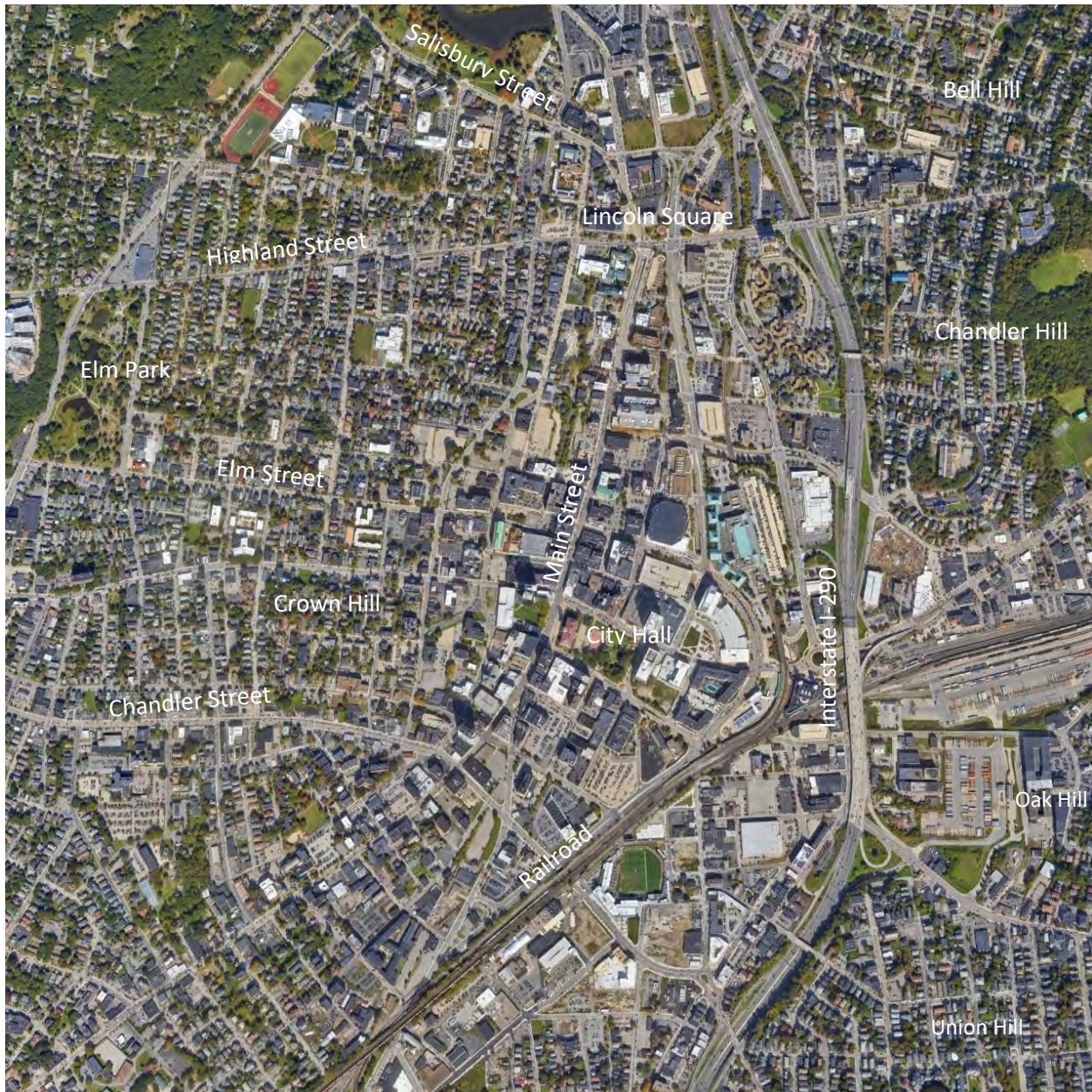
Extension of Worcester's pattern of development continued in the decades before the Depression of the 1930s as the city reached a state of maturation as an urban center. Expansion and rebuilding of the central district continued at a slower rate, though significant new civic, office, and theater buildings were constructed in the 1920s and early 1930s. An industrial boom during World War I stimulated expansion of some existing manufacturing facilities and related worker housing. The most significant change during the pre-Depression era was the abandonment of the interurban electric streetcar network by about 1930 and its replacement by the automobile. By the mid-1920s, Worcester had become the center of a radial, region/interregional automobile highway system which significantly impacted development patterns.

The primary pre-1930 road corridor through Worcester entered the city from the east along Belmont Street, then following Shrewsbury, Front, and Main Streets through the city center. The Shrewsbury/Belmont Street portion of this route was widened in 1910 to form a boulevard, surviving today along Shrewsbury Street. As traffic increased, through-traffic running through the center city began to be rerouted around the congested downtown area, creating new automobile oriented commercial corridors. This included the Route 20 "Southwest Cutoff" constructed along the city's southern border in the early 1930s. Automobile oriented commercial services extended along well traveled routes.

Decentralized residential development continued to expand as new suburbs around the periphery of the city fed, first, by the streetcars and, later, by the widespread use of automobiles. Automobile suburbs expanded in all directions, filling out existing neighborhoods and creating new ones beyond. Concentrations of high- and middle-income, single-family residences developed in the western and northern section of the city.

Single- and multi-family ethnic middle- and working-class residential areas continued to expand to the east, south, and southwest, with three-deckers continuing to fill inner areas such as Vernon Hill, and modest cottages and two-family housing in the outer fringe. Community schools, churches, and stores were increasingly located in the area to serve the growing outer residential concentrations. Little residential development occurred after the beginning of the Depression in the early 1930s.

While Worcester's population continued to increase during this period, its rate of growth slowed. The city added only about 20% to its total population, expanding from 162,697 in 1915 to 193,684 in 1940. The declining rate of population growth is reflected in the number of buildings erected during this period. Industry saw no major architectural development. Commercial building dropped off from the boom of the 1880-1915 period. Suburban residential design followed national trends of the 1920s. The three-decker remained the most widely built house type of the period.



Aerial view of central Worcester today. Lincoln Square is located at the center-right top of the image, with Main Street extending from the Square to the lower left corner of the image, flanked on both sides by major buildings. Between Main Street and Route 290, top to bottom on the right, is the central valley, where civic, commercial, industrial, and manufacturing sites predominate. Hilltops with late 19th/early 20th century residential neighborhoods are to the right and left. (Google Earth)

2.1.4 Late 20th Century Decline and Recovery

The Great Depression of the 1930s brought a halt to Worcester's already slowing industrial economy. Following World War II, the city experienced the national trend away from historic urban centers toward diffused suburban expansion brought about by the automobile. Railroads were challenged by the rise of trucking, which was given a tremendous boost by construction of the interstate highway system in the 1950s and 1960s. Economic activity moved to

the suburbs, away from the urban core. Worcester began to fall into decline as the city lost its manufacturing base to cheaper alternatives across the country and overseas. After a brief recovery following World War II, the city's population declined over 20% from 203,486 in 1950 to 161,799 in 1980.

In the late 1950s and 1960s, large urban renewal projects were undertaken downtown in an attempt to reverse the city's decline. Large areas of the urban central valley were demolished for redevelopment. Office towers and a large urban shopping mall were constructed. In the 1960s, Interstate 290 was built through Worcester along the eastern edge of the central valley, providing regional access to downtown but permanently dividing the city.

In the 1990s, Worcester's economy began to recover led by higher education and expansion of the biotechnology and healthcare sectors. The city's many colleges and universities attracted students to the area and helped drive the new economy. Expanding hospitals became among the largest employers in the city. The University of Massachusetts Medical School became a leader in biomedical research, and its Science Park became a center of medical research and development. Both are located in the northeast portion of the city north of Route 9 along North Lake Avenue and Plantation Street.

New investment and construction was undertaken downtown as well. A convention center was constructed in 1997. Union Station was renovated and reopened in 2000. City Hall Common was reconstructed as a public plaza. Streetscape improvements were undertaken on Main Street and new road connections were constructed. A new county courthouse complex was built. A number of major new projects were undertaken by both institutions and the private sector seeking to re-invigorate downtown. In the process, historic industrial and related housing facilities were demolished, and the character and use of Worcester's core central valley was re-envisioned.

Worcester's population began to increase again in 1990. Between 2010 and 2020, the city's population increased by over 14% to 206,518 people, exceeding its previous maximum from 1950. Worcester continued to attract immigrant populations, including Vietnamese, Brazilians, Albanians, Puerto Ricans, Ghanaians, Dominicans, and others. In 2020, the city's population was 54.4% White, 23% Hispanic, 13% Black, 7% Asian; in 2018, 22% of the population was born outside of the United States.

Today, Worcester continues to grow and consciously build upon its assets. A new comprehensive plan being developed for the city envisions how the future might be shaped. Historic neighborhoods, landmarks, and other resources are part of that future and reflect Worcester's historic character as created through three hundred and fifty years of historical development.

(Note: The preceding historical overview was prepared primarily through reference to the Massachusetts Historical Commission's 1984 Reconnaissance Survey Report for Worcester and through review of historic maps.)

2.2 NATIONAL REGISTER HISTORIC DISTRICTS VS. LOCAL HISTORIC DISTRICTS

The City of Worcester has a large number of residential neighborhoods dating to the late 19th and early 20th centuries that are of historical significance and retain historic character and integrity. Four of these neighborhoods have been recognized through designation both as National Register historic districts and local historic districts, including Massachusetts Avenue, Montvale, Crown Hill, and Elm Park.

As described below, designation as a National Register historic district is largely honorary with no local regulatory implications, while designation as a local historic district is a city process with design review requirements.

2.2.1 National Register Historic Districts

The National Register of Historic Places is the nation's official list of historic resources and districts that have been determined to be of significance. Administered by the National Park Service in partnership with the Massachusetts Historical Commission, listed properties and districts may be recognized as historically significant at the national, state, or local level.

Properties may be listed individually on the National Register or may be listed as contributing resources as part of a National Register historic district or multiple property nomination. National Register Historic Districts are most appropriate for use within urban areas such as cities as well as within areas such as historic villages where groups of related historic resources are located.

Although a national program, the National Register is important on a local level because it identifies and evaluates resources according to uniform, professionally recognized standards and criteria. These criteria are specifically designed to help state and local governments, organizations, and individuals identify important historic and archeological resources worthy of preservation and consideration when making local planning and land development decisions.

Listing on the National Register is largely an honorary recognition. It recognizes the importance of a historic resource without placing any obligations or restrictions on the resource owner. Listing does not give the federal government any ownership rights or regulatory controls with respect to a property, except for possible regulatory impacts if federal funding or licensing is involved. The Commonwealth of Massachusetts has state level legislation and permitting review processes for addressing properties impacted by federal funding or licensing.

Listing in the National Register provides economic and other benefits, including:

- Makes the resource eligible for federal and state rehabilitation tax incentives;
- Requires federal agency review under NHPA Section 106 to take into account an undertaking's impacts on a resource prior to issuance of a federal permit; and
- Qualifies a resource for federal historic preservation grants when funds are available.

The Massachusetts Historical Commission (MHC State Historic Preservation Office) administers the National Register program in Massachusetts on behalf of the National Park Service. Once voted on favorably by the State Review Board of the MHC at one of its quarterly National Register meetings, nominations of eligible properties are forwarded to the National Park Service in Washington, D.C. for review, approval, and listing.

2.2.2 Local Historic Districts

Local historic districts are established by municipalities through local action as an effective and time-tested means of protecting and enhancing historic neighborhoods and downtown areas. Local historic districts may be established by a municipality through stand-alone ordinance under state authorizing legislation – Massachusetts General Laws Chapter 40C, often referred to as the Historic Districts Act.

Local historic districts should not be confused with National Register historic districts, discussed in the preceding section. Areas may be designated as local historic districts or National Register historic districts or both, as Worcester's are. National Register historic districts have no local regulatory effects, though Worcester's local demolition delay ordinance is crafted to apply to National Register designated properties and districts (see Chapter 4).

A local historic district is a municipal initiated tool through which local design review is required for construction projects impacting historic buildings within the designated area or district. Before an application for a building permit is granted, a separate Certificate of Appropriateness application must be submitted to the Worcester's Historical Commission for compliance with basic preservation design standards. Upon review, discussion, and negotiation with the applicant, the Historical Commission may issue a Certificate of Appropriateness for the project, after which the building permit may be issued. An overview of Worcester's local historic district application and review process is included in Chapter 4 of this document.

Design review helps assure that significant changes to buildings are generally compatible with the character of the surrounding neighborhood. Review can help prevent catastrophic changes that negatively impact a historic neighborhood.

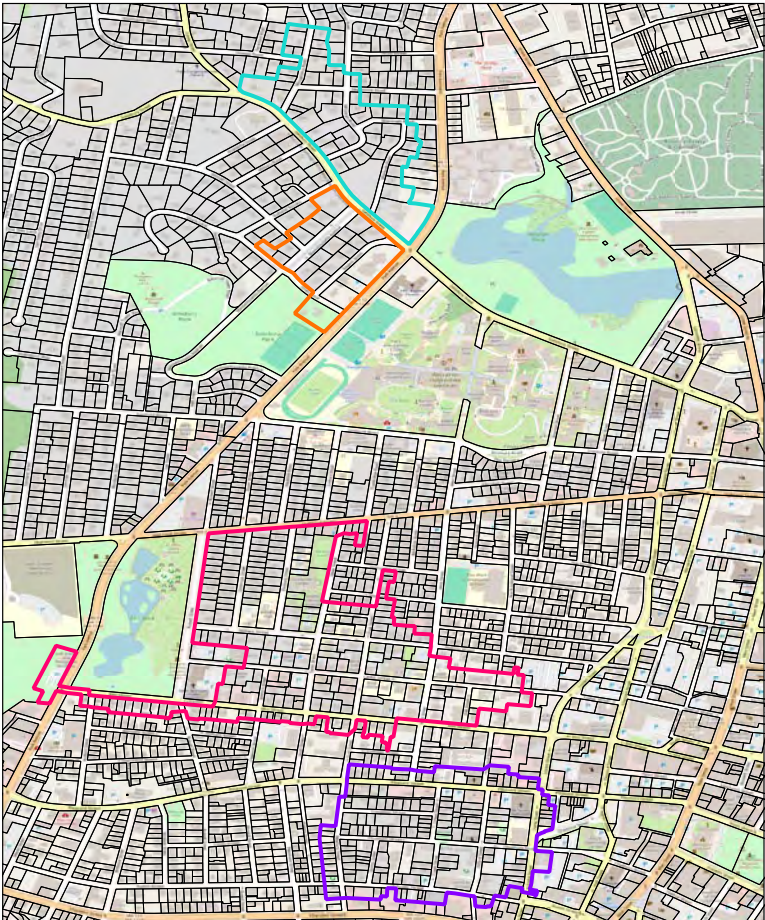
Local historic districts have been shown to increase property values in neighborhoods where they have been implemented. Local historic districts help preserve the character of historic neighborhoods and promote revitalization of historic commercial areas. Communities throughout the Commonwealth and across the nation have successfully used local historic districts for decades for the preservation and revitalization of historic residential neighborhoods and commercial areas.

2.3 WORCESTER'S LOCAL HISTORIC DISTRICTS

Worcester's four local historic districts are representative of the city's historic neighborhoods and are particularly notable because of the type, quality, and integrity of their buildings. The districts are predominantly residential, of high style design, and of wood construction.

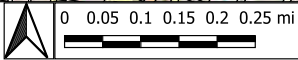
The Crown Hill and Elm Park Neighborhood Historic Districts are comprised of historic cores of consistent and high quality residential character and are surrounded by edges that are more complicated and have less integrity—multiple different building types and uses, some inappropriate changes, and unbuilt areas where new infill construction may be expected in the future. A mix of rental, business, and institutional uses in addition to owner-occupied residences complicate the picture.

In contrast, the Massachusetts Avenue and Montvale Historic Districts are of consistently high quality, almost entirely owner-occupied residences, and have been well maintained by property owners for years.

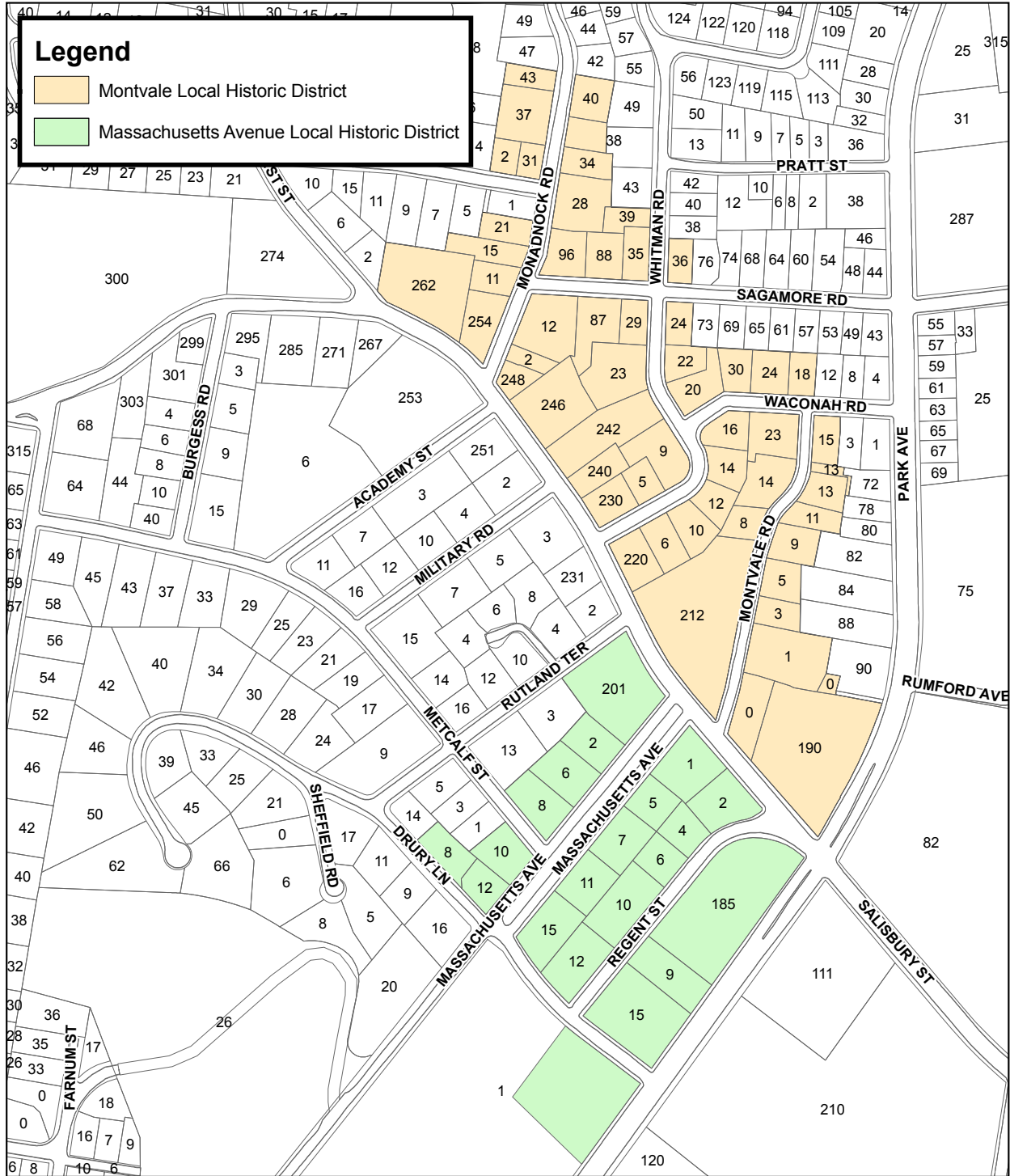


Map of the center of Worcester showing the locations of the city's four local historic districts. (Map courtesy of MHC.)

- Local Historic Districts
 - ▭ Montvale Historic District
 - ▭ Massachusetts Avenue Historic District
 - ▭ Crown Hill Historic District
 - ▭ Elm Park Neighborhood Historic District
- Assessor Parcels
 - Worcester Assessor Parcels



Created by Justin Malcolm, MHC GIS
CAUTION: This map is for informational use only!
The information shown is approximate and may not be current or complete.
Use of this map for any purpose is at the risk of the user.



Massachusetts Avenue and Montvale Local Historic Districts

2.3.1 Massachusetts Avenue Historic District

Massachusetts Avenue was designated as a National Register Historic District in 1971 and was expanded to include Regent Street as a local historic district in 1975. The National Register historic district includes eleven properties while the expanded local historic district includes twenty-one properties. They are documented in a National Register nomination prepared in 1971, Massachusetts Historical Commission Area Forms WOR.A and ET, and a *Report of the Historic District Study Committee* prepared in 1974.

The National Register nomination states that the Massachusetts Avenue Historic District is significant as an illustration of single-family residential designs chosen by industrialists and professional men throughout New England at the turn of the 19th/20th century. The residences provide the best examples of the “high style” of Worcester’s architectural taste in that period. Their first owners were among Worcester’s leading citizens and their families, lawyers, physicians, bankers, and the city’s mayor. The 1974 Study Report provides interesting details about the initial owners and the development of their properties.

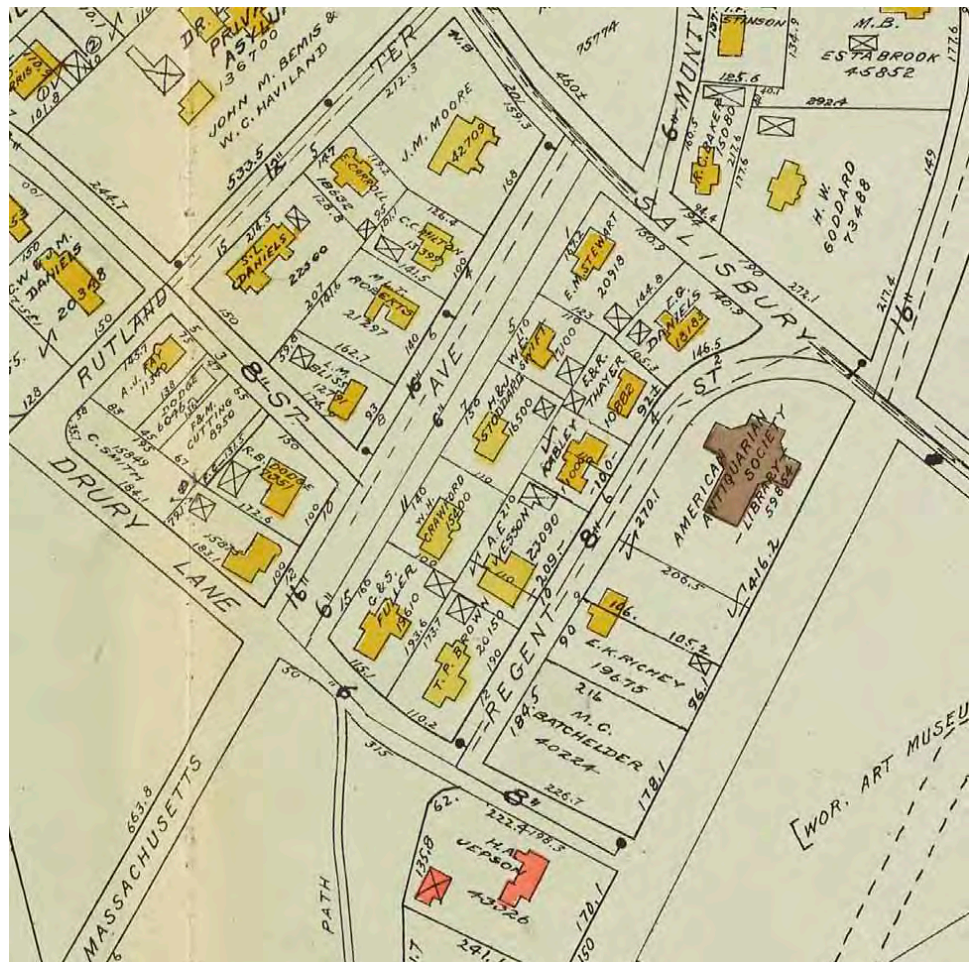
Massachusetts Avenue was developed between 1899 and 1907 by prominent citizen Stephen Salisbury III on a portion of his family’s property. Salisbury sold the lots he created at relatively high prices to people whom he knew, and the new owners then built high style residences in conformance with building restrictions specified in the deeds. Properties on Regent Street were developed between 1902 and 1919, two by Salisbury and the remainder by his heir to the property, the Worcester Art Museum. The museum sold one lot to the American Antiquarian Society, which constructed a building at the intersection of Salisbury Street, Regent Street, and Park Avenue, and then sold off additional residential lots on Regent Street.

Salisbury created a park-like central mall on Massachusetts Avenue, giving the block-long area the character of a square rather than a linear streetscape. Buildings within the district display an unusual degree of architectural coherence. Most of the buildings on Massachusetts Avenue are of Colonial Revival style with elements of Queen Anne, English Revival, and Shingle Style. Buildings along adjacent Regent Street are of similar high style design. The coherence of the district is reinforced by basic similarities in all the buildings—parallels in construction materials, building size and height, spacing between buildings, setback from the street, and landscaping—creating a unifying effect and an atmosphere of harmony and order.

A prominent exception is the Trumbull Manion, which was built in 1751 as the Second Worcester County Court House, moved to Massachusetts Avenue in 1899, and converted to residential use. This house is a focal point of the district because of its location at 6 Massachusetts Avenue, mid-point of the street, and because it is the only true late Colonial, non-19th century high style building, in the district. While all of the buildings within the local historic district except the American Antiquarian Society are single family residences, several are owned by institutions, including a fraternity, but continue in residential use.



Detail of Plate 10 from the 1896 Richards Atlas showing the land of Stephen Salisbury III before his development of Massachusetts Avenue.



Massachusetts Avenue, Regent Street, and vicinity from the 1922 Richards Atlas, Plate 10.

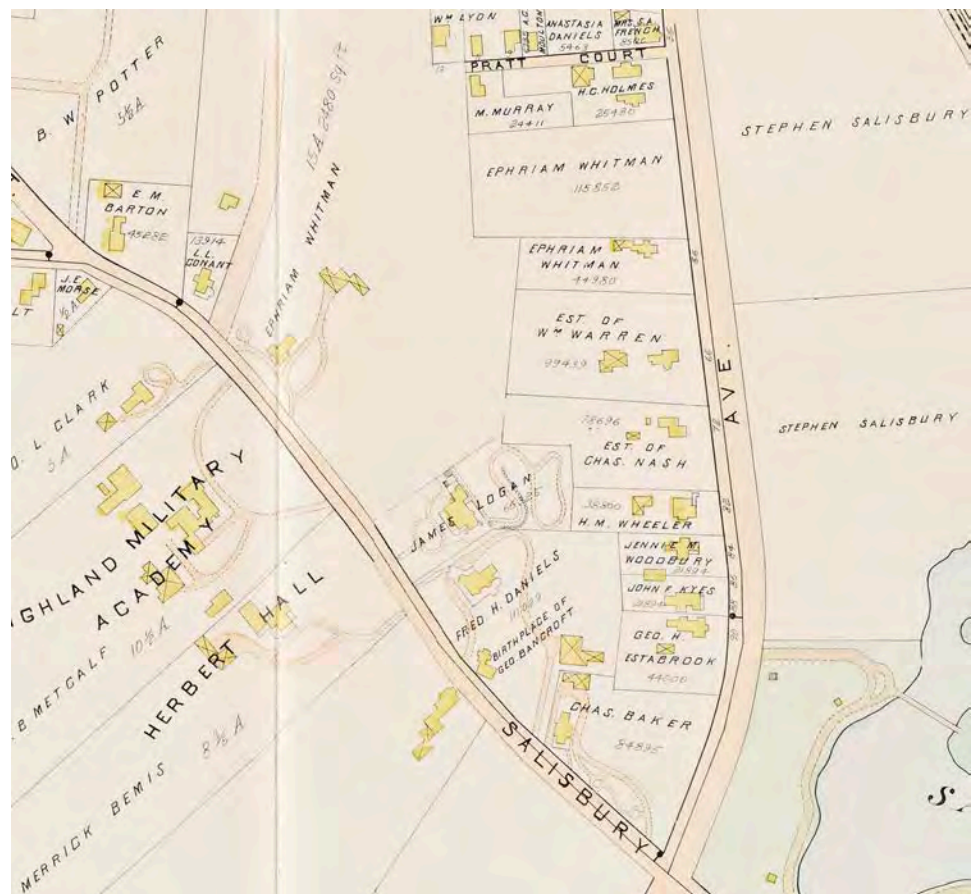


Examples of high style residences and landscapes constructed on Massachusetts Avenue as developed by Stephen Salisbury III and those to whom he sold lots.

2.3.2 Montvale Historic District

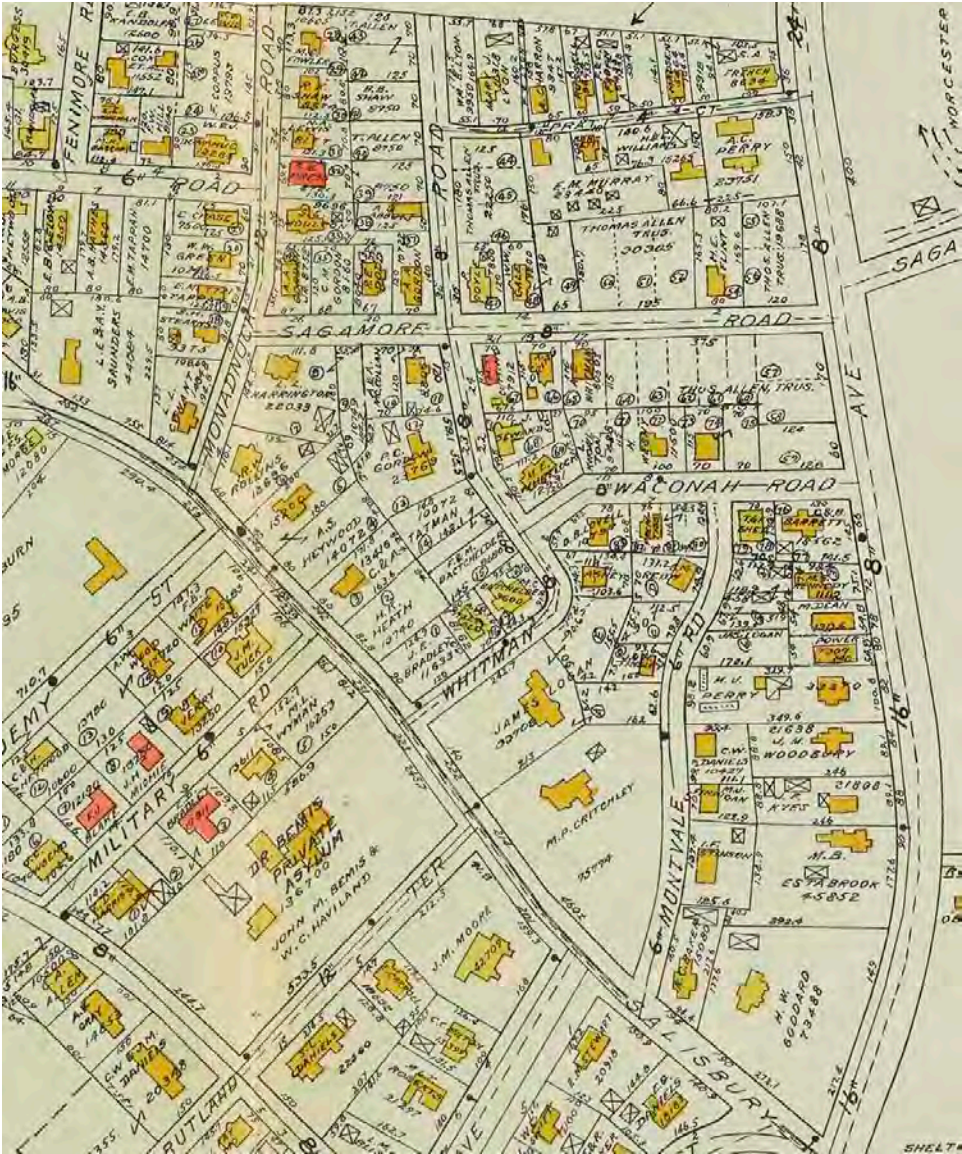
The Montvale National Register Historic District was designated in 1980, while its larger local historic district was designated in 1993 and further expanded in 2010. The local historic district includes fifty-seven properties, most of which were constructed between 1895 and 1932. The district is documented in its National Register nomination, Massachusetts Historical Commission Area Forms WOR.T and DY, and study reports for the original local historic district designation and later expansion.

Developed as one of the wealthiest neighborhoods on Worcester's west side, the earliest residence within the Montvale Historic District is the Dresser-Whitman House at 246 Salisbury Street, a side-hall Greek Revival house constructed in 1851. Around 1897, the property was sold to real estate developers who prepared a subdivision of the area, creating seventy-three lots, not all of which are in the district. Residences that were already existing, including the Dresser-Whitman House, were incorporated into the new subdivision's design. Montvale's development was thus about the same time that Massachusetts Avenue was being developed just south of Salisbury Street.



Detail of Plate 10 from the 1896 Richards Atlas showing Montvale before development of the subdivision in 1897.

The Montvale subdivision was designed with curving streets sympathetic to picturesque urban planning of the City Beautiful movement of the 1890s to 1920s. Residences include excellent examples of Queen Anne, Colonial Revival, and other early twentieth century styles of architecture. Development of the district's eastern half took place slightly later and includes examples of Arts & Crafts/Neo-Tudor architecture. In addition to the district's well-preserved architecture, the layout of the subdivision's winding, tree-lined streets and hillside site help to preserve the atmosphere and appearance of Montvale's development as an upper-class suburb prior to World War I.



Vicinity of the Montvale Historic District from the 1922 Richards Atlas, Plate 10. Residences along Salisbury Street and Park Avenue that were already existing were incorporated into the subdivision's design with a new interconnected network of streets.

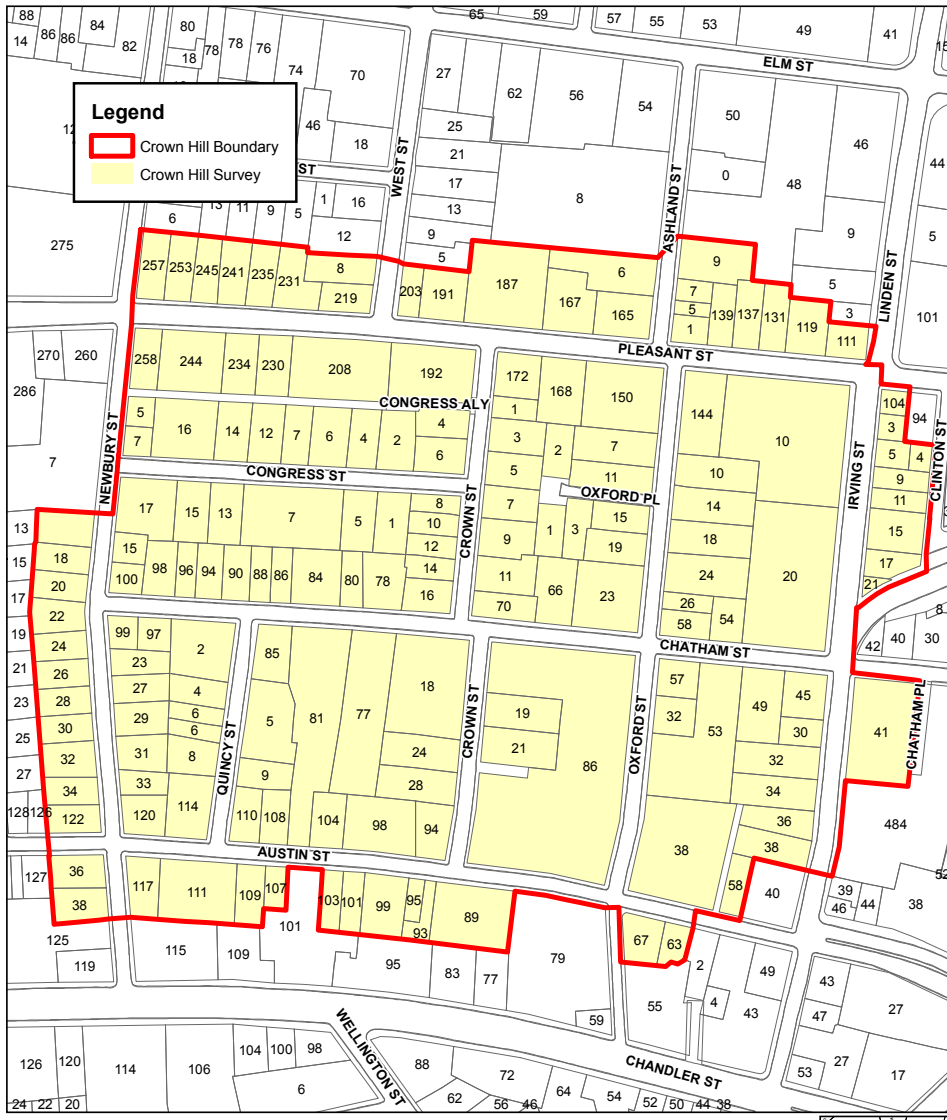


Examples of high style residences constructed following the 1897 subdivision of Montvale.

2.3.3 Crown Hill Historic District

The Crown Hill National Register historic district was designated in 1976 and expanded in 1980. The even larger local historic district was designated by the city in 2013. Documentation is available in the original 1975 National Register nomination, 1978 expansion documents, Massachusetts Historical Commission Area Forms WOR.C, CL, EZ, and V, and study report for the local historic district designation.

The original core National Register district, known as the Oxford-Crown Historic District, extended east-west from Oxford to Crown Streets and north-south from Pleasant to Chatham Streets and included twenty-nine structures. The 1980 Oxford-Crown Expansion District included a number of contiguous properties of related character and significance, primarily extending the district along Crown, Congress, and Austin Streets.



Crown Hill Local Historic District

The two National Register districts preserve a large portion of one of Worcester's earliest residential neighborhoods, built up during the boom years of 1845-1860 as the community transformed from a small agricultural town into a large industrial city. Worcester experienced increased industrial growth during the 1840s and 1850s through the impact of the Blackstone Canal (1828) and subsequent construction of a radiating network of railroads (1835-1847), making the city a transportation hub. As industrial and commercial buildings began to fill the city's central valley, residential growth spread up the adjacent hills west of Main Street.

Crown Hill is part of a tract of land first planned for development in the mid-1830s as a wealthy subdivision with large lots and designated park land. Following the Panic of 1837, the property changed hands and was redesigned with an increased number of smaller lots. Streets were opened up for development between 1845 and 1851. Most of the houses were constructed between 1845 and 1860 as a neighborhood of smaller, simpler homes owned by small businessmen and craftsmen and built by local carpenter-builders. By 1860, the area was nearly completely built up, with only a few houses built on remaining open lots between 1860 and 1870.

The largest number of houses within the area were of the popular side-hall floor plan of the period with gabled facades facing the street. While many of these houses were of Greek Revival style, others combine elements of Greek Revival architecture with brackets and open porch supports, which are more characteristic of Italianate architecture. Several residences of rarer architectural style are present as well such styles identified as Italian Romanesque and Renaissance Revival. A few Second Empire and Queen Anne style residences are present as well. The majority of buildings built here prior to 1870 remain and are complimented by a tree-lined streetscape with brick walks and an abundance of granite walls, gate posts, and entrance steps.

The larger local historic district created in 2013 expanded the boundaries of the National Register Historic District to logical community boundaries, creating a complete neighborhood area. The expanded Local Historic District includes 169 properties and brought in a number of properties of significantly different character and type from that of the core 1845-1860 residential streets. These include two early brick apartment blocks, a row house block, a number of brick commercial structures, and church and related religious structures constructed in the late 19th century and later redevelopment. Most of this redevelopment occurred along major, arterial roads, such as Pleasant and Irving Streets, leaving internal residential side streets mostly intact. These later buildings are good examples of their period and provide visual boundaries of appropriate scale to the edges of the district.

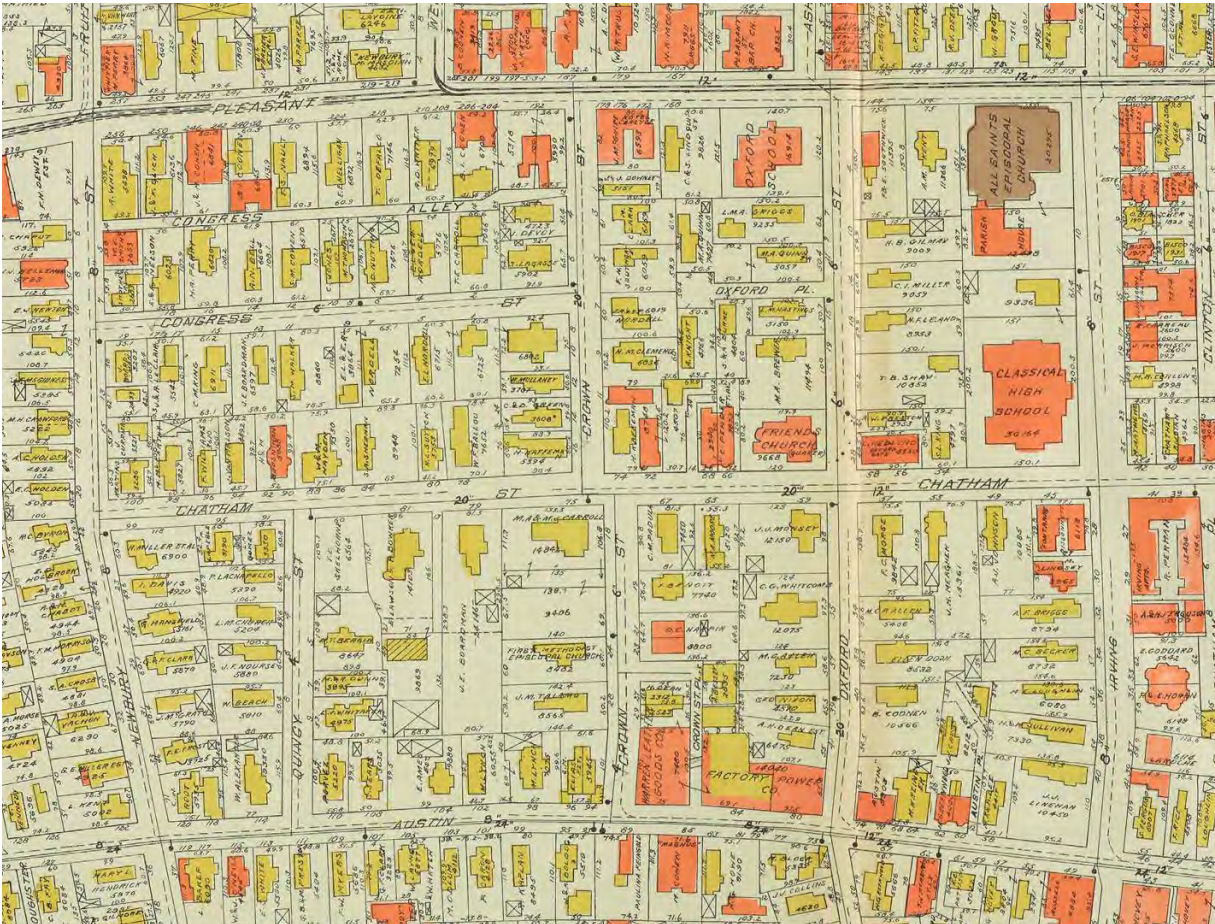
The local historic district expansion also includes some buildings of compromised integrity, areas of new construction, and a few open lots. Future restoration, redevelopment, and infill projects provide the opportunity to strengthen the character of the entire neighborhood district.



Detail of the 1833 Stebbins map showing buildings near Main Street and Town Hall – no streets or houses have yet been constructed to the west on Crown Hill; Hardwick Road is today's Pleasant Street.



Detail of the 1857 Walling map showing development expanding west from Main Street to Newbury Street.



Detail of Plate 4 of the 1922 Richards Atlas showing the Crown Hill vicinity built-out.



Examples of residences and other buildings within the Crown Hill Historic District.

2.3.4 Elm Park Neighborhood Historic District

Elm Park between Russell Street and Park Avenue in Worcester was individually listed in the National Register of Historic Places in 1970. The adjacent residential neighborhood to the east of the park along William and Cedar Streets was designated as the Lincoln Estate-Elm Park National Register Historic District in 1980 and includes the core of the current local historic district. In 1990, the Elm Street National Register Historic District was designated, focused on a row of historic three-deckers between 132-148 Elm Street along the south side of Elm Park.

The Elm Park Neighborhood Historic District was established by City Council in September 2023 and includes most of the National Register designated properties as well as several adjacent residential streets, most notably what is known as the West Side Realty Plot Area bordering the park north of William Street. The district is documented in the various National Register nominations; Massachusetts Historical Commission Area Forms WOR.CY, EK, and P; and the 2022 *Preliminary Study Report, Proposed Elm Park Neighborhood Local Historic District*.



Elm Park Neighborhood Local Historic District

The Elm Park neighborhood is significant as an intact grouping of buildings constructed from the mid-to late 19th century until the early-to-mid 20th century that are representative of an eclectic mix of building types and fashionable architectural styles. Building types include one- to three-family dwellings, former campus buildings, a few smaller-scale office buildings, a few apartment buildings, and several three-deckers along Elm and Highland streets. Building styles represented include excellent examples of the Greek Revival, Queen Anne, Second Empire, Colonial Revival, and Tudor Revival styles, to name a few.

The mix of styles makes this area unique, especially considering that so many retain a high degree of architectural integrity.

The core of the district contains a large number of architect designed houses including many of Worcester's best examples of Victorian and early 20th century styles. Having enjoyed nearly continuous popularity as an upper-class neighborhood from the late 1840s until the 1930s, the area has many houses associated with Worcester's most prominent businessmen, lawyers, and industrialists and their families.

The bulk of the area within the local historic district was inherited by Governor Levi Lincoln, Jr. (1782-1868) in the 1830s, who began subdividing the eastern portions of his lands. The land within the local historic district, however, did not see initial development until the 1870s and was more actively developed by Lincoln's heirs in the 1880s and 1890s.

Elm Park was deeded to the city in 1854 by Levi Lincoln and John Hamond. Known originally as New Common, the 27-acre parcel remained undeveloped pastureland for public recreation until the mid-1870s, when the firm of noted landscape architect Frederick Law Olmstead redesigned the park to include ponds, bridges, and winding walks.

From the mid-1850s until the early 1870s, building was concentrated along Cedar Street east of West Street. Although many of the buildings of the period were replaced with larger houses in the early 20th century, several of the earlier residences remain.

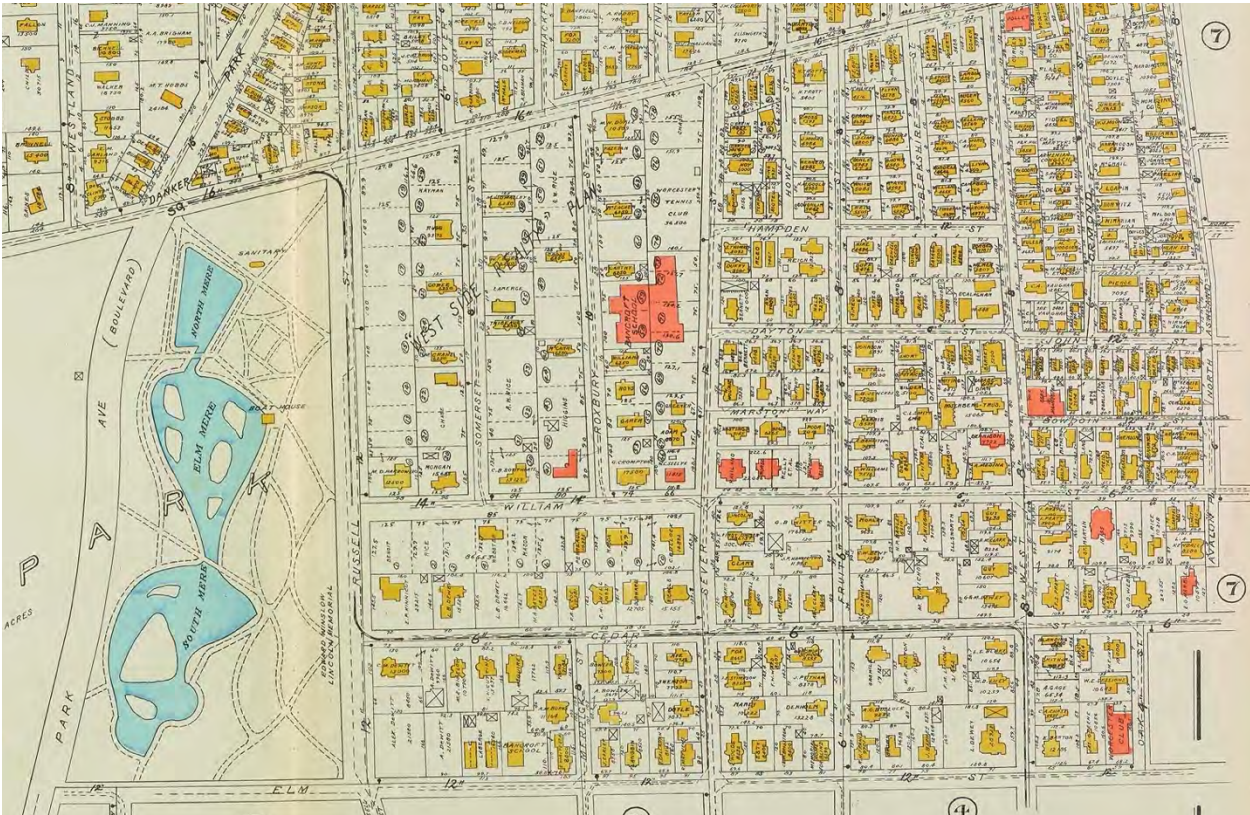
By the 1880s and 1890s, Lincoln's heirs were constructing large architect designed residences around Fruit and Sever Streets for sale on speculation. Building lots were also sold to increasingly wealthier businessmen and manufacturers. Lower Cedar Street was opened for development in the mid-1880s and was built up by the late 1880s and early 1890s. By the mid-1890s, nearly all the lots within the district were developed.

The northwest portion of the district was home to the Agricultural Fair Grounds between the 1850s and 1890s. The speed with which the surrounding area had developed encouraged the Worcester Agricultural Society to sell its land and relocate to the Greendale section of the city. In 1899, the grounds were sold and by 1901 that area was subdivided and being developed as the West Side Realty Plot. Lots in the subdivision were generally platted to be 125 feet deep with 75 feet of street frontage, and were deed restricted to buildings costing no less than \$5,000 and to accommodate no more than two families.

However, the western end of the Elm Park neighborhood was slow to develop. Expansion of the city's street railway network made rural areas accessible and undercut the demand for lots in more densely built areas. As a result, the west portion of the Elm Park neighborhood grew more slowly than anticipated. The north side of lower William Street was not fully built up until 1912, while the south side of the street retained vacant lots until 1927-1929. While large single families homes were constructed along William Street, more modest two-family dwellings were built to the north in the former Fair Grounds.



Detail of the 1878 Triscott map of Worcester showing the Elm Park neighborhood with Elm Park and the Agricultural Fair Grounds on the upper left. Elm, Cedar, and William Streets adjacent to the park and grounds are largely undeveloped.



Detail of Plate 9 of the 1922 Richards Atlas showing residential development filled out in the vicinity of William, Cedar, and Elm Streets west of Oak and West Streets. Vacant lots remain in the West Side Realty Plan area (former Agricultural Fair Grounds) on the upper left, just east of Elm Park.

Of special note in Elm Park is the role of Becker College within the neighborhood. Becker College was a post-secondary school founded in Leicester, Massachusetts in 1784 as Leicester Academy. In 1977, Leicester Academy's successor, Leicester Junior College, merged with Becker Junior College of Business Administration and Secretarial Science, located on Main Street in Worcester.

Beginning in 1936, Becker College began acquiring residences within the Elm Park neighborhood for adaptive reuse as dormitories and for other academic purposes. By 1979, the campus included at least fourteen properties in the vicinity of Cedar, William, Fruit, Sever, and West Streets, giving it a significant presence within the neighborhood. Becker College closed in 2021, by which time it occupied thirty-one properties.

A number of the college's former properties have been acquired and remain in educational/institutional use by the Worcester Polytechnic Institute, Clark University, and Worcester State University. Other properties were acquired by a local developer, who has returned some buildings to single family residences and has converted others to rental apartments. The result of Becker College's presence, as well as Elm Park's proximity to the nearby campus of Worcester Polytechnic Institute, has been the conversion of many former single-family residences to educational and rental use. The high quality of the treatment of institutionally owned former residences and residences converted to rental use has, however, helped preserve both the character and historic integrity of the Elm Park neighborhood.



Examples of residences and other buildings within the Elm Park Neighborhood Historic District

2.4 OVERVIEW OF BUILDING TYPES AND STYLES

Building types and architectural styles have evolved over time and provide a visual record of a community's physical and historical development. In general, building types and styles in Worcester conform to national trends and especially to regional trends as they developed in Massachusetts and New England.

The Massachusetts Historical Commission (MHC) has identified historical periods for the Commonwealth that relate to the region's physical evolution over time. They include:

- Contact Period (1500-1620)
- Plantation Period (1620-1675)
- Colonial Period (1675-1775)
- Federal Period (1776-1830)
- Early Industrial Period (1830-1870)
- Late Industrial Period (1870-1915)
- Early Modern Period (1915-1940/55)

The 1984 *Reconnaissance Survey Study Report* prepared by the MHC for Worcester and used in preparation of the summary of Worcester's historical development earlier in this chapter describes changes within the city during each of these periods, including general changes in building types and architectural styles. Information on building types and styles is also available in the National Register nominations prepared for individual buildings and historic districts in Worcester as well as in survey forms on file with the MHC.

Worcester's historical development does not precisely align with the state-wide periods. Most notably, Worcester's early industrial period occurred between 1830 and the 1850s, while its later industrial period extends from the Civil War into the early 20th century. However, the discussions on building types and architectural styles for each period in the Study Report and other sources are very helpful in understanding how building design evolved in the city.

Worcester was first settled by Europeans in 1673 and resettled in 1684 and 1713 after abandonments due to conflicts with regional National American tribes. No buildings remain in Worcester from the Contact or Plantation periods. A few buildings are extant from the Colonial Period, as discussed further below. Fifty-one buildings have been inventoried as remaining from the Federal Period in Worcester, though many buildings from this period have been lost, redevelopment having resulted in their replacement in and close to the city's core.

Worcester's record of development is best seen in the growth of neighborhoods in the hills surrounding the city's core in the central valley. In general, these neighborhoods expanded and filled in. While some buildings were demolished as the neighborhoods become denser, many buildings from periods postdating 1830 survive, leaving a rich record of residential design and development.

Worcester's Crown Hill Historic District and other similar non-designated neighborhoods provide the best record of building types and styles from the 1830s into the late 19th century. The Elm Park Neighborhood Historic District has a few buildings dating to the late 1840s and 1850s but is well representative of types and styles from the 1870s through the 1890s. The Massachusetts Avenue, Montvale, and Elm Park Neighborhood Historic Districts all have excellent examples of high style, architect designed residences from the early 20th century.

Most of Worcester's residential buildings are of wood construction, including both vernacular building types and high style, architect designed residences. While architect designed residences are usually customized in plan and form and intentionally feature a particular architectural style, vernacular building types tend to loosely follow national and regional trends, applying popular stylistic details to the vernacular building type. Sometimes several styles are used in the same vernacular building, making them interesting to study.

Architectural historians sometimes use different names and date ranges for evolving architectural styles and don't always agree on a single way to categorize the numerous styles and forms that appear over time. This is evident in the various sources for historic buildings in Worcester cited above. Nonetheless, general trends are apparent. The primary building types and architectural styles relevant to Worcester's residential neighborhoods are outlined below.

Center Chimney Farmhouse (pre-1750)

A few buildings survive in Worcester from the Colonial Period. Three are cited in the Study Report for the city and are listed in the National Register. All three are located in outlying areas of the city, where suburban development occurred around them but did not result in their loss. The pre-1750 Chamberlain-Flagg House at 2 Brookshire Drive is pictured at right and has later additions and modifications (Photo: Pvmoutside, Wikipedia).



Center chimney farmhouses were a regional vernacular building type of the Colonial Period common throughout New England. One or two stories in height, the buildings were timber framed with exterior wood clapboard siding. The buildings had gable ends and a simple, formal front elevation that was often oriented facing south to maximize exposure to the sun.

The front elevation was symmetrical with the entrance door in the center and double-hung windows to the sides. The primary feature of the building was the central chimney, which allowed for fireplaces in each of the surrounding rooms. The kitchen was generally located directly behind the chimney with the entrance directly in front and living spaces to each side. The brick masonry mass of the chimney retained heat from the fireplaces and helped keep the house warm through the winter. In some buildings, including the Chamberlain-Flagg House, the original center chimney was replaced when wood stoves were adopted, reducing the mass of the masonry and expanding the available space in adjacent rooms.

Georgian (1700-1780)

Georgian style residential buildings are present in New England from throughout the 18th century, though some authorities emphasize the style's importance during the second half of the century. Many center chimney residences are Georgian in architectural detail and design.



Georgian buildings are characterized by end gables, symmetrical facades, a central entrance often elaborated with classical detailing, double-hung windows symmetrically placed around the entrance, and the allocation of classical elements such as columns, pilasters, and entablatures. On the interior, Georgian architecture is known by the use of wood joinery with classical detailing based on Roman design.

Worcester retains one outstanding example of Georgian architecture, the Trumbull Mansion in the Massachusetts Avenue Historic District. The Trumbull Mansion was built in 1751 as the Second County Courthouse in Worcester. In 1801, about to be replaced, it was moved to Franklin Street

at Green Street and converted to a residence, occupied for many years by members of the Trumbull family. In 1899, the building was moved again to Massachusetts Avenue. An outline of the mansion's history is presented in the 1974 Study Report for the Massachusetts Avenue Historic District.

The Trumbull Mansion has a center hall plan with flanking living spaces, two rooms deep. It has a hipped roof, rather than gables, and two chimneys on each end facade, one for each side room. Renovated many times, the Trumbull Mansion nonetheless retains the overall symmetry, simplicity, and sophistication of the Georgian style.

Federal (1780-1830)

The Federal style is based on the work of the 18th century English architect Robert Adam and was popular in New England following the Revolutionary War through the first quarter of the 19th century.



The Federal style was a lighter, more fluid architecture based on Grecian prototypes with emphasis on verticality and graceful curves. Moldings featured oval forms rather than the rounded Georgian moldings. Oval or polygonal bay projections; taller, slimmer windows; slender columns and pilasters; fanlights; delicate cornices; and shallower often hipped roofs distinguish Federal buildings from their Georgian predecessors.

About forty-three Federal style buildings have been identified in the architectural inventories of Worcester.

Greek Revival (1830-1870)

The Greek Revival style first appeared in the work of prominent architects in the early 1800s and became the focus of widespread public attention in 1818 with construction of the Second Bank in Philadelphia by William Strickland. The style increased in popularity in the 1820s and became the dominant style in use between 1830 and the Civil War, especially in New England. Inspired by the democratic ideals of ancient Greece and in contrast to earlier styles that had been imported from England, the Greek Revival became America's first homegrown national style.



Greek Revival design is characterized by temple-front facades; triangular pediments; simple lines; building-high corner pilasters; columned porches; entrances with sidelights, transoms, pilasters, and entablatures; and more exaggerated oval forms for moldings than those of the Federal style. The heavy pilasters flanking entrance openings with their massive three-part entablatures above suggest the simple post-and-beam construction of Greek temples. The tall sidelights and rectangular transoms at entrances replaced the Federal style's more delicate semicircular or elliptical fanlights. Designs and detailing were bolder and simpler.

Gable-Front, Side-Hall House (1830-1900)

Concurrent with adoption of the Greek Revival was the development of the gable-front, side hall building type, the predominant vernacular house form in Worcester from the 1830s through the remainder of the 19th century. Popular throughout New England, the gable-front, side-hall house was uniquely suited to the Greek Revival style as it turned the gable end to the front, toward the street, inviting association with temple form and detailing. Side-hall houses may be 1.5 to 2.5 stories in height.



During the late 1830s and 1840s, the design of airtight wood stoves was perfected and made available for both living spaces and kitchen use, gradually replacing fireplaces for heating and cooking. Chimneys were minimized in size and visual emphasis. The side hall entrance extended the depth of the house and included the stairway. Two-room deep living spaces had individual chimneys along the outside wall or could share a single chimney between them. A separate kitchen wing was in the back, behind the main form of the house.

The gable-end, side-hall house was useful to developers because it allowed lots to be smaller and thinner, producing more lots per length of street frontage. The Crown Hill Historic District has excellent examples of the gable-end, side-hall house type, many from the 1840s and of Greek Revival design. Over time, Gothic, Italianate, Victorian, and other stylistic details were introduced to the side-hall house, but the basic house type remained the same and was popular in Worcester through the century.

Gothic Revival (1840-1870)

The Gothic Revival was one of several romantic styles that became popular during the mid-19th century based on a fascination with the medieval period and the picturesque as represented through the work of architects Andrew Jackson



Downing and Richard Upton. The style featured asymmetry, vertical emphasis, steeply pitched gable roofs with deep overhangs, arched and pointed openings, and elaborate wood carved bargeboards and porch detailing. Vertical board and batten siding was often used for the exterior. The example pictured to the left is from another location but is representative of the style.

Gothic Revival residences were constructed in Worcester at mid-century, but only a few remain. However, Gothic details were applied to vernacular building types, such as the gable-front, side hall house type discussed above.



The building pictured to the left exhibits such detailing, including the paired vertical windows with pointed tops at the second-floor level, bracketed cornice lintels above the windows, and deep overhangs of the gabled roof. Located on Oxford Street in the Crown Hill Historic District, the dwelling was constructed in 1850 and the surrounding porch with its elaborate wood detailing was added in 1870. The building's style has also been described by architectural historians as side-hall Victorian and Renaissance Revival.

Italianate (1860-1890)

The Italianate was a romantic style inspired by Italian villas and the Renaissance. As architectural trends shifted away from the Greek Revival, the Italianate increased in popularity between 1860 and 1890 and became widespread across the country.



The Italianate style is characterized by tall, narrow proportions; asymmetrical massing; incorporation of towers and window bays; flat or shallow pitched roofs; deep, ornate cornices with brackets; round or segmented arched openings; and heavy curved hoods or flat lintels over doors and windows. The building pictured here is from another location but is representative of the style's character

The Italianate influence reached Worcester in the mid-1850s; however only a few high style examples are extant, and none within the city's local historic districts. However, like Gothic Revival, Italianate detailing was applied to popular vernacular building types such as the gable-front, side-hall house.

Second Empire (1860-1880)

The Second Empire emulated forms developed in France during the reign of Napoleon III between 1852 and 1870. The primary feature of American versions of the style was the Mansard roof, making full use of the building's attic space by wrapping the attic floor height with a short, steep vertical or hipped roof capped by a near flat central roof. Sizable window dormers open the attic to light and air.

The Second Empire style was a direct evolution from the Italianate style, sharing its vertical proportions, heavily molded fenestration, large ornate cornice, and bracketed detailing. Windows and dormers tended to be tall and hooded or arched. Porches and window bays were incorporated and were also heavily detailed. The Mansard roof was usually slate and often crested with moldings or metal at the top.

A handful of Second Empire buildings can be found within the Crown Hill and Elm Park Neighborhood Historic Districts, constructed between 1868 and 1875. The example pictured here is one of a pair of Second Empire buildings on West Street near its corner with Cedar Street.



Queen Anne (1880-1910)

The Queen Anne style was popular in the late 19th century and is the quintessential, most complex, and final style of the Victorian Era. The style features an asymmetrical floor plan, irregular and diverse exterior massing, complex exterior and interior woodwork, and diverse use of materials, textures, and colors.

The complex exterior massing often features corner towers, turrets, or projecting bays. Large wrap-around porches are usually present on the main facade with milled columns and balusters. Gable-end trusses and/or Palladian windows may be set within the complex roof forms, with varying pitches, dormers, bays, and finishes. Windows may be single, paired, or in bays, but the sash are simple, wood, one-over-one without elaborate trim. Queen Anne detailing was featured on Worcester's vernacular gable-end, side-hall houses of the period.

The Queen Anne style is evident in late 19th century neighborhoods throughout Worcester. About a dozen examples are located on Cedar, Fruit, and Sever Streets in the Elm Park Neighborhood Historic District and were all constructed between 1878 and 1889. Four examples are located in the Montvale Historic District dating from 1899 to 1911. The Queen Anne building pictured here is located at 67 Cedar Street, is architect designed, and was constructed in 1890.



Stick Style (1865-1890)

The Stick Style was a transition between the Gothic Revival, Queen Anne, and Shingle Styles and is the least common of the Victorian Era styles. Influences from the Gothic Revival and Queen Anne along with English, Swiss, German, and Russian precedents can be seen in many examples of the Stick Style.



Stick Style houses are usually highly irregular and complex in plan, elevation, and massing and are almost never symmetrical. Roof forms are complex with multiple gables, varying pitches, and bays. The exterior features a dramatic (rather than literal) expression of the building's structure through the use of decorative timber framing set within wood clapboards. Overall stylistic treatment is a highly articulated, fictional structural expression.

A couple of Stick Style residences are found in the Elm Park Neighborhood Historic District. The building pictured here is at 23 Fruit Street and was constructed about 1879.

Shingle Style (1880s-1910)

The Shingle Style is an American adaption and simplification of other earlier styles such as the Queen Anne and Stick Style and developed in fashionable coastal resorts in the Northeast. Simple yet sophisticated, it was a style of choice in many upscale residential neighborhoods and suburbs.



The Shingle Style is characterized by asymmetrical facades with porches and roomy proportions; fulsome volumes flowing into one another; gabled, gambrel, or hipped roofs with cross gables and/or dormers; use of natural materials such as wood shingles and rustic stone foundations or porch piers; continuous shingle cladding over wall and roof surfaces; double-hung wood windows with multiple lights in the upper sash; and towers or bay projections.

At least seven high quality Shingle Style residences are found within the Elm Park Neighborhood Historic District on Cedar, Sever, and William Streets and two are identified in Montvale, all constructed between 1883 and 1906. Among the finest is the one pictured at left located at 98 William Street on the corner adjacent to Elm Park and constructed in 1901.

Three-Deckers (1870s-1930)

The Three-Decker is an iconic multifamily building type used in industrial settings throughout Massachusetts. Industrial expansion in the late 19th and early 20th centuries created a demand for reasonably priced worker housing, and the Three-Decker was the solution, outnumbering all other multifamily building types in its use.

Three-Deckers are three story apartment buildings with separate units occupying each floor. They generally utilize a side-hall plan, three-tiered porches, three-tiered bays on the front and/or side, and hipped roofs.

As described in the MHC's 1984 *Reconnaissance Survey Report*, Three-Deckers were first built in Worcester in the 1870s, though the origin of the building type is uncertain. They were concentrated primarily in the industrial areas of the city south and east of the central business district within proximity to industrial sites, though they survive throughout the city. The architects, builders, and developers who erected these buildings embellished them with the popular stylistic ornament of the day, including bracketed cornices, bands of shingled sheathing, and often elaborate porches. Three-Deckers remained the most widely built house type through the Early Modern Period of Worcester's development.

Nine Three-Deckers constructed as premium rental housing opposite the south side of Elm Park were designated as a National Register historic district in 1990 and are included in the Elm Park Neighborhood Historic District. Four of the buildings are pictured in the photos to the right. Built between 1904 and 1906, these Three-Deckers are unusual for their large dimensions and the extent of their multi-tier porches. Their irregular massing and textured surfaces are representative of the Queen Anne style, though one is termed as Second Empire and another mixes Queen Anne and Shingle Style. A row of additional Three-Deckers is located on Highland Avenue within and immediately adjacent to the Elm Park Neighborhood Historic District.

Many of Worcester's Three-Deckers have been demolished, as redevelopment has occurred in the areas where they were most prolific. Many of those that survive have undergone exterior alteration, which generally involves the stripping of ornament, application of synthetic siding, and in some cases removal of front porches.



Colonial Revival (1880-1950)

Perhaps the most prevalent and long-lived American architectural style, the Colonial Revival grew out of the Centennial Exhibition of 1876 and flourished through the first half of the 20th century. Initially employed by firms like McKim Mead and White for wealthy clients, by the 1920s the style had become the most prevalent residential style for the rising middle-class. The style was rapidly employed on relatively modest houses and replicated by builders and developers nationwide.



The Colonial Revival style was based on colonial building forms, but elements were enlarged, accentuated, and combined in new ways, far from their historic origins. The style emphasizes symmetry and balance and employs classical detailing drawn from the Georgian and Federal precedents. Side-gable or hipped roofs were common often with dormers. Entrances were placed in the center flanked with sidelights and wood pilaster and pediment detailing. Double-hung wood windows were symmetrically placed on the facade and embellished with decorative wood shutters. Dutch Colonial was a variant of the style utilizing gambrel roof forms.

Colonial Revival is the most common style utilized in the Massachusetts Avenue Historic District, the example pictured here, and is also prominent in the Montvale Historic District. Both districts feature high style, architect designed residences with elaborate and sophisticated expressions of the style constructed between 1901 and 1924. Examples are also present in the Elm Park Neighborhood Historic District constructed between 1890 and 1929.

Tudor Revival (1910-1940)

Tudor Revival is a distinctly American style that first appeared on high-end houses during the 1890s and became popular between 1900 and 1940. During the 1920s and 1930s, the style was widely used for modest homes. Tudor Revival borrows and interprets early English medieval and Elizabethan design. Its primary design feature is a front facade dominated by a steeply pitched front gable of stone, brick, or stucco with wood half-timbering. A chimney is another dominant feature placed at the front facade or on an end wall.



Tudor Revival homes have asymmetrical floor plans and a wide variety of window shapes and configurations, including tall, narrow, rectangular, or arched with double-hung, casement, bay, or oriel windows and glass that is either clear or leaded. The entrance is often recessed under a Tudor arched vestibule with a wood door arched at the top or within an opening with contrasting stone or brick material.

About a dozen examples of Tudor Revival residences are found in the Massachusetts Avenue (pictured here), Montvale, and Elm Park Neighborhood Historic Districts, most dating from between 1900 and 1912.

Two-Family Houses (1900-1930)

Two-Family Houses are a distinctive multifamily building type two stories in height with separate dwelling units on the first and second floors. They are a featured building type for middleclass housing in the West Side Realty Plot (Agricultural Fair Grounds) of the Elm Park Neighborhood Historic District.

Developed between 1900 and 1930, West Side Realty's Two-Family Houses are designed to appear to be large single-family residences. Only the twin entrance doors on the front porches provide clear visual evidence of their multifamily use. Employing in a variety of common styles, the Two-Family Houses creatively disguise their multifamily function with varied forms and fenestration on front and side elevations. Use of the Colonial Revival and Craftsman styles is most prevalent. Many of West Side Realty's Two-Family Houses appear to have been converted to multiple apartments or shared living space in recent years, catering to the student population at the nearby colleges.



Other Architectural Styles

Architectural historians who have undertaken surveys of Worcester's local historic districts have described other architectural styles present in individual buildings, almost all of which were designed by architects for high profile clients during the early 20th century. They include those shown below.



Classical Revival residence at 80 William Street built in 1912 with a stucco exterior, hip roof, symmetrical façade, Tuscan porches, bay windows, and leaded casement windows.



Eclectic, 2-story brick residence at 66 William Street built in 1909 with a symmetrical façade, exterior chimney, and deep open eaves.



Chateausque, an elaborate 2-story brick and frame residence at 65 Cedar Street built in 1893 with a carved limestone trimmed tower and red slate roof.



Eclectic/Flemish stucco residence at 71 Elm Street built in 1912/13



Prairie Derivative residence at 2 Regent Street built in 1909, a stucco and shingle house with a hipped roof and deep, bracketed overhang. The 1974 Study Report for Massachusetts Avenue states “the first floor supporting arches and horizontal lines are reminiscent of the Prairie Style, but the overall proportions, reasonably balanced double hung windows, and small center dormer suggest an overgrown “bungaloid” influence.”



Georgian Bungaloid residence at 4 Regent Street built in 1916. The 1974 Study Report for Massachusetts Avenue states that this stucco, hip roof structure retains the traditional symmetrical New England room arrangement, to which then-current styles were applied. The entrance suggests Renaissance Revival; first floor windows have Palladian motif; and the second-floor windows, deep roof eaves, and porch detailing suggest Mission Styling.



CHAPTER 3 – DESIGN PRINCIPLES FOR HISTORIC PRESERVATION

The principles upon which these design guidelines are based are the foundation of historic preservation practice and have been developed over decades of professional experience working with historic buildings and landscapes. The principles are relatively simple in concept and may be applied to a wide variety of issues and conditions. Every proposed construction project involving an historic building has its distinctive attributes. The design principles for historic preservation are flexible enough to address differing issues, needs, and conditions in a manner that achieves the best possible outcome.

Chapter 3 provides background on several terms and concepts used throughout these design guidelines, including *significance*, *integrity*, and *authenticity*. Appreciation of the meaning and concepts behind these terms helps with understanding of the design principles outlined in the guidelines and how they are applied. Most important in this chapter is its discussion of the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The Standards are the touchstone for all decision making regarding the treatment of historic buildings and other resources.

The design principles outlined below provide guidance in decision making about appropriate changes to historic properties. The owners of historic properties throughout the city might find these principles useful as they consider projects they are undertaking.

3.1 ACCOMMODATING CHANGE WITHIN AN HISTORIC CONTEXT

The following general principles are incorporated throughout these design guidelines in describing the preferred treatment of historic buildings in Worcester. They outline how needed change may be accommodated in the city's historic neighborhoods and should be considered in the planning and design of new projects. These principles are based upon the Secretary of the Interior's Standards, which are discussed further later in this chapter.

- Continue to use a property as it was designed to be used, or find a new use that minimizes necessary changes to character defining features.
- Identify and retain distinguishing building and landscape features, qualities, and characteristics.
- Maintain, protect, and repair authentic character defining features, materials, and finishes. If features are deteriorated beyond repair, replace them in-kind. Retain authentic historic building fabric to the maximum extent possible. Historic building fabric includes any architectural or structural component of a building, structure, or object that is original or historic in its own right.
- If a feature is missing or must be removed and it is desired that it be replaced, use accurate documentation to guide the replacement work.
- Respect the evolution of historic changes, fashion, taste, and use – do not try to “improve” the design of authentic building features.
- Avoid installation of conjectural “historic” features.
- Do not use maintenance methods or materials that damage significant building and landscape fabric.

Needed change can usually be accommodated in a sensitive manner that helps strengthen historic character. Where new construction is required:

- Design new construction in a contemporary but respectful manner. Additions and alterations to historic buildings and landscapes should speak of their own time but should be compatible with the character of the existing resource.
- Follow an established design process that identifies character defining features, explores a range of possible design alternatives, and selects a workable alternative that maximizes the preservation of historic building fabric.
- Accommodate the program or use driving needed changes to the maximum extent possible without significantly altering or destroying the character of existing resources.
- Respect the surrounding built environment and landscape context.
- Maintain a high quality of design and craftsmanship.
- Existing buildings often have multiple layers of history and change that

are of significance, should be preserved, and can inspire creative and compatible design solutions for new construction.

- New construction should not destroy character defining building or landscape features or materials.
- Understand that future change will continue to occur. Make allowances for future change in new work.

3.2 SIGNIFICANCE, INTEGRITY, AND AUTHENTICITY

The concepts of *significance*, *integrity*, and *authenticity* are central to design principles for historic preservation and are referenced throughout these guidelines. The background and meaning regarding these concepts are discussed below. Understanding these concepts before beginning a project will help to ensure a smoother design process.

Historic Significance

In historic preservation, historic districts, buildings, and other resources are evaluated for *historic significance* according to established professional criteria developed by the Secretary of the Interior in association with listing in the National Register of Historic Places. Those criteria state that:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A *That are associated with events that have made a significant contribution to the broad patterns of our history, or*
- B *That are associated with the lives of persons significant in our past; or*
- C *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- D *That have yielded or may be likely to yield, information important in prehistory or history.*

Worcester's historic neighborhoods possess historic resources significant to all four categories listed above. Worcester's residential neighborhoods developed primarily in the mid-to-late 19th and early 20th centuries as residential development spread outward from the city center. Neighborhoods with earlier building types and styles—1840s and 1850s—are closer to the city center while neighborhoods with later building types and styles are further out. For the most part, development in Worcester's historic residential neighborhoods has been additive—as the neighborhoods have developed and become more dense, new buildings have been added but not many buildings have been lost.

Forty-eight National Register Historic Districts have been designated in Worcester, though only a few of the city's historic neighborhoods have been

designated as local historic districts. Many of the city's historic neighborhoods have been inventoried and are included in the Massachusetts Historical Commission's *Massachusetts Cultural Resource Information System* (MACRIS) database. Both historic district nominations and MACRIS inventory forms describe the significance of the historic resources they include.

Worcester's neighborhoods are representative of the broad patterns of history in Massachusetts and the nation, particularly with respect to industrial development in conjunction with a regional urban center. Historically significant persons have lived in Worcester and left their mark on the city's physical presence in a variety of ways.

Examples of historically significant persons include Abby Kelly Foster, abolitionist and radical social reformer active from the 1830s to 1870s, who is associated with Liberty Farm at 116 Mower Street in Worcester, and Robert Goddard, who built and launched the first liquid-fueled rocket during the 1920s and whose residence is on Tallawanda Drive in the southwest portion of the city. Significant institutions also hail from Worcester, including the Worcester Lunch Car Company, which supplied diner cars to restauranteurs up and down the east coast.

Worcester's historical development has resulted in the construction of buildings that embody the distinctive characteristics of type, period, and method of construction for the region, particularly with respect to residential building. Archeological resources are significant because they are likely to yield information about the region's history and prehistory.

Historic significance accrues to a building or resource over time, and changes that have occurred to a resource can be historically significant.



Worcester's historic neighborhoods are significant to the broad patterns of the city's urban growth and development over two centuries.

Integrity

Integrity is the authenticity of a property’s historic identity, evidenced by the survival of physical characteristics that existed during the property’s period of significance. The seven qualities of integrity, as defined by the National Park Service, are location, setting, feeling, association, design, workmanship, and materials.

Integrity measures the degree to which the historically significant materials, features, and characteristics of a resource still exist. Integrity is frequently assessed by how much of a resource’s historic fabric is intact. Historic building fabric includes features (such as porches, windows, stairways, and trim), and materials (such as wood, brick, and plaster). Authentic woodwork, brickwork, entrances and windows and other historic fabric that survives help make the historical significance of a resource visible.

When a resource retains a great deal of authentic historic fabric, the integrity of the resource is generally considered to be “high.” When there is little historic fabric remaining, integrity is generally considered to be “low.” Preservation efforts frequently focus on preserving the integrity of a resource by preserving historic fabric. Retaining the integrity of a resource is of paramount importance in preservation.

Many historic buildings incorporate a mixture of stylistic elements that have been added to an original building over many years. These additions and alterations are a part of the evolution of the building. They contribute to its story and significance and therefore also contribute to its integrity.

For instance, an 1890s Queen Anne porch may have been added to an 1850s vernacular residence. Today, that porch would be over one hundred and thirty years old. The porch is part of the richness of the building’s historical development, and it is a record of the changing ownership, fashions, values, perceptions, and events even though it is not part of the “original” residence. Removing such a feature would destroy that record and would probably diminish the overall integrity of the resource.

Authenticity

The term *authenticity* in historic preservation is defined as:

- (1) the character of an historic property representing a substantial proportion of original fabric and materials, and
- (2) the interpretation of an historic property based on the understanding of its history and the characteristics of the culture or cultures that created it.

Authenticity related to historic fabric is a physical manifestation – the preservation of authentic historic fabric is central to the treatment recommendations included in these design guidelines.

Authenticity related to the interpretation of an historic property is associated with the meaning and historic significance attributed to the property.

Integrity vs. Condition

While the *integrity* of an historic resource reflects the presence of authentic materials and features, the *condition* of the resource concerns its appearance and structural soundness.

A building with a sagging roof, peeling paint, and broken windows may be in poor condition but may at the same time have a high degree of integrity. The foundation may need to be rebuilt, the walls may need to be repainted, and window panes may need to be replaced. Doing so may improve the building's condition, but if these steps are taken without regard for retaining authentic historic fabric, the building's integrity may be diminished.

Maintaining a building in good condition may seem at odds with maintaining its integrity, but decisions about condition or integrity can be balanced if appropriate measures are taken.

Appropriate maintenance procedures performed throughout the life of a building will maintain its condition *and* preserve its integrity. Inappropriate maintenance or lack of maintenance frequently leads to a loss of historic fabric and integrity.

In appropriately maintaining a building or other resource, it is usually preferable to retain authentic historic fabric even if that fabric is not in the best condition, provided that there is no threat of further deterioration to the building. When authentic historic fabric cannot be retained, it should be replaced in-kind (with identical materials and construction).



Buildings appearing to be in need of maintenance, in this case exterior painting, often have a high degree of historic integrity.

3.3 PRESERVATION PRINCIPLES AND TREATMENTS

The recommendations of these design guidelines are informed and guided by principles of historic preservation that have been developed and honed by practitioners in the field over the years. Preservation is a practical discipline that can accommodate growth and change while continuing to preserve the characteristics that make a place special. As emphasized above, the principles that have been developed in the field of historic preservation in general recognize the importance of preserving authentic historic fabric to the maximum extent possible.

Building uses come and go, but once lost, original historic fabric can never be recovered. The maintenance and preservation of existing historic fabric, features, materials, and design elements, therefore, is central to a sound preservation approach.

The principles of historic preservation are embodied in the topic of *Preservation Treatments* and in *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, both of which are discussed below.

3.3.1 Preservation Treatments

The historic preservation field uses a variety of terms to describe the treatments that may be applied to historic buildings and landscapes. Although sometimes these terms are used loosely in discussion, they have specific meanings that are important to distinguish. The four key preservation treatments include: Rehabilitation, Preservation, Restoration, and Reconstruction.

Rehabilitation

Rehabilitation is defined as the process of creating a compatible use in an historic property through carefully planned minimal alterations and compatible additions. Often referred to as adaptive reuse, rehabilitation protects and preserves the historic features, materials, elements, and spatial relationships that convey historical, cultural, and architectural values.

Rehabilitation acknowledges the need to alter or add to a property to meet continuing or new uses while retaining historic character. New, expanded, or upgraded facilities should be designed to avoid impacts to historic elements. They should also be constructed of compatible materials. Retention of original historic fabric should be a primary consideration in undertaking a program of rehabilitation and adaptive reuse.

Rehabilitation is perhaps the most important and widely used treatment in the field of historic preservation, particularly in communities that are experiencing change and adapting to new uses. This includes the kinds of residential changes that are driving new projects impacting historic homes and neighborhoods in Worcester. Rehabilitation is the appropriate treatment for most historic residential, commercial, and former industrial buildings throughout the city.



Rehabilitation is the most commonly used preservation treatment. This historic residence in the Elm Park Neighborhood is one of several that have been adapted to academic residential use.

Preservation

Preservation is defined as the process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize features, generally focuses on the ongoing maintenance and repair of historic materials and features. Removals, extensive replacement, alterations, and new additions are not appropriate.

Preservation stresses protection, repair, and maintenance and is a baseline approach for all historic resources. As the selected treatment for an historic property, preservation implies minimal or no change. It is therefore strictly applied only to buildings and resources of extraordinary significance that should not be altered. Preservation treatment is appropriate for museums or limited-use public buildings, as it does not allow for new uses or adaptations to continued use.

In Worcester, highly significant buildings such as 18th century farmhouses, historic civic buildings, historic churches, and residences associated with significant individuals (such as Liberty Farm and the Goddard House mentioned above) are appropriate for preservation treatment. The Higgins Armory on Barber Avenue in Worcester is an example of a landmark historic building worthy of preservation treatment.

Restoration

Restoration refers to returning a resource to its appearance at a specific previous period of its history. Restoration is the process of accurately depicting

the form, features, and character of a property as it appeared at a particular time by means of removal of features from other periods in its history and the reconstruction of missing features from the restoration period.

In restoring a property to its appearance in a previous era, historic plans, documents, and photographs should be used to guide the work. Limited and sensitive upgrading of mechanical, electrical, and plumbing systems, as well as code-related work to make a property functional, are all appropriate within a restoration project.

Restoration is usually only undertaken for buildings of special significance where returning it to its appearance during a particular era is of importance, perhaps for educational or interpretive purposes or perhaps just because of the building's quality. Restoration is seldom undertaken in active residential neighborhoods.

Reconstruction

Reconstruction is defined as the process of accurately depicting the form, features, and character of a non-surviving historic resource using new construction for the purpose of replicating its appearance at a specific period of time and in its original location.

A reconstruction is a new resource made to replace an historic resource that has been lost. Reconstruction is a rarely used preservation treatment applicable primarily in educational and interpretive contexts.

Of these four preservation treatments discussed above:

- *Rehabilitation* acknowledges the need to alter or add to a property to meet continuing or new uses while retaining historic character.
- *Preservation* requires retention of the greatest amount of historic fabric, features, and materials.
- *Restoration* allows for an accurate depiction of the property's appearance at a particular time in its history.
- *Reconstruction* establishes a framework for re-creating vanished historic elements with new materials.

Rehabilitation and Preservation are the most appropriate and applicable treatments for most historic buildings and landscapes in Worcester. Preservation, Restoration, and Reconstruction treatments are rarely used.

3.3.2 Secretary of the Interior's Standards

The philosophy that guides the recommendations in these design guidelines is based on a set of guidelines entitled *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, commonly called the "Secretary of the Interior's Standards" or simply the "Standards."

The *Secretary of the Interior's Standards* were created by historic preservation professionals to provide guidance in the appropriate treatment of historic resources. The *Standards* were first established by the federal government in 1970 in response to National Park Service grant programs to guide how grant

funds were used on properties, as well as separate standards for the federal tax credit program. Because of their usefulness, they have been adopted throughout the field of historic preservation.

All federally funded and permitted activities affecting historic resources are evaluated with respect to these standards, including projects that use historic rehabilitation tax credits. The *Standards* were developed specifically to prevent unintended damage to or loss of historic resources by federal actions, such as those that occurred as the result of the wholesale demolition of historic neighborhoods through urban renewal as occurred in urban areas in the 1950s and 60s.

An individual set of standards was developed for each of the four preservation treatments discussed above. Just as the treatment of Rehabilitation is appropriate for most projects, the ***Standards for Rehabilitation*** are applicable to most projects being undertaken for historic buildings and landscapes in Worcester.

In the language of community planners, *The Secretary of the Interior's Standards* are a list of “best practices” for historic preservation. They are a touchstone for all activities affecting historic buildings and landscapes and help ensure that important issues related to the care of historic buildings and landscapes are not forgotten in the process of making decisions about other issues. When the *Standards* are used in the context of a new construction project involving an historic building, they provide a starting point for the discussion of proposed changes to the building’s historic character and fabric. They were developed to ensure that policies toward historic resources were applied uniformly, even if the end result may be different in every case.



The Secretary of the Interior’s Standards are a set of “best practices” for the treatment of historic buildings and landscapes. This Shingle Style residence is in the Montvale Historic District.

All preservation activities, whether they are publicly or privately funded, can be informed and enhanced by understanding the *Secretary of the Interior's Standards*. Because the *Standards* outline a sensitive approach for assessing changes to historic properties, they are often included in design guidelines and ordinances that govern activities affecting local historic districts. They provide the basis for the review of proposed projects in Worcester's local historic districts by the city's Historical Commission as outlined in Chapter 4 and throughout these design guidelines.

The *Standards* articulate basic principles that are fundamental to historic preservation. Although they have been modified over the years to accommodate changing views of historic significance and treatment options, their basic message has remained the same.

The durability of the *Standards* is testimony not only to their soundness, but also to the flexibility of their language. They provide a philosophy and approach to problem solving for those involved in managing the treatment of historic buildings, rather than a set of solutions to specific design issues. Following a balanced, reasonable, and disciplined process is often more important than the exact nature of the treatment option that is chosen. Instead of predetermining an outcome in favor of retaining or recreating historic features, the *Standards* help ensure that the critical issues are considered.

For federal projects and federal agencies, the language of *The Secretary of the Interior's Standards for the Treatment of Historic Properties* is codified in 36 CFR Part 68 (the Code of Federal Regulations, Title 36, *Parks, Forests and Public Property*, Chapter 1 *National Park Service, Department of the Interior*, Part 68). A related federal regulation, 36 CFR Part 67, addresses the use of the *Standards* in the certification of projects receiving federal historic rehabilitation tax credits.

The *Standards* are published by the U.S. Department of the Interior, National Park Service, and are available online, including definitions for the four preservation treatments discussed above.

The Secretary of the Interior's Standards for Rehabilitation are particularly useful when considering the appropriate maintenance of historic buildings; the alteration of older buildings as necessary for reuse, safety, and accessibility; and the construction of new buildings in an historic context.

The ten standards that comprise the *Standards for Rehabilitation* are quoted below followed by a brief discussion of the implications of each. Additional discussion of the *Standards for Rehabilitation* may also be found online the National Park Service website.

STANDARD 1 – A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

Standard 1 recommends compatible use in the context of adaptive reuse and changes to historic buildings and landscapes. This standard encourages property owners to find uses that retain and enhance historic character, rather than detract from it. The work involved in reuse projects should be carefully planned

to minimize impacts on historic features, materials, and spaces. The destruction of character defining features should be avoided.

STANDARD 2 – *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.*

Standard 2 recommends the retention and preservation of character defining features. It emphasizes the importance of preserving integrity and as much existing historic fabric as possible. Alterations that repair or modify existing historic fabric are preferable to those that require total removal.

STANDARD 3 – *Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.*

Standard 3 focuses on authenticity and discourages the conjectural restoration of an entire property, feature, or design. It also discourages combining and/or grafting historic features and elements from different properties and constructing new buildings that appear to be historic. Literal restoration to an historic appearance should only be undertaken when detailed documentation is available and when the significance of the resource warrants restoration. Reconstruction of lost features should not be attempted without adequate documentation.

STANDARD 4 – *Changes to a property that have acquired historic significance in their own right will be retained and preserved.*

Standard 4 recognizes that buildings change, and that many of these changes contribute to a building's historic significance. Understanding a building's history and development is just as important as understanding its original design, appearance, and function. This point should be kept in mind when considering treatments for buildings that have undergone many changes.

Most historic buildings contain a visual record of their own evolution. This evolution can be identified, and changes that are significant to the history of the building should be retained. The opportunity to compare multiple periods of time in one resource lends interest to the building and helps communicate changes that have occurred within the larger landscape and community context.

STANDARD 5 – *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

Standard 5 recommends preserving the distinctive historic components of a building or landscape that represent its historic character. Workmanship, materials, methods of construction, floor plans, and both ornate and typical details should be identified prior to undertaking work.

STANDARD 6 – *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*

Standard 6 encourages property owners to repair historic character defining features instead of replacing them when historic features are deteriorated or even when portions of an element are missing. In cases where deterioration makes replacement necessary, new features should closely match historic conditions in all respects. Before any features are altered or removed, property owners are urged to document existing conditions with photography and notes. These records assist future choices that are appropriate to the property's historic character.

STANDARD 7 – *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

Standard 7 warns against using chemical and physical treatments that can permanently damage historic features. Many commercially available treatments can cause irreversible damage. Sandblasting and harsh chemical cleaning, in particular, are extremely harmful to wood and masonry surfaces because they destroy the material's basic physical properties and speed deterioration.

STANDARD 8 – *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*

Standard 8 addresses the importance of below ground prehistoric and historic features. This issue is of most importance when a construction project involves excavation. An assessment of a site's archeological potential prior to work is recommended. If archeological resources are present, some type of mitigation should be considered. Solutions should be developed that minimize the need for excavation of previously unexcavated sites.

STANDARD 9 – *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*

STANDARD 10 – *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Standards 9 and 10 are linked by issues of the compatibility and reversibility of additions, alterations, and new construction. Both standards are intended to

- 1) minimize the damage to historic fabric caused by building additions, and
- 2) ensure that new work will be different from, but compatible with, existing historic conditions. Following these standards will help to protect a building's historic integrity.

In conclusion, the basis for the *Standards* is the premise that historic resources are more than objects of aesthetic merit – they are repositories of historical information. It is important to reiterate that the *Standards* provide a framework for evaluating preservation activities and emphasize preservation of historic fabric, honesty of historical expression, and reversibility. All decisions should be made on a case-by-case basis. The level of craftsmanship, detailing, and quality of materials should be appropriate to the significance of the resource.

3.4 PROJECT PLANNING AND INITIATION

No matter what type of project or project review is being considered, it is strongly recommended that several important steps be undertaken during the pre-planning stages.

The design of major projects within historic neighborhoods should be implemented with the assistance of **design professionals** (architects and structural engineers) experienced in the rehabilitation and adaptive reuse of historic buildings. This is particularly important for projects involving alterations, additions, or new construction.

Likewise, use **contractors** with demonstrated experience in the appropriate treatment of historic building fabric, especially if design professionals are not involved—for instance if the project is small and does not involve major changes. Selection of the contractor should be based on experience, qualifications, and quality of work, not solely on price.

For complex issues related to the condition and appropriate treatment of historic building fabric, it may be desirable to use the expertise of professional **building materials conservators** who understand historic building systems and the unique problems associated with some historic materials.

In the implementation of projects involving historic buildings:

- Research and understand the **history, historical development, and significance** of the historic building.
- If changes have been undertaken to the building over time, identify the period of significance for each **area of change** and how it relates to the overall significance of the building.
- Early in the design process for a proposed project, **identify authentic historic fabric** associated with all periods of the building's development that might be impacted.
- Determine the **physical condition** of existing features, fabric, and materials and the type and level of work necessary for their maintenance, repair, and rehabilitation.

- Determine how **needed changes or new uses** might be accommodated within the building.
- Examine **options** for needed changes and how they would **impact** historic building fabric and the character of the building as a whole.
- Prepare a **recommended approach** toward the treatment of each historic feature and the materials of which it is comprised taking these design guidelines and the *Secretary of the Interior's Standards* into consideration.
- Undertake research and **seek advice** from qualified individuals on treatment options and approaches. Note the sources discussed at the end of this chapter.
- Identify any topics, issues, and/or recommendations **not consistent** with these design guidelines for review and discussion and about which to seek additional advice.
- Find solutions that satisfy the need for change but that **preserve and enhance** the character and significance of the historic building as a whole.
- Keep in mind that the changes being made become part of the building's historical development and record and should be of such **quality** that they are considered of significance when future owners look back fifty or more years from the present.
- For projects involving Historical Commission review, meet with city's **Planning staff** as early as possible in the design process to discuss the project, design principles, and review processes.

3.5 SUSTAINABILITY

Sustainability in building design and construction practices has become an increased focus of national, community, and individual priority in recent decades. Significant progress has been made in the development and implementation of sustainable building practices, often referred to as Green Building Design.

The United States Green Building Council (USGBC) defines Green Building Design as “design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants [through] sustainable site planning, safeguarding water and water efficiency, energy efficiency and renewable energy, conservation of materials and resources [and] indoor environmental quality.”

By virtue of their embodied energy, historic buildings are inherently sustainable. The preservation of existing historic fabric and landscapes; reuse of structural elements, building materials, and building envelopes; and adaptation of historic buildings to new uses are not only key components of historic preservation but also characteristic of sustainable design. Continued use of historic buildings and neighborhoods maximizes the use of existing materials,

minimizes the need for new materials, minimizes waste, and continues use of existing community utility and transportation infrastructure.

Because they were built when central heating and mechanical air conditioning either did not exist or were very primitive, historic buildings were designed to incorporate numerous climate-mitigating, sustainable features. These include plentiful natural daylight; passive ventilation; and compact, walkable, and human scaled neighborhoods. Passive historic building features such as double-hung windows, overhanging eaves, hoods, porches, operable shutters, and interior design layouts that maximize cross ventilation are inherently environmentally friendly. The mature canopy trees that have grown up in many historic neighborhoods provide summer shade that enhances comfort and energy efficiency.



Porches, hoods, double-hung windows, overhanging eaves, and narrow floor plans promoting cross ventilation are climate mitigating, sustainable features making historic buildings comfortable before the introduction of central heating and mechanical air conditioning.

Building owners may go one step further by examining those portions of the building which are not vitally historic and may be upgraded to increase the long-term sustainability of the project. General guidelines that may be undertaken to increase sustainability can be implemented in existing buildings in a range of levels and applications according to the project scope and needs while still in

accordance with *The Secretary of the Interior's Standards* and the National Park Service's *Guidelines for Sustainability*, which provides examples of options for enhancing sustainability and how to incorporate them appropriately.

However, as part of an overall strategy to make all buildings more energy efficient, building code requirements and energy standards are sometimes applied to all building construction projects indifferently as to whether they involve new or existing buildings.

While this environmental ethic is good, energy codes are based on simplistic models utilizing modern wall and fenestration systems, and often fail to recognize and account for the more complex energy conservation features built into historic buildings, as mentioned above. In historic areas, a balance must be struck between maximizing energy conservation and preserving the historic character of individual building components, buildings, and streetscapes. In Massachusetts, historic buildings are often exempt from parts of energy codes if it can be shown that an activity required by the code would preclude the building from continued designation as an historic building.

The goal of sustainable design is to support a more holistic approach to building design and renovation, wherein long-term uses, environmental and community impacts, existing building systems, and potential increases in building efficiency are thoroughly analyzed prior to commencement of the work. Few historic buildings allow for the total implementation of every potential sustainable design possibility.

Each historic building project will have its own specific characteristics that allow for more or less sustainable design to be implemented according to its historic significance, existing conditions, and historic integrity. All new work should be compatible with the existing historic conditions and guidelines outlined by *The Secretary of the Interior's Standards*.

3.6 ADDITIONAL MAINTENANCE AND DESIGN RESOURCES

More information is available about historic preservation and the appropriate treatment of historic buildings. The Massachusetts Historical Commission (the Commonwealth's officially designated state historic preservation office) and Preservation Massachusetts (a state-wide non-profit organization) provide information, conduct training workshops, are generally available for technical assistance, and can be accessed online.

Many preservation architects and planners in Massachusetts are experienced in work with historic buildings and historic communities. Experienced consultants should be retained in the design of most construction projects and should oversee the work of contractors.

Another important source of information is the National Park Service (NPS) website, www.nps.gov and its Technical Preservation Services. Printed versions of these materials are also available for purchase. Key reference materials posted on the National Park Service websites include:

Preservation Briefs – The NPS has published the *Preservation Briefs* since 1975, and over fifty of them have now been created. Each of these briefs addresses a specific preservation issue. They are designed to be easy-to-read guides on preserving, rehabilitating, and restoring historic buildings. Preservation Briefs are available online at the NPS Technical Preservation Services website: <https://www.nps.gov/tps/about.htm>.

Preservation Tech Notes – The *Preservation Tech Notes* series and *ITS Bulletins* have been prepared by preservation specialists for the NPS. These publications are technical guides intended for preservation professionals such as architects, contractors, and maintenance personnel, as well as for owners and developers of historic properties. They provide practical information on traditional practices and new techniques for sensitively maintaining and preserving cultural resources.

Over 45 of the Tech Notes are available to the public, and most are available online at the NPS Technical Preservation Services website: <https://www.nps.gov/tps/about.htm>.

National Register Bulletins – The NPS bulletin series provides guidance in the documentation, evaluation, and nomination of historic sites to the National Register. The series is divided into four sections: The Basics, Property Types, Technical Assistance, and General Guidance. Several additional brochures about National Register programs are also available. They may be accessed online at <https://www.nps.gov/subjects/nationalregister/publications.htm>.



U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

Preservation Briefs: 9

The Repair of Historic Wooden Windows

John H. Myers

The windows on many historic buildings are an important aspect of the architectural character of those buildings. Their design, craftsmanship, or other qualities may make them worthy of preservation. This is self-evident for ornamental windows, but it can be equally true for warehouses or factories where the windows may be the most dominant visual element of an otherwise plain building (see figure 1). Evaluating the significance of these windows and planning for their repair or replacement can be a complex process involving both objective and subjective considerations. The *Secretary of the Interior's Standards for Rehabilitation*, and the accompanying guidelines, call for respecting the significance of original materials and features, repairing and retaining them wherever possible, and when necessary, replacing them in kind. This Brief is based on the issues of significance and repair which are implicit in the standards, but the primary emphasis is on the technical issues of planning for the repair of windows including evaluation of their physical condition, techniques of repair, and design considerations when replacement is necessary.

Much of the technical section presents repair techniques as an instructional guide for the do-it-yourselfer. The information will be useful, however, for the architect, contractor, or developer on large-scale projects. It presents a methodology for approaching the evaluation and repair of existing windows, and considerations for replacement, from which the professional can develop alternatives and specify appropriate materials and procedures.

Architectural or Historical Significance

Evaluating the architectural or historical significance of windows is the first step in planning for window treatments, and a general understanding of the function and history of windows is vital to making a proper evaluation. As a part of this evaluation, one must consider four basic window functions: admitting light to the interior spaces, providing fresh air and ventilation to the interior, providing a visual link to the outside world, and enhancing the appearance of a building. No single factor can be disregarded when planning window treatments; for example, attempting to conserve energy by closing up or reducing the size of window openings may result in the use of *more* energy by increasing electric lighting loads



CHAPTER 4 – THE DESIGN REVIEW PROCESS

The Design Review Guidelines for the City of Worcester are intended to inform decision making involving historic properties in the city’s designated local historic districts, both by property owners and their project teams in the planning and design of new projects and by the Historical Commission in their review of proposed projects.

The Design Review Guidelines are also useful to the owners of historic properties in neighborhoods throughout the city in understanding appropriate treatments and the implementation of needed changes in a manner that helps preserve their property’s historic character. This is particularly true for properties outside of the local historic districts that have been officially inventoried and identified as historically significant and are subject to Worcester’s Historic Building Demolitions Ordinance, which also requires Historical Commission review.

Chapter 4 outlines the review process for proposed projects with respect to local historic districts and the Historic Building Demolitions Ordinance, either of which is required before a building permit or demolition permit for a project concerning an historic property can be issued. Local historic district designation and demolition review are important regulatory tools in guiding appropriate change within historic neighborhoods. For property owners planning proposed projects, use of these design guidelines and early consultation with Worcester’s Planning and Regulatory Services Division staff and the Historical Commission is recommended.

4.1 LOCAL HISTORIC DISTRICT REVIEW

The establishment of the Massachusetts Avenue, Montvale, Crown Hill, and Elm Park Neighborhood Local Historic Districts are included in Article 3, Section 14, paragraph (b) of the city's *Revised Ordinances of 2015* addressing the establishment and responsibilities of the Historical Commission (see Appendix A). The local historic districts were established by the city under authority of Massachusetts General Laws (MGL), Chapter 40C, Section 3, MGL Chapter 40C being known as the *Historic Districts Act* (see Appendix B).

The Massachusetts Avenue Historic District is shown on a map dated August 1973 and revised September 1974. The Montvale Historic District is shown on a map dated February 28, 2008. The Crown Hill Historic District is shown on a map dated October 5, 2012, and revised February 12, 2013. The Elm Park Neighborhood Historic District is shown on a map dated March 22, 2023. All four maps are shown in Chapter 2 of these Design Review Guidelines and are officially on file with the City Clerk and the Worcester County Registry of Deeds.

Among the primary duties and responsibilities of the Historical Commission is the administration of the city's designated local historic districts in accordance with the Historic Districts Act, which outlines processes and procedures. Additionally, in 1975 when the Historical Commission and Massachusetts Avenue Historic District were first created, the city also adopted *Rules and Regulations for Local Historic Districts* which outline review processes and remain in effect today.

As stated in the Historic Districts Act, Section 6: "*no building or structure within a historic district shall be constructed or altered in any way that affects exterior architectural features unless the commission shall first have issued a **certificate of appropriateness**, a **certificate of non-applicability**, or a **certificate of hardship** with respect to such construction or alteration.*"

Certificates are issued by the Historical Commission in accordance with procedures described in the Rules and Regulations and outlined below. Exterior architectural features refer to portions of a building or structure open to view from a public street, way, park, or body of water. The Rules and Regulations require that prior certification be issued when the following activities are undertaken:

1. Work involving a change in design, color, texture, or type of exterior building materials;
2. Work involving the changing of the color of paint or other materials applied to exterior surfaces;
3. Work involving the type and style of windows and doors;
4. Work involving signs, lights, and other appurtenant fixtures;
5. Work involving walls and fences; and
6. Work involving terraces, walks, driveways, and similar structures.

Prior certification is *not* required for:

1. Ordinary maintenance or repairs of exterior architectural features which does not affect a change in design, color, material, or outward appearance;
2. Interior work that does not affect the exterior of the building; or
3. Work on the grounds that includes landscaping with plants, trees, or shrubs as long as it does not alter the public view.

Additionally, in the Elm Park Neighborhood Historic District, the following exclusions apply:

1. Temporary structures or signs, subject, however, to conditions as to duration of use, location, lighting, removal, and similar matters as the commission may reasonably specify, and provided that the location and specifications of said temporary structures or signs are in accordance with the Rules and Regulations of the Worcester Historical Commission.
2. Terraces, walks, driveways, sidewalks and similar structures, or any combination of one or more of them, provided that any such structure is substantially at grade level and continue to conform to their existing footprint.
3. Storm doors and windows, screens, window air conditioners, lighting fixtures, antennae and similar appurtenances, or any combination of one or more of them, provided that the location and specifications of said appurtenances and fixtures are in accordance with the Rules and Regulations of the Worcester Historical Commission.
4. The color of paint.

In general, certificates are required before a building permit or demolition permit may be issued by Worcester's Department of Inspection Services, Building and Zoning Division. However, some of the regulated activities as outlined above do not require such permits yet must still obtain a certificate before they may be undertaken.



Design review is required for buildings within local historic districts undergoing exterior changes visible from a public way. The two buildings shown here have been adapted to apartments, requiring exterior changes.

In enumerating the duties and responsibilities of the Historical Commission, Article 3, Section 14, paragraph (d)4 of the city's Revised Ordinances of 2015 references the Historic Districts Act in describing the three types of certificates and their issuance, summarized below.

Certificate of Appropriateness: Following review, if the Historical Commission determines that a proposed construction or alteration project will be appropriate for or compatible with the preservation or protection of the local historic district, the Historical Commission shall issue a Certificate of Appropriateness for the project and a building permit may be issued and the proposed work undertaken.

In the case of a *disapproval* of a proposed project, the Historical Commission shall communicate the reasons for its determination to the applicant and for the record.

Prior to the issuance of a disapproval, the Historical Commission may notify the applicant of its proposed action and make recommendations of changes to the applicant's proposal which, if made, would render the application acceptable to the Historical Commission. The applicant may then submit modifications to the proposal in conformity with the recommended changes, which shall result in approval and issuing of a Certificate of Appropriateness.

In most cases, a discussion back and forth between the Historical Commission and the applicant and his/her designers regarding any design issues of concern results in accommodation and consensus and the approval of proposed projects. These Design Review Guidelines are intended to inform design decisions early in the project's planning to facilitate the review process.

Certificate of Non-Applicability: Following review, if the Historical Commission determines that a proposed project does not involve any exterior architectural feature or involves a feature which is not subject to review, the Commission shall issue a Certificate of Non-Applicability for the project, and a building permit may be issued, and the proposed work undertaken.

Certificate of Hardship: In general, a Certificate of Hardship is considered when a proposed change is not in keeping with the character of the district but that a more appropriate change would cause substantial hardship. Following review, if the Historical Commission determines that disapproval involves a substantial hardship (financial or otherwise) to the applicant and that the proposed project is without substantial detriment to the general public and the intent of the ordinance, the Historical Commission may issue a Certificate of Hardship for the project, and a building permit may be issued, and proposed work undertaken.

4.1.1 Initial Planning Steps

No matter what type of project is being undertaken within a local historic district, it is strongly recommended that several important steps be undertaken during the initial stages of planning a project.

It is recommended that the design of projects within local historic districts be undertaken by design professionals experienced in the rehabilitation and adaptive reuse of historic buildings. For larger projects, such professionals are usually architects and structural engineers. For smaller projects, such professionals may be non-architect designers or contractors experienced in work with historic buildings.

For issues related to the condition and appropriate treatment of historic building fabric, it may be desirable to use the expertise of professional building materials conservators who understand historic building systems and the unique problems associated with some historic materials. Contractors with demonstrated experience in work with historic buildings may be able to assist as well, though care must be taken that they indeed have the appropriate experience.

In addition:

- Early in the design process, identify and date authentic historic fabric associated with all periods of the building's development, as discussed throughout these design guidelines, and assess their existing conditions.
- Where changes in the use of a building are proposed, determine how the new use might be accommodated within the building without significant alteration to the exterior of the building.
- Examine options for needed changes and how they would impact the historic building and historic building fabric.
- Meet with Division of Planning and Regulatory Services staff (Planning staff) at an early stage in the design process before the preparation of design or construction documents, before submitting an application, and before purchasing any building materials, to discuss the project, design principles, and application and review processes. Continue consultations on an ongoing basis throughout the design process.
- If suggested by Planning staff, meet informally with the Historical Commission at one of its regular meetings at an early stage in the design process before the preparation of design or construction documents and before submitting an application to discuss the project.

Such discussion will provide the applicant with useful guidance upon which to base the project's design but shall not be binding upon the Historical Commission, which can only make its determination based upon an application and full submission.

4.1.2 Application and Review Process

Application and Fees

Applications for Certificates of Appropriateness, Non-Applicability, or Hardship are made by submission of an online application to the Planning and Regulatory Services Division along with required materials describing the proposed project.

Worcester has implemented an online permitting portal through which property owners and their representatives may apply for a wide range of applications and permits including those required for local historic districts. Instructions for signing up for an user account, creating a profile, and accessing application forms through the online permitting portal are available through the City of Worcester's website.

Applications and permits are linked to the user account for the person that submits them and are searchable by members of the public with an account. Applicants will receive email notifications to the email address in the profile for their user account about the status of their permit applications, including information regarding the review process, needed submission materials, scheduling of public meetings, and when certificates have been issued.

If you are a company with multiple employees who will need to view all permits and applications for your company, it is recommended that the company register one login account to be shared by all employees who need access to the company's permits. Multiple employees can be logged in at the same time with the same credentials as long as they are on different computers.

Submission Materials

Materials describing the proposed project should be submitted online at the time of application in accordance with online instructions. No meetings or public hearings will be set until all required materials are received and have been determined by Planning staff to be complete and accurate. Submission materials for a **Certificates of Appropriateness** or **Certificate of Hardship** include:

1. Completed online *Application for Certificate of Appropriateness & Demolition Delay Waiver* (As indicated by its title, this application addresses both Certificates for Appropriateness and Hardship as well as Historic Building Demolition within local historic districts as described in the next section of this chapter.);
2. Certified abutters list obtained from the City of Worcester's Assessing Office and addressed envelopes to those on the list as outlined below;
3. Cost Estimates (if claiming hardship, detailed cost estimates of removal or replacement using different materials versus restoration);
4. Clear, color photographs showing current conditions of the overall property and detailed photos showing areas of proposed work;
5. Scaled drawings, including at minimum site plans, floor plans, elevations, and details of significant features;
6. Description and/or samples of the materials to be used for any alteration or construction;

7. Written narrative or description of the project addressing the following:
 - a. Scope of the proposed work being performed;
 - b. Historic and architectural value and significance of the site, building, or structure;
 - c. General design arrangement, texture, and material of the features involved and the relation of such features to similar features of buildings and structures in the surrounding area;
 - d. In the case of new construction or addition to existing buildings or structures, the appropriateness of the size and shape of the building or structure both in relation to the land upon which the building or structure is situated and to the buildings or structures in the vicinity; and
 - e. How the proposed project is in harmony with the historic aspects or the architectural characteristics of the surroundings and of the local historic district.

Certified abutters lists should be obtained from the City of Worcester's Assessing Office, Room 209, City Hall for a small fee. Applicants must contact the Assessing Office at least one week in advance to ensure timely receipt. A copy of the list must be included with the application. Applicants should assemble one set of postage-paid, letter sized envelopes using the labels provided with the abutters list. These envelopes will be used by Planning staff to mail abutter notifications and must have a return address of: City of Worcester, DPRS at City Hall, 455 Main Street, Room 404, Worcester, MA 01608.

Submission materials for a **Certificates of Non-Applicability** include:

1. Completed online *Application for Certificate of Non-Applicability*;
2. Clear, color photographs showing current conditions of the overall property and detailed photos showing areas of proposed work.

Initial Review

Following submission of an application, Planning staff will confirm that the proposed project is subject to approval by the Historical Commission and will review and approve the application for completeness and accuracy. Such initial review will be undertaken promptly and in all events within *two (2) weeks* of filing of an application. Once determined complete, approved applications will be date stamped and filed with the City Clerk.

Planning staff will then schedule the application for review at the next available regular meeting of the Historical Commission. The applicant and abutting property owners will receive a Public Hearing Notice at least *two (2) weeks* prior to the Historical Commission meeting. The notice will include the date, time, and location of the meeting. Notice of the hearing will also be published in a local newspaper. The applicant and/or their representatives are required to attend the meeting to answer any questions the Historical Commission members may have.

Public Hearing

At the public hearing, the applicant and/or their representatives shall present the proposed project to the Historical Commission and engage in discussion and answer questions regarding the project.

Should it be determined by the Historical Commission that additional information or materials are required in order for the Commission to make a determination regarding the project, or if changes to the proposal are recommended by the Commission for approval, the applicant will be asked to agree, in writing, to a continuance of the hearing to a subsequent meeting of the Historical Commission before which the needed materials can be provided and/or changes to the project documented.

Determination

The Historical Commission shall make a determination regarding an application at the initial public hearing or a continuation of the public hearing as may be provided. The determination may be:

- (a) that a Certificate of Appropriateness, Certificate of Non-Applicability, or Certificate of Hardship should be issued for the project, in which case a building permit and/or demolition permit may be issued and the project may proceed, or
- (b) that such certificates should not be issued, in which case a building permit or demolition permit may not be issued, and the project may not proceed.

Within *two weeks* following the meeting at which the Historical Commission makes a determination, the signed decision will be issued and provided to the applicant. The reasons for any determination of disapproval of an application shall be made in writing for inclusion in the record and shall be provided to the applicant.

Once an official determination is made, the applicant may file a new application with proposed changes to the project addressing the stated reasons for disapproval for further review and discussion by the Historical Commission.

Should the Historical Commission fail to make a determination within *sixty days* of filing of a complete application or such further time as the applicant may allow in writing, a Certificate of Hardship shall be issued for the project.

Hearing Waiver

The requirement for a public hearing may be waived by the Historical Commission should the Commission determine that the proposed changes are so insubstantial in their effect on the local historic district that the application can be reviewed without a hearing and provided notice is given to abutting property owners and there is no objection within ten days of mailing of such notice.

A public hearing also need not be held if the hearing is waived in writing by all persons entitled to notice of the hearing, including the applicant and abutters.

Appeal of Determination

Any applicant aggrieved by a determination of the Historical Commission may request a review by a qualified person as designated by the Central Massachusetts Regional Planning Commission.

Such request must be made in writing to the Historical Commission within *twenty days* of the filing of the determination with the City Clerk. The review shall be conducted within *forty-five days*. The results of the review shall be binding on the applicant and the Historical Commission. Further appeal, however, may be sought by the applicant in Superior Court.

4.1.3 Review Criteria and Guidelines

Factors to be considered by the Historical Commission in undertaking its reviews are outlined in the Historic District Act and referenced in the Commission's Rules and Regulations.

In its review of proposed projects within local historic districts, the Historical Commission considers, among other things, (a) the historic and architectural value and significance of the site, building, or structure; (b) the general design arrangement, texture, and material of the features involved; and (c) the relation of such features to similar features of buildings and structures in the surrounding historic context.

With respect to additions and new construction, the Historical Commission considers the appropriateness of the size and shape of the building or structure both in relation to (a) the land area upon which the new construction is to be situated and (b) other buildings or structures within the vicinity. If deemed necessary, the Historical Commission may impose dimensional and set-back requirements in addition to those required by other applicable ordinances or regulations.

The considerations of the Historical Commission are informed and directed by the *Secretary of the Interior's Standards for the Treatment of Historic Buildings* as discussed in Chapter 3 of these Design Review Guidelines, and especially the *Standards for Rehabilitation*.

The information, recommendations, and guidelines outlined in Chapters 5 through 7 of these Design Review Guidelines provide specific guidance for decision making during the design process related to issues and topics of concern to the Historical Commission.

As stated in the Historic District Act, the Historical Commission only makes recommendations and requirements for the purpose of preventing developments incongruous to the historic aspects or architectural characteristics of the surroundings and of the local historic district.

These design guidelines and the use of the *Secretary of the Interior's Standards* help assure that decisions are made on a professional basis and not on the basis of personal aesthetic preferences.

4.1.4 Project Implementation and Compliance

Following the approval of a project through the issuance of a Certificate of Appropriateness and subsequent building permit, compliance with the terms of the Certificate of Appropriateness as documented in the final approved submission materials is monitored by the Building Inspector assigned to the property in consultation with Planning staff.

In some cases, the review of completed construction documents will be required before construction work can begin to assure consistency with the approved submission materials from the application review process.

Work approved by the Historical Commission must be started within twelve months from the date of approval. A written request is necessary for an extension of time on the applications. Any changes to the findings, decisions, or actual plans must be considered and voted upon by the Historical Commission in public meeting after proper notification.

The completed project must be consistent with the approved documents. Where a Certificate of Occupancy is required, such certificate can only be issued once consistency with approved documents is confirmed by the Building Inspector and Planning staff.

4.2 HISTORIC BUILDING DEMOLITIONS REVIEW

The City of Worcester has adopted a Historic Building Demolitions Ordinance which is codified in Chapter 9, Section 13 of the city's *Revised Ordinances of 2008, Part One*. The purpose of the ordinance is to preserve and protect historically significant buildings, landmarks, and places within the city and to encourage owners of such buildings to seek out persons who might be willing to purchase, preserve, rehabilitate, or restore such buildings rather than demolish them.

Also known as a Demolition Delay Ordinance, the ordinance specifies that no permit for the demolition of a designated historic building may be issued for up to twelve months without the approval of the Historical Commission.

As defined in the ordinance, a *designated historic building* includes any building or portion thereof that is listed on, within an area listed on, or pending for listing on the National Register of Historic Places or State Register of Historic Places, or any building or portion thereof determined eligible for listing on the National Register.

In practice, the city uses properties inventoried in the *Massachusetts Cultural Resource Information System* (MACRIS) database to meet this requirement for determining listing or eligibility for listing, and the city maintains a list of MACRIS inventoried properties for identification of designated historic buildings subject to the ordinance.

As defined in the ordinance, *demolition* includes "any act of pulling down, destroying, removing, or razing a building or any designated historic portion thereof, or commencing the work of total or substantial destruction with the

intent of completing the same.” In practice, with respect to “any portion thereof,” such work includes any proposed removals as would be required for work subject to issuance of a building permit as well as issuance of a demolition permit for removal of an entire building.

4.2.1 Application and Review Process

Any owner of a designated historic building proposing to undertake work that would require demolition or removal of historic building fabric as defined in the Historic Building Demolitions Ordinance may request approval for such work by the Historical Commission. The Historical Commission’s review process is managed by the city’s Planning and Regulatory Services Division staff (Planning staff) and is similar to that required for projects within a local historic district as described above. See the Historical Commission’s page on the city’s website and consult with Planning staff. Several conditions under which application and approval is not required, such as public safety and emergencies, are noted in the ordinance.

Submission Materials

Materials describing the proposed project should be submitted online at the time of application in accordance with online instructions. No meetings or public hearings will be set until all required materials are received and have been determined by Planning staff to be complete and accurate.

Submission materials for a **Building Demolition Delay Waiver** include:

1. Completed online *Building Demolition Delay Waiver Application*;
2. Certified abutters list obtained from the City of Worcester’s Assessing Office and addressed envelopes to those on the list as outlined previously in this chapter with respect to local historic districts;
3. Clear, color photographs showing current conditions of the overall property and detailed photos showing areas of proposed work;
4. *Building Demolition Delay Waiver Undue Financial Hardship Supplement* form if requesting approval due to financial hardship. The Supplement requires submission of cost estimates for the proposed work, including all costs associated with the demolition and/or replacement/new construction.

Review and Determination

The Historical Commission shall make a determination regarding an application at the initial public hearing, or a continuation of the public hearing as may be provided.

At the public hearing, the applicant and their representatives shall present the proposed project to the Historical Commission and engage in discussion and answer questions regarding the project.

Relevant information may include the current condition of the building, its conformity with the standards for designation as a designated historic building, the cost to repair or maintain the building, the ability of the owner to provide such funds either directly or through third party financing, the economic viability of the current or potential uses of the building, as well as any other

factor relevant to the application of the ordinance to the building.

In cases where only a portion of the historic building is proposed for removal, the Historical Commission will focus primarily upon the impact of the removal to the building, surrounding historic neighborhood, and city. However, other factors may be taken into consideration as well, such as the impact of the proposed new work.

Should the Historical Commission determine that, despite being listed in the MACRIS database, the subject building **does not meet the requirements** for designation as a designated historic building, the application will be withdrawn and the requirement for any future applications shall be waived.

Should the Historical Commission determine either (1) that the demolition of the designated historic building **would not be detrimental** to the historical or architectural heritage or resources of the city, or (2) that the issuance of a demolition approval **is necessary** to avoid an undue hardship to the property owner, the application is **approved**. In such case, a signed decision will be issued within *one to two weeks* and the applicant and the Building and Zoning Division will be notified.

Should the Historical Commission determine both (1) that the demolition of the designated historic building **would be detrimental** to the historical or architectural heritage or resources of the city, and (2) that the immediate demolition of the building is **not necessary** to avoid an undue economic hardship to the property owner, the application is **not approved** and the building may not be demolished until twelve months after the date upon which the request was filed with the Historical Commission.

In notifying the property owner of its decision of non-approval, the Historical Commission shall specify the date upon which the twelve-month delay period expires. The twelve-month period may be reduced at any time by the Historical Commission whenever it is satisfied that there is no reasonable likelihood that either the owner or some other person or group is willing to purchase, preserve, rehabilitate, or restore such building. During the twelve-month period the Historical Commission shall assist the owner in efforts to locate a purchaser to preserve, rehabilitate, and restore the subject building.

Should the Historical Commission fail to make a determination regarding a project within *forty-five days* from the date of the filing of a complete application, the owner may, upon receipt of the necessary building or demolition permit from the Building and Zoning Division, proceed with the demolition of the building. The approval of the Historical Commission, whether granted directly by vote of the Commission or constructively by the passage of the forty-five day or twelve-month periods noted above, is valid for one year from the date of such approval.



CHAPTER 5 – HISTORIC BUILDING MATERIALS

The treatment of historic building materials is an important part of any construction project involving a historic building regardless of the proposed change or historic features being impacted. The proposed treatment of building materials should be reviewed for appropriateness in the same way as the design of a new building feature.

A fundamental goal in working with historic buildings is the preservation of authentic building fabric, or materials. Consequently, the design guidelines outlined below always begin with the preservation and repair of historic materials and recommend replacement only when materials are deteriorated beyond the possibility of repair. This is true even when the authentic materials are not perfect in their visual appearance. It is preferable to preserve authentic materials that are nicked or somewhat damaged rather than replace them with new materials with perfect visual appearance—so long as the existing damage will not lead to the further deterioration of the materials of the feature, or that of adjacent features.

The discussion of treatment of historic materials begins with the discussion of building maintenance. While these design guidelines are focused on addressing proposed changes to historic buildings, discussion of the treatment of historic materials is very similar to that for building maintenance. Buildings under review by the Historical Commission because they are in Local Historic Districts

or for proposed demolition should be reviewed to assure that they are being maintained and that demolition by neglect is not occurring. Building changes necessary because of deterioration can be avoided through routine maintenance, which should always be in the forefront when working with historic buildings.

Historically, the quality of different building materials varied over time as the methods used in their production improved. In the 18th and early 19th centuries, building materials tended to be locally produced. Wood was cut from local forests and shaped into building materials at local sawmills or by hand onsite. Wood was not always properly cured and dried as it is today, and the assorted wood species and quality of lumber varied by project. Bricks were molded and baked using clays from local clay pits, and the use of field stone was common in wall construction. Lime and sand for mortar was locally obtained and varied in quality; cement was not available.

The quality of building materials improved through the 19th century as manufacturing facilities grew and transportation systems developed. As a regional transportation hub, Worcester had access to materials produced in other places and was itself a manufacturing and production source.

Construction systems and technologies changed with time as well. Interestingly, construction systems tended to decline in quality during the mid and late 19th century, as larger and increased numbers of buildings were attempted through sometimes experimental and expedient means. It wasn't until the late 19th and early 20th centuries that professional standards in building material production and building systems began to be developed and implemented.

Residential construction expanded in Worcester during the period between 1840 and 1915. As discussed in Chapter 2, very few buildings remain in the city from the 18th and early 19th centuries. Within the city's local historic districts, most residences were built for relatively affluent owners, and both the designs and the construction quality were high.

It is important that the quality and condition of building materials and building systems be evaluated on a case-by-case basis as projects involving historic buildings are undertaken. Appropriate treatments should be determined based upon the specific conditions observed. It is important that designers and contractors experienced in work with historic materials and systems be involved. Contractors familiar only with new materials may not understand how historic building systems work and could make costly mistakes in their treatment.

General guidelines for the treatment of historic building materials are outlined below. Common exterior building materials used in residential architecture include wood, brick, stone, stucco, and metals. The discussion begins with roofing materials, which need to be replaced with some regularity due to their exposure to sun and rain.

5.1 ROOFING

The roof is among the most critical features of any building. Roofs are not only important character defining features, their function and physical integrity are critical to a building's long-term care and preservation.

Roofs are composed of a variety of building elements that together function as a system. Roof elements include their various structural elements (framing, sheathing, roofing materials, and flashing) as well as the drainage system, including drains, gutters, scuppers, downspouts, and splash blocks or piping that help convey water away from the building. They serve a critical function while also being important design features. Providing a weather-tight roof and properly functioning drainage system should be addressed before any other concern.



Roofs are complex systems with many contributing elements, designed to protect exterior walls and to convey rainwater to the ground and away from the building.

5.1.1 Roofing Materials and Causes of Deterioration

Steeply pitched gable roofs are the most common roof type within Worcester's historic residential neighborhoods and local historic districts. Most early historic roofs were likely covered with wood shingles, though slate, metal, and terra cotta were used for some high style residences. Today, most roofs in Worcester's neighborhoods have been covered with contemporary asphalt shingles and appear to be maintained in good condition.

Many existing roofs have design features such as dormers of various configurations with complicated ridge, valley, and flashing arrangements. A few buildings have complex turrets and projecting bays.

The review of proposed projects involving changes to historic roofing materials by Worcester's Historical Commission often involves similar issues as related to the routine maintenance of roofs. It is of primary importance that roofing systems be properly configured and maintained and that proposed new work incorporate best practices that facilitate protection and maintenance.

If not protected and maintained, damage that occurs to concealed roof and wall structures due to water penetration may go unnoticed for years. As a result, wood members will rot (especially at bearing points), metal elements will rust and expand, and masonry will deteriorate and crack. By the time these

conditions become apparent, the required repairs will be much more costly than proper protection and maintenance would have been. Regular and ongoing roof maintenance is critical to the preservation of historic buildings.

Roofs are highly vulnerable due their exposure to sun and rain. Roofing materials will inevitably fail over time and require replacement. When deterioration and failure occur and replacement is necessary, the entire roof system should be inspected to identify and address all elements that require repair and/or replacement, including roof structure, sheathing, underlayment, flashing, and roofing materials. A general description of the most common roofing materials is provided below, along with descriptions of common causes of failure and appropriate treatment.

Wood Shingle Roofing

Wood shingles were the most common roofing material for residential buildings in the 18th and 19th centuries. Early shingles were fabricated from locally grown pine, oak, or white cedar, with white cedar being most common as time progressed due to its durability. By the end of the 19th century, western red cedar became available and was commonly used. Cedar shingle roofing continued in use through the Revival styles of the 19th and early 20th century and to the present, including Colonial Revival, Bungalow, Craftsman, and other styles. In many urban areas, however, wood shingles were replaced with more fire resistant materials, such as asphalt, when they became available.



Authentic wood shingle roofing significantly enhances the character and appearance of an 18th or 19th century historic building.

Wood shingles are susceptible to wear over time and tend to curl when exposed to intense sunlight. Prolonged moisture on or in the wood may promote moss or fungi to grow, especially on north facing surfaces, which further holds moisture and causes rot.

Wood shingles, when present, are a character defining feature, and replacement in kind with new wood shingles is recommended when possible. However, replacement with dimensional asphalt shingles that resemble wood shingles in color is an acceptable treatment.

Wood shingles were generally installed on spaced wood lath secured to rafters such that the undersides of the shingles were visible from the attic interior. This arrangement allowed the wood shingles to breathe and dry out and should be replicated when existing wood shingle roofs are replaced.

New wood shingle roofing installed over solid wood sheathing with a waterproof underlayment should be installed with a fabric spacer that sets the shingles off of the roof deck and allows the shingles to breathe. This is an acceptable treatment, even where installation of visible metal edging along the gable end to cover the gap between the shingles and the decking, and a roof vent along the ridge to facilitate air flow, is required.

When an existing wood shingle roof installed on wood lath is replaced with asphalt shingles, plywood decking and underlayment are generally installed over the wood lath. This is an acceptable treatment, even though it too may require the installation of visible metal edging along the gable ends to cover the plywood edge.



Asphalt shingles are the most common type of replacement material for historic wood roofing and is an acceptable treatment for all building periods, types, and styles.

Asphalt Shingle Roofing

Asphalt shingles were first used in the 1890s and have become the most common and cost-effective roofing material for residential buildings. Early asphalt roofing was generally made of asphalt-saturated felts in a variety of shapes, styles, textures, and colors. Today, asphalt shingles are made with fiberglass, generally as dimensional asphalt, or “architectural” shingles, or increasingly less commonly as 3-tab shingles, each with a 15-to-25-year life expectancy. Dimensional asphalt shingles with additional layers of material may be expected to last longer and are available with textures and colors to suggest wood or slate.

Through the late 20th century, asphalt shingles have been used to replace more expensive, traditional roofing materials such as wood and slate shingles. This should be considered an acceptable practice, though the replacement of traditional materials in kind should always be encouraged. When asphalt shingles

are proposed, it is recommended that the shingles be heavyweight, dimensional shingles that resemble the color of the historic roofing material they are replacing.

Slate Shingle Roofing

Slate roofing, when available, was used for prominent buildings dating back to the colonial and federal periods and became more widely used during the Victorian era of the late 19th century when railroads made slate quarries more accessible. Slate was available in a variety of shapes and colors and was often installed in decorative patterns. It became widely used in urban areas in the late 19th and early 20th centuries because it was fireproof. Slate was commonly used for high end residences due to its durability and decorative qualities.



Slate roofs are strong character defining features that should be preserved whenever possible. Slate is a durable and long-lasting material that rarely needs full replacement.



Replacement of historic slate roofing may be permitted if the slate is highly deteriorated and at the end of its useful life. When permitted, use of synthetic slate is recommended. If asphalt roofing is permitted, color should match that of the historic slate.

Slate shingles are the most durable of all historic roofing materials. Depending on the source, slate shingles last from 100 to 150 years. Problems with slate roofs are typically the result of localized failure caused by roof fasteners and accessories that do not have the same long lifespan of the slate itself. Individual broken or damaged slates can be replaced without affecting the surrounding

slates, and it is not unusual for entire flashing systems to be replaced without requiring replacement of the entire slate shingle roof. Individual slates may discolor, delaminate, or chip over time depending upon the quality of the original material.



Preserved slate roof in the Elm Park Neighborhood, remaining in good condition after over one hundred years.

The preservation and continued maintenance of existing slate roofing is strongly encouraged and is usually less expensive than replacement with a substitute material. The replacement of severely deteriorated historic slate roofing with new natural or synthetic slate roofing is also strongly encouraged.

On buildings with decorative slate roofing that is highly visible from the ground, replacement of slate with asphalt shingles is not recommended; decorative patterned roofs should be preserved, maintained, and restored whenever possible.

Replacement of deteriorated slate roofing that cannot be repaired is an acceptable treatment due to cost and because the type of slate may no longer be available. When replacing severely deteriorated decoratively patterned roofs, the new material should match the pattern, color, and texture of the historic roof.

Substitute materials that closely replicate the appearance of slate are commercially available and are recommended when slate roofs visible from the ground are being replaced. Materials such as recycled rubber/polymer or fiber-reinforced cement shingles that resemble slate are less costly than natural slate but replicate its appearance.

For outbuildings and roofs not visible from a public way and with single-color slates, dimensional asphalt shingle in a color similar to that of the original slate roofing is appropriate.

Terra Cotta Tile Roofing

The use of clay terra cotta tile roofing is rare in Worcester's historic neighborhoods and was used only in very high-end architect designed residences. Where they are present, terra cotta tiles are an important character defining stylistic feature of a building and should be preserved and maintained.

Terra cotta tiles weather well but tend to crack or break when hit by falling branches or when walked on improperly. Failures are usually localized. When broken or dislodged, roofing tiles should be repaired and refastened by a roofing specialist. As with slate, repair of individual terra cotta tiles is generally less costly than replacement of the entire roof. Replacement terra cotta tiles are available from specialized manufacturers.

Terra cotta tile roofs should only be replaced when they are deteriorated beyond repair. The visual qualities of terra cotta tiles cannot be replicated with commonly available asphalt single roofing. Though not desirable, replacement with a high-end architectural asphalt shingle matching the historic color would be the most convenient, but only when repair or replacement in-kind is not possible.



The visual character of terra cotta roofing cannot be replicated with replacement materials.

Metal Roofing

Metal became a common roofing material after the mid 19th century as sheet metal production expanded in manufacturing centers and railroads made the shipping of materials less costly. Traditional sheet metal roofing materials include lead, copper, zinc, tin plate, terne plate, and galvanized iron. Sheet metal roofing is installed in two primary forms—standing-seam and flat-seam. In Worcester's historic residential neighborhoods sheet metal is used for prominent features on some architect designed roofs and for low pitched roofs such as porches.

Standing seam roofing is laid out in long panels approximately 18 inches wide and is used on sloping roofs, sometimes for the entire roof and sometimes for a lesser-slope porch roof. The folded seams of the adjacent panels create a pattern

of regular ridges down the roof slope and are usually a visible character defining feature of the building. Except for sheet copper roofs, standing seam metal roofs were typically painted. Today, however, metal roofing with prefinished coatings are available.



Metal roofing is not widely used in Worcester's historic neighborhoods. These examples are from other places. Metal roofing may be considered an acceptable treatment when replacing other materials such as asphalt shingles. (Right photo: Pac-clad.com)

Flat-seam roofing is often used on low-sloping roofs, cupolas, and built-in gutters. They are formed of small rectangular pieces with their edges crimped together and soldered to form a weathertight seal. Flat-seam roofing is often not visible from the ground and is therefore not usually a visible character defining feature of the building.

Metal roofing is long lived but requires periodic maintenance, usually by painting. Deterioration tends to occur from wearing of the protective painted or galvanized surface, chemical action, rusting, pitting or streaking, airborne pollutants, rain or material acids, or galvanic action. Metals also become worn and fatigued, especially at vulnerable locations, such as joints.

Galvanic action occurs when dissimilar metals such as copper and iron chemically react to each other and corrode. The dissimilar materials may be in direct contact with each other or may become connected through the flow of rainwater.

The periodic maintenance of historic metal roofing is important. Replacement of severely deteriorated metal roofing with similar, new metal roofing is an appropriate treatment, particularly on highly visible roofs. Newer metal products such as lead-coated copper, terne-coated steel, and aluminum/zinc-coated steel can be acceptable replacement materials for less durable historic materials such as tin, tern plate, zinc, or lead. Replacement of highly visible metal roofs with substitute materials that alter the building's appearance is not appropriate.

For flat-seam metal roofing on low sloping roofs not visible from the ground, replacement with membrane roofing may be appropriate. To reduce the cost of custom pan fabrication and field painting, replacement of standing seam roofing may be pre-formed and factory painted, provided standing seams are no more than an inch high and the roofing and flashing details are not complex.

Flat Roofing Systems

Low pitched roofs are most common on commercial and industrial buildings and are rare in Worcester’s historic neighborhoods except for small features such as porches and larger apartment and commercial buildings. “Flat” roofing systems are rarely actually flat but are designed with gentle slopes to drains or gutters. They must be watertight.

The most common flat roofing systems in the early and mid-20th century, other than metal roofs, were built-up roofs comprised of layers of roofing felts impregnated and sealed together with tar or bitumen. The benefit of built-up roofing is its redundancy—multiple layers of material that retains its function even when punctured and that is easily repaired or covered with new material.



Membrane roofing is appropriate for nearly flat roofs that are not visible from the street.

In the late 20th century membrane roofing largely replaced the use of built-up roofing due to cost and ease of installation. The most common membrane roofing is EPDM (ethylene propylene diene terpolymer), an extremely durable, single ply, synthetic rubber roofing membrane widely used in low-slope buildings worldwide. Its two primary ingredients, ethylene and propylene, are derived from oil and natural gas. EPDM is available in both black and white, is sold a variety of widths, and in two thicknesses. EPDM can be installed fully adhered, mechanically attached, or ballasted (covered with gravel). It is often installed over rigid insulation laid on the roof deck, which may be used to form the slope to drains. The seams of the roofing system are sealed with liquid adhesives or specially formulated tape.

The use of membrane roofing is appropriate for low slope roofs that are not visible from the public way. White membrane roofing is used to reflect sunlight and keep buildings cooler in summer and are generally recommended to reduce heat island effect.

5.1.2 Roofing Treatment and Repair

A summary of appropriate approaches for the treatment of historic roofing materials is provided below.

Preservation, Maintenance, and Repair

- a. **Preservation:** Preserve and maintain existing historic roofing that is a visual character defining feature of the historic building.
- b. **Annual/Biannual Inspection:** Inspect roofs on an annual basis to ensure all roof surfaces, flashing, gutters, and downspouts are watertight and draining properly. Clean gutters, downspouts, and areas with flashing every spring and fall at minimum to remove leaves and debris. Check that flashing is intact at dormers, chimneys, parapets, and projections as well as along valleys created by intersecting slopes.
- c. **Timely Repair:** Repair leaking roofs as soon as possible. If repairs are not made quickly, adjacent building materials will rapidly deteriorate.
- d. **Temporary Coverings:** When faced with a leaking roof, protect materials with temporary coverings, such as tarps or roll roofing, until permanent repairs can be made. Temporary coverings will help slow deterioration of surrounding building materials.
- e. **Selective Repair:** Whenever possible, selectively repair deteriorated sections of historic roofing material rather than completely replacing the roof.

Roofing Replacement

- f. **Historic Roofing:** Replace historic roofing that is deteriorated beyond possibility of repair or has exceeded its life expectancy. Whenever possible, replace historic roofing materials such as wood, slate, terra cotta, or metal with new materials that match the existing, especially when the historic roofing is a visual character defining feature of the building.
- g. **Substitute Materials:** When in-kind replacement of historic roofing materials is not feasible, install substitute materials that are visually, physically, and chemically compatible with the historic roof materials. New materials should match historic materials in color, texture, size, shape, profile, and general appearance.
- h. **Synthetic Substitutes:** There are materials being developed that closely replicate historic materials, including wood and slate. The use of these materials should be reviewed on a case-by-case basis for their appropriateness and their visual impact on the character of the historic building.
- i. **Wood Shingle Roofing:** The preservation and maintenance of historic wood shingle roofing is encouraged. When replacement is necessary, replacement with new wood shingle roofing is encouraged but not required.

- j. **Asphalt Shingles:** Contemporary asphalt shingles can occasionally be an appropriate roofing material for pitched roofs in historic neighborhoods and may be used as a replacement material for wood shingle roofs, or slate roofs that are not character defining features. In general, shingle colors should be dark grey, brown, or black approximating the color of historic wood or slate roofing. Excessively light-colored shingles are not recommended.
- k. **Slate Roofs:** Slate roofs should be preserved whenever possible, especially on highly visible roofs such as Mansards. Slate roofs were installed historically for both their visual appeal and longevity. Slates vary in color, shape, pattern, and detailing, and should always be replaced in-kind, from the same quarry or geologic formation if possible. Generally, replacement of individual slates should always be undertaken before replacement of the entire roof.
- l. **Slate Substitutes:** When historic slate roofing is being replaced and the use of new slate is not possible, the use of quality synthetic slate is preferred over the use of asphalt shingles. The visual characteristics of the replacement materials should be similar to those of the historic roof being replaced.
- m. **Terra Cotta Roofs:** Preservation, maintenance, and repair of terra cotta tile roofs is strongly encouraged over replacement and may be required when the roof is an important character defining feature. Replacement should only be undertaken when the roof is deteriorated beyond repair. If replaced, use a material that replicates the appearance and color of the terra cotta as closely as possible.
- n. **Metal Replacement:** Replacement metal roofing should match the original metal roof in layout, configuration, and appearance of the seams and trim.
- o. **Metal Replacement of Shingle Roofs:** Replacement of conventional shingle roofs with new metal roofing is acceptable provided that the new metal roofing approximates the appearance of historic standing seam metal roofs and that roof colors are restrained and compatible with the character of the district.
- p. **Flat Roofs:** Flat or gently sloping roofs not visible from the ground may be replaced with appropriate contemporary roofing systems such as EPDM/rubber membrane roofing.
- q. **Removals and Substrates:** When replacing roofing, remove all existing roofing material and inspect and repair roofing substrates, such as wood and waterproof underlayment. New roofing should never be applied over old roofing.
- r. **Protection:** During roof replacement, protect adjacent historic features such as dormers, cornices, eaves, trim, windows, and chimneys from damage during construction



Most residences in Worcester's historic neighborhoods are of wood frame construction with wood siding, features, and details.

5.2 WOOD

Wood was the primary building material used during successive historic periods in Massachusetts and is characteristic of the mid-to-late-19th century vernacular and late 19th and early-20th century revival styles found in most of the city's residential neighborhoods. Wood is the predominant material used in the construction of residences in Worcester's historic neighborhoods. Most of the city's historic residences are built with wood structural systems; wood exterior coverings; wood detailing; and wood features such as doors, windows, porches, railings, and steps.

Wood is also present in the city's historic masonry residences (as well as many commercial buildings) for interior structural framing as well as doors, windows, and architectural detailing. Since most of the city's historic buildings contain a significant amount of wood, it is important to understand the general characteristics of wood as a building material.

When used as an exterior building material, wood is vulnerable to weathering and deterioration. The ongoing condition of a wood building and its elements is highly dependent upon the extent and quality of regular maintenance. As versatile as it is, wood can only perform satisfactorily when it is protected from the natural forces that weaken and deteriorate it: weathering, rot, animals, and insects.

The capacity of wood to resist these forces depends on periodic inspection and immediate response to warning signs. Without routine inspection and prompt remedial action, wood deterioration will accelerate rapidly on a building's

interior and exterior. Early detection and repair thus avoid more extensive and costly repair later.

Changes proposed to a historic building should not negatively impact the ability to perform regular maintenance. Proposed projects need to anticipate the need for ongoing maintenance, address vulnerable situations, and avoid creating conditions that will be susceptible to deterioration.

Historically, wood was used extensively for its structural and aesthetic value. In particular, historic wood siding and wood details are highly visible and significant features of a building's exterior. In Worcester's historic neighborhoods, these wood features include clapboard, shingles, porches, columns, balustrades, shutters, cornices, trim, windows, and doors.



Most wood deterioration is caused by maintenance issues, such as lack of paint as in the top two photos and lack of needed repairs as in the bottom photos. Areas where water penetration occurs will deteriorate rapidly and will cause deterioration of structural elements that are not visible from the exterior.

5.2.1 Condition and Causes of Wood Deterioration

Exterior wood conditions for residential buildings in Worcester’s local historic districts are generally very good. Only a small number of buildings exhibit significant areas of deferred maintenance. Conditions in other historic neighborhoods throughout the city vary more widely. Prospective projects should improve deteriorated conditions and apply appropriate maintenance approaches and techniques whenever possible.

Problems such as wood deterioration, water penetration, peeling paint, and weathered surfaces are common in buildings where preventative maintenance is not routine. In Worcester’s residential buildings such conditions tend to be of limited extent and located in particularly vulnerable locations – seldom a threat to the entire building.

Wood buildings of all eras were historically painted – wood finishes exposed to the exterior should be protected from the weather with paint. When properly maintained, wood can be durable and serviceable for many years. Painted surfaces that are damaged or deteriorating may be cause for concern.

The most prevalent problem affecting architectural wood is water penetration from poorly maintained roof drainage systems. Conditions in roof valleys and around dormers or chimneys can be difficult to see and monitor. Clogged gutters overflowing with debris, sagging and loose gutters, inadequate downspouts, and damaged eaves, soffits, and fascias can rot wood and cause interior water damage. Large shrubs and trees in close proximity to buildings contribute to wood deterioration and failure by trapping moisture and slowing the evaporative process.

Decay and Rot – Peeling paint can be an early sign of high moisture content in the underlying wood. Rot is caused by water penetration that softens and breaks down the fibrous structure of wood and supports the growth of various types of fungi. In the forest, rotting is a natural, healthy process, but it can be fatal to buildings. The growth of fungi is a clear sign that rotting is occurring. To survive, fungi usually require wood to have a moisture content of at least twenty percent as well as the correct temperature range.

Keeping wood dry is the best way to prevent rot. Fungi can substantially weaken the structural integrity of wood, diminishing its capacity to carry loads or its ability to withstand crushing. Without these capabilities, a building’s wooden frame can be rendered useless.

The presence of rot indicates that moisture is present. Simply attending to the rotted wood is inadequate unless it also addresses the source of the moisture. If this source is not discovered and eliminated, rot will recur and spread.

Moisture penetration most often occurs for one of the reasons listed below:

- Leaking roof or gutters;
- Inadequate or deteriorated flashing;
- Peeling paint;

- Unventilated spaces;
- Improper insulation or lack of a vapor barrier;
- Poor drainage or rainwater removal around the foundation;
- High watertable or rising damp; or
- Plumbing leaks.

Animals – A common problem associated with wood buildings is their attractiveness to animals for nesting. Birds, squirrels, mice, and rats are of particular concern, though other species can also be a problem. Birds and squirrels frequently enter the building through small holes in eaves and gables and at other locations where materials join. The holes are generally visible from the exterior. Older mid-nineteenth century buildings constructed close to the ground over crawl spaces are particularly susceptible to mice and rat infestation.

Insects – Some types of insects are natural enemies of wood and can quietly but dramatically destroy the structural stability of wood members in a short period of time. These insects include termites, powder post beetles, and carpenter ants.



Wood should not be in close proximity to the ground due to exposure to ground water and to access by animals and insects.



Leaking roofs can cause damage to eaves and wood elements below.

5.2.2 Wood Treatment and Repair

Projects involving historic buildings should address issues of water penetration, decay, and rot when they are present. Proposed new work should not create conditions that might increase threats of deterioration. The sections on roofs, wood siding and detailing, and wood features in Chapter 6 address many of the issues related generally to wood. But, for every proposed project, the following should be completed or identified:

- a. **Building Assessment:** In conjunction with any new project, undertake an assessment of the building looking for signs of water penetration and decay. Repair conditions that are identified.
- b. **Causes of Deterioration:** Where deterioration, decay, or rot are observed, determine and address the source and cause of the condition – do not simply repair the deteriorated wood without addressing its cause. Monitor the condition after repairs to assure that the right cause was identified.
- c. **Selective Repair:** In general, rotted wood should be removed and replaced, particularly if it is structural. It is usually not necessary to remove an entire wood element, but only the rotted portion.
- d. **Use of Consolidants:** Where limited rot has occurred, commercially available epoxy consolidants can be used to give strength to the existing wood and no removal is necessary.
- e. **Dutchmen:** For more extensive repairs, the deteriorated portion of the wood element can be removed, and a small piece of new wood (called a *dutchman*) installed as a patch in the original wood feature, limiting the amount of authentic fabric removed.
- f. **Structural Assessment:** For wood structural elements, a structural engineer should be consulted to assess the nature of the damage and the extent of repair required.
- g. **Painting:** Wood finish material exposed to the exterior should be protected with properly applied paint. A good paint job should last twelve to fifteen years. Basic guidelines for painting are included in Chapter 6 in the discussion of wood siding, details, and trim.
- h. **Bird and Squirrel Holes:** Once identified, birds and squirrels should be chased out and the holes repaired. Extensive damage can be caused by animals inside the structure, and holes allow moisture inside the walls causing rot.
- i. **Mice and Rats:** Mice and rats generally enter through holes at grade level and live in basements, crawlspaces, and floor structure. They nest in hidden locations, chewing wood and wiring. Mice and rats should be controlled through periodic inspections by professional pest treatment services.
- j. **Insects:** A professionally qualified firm should be retained to inspect and treat vulnerable buildings experiencing insect infestations.



Brick is not prominent within Worcester's local historic districts but was used for a select number of residences and more widely for institutional and commercial buildings mostly at the districts' edges.

5.3 BRICK MASONRY

Brick is used as an exterior building material in very few residences in Worcester but is more common in early 20th century commercial and apartment buildings within the city. A few brick residences are found in the city's local historic districts, many of Colonial Revival design. Most of these buildings are in very good condition.

Although brick is a material of substantial longevity, it is still vulnerable to deterioration. To remain in good condition, brick must maintain its structural stability and its ability to deal with moisture. Bricks are baked and like a loaf of bread are comprised of an outer crust and a softer inner core. Without the outer crust, the inner core of the brick is vulnerable to rapid deterioration. Bricks are also porous. Like a sponge, they absorb moisture. Brick walls must be allowed to dry out if they are to remain in good condition.

The quality of the bricks used in historic buildings varies considerably depending upon the quality of the materials being used and the quality of manufacture. Bricks pre-dating the 20th century were often produced locally without suitable technological expertise or supervision. Different quality brick was used for

different purposes. Often the interior portions of a wall were laid with inexpensive, poor-quality brick. Higher quality brick was reserved for the exterior surface. When stressed or exposed to weathering or deterioration, the poor-quality brick on the interior can be a threat to the structural integrity of the wall and the building.

By the early 20th century, manufacturing standards and techniques had improved, and brick was being produced in large volume by competent manufacturers and shipped long distances by railroad. Issues of poor quality were less common. When undertaking projects involving historic buildings, brick walls should be carefully inspected for signs of deterioration. Proposed changes, such as cutting new openings in brick walls, should not negatively impact or create conditions that might cause bricks or brick walls to deteriorate. Bricks perform best when they are laid with bricks of a similar type, and when the mortar mix is carefully matched to the appropriate type of brick.

5.3.1 Condition and Causes of Brick Masonry Deterioration

Moisture penetration and improper maintenance are the most common causes of the deterioration of brick masonry. When water gets into a wall it can freeze, causing cracking in the wall and spalling of the face of the brick. Moisture penetration can be caused by leaking roofs, flashing, and gutters; deteriorated window sills; wall cracks; missing mortar; and rising damp. Improper treatments, which may include sandblasting, the use of hard pointing and bedding mortars, or application of inappropriate coatings, can also damage brick. These conditions are discussed further below.

The treatment and repair of deteriorated brick masonry is an important part of any rehabilitation project involving a brick building or brick feature in a wood framed building. Brick deterioration is often left unaddressed for long periods because of the difficulty of the work involved and because resulting issues are not immediately apparent.

Proposed projects should address issues causing the deterioration of brick masonry and should not use inappropriate treatments. Because masonry work requires time and expertise, it is important to include needed maintenance when any building projects are undertaken on brick masonry buildings.

Rising Damp – Rising damp is a common and serious problem in humid environments and where there is poor drainage. Dampness in the soil or on paving is absorbed by a wall and drawn upwards by capillary action. Since a brick wall “breathes,” moisture within the wall gravitates to the exposed surface, resulting in a moist, clammy feeling near the base of a wall.

Open Joints – Open masonry joints are among the most common problems observed in historic buildings, particularly older buildings with soft mortar that are not being well maintained. Open joints are particularly dangerous because they allow water to enter the wall and then freeze in cold weather. When water freezes, it expands causing cracking of the masonry and providing more ways for water to enter. Open joints often occur in areas that are difficult to see or

access. Care must be taken to examine brick masonry thoroughly to identify and address areas of deterioration.



Open joints in the chimney top (left) and chimney base (right) allow water to enter the wall, erode mortar, and cause damage when it freezes.

Cracks – Cracks are worrisome for two reasons: (1) they indicate that a building’s walls are moving and (2) they provide opportunities for moisture penetration and further deterioration. Cracking may be caused by settlement, structural failure, freezing of moisture within the wall, or the rusting of metal within the wall.



Cracking is often sign of a structural issue that needs to be addressed. In both these examples, cracking occurred not only along the joint line but also through the bricks themselves. Both of these were improperly repaired (see Pointing and Mortar below).

Spalling – Spalling of the surface of a brick can be caused by absorption of water in the brick which then freezes and spalls off the face of the brick. Spalling causes the soft inner core of the brick to be exposed to the weather, continue to absorb water, and rapidly deteriorate within the wall.



Spalling has occurred in both photos above, where freezing of water within the brick has caused the surface of the brick to flake off.

Steel Lintels – In masonry buildings constructed during the 20th century, it was common practice to install steel lintels above door and window openings. Frequently, these lintels rust over time. The rusted steel expands, causing cracking and the jacking of the masonry above the opening.



Rusting steel lintels have caused jacking in both of the examples above. The resulting crack in the photo at the right was improperly repaired.

Efflorescence – Efflorescence is a whitish stain that is prevalent in newly laid brick walls and sometimes occurs on older walls. It results from water-soluble salts that have crystallized and risen to the surface of bricks and mortar. Extensive appearance of this stain may signal a moisture problem in the wall.



The white stain on the brickwork above is efflorescence.

5.3.2 Brick Masonry Treatment and Repair

- a. **Inspections:** When undertaking a project involving a brick building, inspect the brickwork for signs of issues causing deterioration and determine how those issues might be addressed in consultation with a qualified mason.
- b. **Sandblasting:** Brick walls should never be sandblasted. Sandblasting removes the protective outer crust of the brick and exposes the softer inner core. This inner core was not meant to be exposed directly to the weather and will deteriorate rapidly. Sandblasting can also break mortar joints, which can lead to moisture penetration.
- c. **Cleaning:** Cleaning should use only the gentlest means necessary, such as a low pressure water wash and natural bristle brushes. A gentle soap may be used if necessary. Use water pressure at no more than 300 pounds per square inch (psi). High pressure water spray can have similar damaging effects to those of sandblasting.
- d. **Chemicals:** If chemical treatments must be used for cleaning, obtain the advice of a building materials conservator or historic preservation professional on appropriate products, means, and methods. Consult with the manufacturer's representative for any products under consideration for use. Prepare a test panel before treating the whole wall.
- e. **Crack Diagnosis:** Cracks in brick masonry should be properly diagnosed before undertaking any repair work. Cracks caused by structural stresses should be investigated by a structural engineer to determine their cause and appropriate remedial repairs. Any underlying structural problems must be addressed before performing repairs.

- f. **Crack Repair:** Cracking through masonry joints should be repaired by repointing the affected joints. Cracking through brick members may require the replacement of the cracked members with new brick to match that existing. Use mortar and masonry techniques outlined below in the discussion of pointing and mortar.
- g. **Spall Repair:** Remove spalled brick units and replace them with new brick to match the existing in size, color, texture, and strength. Use mortar and masonry techniques outlined below in the discussion of pointing and mortar.
- h. **Steel Lintel Repair:** The long-term solution to the jacking of masonry over a window or door by a seriously rusting lintel is to remove the rusting lintel in its entirety. A new, in-kind lintel should be installed, properly flashed, and the removed brick should be used to reconstruct the masonry facing over the window or door to match its previous appearance.
- i. **Extent of Replacement:** When replacement is necessary, replace only (1) individual bricks and small areas of brick masonry that are deteriorated through cracking or spalling or (2) areas that are structurally unsound as determined by a structural engineer. Do not replace wall areas that are not unsound.
- j. **Painted Coatings:** In general, do not paint brick walls that have never been painted. However, a painted coating may be an appropriate treatment where excessive spalling of brick is occurring due to the poor quality of the brick. Use a breathable masonry paint that will not trap moisture within the wall. Do not paint brickwork with a non-breathable coating.
- k. **Paint Removal:** Generally, the complete removal of paint from historically painted brick masonry is not appropriate. Historically, brick buildings were painted only if the exposed brick could not withstand exposure to the weather and were deteriorating. If paint removal is undertaken, prepare a test panel to assess the condition of the brick below and to confirm that the masonry will not be damaged by the removal process. Paint removal should be accomplished using an environmentally friendly paint stripper.
- l. **Waterproofing:** As mentioned above with respect to painting, do not coat brick walls with non-breathable coatings, including bitumen or tar. Where essential, breathable coatings are available that allow water vapor to move through the coating but prevent liquid water from moving through.
- m. **Efflorescence:** When efflorescence appears on an old wall, the source of the moisture should be identified and repaired. Remaining deposits can then be removed with a natural bristle brush or with a solution that neutralizes the salt.
- n. **Sealant:** Waterproof building sealants should only be applied to joints in horizontal wash surfaces such as at sills, watertables, projecting cornices, and steps. These joints are particularly prone to water penetration. Do not use sealant in joints on vertical wall surfaces because it will trap moisture within the wall and lead to deterioration.



All four photos above are examples of improper masonry pointing. Mortar colors, textures, and joint finishes do not match that of the adjacent historic brick joints. Mortar strength is also probably not correct.

5.3.3 Pointing and Mortar

Mortar mix is extremely important to the functional needs and aesthetics of a brick or stone masonry wall. Pointing mortar for an historic building should match the historic mortar in strength, color, texture, and finish.

In historic masonry walls, the mortar joints were soft, absorbing the seasonal thermal expansion and contraction of the wall and allowing moisture within the wall to escape through the joints. Today's brick walls are constructed of hard mortars that do not allow movement, which is accommodated through use of expansion joints at regular spacings that absorb thermal expansion and contraction.

Today's commercial mortars are too hard – harder than historic brick. When used in historic brick walls, today's hard mortars (1) force the softer historic brick to absorb the thermal movement causing cracking of the brick wall and (2) force moisture to escape from the wall through the brick causing cracking and spalling of brick units.

- a. **Repointing:** Repoint open or unsound mortar joints. Match historic mortar joints in color, texture, strength, joint size, and tooling. Work to achieve visual continuity between surviving historic material and new patches. Do not repoint sound historic mortar joints.
- b. **Unsound Mortar:** Remove unsound mortar to a depth of 2 1/2 times the width of the joint or to sound mortar, whichever is greater. Remove unsound mortar joints with hand tools that are narrower than the mortar joint. Do not use power tools; they can scar adjacent masonry.
- c. **Saw Cut:** Under special circumstances and careful supervision, a thin saw cut may be run down the center of a horizontal joint with the remainder being removed by hand. However, masonry saws should never be used on vertical joints because the bricks are likely to be damaged.
- d. **Mortar Strength:** Match repointing mortar to the strength of the existing mortar of the historic building.
- e. **Mortar Analysis:** If possible, have a mortar analysis undertaken using a sample of the historic mortar to determine its composition and strength. Such an analysis can be performed by a building conservator for a modest cost. Use the mortar analysis to prepare a custom specification for the new mortar matching the materials and mix proportions of the historic mortar.
- f. **Commercial Option:** If matching the historic mortar mix is not feasible, a commercially available “Type N” cement mortar may be used. Type N mortar mix is an industry standard general purpose mortar mix preferred for soft brick or stone masonry. A Type N mix is composed of 1-part Portland cement, 1-part lime, and 6-parts sand and has a medium compressive strength.
- g. **Color and Texture:** Pointing mortar for a historic building should match the historic mortar in color and texture. Sand should be used as the coloring agent wherever possible, as opposed to commercially available tints. Do not use standard grey colored mortars.
- h. **Test Panels:** Matching the color, texture, and appearance of the historic mortar should be achieved through trial and error using test panels. Multiple test panels are usually needed to achieve the right color and texture match.
- i. **Mask Grouting:** Mask grouting is the practice of applying a skim topcoat of mortar over existing joints and is essentially a cosmetic fix. Not only does it hide any underlying existing mortar problems, but it also alters the appearance of the entire building. This practice is inappropriate and should be avoided.

5.4 STONE MASONRY

Stone is one of the strongest and most enduring building materials. Despite its desirable qualities, the expense of quarrying, shipping, and building with stone has often limited its use in construction. Stone was not commonly used for exterior walls in 18th and 19th century vernacular buildings in Massachusetts, which were usually of wood frame construction. However, field stone was used for basement and foundation walls.

Stone was not a common material for residences within Worcester's historic residential neighborhoods. In mid-19th century buildings such as those in the Crown Hill Local Historic District, stone was used for foundation walls. Some of these applications, however, may be later decorative changes, not original to the buildings. In several cases, stone was applied as a veneer treatment over underlying foundation walls that may be of earlier masonry or of later concrete. Stone (usually granite) is common as a landscape material in Worcester's historic neighborhoods, especially for curbs, steps, and retaining walls.



Uses of stone within Worcester's local historic districts – as foundation walls in the upper photos, as a foundation wall and decorative entranceway lower left, and as an exterior wall lower right.

By the late 19th century, stone became more widely available due to the ease of shipment by railroad. It became a desirable material in emerging architectural revival styles for affluent residential neighborhoods such as in the Massachusetts Avenue, Montvale, and Elm Park Local Historic Districts. In these neighborhoods, stone was utilized both for foundation walls and for some specific architectural features. Stone foundation walls are also found in the two-decker residences of West Side Realty portion of the Elm Park neighborhood.

Stone was a featured material in many landmark buildings that were prominent in public life or private industry, such as banks, libraries, government buildings, and mills. Stone was also often used as a trim material for lintels, sills, watertables, and steps in conjunction with brick masonry walls. Such use is found in brick apartment and commercial buildings in Worcester, including several in local historic districts. Common types of featured building stone included limestone, sandstone, marble, and granite. The stone used in foundations for earlier buildings in Worcester's historic residential neighborhoods appear to be field stone and granite.

5.4.1 Condition and Causes of Stone Masonry Deterioration

Appropriate treatments should be used when new changes are being made to historic buildings as well as for routine maintenance. The issues and recommended treatments for stone are similar to those that are recommended above for brick masonry. Both stone and brick are resilient when properly maintained but can quickly succumb to water damage when mortar joints deteriorate.

Joints, however, are not the only locations where water can enter a masonry wall. Although stone is often thought to be impermeable, many types of stone are actually porous and can absorb water through their face. Like brick, stone must be allowed to breathe or water vapor can become trapped inside the wall, causing weathering and deterioration of the body of the stone, causing cracking when it freezes.

Open Joints – When mortar joints fail in a stone wall, they allow water to flow into the wall, creating a chain of events that can weaken the entire wall. Variations in pressure caused by water and ice can cause individual stones to move. Cracking along the mortar joints is one indication that the stones are in motion.

Cracks – Cracks in masonry should be properly diagnosed before undertaking any maintenance or repair work. Cracks caused by structural stresses should be investigated by a structural engineer to determine their cause and appropriate remedial repairs. Any underlying structural problems must be addressed before performing repairs.

Not all cracks in stone masonry require repair. Cracks may simply be a part of the natural weathering process for some stone masonry. Small, hairline cracks on vertical surfaces of stone masonry should not be repaired unless they are deep enough to allow water to infiltrate into the masonry wall. However, such cracking on horizontal wash surfaces should be patched with a knife-grade patching compound.

Delamination – Surface deterioration and delamination through the body of stones are problems caused by water infiltration into masonry. Saturation of porous limestone or sandstone caused by water infiltration from above or from the ground can result in surface deterioration in which layers of stone flake away.

Sodium, calcium, and magnesium chloride based de-icing salts can damage foundation masonry as well. The salts are absorbed into the masonry with the water. As the masonry dries, the salt residue forms deep within or on the surface of the masonry causing internal stresses and damage.

Washes and Watertables – Stone is often used for wash surfaces in masonry walls, such as sills and watertables. A watertable is a sloping horizontal course of stone where a transition from thicker lower walls to thinner upper walls is made. Many watertables in brick masonry walls are design features and made of stone.

Masonry joints on the wash surfaces of sills and watertables are exposed to weathering, and the mortar often deteriorates, leaving open joints. Water enters the wall through the open joints causing movement and cracking when it freezes.



Open joints in a stone masonry wall and related cast stone features.



Improperly repaired stone pointing – similar to the mortar and pointing issues for brick walls discussed in the previous section of this chapter.

5.4.2 Stone Masonry Treatment and Repair

In general, for treatment of stone masonry, follow the recommendations outlined below for brick treatment and repair.

- a. **Resetting and Replacement:** Minimize the removal and replacement of historic stone masonry. Only remove or rebuild substantial portions of stone masonry walls when such rebuilding is crucial to maintaining a building's structural integrity. When resetting or replacing a stone wall, replicate the existing pattern of stone. Rubble stone is laid randomly, and ashlar (rectangular) stone is laid in neat rows.
- b. **Repointing:** Cracks and deteriorated mortar in joints should be filled with new mortar that matches the color and texture of existing historic mortar joints. The width and profile of existing mortar joints should be replicated as closely as possible. Work to achieve visual continuity between surviving historic material and new mortar.
- c. **Unsound Mortar:** Remove unsound mortar to a depth of 2 1/2 times the width of the joint or to sound mortar, whichever is greater. Use hand tools that are narrower than the mortar joint. Never use power tools, which can scar adjacent stones. Repoint only those joints that are no longer sound; do not remove sound mortar from existing joints.
- d. **Patching:** Where appropriate, patch small pieces of lost masonry with cementitious patches. Commercially available patching compounds can be either Portland cement-based or natural hydraulic lime-based. It is important to choose a patching compound that is compatible with the

compressive and flexural strengths and permeability characteristics of the masonry to be repaired. The use of overly hard material can result in further damage to the stone.

- e. **Dutchman:** Damaged areas of stone that are too large to patch may be repaired by installation of a dutchman. The deteriorated portion of the stone is cut away and a new piece matching stone, called a dutchman, is installed. Dutchman repair is a much more durable repair than a cementitious patch repair and should last as long as the masonry itself. Dutchman repairs require skill to install correctly and should only be undertaken by experienced masons.
- f. **Limited Repairs:** Fine masonry details exposed to the weather at some locations often experience some chipping and spalling of their corners and edges. While visually detracting, such conditions may not threaten surrounding masonry. It may be advisable to leave such details as is. Repairs may not hold up to the severe conditions that caused the chipping in the first place.
- g. **Consolidation:** Consolidation is a common remedy for surface disintegration in silicate-based masonry such as sandstone. Consolidation material is penetrated into the stone to strengthen cohesion between grains at a microscopic level. Consolidation should only be considered in situations where the masonry is friable (prone to crumbling) and exhibits surface disintegration and should only be undertaken by qualified professionals.
- h. **Sealant:** Sealant should be installed in the horizontal wash surfaces of stone masonry such as sills, watertables, parapets, and steps. Sealant should never be installed on vertical wall surfaces, as it will trap water within the masonry wall, forcing the water back into the masonry units.
- i. **Coatings:** Do not apply waterproof coatings, paint, or stucco as a substitute for repointing and general maintenance. Such coatings will trap moisture within the wall and cause deterioration.

5.5 STUCCO

Stucco is a form of mortar used to give walls a smooth, finished appearance and protect them from deterioration caused by exposure. Stucco was traditionally applied in two or three coats directly to the underlying substrate, usually masonry. Buildings that have historically been covered with stucco should remain so. The underlying masonry may have been of inferior quality and was never meant to be exposed to the elements. In the 20th century, stucco began to be installed over metal lath nailed to the substrate for better adhesion.

In Worcester's historic neighborhoods, stucco was used as a finish exterior surface on a limited number of buildings, mostly revival style buildings of the late 19th and early 20th centuries. Installation appears to be over wood frame construction, though some of the buildings may be of brick.

During the mid-20th century, stucco began to be applied over wood siding on some buildings to provide a more maintenance free surface. This was highly

inappropriate from a historic preservation perspective as it dramatically alters the character of the historic building.

Stucco should not be installed on buildings that were never historically stuccoed and should never be used as a substitute for maintenance of the wood or masonry substrate. Masking problems with a surface coating solves nothing. In some rare cases, however, stucco may be an appropriate protective surface treatment for masonry buildings where the building’s underlying brick or stone material is of poor quality and is severely deteriorating.

Stucco is meant to be a sacrificial protective coating and, therefore, requires cyclical maintenance and reapplication. Stucco is composed of a binder, sand, and often a reinforcing fiber. It is applied in two to three coats. The first coat is called the brown coat, the second is the scratch coat, and the final coat is the finish coat. Stucco was traditionally composed of lime-based binder materials. Modern stuccoes are usually composed of Portland-cement and hydrated lime.



Examples of buildings with stucco exterior walls in Worcester’s local historic districts.

5.5.1 Condition and Causes of Stucco Deterioration

Moisture and water infiltration is the main cause of stucco deterioration and failure. Problems with roof drainage systems can accelerate stucco deterioration. Excessive water runoff over a stucco surface will lead to disintegration of the stucco. Water splashing up from the foundation, or moisture penetration through rising damp, can cause the stucco to lose its bond to the substrate.

Wet stucco is vulnerable to freeze/thaw deterioration in cold weather. Water moving through the stucco leaches out carbonate material which builds up in areas where the water evaporates on the surface. Salts from the ground may accelerate stucco deterioration through salt crystallization.

Cracking – Cracking in stucco can be caused by several mechanisms. Shrinkage cracks can form if the stucco has dried too quickly during installation. Building settlement can cause cracking in the stucco finish. Metal elements, such as metal lath or metal corner beads, expand and contract at different rates than the stucco, causing cracking.

Stucco On Lath – Later stucco applications that have been applied over metal lath are particularly vulnerable over time. Often, the metal lath or lath nails have been inadequately sized and are not strong enough to hold the applied stucco.

The stucco on metal lath may have no expansion joints, which are required to absorb the movement of the lath during thermal expansion. Water infiltration into the stucco and metal lath system will cause the lath to corrode and fail.



Stucco finish of a Tudor style building delaminating from the wall to which it was applied

5.5.2 Stucco Treatment and Repair

- a. **Preservation:** Retain, repair, and maintain stucco surfaces that are historically significant to an existing building.
- b. **New Stucco:** Do not install stucco on buildings that were never historically stuccoed and do not use stucco as a substitute for maintenance of a wood substrate or masonry substrate, except in very rare cases where brick masonry is of inferior quality as recommended by a qualified mason.
- c. **Painting:** Do not paint stucco that has a natural finish and was not intended to be painted. Where stucco is to be painted, use a breathable paint intended for masonry surfaces.
- d. **Extent of Repair:** Where existing stucco is deteriorated, it should be repaired to match adjacent surfaces. Remove only the deteriorated stucco.
- e. **Stucco Hardness:** It is important to repair existing stucco with similar materials. Dissimilar materials will have problems bonding to each other. Portland cement-based stucco mixes are too hard and dense for soft, permeable historic masonry.
- f. **Compatible Stucco:** Natural hydraulic lime-based stucco mixes will require more care during installation, but will provide a flexible, breathable coating that is compatible with historic masonry.
- g. **Test Panel:** Before applying the replacement material to a large wall area, use a test panel to determine if the color and finish are appropriate. Once a proper stucco mix has been determined, it should be recorded for any future needed repairs to the building.
- h. **Match Existing:** When repairing stucco, make sure that areas of patched stucco match the strength, composition, color, and texture of the existing stucco to the greatest degree possible.
- i. **Tinting:** Stucco patch mixes should be tinted to match the weathered appearance of the existing material.
- j. **Stucco Repair:** In stucco repair, remove all loose or severely cracked stucco to expose the substrate. The area to be patched should be cleaned of all debris. With masonry substrates, joints may need to be raked out 5/8 to 1 inch to ensure good bond between the substrate and the new stucco. Stucco should be applied directly to masonry whenever possible.
- k. **Application:** In applying stucco, begin from the top of the wall. Application should be smooth. Surplus stucco should be washed off with a light stream of water. Allow the stucco to set for 30 to 60 minutes. Using a fine spray of water, etch the surface to match the texture of the earlier stucco.
- l. **Thickness:** Carry out stucco repairs so that the surface thickness of the repaired stucco matches that of adjacent historic stucco.
- m. **Crack Repair:** Cracks in stucco should be repaired with cementitious materials similar to those found in the original mix. Hairline cracks can be filled with a slurry made of the finish coat mix. Larger cracks must first be

cut to provide a groove or “key” for receiving the new work. A groove can be cut by using a knife to open up an existing crack. The edges should then be undercut with a hammer and chisel. After applying stucco, it should be kept moist for three to four days to allow curing.

- n. **Sealant:** Sealant should never be used to repair cracks in stucco.

5.6 METALS

Metals were in limited use as original historic materials in Worcester’s historic neighborhoods and are found on the exterior of buildings today most frequently in hardware, flashing, roofing, railings, and decorative features. Where original historic doors, windows, and shutters are still present, their historic metal hardware is usually present as well. Wrought iron metal fencing survives along the sidewalks and yards of some historic properties. As discussed earlier in this chapter, metal was often used as a roofing material for shallow pitched roofs, such as for entrance porches, but most original metal roofing has been replaced over time due to weathering.

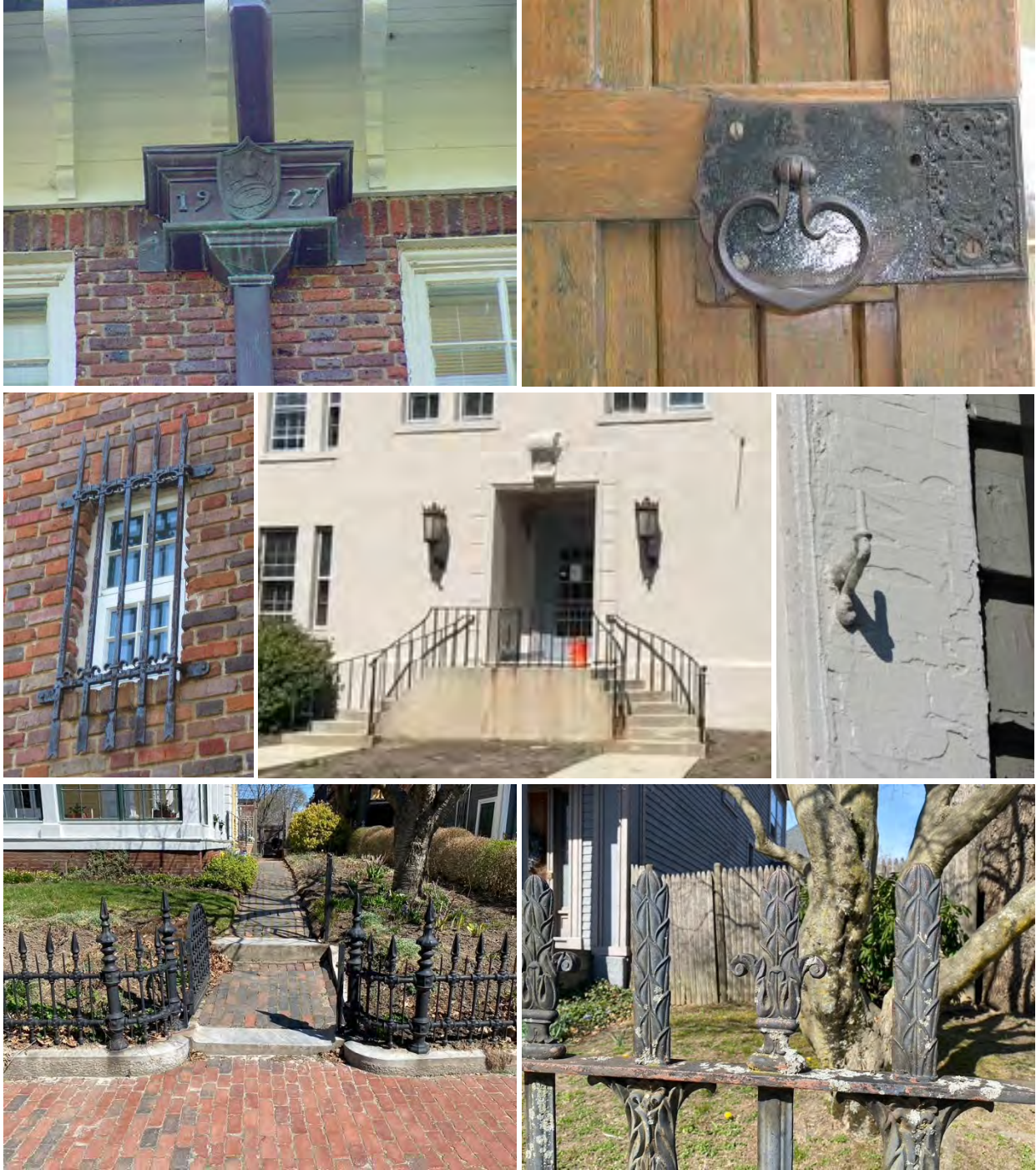
The metals most commonly used in architecture are alloys containing lead, tin, zinc, copper, nickel, aluminum, and iron. Iron and its alloys, including steel, are particularly prevalent in buildings because of the increase in quality and lowering of production costs brought about by technological breakthroughs in manufacturing in the late 19th century. Metal elements are inherently durable if properly maintained.

5.6.1 Condition and Causes of Metal Deterioration

Corrosion is the major cause of deterioration of architectural metalwork and is exacerbated by the presence of moisture. Corrosion can be caused by structural stress, electrochemical reaction with dissimilar metals, or corrosive environments, such as salt-laden water. It is accelerated wherever water collects against metal elements, such as at the base of metal posts.

Metals undergoing corrosion are slowly reverting to their natural ores, such as iron oxide. This process involves significant expansion of the corroding metal, which can cause extensive cracking when the metal is embedded in masonry or concrete. (See the discussion of steel lintels under Brick Masonry, above.)

Architectural metals can also deteriorate from mechanical failures, such as overloading or fatigue. For example, operable metal hardware installed with doors and windows can deteriorate over time due to metal fatigue. The constant use of metal handrails or gates can result in sections loosening at their anchors, causing damage to the wood or masonry to which they are connected.



Examples of the types of metal features associated with historic buildings

5.6.2 Metal Treatment and Repair

The architectural metalwork of historic buildings can be maintained through proper surface preparation and application of protective coatings where appropriate. Some metals must be painted for protection while others should be left unpainted.

- a. **Iron and Steel:** Cast iron, steel, and tin are the most common metals used in historic features in Worcester's neighborhoods and should be painted to protect them from corrosion.
- b. **Other Metals:** Copper, bronze, aluminum, and stainless steel should be left exposed. Historic copper and bronze are present to a limited extent. Aluminum and stainless steel are modern materials used for new, non-historic features. Modern aluminum often has a baked factory finish that should not be painted.
- c. **Maintenance:** Ongoing maintenance can help prevent weathering and deterioration and the need for replacement of metal features.
- d. **Paint Deterioration:** Deteriorated paint on painted metal surfaces should be removed using appropriate methods, including wire brushing for non-decorative elements exhibiting light rust, or chemical paint removal for heavier built-up paint. Where paint must be removed, it is important to be cognizant of the likelihood of the presence of lead paint.
- e. **Removal for Repair:** Severe corrosion of historic metal features may require that entire sections or features of metalwork be removed and carefully repaired in a shop before reinstallation.
- f. **New Paint:** Newly cleaned metal should be immediately protected with a rust-inhibiting primer. Alkyl-based enamel paints are recommended for finishing iron alloys. Latex and other water-based paints are not recommended.
- g. **Replacement:** Replacement of historic metal elements should only be undertaken as a last resort, when the element is deteriorated beyond repair. Most original metal elements in historic buildings are important character defining features, and replacement in kind could be expensive.
- h. **New Metal Features:** Where new or replacement metal features are required, their design should be sympathetic to the historic character of the building. Most modern stock handrails, for instance, are not appropriate for historic buildings. Sympathetic profiles should be found. Usually, simplicity is preferred over new metal features that are highly decorative, especially for vernacular residential buildings.



CHAPTER 6 – HISTORIC BUILDING FEATURES

Worcester’s historic neighborhoods developed from the mid-18th century through the early 20th century and include residences designed in a variety of architectural styles as discussed in Chapters 2 and 3. Individual building features associated with those styles are essential to the character and significance of each residence, and the central theme of these design guidelines is to encourage their preservation and maintenance. In many residences, additional new features have been added over time that themselves have become historically significant to the building, documenting its evolution during different periods of the historic neighborhood’s development.

This chapter addresses the treatment of historic building features, including roof features, wood siding and detailing, entrances and doorways, windows, and porches—the key character defining features of a building’s exterior. Preservation and appropriate maintenance of historic features and their authentic building fabric are always strongly encouraged as a baseline treatment. The first step is understanding the feature’s relationship to the building in terms of time period and historical significance, as well as the design characteristics that are significant to the feature itself.

Repair of significant features is always preferred over replacement—significant features should rarely, if ever, be removed. Replacement is appropriate only when existing features are deteriorated beyond the reasonable possibility of

repair. Existing features can be modified, and new features can be added when absolutely necessary to accommodate contemporary needs, but in general such modification and change should be minimal or avoided. Significant changes should be limited to the side or rear elevations of historic buildings. The following guidelines address the treatment of building features present within Worcester's historic neighborhoods and local historic districts.

6.1 GENERAL GUIDELINES

The following general guidelines are drawn from the Secretary of the Interior's Standards as discussed in Chapter 4 and are applicable to any historic building material and feature. They are reiterated with additional context and detail in the discussions of historic building features throughout this chapter.

- a. **Research and Investigation:** identify the character defining features of the original historic building and of each period of the building's historical development. Changes that have occurred to a historic building over time may have acquired significance in their own right as part of the building's evolution. Determine which features are of historic significance and which are not, consulting these guidelines or working with Worcester Planning Department staff as needed.
- b. **Preservation:** Preserve and maintain materials and features that are significant to a building's history and historic character.
- c. **Removal:** Avoid removal or alteration of historic building materials or features. Proposed repairs and changes to a historic building should not reduce the historic integrity of the building or result in the loss of repairable historic building fabric.
- d. **Repair:** Deteriorated historic materials and features should be repaired rather than replaced whenever possible, even if the resulting finish materials or features may have visual imperfections. Prioritize preservation and repair of authentic historic building fabric.
- e. **Replacement:** When repair is not possible due to the severity of the deterioration, replace the historic material or feature in kind, matching it in material, design, construction, form, dimensions, profiles, texture, and color whenever possible.
- f. **New Features:** Replacement of features that were historically present but are now missing should be substantiated by documentary and physical evidence.
- g. **False Historicism:** Avoid addition of conjectural materials or features that are not part of the building's history or that are from other properties or periods.
- h. **Reversibility:** Proposed changes to buildings should be fully reversible whenever possible.



The concept of repair vs. replacement in the preservation and treatment of authentic historic building fabric is emphasized throughout these Design Review Guidelines.

6.2 ROOFS AND RELATED FEATURES

Roofs are among the most character defining features of any building in part because the roof form is highly visible and is a fundamental aspect of any building type or architectural style. Roof materials and colors are important to a building's visual appearance and work together with the materials and colors of the exterior siding to convey overall character.

Roof materials are discussed in Chapter 5 of these design guidelines, which makes the points that (1) the roof's function and physical integrity are critical to a building's long-term care and preservation, and (2) that roofs are composed of a variety of building elements that together function as a system. Providing a weather-tight roof and properly functioning drainage system should be addressed before any other concern.

Roof materials deteriorate and periodically need to be replaced. In general, historic roofing materials should be replaced in kind with matching type, color, and detailing. When replacement in kind is not possible, match appearance as closely as possible. For instance, if replacement of a wood shingle roof with an asphalt shingle roof is necessary, color, texture, and detailing should match the original historic roofing as closely as possible.

Most roofs in Worcester's historic neighborhoods are steeply pitched gable or hipped roofs. Roof configurations, forms, and design features on a historic building should rarely if ever be altered. Roof configurations and forms, as a fundamental principle, should be preserved because of their importance to the overall visual character of the building.



Roof configurations, forms, and design features are fundamental to a building's character and should rarely be altered.

Additionally, many existing roofs have design features such as dormers of various configurations as well as complicated ridge, valley, and flashing arrangements that should also be preserved. A few of Worcester's high style residences have complex turrets and projecting bays that are critical visual components of their architectural style.

Chimneys are part of a roof system as well and are present on most buildings. Though chimneys are prominent visual design features on some of Worcester's high style buildings, on many residences they tend to be simple and utilitarian. The following guidelines address roof design and related building features.

6.2.1 Roof Design and Configuration

- a. **Preservation:** Preserve roofs and roof elements that are significant to a building's historic character, including configuration, form, shape, pitch, materials, and decorative features such as gables, dormers, turrets, and chimneys.
- b. **Gable and Eave Details:** Preserve historic detailing at gable ends, cornices, barge boards, and eaves. Leave historically exposed rafter ends and eaves open and uncovered.
- c. **Removals:** Only remove roof elements that are not historic.
- d. **Deteriorated Features:** Deteriorated roof features and detailing that require replacement should be replaced with in-kind features that match the material, form, shape, function, color, and size of the original.
- e. **Rooftop Additions:** Rooftop additions other than appropriately scaled dormers, discussed below, are not appropriate for existing historic buildings within a historic neighborhood.

6.2.2 Roof Reconstruction

- a. **Reconstruction:** When historic roof features are to be replaced or when missing features are to be reconstructed, use physical and/or historical documentation to accurately ascertain their materials, form, and detailing. When sufficient evidence is not available, design new roofs and roof features to be compatible with the architectural character of the building.
- b. **Documentation:** Document any existing historic roof feature that is to be removed, replaced, or reconstructed with photographs prior to the removal of any historic fabric.



Dormers are important character defining features within Worcester’s local historic districts, primarily in buildings of later periods. They help make upper floors useful living spaces and should be preserved.

6.2.3 Dormers

- a. **New Dormers:** Gable and shed roofed dormers of various types are common throughout Worcester’s historic neighborhoods. Some are original to the building design, but some may have been added over time to make second floor and attic space more usable. The addition of new dormers to existing roofs is acceptable.
- b. **Primary Elevations:** Dormers should not be installed on primary elevations if they were not historically present on the elevation.
- c. **Secondary Elevations:** New dormers may be constructed on secondary or rear elevations provided they are appropriately sized and located and do not dramatically alter the character of the roof and the building.
- d. **Dormer Design:** New dormers should be appropriately scaled and located to maintain the dominant roof form. Locate dormers away from top, side, and eave lines so that the overall roof form is visually apparent. Use matching or complementary materials, forms, colors, and detailing to those of other

portions of the building. Do not damage or visually obscure historic building fabric.

- e. **Windows:** Windows in new dormers should complement the character of historic windows in the building, though they need not precisely replicate them.
- f. **Maintenance:** Maintain dormers in good condition for appearance and to prevent water infiltration. Pay special attention to flashing locations where the dormer meets the roof.
- g. **Synthetic Materials:** Synthetic siding and trim materials such as cement fiber board and polymers may be used for new or existing dormers that are difficult to access, inspect, and maintain. Vinyl and aluminum sidings are not permitted. See the section on Wood Siding, Details, and Trim below for appropriate use.

6.2.4 Gutters and Downspouts

- a. **Preserve and Maintain:** Preserve and maintain historic gutters, downspouts, and related features on buildings where they are present and are character defining features.
- b. **Replacement:** Where historic gutters or downspouts are missing or must be replaced, the new gutters and downspouts should match surviving historic units in type, material, profile, color, and finish.
- c. **Missing Downspouts:** Replace missing or damaged downspouts as quickly as possible to prevent damage to walls, trim, foundations, and interiors.
- d. **Historic Detailing:** Preserve and retain historic building details at eaves, walls, and other locations as appropriate when installing new or replacement gutters. Do not remove, alter, damage, or obscure historic detailing.
- e. **Tree Pruning:** Trim overhanging tree branches to prevent them from touching roofs and gutters.
- f. **New Gutters:** New gutters and downspouts may be installed on historic buildings where they have not existed before when the gutters and downspouts are needed to prevent damage to other historic building features such as wood or masonry walls and trim.
- g. **Design:** The style and material of new gutters and downspouts should be considerate of and appropriate to the historic roof characteristics, including roof edge, cornice, and trim. Half-round gutters and round downspouts are generally preferred. Contemporary K-style gutters may be acceptable in some locations. Size gutters to accommodate the volume of water expected to flow from the roof as well as to be visually appropriate to their location.
- h. **Built-in Gutters:** Preserve built-in gutters whenever possible. Where built-in gutters are poorly designed such that they are causing damage to the eave, cornice, or wall, replacement may be considered.



Gutters and downspouts can be designed in response to building character. Many buildings in Worcester’s local historic districts were built without gutters, and some have had them later installed. The two buildings at left above have built-in gutters in conjunction with slate roofs. The gutter installation at center used the eave extension to position the downspout to the side of the front elevation. The two examples at right painted their downspouts to match the exterior wall colors to reduce their visibility.



The gutter above was positioned near the center of the front elevation so not to distract from the building’s elaborate wood corner detailing.

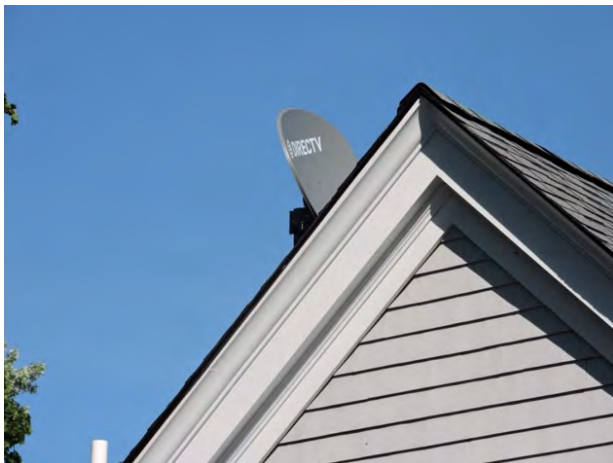


The porch roof above has built-in wood gutters lined with metal, important historic features that have been preserved and maintained.

- i. **Replacing Built-in Gutters:** Where built-in gutters are to be replaced by hanging gutters, the built-in gutters should be roofed over and the hanging gutters attached to the fascia board at the eaves of the roof.
- j. **Materials:** Various metals are appropriate and available for gutters and downspouts, including copper, terne, aluminum, and galvanized. Painted metal or baked finishes should complement the color of the historic building. Use of vinyl gutters and downspouts is not acceptable.
- k. **Attachment:** Install a sufficient number of hangers to attach the gutters and downspouts securely to the roof and wall. Be sure to consider stress due to snow and ice buildup and the potential leaning of ladders against the gutter.
- l. **Ground Level:** Direct downspouts to convey water away from the building foundation at ground level. Grade soil to slope away from the building and use splash blocks, extenders, underground piping, or other means as necessary.



Skylights may be installed on side and rear elevations. They may be operable but should be low profile, as the one shown here.



Mechanical equipment such as these internet dishes should be located at the rear of buildings so they are not visible from the street.

6.2.5 Skylights

- a. **Skylight Location:** Skylights may be installed on sloped roof planes and should preferably be located facing the rear of the building. Skylights may be installed on side-facing roof planes provided they are limited in size and number and do not adversely affect the overall character and appearance of the building. Skylights should not be installed on primary facades facing the street.
- b. **Skylight Type:** Skylights should be flat, low, and parallel with the roof plane (not “domed” type). Skylight frames should be similar in color to that of the roofing material. Awning-like operable skylights are acceptable.

6.2.6 Mechanical Elements

- a. **Equipment:** Modern rooftop elements, such as mechanical units, vents, ducts, flues, antennae, and satellite dishes, when necessary, should be located at the rear of the building such that they are not visible from the street.
- b. **Bathroom Vents:** Bathroom vents may be installed where needed on any roof surface but should be of material and color to complement the color of the historic roofing material.

6.2.7 Solar Panels

The use of solar panels and other green technologies has become increasingly important and acceptable provided they do not materially detract from the character and integrity of the historic building.

- a. **Primary Facade:** Installation of solar panels on a roof slope facing a primary facade is not preferred within a local historic district and may not be permitted.
- b. **Secondary Elevations:** Installation of solar panels on a roof may be permitted on a secondary facade provided the installation does not negatively impact the character or integrity of the historic building and building features or the character of the historic neighborhood.
- c. **Installation:** When permitted, solar panels shall be installed without impact to roof forms or features or the damage or removal of historic building fabric. Install panels flat to the roof plane using equipment that is as flat as possible. Attach panels and related elements in as minimally intrusive a manner as possible both visually and physically. Match the overall roof color. When permitted on a primary facade, center the installation on the roof plane so that it is aligned the building elevation when the elevation is symmetrical. When allowed on a secondary facade with a gable front, set the installation back approximately ten feet from the face of the primary facade.
- d. **Reversibility:** The installation of solar panels, when permitted, should be fully reversible without alteration or damage to the historic building or building fabric.

6.2.8 Chimneys

As mentioned above, many of the chimneys on Worcester's historic residences are utilitarian and are not visually prominent. Most are constructed of brick. Because they are difficult to access and see, chimneys are particularly susceptible to deterioration and neglect. Deteriorated pointing is a common problem and may cause water infiltration and structural issues. Chimney condition and repair should be addressed as part of any roofing project.

- a. **Preservation:** Preserve and maintain existing chimneys on historic buildings, especially when they are character defining features.
- b. **Inspection:** Chimneys should be inspected annually. Ideally, inspections should be conducted from the roof during dry weather. Preliminary inspections can take place from the ground.
- c. **Condition:** Evidence of movement, leaning, or cracking should be addressed immediately. These issues can lead to other material and architectural problems. If a chimney appears unstable, a structural engineer should be consulted to determine an appropriate treatment and course of action.
- d. **Chimney Repair:** Chimney repairs and replacement should always be undertaken by a professional experienced in historic masonry. Chimneys should be repaired in-kind. Retain masonry coursing (patterns in rows of laid brick), ornamental brickwork, corbelling (projecting courses of brick) and any decorative features during chimney repair. See the Brick Masonry section of Chapter 5 of these guidelines with respect to brick masonry issues, repair, replacement, and pointing.
- e. **Missing Materials:** Missing chimney materials should be replaced and matched in-kind.
- f. **Reconstruction:** Where severe structural issues are present, causing a safety concern or building issue, the chimney should be documented, dismantled, and reconstructed to match the original. Existing materials should be salvaged when possible, for use in reconstruction.
- g. **Chimney Removal:** Only remove historic chimneys that are not visual character defining features of the building and preferably only when they are deteriorated, not easily repairable, and their structural condition is a threat to safety.
- h. **Cap Unused Chimneys:** Cap unused historic chimneys with an appropriate material, such as flagstone or thin concrete slab, to keep water out. The capping material should not be visible from the ground. Contemporary metal cap flashing is not appropriate for historic buildings and may not be permitted.
- i. **Decorative Chimney Caps:** Where chimney caps are a visible design detail, preserve, maintain, and repair deteriorated chimney caps in-kind. Replace missing historic materials to match historic conditions only when documentary evidence is available.

- j. **Stucco:** Stucco veneers on chimneys can show cracks and holes over time. These should be patched immediately as they can quickly lead to larger cracks where moisture can accumulate. See the Stucco portion of Chapter 5 related to Historic Building Materials.
- k. **New Metal Chimneys:** New metal chimneys installed for wood stoves or other purposes are inappropriate on the walls or roofs of primary facades or side elevations and should be installed through rear roof slopes or walls wherever possible.



Chimneys are not prominent features of Worcester’s smaller, mid-19th century house types (above) but are more prominent in many high-end architect designed residences from various periods (below).



Maintenance of chimneys is important, especially when they are not highly visible and are hard to reach. The chimney at left has open joints which let water enter the brickwork, causing deterioration. The flashing in the chimney at center is critical in protecting the roof from water penetration. A metal chimney cap has been installed on the chimney at right to prevent sparks from threatening the roof.



Wood detailing may be the most important and appealing feature of historic buildings in Worcester's local historic districts.

6.3 WOOD SIDING, DETAILS, AND TRIM

Wood is the predominant material used in the construction and exterior detailing of residences within Worcester's historic neighborhoods. Other materials are present in mostly supporting roles. Wood siding is used as the exterior cladding for most historic residences, with traditional horizontal wood clapboard and wood shingles being the most prevalent siding types.

In addition to siding, wood is commonly used for trim, eaves, bargeboards, gable elements, moldings, columns, and other features associated with building exteriors. The first goal with respect to the treatment of historic wood siding, details, and trim is the preservation of authentic historic building fabric. See Chapter 5, *Wood*, for the treatment and maintenance of wood as a material on the exterior of a historic building.

The role of wood siding is to protect the underlying structural framing and interior materials of a building from weather, primarily by shedding rain and wind-blown water, but also by withstanding the effects of intense sunlight over time. Additionally, siding must be permeable to water vapor, allowing water vapor to pass from the interior of the building to the exterior. Any siding material that fails to allow the passage of water vapor will be susceptible to condensation within the wall with resulting deterioration and rot.

Historically, wood siding was usually installed over wood board sheathing. By the early 20th century, the sheathing was usually covered with building paper that was resistant to water penetration from the exterior but permeable to the

passage of water vapor from the interior. Today, this function is performed by contemporary materials such as synthetic high-density polyethylene fibers.

Wood siding serves as the first line of defense against rainwater while the building paper is the final line of defense. The overlapping joints of wood siding must never be caulked or have sealant installed, which some have done in the effort to protect them from cold winter winds. The open joints allow the passage of the interior water vapor. If they are sealed, the water will pass through the wood causing the delamination of its painted coating.

Wood siding and detailing should be protected from deterioration due to rain or sunlight with properly applied paint. See Chapter 5, Historic Building Materials. When protected and properly maintained, wood siding is durable, serviceable, and can last indefinitely.



Residences with different types of wood siding and degrees of complexity in wood detailing. Wood siding and detailing are closely related to building period and style and contribute significantly to the building's character and significance. Authentic wood fabric should be preserved and maintained.

6.3.1 Historic Wood Siding and Trim

- a. **Preservation:** Retain, repair, and maintain authentic wood siding, trim, and detailing that is significant to the historic character of a building.
- b. **Repair:** When wood siding or trim has deterioration, it is preferable to repair the element in place by removal of only the deteriorated portion and patching with new wood to match or an epoxy consolidant. Historic materials should be retained to the greatest extent possible.
- c. **Replacement:** When wood siding or trim is deteriorated beyond repair, replace them in-kind with wood of the same species, width, profile, shape, and appearance, matching original detailing. Deterioration is evident when the surface of the wood is soft, rotted, and no longer stable.
- d. **Substitute Materials:** If substitute materials are necessary, they must convey the same visual appearance as that of the original feature, including size, shape and texture.
- e. **Wood Species:** If limited replacement of wood siding and detailing is required, the new wood members should match the species of existing wood if possible, both to give the wall a consistent texture and appearance and because different species of wood have different rates of expansion and contraction.
- f. **Flashing Repairs:** Repair flashing, gutters, and cracks in siding to reduce deterioration of historic wood siding and other elements as a result of water penetration.
- g. **Missing Features:** If a wood feature is missing, replace it with a new feature based on accurate documentation of the original or a new design compatible in style, scale, size, material, and texture with the historic building and context.
- h. **Authenticity:** Do not introduce new wood features or details that create a false historical appearance.
- i. **Painted Coatings:** Protect historic exterior woodwork from weathering due to rain or sunlight with a properly applied painted coating. Maintain painted wood surfaces in good condition. Remove peeling paint and repaint when necessary. Where appropriate, perform work in consultation with a lead-safe renovation contractor (LSR).
- j. **Preparation:** Prepare surfaces to be painted by scraping and lightly sanding. If needed, clean with TSP and a light water wash.
- k. **Paint Removal:** Removal of older layers of intact paint is not recommended but if undertaken, carefully remove older paint by thermal means (heat gun and scraping) or a mild chemical stripper. Where appropriate, perform work in consultation with a lead-safe renovation contractor (LSR).
- l. **Power Washing:** Do not power wash exterior wood walls or detailing. Power washing causes exposed wood to absorb significant amounts of moisture. The absorbed moisture will cause paint failure, especially if it is applied while the wood is still damp. Power washing raises wood grain and

drives water into the building's frame.

- m. **Paint Application:** Apply paint with a brush; do not spray or roll. Brushing results in a thicker coat with better adhesion than spraying or rolling.
- n. **Natural Finishes:** Do not strip paint from existing features to bare wood for application of clear stains or natural finishes.
- o. **Sealant:** Sealant should be installed at vertical joints where wood meets a dissimilar material. Do not apply sealant or caulk to the horizontal joints in wood siding.



Wood is an easily workable and forgiving material and can be formed into many shapes, uses, and styles. If damaged, wood features are easily repairable. If badly deteriorated, they are easily replaceable in kind. With the assistance of a skilled craftsman, most any wood repair problem can be addressed.

6.3.2 Covering of Wood Siding

Synthetic sidings such as vinyl and aluminum, are not appropriate for use on historic buildings, especially as a covering over authentic wood elements. Over time, synthetic coverings degrade, require replacement, and are more expensive than proper maintenance of wood siding. Synthetic coverings prevent proper ventilation of the wall, causing water to condense and build up on the interior. Because they do not show deterioration like historic siding materials, synthetic sidings mask deterioration that may be occurring to materials underneath.

Vinyl siding is the most widely used siding material in new residential construction and is formed as a hollow, thin shell. While vinyl siding may approximately simulate the appearance of wood siding—assuming the exposure and thickness are the same—the detailing at windows, corners, and ends is not similar to wood and often involves the removal of historic window trim and corner boards.

- a. **Preservation:** Retention and exposure of authentic wood siding and detailing is always preferred over the installation of synthetic coverings.
- b. **Coverings:** Do not cover authentic wood siding, eaves, details, or other elements with new materials such as vinyl, aluminum, cement board, or stucco. Artificial stone, asphalt shingles, and vertical plywood (T1-11) siding are not appropriate materials for historic buildings.
- c. **Existing Coverings:** Where coverings have previously been installed prior to historic designation, the existing covering may be retained or may be replaced with a similar covering to match. Removal, however, is preferred. When replacing existing coverings, do not install new covering in such a manner that the historically authentic material being covered is damaged or removed—the new installation should be fully reversible.
- d. **Removal of Coverings:** When authentic siding and detailing have previously been covered with other materials, expose and restore the authentic wood elements whenever possible.



Historic wood siding, features, and details have been covered and/or removed on the two buildings at left, which is an inappropriate treatment for an historic building and is not permitted within a local historic district. The photo at right shows insulation and aluminum siding inappropriately being installed over historic wood siding and detailing.

6.3.3 Synthetic Materials as a Replacement for Wood Elements

A variety of new materials have been developed that may be used as replacement for wood in vulnerable and hard to maintain locations. Fiber-cement boards are castings made from Portland cement, reinforcing fibers, and additives that are furnished with a factory paint finish that may also be field painted. Fiber-cement board can be field-cut to length but cannot be planed to form edge profiles.

PVC and composite plastic blends are extruded to form a range of profiles, including siding, plain and molded trim, boards of varying thickness, shaped railings, and other profiles. The material may be shop-planed to form edge profiles, field cut using standard woodworking tools, and field-installed using conventional woodworking fasteners.

- a. **Preservation:** Synthetic materials such as cement board, polymers, or composites should not be used as replacement materials for authentic wood siding or details except in extraordinary circumstances as outlined below.
- b. **Vulnerable Locations:** In rare and specific circumstances, the use of cement board, polymers, or fly ash composites as a replacement for deteriorated or vulnerable wood may be allowed where conditions are unusually susceptible to damage or deterioration and are difficult to properly maintain. When used, be sure that underlying and adjacent materials are compatible in them of moisture retention and thermal expansion.
- c. **Complex Details:** Glass fiber reinforced concrete is an appropriate material for the replication of complex detailed elements of a historic building when the authentic elements are deteriorated or missing and must be replaced.
- d. **Type and Finish:** When allowed, cement board, polymers, and composites must be smooth (without false graining) and must be field painted to match adjacent wood.

6.3.4 Synthetic Materials for New Additions

- a. **Synthetic Materials:** Synthetic materials such as cement board, polymers, or composites may be used to simulate wood siding and details in new additions to the sides and rear facades of buildings within the historic neighborhood.
- b. **Type and Finish:** When allowed for new additions, cement board, polymers, and composites must be smooth (without false graining) and must be field painted to match the wood of adjacent portions of the building.
- c. **Aluminum Siding:** Aluminum siding may be permitted for new construction in locations remote from the core of the historic building, such as new dormers on the side or rear of a building's roof. Factory applied color finishes should approximate and be visually compatible with the painted surfaces of the historic building.
- d. **Vinyl Siding:** The use of vinyl siding is not appropriate or permitted for new additions or construction within a local historic district or neighborhood.



Entrance walk, porch, and doors within the Crown Hill Local Historic District

6.4 ENTRANCES AND DOORWAYS

Entrances and doorways are among the most visible and character defining features of a historic building. Within Worcester’s historic neighborhoods, most principal entrances are placed facing the street and are particularly prominent due to their design and the proximity of buildings to the public way. Many architects and owners have gone to great lengths to make their primary entrances visually appealing.

Entrances are both functional and decorative. The principal entrances of some historic residences are seldom used except by visitors, such that their visual role with respect to the appearance of the facade is more important than their day-to-day functional role.

Secondary entrances on the side or rear of the building are often more likely to be critical in the daily use by residents. Both primary and secondary entrances are important, however, and should be both visually attractive and fully functional. They often include walks, steps, small porches or sheltering hoods, doorways, sidelights, and other features. Historic entrances should never be abandoned or filled in even when used only rarely.

Doorways are comprised of frames, sills, doors, hardware, sidelights, and other features and can become worn through constant use. Over time, small problems such as sticking doors, missing fasteners, broken glass, or worn finishes, can make historic doors seem unattractive and can lead to more serious deterioration.

However, historic doors and doorways are usually better built than contemporary doors and should be preserved and maintained. Historic wood doors are typically built of harder and heavier wood than commonly in use today and are thicker and more substantial overall. Regular maintenance can be as simple as cleaning, care of hardware, limited paint removal, and application of protective coatings. Repair of an existing historic door is more cost effective than replacing it with a new one.

6.4.1 Historic Entrances

- a. **Preservation:** Preserve, repair, and maintain historic entrances that are significant to the building and contribute to the building's architectural character.
- b. **Entrance Components:** Preserve and retain the components of historic entrances such as walks, steps, railings, porches, hoods, posts, columns, doorways, and detailing.
- c. **Primary Entrances:** Preserve and retain the primary entrances of buildings in their historic configurations. Later changes to entrances that have become significant in their own right should be retained.
- d. **Secondary Entrances:** Preserve and retain secondary entrances visible from the public way on the side and rear of buildings to the maximum extent possible. Alterations and changes to secondary entrances to improve their appearance and/or to make them more functional should be compatible with the character of the entrance and the building, as with any addition or alteration to a historic building.
- e. **Closing Historic Entrances:** Do not remove, close, or fill in historic entrances that are visible from the public way. Preserve historic entrances and their contributing features even when no longer in use to preserve character and significance of the facade.
- f. **Featured Entrances:** If it is desirable that a secondary entrance or new entrance on the side or rear of a building be featured as the primary entrance in use, use paving and landscaping as the primary means through which its prominent role is visually communicated to pedestrians. If an additional change, such as a hood or porch, is necessary, adhere to the guidelines for additions to historic buildings.
- g. **New Entrances:** Do not create new entrances on primary facades. If needed, locate new entrances on side or rear facades in locations that will result in a minimal loss of historic materials and features. Design new entrances to be compatible in size, scale, shape, proportion, material, and massing with the existing building features.
- h. **Enclosure:** Do not add enclosed vestibules to primary entrances. Enclosed vestibules may be added to secondary entrances but should be compatible with the character of the building. See the guidelines for additions to historic buildings.



Sampling of the variety of historic entrances within Worcester’s local historic districts. Each is designed as a featured element, contributing to the architectural character of its building. Each provides a welcoming experience, with steps up to the first-floor level, a sheltering overhang, and fine detailing. Most feature sidelights beside the front door for a more spacious and light-filled interior/ exterior experience.

6.4.2 Historic Doorways and Detailing

- a. **Preservation:** Preserve, repair, and maintain historic doorways and doorway components such as door frames, sills, doors, hardware, sidelights, fanlights, and other features.
- b. **Retain Historic Doors:** Retain authentic historic doors where they are present. Do not replace a historic door if repair and maintenance can improve its performance and preserve its physical and historical integrity.
- c. **Replacement Doors:** Historic doors that are deteriorated beyond repair and non-historic doors may be replaced with new doors that are appropriate to the character and period of the building.
- d. **Replication:** When possible, where existing doors are to be replaced and historical evidence is available, install new doors that replicate the design, detailing, arrangement of paneling, and glazing of the historic doors.
- e. **Design of New Doors:** When door replacement is undertaken and replication is not possible, the new door should be designed to be appropriate in character to the historic doorway. Custom fabricate the new door to fit the historic opening. Use a contemporary door type that reflects the architectural character of the doorway. Modern solid flush doors are inappropriate for historic buildings.
- f. **Inappropriate Doors:** Where existing non-original, non-historic doors have been installed but are inappropriate to the character of the building, their replacement with new doors that are appropriate is encouraged.
- g. **Doorway Configuration:** Maintain the original size, shape, and configuration of the historic doorway. Do not decrease the size of the doorway opening by partially filling it in to allow for stock door replacements or for other purposes.
- h. **Doorway Alterations:** Where doorways are to be altered for functional or other purposes, such as to add a vestibule to a secondary entrance, retain as much original historic fabric and detailing as possible. Design alterations to include and respect historic elements, materials, and configurations.
- i. **Missing Features:** When available, use historical documentation when reconstructing a missing doorway feature. If there is not sufficient evidence available, a contemporary design should be installed that is compatible with the architectural character of the building.
- j. **Historic Hardware:** Retain and maintain historic door hardware to the maximum extent possible. Do not paint door hardware. Where portions of older hardware remain, it is preferred that they continue to be retained as remnant vestiges of the historic building.
- k. **Weatherstripping:** When needed, install weatherstripping around door frames to increase energy efficiency and help protect a door's historic features. New weatherstripping should not alter the character or appearance of the doorway.



These glassed-in vestibules provide an appealing entrance experience. They may have been original to the buildings, or they may have been enclosed at a later date. Either way, they are sympathetic to the character of their buildings. The glass-paned door on the right is particularly appropriate for an entrance vestibule.



The natural wood, paneled front door above on the left is an appropriate door type for most historic residences within Worcester’s local historic districts. The custom door on the right is necessary due to its building’s Tudor style and design, and is nicely executed.



The front door on the left has a full glass storm door with true divided lights. The storm door on the right is a full view glass panel without divided lights. Both are the same color as the doors behind, so they blend in. Both storm panels can be substituted with screens in summer.

6.4.3 Storm and Screen Doors

- a. **Storm Doors:** Storm or screen doors may be installed at historic doorways to improve thermal performance and/or allow ventilation.
- b. **Wood Storm Doors:** Wood storm or screen doors custom fabricated to fit the historic door frame are preferred, especially for primary entrances. Determine whether the doorway was originally designed to accommodate storm or screen doors and work with the designed configuration.
- c. **Manufactured Storm Doors:** Standard manufactured storm and screen doors are permitted but should be carefully selected and installed to minimize their visual impact. Simple aluminum storm and screen doors with a baked enamel finish are acceptable. Scalloped edges and decorative aluminum patterns are not appropriate.
- d. **Matching Existing Doorways:** New storm and screen doors should match the size and shape of the historic door opening. Use a narrow-frame design and full-sized glass and/or screen panels that enable the inner door to be seen and a finish color that matches or complements the inner door.
- e. **Storm Door Glass:** Storm doors should have clear glass that allows the inner door to be visible. Dark tinted or reflective glass on storm doors is not appropriate.



The pair of white, paneled, aluminum storm doors at the duplex entrance at left are less appropriate within a local historic district than the two full view storm doors shown at right. Full view storm doors allow the primary entrance door behind to be fully visible. Their color matches or complements the color of the primary door. Both full view storm doors shown here are standard commercially available doors of reasonable cost. (Middle photo: ABC Seamless; Right photo: Therma-Tru Doors/PC Photography)

6.4.4 Guidelines for Accessibility

In 1990 the American Disabilities Act (ADA) was passed, providing for the requirement to provide basic levels of accessibility to almost all properties open to, and used by, the general public. *The ADA does not apply to private residences.* Standards for the design of accessible facilities are defined in the Americans with Disabilities Act Accessibility Guidelines (ADAAG), as well as in the American National Standards Institute (ANSI) and the International Building Code (IBC).

Making buildings and sites accessible to individuals with physical disabilities is important whether public or private and can be a challenge in some historic contexts. Additions may be used to provide accessible access to historic buildings that are not otherwise accessible.

The ADAAG states that publicly accessible historic buildings are allowed certain exemptions from the design standards relative to the protection of existing historic fabric, preventing undesirable modifications to historic building elements judged to have historical or architectural significance. Flexibility with respect to the preservation of historic building features has been integrated into most building codes and ADA standards. In cases where accessibility is not possible without degrading the historic character of a building, alternative solutions are considered acceptable and should be developed.

- a. Provide barrier-free access at publicly accessible historic buildings and sites to the highest degree possible while preserving historic features and fabric.
- b. When undertaking work required by life safety or accessibility codes, features should be designed to be functional, but as unobtrusive as possible.
- c. Design barrier-free access to be compatible with the historic character of the building in materials, proportions, and detailing.
- d. Do not damage or remove historic fabric when designing and installing new barrier-free solutions.
- e. Ramps should be located on secondary elevations whenever possible and should be integrated to work with the existing rhythm and design of the building.
- f. When new stair towers or elevators are required to be installed on a historic building outside of the existing building footprint, the additions should comply with the guidelines outlined in Chapter 7, Additions and New Construction.
- g. Accessibility improvements should not be highly visible design statements that overwhelm or detract from the existing building.
- h. Appropriate landscaping may be used to screen ramps, elevators, or other elements related to barrier-free access.

- i. The best designs will provide barrier-free access that promotes independence for disabled persons while also preserving significant features, materials, and finishes.



Fully compliant ADA accessible ramp installed adjacent to a historic vestibule entrance for a historic residence adapted to a family resource center in the Elm Park Neighborhood Local Historic District.



Many historic buildings cannot be made fully accessible without significant loss of historic character and integrity.



Authentic, preserved wood doublehung window with protective metal storm window. This is the preferred treatment for the preservation of authentic historic wood windows.

6.5 WINDOWS AND WINDOW TREATMENTS

Windows are among the most significant and character defining features of a building. Their preservation and appropriate treatment should be a high priority, even when changes are being made to the area of the building where they are located. The arrangement of windows on a building's facade is a key aspect of its architectural design. The manner in which individual windows are composed—their type, organization, function, operation, and internal division—are distinguishing elements of the building's architectural expression and are often specifically characteristic of the era of its construction.

The preservation of authentic historic windows should always be a priority when they are still existing. Historic windows should never be replaced unless they are deteriorated to such an extent that repair and rehabilitation are not possible. The most common type of window within Worcester's historic neighborhoods is the wood double-hung window, common to residential construction from all eras.

When properly maintained, historic wood double-hung windows can last indefinitely. Historic wood windows are usually better constructed than new replacement windows and can easily be repaired to working order. Because they are better constructed, they are more cost effective over the long run—they require less maintenance, can take more abuse, and will not have to be replaced. Historic windows can also be made as energy efficient as new windows through the installation of weatherstripping and, if desired, storm windows.

Options for window repair should always be assessed before replacement windows are considered. Repair is always preferable over replacement. If

replacement is thought to be necessary, obtain the input of a professional experienced in historic preservation. Many times, windows that look like they are in poor condition are in fact repairable. If replacement windows are necessary, the new windows should be carefully chosen to match the type, size, appearance, and construction of the historic windows.



Representative buildings within Worcester’s local historic districts with preserved original, authentic wood windows protected by exterior storm windows.

6.5.1 Historic Windows

- a. **Preservation:** As a high priority, retain, preserve, and maintain authentic historic windows from the date of a building’s construction whenever they are still present.
- b. **Later Windows:** Retain later replacement windows from the historic district’s various periods of significance unless the windows negatively impact the character and use of the building.
- c. **Window Elements:** Retain the elements of preserved windows that contribute to a building’s architectural character. Such elements may include frames, sash, muntins, glazing, hardware, sills, lintels, and other features. Alteration or removal of such features diminishes a building’s architectural integrity.

- d. **Window Deterioration:** Do not replace windows that are significant to the historical development of a building unless they are missing or deteriorated beyond repair. Peeling paint, broken glass, stuck sash, and high air infiltration are all problems that can be remedied and do not constitute valid reasons for replacement.
- e. **Window Repair:** Repair historic windows retaining original materials and fabrication techniques. Replace missing or broken pieces in-kind. Epoxy consolidants may be used to strengthen and save deteriorated wood at frames and sills.
- f. **Limited Replacement:** Do not replace an entire window if limited replacement of deteriorated parts is possible. Many elements that are particularly susceptible to weathering, such as muntins, can be replaced without replacing the whole window. Use surviving prototypes to reconstruct missing window elements. Replacement elements should be visually, chemically, and physically compatible with the remaining portions of the window.
- g. **Window Hardware:** Window hardware and operating mechanisms should be retained but are often in need of repair. Elements such as the sash locks, cords, and weights of historic wood double-hung windows can be easily repaired and, if necessary, replaced in-kind.
- h. **Weatherstripping:** Apply weatherstripping to existing historic windows if it is needed to reduce air infiltration. Installation of weatherstripping between the window frame and operable sash and along the meeting rails of top and bottom sash can dramatically increase energy efficiency.
- i. **Window Lintels or Hoods:** Window lintels or hoods that project from the facade of the building are vulnerable to water and sun damage and should be inspected regularly. Installation of metal over the horizontal plane of the lintel or hood with drip edges to protect the wood surface and shed water is appropriate.
- j. **Insulating Film:** Do not apply reflective or insulating film to window glass. Blinds or insulating curtains may be added to the interior for privacy and increased thermal performance.
- k. **Window Openings:** Avoid enlarging, reducing, or filling in historic window openings. Do not close or reduce the size of historic window openings by removing windows and filling in openings in whole or in part with new construction.



The mansard window on the left is preserved and protected. The mansard, windows, and window detailing on the right have been inappropriately replaced.

6.5.2 Storm Windows

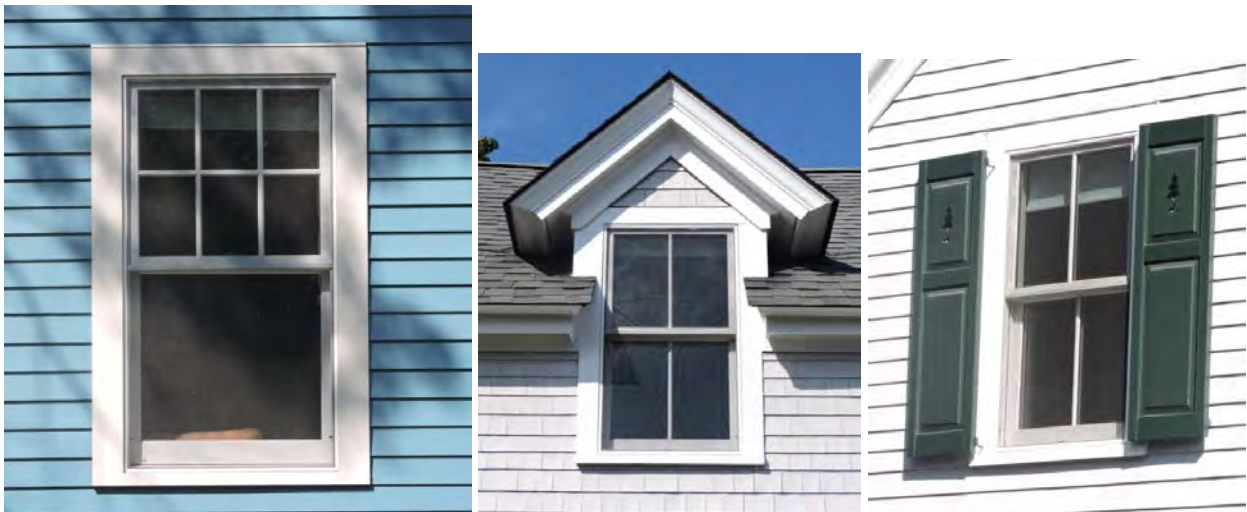
- a. **Storm Window Types:** Both exterior and interior storm windows are appropriate and acceptable for installation on historic buildings should they be desired to increase thermal performance.
- b. **Exterior Storm Windows:** Conventional exterior metal storm windows are acceptable for application to historic windows because they not only provide thermal insulation, but they also help protect and preserve the historic windows, even though they may somewhat alter exterior appearance.
- c. **Storm Window Design:** Exterior storm windows should match the full size and the shape of the historic window. The size and location of storm windows and screen rails should match those of the historic window sash behind. Storm window finishes should be selected to match the color of the historic window frame. The installation of exterior storm windows should not require alteration or modification of historic building fabric and should be fully reversible.
- d. **Interior Storm Windows:** Various types of interior storm windows may be considered for use and are not subject to local historic district design review as they do not affect the exterior appearance of the building. Fixed and removable magnetic storm windows are inexpensive, fully reversible, and may be removed during seasons when windows should be operable. Various types of operable interior storm windows are available as well.



Triple track aluminum storm windows as pictured here are commercially available in a variety of colors that can be matched to the colors used for historic window sash, frame, and siding. Storm windows improve thermal performance, prevent air infiltration, protect historic fabric from the weather, and have operable screens for summer ventilation. (Left photo: Ardmore, Inc.; Right photo: reddit.com/r/century homes)

6.5.3 Replacement Windows

- a. **Replacement:** Replace historic windows that are severely deteriorated and cannot be repaired; or that are missing; or that have already been replaced with windows that are not historically significant to the building and are inappropriate to its character or not functional.
- b. **Reproduction Windows:** Whenever possible, replacement windows should closely match the historic windows that were present. It is preferable that replacement windows be accurate reproductions of historic windows using historical, pictorial, and physical documentation in their design.
- c. **Manufactured Windows:** When the installation of accurate reproduction windows is not the selected option, a new similar and compatible manufactured window may be installed provided that the new replacement window is consistent with the historic character of the building.
- d. **Research:** Where historic windows are not present to provide a model, undertake research to determine the most appropriate configuration and profile of a new window to be installed in the historic opening.
- e. **Replacement Sash:** When possible, replace only the sash of the window in-kind leaving the historic frame and sill intact. Install weatherstripping between the new sash and the historic frame to enhance thermal performance. In many cases, thin insulating glass can be installed in the sash while retaining accurate historic muntin profiles.
- f. **Window Size:** New windows should be custom fabricated to match the full size of the historic window openings. Do not install new windows that are smaller than the full size of the historic window openings.
- g. **Frame, Sill, and Trim:** When replacement window units with frames are installed, modify or remove the existing frame to allow the new frame to match the existing in size and location. Remove and reinstall interior and exterior trim to allow for placement of the new window. Retain existing sills or match existing sill detailing.



Replacement windows custom built to fit within the historic window frames

- h. **Window Material and Finish:** It is preferable that historic wood windows be replaced with new full or simulated divided light wood or composite windows with a field-painted finish. However, certain types of manufactured windows with metal-clad sash or factory-coated wood may also be acceptable. New window frames should not be metal clad.
- i. **Vinyl and Aluminum:** Vinyl and aluminum replacement windows are not acceptable as replacements for historic windows because they are of inferior quality and have short life spans.
- j. **Window Type and Configuration:** Install replacement windows of the same type, sash configuration, and operation as the historic windows. Historic double-hung windows should be replaced with new double-hung windows; historic casement windows should be replaced with new casement windows; historic awning windows should be replaced with new awning windows; historic fixed windows should be replaced with new fixed windows.
- k. **Insulating Glass:** The use of insulating glass to increase the thermal performance of windows may be acceptable. Minimize glass thickness to approximate the appearance of historic panes.
- l. **Tinted Glass:** The use of tinted glass for windows in a historic building is inappropriate.
- m. **Muntins:** Match the muntin configuration of the historic windows being replaced. The use of true divided lights is preferred. However, certain types of false muntins simulating divided lights may be acceptable provided they are integral to the sash design, both interior and exterior, and are not easily visually identifiable as false. Do not install windows with applied or snap-in muntins or muntins that are on the interior of insulating glass.



Muntin of a true divided light with insulating glass in a replacement window (left), exterior false muntin (center), and interior false muntin (right). True divided lights are encouraged, though their muntins can be thick compared to what would have been present in a historic window sash due to the thickness of the insulating glass. Decision would have to be made as to the visual appropriateness of a thick muntin in the context in which it is to be used. An exterior false muntin of appropriate thickness is acceptable. Interior false muntins are discouraged because of their poor visual appearance. (Images: Marvin Windows)

- n. **Inappropriate Window Types:** Do not install new contemporary windows that are not appropriate to the character of the historic building, such as stock residential windows, bay or picture windows, glass block, jalousie/louvered windows, or others.



This contemporary bay window is inappropriate to the bay on this historic house, which likely originally had a row of doublehung windows.



Buildings with authentic wood shutters in Worcester’s local historic districts. Each of these buildings also uses exterior aluminum storm windows to protect their authentic historic windows.

6.5.4 Shutters

- a. **Preservation:** Retain, preserve, and maintain historic shutters and shutter hardware when they are present. Retain shutter hardware even when shutters are missing.
- b. **Shutter Installation:** The installation of historically appropriate shutters on historic windows is encouraged. In general, install shutters only where they existed historically and where appropriate to the architectural style of the building.
- c. **Shutter Size and Configuration:** New shutters should match the height and width of the window opening where they are being installed. Shutters should be mounted to be operational or appear to be operational.
- d. **Shutter Materials and Design:** Shutters should be of wood construction, but high-end composites closely simulating wood may be permitted, and either one should be protected with a painted coating. Shutter form and design should be similar to that existing historically when historic documentation is available. When information is not available, design shutters to be appropriate to the period and style of the historic building.
- e. **Inappropriate Locations:** Do not install shutters on windows that would not have had them, such as bay windows, casement windows, or fixed windows.
- f. **Inappropriate Sizes:** Do not install shutters that do not match the size and shape of the window on which they are installed. Shutters that are smaller than the windows and clearly could not have been usable are inappropriate.
- g. **Shutter Mounting:** Install shutters with appropriate shutter hardware typical of the period of the building. Do not screw, bolt, or attach shutters directly onto building walls without appropriate hardware. Shutters should stand off the wall and window frame surfaces creating a shadow line behind.

6.5.5 New Windows in an Existing Historic Facade

- a. **New Windows:** New windows should not be added to the primary facade of a historic building. If necessary, new windows should only be added to side or rear facades that are not easily visible from the street.
- b. **New Window Design:** If new windows are added to a side or rear facade, the type, size, placement, and detailing of the windows should be complementary with the design and detailing of the existing facade. Details of new windows should vary slightly from that of authentic historic detailing so that the window may be clearly identified as being from a later period.



Inappropriate use of shutters as non-functional decorative elements. At the top photos and lower right, shutters have been installed that could not possibly have been functional. At bottom left, shutters have been screwed to the exterior siding away from the window frame even though historic shutter hardware is still existing on the frame.



Historic shutter hardware should be preserved even when there are no plans to use it.



Metal weatherstripping installed at the sash in a historic window frame to prevent air infiltration



Porches are most prominent in Worcester's vernacular mid-19th century residences.

6.6 PORCHES

Porches are a significant character defining feature of buildings within Worcester's historic neighborhoods, particularly the gable-front, side-hall plan houses within the Crown Hill Local Historic District, which have porches present on both primary and secondary facades, and the three-deckers in the Elm Park Neighborhood Local Historic District, most of which have tri-level front porches. Their preservation is important in helping to maintain the character of both the buildings and the streetscape. In some cases, they were added to earlier buildings but remain significant to the building's historical development. Porches were common to buildings in the late 19th and early 20th centuries, before the introduction of air conditioning.

Porches are an important transitional space on a building where the exterior space and interior space intersect. They vary in use or function, some sheltering primary or secondary entrances and others serving as outdoor living areas. Porches are one of the most frequently altered features on a historic building.

Typically, porches feature common architectural elements, such as posts, railings, floor assemblies, steps, and a sheltering roof structure. Usually, the design and detailing of the porch reflect the architectural style and treatment that is prevalent on the remainder of the building. In Worcester's gable-front side-hall houses, porch detailing often reflects the stylistic period of their construction (Greek Revival, Gothic Revival, Victorian, etc.) while the house as a whole reflects the earlier vernacular building type. Porches of a later style were sometimes added to a building of an earlier architectural style.

Porches contribute to the architectural integrity of a building and should be preserved. Generally constructed of wood, porches can deteriorate quickly due to exposure to the elements. This is especially true in Massachusetts due to the weather cycle. Regular maintenance and upkeep are necessary to address deterioration before it escalates to a large-scale issue.



Representative porches on residential buildings in Worcester's local historic districts. The upper four photos are of mid-19th century residences, where porches were common features of daily living. The lower two photos are of high-end, architect designed residences, where porches were aesthetic design enhancements.

6.6.1 Historic Porches

- a. **Preservation:** Preserve, repair, and maintain historic porches associated with buildings within Worcester's historic neighborhoods.
- b. **Repair:** Repair damaged or deteriorated elements of historic porches. Repair is always preferred over replacement, and limited replacement of deteriorated elements is always preferred over complete replacement of an entire porch.
- c. **Replacement:** When deteriorated beyond repair, individual porch elements should be replaced in-kind to match original visual and physical properties, including materials, design, scale, level of detail, and color.
- d. **Posts and Railings:** Porch posts, railings, balusters, and handrails are both functional and decorative and should be preserved and maintained. Repair damaged or deteriorated porch posts and railings whenever possible rather than replace them.
- e. **Porch Ceilings:** Repair and replacement of porch ceilings should be based on their historic prototypes and should be undertaken in-kind. Sections of damaged or deteriorated ceilings should be completely removed prior to installation of the new material. New work should never be installed over damaged material or obscure historic features that contribute to the building's character.
- f. **Replacement Materials:** Cedar, which is highly weather resistant, is an appropriate replacement material for posts, railings, and decorative woodwork for porches. When used, it should be painted. Other highly weather resistant specialty wood species that are not as soft as cedar may also be available and may be appropriate.
- g. **Contemporary Materials:** Do not replace historic wood posts or railings with inappropriate contemporary plastic or metal columns, posts, railings, or balusters. See the section on Wood Siding, Details, and Trim elsewhere in this chapter for discussion of synthetic materials that may be acceptable for selective use on porches.
- h. **Conjectural Features:** Conjectural features should not be added to a historic porch unless there is evidence that they were originally or historically present.
- i. **Replacement in Entirety:** If a historic porch is severely deteriorated or structurally unsound, the entire porch may be removed and replaced in-kind. New work should closely match historic conditions in all respects. Replacement posts, railings and balusters should match in material, profile, and configuration.
- j. **Removal in Entirety:** Historic porches should never be removed. If historic porches are severely deteriorated, see the above guidelines for Replacement in Entirety.

- k. **Porch Additions:** New porches may be added to side or rear facades but should be designed to complement the historic building with similar configurations and detailing. Porches should not be added to a primary facade if the building did not historically have a porch.



Porches are prominent features on Worcester's surviving three-deckers, where they should be preserved and preferably should not be enclosed.

6.6.2 Porch Flooring

- a. **Porch Flooring:** Wood porch floors receive heavy use, are exposed to the elements, and tend to wear and weather quickly. Replacing limited sections of deteriorated flooring is preferable to total replacement. Replacement floorboards should closely match the dimensions of historic wood floorboards, which were typically between 3/4- and 1-inch thick.
- b. **Replacement Floor Materials:** Mahogany, which is very hard, is a good material for replacing wood porch flooring and may be stained or painted. Synthetic flooring materials such as polymers are not encouraged but may be approved in particular locations on a case-by-case basis and should be tongue and groove. Spaced boards—whether wood or synthetic wood—are not recommended. Treated lumber may be used for structural elements and elements in contact with masonry in the reconstruction of porches where it is not exposed to view.
- c. **Floor Installation:** Wood porch flooring should be laid perpendicular to the building wall and extend to the drip edge of the porch. A minimal slope away from the building to facilitate drainage is needed. A maximum gap of 1/16-inch should be left between boards to allow for expansion. Boards should be fastened with screws, not nails, to prevent cupping and bouncing. Wood edging should be applied to the exposed ends of floorboards to prevent moisture from entering the end grain. Surface coatings such as paint and stains that help prolong the color and condition of the wood are appropriate.

- d. **Crawlspace Enclosure:** Use semi-open materials such as wood lattice and grills to enclose the space between a porch floor and the ground, providing adequate ventilation. Design enclosures to be visually appropriate to existing porch detailing. A lattice of thin painted wood strips in a rectangular or diagonal pattern, set in a wood frame, and fitted between porch piers is most appropriate. Avoid direct contact between wood members and the ground. Substitute, synthetic non-wood materials may be permitted, although plastic lattice panels are not appropriate and will likely not be allowed.



Porch flooring is exposed to the weather, becomes worn and deteriorated as shown here, and periodically needs to be replaced. Replacement in-kind with a durable wood such as mahogany is recommended. If synthetic flooring materials are permitted, the appearance should match the historic tongue and groove appearance.



Stone, granite porch steps are common within Worcester’s local historic districts, but brick and concrete are present as well. A few buildings retain wood steps, though they have probably been replaced several times over the years. The crawlspace beneath this porch has been enclosed with wood lattice, which is also a common treatment.

6.6.3 Porch Steps

- a. **Wood Steps:** Wood steps on 19th century buildings may have been replaced a number of times over the building's lifetime due to wear and exposure. The replacement of wood steps should be based on physical evidence and historic documentation if available, and not necessarily the current steps, which may or may not be an accurate copy of the original. Synthetic, non-wood materials may be permitted in place of wood.
- b. **Stone Base:** To control the deterioration of wood steps, installation of a stone or concrete plinth (base) underneath the steps structure is recommended. Not only does it support the bottom of the steps, but it also prevents the wood from being in contact with the soil, which contributes to hastened rot.
- c. **Stone Steps:** Stone steps provide access to many porches and entrances within Worcester's historic neighborhoods. Treatment and repair should follow the recommendations contained in the masonry section of these guidelines. Historic stone steps should not be replaced unless the stone itself is severely deteriorated. In some situations, steps can be patched with consolidants tinted to match the color of the stone.



Featured on the first page of this chapter, this is an appropriate way in which to enclose a historic porch. Glass panels with true divided lights are set between the porch columns, preserving porch detailing and transparency. The exception is that porch enclosure is not permitted on primary facades.

6.6.4 Porch Enclosure

- a. **Interior Spaces:** Historic porches should not be enclosed with walls and windows to create or expand interior living space.
- b. **Limited Enclosure:** Do not enclose historic porches on the primary facade of a historic building. On secondary or rear elevations, limited porch enclosures may be permitted. Limited enclosures involve installation of glass partitions inside of retained posts and railings, minimizing necessary wood structure. The installation should retain the visibility of historic details and maintain the original transparent and open appearance of the porch. Such work should be fully reversible.



The porch enclosure with screens (left) would be considered acceptable due to the preservation of porch design and detailing as well as its transparency. Enclosure with jalousie windows (right) would not because the jalousie windows conflict with the building's architectural character.



The porch enclosures shown above would not be considered appropriate within a local historic district.



The shared landscape within a local historic district includes the road, sidewalks, front yards, and building forms. Canopy trees are important in providing spatial enhancement.

6.7 SITE FEATURES

Landscape context is central to the character of any historic neighborhood. Overall spatial parameters of the landscape are established through the layout of the street, configurations of lots and lot lines, and the setbacks and forms of buildings, all of which may vary by neighborhood. The vegetation that is present softens the landscape, modulates spatial character, and provides visual interest and shade. Important to the character of most historic neighborhoods is the presence and stewardship of large deciduous canopy trees, which give spatial scale to the buildings and probably play the strongest role in establishing a pleasing neighborhood character.

Important as it is, however, vegetation is not reviewed in the design review of Worcester's local historic districts, nor has vegetation presented issues of contention with respect to negative impacts. Most of Worcester's historic neighborhoods are filled with large canopy trees which contribute to neighborhood character. Smaller scaled vegetation varies by property but is generally ample, well designed, and well maintained throughout the city.

Other site features, most of which are subject to design review, are discussed below and include retaining walls, steps, curbing, paving, fences, railings, lamps, and other permanent small-scaled structures. A considerable number of these features are not original historic fabric but have been added to the neighborhood landscape over time, many of them in recent decades. Of these, fencing is the most visually prominent. First, however, this chapter addresses the importance of the overall streetscape and the shared public realm.



Streetscapes have common elements, but their character varies by location and period. Crown Hill (upper left) has narrow streets, tight sidewalks, smaller buildings close to the street, and elevation changes between the sidewalks and buildings creating an intimate experience. Portions of the Elm Park Neighborhood (upper right) have wider streets, ample sidewalks and front yards, and larger buildings. The West Side Realty Plot in the Elm Park Neighborhood (lower left) has wide streets, duplexes masquerading as single-family residences, and fewer trees. Massachusetts Avenue (lower right) has a landscaped center median, deep setbacks, and larger residences. New additions to these streetscapes should be designed to enhance the characteristics of each.

6.7.1 Streetscape

The streetscape is within the public domain and generally includes the street, curbs, sidewalks, utilities, and trees and grass areas within the right of way. Historic sidewalks, curbing, and other features are present in most of Worcester’s historic neighborhoods. Historic brick paving still exists in some portions of the Crown Hill Local Historic District and very limited sections of the Elm Park Neighborhood Local Historic District. In some areas, historic materials have been replaced but some remnant features may remain.

Stewardship of the public streetscape is important. Changes adverse to the character of the historic neighborhood should be avoided. When changes are to be considered by a public agency, utility, or other entity within a designated local historic district or within a neighborhood that has been inventoried as represented on MACRIS, Worcester’s Historical Commission should be consulted

about the proposed changes and potential mitigation where adverse effects are likely.

- a. **Identification and Assessment:** When public improvements are proposed within a historic neighborhood, historic landscape characteristics and features should be identified, and the impact of proposed changes should be assessed.
- b. **Historic District and Historic Neighborhood Review:** Within a designated local historic district or an inventoried historic neighborhood, proposed changes within the streetscape should be reviewed by Worcester’s Historical Commission.
- c. **Street Construction:** Assess the impact of street construction projects on adjacent historic landscapes and structures. If negative impacts are possible, identify and implement protective measures.
- d. **Historic Features:** Identify and preserve historic features within the streetscape. Such features might include sidewalks, stone curbing, classic cast iron hydrants, light fixtures, and others.
- e. **Streetscape Elements:** Preserve major streetscape elements and characteristics, including street width, setbacks, curbs, trees, lawns, and sidewalks.
- f. **Circulation:** Retain historic pedestrian and vehicular circulation patterns.
- g. **Historic Character:** Avoid changes that might negatively impact the historic physical and spatial character of the streetscape and the neighborhood.
- h. **Canopy Trees:** Avoid changes and work that might damage canopy trees along the streetscape. Prune trees carefully to allow utility wires to run through the canopy while preserving the shape of the tree canopy.



Granite street curbs, retaining walls, posts, and front steps are common throughout the Crown Hill and Elm Park Neighborhood Local Historic Districts and should be preserved and maintained. In these two locations, brick sidewalk paving remains as well.



Concrete front steps (left) are common throughout the historic districts and in some cases probably replaced earlier granite steps. The granite and bricks steps, walls, and walk at right are customized to the character of the Tudor residence to which they belong.

6.7.2 Retaining Walls, Steps, and Curbs

Cut granite is a common material used for curbs, retaining walls, corner fence posts, and site steps within Worcester’s historic neighborhoods. Concrete was used for site steps and porch steps in the early 20th century and is discussed further in the next section. Some of these materials may not be historically significant, but they are all characteristic of the historic neighborhoods.

- a. **Preservation:** Retain, maintain, and preserve stone retaining walls and steps within historic neighborhoods. Retain historic stone curbing and other features where they are found to be present.
- b. **Natural Stone:** Use natural stone similar to that of existing retaining walls and steps for new retaining walls and steps. Use similar heights, coursing patterns, and configurations. Brick retaining walls may be permitted in neighborhoods where they are an existing historic feature.
- c. **Non-historic Materials:** Cast block and other non-natural materials are not recommended for retaining walls but may be permitted where they do not adversely impact the overall character of the neighborhood. When permitted, use colors and textures that simulate natural stone.



Concrete sidewalks are most common within the local historic districts, many of which are original.



Brick paving with granite curbing was original throughout Crown Hill and in a few locations in the Elm Park Neighborhood. Areas of brick paving still remain and should be preserved, though concrete sidewalks have been installed as a replacement in many places. Asphalt has been installed over brick in some locations and may be able to be removed and the brick restored.



Most sidewalks on private lots are concrete, though brick is common in Crown Hill and is present in other local historic districts as well. The use of cut stone, as shown above, is rare but acceptable.

6.7.2 Walkway Paving

Natural stone and brick were common in the paving of 19th century sidewalks and walkways within yards in historic neighborhoods and contribute to their historic character. Concrete was used in many of Worcester's early 20th century neighborhoods for sidewalks and site steps. Some of these materials are historic, while others are newer installations or replacement materials. Several recent installations have used brick, stone, concrete, or cast pavers for walkways within yard areas.

- a. **Preservation:** Identify, retain, and preserve historic walkways, paving materials, and circulation patterns where they are present. Do not replace historic paving unless it is deteriorated beyond repair.
- b. **Pattern and Alignment:** Retain the alignment, widths, and configurations of non-historic pedestrian walkways where they have become character defining features of the historic neighborhood.
- c. **Repair and Replacement:** When repair or replacement of materials is necessary in historic walkways, replace in-kind utilizing paving materials that are similar in type, appearance, and composition.
- d. **New Walkways:** The addition of new sidewalks or walkways within yard areas in a historic neighborhood may be desirable and necessary to enhance pedestrian access and connectivity. New pedestrian routes should be compatible with the existing pedestrian circulation patterns.
- e. **New Paving:** New paving in yard areas should be consistent with the character and appearance of historic paving that remains at the property or within the vicinity.
- f. **Concrete:** The use of concrete for new or existing walkways is acceptable, especially where concrete was the historic paving material. New concrete being installed should be colored to match the muted hues of existing older concrete. Concrete using a natural sand finish for coloring is preferred.
- g. **Cast Pavers:** The use of cast pavers for new or existing walks is acceptable. Pavers should have exposed grains and be of natural colors similar to the grey of natural stone.



The wood fencing above provides privacy to the side and rear yards of two adjacent properties. The fencing is appropriately placed back from the front elevations of the two residences and is appealingly landscaped.



Cast iron fencing was common within the Crown Hill and Elm Park neighborhoods and has been preserved on some properties. Remnant granite cornerstones and curbing can be seen on many properties – all should be preserved. A few properties have installed new black metal picket fencing along sidewalks simulating the historic cast iron fencing, which is acceptable.



Remnant granite posts and curbs along sidewalks

6.7.3 Fencing

Cast iron fencing installed along sidewalks in front of a property and along side and rear property lines was prevalent within Worcester's historic neighborhoods in the mid-to-late 19th century, particularly neighborhoods such as Crown Hill and Elm Park. The cast iron fencing remains in very few locations, but associated granite curbing, gate posts, and corner posts with which the fencing was constructed remain at numerous properties. Contemporary, non-historic fencing has been added to properties along sidewalks in some locations, including metal picket fencing and chain link fencing. Wood fencing has been added at some side and rear property lines.

- a. **Preservation:** Identify, retain, and preserve historic fencing and associated features where it is present.
- b. **Repair and Replacement:** Repair deteriorated portions of historic fencing and associated features in-kind. Where replacement is necessary due to the extent of deterioration, replace historic fencing by matching the original in material, design, and installation technique where possible.
- c. **New Metal Picket Fencing:** Contemporary metal fencing with narrow pickets similar in character to historic cast iron fencing may be appropriate where cast iron fencing was historically located and at other locations as well. Use black, dark green, or other appropriate color. Fencing in front yards along the sidewalk and streetscape should be of low height. Provide manufacturer's information and samples of proposed fencing for review and approval.
- d. **New Wood Picket Fencing:** New wood picket fencing of appropriate historic design and configuration may be approved. Fencing in front yards along the sidewalk and streetscape should be of low height.
- e. **Side and Rear Fencing:** Taller fencing is permitted along side and rear property lines to allow for privacy for backyard areas behind residences. Vertical wood board fencing is preferred. The use of lattice tops similar to some existing installations is desirable.
- f. **Tall Metal Fencing:** Tall metal picket fencing may be acceptable along side and rear property lines, and other forms of proposed fencing will also be considered for their appropriateness.
- g. **Tall Front Fencing:** Taller fencing facing the street intended to protect rear yard areas is permitted but must be located in side yards beside the primary building. Tall fencing should be set back from the front facade of the residence. Tall fencing facing the street is not appropriate in front yards. Trellis style wood fencing is preferred.
- h. **Non-historic Materials:** Plastic fencing, chain link fencing, and other non-historic materials are inappropriate within Worcester's historic neighborhoods and local historic districts.



Chain link fencing is not an appropriate material within a local historic district.

6.7.4 Mechanical Equipment

- a. **Primary Facades:** The mounting of mechanical and electrical equipment including utility meters, cable boxes, alarm devices, security cameras, ventilation louvers, exhaust fans, air conditioners, generators, and other equipment on or adjacent to primary facades is inappropriate.
- b. **Secondary Facades:** The visual impact of mechanical and electrical equipment mounted on or adjacent to secondary facades should be minimized through their discreet placement, by painting the feature a similar color as the historic facade, or by screening with fencing or landscaping. Minimize damage to historic building fabric when installing features. Electrical, cable, and telephone services should be placed underground whenever possible. Air conditioning condenser units and generators should be screened from public view wherever possible.



Streetscape in the Montvale Local Historic District with two lantern-style streetlights (right and center). These might serve as models appropriate at a smaller scale for lamps on properties.



Historic streetlight on William Street within the Elm Park Neighborhood Local Historic District



Historic gas lamp on Oxford Street within the Crown Hill Local Historic District

6.7.5 Site Lighting

Historically, exterior site lighting was not common in residential neighborhoods during the late 19th and early 20th centuries. When present, usually only in wealthier areas, fixtures were often gas, supplied from municipal works. Several remnant gas streetlights are still existing within the Crown Hill Local Historic District. Municipal electric street lighting came later. Exterior lighting should be limited and discreet within historic neighborhoods.

- a. **Residential Lighting:** Lighting emanating from lit interior spaces through the windows of residences is the most appropriate form and degree of lighting characteristic of historic neighborhoods.
- b. **Exterior Lighting:** Exterior lighting should be used sparingly and only in discreet locations in historic neighborhoods. Discreet exterior lighting is appropriate at entrances, porches, gates, steps, and other similar locations to illuminate destinations and conditions for safety.
- c. **Flood Lighting:** The lighting of building facades and yard areas with flood lights is inappropriate within a historic neighborhood. The use of building mounted, ground level, and tree mounted flood lighting is discouraged.
- d. **Building Features:** The limited facade lighting of individual building features such as entrances may be permitted but should be discreet and of low intensity.
- e. **Ground Lighting:** The installation of low, ground level light fixtures at steps and along walkways may be appropriate but should be limited in extent. Fixtures should illuminate the ground, and bulbs should not be visible to pedestrians.
- f. **Fixture Style:** Metal lantern style fixtures mounted on poles or on buildings are a common form of exterior lighting within historic neighborhoods. Where lighting sources are visible, they should be of warm hue and limited strength. Many metal fixtures in use have a matte black finish.
- g. **Contemporary Fixtures:** The use of contemporary fixtures will be considered and is not inappropriate. Contemporary fixtures that light the ground and where the light sources are shielded from view are encouraged.



CHAPTER 7 – ADDITIONS AND NEW CONSTRUCTION,

Additions and new construction can make interesting and meaningful contributions to a building and a historic neighborhood by adding creative visual elements that respond to and reinforce established patterns and context.

As communities and lifestyles change, buildings often need to adapt and evolve to accommodate new situations and needs. Buildings are routinely adapted in response to changes in contemporary living and how buildings and lots are used. Desired changes often include new everyday entrances related to driveways where residents park; larger, modernized kitchens; new informal dining areas and family rooms; larger and increased numbers of bathrooms; and outdoor decks and terraces. Some older historic buildings were modest and very small when originally constructed—part of their inherent charm—but have been expanded with additions over time, adding needed interior living space.

In several of Worcester’s local historic districts, new uses have been accommodated in historic buildings in ways that have allowed the neighborhoods to evolve while still preserving their historic character. In the Massachusetts Avenue and Elm Park Local Historic Districts, for example, academic residential and educational uses have been accommodated in a number of high style historic residences, allowing the neighborhoods to flourish by strengthening their relationships to nearby academic institutions. Such

adaptive reuses often require physical changes and/or new additions to the historic buildings and their lots.

New buildings are sometimes constructed in Worcester's historic neighborhoods, filling spaces where buildings have been lost for various reasons and increasing density where space allows. The Crown Hill Local Historic District, for instance, has significant opportunity for new buildings to be added around its perimeter where vacant lots are currently present. Such new construction can help strengthen the historic neighborhood by attracting investment, bringing in new owners, and filling unnatural gaps in the neighborhood fabric where they exist. The construction of new buildings will continue to occur in historic neighborhoods throughout Worcester. These guidelines are intended to be helpful in facilitating appropriate design and implementation.

The challenge in historic preservation is to accommodate desired change in a way that reinforces rather than diminishes historic neighborhood character, whether addressing an addition to an existing building or a completely new building.

New buildings should be designed in a manner that is compatible and sympathetic to the character of the historic neighborhood, ensuring that the character and integrity of surrounding historic resources are preserved. New buildings should be consistent with the site layout, orientation, scale, form, materials, features, and detailing established by surrounding structures.

The design of new **additions** to existing historic buildings should follow the same guidelines as outlined for new buildings. Generally, however, the specific focus in the design of additions should be its relationship to the character and appearance of the specific existing building to which it is attached. Inappropriate additions and alterations can diminish the integrity of a historic building. Carefully designed additions and alterations that are sensitive to historic character and building fabric can enhance a building's character as well as its use.

The character of a historic neighborhood and its streetscape relies upon the visual continuity and interplay established by the presence of similarly designed and harmonious buildings. Yet, individuality is important as well. Worcester's historic neighborhoods and local historic districts are comprised of a number of different residential building types designed during different periods for different owners. Together, both the continuity and individuality of historic buildings combine to create neighborhoods of distinctive character.

Additions and new buildings that are added to a historic neighborhood should express their individuality. They should speak of the time in which they are built in a contemporary way that is respectful of their historic surroundings. They should not seek to replicate historic buildings or styles, though they may choose to reference historic styles in their design. While contemporary to their time and place, additions and new buildings should fit in and contribute positively to the overall character of the neighborhood. The following guidelines are intended to inform the design of additions to existing historic buildings as well proposed new buildings within Worcester's historic neighborhoods.

7.1 GUIDING PRINCIPLES FOR NEW DESIGN

The general approach to design in a historic context emphasizes quality, flexibility, and the ability to respond creatively to the building's surroundings.

- a. **Design Excellence:** Worcester's local historic districts have been designated in recognition of the quality of their buildings; this is reflected in the city's other historic neighborhoods as well. Additions and new construction should continue the local tradition of design excellence, which cannot be achieved solely through regulatory review. A design team experienced with design in a historic context is important and will bring careful thought, sensibility, flexibility, and high quality to new construction projects within historic neighborhoods. Design excellence cannot be achieved by simple application of a formula; it requires a creative response to accommodating contemporary requirements and the historic context.
- b. **Design Context:** Additions and new buildings should be designed to visually relate to their immediate historic context and the context of the historic neighborhood as a whole. Established design precedents in the immediate area should be respected without attempting to directly imitate existing buildings.
- c. **Demolition and Removals:** The demolition of historic buildings to allow for new construction is not permitted within Worcester's local historic districts and is usually not approved in the city's other historic neighborhoods. New additions to existing buildings should be accomplished in a manner that is reversible and minimizes the removal of authentic historic building features and fabric.



Though substantial, the additions to the side of this historic building in the Crown Hill Historic District are in keeping with the overall character, especially the design of the porch-like exterior exit stairs.

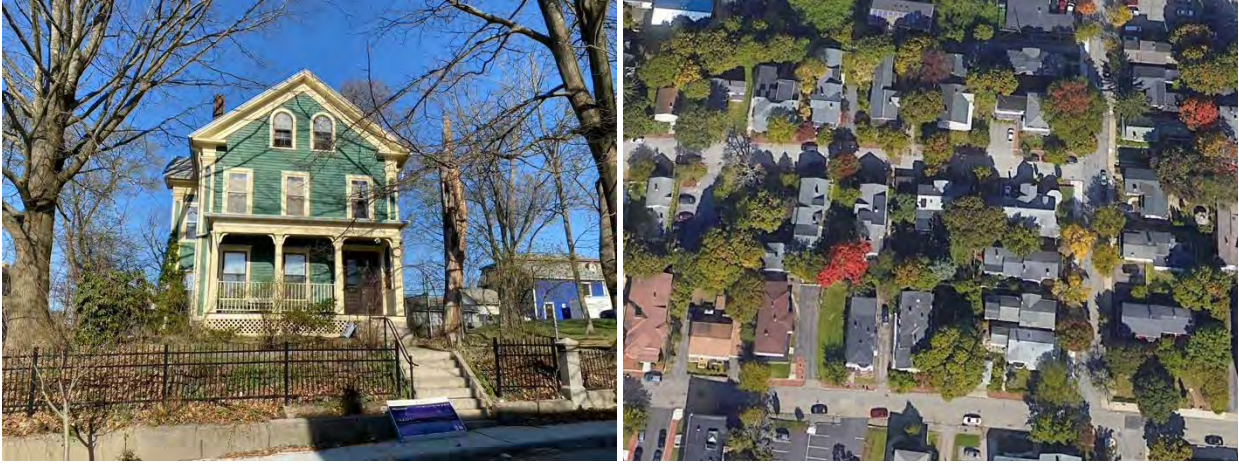
7.2 SITE LAYOUT AND ORIENTATION

The relationships of additions and new buildings to established neighborhood patterns in how buildings are positioned on properties and how they relate to buildings on adjacent properties is key to sympathetic design in a historic context.

- a. **General Layout:** Retain established property line patterns, street relationships, setbacks, primary and secondary building orientation, circulation patterns, and landscape elements.
- b. **Location of Additions:** Additions should be located on secondary side or rear elevations. Additions to the primary, front facade of a historic building are discouraged and may be prohibited.
- c. **Size of Additions:** The total square footage of an addition should be limited to no more than 30 percent of the square footage of the primary historic building. For instance, a building with a footprint of 2,500 square feet would be permitted an addition not to exceed 750 square feet.
- d. **Setback:** In areas where there is an established consistent setback, the setback of new construction should match that of neighboring properties.

In areas with varied setbacks, the setback for new construction should be within ten percent (10%) of those of neighboring properties. New construction on corner lots should continue the established setback along both street frontages. Variations to these setback guidelines may be warranted in some cases, but decisions should be carefully considered with respect to their impact on the overall streetscape.
- e. **Lot Coverage:** New construction should be consistent with adjacent historic buildings in terms of lot coverage and building-to-lot ratio. In no case should they exceed that allowed by city ordinances.
- f. **Spacing of Buildings:** Design new construction to follow the existing pattern of building widths and spacing between buildings. The space between buildings helps define the spatial character of the historic neighborhood.
- g. **Building Orientation:** Primary buildings should have a similar orientation and relationship to the street as the existing buildings in the vicinity. The original orientation of a building should not be altered by an addition. For example, the addition should not result in a secondary facade becoming the primary facade. The addition should not replace the primary facade.
- h. **Entrance Orientation:** Primary entrances of new buildings generally should be on the primary facade, face the street, and be consistent with the pattern of entrances and facades within the vicinity. Buildings within some historic neighborhoods, however, have their primary entrances on side elevations, which, when present, should be maintained.
- i. **Existing Entrances:** Additions and alterations should not obscure, obstruct, alter, remove, or replace an existing building's primary entrance or other key features of the primary elevation.

- j. **Circulation Patterns:** Pedestrian and vehicular circulation patterns should be designed to connect with and reflect the patterns along the streetscape and within the vicinity. Primary entrances generally connect directly to the street. Driveways are generally immediately adjacent to buildings.
- k. **Yard Areas:** Establish yard areas and outdoor spaces that are consistent with and complementary to those of the streetscape and properties within the vicinity.
- l. **Secondary Structures:** Locate secondary structures, such as garages and sheds, in a manner consistent with existing secondary structures, generally to the rear or side of the primary building.



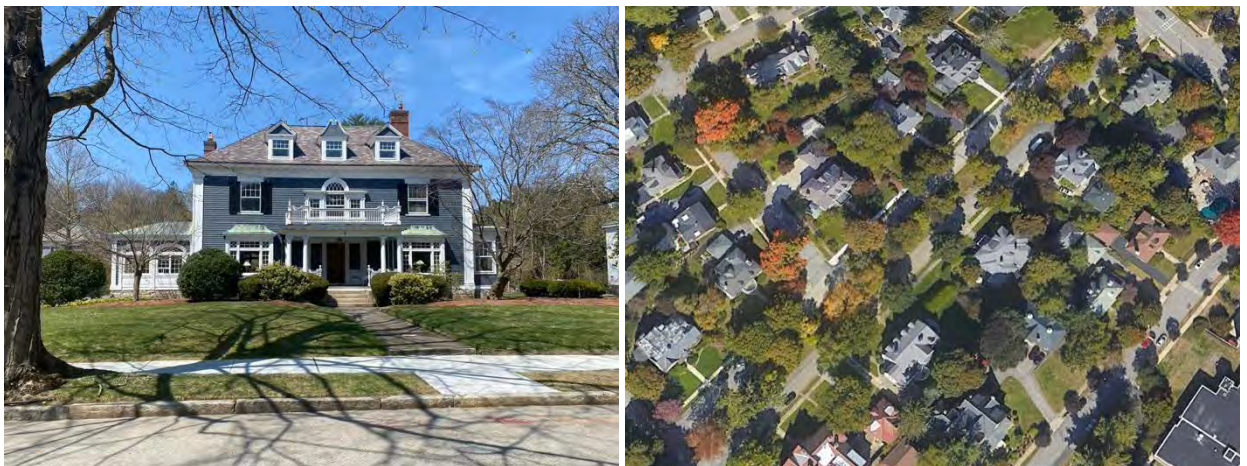
While the general orientation of buildings to the street remains consistent in Worcester’s local historic districts, building sizes, setbacks, scale, forms, and spacings differ. In the Crown Hill district, above, buildings are relatively close to the street and to each other, lots are small and narrow, and mid-19th century building forms tend to be gable front, tall, narrow, and deep.



In the Elm Street Neighborhood’s West Side Realty area above, buildings vary in the details of their forms, but are regular in their overall massing, are close together, are wide and deep, and are uniform in their setbacks.



In the Montvale Historic District, buildings vary in design and style, have broad fronts facing the street, and have modest setbacks. The hilly topography and curving streets of the Montvale district create interesting varieties in the relationships of buildings to the street.



Buildings in the Massachusetts Avenue Historic District are large, as are the widths of their lots. Buildings have broad fronts with elaborate, formal entrance presentations and are set well back from the street.

7.3 ARCHITECTURAL EXPRESSION

Architectural design involves using materials, forms, and features to create patterns of visual expression. Creativity in a historic context is demonstrated in the balance between reflection of the historic patterns and the assertion of new design elements.

- a. **Complementary Expression:** New construction in a historic neighborhood should be sympathetic of and complementary to the existing architectural vocabulary of historic buildings within the vicinity.
- b. **Complementary Additions:** Additions and alterations should be designed to be sympathetic of and complementary to the character of the historic building to which they are attached.
- c. **Character Defining Features:** Historic character defining features should be identified and retained when planning additions and alterations to a historic building.

- d. **Contemporary Design:** New buildings should be of contemporary design that reflects the building's current time, place, use, and culture while being respectful of and compatible with the character of the historic neighborhood.
- e. **Contemporary Additions:** New additions may be contemporary in design or may replicate the historic character of the main building. Where an addition replicates the historic character of the main building, create subtle differences to clearly distinguish it as a later structure.
- f. **Inspiration:** New architectural designs are encouraged to take inspiration from and make visual references to the historic character of buildings in the vicinity.
- g. **Compatibility in Contemporary Design:** In general, compatibility in contemporary design can be achieved by reflecting some design characteristics of historic buildings in the vicinity, as outlined in these guidelines, while varying from others and creating new elements expressing individuality.
- h. **Contemporary Interpretation:** Consider integrating contemporary interpretations of traditional designs and details for new construction. Use of contemporary window moldings and door surroundings that are similar to but do not exactly replicate historic details, for example, can provide visual compatibility while conveying that the building is new.
- i. **Architectural Patterns:** The rhythm of the facade of new buildings should reflect rhythm that is characteristic of surrounding buildings, including fenestration, forms, rooflines, and floor-to-floor ratios.
- j. **Architectural Detailing:** Architectural detailing that is visually similar to the character and styles of detailing in neighboring buildings within the vicinity may be incorporated into new designs. Detailing should be simple in design and should complement, but not visually compete with, the character of the neighboring historic buildings. Architectural detailing that is more ornate or elaborate than that found within the historic neighborhood is inappropriate.
- k. **Historic Similarity:** While compatible contemporary design is encouraged, new buildings that are similar to existing historic buildings in materials, form, massing, and architectural features are acceptable as long as the new buildings can be clearly distinguished from historic buildings.
- l. **Dramatic Contrast:** Radically contrasting designs for additions or new buildings are inappropriate within a historic neighborhood and will not be permitted within a local historic district.
- m. **False Historicism:** Avoid replicas of historic buildings and styles. An example might be the replication of a building already existing within the historic neighborhood. False historicism diminishes the integrity of the historic neighborhood by confusing old and new.
- n. **Documentation:** Existing historic conditions must be documented in drawings and photographs before beginning any alterations or additions to an existing historic building.



Buildings constructed for the former Becker College in the Elm Park Neighborhood demonstrate design expression that is complementary to a historic context. The top photo above is a historic church on the college campus. New academic buildings constructed in its vicinity used similar materials (stucco and roof shingles), massing (similar sizes and shapes), forms (vertical gable ends, steeply sloping roofs), window types (vertical shapes), and blank wall surfaces to create designs that are visually consistent with and sympathetic to the church.

7.4 SCALE, MASSING, AND FORM

Scale, massing, and form may vary with different building types and styles, but they are often relatively consistent within neighborhoods with residences constructed during the same era. The scale, massing, and form of buildings on Massachusetts Avenue, for instance, differ from those on Crown Hill; while buildings on the east end of the Elm Park Neighborhood differ from those within Elm Park Neighborhood's West Side Realty Plot. New construction should respond to the character of its immediate context.

- a. **General Characteristics:** New buildings should be designed to complement the form and massing of neighboring historic buildings and should generally be of the same average height, width, and volume as buildings in the vicinity.
- b. **Subordinate Additions:** Additions should be subordinate to the primary historic structure. They should not overwhelm the original structure. Additions should be designed in such a way that they minimize their visual impact on the historic building.
- c. **Additions Near the Primary Facade:** Additions located near the primary facade should adhere more closely to historic character, while additions that are less visible from the front may be more adventurous.
- d. **Distinguishing Characteristics:** Design additions so there are subtle, distinguishing characteristics between the historic portion and new addition. This may include simplifying details, changing materials, or slightly modifying proportions.
- e. **Building Scale:** The scale of a new construction is determined by the relative size and height of the construction in relationship to the existing building or to its neighbors. Design additions to be compatible with the existing building in scale, massing, height, and form. The overall scale of a new building and its building components should be compatible with those of neighboring buildings.
- f. **Human Scale:** New construction should have a human scale. In general, the size of major architectural features in relation to the human body helps determine whether a building has human scale. Key features include building forms and shapes, windows, doorways, porches, steps, and other elements.
- g. **Building Mass:** Building mass should have a similar sense of weightiness or lightness as that of surrounding historic buildings, as determined by the proportion of solid surfaces (walls) to voids (windows, doors, porches).
- h. **Building Form:** Form in new construction is determined by the shape, volume, and size of the overall building envelope and its major components. The form of a new addition should reflect but be subsidiary to the form and shape of the existing building. The form(s) of new buildings should be complementary to and reflective of those of nearby buildings.
- i. **Proportion:** Design additions with similar proportions as those of the existing building. Design new buildings to be proportional to surrounding

buildings. Consider important building proportions such as heights and widths, roof pitch, floor-to-floor heights, the size and placement of windows and doors, and the scale of articulated elements such as porches and bays.

- j. **Rhythm:** Respect the characteristic rhythms established by the forms, rooflines, window and door placement, and other architectural features of the existing or neighboring buildings.
- k. **Floor-to-Floor Heights:** Foundation and floor-to-floor heights in new construction should be within ten percent (10%) of the floor-to-floor heights of existing or neighboring historic buildings.
- l. **Height Variations:** Where there is variation in building height within the immediate vicinity, a new building should generally relate to the average predominant pattern.



An example of an appropriate major addition to a historic building is shown above. The historic residence at the corner of William and Roxbury Streets in the Elm Park Neighborhood is shown in the two top photos. A large addition was added to the rear of the building for academic adaptive reuse and is shown in the bottom photo. While contemporary in design, the addition uses similar materials, scale, massing, roof forms, and wall forms to reflect the design of the historic residence. Its location at the rear of the residence and separation from it with a vertical glass linking structure are appropriate design techniques expressing it as a distinct but related structure.

7.5 MATERIALS

Wood is the predominant historic material used for residential construction in Worcester and should also be predominant in most new construction in historic neighborhoods. Other contemporary materials may also be appropriate for use depending upon their form, pattern, texture, and color.

- a. **Compatibility:** Exterior building materials should be complementary to and compatible with the materials used on the primary building for additions and on neighboring historic buildings for new buildings. Materials should be of a complementary type, material, size, texture, color, and level of craftsmanship to promote continuity within the historic neighborhood.
- b. **Quality:** Cover and finish exterior walls with quality materials that are compatible with those of the existing or surrounding buildings.
- c. **Traditional Materials:** The continued use of traditional materials such as wood, stone, or brick is preferred. Stone and brick are present to a limited extent within Worcester's historic neighborhoods, principally for foundation walls, exterior steps and walks, and chimneys.
- d. **Predominant Materials:** In general, wood is the predominant material in use within Worcester's historic neighborhoods. When there is a predominant building material in a specific area, such as wood clapboard or shingle siding and detailing, it is preferred that the predominant material be utilized in new design.
- e. **Visual Compatibility:** Materials need not be exactly the same as those of the primary building or of adjacent historic buildings but should at minimum be visually complementary. The use of materials that are visually similar to the materials of the primary building or neighboring historic buildings is an important way of achieving a level of compatibility within the historic neighborhood.
- f. **Weather Resistance:** Quality and durability can be reflected in the type of material used, such as in the species of wood. Western Red Cedar, Mahogany, and Spanish Cedar are often used in new construction for exterior siding and woodwork because of their resistance to weathering, rot, and insect infestation.
- g. **Roof Materials:** Authentic historic roof materials such as wood shingles and slate are encouraged for both new and replacement construction within a historic neighborhood. However, high quality asphalt shingles and synthetic slate shingles may be appropriate. For additions, match or complement the roofing materials of the primary building. For new buildings, select roof materials that are similar in type, pattern, form, texture, and color to those traditionally used within the neighborhood.
- h. **Metal Roofs:** Custom and prefinished metal roofs may be permitted for new or replacement construction within Worcester's local historic districts. New metal roofs should be installed in a similar manner and appearance as historic metal roofs.

- i. **Inappropriate Materials:** The use of synthetic materials that dramatically contrast with the character or quality of historic materials should be avoided. Such materials include vinyl and aluminum siding, unpainted or naturally finished wood, exterior plywood systems, simulated or veneer stone, glass block, and stucco. These are usually incompatible with the visual character of Worcester’s historic neighborhoods.
- j. **Permitted Synthetic Materials:** As discussed under the topic of Wood Siding, quality synthetic materials such as fiber cement board and some polymer materials that visually replicate the appearance of wood may be permitted in new construction, especially in locations subject to extreme weathering or that are difficult to maintain. Where permitted, such materials must have a traditional painted finish. Simulated wood textures are not appropriate.
- k. **Stucco:** Where stucco is appropriate and permitted as an exterior finish material, Exterior Insulation Finishing Systems (EIFS) is not appropriate as a substitute for actual stucco.



A new entrance was added to the historic Tudor style building on Park Avenue to the west of Elm Park in its adaptive reuse as a community bank. Located to the side and rear of the primary facade, the entrance addition is contemporary in design but uses location, materials (brick and cast stone trim), form (subordinate), and window/wall relationships to relate to the historic building.

7.6 BUILDING FEATURES

Individual building features such as roofs, entrances, windows, bays, and porches add visual interest to a facade and break up the building mass, helping to establish a human scale. The location, size, placement, and style of these building features contribute to the character of the surrounding neighborhood. New construction that respects the types of prevailing architectural features of the primary building for additions or of neighboring buildings for new buildings reinforces compatibility and consistency within the historic neighborhood.

7.6.1 Roof Forms

The design of roof forms in new construction is critical in establishing the overall form and character of a building. Roof forms in new construction within a historic neighborhood should follow the established patterns of existing or adjacent buildings.

- a. **Primary Roof Form:** Design new buildings so that the orientation of the primary roof form is parallel with most other roofs on the street where roof forms are relatively consistent and a character defining feature. The roofs of new additions should typically be perpendicular to those of the primary building.
- b. **Form and Appearance:** Roofs on new construction should visually relate to those of the primary building for additions or of neighboring historic buildings for new buildings in pitch, size, scale, complexity, color, and material.
- c. **Roof Type:** Gable roofs are most common within Worcester’s historic neighborhoods and in general should be the primary roof type used in new construction. Gently pitched shed roofs are used for some smaller building features and additions within historic neighborhoods and may be appropriate for new building features and additions.
- d. **Ridge Heights:** The ridgelines of roofs with multiple gables should generally be uniform in height. Cross gables should intersect at the primary ridgeline unless established as a uniform secondary roof form. The ridgelines of additions should generally be lower than that of the primary building, reflecting its smaller form and subsidiary visual role.



The new multifamily residence above is in the Crown Hill Historic District and uses similar materials, scale, massing, forms, and windows to reflect the neighborhood context. The building does not replicate historic designs, but its overall effect is complementary to the surrounding character.

- e. **Low Pitched Roofs:** Nearly flat roofs are often used in historic buildings for entrance porches, side porches, and shed additions and may be appropriate as a secondary roof form in new construction. Generally, they are constructed using flat seamed metal, but other materials such as membrane rubber roofing may be considered for roofs that are not visible.
- f. **Cornice Detailing:** Cornices, bargeboards, and edge treatments of new roofs should be designed to have a similar size, scale, and configuration as historic detailing though need not replicate historic detailing.

- g. **Skylights:** Where needed, install skylights on side or rear-facing planes of new roofs minimizing their visibility from the street, similar to the guidelines for historic roofs. Do not install skylights on the roof of the principal facade facing the street. Minimize the frame size and profile of the skylight, and use frame colors that blend with the color of the roofing.

7.6.2 Entrances

Historic entrances are often formal in appearance and rarely used by families on a day-to-day basis. Property owners often adapt and expand secondary entrances to make them more useful for daily life, which can be an appropriate and necessary change. Sometimes entirely new “secondary” entrances are introduced as an addition to a historic building. New buildings should have primary entrances that reflect the established patterns within the neighborhood, though design techniques may be introduced to make them more useful for day-to-day living.

- a. **Orientation:** The orientation of the primary entrance of a new building should be similar to the orientation of neighboring historic buildings, most commonly on the principal facade and connected directly to the street.
- b. **New Entrances in Additions:** In some cases, it may be desirable to create a new entrance to an existing historic building as an addition or alteration which will be in primary use, such as an entrance adjacent to a driveway or parking area. In such cases, the primary entrance of the original historic building should not be altered or removed, even if it will have limited use. Such new entrances should only be placed on side or rear elevations.



An addition was added to the front of this duplex residence in the West Side Realty portion of the Elm Park Neighborhood, replacing the historic entrance. While attempting to fit in through the use of materials and window types, the location of the addition on the primary facade is inappropriate. This installation is grandfathered, however, because it was present before the local historic district was established.

- c. **Design:** The size, scale, organization, and presentation of the primary entrance of a new building should be similar to those of other neighboring buildings and should evoke a human scale. The primary entrance should enhance the connection between the street and the building.
- d. **Doorways:** Doorways in new construction should relate to the character of those of the primary building for additions and to neighboring historic buildings for new buildings. Frame dimensions, proportions, and configurations should be comparable to, though need not precisely replicate, historic configurations. The use of comparable panel and light configurations, including the presence of sidelights and transoms, is recommended.
- e. **Entrance Porches:** Entrance porches of various sizes and configurations are common within historic neighborhoods and are appropriate for new construction. In general, most entrance porches are simple and modest in size but adequate to protect those using the doorway from the weather.
- f. **Entrance Steps:** Simple wood and stone steps are common for entrance porches within Worcester’s historic neighborhoods, though brick is present as well. All are appropriate and can enhance the visual quality of the entrance.



In commercial areas, additions are often built out to the sidewalk in front of historic residences as the buildings are converted to commercial use, as shown in the two examples above. This is an inappropriate treatment in a local historic district, though adaptation to commercial use is still possible in ways that are appropriate.

7.6.3 Windows

Windows are the primary building features through which facades are modulated and through which visual expression is achieved in building design. Different window types are utilized in different historic building types and styles. New construction should use window type, size, arrangement, and detailing to help relate to the historic context.

- a. **Window Design and Placement:** Design windows in new construction to be generally compatible with the type, size, proportions, operation, arrangement, and placement of the windows of the primary building for

additions and of neighboring historic buildings for new buildings. Windows in new construction need not precisely replicate historic design and placement, but they should generally be of sympathetic character.

- b. **Expression:** Design windows to be expressive of the architectural character of the new facade while being generally sympathetic to the character of the primary building for additions or of neighboring buildings for new buildings. Creative but sympathetic variation is permissible. Be cognizant of the use of windows to achieve a sense of human scale in the facade.
- c. **Bay Windows:** Do not install new bay windows in areas where they are inappropriate to the existing historic architectural styles and for which there is no historic precedent. Bay windows are appropriate to some late 19th and early 20th century styles. Where appropriate and permitted, design new bay windows to be compatible with the width, height, projection, and general style of historic bay windows of buildings in the vicinity and of appropriate scale to the facade in which it is placed.
- d. **Picture Windows:** Picture windows, jalousie windows, and other types of contemporary windows are generally inappropriate to the context of Worcester's historic neighborhoods.



A wrap-around sunroom addition appears to have been added to this residence in the Crown Hill Historic District. The addition mimics and is similar to an enclosed porch but is significantly larger than an enclosed porch would be. While not a preferred treatment, the design complements the building through its use of identical materials, low porch-like form, and row of windows creating the open character of a porch.

7.6.4 Porches

Porches are a common feature of historic buildings in Worcester's historic neighborhoods, but their design and use varies by historic building type and style. Porches are important transitional spaces between outdoors and indoors and are highly useful. Their placement and design help modulate the character and form of a building and help establish human scale.

- a. **New Porches:** The incorporation of porches into new construction in a manner, location, and use characteristic of neighboring historic buildings is encouraged. The use of porches that relate to the pedestrian character of

the streetscape is encouraged.

- b. **Porch Design:** Design of new porches should be compatible with the layout, form, scale, building relationships, and detailing, of those of the primary building for additions and of neighboring historic buildings for new buildings.
- c. **Historic Prototypes:** In locations where traditional historic porch columns, posts, railings, and steps are prevalent, such new elements should be designed in a manner compatible with the historic types. They need not, however, exactly replicate historic designs.



Existing garages in Worcester’s local historic districts tend to be either converted carriage houses (top left) or small one- or two-car garages of the type built in the early 20th century when car ownership was just beginning. These historic garages should be preserved, and new garages should draw design inspiration from them.

7.7 GARAGES AND OUTBUILDINGS

Nineteenth century residences often had carriage houses set to the rear of the lot that were relatively large in comparison to the scale of the historic residence. In the early 20th century, garages were introduced, which were often quite small. Both carriage houses and early garages were always separate detached buildings. Sheds were also present for various uses.

Today, property owners have need and expectation for larger garages with additional space for equipment storage and other purposes that can be difficult to place on a historic lot and should be designed with care.

- a. **Secondary Structures:** New secondary structures such as detached residential garages, sheds, and outbuildings should have a similar layout, orientation, setback, scale, form, roof type, and materials as those of existing secondary buildings within the historic neighborhood.
- b. **Relationship to the Primary Building:** New secondary structures, such as detached residential garages, sheds, and outbuildings should complement the layout, setback, scale, form, roof type, and materials of the primary building.
- c. **Subordinate Relationship:** Design new garages and outbuildings to be visually subordinate to the principal historic or new building in terms of their height, massing, and form.
- d. **Building Size:** New outbuildings should be no larger in plan than 40 percent of the principal historic building footprint.
- e. **Character:** Relate new garages and outbuildings to the period of construction of the principal building on the lot through the use of complementary materials and simplified architectural details.
- f. **Windows and Doors:** Design window and door openings to be similar to those found on historic garages or outbuildings in the historic neighborhood or on the principal building in terms of their spacing and proportions.
- g. **Garage Doors:** Design and place garage doors and doors of secondary structures in a manner characteristic of historic garages and secondary structures of properties within the historic neighborhood. New garage doors should have similar proportions and materials as those traditionally found within the neighborhood.
- h. **Garage Doors on Additions:** Do not place garage doors on the front, street-facing facades of additions to the primary building where there is no historic precedent.

7.8 MECHANICAL EQUIPMENT

Mechanical equipment is discussed in Chapter 6 of these design guidelines in relation to roofs and site features. Guidelines for mechanical equipment related to new construction is similar to that related to existing historic buildings and is summarized below.

- a. **Visibility:** Do not locate utility boxes, air conditioners, rooftop mechanical equipment, skylights, satellite dishes, and other roof appurtenances for new construction on primary facades, front-facing roof slopes, in front yards, or in other locations that are clearly visible from the public right-of-way.
- b. **Building-mounted Equipment:** Paint devices mounted on secondary facades and other exposed hardware, frames, and piping to match the color scheme of the primary building or screen them with landscaping.

- c. **Freestanding Equipment:** Screen service areas, air conditioning units, generators, and other mechanical equipment from public view using a fence, plantings, or a complimentary enclosure.
- d. **Roof-mounted Features:** Locate and screen equipment and features mounted on the roof of new construction to avoid view from the public right-of-way. Where needed, install roof mounted features only on side and rear-facing roofs. Do not install roof equipment or features on the roofs of primary facades facing the street. Standard flashed pipe roof vents for bathrooms within the building are an exception.



Streetscapes are significant character defining features of Worcester’s local historic districts. Front and side yards contribute to the character of the public way.

7.9 SITE FEATURES

The character and appeal of historic neighborhoods is enhanced by the layout and design of site features and landscaping in yards visible to the public. A discussion of site features for existing historic buildings is included in Chapter 6. Guidelines for site features related to new buildings and new construction in general in a historic neighborhood are similar and are summarized below. Note that while important to the character of the historic neighborhood, landscaping is not reviewed by the Historical Commission in Worcester’s local historic districts.

7.9.1 General

- a. **Site Features:** Design and install new site features for new construction that are consistent with the historic character of the building, property, and adjacent properties. In general, simplicity and restraint are preferred.

- b. **Front Yards:** Front yards are an important character defining feature of the streetscape. Design and maintain front yards as privately owned space visible to neighbors and the general public from the street.
- c. **Visibility:** Site features, fencing, gardens, and landscaping are appropriate in front yards for utility and to enhance privacy and safety but should not visually isolate the new or existing primary residence from view.

7.9.2 Walkways

- a. **Historic Walkways:** Retain historic walkways and circulation patterns. Preserve alignment, widths, and configurations of historic walkways where they are a character defining feature of the landscape.
- b. **Historic Materials:** Preserve historic paving materials of walkways where they still exist. When limited replacement of materials is necessary, replace in-kind utilizing materials that are similar in appearance and composition.
- c. **New Walkways:** The addition of new walkways related to new construction is desirable and necessary to enhance pedestrian access and connectivity. New pedestrian routes should be similar to and compatible with existing pedestrian circulation patterns.
- d. **New Materials:** Traditional paving materials such as stone and brick are preferred for new and existing walkways. Contemporary materials such as pre-cast concrete pavers are permitted. Material, color, and texture should be compatible with the character of traditional materials.

7.9.3 Lighting

- a. **Site Lighting:** Lighting of exterior spaces related to new construction and visible from the street should be minimized and limited to locations necessary for safety and visibility, such as gateways, steps, and building entrances.
- b. **Fixtures:** Site light fixtures in new construction should be pedestrian scaled or ground level and should direct light to the ground and away from surrounding properties. It is preferable that lamps be shielded from direct view. Fixtures and posts should be restrained in design and compatible with the character of the building and the neighborhood.
- c. **Building Mounted:** In general, do not install site lighting on new or historic buildings. If installation on existing historic buildings is necessary, minimize damage to the historic building fabric.
- d. **Building Lighting:** Flood or spot lighting of building exteriors is strongly discouraged.

7.9.4 Driveways and Parking

- a. **Historic Driveways:** Retain historic driveway configurations where they are present.
- b. **New Driveways:** New driveways related to new construction should be sited in a manner similar to the driveways of existing buildings in the historic

neighborhood, usually to one side of the building providing access to the side and rear of the building. Minimize the area and width of new driveways, which should typically be no wider than 10 feet.

- c. **Parking Areas:** Design new parking areas to be as unobtrusive as possible. Parking should be located to the side or rear of properties. Do not pave or use front yards as parking areas except where already existing.
- d. **Materials:** Traditional paving materials for driveways include asphalt, paving stones, brick, and gravel.



As historic residences are adapted to new commercial, academic, or multifamily uses, accommodation of additional parking is a design challenge. In the examples above, front yards were converted to parking, which is not desirable. In the examples below, space was available such that parking could be accommodated to the side and rear. The quality of landscape design in such circumstances is an important mitigating factor.



7.9.5 Decks and Patios

- a. **Location:** Outdoor decks and patios should be located to the side and rear of buildings and should be minimally visible from the street. Ground level paving for patios in front yards may be permitted as part of garden and landscape design but should not be visually dominant.

- b. **Design and Materials:** The design and materials for decks should take inspiration from the existing building and be a compatible extension of and addition to the building. Traditional paving materials such as stone or brick are encouraged for patios.

7.9.6 Fencing

Guidelines for fencing are included in Chapter 6 and are summarized here in relation to new construction.

- a. **Historic Fencing:** Preserve and maintain historic fencing where it remains. Replace only deteriorated sections that are beyond repair. Match replacement materials to the color, texture, size, profile, and finish of the original.
- b. **New Fencing:** New fencing should appear similar to that used historically within the neighborhood in terms of material, scale, transparency, and character. The design of fencing should respond to the design and materials of the primary building.
- c. **Location:** Locate fencing where it has typically existed historically within the neighborhood, generally bordering the sidewalk or street, along property lines, and as a divider between front and back yards.
- d. **Front Yards:** New fencing in the front yards should be of low height, approximately 36 to 42 inches, and should have a high degree of transparency. Wood and metal pickets are preferred materials, and types with gates should be of similar design. Solid fencing and masonry walls (except retaining walls) are discouraged in front yards.
- e. **Non-historic Materials:** Plastic fencing, chain link fencing, and other non-historic materials are inappropriate within Worcester's historic neighborhoods and local historic districts.



The contemporary, black metal fencing in the examples above recalls historic cast iron fencing and is appropriate to the Crown Hill and Elm Park Neighborhood Historic Districts. Sidewalk fencing is not common to the Montvale or Massachusetts Avenue Historic Districts, where the use of landscape planting is more appropriate to provide privacy to yard areas.



**APPENDIX A – WORCESTER HISTORICAL
COMMISSION ORDINANCE**



City of Worcester Ordinances Part Two 2015

Article 3 Executive Office of Economic Development

§14. Historical Commission

(a) Establishment of the Historical Commission. Under authority of General Laws, chapter forty C, sections four and fourteen, and chapter forty, section eight D, and Article Six of the Home Rule Charter, there is hereby established under the jurisdiction of the city manager an executive board of the city to be known as the “Historical Commission” (“commission”).

(b) Establishment of Massachusetts Avenue, Montvale and Crown Hill Historic Districts. Under authority of General Laws, chapter forty C, section three, there are hereby established historic districts to be known as the “Massachusetts Avenue Historic District,” the “Montvale Historic District” and the “Crown Hill Historic District.” The Massachusetts Avenue Historic District is shown on a map dated August, 1973 and revised September, 1974, the Montvale Historic District is shown on a map dated February 28, 2008, and the Crown Hill Historic District is shown on a map dated October 5, 2012 and revised February 12, 2013, all of which are on file with the city clerk and made a part hereof, and are also recorded with the Worcester South District Registry of Deeds.

(c) Membership of the Historical Commission. The commission shall consist of seven regular members and two alternates appointed for terms of three years by the city manager in accordance with the requirements of the city charter and the provisions of this section. The terms shall be staggered such that three terms of regular members shall expire on December thirty-first of one year and two terms of regular members shall expire on December thirty-first in each of the following two years. The terms of alternate members shall be staggered such that the terms shall expire on December thirty-first on successive years and none shall expire every third year. One member shall be a resident of the Massachusetts Avenue Historic District, one member shall be a resident of the Montvale Historic District and one member shall be a member of the Crown Hill Historic District. All members and alternates shall have demonstrated a special interest, competence or knowledge in historic preservation. To the extent available in the charter appointment districts, members of the commission shall be professionals in the disciplines of architecture, history, architectural history, prehistoric archaeology, historic archaeology, urban planning, American studies, American civilization, cultural geography and cultural anthropology. In case of absence, inability to act or unwillingness to act because of self-interest on the part of any member of the commission, his or her place shall be taken by an alternate member designated by the chair.

(d) Duties & Responsibilities of the Historical Commission. To preserve, promote and develop historic assets of the city in accordance with law, the commission shall:

- (1) administer the Massachusetts Avenue Historic District, the Montvale Historic District, the Crown Hill Historic District and any additional historic districts lawfully established, consistent with General Laws;
- (2) issue certificates of appropriateness, certificates of nonapplicability, and certificates of hardship with respect to construction or alteration of buildings and structures within the historic district when such construction or alteration affects exterior architectural features. Such certificates shall be issued as prescribed in the General Laws, chapter forty C, section six;
- (3) consider factors as prescribed in General Laws, chapter forty C, section seven, in passing upon matters before it;
- (4) issue such certificates, make such recommendations, keep such records and have such powers, functions and duties as are prescribed in General Laws, chapter forty C, section ten, except that officers and employees necessary for the proper administration of the commission shall be appointed and removed by the city manager in accordance with the city charter; and all gifts shall be subject to approval of the city manager and city council;
- (5) call and conduct meetings and to hold such public hearings as are prescribed in General Laws, chapter forty C, section eleven;
- (6) conduct research for places of historic value, to coordinate the activities of unofficial bodies organized for similar purposes, to advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which it deems necessary for its work, and to make such recommendations as are described in General laws, chapter forty C, section eight D;
- (7) propose from time to time to the city manager as it deems appropriate, the establishment in accordance with the provisions of this Article and the General Laws, chapter forty C, section three, of additional historic districts and changes in historic districts;
- (8) determine an appropriate system of markers for selected historic sites and buildings not already sufficiently marked, to arrange for preparation and installation of such markers, and to arrange for the care of historic markers;
- (9) advise the redevelopment authority, planning board and any other city department or agency in matters involving historic sites and buildings;

(10) cooperate with and enlist assistance from the National Park Service, the National Trust of Historic Preservation, and other agencies, public and private, concerned with historic sites and buildings;

(11) advise owners of historic buildings in Worcester on problems and solutions of preservation; and

(12) perform such other duties as may be prescribed by law.

(e) Advisory Board to the Historical Commission. The commission may recommend to the city manager from time to time as needed, appointment of advisory committees of historians and persons experienced in architecture or other arts or in historic restoration or preservation to assist the commission.

(f) Rules & Regulations of the Historical Commission. The commission, under the authority of General Laws, chapter forty C, shall keep a permanent record of its resolutions, transactions and determinations and of the vote of each member participating therein, and may adopt and amend such rules and regulations not inconsistent with the provisions of chapter forty C and prescribe such forms as it shall deem desirable and necessary for the regulation of its affairs and the conduct of its business.

(g) Maintenance & Repair of Properties Under the Jurisdiction of the Historical Commission.

Nothing herein shall be construed to prevent the ordinary maintenance and repair of buildings, structures or grounds within the district nor prevent actions by duly authorized public officers as described in General Laws chapter forty C, section nine.

(h) Appeals from Decisions of the Historical Commission. Any applicant aggrieved by a determination of the commission may file a written request with the commission for review by person or persons of competence and experience in such matters designated by the Central Massachusetts Regional Planning Commission as prescribed in the General Laws, chapter forty C, section twelve, and may further appeal such determination to the superior court as prescribed in the General Laws, chapter forty C, section twelve A.

APPENDIX B – HISTORIC DISTRICTS ACT

Massachusetts General Laws, Part I, Title VII, Chapter 40C Historic Districts Act

Section 1: Citation

Section 1. This chapter shall be known and may be cited as the Historic Districts Act.

Section 2: Purpose

Section 2. The purpose of this chapter is to promote the educational, cultural, economic and general welfare of the public through the preservation and protection of the distinctive characteristics of buildings and places significant in the history of the commonwealth and its cities and towns or their architecture, and through the maintenance and improvement of settings for such buildings and places and the encouragement of design compatible therewith.

Section 3: Establishment of historic districts; pre-requisites; enlargement or reduction of boundaries; amendment of creating ordinance; filing of maps

Section 3. A city or town may, by ordinance or by-law adopted by two-thirds vote of the city council in a city or by a two-thirds vote of a town meeting in a town, establish historic districts subject to the following provisions:— Prior to the establishment of any historic district in a city or town an investigation and report on the historical and architectural significance of the buildings, structures or sites to be included in the proposed historic district or districts shall be made by an historic district study committee or by an historic district commission, as provided in this section and in section four, who shall transmit copies of the report to the planning board, if any, of the city or town, and to the Massachusetts historical commission for their respective consideration and recommendations. The buildings, structures or sites to be included in the proposed historic district may consist of one or more parcels or lots of land, or one or more buildings or structures on one or more parcels or lots of land. The Massachusetts historical commission may consult with the director of economic development, the director of housing and community development and the commissioner of environmental management with respect to such reports, and may make guidelines for such reports, and, after public hearing, establish rules as to their form and manner of transmission. Not less than sixty days after such transmittal the study committee shall hold a public hearing on the report after due notice given at least fourteen days prior to the date thereof, which shall include a written notice mailed postage prepaid, to the owners as they appear on the most recent real estate tax list of the board of assessors of all properties to be included in such district or districts. The committee shall submit a final report with its recommendations, a map of the proposed district or districts and a draft of a proposed ordinance or by-law, to the city council or town meeting.

An historic district may be enlarged or reduced or an additional historic district in a city or town created in the manner provided for creation of the initial district, except that (a) in the case of the enlargement or reduction of an existing historic district the investigation, report and hearing shall be by the historic district commission having jurisdiction over such historic district instead of by a study committee; (b) in the case of creation of an additional historic district the investigation, report and hearing shall be by the historic district commission of the city or town, or by the historic district commissions acting jointly if there be more than one, instead of by a study committee unless the commission or commissions recommend otherwise; and (c) if the district is to be reduced written notice as above provided of the commission's hearing on the proposal shall be given to said owners of each property in the district.

Any ordinance or by-law creating an historic district may, from time to time, be amended in any manner not inconsistent with the provisions of this chapter by a two-thirds vote of the city council in a city or by a two-thirds vote of a town meeting in a town, provided that the substance of such amendment has first been submitted to the historic district commission having jurisdiction over such district for its recommendation and its recommendation has been received or sixty days have elapsed without such recommendation.

No ordinance or by-law creating an historic district, or changing the boundaries of an historic district, shall become effective until a map or maps setting forth the boundaries of the historic district, or the change in the boundaries thereof, has been filed with the city clerk or town clerk and has been recorded in the registry of deeds for the county or district in which the city or town is located, and the provisions of section thirteen A of chapter thirty-six shall not apply.

Section 4: Study committees; commissions; establishment; membership; terms; vacancies; compensation; officers

Section 4. An historic district study committee may be established in any city or town by vote of the city council or board of selectmen for the purpose of making an investigation of the desirability of establishing an historic district or districts therein. The study committee shall consist of not less than three nor more than seven members appointed in a city by the mayor, subject to confirmation by the city council, or in a town by the board of selectmen, including one member from two nominees submitted by the local historical society or, in the absence thereof, by the Society for the Preservation of New England Antiquities, one member from two nominees submitted by the chapter of the American Institute of Architects covering the area, and one member from two nominees of the board of realtors, if any, covering the area. If within thirty days after submission of a written request for nominees to any of the organizations herein named no such nominations have been made the appointing body may proceed to appoint the study committee without nominations by such organization.

Whenever an historic district is established as provided in section three an historic district commission shall be established which shall consist of not less than three nor more than seven members. An historic district commission shall be appointed in a city by the mayor, subject to confirmation by the city council, or in a town by the board of selectmen, in the same manner as an historic district study committee unless (a) the report recommending its establishment recommends alternate or additional organizations to submit nominees for membership and states reasons why such alternate or additional organizations would be appropriate or more appropriate for the particular city or town, the Massachusetts historical commission does not recommend otherwise prior to the public hearing on the establishment of the district, and the ordinance or by-law so provides; or (b) there is an existing historic district commission in the city or town which the report recommends should administer the new district, and the ordinance or by-law so provides. Unless the report recommends otherwise on account of the small number of residents or individual property owners, and the ordinance or by-law so provides, the members of the historic district commission shall include one or more residents of or owners of property in an historic district to be administered by the commission. If within thirty days after submission of a written request for nominees to an organization entitled to submit nominations for membership on the commission no such nominations have been made the appointing body may proceed to make the appointment to the commission without nomination by such organization. The appointments to membership in the commission shall be so arranged that the term of at least one member will expire each year, and their successors shall be appointed in the same manner as the original appointment for terms of three years. Vacancies shall be filled in the same manner as the original appointment for the unexpired term. Ordinances or by-laws adopted hereunder may provide for the appointment of alternate members not exceeding in number the principal members who need not be from nominees of organizations entitled

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to nominate members. In case of the absence, inability to act or unwillingness to act because of self-interest on the part of a member of the commission, his place shall be taken by an alternate member designated by the chairman. Each member and alternate shall continue in office after the expiration of his term until his successor is duly appointed and qualified. All members shall serve without compensation. The commission shall elect annually a chairman and vice-chairman from its own number and a secretary from within or without its number.

Section 5: Definitions

Section 5. As used in this chapter the word "altered" includes the words "rebuilt", "reconstructed", "restored", "removed" and "demolished" and the phrase "changed in exterior color"; the word "building" means a combination of materials forming a shelter for persons, animals or property; the word "commission" means the commission acting as the historic district commission; the word "constructed" includes the words "built", "erected", "installed", "enlarged", and "moved"; the words "exterior architectural feature" means such portion of the exterior of a building or structure as is open to view from a public street, public way, public park or public body of water, including but not limited to the architectural style and general arrangement and setting thereof, the kind, color and texture of exterior building materials, the color of paint or other materials applied to exterior surfaces and the type and style of windows, doors, lights, signs and other appurtenant exterior fixtures; the words "person aggrieved" mean the applicant, an owner of adjoining property, an owner of property within the same historic district as property within one hundred feet of said property lines and any charitable corporation in which one of its purposes is the preservation of historic structures or districts; and the word "structure" means a combination of materials other than a building, including a sign, fence, wall, terrace, walk or driveway.

Section 6: Certificates of appropriateness, non-applicability or hardship; necessity; applications and plans, etc.; building and demolition permits restricted

Section 6. Except as the ordinance or by-law may otherwise provide in accordance with section eight or said section eight or nine, no building or structure within an historic district shall be constructed or altered in any way that affects exterior architectural features unless the commission shall first have issued a certificate of appropriateness, a certificate of non-applicability or a certificate of hardship with respect to such construction or alteration.

Any person who desires to obtain a certificate from the commission shall file with the commission an application for a certificate of appropriateness, a certificate of non-applicability or a certificate of hardship, as the case may be, in such form as the commission may reasonably determine, together with such plans, elevations, specifications, material and other information, including in the case of demolition or removal a statement of the proposed condition and appearance of the property thereafter, as may be reasonably deemed necessary by the commission to enable it to make a determination on the application.

No building permit for construction of a building or structure or for alteration of an exterior architectural feature within an historic district and no demolition permit for demolition or removal of a building or structure within an historic district shall be issued by a city or town or any department thereof until the certificate required by this section has been issued by the commission.

Section 7: Factors to be considered by commission

Section 7. In passing upon matters before it the commission shall consider, among other things, the historic and architectural value and significance of the site, building or structure, the general design, arrangement, texture, material and color of the features involved, and the relation of such features to

similar features of buildings and structures in the surrounding area. In the case of new construction or additions to existing buildings or structures the commission shall consider the appropriateness of the size and shape of the building or structure both in relation to the land area upon which the building or structure is situated and to buildings and structures in the vicinity, and the commission may in appropriate cases impose dimensional and set-back requirements in addition to those required by applicable ordinance or by-law. When ruling on applications for certificates of appropriateness for solar energy systems, as defined in section one A of chapter forty A, the commission shall also consider the policy of the commonwealth to encourage the use of solar energy systems and to protect solar access. The commission shall not consider interior arrangements or architectural features not subject to public view.

The commission shall not make any recommendation or requirement except for the purpose of preventing developments incongruous to the historic aspects or the architectural characteristics of the surroundings and of the historic district.

Section 8: Review authority of commission over certain categories of buildings, structures or exterior architectural features limited; authorization

Section 8. (a) Any city or town may provide in the ordinance or by-law establishing a district or in any amendment thereof that the authority of the commission shall not extend to the review of one or more of the following categories of buildings or structures or exterior architectural features in the historic district, and, in this event, the buildings or structures or exterior architectural features so excluded may be constructed or altered within the historic district without review by the commission:

- (1) Temporary structures or signs, subject, however, to such conditions as to duration of use, location, lighting, removal and similar matters as the commission may reasonably specify.
 - (2) Terraces, walks, driveways, sidewalks and similar structures, or any one or more of them, provided that any such structure is substantially at grade level.
 - (3) Walls and fences, or either of them.
 - (4) Storm doors and windows, screens, window air conditioners, lighting fixtures, antennae and similar appurtenances, or any one or more of them.
 - (5) The color of paint.
 - (6) The color of materials used on roofs.
 - (7) Signs of not more than one square foot in area in connection with use of a residence for a customary home occupation or for professional purposes, provided only one such sign is displayed in connection with each residence and if illuminated is illuminated only indirectly; and one sign in connection with the nonresidential use of each building or structure which is not more than twelve square feet in area, consist of letters painted on wood without symbol or trademark and if illuminated is illuminated only indirectly; or either of them.
 - (8) The reconstruction, substantially similar in exterior design, of a building, structure or exterior architectural feature damaged or destroyed by fire, storm or other disaster, provided such reconstruction is begun within one year thereafter and carried forward with due diligence.
- (b) A commission may determine from time to time after public hearing that certain categories of exterior architectural features, colors, structures or signs, including, without limitation, any of those enumerated under paragraph (a), if the provisions of the ordinance or by-law do not limit the authority of the commission with respect thereto, may be constructed or altered without review by the commission without causing substantial derogation from the intent and purposes of this chapter.

(c) A city or town may provide in its ordinance or by-law, or in any amendment thereof, that the authority of the commission shall be limited to exterior architectural features within a district which are subject to view from one or more designated public streets, public ways, public parks or public bodies of water, although other portions of buildings or structures within the district may be otherwise subject to public view, and, in the absence of such provision of the ordinance or by-law, a commission may determine from time to time after public hearing that the authority of the commission may be so limited without substantial derogation from the intent and purposes of this chapter.

(d) Upon request the commission shall issue a certificate of nonapplicability with respect to construction or alteration in any category then not subject to review by the commission in accordance with the provisions of paragraph (a), (b) or (c).

Section 9: Maintenance, repair or replacement.

Section 9. Nothing in this chapter shall be construed to prevent the ordinary maintenance, repair or replacement of any exterior architectural feature within an historic district which does not involve a change in design, material, color or the outward appearance thereof, nor to prevent landscaping with plants, trees or shrubs, nor construed to prevent the meeting of requirements certified by a duly authorized public officer to be necessary for public safety because of an unsafe or dangerous condition, nor construed to prevent any construction or alteration under a permit duly issued prior to the effective date of the applicable historic district ordinance or by-law.

Section 10: Additional powers, functions and duties of commission

Section 10. The commission shall have the following additional powers, functions and duties:—(a) If the commission determines that the construction or alteration for which an application for a certificate of appropriateness has been filed will be appropriate for or compatible with the preservation or protection of the historic district, the commission shall cause a certificate of appropriateness to be issued to the applicant. In the case of a disapproval of an application for a certificate of appropriateness the commission shall place upon its records the reasons for such determination and shall forthwith cause a notice of its determination, accompanied by a copy of the reasons therefor as set forth in the records of the commission, to be issued to the applicant, and the commission may make recommendations to the applicant with respect to appropriateness of design, arrangement, texture, material and similar features. Prior to the issuance of any disapproval the commission may notify the applicant of its proposed action accompanied by recommendations of changes in the applicant's proposal which, if made, would make the application acceptable to the commission. If within fourteen days of the receipt of such a notice the applicant files a written modification of his application in conformity with the recommended changes of the commission, the commission shall cause a certificate of appropriateness to be issued to the applicant.

(b) In the case of a determination by the commission that an application for a certificate of appropriateness or for a certificate of nonapplicability does not involve any exterior architectural feature, or involves an exterior architectural feature which is not then subject to review by the commission in accordance with the provisions of section eight, the commission shall cause a certificate of nonapplicability to be issued to the applicant.

(c) If the construction or alteration for which an application for a certificate of appropriateness has been filed shall be determined to be inappropriate, or in the event of an application for a certificate of hardship, the commission shall determine whether, owing to conditions especially affecting the building or structure involved, but not affecting the historic district generally, failure to approve an application will involve a substantial hardship, financial or otherwise, to the applicant and whether such application

may be approved without substantial detriment to the public welfare and without substantial derogation from the intent and purposes of this chapter. If the commission determines that owing to such conditions failure to approve an application will involve substantial hardship to the applicant and approval thereof may be made without such substantial detriment or derogation, or in the event of failure to make a determination on an application within the time specified in section eleven, the commission shall cause a certificate of hardship to be issued to the applicant.

(d) Each certificate issued by the commission shall be dated and signed by its chairman, vice-chairman, secretary or such other person designated by the commission to sign such certificates on its behalf.

(e) The commission shall keep a permanent record of its resolutions, transactions, and determinations and of the vote of each member participating therein, and may adopt and amend such rules and regulations not inconsistent with the provisions of this act and prescribe such forms as it shall deem desirable and necessary for the regulation of its affairs and the conduct of its business. The commission shall file a copy of any such rules and regulations with the city or town clerk.

(f) The commission shall file with the city or town clerk and with any department of the city or town having authority to issue building permits a copy or notice of all certificates and determinations of disapproval issued by it.

(g) A commission may after public hearing set forth in such manner as it may determine the various designs of certain appurtenances, such as light fixtures, which will meet the requirements of an historic district and a roster of certain colors of paint and roofing materials which will meet the requirements of an historic district, but no such determination shall limit the right of an applicant to present other designs or colors to the commission for its approval.

(h) The commission may, subject to appropriation, employ clerical and technical assistants or consultants and incur other expenses appropriate to the carrying on of its work, and may accept money gifts and expend the same for such purposes. The commission may administer on behalf of the city or town any properties or easements, restrictions or other interests in real property which the city or town may have or may accept as gifts or otherwise and which the city or town may designate the commission as the administrator thereof.

(i) The commission shall have, in addition to the powers, authority and duties granted to it by this act, such other powers, authority and duties as may be delegated or assigned to it from time to time by vote of the city council or town meeting.

Section 11: Approval or disapproval of exterior architectural features by commission; meetings; applications for certificates; public hearings; notices

Section 11. Meetings of a commission shall be held at the call of the chairman and shall be called at the request of two members of the commission and in such other manner as the commission shall determine in its rules. A majority of the members of a commission shall constitute a quorum. The concurring vote of a majority of the members of the commission shall be necessary to issue a certificate of appropriateness, a certificate of non-applicability or a certificate of hardship.

A commission shall determine promptly, and in all events within fourteen days after the filing of an application for a certificate of appropriateness, a certificate of non-applicability or a certificate of hardship, as the case may be, whether the application involves any exterior architectural features which are subject to approval by the commission. If a commission determines that such application involves any such features which are subject to approval by the commission the commission shall hold a public hearing on such application unless such hearing is dispensed with as hereinafter provided.

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The commission shall fix a reasonable time for the hearing on any application and shall give public notice of the time, place and purposes thereof at least fourteen days before said hearing in such manner as it may determine, and by mailing, postage prepaid, a copy of said notice to the applicant, to the owners of all adjoining property and other property deemed by the commission to be materially affected thereby as they appear on the most recent real estate tax list of the board of assessors, to the planning board of the city or town, to any person filing written request for notice of hearings, such request to be renewed yearly in December, and to such other persons as the commission shall deem entitled to notice.

As soon as convenient after such public hearing but in any event within sixty days after the filing of the application, or such lesser period as the ordinance or by-law may provide, or within such further time as the applicant may allow in writing, the commission shall make a determination on the application. If the commission shall fail to make a determination within such period of time the commission shall thereupon issue a certificate of hardship.

A public hearing on an application need not be held if such hearing is waived in writing by all persons entitled to notice thereof. In addition, a public hearing on an application may be waived by the commission if the commission determines that the exterior architectural feature involved or its category or color, as the case may be, is so insubstantial in its effect on the historic district that it may be reviewed by the commission without public hearing on the application, provided, however, that if the commission dispenses with a public hearing on an application notice of the application shall be given to the owners of all adjoining property and other property deemed by the commission to be materially affected thereby as above provided and ten days shall elapse after the mailing of such notice before the commission may act upon such application.

Section 12: Review procedure provided by local ordinance or by-law

Section 12. A city or town may provide in its ordinance or by-law or in any amendment thereof, for a review procedure whereby any person aggrieved by a determination of the commission may, within twenty days after the filing of the notice of such determination with the city or town clerk, file a written request with the commission for a review by a person or persons of competence and experience in such matters, designated by the regional planning agency of which the city or town is a member. If the city or town is not a member of a regional planning agency, the department of community affairs shall select the appropriate regional planning agency.

The finding of the person or persons making such review shall be filed with the city or town clerk within forty-five days after the request, and shall be binding on the applicant and the commission, unless a further appeal is sought in the superior court as provided in section twelve A.

Section 12A: Appeal to superior court

Section 12A. Any person aggrieved by a determination of the commission, or by the finding of a person or persons making a review, if the provisions of section twelve are included in a local ordinance or by-law, may, within twenty days after the filing of the notice of such determination or such finding with the city or town clerk, appeal to the superior court sitting in equity for the county in which the city or town is situated. The court shall hear all pertinent evidence and shall annul the determination of the commission if it finds the decision of the commission to be unsupported by the evidence or to exceed the authority of the commission, or may remand the case for further action by the commission or make such other decree as justice and equity may require. The remedy provided by this section shall be exclusive but the parties shall have all rights of appeal and exception as in other equity cases. Costs shall not be allowed against the commission unless it shall appear to the court that the commission acted with gross negligence, in bad faith or with malice in the matter from which the appeal was taken. Costs

shall not be allowed against the party appealing from such determination of the commission unless it shall appear to the court that such party acted in bad faith or with malice in making the appeal to the court.

Section 13: Jurisdiction of superior court; penalty

Section 13. The superior court sitting in equity for the county in which the city or town is situated shall have jurisdiction to enforce the provisions of this chapter and any ordinance or by-law enacted hereunder and the determinations, rulings and regulations issued pursuant thereto and may, upon the petition of the mayor or of the board of selectmen or of the commission, restrain by injunction violations thereof; and, without limitation, such court may order the removal of any building, structure or exterior architectural feature constructed in violation thereof, or the substantial restoration of any building, structure or exterior architectural feature altered or demolished in violation thereof, and may issue such other orders for relief as may be equitable.

Whoever violates any of the provisions of this chapter shall be punished by a fine of not less than ten dollars nor more than five hundred dollars. Each day during any portion of which a violation continues to exist shall constitute a separate offense.

Section 14: Powers and duties of commissions established as historical commissions

Section 14. If the city council or town meeting so votes a commission established hereunder shall have the powers and duties of an historical commission as provided in section eight D of chapter forty and, in this event, a commission may be entitled an historical commission.

Section 15: Filing of ordinances, maps, reports, etc.

Section 15. All ordinance or by-laws creating an historic district adopted by a city or town under authority of this chapter and under authority of any special law, unless the special law shall otherwise provide, amendments thereto, maps of historic districts created thereunder, and annual reports and other publications of commissions, and rosters of membership therein, shall be filed with the Massachusetts historical commission.

Section 16: Special historic districts; acceptance and effect of this chapter

Section 16. A city or town in which there is located an historic district established under a special law may, upon recommendation of the historic district commission having jurisdiction over such district, accept the provisions of this chapter with respect to such district by a two-thirds vote of the city council in a city or by two-thirds vote of a town meeting in a town, and thereafter such historic district shall be subject to the provisions of this chapter notwithstanding the terms of any special act pursuant to which such historic district was created. The provisions of this chapter shall not impair the validity of an historic district established under any special act.

Section 17: Severability

Section 17. The provisions of this chapter shall be deemed to be severable. If any of its provisions shall be held to be invalid or unconstitutional by any court of competent jurisdiction the remaining provisions shall continue in full force and effect.

APPENDIX C – ARCHITECTURAL TERMS

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Awning window: A window in which the opening sash is hinged at the top; when the window is open, the bottom of the sash projects out at an angle.

Baluster: One of several small columns or rods that support a railing or balustrade.

Balustrade: A railing with upper and lower rails, balusters, and pedestals.

Casement window: A window with one or more sashes that are hinged on one side so that the sash opens by swinging in or out; the most common type of window in North America until the early eighteenth century.

Character-defining Feature: A prominent or distinctive aspect, quality, or physical component of a property that contributes significantly to its historic character.

Cornice: The projecting moldings forming the top band of an entablature, wall, or other element. The architectural details that decorate a roofline.

Cresting: Decoration in the form of a series of ornate pointed shapes located at the top of a parapet or roof ridge.

Cupola: A small structure projecting above a roof that provides ventilation or is used as a lookout, especially with a hemispherical roof on a circular or polygonal drum.

Dormer: A small structure that projects from a sloping roof with a window in the down slope end; used to light an attic space and to provide headroom; may have a gabled, shed, or other shaped roof.

Double-hung window: A window with two sashes that slide past each other vertically; typically hung with cord, pulley, and counterweights on each side.

Eave: The projection of a roof beyond the wall; most often used to refer to the edge and underside of a roof.

Entablature: In classical architecture, the entire band of horizontal elements above the column capitals; from bottom to top, the entablature is composed of the architrave, frieze, and cornice.

Fanlight: A window in the arched opening over an entry door.

Fascia: A flat, wide, horizontal band on a wall surface, especially the bands of an architrave.

Fenestration: The arrangement of windows in a building façade.

Finial: A pointed ornament typically used at the peak of a roof.

Fixed window: Any type of window held in a frame or sash that does not open.

Flashing: Sheet metal or other flexible material formed to prevent water from entering a building or structure at joints or intersections, such as where a roof intersects a wall or chimney.

Gable roof: A pitched roof with two inclined planes that meet at a peak in the center and terminate at a vertical grade.

Glazing: The clear or translucent material, usually glass, through which light passes into a building.

Mansard: A two-pitched roof with a steep lower slope that rises from all of the formal facades of a building, hipped when used on a detached building.

Low Pressure Wash: A cleaning method using water that does not damage historic material, typically defined as ranging from 100 to 400 psi as registered on cleaning equipment fitted with an adjustable pressure gauge.

Massing: The overall composition of the exterior of the major volumes of a building.

Proportion: The relationship of the size, shape, and location of one building element to all the other elements; each architectural style typically has its own rules of proportion.

Reflective Glazing: Window glass which has been coated on the outside with a transparent metallic coating to reflect a significant fraction of the light and radiant heat which strikes it.

Sash: The part of a window frame that holds the glazing, especially when movable.

Sidelight: A narrow window adjacent to a door or wider window that is the same height as the door or window; most often one of a pair flanking an entrance door.

Turret: A small, projecting tower at the corner of a building, or above the roof; typically circular or octagonal in plan.

Vertical Circulation: Term used to describe any method of moving from one floor to another within a building, may include stairs, elevators, or escalators.

Definitions were provided by the following references:

Dictionary of Building Preservation. Ed. by Ward Bucher. New York: John Wiley & Sons, 1996.

Dictionary of Architecture & Construction. Second Edition. Ed. by Cyril M. Harris. New York: McGraw Hill, 1993.

Weeks, K.D., and Anne E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties: With Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings.* Department of the Interior, Washington, D.C.



APPENDIX D – DESIGN REFERENCES



APPENDIX D – DESIGN RESOURCES

Massachusetts Historical Commission

The Massachusetts Historical Commission is the Commonwealth’s State Historic Preservation Office and manages state and federal preservation programs in Massachusetts. Their website provides access to a variety of publications on historic preservation and can be accessed through:

<https://www.sec.state.ma.us/mhc/mhcpub/pubidx.htm>

Note: Website addresses change over time. The addresses included here were current when the Design Review Guidelines were prepared. If changed, the information cited should still be accessible online through search.

Among the publications for local government that are available on the website or upon request are:

1. Establishing Local Historic Districts
2. Preservation Planning Manual: Local Historical Commissions - Their Role in Local Government
3. There's a Difference (National Register Historic District/Local Historic District)
4. Local Historical Commissions, Summary Sheet for New Commission Members
5. Flow Chart for Establishing a Local Historic District
6. About the On the Road Program
7. Municipal Preservation Plans

Preservation Massachusetts

Preservation Massachusetts is the statewide non-profit historic preservation organization dedicated to preserving the Commonwealth’s historic and cultural heritage. They are an advocacy and education organization working with partners to revitalize communities, historic buildings and landscapes through preservation. They provide advice and technical assistance to communities throughout Massachusetts. Their Preservation Directory lists consultants and firms who specialize in a variety of preservation related fields.

<https://www.preservationmass.org>

National Park Service

Technical Preservation Services

Technical Preservation Services develops national standards and guidelines for preserving, rehabilitating, restoring, and reconstructing historic properties. They provide tools and information that historic property owners, preservation professional and organizations, and government agencies at all levels need to care for the nation’s historic properties. Information provided by

Technical Preservation Services, including Preservation Briefs, Preservation Tech Notes, and Preservation by Topic, can be accessed online at:

<https://www.nps.gov/orgs/1739/index.htm>

Secretary of the Interior’s Standards

The Secretary of the Interior’s Standards for the Treatment of Historic Properties are common sense historic preservation principles in non-technical language. They promote historic preservation best practices that help to protect historic buildings and other resources. The NPS website listed above provides access to the Standards and to a variety of different Guidelines for their use.

Preservation Briefs

Preservation Briefs provide information on preserving, rehabilitating, and restoring historic buildings. These NPS publications help historic building owners recognize and resolve common problems prior to work. A list of available Preservation Briefs is provided below and can be accessed online at the NPS website listed above. See “TPS Publications.”

1. **Cleaning and Water-Repellent Treatments** for Historic Masonry Buildings
2. **Repointing Mortar Joints** in Historic Masonry Buildings
3. **Improving Energy Efficiency** in Historic Buildings
4. **Roofing** for Historic Buildings
5. The Preservation of Historic **Adobe Buildings**
6. **Dangers of Abrasive Cleaning** to Historic Buildings
7. The Preservation of Historic Glazed Architectural **Terra-Cotta**
8. **Aluminum and Vinyl Siding** on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings
9. The Repair of Historic **Wooden Windows**
10. Exterior **Paint Problems** on Historic Woodwork
11. Rehabilitating Historic **Storefronts**
12. The Preservation of Historic Pigmented **Structural Glass**(Vitrolite and Carrara Glass)
13. The Repair and Thermal Upgrading of Historic **Steel Windows**
14. New **Exterior Additions** to Historic Buildings: Preservation Concerns
15. Preservation of Historic **Concrete**
16. The Use of **Substitute Materials** on Historic Building Exteriors
17. **Architectural Character**—Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character
18. Rehabilitating **Interiors** in Historic Buildings—Identifying Character-Defining Elements
19. The Repair and Replacement of Historic **Wooden Shingle Roofs**
20. The Preservation of Historic **Barns**
21. Repairing Historic **Flat Plaster**—Walls and Ceilings
22. The Preservation and Repair of Historic **Stucco**
23. Preserving Historic **Ornamental Plaster**
24. **Heating, Ventilating, and Cooling** Historic Buildings: Problems and Recommended Approaches
25. The Preservation of Historic **Signs**

DESIGN RESOURCES

26. The Preservation and Repair of Historic **Log Buildings**
27. The Maintenance and Repair of Architectural **Cast Iron**
28. **Painting** Historic Interiors
29. The Repair, Replacement, and Maintenance of Historic **Slate Roofs**
30. The Preservation and Repair of Historic **Clay Tile Roofs**
31. **Mothballing** Historic Buildings
32. Making Historic Properties **Accessible**
33. The Preservation and Repair of Historic **Stained and Leaded Glass**
34. Applied Decoration for Historic Interiors: Preserving Historic **Composition Ornament**
35. Understanding Old Buildings: The Process of **Architectural Investigation**
36. Protecting **Cultural Landscapes**: Planning, Treatment and Management of Historic Landscapes
37. Appropriate Methods of Reducing **Lead-Paint Hazards** in Historic Housing
38. **Removing Graffiti** from Historic Masonry
39. Holding the Line: **Controlling Unwanted Moisture** in Historic Buildings
40. Preserving Historic **Ceramic Tile Floors**
41. The **Seismic Rehabilitation** of Historic Buildings
42. The Maintenance, Repair and Replacement of Historic **Cast Stone**
43. The Preparation and Use of Historic **Structure Reports**
44. The Use of **Awnings** on Historic Buildings: Repair, Replacement and New Design
45. Preserving Historic **Wooden Porches**
46. The Preservation and Reuse of Historic **Gas Stations**
47. **Maintaining the Exterior** of Small and Medium Size Historic Buildings
48. **Preserving Grave Markers** in Historic Cemeteries
49. **Historic Decorative Metal Ceilings and Walls**: Use, Repair, and Replacement
50. **Lightning Protection** for Historic Buildings

Preservation Tech Notes

Preservation Tech Notes provide practical information on traditional practices and innovative techniques for successfully maintaining and preserving cultural resources. A list of available Preservation Tech Notes is provided below and can be accessed online at the NPS website listed above. See "TPS Publications."

Doors

1. Historic **Garage and Carriage Doors**: Rehabilitation Solutions. Bonnie Halda, AIA. 1989.

Exterior Woodwork

1. Proper **Painting and Surface Preparation**. Sharon Park, AIA. 1986.
2. Paint Removal from **Wood Siding**. Alan O'Bright. 1986.
3. **Log Crown Repair** and Selective Replacement Using Epoxy and Fiberglass Reinforcing Bars. Harrison Goodall. 1989.
4. Protecting Woodwork Against Decay Using **Borate Preservatives**. Ron Sheetz and Charles Fisher. 1993.

Finishes

1. **Process-Painting Decals** as a Substitute for Hand-Stencilled Ceiling Medallions. Sharon Park, FAIA. 1990.

Historic Glass

1. Repair and Reproduction of **Prismatic Glass Transoms**. Chad Randl. 2002.
2. Repair and Rehabilitation of Historic **Sidewalk Vault Lights**. Cas Stachelberg and Chad Randl. 2003.

Historic Interior Spaces

1. Preserving Historic **Corridors in Open Office Plans**. Christina Henry. 1985.
2. Preserving Historic **Office Building Corridors**. Thomas Keohan. 1989.
3. Preserving Historic **Corridor Doors and Glazing** in High-Rise Buildings. Chad Randl. 2001.

Masonry

1. **Substitute Materials**: Replacing Deteriorated Serpentine Stone with Pre-Cast Concrete. Robert M. Powers. 1988.
2. Stabilization and Repair of a Historic **Terra Cotta Cornice**. Jeffrey Levine and Donna Harris. 1991.
3. Water Soak **Cleaning of Limestone**. Robert M. Powers. 1992.
4. Non-destructive **Evaluation Techniques** for Masonry Construction. Marilyn E. Kaplan, Marie Ennis and Edmund P. Meade. 1997.

Mechanical Systems

1. Replicating Historic **Elevator Enclosures**. Marilyn Kaplan, AIA. 1989.

Metals

1. Conserving **Outdoor Bronze Sculpture**. Dennis Montagna. 1989.
2. Restoring **Metal Roof Cornices**. Richard Pieper. 1990.
3. In-kind Replacement of Historic **Stamped-Metal Exterior Siding**. Rebecca A. Shiffer. 1991.
4. Rehabilitating a Historic **Iron Bridge**. Joseph P. Saldibar, III. 1997.
5. Rehabilitating a Historic **Truss Bridge** Using a Fiber-Reinforced Plastic Deck. Chad Randl. 2003.
6. Repair and Reproduction of **Metal Canopies and Marquees** with Glass Pendants. Lauren Van Damme and Charles E. Fisher. 2006.

Museum Collections

1. **Museum Collection Storage** in a Historic Building Using a Prefabricated Structure. Don Cumberland, Jr. 1985.
2. Reducing Visible and **Ultraviolet Light Damage** to Interior Wood Finishes. Ron Sheetz and Charles Fisher. 1990.

Site

1. **Restoring Vine Coverage** to Historic Buildings. Karen Day. 1991.

Temporary Protection

1. Temporary Protection of Historic **Stairways**. Charles Fisher. 1985.

DESIGN RESOURCES

2. Specifying Temporary Protection of Historic **Interiors During Construction** and Repair. Dale H. Frens. 1993.
3. Protecting A **Historic Structure** during Adjacent Construction. Chad Randl. 2001.

Windows

Please note that 1–9 are available only in the NPS publication *The Window Handbook: Successful Strategies for Rehabilitating Windows in Historic Buildings*, which can be purchased through the Historic Preservation Education Foundation.

1. Planning Approaches to **Window Preservation**. Charles Fisher. 1984.
2. Installing Insulating Glass in Existing **Steel Windows**. Charles Fisher. 1984.
3. Exterior Storm Windows: **Casement Design Wooden Storm Sash**. Wayne Trissler and Charles Fisher. 1984.
4. Replacement **Wooden Frames and Sash**. William Feist. 1984.
5. Interior **Metal Storm Windows**. Laura Muckenfuss and Charles Fisher. 1984.
6. Replacement Wooden Sash and Frames With **Insulating Glass and Integral Muntins**. Charles Parrott. 1984.
7. **Window Awnings**. Laura Muckenfuss and Charles Fisher. 1984.
8. **Thermal Retrofit** of Historic Wooden Sash Using Interior Piggyback Storm Panels. Sharon Park, AIA. 1984.
9. Interior Storm Windows: **Magnetic Seal**. Charles Fisher. 1984.
10. **Temporary Window Vents** in Unoccupied Historic Buildings. Charles Fisher and Thomas Vitanza. 1985.
11. **Installing Insulating Glass** in Existing Wooden Sash Incorporating the Historic Glass. Charles Fisher. 1985.
12. Aluminum **Replacements for Steel Industrial Sash**. Charles E. Fisher. 1986.
13. Aluminum Replacement Windows with **Sealed Insulating Glass and Trapezoidal Muntin Grids**. Charles Parrott. 1985.
14. Reinforcing **Deteriorated Wooden Windows**. Paul Stumes, P.Eng 1986.
15. **Interior Storms** for Steel Casement Windows. Charles E. Fisher and Christina Henry. 1986.
16. Repairing and Upgrading **Multi-Light Wooden Mill Windows**. Christopher W. Closs. 1986.
17. Repair and Retrofitting **Industrial Steel Windows**. Robert M. Powers. 1989.
18. **Aluminum Replacement Windows** With True Divided Lights, Interior Piggyback Storm Panels, and Exposed Historic Wooden Frames. Charles Parrott. 1991
19. Repairing **Steel Casement Windows**. Chad Randl. 2002.
20. **Aluminum Replacement Windows for Steel Projecting Units** with True Divided Lights and Matching Profiles. Chad Randl. 2003.
21. **Replacement Wood Sash** Utilizing True Divided Lights and an Interior Piggyback Energy Panel. Charles E. Fisher. 2008.
22. Maintenance and Repair of Historic **Aluminum Windows**. Kaaren R. Staveteig. 2008

Preservation by Topic

Technical Preservation Services has compiled an index of preservation resources by topic to assist users in finding online and printed information that has been developed on the subject of historic preservation, cultural landscapes, and the rehabilitation of historic buildings. The index is arranged alphabetically, and topics are cross referenced where appropriate. It includes listings of Preservation Briefs, Preservation Tech Notes, and ITC Bulletins (which are not generally available elsewhere). Preservation by Topic may be accessed online at the NPS website listed above.

<https://www.nps.gov/orgs/1739/preservation-by-topic.htm>

Lead Paint Resources

The US Environmental Protection Agency offers a full range of information and easy-to-use guides associated with the identification, safety concerns, and rules associated with lead paint. The following website provides access to publications for homeowners, contractors, and others.

1. EPA Website on Lead Paint

<https://www.epa.gov/lead>

2. The Lead-Safe Certified Guide to Renovate Right

<https://pueblo.gpo.gov/Publications/PuebloPubs.php?PubID=1348>

