

MHC Reconnaissance Survey Town Report

LOWELL

Report Date: 1980

Reconnaissance Survey Town Reports, produced for MHC's Statewide Reconnaissance Survey between 1979 and 1987, introduce the historical development of each of the Commonwealth's municipalities. Each report begins with an historic overview, a description of topography, and political boundaries. For the purposes of the survey, the historic period has been subdivided into seven periods: Contact (1500–1620), Plantation (1620–1675), Colonial (1675–1775), Federal (1775–1830), Early Industrial (1830–1870), Late Industrial (1870–1915), and Early Modern (1915–1940/55). Each report concludes with survey observations that evaluate the town's existing historic properties inventory and highlight significant historic buildings, settlement patterns, and present threats to these resources. A bibliography lists key secondary resources.

Town reports are designed for use together with a series of town maps that demarcate settlement patterns, transportation corridors and industrial sites for each historic period. These maps are in the form of color-coded, polyester overlays to the USGS topographic base map for each town on file and available for consultation at MHC. For further information on the organization and preparation of town reports, readers should contact MHC.

Users should keep in mind that these reports are now two decades or more old. The information they contain, including assessments of existing knowledge, planning recommendations, understanding of local development, and bibliographic references all date to the time they were written. In some cases, information on certain topics was not completed. No attempt has been made to update this information.

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

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MHC RECONNAISSANCE SURVEY REPORT

DATE: April, 1980

COMMUNITY: Lowell

I. TOPOGRAPHY

Located on rolling, occasionally hilly, riverine terrain. Some outcrops of bedrock but glacial outwash features predominate. Deep mixed alluvial soil, primarily sand and gravel. Merrimack River is dominant landscape feature and recipient of all drainage--confluence with Concord River and major fall line (Pawtucket Falls) are major features.

II. POLITICAL BOUNDARIES

Praying Town established at Pawtucket Falls and Wamiset, 1653. Additional grants made in 1656 and 1660 on both sides of Merrimack. Between 1660 and 1726 Praying Town lands gradually absorbed by Chelmsford and Dracut. Section known as "Chelmsford Neck" (original Praying Town area) established as Town of Lowell, 1826. Incorporated as City of Lowell, 1836. Expanded during late 19th and early 20th centuries annexing land from Dracut and Tewksbury.

III. HISTORIC OVERVIEW

Major urban industrial center on Boston/New Hampshire axis. Located at junction of Merrimack and Concord Rivers with Pawtucket Falls as the primary regional fishing area for native culture with documented sites at Fort Hill and Lowell Cemetery. Establishment of Wamesit Praying Town (1652) around Merrimack Falls with presumed village site within downtown Lowell and remains of boundary ditch at Lowell General Hospital. English settlement at edge of Praying Town by mid-17th century with remaining First Period house at Black Brook (Middlesex Village). Gradual expansion into Praying Town area by mid-18th century with period houses along Merrimack axis of Varnum and Middlesex-Pawtucket Streets. Colonial sequence uncertain for area with exception of mill sites along tributary brooks. Significant economic development with canal improvement of Merrimack in early 19th century around Pawtucket Falls and link to Boston with Federal period housing in fragmentary survival at Middlesex Village and around Pawtucket Falls. Major shift of focus with establishment of cotton manufacturing companies by Boston merchants during mid-19th century with creation of planned mill yards and related housing around canal district. Early stone mills now destroyed along with much of original wooden housing stock, although independent examples remain in Bleachery district and portions along Pawtucket Canal. Mill companies create urban fabric with brick streetscapes of factories and housing in Federal/Greek Revival style with some stone residential examples, remaining areas now within National Historic Park.

Continued growth of Lowell creates distinctive land use areas within city with social neighborhoods and fringe industrial districts linked by street railroads and bounded by rivers and canals along natural topography. High status residential area formed in Belvidere with elaborate examples of Picturesque Victorian suburban style and early residential park. Other affluent suburban areas formed around Lowell Highlands and remains of original merchant's neighborhood at Chapel Hill. Workers' neighborhoods originally in company

housing around mill yards rebuilt as wooden tenement districts during late 19th century with arrival of immigrant labor, including Irish, French Canadian, Greeks, Polish, Swedes and Jews with distinctive ethnic neighborhoods and churches. Formation of outlying centers across Merrimack at Pawtucketville and Centralville, by early 20th century with well-preserved three-decker streetscapes and early public housing.

Within Lowell expansion of street railroads to western area creates extensive area of speculative suburban housing in late Victorian style along major radials. Creation of fringe belt south of city along railroad axis with band of cemeteries, including early ethnic and romantic style examples, and extensive industrial landscapes, especially along Pawtucket Canal with original features including landmark gasometers, steel truss bridges, and brick storage buildings in period styles. Business district remains in grid of original mill company area, expanding gradually along major thoroughfares. Without major fire, downtown area preserves wide range 19th century commercial and civic buildings, many by period architects with original details in brick and stone from Federal to Classic Revival styles, although general character is Late Victorian.

Economic decline of cotton manufacturing by early 20th century restricts development of urban area, except for modest suburban expansion around Highlands and status neighborhood of Belvidere. Downtown remains stagnant with few examples of Modern commercial building, although outlying areas retain period neighborhood stores, often with ethnic character, and several well-preserved examples of roadside diners throughout city. At present restoration of downtown area around National Historic Park has preserved surviving portions of millyards and related housing, while the original suburban districts suffer from deterioration, especially former status residential areas in Highlands and Belvidere, and early workers' tenements around canal district. Rural landscapes of Colonial period remain along Varnum Avenue in Dracut district with portions along urban edge at Clark and Wood Streets. Continued expansion of suburban development from New Hampshire and Boston will threaten remaining open space as revitalization of central area preserves early industrial districts.

IV. CONTACT PERIOD (1500-1620)

A. Transportation Routes:

Important regional focus of trails at junction of Merrimack and Concord Rivers for seasonal fishing. Urban development of Lowell makes reconstruction of complete network to Pawtucket Falls uncertain, but obvious routes appear to follow Merrimack River north side (Dracut) as Varnum Avenue to Riverside Street (Pawtucketville) with possible branch to Long Pond as Trotting Park Road. On south side conjectured routes follow Middlesex-Pawtucket Streets along river to falls with possible loop to Concord as Sales-Merrimack Streets. Routes from Black Brook (Chelmsford) are documented to follow Westford-Wood and Steadman Streets to Middlesex Village. Possible routes across Lowell Highlands appear to be Pine-Liberty-Hale with alternate branch as Park Street to trail along River Meadow Brook as axis of Chelmsford Street, all of which loop downtown to Concord-Merrimack as Central Street along river terrace. Possible routes from east side (Tewksbury) appear to follow East Merrimack Street along river to Clark Road (Belvidere), with southern route

along Marginal Brook (Billerica) as Lawrence-Boyston Streets around Ford Hill (native site). It would seem probable that a secondary trail followed the axis of Gorham Street (Route 3A) to junction of Concord and River Meadow Brook. There are no documented ford sites across Merrimack or Concord within Lowell and trail links were probably maintained by canoe crossing in summer months.

B. Settlement Pattern:

Probable period sites and burials on and around Fort Hill. Many unspecified sites reported along Merrimack, especially at Pawtucket Falls, confluence with Beaver Brook and Concord River. Additional sites highly likely; in fact, area can be considered one continuous site. A long established and traditional area for native settlement.

C. Subsistence Pattern:

Falls of Merrimack and confluence points were major regional fishing areas, attracting large seasonal populations.

D. Observations:

An area of extensive and complex native occupation and fishing activity. Reputedly core area for Pawtucket group, about which little is known. Remaining intact sites would be a high priority for preservation.

V. FIRST SETTLEMENT PERIOD (1620-1675)

A. Transportation Routes:

Native trails remain as local highways including documented roads of 17th century as Varnum Avenue and Steadman Streets. Site of Indian Praying Town uncertain (South Common?) but road improvement within area conjectured for 1650s.

B. Population:

Gookin estimated Praying Town population at 15 families (75 individuals) in 1674. Deceptively small figure given the seasonal variation. A few colonial families by end of period.

C. Settlement:

Location of Wamesit Praying Town unclear, probably in South Common area. Iroquois raids resulted in native fortification on Fort Hill, 1669. Apparently some limited colonial settlement in the Middlesex village area (Steadman/Wood Streets) and on north side of Merrimack (Riverside Street) toward end of period.

D. Economic Base:

Though Gookin noted that the natives grew good corn, emphasis still on fishing. Apparently a fair amount of trading between natives and colonial settlers in Chelmsford.

E. Observations:

Praying Town occupied best location for fishing, trade and agriculture along Merrimack/Concord confluence--result was first jealousy then harrassment from colonial neighbors especially Chelmsford.

V. COLONIAL PERIOD (1676-1776)

A. Transportation Routes:

Highways remain from 17th century, including main river roads Middlesex-Pawtucket and Varnum-Riverside Streets. Routes from Chelmsford as Steadman and Chelmsford-Hale-Central Streets, and routes from Tewksbury as East Merrimack-Clark Roads and Billerica as Lawrence-Boyston Street with Concord River crossing at Moore Street. Ferry across Merrimack River between Middlesex Village and Varnum's Landing.

B. Population:

Natives deported and scattered during King Philip's War--some returned afterward. Colonial population increased as Praying Town lands were absorbed. No specific figures available, but sizable number of people by end of period.

C. Settlement:

Scattered farms spread throughout area. Settlement from Chelmsford along Chelmsford Road/Steadman Street. Some focus of settlement on south side of Merrimack--three areas: Middlesex village/Black Brook, near Pawtucket Falls, around Wamiset Falls on east side of Concord. On north side of Merrimack, scattered settlement along Varnum Avenue/Riverside Street.

D. Economic Base:

Agriculture and grazing. Considerable fishing for food and fertilizer. Several mills: John Varnum, grist mill, after 1710, northside, base of Pawtucket Falls; Nicholas Sprange, fulling mill, 1737, Wamiset Falls (east side); John Ford, saw mill, by 1770, southside Pawtucket Falls. Probably other mills present by end of period. Taverns (especially near ferry crossing): Jonas Clark's, by 1737, Middlesex village area; Abraham Coburn's, by 1754, Varnum Avenue.

E. Architecture

Residential:

Few buildings recorded or likely to remain; central-chimney two-story houses were probably the dominant house-type of the period, followed by a small number of twin-chimney two-story houses, generally located on Colonial roads along the Merrimack River. No high-style has been recorded; however, some late Georgian high-style may have been built.

F. Observations:

Though land was successfully acquired by Chelmsford, colonial settlers of "Neck" area continued to view themselves as a separate entity during 18th

century--foreshadowing eventual separation during 19th century. Beginning of milling potential evident.

VII. FEDERAL PERIOD (1776-1830)

A. Transportation Routes:

Highways remain from 18th century. Important improvement of Merrimack for navigation with Pawtucket Canal (1797) by Newburyport merchants, original portions obscured by mid-19th century enlargements. Middlesex Canal (1801) links Merrimack with Boston with terminus at Black Brook (Middlesex Village), original canal bed survives in portions near Golf Course and Route 3 with site marker at Hadley Field. Bridge crossings established over Merrimack to Pawtucketville (1795) with north/south links as Mammoth-School-Powell Streets and Centralville (1825) with north link as Bridge Street with shift of development to Lowell mills. Establishment of manufacturing companies in 1820s creates overlay of streets within Colonial road network, with mill district bounded by Fletcher, Dutton and Market Streets, and radials to east as Church-Andover Streets, to south as Gorham and Chelmsford Streets and west as Dutton Street.

B. Population:

Separate population statistics for Lowell are unavailable before c. 1826, when the town of Lowell was incorporated with a population of 2,300; prior to 1826, the population of East Chelmsford (downtown Lowell) was estimated at 200 in 1820; however, this estimate does not include portions of Lowell which were then part of Dracut and Tewksbury, nor does it include Middlesex Village. By 1830, the population of Lowell had increased to 6,474, although this figure does not include parts of Pawtucketville and Centralville (formerly Dracut), parts of Belvidere (Tewksbury) nor Middlesex Village (Chelmsford) which were later annexed to Lowell. An Irish immigrant population was present by c. 1825-27. Religious societies formed during the period included one Episcopal (St. Anne's-1824), a Congregational (First Congregational-1826), one Baptist (First Baptist, 1826) one Methodist (1827), one Universalist (Shattuck Street Universalist Society-1828), one Unitarian (South Congregational Society) and one Catholic mission (c. 1828); Pawtucket Church formed by division of Dracut First Church (1797).

C. Settlement Location:

Several villages formed, mainly at the end of the period. Pawtucketville (Varnum Avenue and Mammoth Road) enlarged after opening of bridge across Merrimack River, 1792; Middlesex Village (Pawtucket and Baldwin Streets) developed as a mill village at the north end of the Middlesex Canal after c. 1802; small-scale mill development and housing at Whipple's Mills (near Lawrence and Whipple Streets) c. 1818-30 (?); limited development of Centralville after opening of Central Bridge, c. 1825. Major development at downtown Lowell along the Merrimack, Pawtucket and Hamilton Canals (north of Appleton Street, east of Dutton Street and west of Central Street) after c. 1822-24.

D. Economic Base:

Federal period mills included 6 saw and/or grist mills on the Merrimack and Concord Rivers and on River Meadow Brook. A small pre-Lowell boom period

also saw a succession of new industries develop, largely unrelated to the cotton dynasty to follow. Hall's mills on River Meadow Brook--1790, fulling, dyeing and dressing, expanded in 1801 with a carder and picker; Hurd's woolen mills on the Concord near its confluence with the Merrimack, 1813; a factory for window glass in Middlesex Village made possible by the completion of the Middlesex Canal; and a gunpowder factory, established in 1818 on the Concord about a mile above its mouth.

Early Industrial Period begins for Lowell in 1822 with incorporation of Merrimack Manufacturing Co., the first of the ten major cotton manufacturing companies that were to dominate Lowell manufacturing until the end of the Late Industrial Period. These were Merrimack (1822), Hamilton (1825), Appleton (1828), Lowell (1828), Middlesex (1830), Suffolk (1830), Tremont (1830), Lawrence (1831), Boott (1835), and Massachusetts (1835). Revolutionary character of the mills, with earlier Waltham precedent, in which the manufacture of cotton cloth carried on from start to finish, well documented, but physical complex of buildings and hydraulic works combined to make an industrial city whose rapid growth and industrial innovation were unmatched by any city of the period in the U.S.

E. Architecture

Residential:

Industrial Housing

Housing of the period was dominated by company-owned workers' housing at Middlesex Village, Whipple's Mills and downtown Lowell. Much of the earliest workers' housing (c. 1802-1825) seems to have consisted of one-story central-chimney cottages (Lowell Machine Shop) and one-story wood-frame row houses (Middlesex Village). In addition, central-chimney double cottages (Lowell Machine Shop) and two-story double houses (Merrimack Manufacturing Company) were built in downtown Lowell all with simple Federalist style trim. Following the establishment of the first major manufacturing corporation, three-story brick row houses (Federal style) began to be built for workers' boarding houses, while a smaller number of two-story row houses were built to house superintendents and overseers. Several free-standing brick (or stone) three-story houses were built for mill agents; most of these were of simple Federalist design with little decorative trim.

Private Housing

Very little high-style built; the largest number of privately built houses seem to have been two-stories high with rear-wall chimneys and Federalist style entries; the largest number of this type were built along Varum Avenue (Pawtucketville), along Pawtucket Street and along portions of Central Street. In general, private housing of the period was built with greater variety of plan (double houses, twin chimneys, etc) and detail (brick ends, entries, etc.) in the vicinity of downtown Lowell than in outlying sections.

Institutional:

Nine churches formed by 1830, appearances of all churches not recorded, at least one (St. Anne's--1825) contained elements of Gothic Revival style, the others probably contained elements of both the Federalist and Greek Revival styles. Five school districts were established in 1826, making use of several pre-existing school houses (some of brick); two-story school house and hall built by Merrimack Manufacturing Company, 1824, eventually became part of the public school system. Construction of town hall, 1829-1830, may have marked the local introduction of the Greek Revival style, which in public buildings was characterized by brick construction, wide brick pilasters, pedimented gables and lunettes in pediments. First fire houses built 1829.

Commercial:

Except for the first few years of development when some businesses were reportedly housed in temporary buildings, commercial development began with the construction of brick row buildings (two to four stories high) of simple Federalist design with trabeated storefronts of granite. In addition, some buildings were constructed with granite facades. Rows were built mostly on Central and Merrimack Streets. After c. 1824, commercial activity in Lowell included a wide range of businesses, housed mostly in buildings of similar scale and plan.

Industrial:

Prior to 1821-1822, local mills were mostly of wood-frame construction, one and two stories high; after 1822, complex of brick mill buildings (utilitarian Federalist style) began to be built in downtown Lowell. Standard features of most complexes were between two and four story mills with monitor roofs and projecting stair towers; these mills were generally set in a row parallel to which were rows of two-story buildings containing storehouses, offices, repair shops and other service spaces. While many mill yards were enclosed by fences and canals, the creation of interior courts surrounded by mills had not yet occurred. Mill complexes built on this general plan included the Merrimack Manufacturing Company (1822-24), the Hamilton Mills (1825), and the Appleton Mills (1826); the Lowell Manufacturing Company Mills (1828), the Middlesex Mills (1829-30) and the Lowell Machine Shop (c. 1824-25) contained the same types of buildings as other mill complexes, but arranged differently to occupy restricted, irregular sites. Some secondary industrial development occurred along the Concord River; however, no consistent type of development is apparent.

VIII. EARLY INDUSTRIAL PERIOD (1830-1870)

A. Transportation Routes:

Lowell Street grid expanded on suburban radials west as Broadway, Middlesex and Westford Streets, to Highlands and east to Belvidere as Andover and Nesmuth Streets. Horse street railroad (1864) operates on major streets from downtown to suburban districts. Early steam railroad link to Boston (1835) along Concord River and to Nashua (1838) along Merrimack River creates depot junction at Pawtucket Canal with access to mills along Dutton Street.

Fragment of original Boston and Lowell Track (apparently 1830s) from Concord River bridge survives as historical site at Merrimack Street with original granite sleepers (cross ties) and early type fish-belly rail. Improvement of Pawtucket Canal and extension of Lowell power canals in mid-19th century with abandonment of Middlesex Canal (1851) from railroad competition to Boston.

B. Population:

Extremely rapid growth from 1830 until c. 1857 when a financial panic resulted in a general slowdown in business; population continued to decline during the Civil War when several of the major mills were closed due to the unavailability of cotton which had formerly been purchased in the American South. Population growth resumed at the end of the Civil War as cotton mills reopened and the partial diversification of manufacturing into woolen and knit goods led to industrial expansion. Throughout the period Lowell had a large foreign-born population (approximately 30% of the total population) of which Irish immigrants were by far the largest group, although the immigration of French Canadians began in the 1860s. New religious societies formed during the period included one Episcopal (1860), five Congregational (1830, 1832, 1838-40, 1848, 1846), one Presbyterian (1868), three Baptist (1831, 1840, 1869), three Methodist (1831, 1833-34, 1851-52), one Unitarian (1845), two Universalist (1836, 1843), two Free-Will Baptist (1830, 1840-43), one Christian Union (1846) and five Catholic churches (1830, 1841, 1846, 1868, 1869).

C. Settlement Location:

Major development focused on downtown Lowell including the nearly complete development of all land contained within the Pawtucket Canal and Merrimack River, as well as areas south of the Pawtucket Canal extending to Westford Street, the South Common and along the Concord River as far as Moore Street. Residential suburbs with strong separate identities developed at Belvidere (after 1831), Centralville and Pawtucketville. Smaller residential villages were developed in the south section of Lowell, i.e., Ayre's City (1860s-1870s) and across from St. Patrick's Cemetery (Gorham Street, 1870s-1880s).

D. Economic Base:

Continuation of development discussed in Section VII, Part D. By 1837 the corporate structure of the dominant cotton manufacturing companies had essentially reached the form it would hold for sixty years. The ten corporations operated mills and produced over \$5 million worth of cotton goods annually. During the 1850s, Lowell's supremacy in cotton manufacture was challenged increasingly by competition from steam-powered factories, particularly in New Bedford and Fall River, with easy access to coal supplies. More significant, however, was the decisions by the mills' combined directors to cease operation during the Civil War believing that the mills could not be run at a profit. The mill girls returned to their family farms. When the mills reopened after the war their places were taken by unskilled immigrant labor. The boarding house system was dismantled. Other industries, subsidiary or independent of cotton developed in the 1850s and 1860s. Among them, patent medicines, carpets, and knit goods.

E. Architecture

Residential:

Industrial Housing

Same housing types as preceding period (with elements of Greek Revival style design introduced during the 1840s) continued to be built in the vicinity of major mills, until the mid-1850s. Although brick construction was widespread for industrial housing, some wood-frame row houses of conservative late Federal/Greek Revival style design were built at the Lowell Bleachery (Moore Street--1830s) and on East Merrimack Street in Belvidere by the Prescott Manufacturing Company (1840s). The construction of new company-owned housing declined during the 1850s and ceased to be important as a source of new housing by the 1860s.

Private Housing

A wide range of house plans, predominantly in the Greek Revival and Italianate styles. Economic/social segregation began to appear in new neighborhoods during the 1840s. Inner sections of Belvidere, Centralville, Central Street and Westford Street were built up with middle-class housing consisting mostly of two-story free-standing houses, both side-hall plan simple houses and double houses; relatively few cottages were built in these neighborhoods prior to c. 1865; most houses of the period were of late Federal (up to c. 1840), Greek Revival (c. 1835-55) or Italianate design (after c. 1850).

Wealthier districts developed on hillside sites, particularly on slopes overlooking the city, at Belvidere (Nesmith and Andover Streets), Centralville (sections between Bridge and Beacon Streets), at the North and South Commons (post 1840) along Pawtucket Street and, late in the period, in the Highlands (in the vicinity of Miller and Middlesex Streets). In addition, several hill-top sites just beyond the densely built (house-lot) sections of the city were developed as individual estates during the 1850s-1870s. Relatively few houses in these districts were of purely Greek Revival design; most combined elements of Greek Revival architecture with elements derived from English Regency architecture, and (perhaps) directly from the extremely formal Regency-style Nesmith House at Belvidere (c. 1840); characteristic local elements included wide pilasters (often without capitals), square floor plans, hip roofs and center-entrance (three-openings) facades. High-style of the 1850s and 1860s was characterized by the widespread construction of Italianate style villas of various plans. While examples of Second Empire style architecture existed, they were relatively few; also rare were examples of Carpenter Gothic architecture. While little of the architecture of this period has been identified by architect, it is likely that after c. 1850 much was designed by architects both local and Boston-based.

Institutional:

Local institutions developed rapidly between 1830 and c. 1857, after which developed slowed until after the Civil War. During this period, the city government established a high school (1831), graded grammar schools (1832-at least

eight school houses built before 1857), primary schools (number unrecorded), one grammar and four primary school for Irish children, by 1844. The city government also built a Market House in 1837 and, presumably, established a poor farm, although its date is not noted in secondary sources. The county government established a jail in 1838 (replaced 1858) and built a courthouse (1850). Private institutional buildings included at least 24 churches and chapels (all but 4 of which pre-dated 1857), three hospitals (1836, 1839, 1866), one parochial school (1852-1854), one private academy (Dracut Academy--1836) and at least one home for the aged (1867). While many fraternal organizations and social clubs existed, few seem to have built halls until the early 1870s, an exception being the Middlesex Mechanics' Hall of 1835. In general, churches and city-owned buildings of the 1830s to the early 1850s were built of brick with Greek Revival style exteriors and details similar to those of the town hall of 1829-30. Notable examples of other styles existed, including two Episcopal (1846, 1861) and at least one Universalist (1836) church built in the Gothic Revival style, which became more widespread in the early 1850s for new churches. Several churches were built of wood, although most were of brick or stone. Perhaps the most lavish public buildings of the period were the County Jail and the County Courthouse both of which contained an eclectic assortment of Romanesque details.

Commercial:

Continued development of the city's center with 3- and 4-story brick row buildings of late Federal/Greek Revival design (up to c. 1850) and Italianate design (late 1840s-1850s); most new construction was of brick, although a small number of stone blocks were built. One railroad station built in the 1835-1838.

Industrial:

Major new textile complexes were built for the Suffolk Mills (1831), Tremont Mills (1831), Lawrence Mills (1831), Lowell Bleachery (1832), Boott Mills (1835), Massachusetts Mills (1839) and Prescott Mills (1844); most new mill-yards were built on the same plan as those built before 1830, although changes in technology and architectural taste led to the abandonment of monitor roofs (c. 1832), the addition of one-story picker houses to the main mill buildings (c. 1832), to the construction of free-standing picker houses at the outer edges of millyards (late 1840s), and the rearrangement of manufacturing tasks within the mills. Additions to existing mills took the form of central pavilions connecting existing mill buildings (c. 1845-1865), the addition of new upper stories (post c. 1865) and the construction of larger service buildings (mid-1860s), all of which served to create more fully enclosed courtyards within mill complexes. Architectural styles used for industrial buildings tended to be conservative, with the Greek Revival style remaining in use until c. 1860, and the Italianate style in use between c. 1863 and c. 1890.

Outside of the water-power sites occupied by the major corporations, a large number of small-scale manufacturers emerged in the late 1840s. By the end of the period much of the area along the Pawtucket Canal in the vicinity of Fletcher and Dutton and Middlesex Streets as well as scattered locations along the Concord River were built up with two-four story mills, many of which were built of stone and powered by steam. In addition a gas works was established in 1849-1850 and a late Italianate style freight depot built on Dutton Street (c. 1865-75).

IX. LATE INDUSTRIAL PERIOD (1870-1915)

A. Transportation Routes:

Expansion of street railroad as electric trolleys in 1890s with suburban routes on major radials including Andover, Nesmith, Gorham, Chelmsford, Westford, Broadway and Middlesex, with local routes to Pawtucketville on Mammoth, Varnum and Textile Streets; to Central ville on Lakeview, Bridge, Hildreth and Beacon Streets and to Lawrence along Merrimack River (Route 113). Secondary steam railroad junction in Bleachery district in 1870s with Framingham and Lowell and Andover and Lowell with branch lines along Concord to mills. Additional bridges established over Merrimack at Textile and Aiken Streets with rebuilding of original bridges with steel truss at Central Street and local streets over railroads, notably School Street.

B. Population:

Extremely rapid growth throughout period, with the exception of a slight decline between 1900 and 1905. Foreign-born population increased throughout period, accounting for as much as 40% of the total population at various times. Irish immigrants remained the largest single group until c. 1900, when French Canadians became the largest group. During the early twentieth century, a large number of Greek immigrants settled in Lowell. Forty-three (43) new religious societies formed, including five Baptist (1874, 1883, 1895, two unrecorded), one Christian Scientist (date unrecorded), three Congregational (1884, 1885, one unrecorded), one French Congregational (1883), three Jewish congregations (dates unrecorded), two Evangelical (1882 and 1906), three Methodist Episcopal (1875, 1887, 1892), two Primitive Methodist (1879, 1886), one Presbyterian (1888), eight Catholic parishes (after 1883), and fourteen other independent religious societies among which were Greek Orthodox, Armenian Protestant and French Protestant congregations and missions.

C. Settlement Locations:

Patterns established in the preceding period continued, although Belvidere and the Highlands became more homogeneously developed as middle and upper class suburbs, while much of Pawtucketville, low-lying areas of Centralville, southern sections of Lowell and older neighborhoods close to the city's center became densely developed working-class areas.

D. Economic Base:

In 1880 cotton goods still accounted for more than half the value of all the products of the city's industries, followed by woolen goods (\$1.9 million) and patent medicines (\$1.06 million). Numerous independent and ancillary industries founded in this period, attracted by the labor supply, including shoes, mohair, thread, boiler works, sheet metal, various knit goods, paper boxes, wire and the like.

E. Architecture

Industrial Housing

Company-owned workers' housing continued to exist in small numbers after the Civil War although little, if any, new corporation housing was built.

Private Housing

Speculative housing seems to have accounted for most new construction after c. 1865-70; the largest number of houses built 1870-1885 seem to have been side-hall plan cottages with gabled facades, with decorative details of the Italianate and Queen Anne styles. After c. 1885-1890, a greater variety of working-class housing types was built including cottages, modest (side-hall) houses, some two- and three-deckers; while examples of late Italianate style architecture continued to be built as late as c. 1880, the Queen Anne style became dominant during the 1880s-c. 1905. Wood-frame apartment houses (3- and 4-stories) were built during the 1890s and early 20th century in the downtown area, in neighborhoods south of the downtown along Gorham Street, and along streets leading to bridges crossing the Merrimack River at Centralville and Pawtucketville.

Middle and upper-income housing of the period contains a full range of contemporary styles, although the Second Empire and Victorian Gothic styles were relatively rare, while the Queen Anne (introduced c. 1880) and Colonial Revival styles were widely built. Major high-style buildings of the period were heavily concentrated in Belvidere and along sections of Pawtucket Street while slightly less elaborate but still high-style houses were built in the Highlands overlooking the Merrimack River, near the junction of Colonial Avenue and Riverside Streets, and near the Reservoir at Centralville. Although few have been identified in secondary sources, many of the houses of the period were probably designed by local architects, whose work was current with national changes in architectural taste.

Institutional:

The formation of new institutions during this period was rapid, corresponding to increases in population. By 1915, Lowell had at least 66 churches and 3 synagogues, the largest number of which had church buildings post-dating 1870. In general, the larger congregations toward the city's center built brick or stone churches in the Victorian Gothic style until the late 1880s/early 1890s after which elements of Romanesque Revival were introduced. Churches in outlying districts were more frequently of wood-frame construction and shared more details with domestic styles such as the Queen Anne style. Private institutions also included 12 parochial schools by 1915, 8 institutional residences (orphanages, homes for the aged, etc.), 2 preparatory schools in existing buildings, one Hebrew school, at least one hospital (1879), the Lowell Textile Institute (1890s), and a Catholic college (St. Joseph's-1892). City-owned buildings of the period included the City Hall (1893), the Public Library (1893), water works (1872), approximately 15-17 firehouses; public school buildings in 1915 included one high school, one trade school, 14 Grammar schools, 37 primary schools and 14 kindergartens (many of which were housed in the primary schools). Other publicly owned buildings included the Post Office (c. 1890), Armory (1891), an addition to the County Courthouse (1899) and the State Normal School (1897). Of the various institutional building types present, only primary school houses were occasionally built of wood until c. 1905-10; fire houses, upper-level schools, private schools and institutional residences were generally of brick construction with elements of Italianate and Victorian Gothic design until c. 1885 after which most bore elements of the Romanesque Revival and Queen Anne styles. Major

public buildings were generally constructed of stone or pressed brick; until c. 1895 the Romanesque Revival style was widespread; after c. 1895, Renaissance and Colonial Revival style details become dominant in all levels of public building. Extremely few Second Empire style buildings seem to have been built. Less thoroughly recorded in secondary sources are the large number of fraternal organizations and social clubs, many of which built halls and clubhouses between the mid-1870s to c. 1910.

Commercial:

Commercial development continued to be characterized by brick row buildings, 2-5 stories high concentrated in the vicinity of Central, Merrimack, Middle and Dutton Streets; various contemporary styles represented. Secondary commercial districts developed near the bridges at Centralville and Pawtucketville and in scattered locations in other residential areas, general commercial activity in these areas was restricted to store fronts in the bases of wood-frame apartment blocks.

Industrial:

Continued expansion of both major mill complexes and secondary mills; Italianate style brick construction employed for major mills until c. 1890, utilitarian mill construction employed until c. 1903-07, after which reinforced concrete construction became widely used. Similar styles and methods of construction used in secondary mills, although introduced somewhat later than in major mills.

X. EARLY MODERN PERIOD (1915-1940)

A. Transportation Routes:

Abandonment of street car routes as motor bus in 1930s with improvement of regional highways as autoroutes including Gorham-Middlesex Streets as Route 3 (now 3A), Andover Street as Route 133, and Chelmsford Street as Route 110. Express highway bypass Route 3 (1940) along Middlesex Canal bed with original cloverleaf interchange in parkway style at Chelmsford Street. Early airport established on Concord River at South Lowell (c. 1920), site now developed as Interstate 495, although portions may survive of sea-plane ramp. Parkway along Merrimack River established as Route 113 (1953) with crossing at Hunt Falls.

B. Population:

A small increase in population occurred between 1915 and 1920, after which a slow decline began in the early 1920s and accelerated at the time of the Great Depression. Changes in immigration laws and the decline of local manufacturing brought about a levelling of foreign-born population by the mid-1920s. By 1940, the total number of religious societies had declined to 60 following the disbandment or merging of 3 Baptist Societies, 2 Congregational Societies, 1 Methodist, 1 Presbyterian and several independent religious societies. Newly formed congregations by 1940 included 1 Armenian Apostolic Church, 1 Church of the Nazarene, 1 Spiritualist Church, 2 Greek Orthodox Churches, 1 Polish National Church and 1 Seventh Day Adventist Society.

C. Settlement Location:

Relatively little new construction; some suburban expansion seems to have occurred at the outer edges of suburban districts of the Late Industrial Period.

D. Economic Base:

Despite some reverses, Lowell's industries continued a slow expansion until, in 1918, stimulated by war demands, the products of the city reached a peak hitherto unattained, employing 40,000 workers in that year of whom 12,000 were engaged in cotton manufacture. After that, however, production rapidly fell off. During the 1920s production in one mill after another ceased as companies were liquidated, changed hands, or moved. By 1936, only 3,000 persons were employed in cotton. Woolens and worsteds, by contrast, maintained their importance and several firms remained producing knit goods (Parker).

E. Architecture

Residential:

Neighborhood social distinctions established in the preceding period remained essentially unchanged; modest housing consisted of Bungalows and some two-family (two-decker) houses, with Bungalow-style details. Middle and upper-class neighborhoods were also partially built up with Bungalows and houses bearing details related to the Bungalow style; however, various phases of the Colonial/Federal Revival style appear to have been more popular.

Institutional:

Few churches built. The number of public schools remained unchanged from 1915 except for the creation of 5 junior high schools, the closing of 10 primary schools and the creation of two new kindergartens (perhaps located in existing schools); by 1940, 17 parochial schools were in operation, of these one was Polish and another was Greek. Little new construction of city-owned buildings seems to have occurred, the number of fire houses remained in the range of 13-16, a new city hospital (1920s) was constructed near Pawtucketville. Other public buildings of the period included a Federal Building/Post Office (late 1920s) and the city-owned Lowell Memorial Auditorium (1922). Although the number of new buildings during the period was small, those built after c. 1920 tended to be of Classical design, often derived from neo-Classical sources.

Commercial:

Little change in the city's commercial districts; small number of new buildings constructed in neo-Classical styles (downtown).

Industrial:

Reinforced concrete construction became generally accepted for new industrial buildings; however few new complexes were laid out during this

period and construction was generally limited to additions to existing structures, usually before c. 1920-25. By the late 1920s, demolitions began within some of the major mill complexes.

XI. SOURCES

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