

Section 3: Community Setting

A. REGIONAL CONTEXT

The City of Newton is located seven miles west of downtown Boston in eastern Massachusetts, lies within the Route 128/I-95 beltway, and is considered an inner suburb of the capital City. Newton was one of the country's first railroad suburbs, and its proximity to Boston and well-developed transportation networks of highways, roadways, commuter rail, and light rail have helped make Newton the densely developed and primarily residential City it is today. Newton's land area, 18.15 square miles, is all but fully built out. Newton has well-established village centers, surrounded by a mix of single- and multi-family dwellings with a generous interweaving of open spaces, contributing to the "Garden City" character of the community. The area's strong economy over the past half century has fueled development pressures and increased land values in Newton. The increasing residential, commercial, and institutional development over the past century has had a range of effects on the City including greater demands on the City's limited open space resources, the continuing loss of canopy trees, and increased traffic. In the face of development pressure, there is continued strong public commitment to preserve, care for, add to, and enhance Newton's open space resources.

Newton is bordered by Waltham and Watertown on the north, Boston and Brookline on the east, Boston and Needham on the South, and Wellesley and Weston on the west. Newton is bordered for 12 miles by Charles River, an important regional ecological resource shared with not only the communities listed above, but also twenty-three total communities both up and downriver. Newton works with its neighboring cities and towns, and communities throughout the Charles River Watershed, in efforts to improve water quality, improve transportation, and develop and maintain recreational facilities that benefit the entire region (**Figure 1**).

Newton is home to Boston College, Lasell University, and UMass Amherst at Mount Ida; the large and thriving Wells Avenue Office Park; many large and small businesses; and regional natural resources including parts of the DCR Charles River Reservation and the greater Hammond Pond/Webster Conservation Area.

Regional Planning

Newton is a part of the 101 cities and towns in the Boston metropolitan area that are represented by the Metropolitan Area Planning Council (MAPC). MAPC works with communities through eight sub-regional organizations whose members are appointed by chief elected officials and planning boards. Newton is a member of the Inner Core Committee (ICC), which also includes 21 other communities in the Metro Boston region.

MetroFuture is MAPC's long-term regional plan for the Boston metropolitan area. The plan includes goals and objectives as well as strategies for accomplishing these goals. Some of the goals particularly relevant to Newton's Open Space and Recreation Plan include:

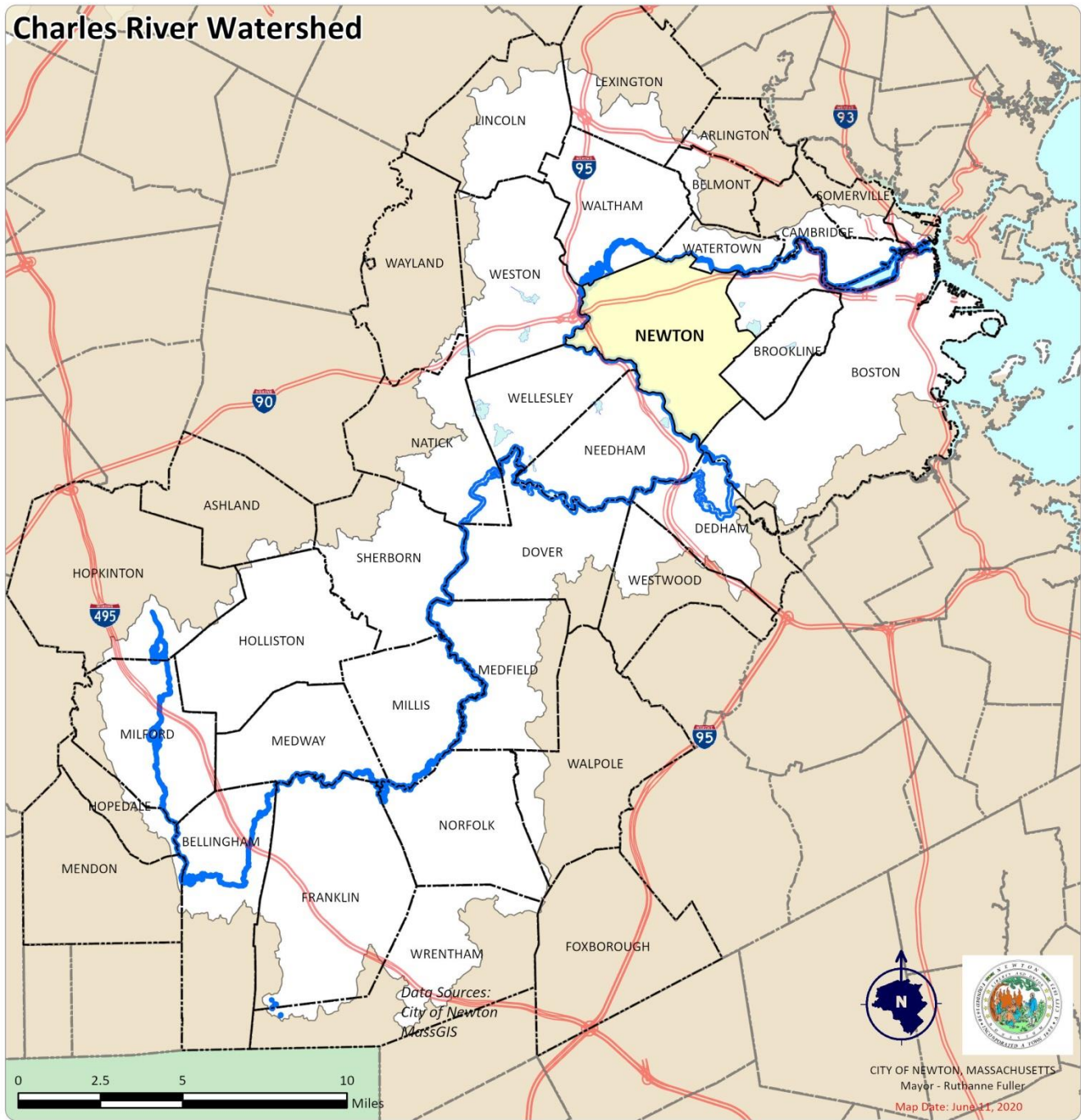
- #10 Growth in the region will be guided by informed, inclusive, and proactive planning.
- #11 The region will be prepared for and resilient to natural disasters and climate change.
- #23 All neighborhoods will have access to safe and well-maintained parks, community gardens, and appropriate play spaces for children and youth.
- #25 More residents will build regular physical activity into their daily lives.

- #31 The region’s residents—including youth, seniors, and immigrants—will be well informed and engaged in civic life and community planning.
- #47 Most people will choose to walk or bike for short trips.
- #63 The ecological condition of wetlands will improve, and fewer wetlands will be lost to development.
- #64 The region will retain its biodiversity and will have healthy populations of native plants and animals, and fewer invasive species.
- #65 A robust network of protected open spaces, farms, parks, and greenways will provide wildlife habitat, ecological benefits, recreational opportunities, and scenic beauty.

B. HISTORY OF THE COMMUNITY

The area around the Charles River has been home to people for an estimated 13,000 years. At that time, the end of the ice age, winters were extreme, and the area was mostly forested with spruce, jack pine and poplar. Small family groups moved through, traveling every few weeks, hunting, fishing and gathering, tracking mostly caribou; but also giant beaver, stag moose, snub-nosed bear, and even the mastodon. As the ice age ended, and the climate changed dramatically, some Native groups shifted north to continue hunting caribou, some stayed in the area; and others, from farther south, increased their range into the north. It is assumed that many settlements were established along the falls of the Charles River for fishing, but these sites have been lost to industrial mill development or are covered by river silt and marshlands. Burnt kernels and pottery shards indicate that by about 1,000 years ago some groups turned to limited maize farming. There is evidence that by 1300 AD of two villages in river bottom regions. By the time of European contact, around 1600 AD, the Massachusetts people were living in the land that is now Newton. Though there is little known of the number of Native people living in the area at that time, there is record of an epidemic from 1616 – 1618 that took the lives of many. This epidemic dramatically changed the lives of many Native people as cultural traditions were lost, tribal groups relocated, and new alliances were formed. (*City of Newton City-Wide Archaeological Reconnaissance Survey: Public Education Report, 5-10*).

Figure 1. Regional Context: The Charles River Watershed



It was settled by Europeans in 1630 as a district of Watertown and was subsequently annexed by Cambridge in 1636. Newton was incorporated as a separate municipality, to become the City of Newton, in 1688. In the early days of European settlement, the area was primarily agricultural.

In 1688, Newton established its first river mill along the Charles River at Upper Falls, and shortly became home to several other mills along its riverbanks. Early mills included a sawmill, a gristmill, and a fulling mill (a process used to clean and thicken wool cloth). The mills provided the backdrop for industry in Newton that slowly evolved towards the manufacturing of products such as plastics, paints, and confections. The manufacturing industry encouraged a growing community of workers to settle in nearby neighborhoods. This can still be seen in the pockets of worker and two-family homes surrounding the old mill areas in Newton Upper Falls.

The completion of the Erie Canal in 1821 connected mid-western farmers and manufacturers to New York City. In 1834, Boston merchants, not wanting to be passed over, chartered the Boston-Worcester Railroad into West Newton, which eventually became the Boston-Albany Railroad, stretching into the Midwest. Villages along the railroad experienced a population and housing boom, became the wealthy villages of Newton, and were the first in the City to receive water and sewer hookups (*Landscaping the Garden City*, Spiers, 258). The railroad expanded Newton's accessibility both as a residential community and as a summer haven for affluent Bostonians.

For the next 60 years, frequent commuter rail service to Boston was instrumental in establishing Newton as a desirable residential suburb, and many new houses were constructed in neighborhoods within easy reach of railroad depots on land that had been subdivided into building lots (**Figure 2**). Like patterns in development, patterns in open space protection can be traced back to the railroad housing boom: the northern part of the City, which experienced the development boom earlier, has smaller housing lots and smaller parks and playgrounds. The central and southern portions of Newton, which were developed later, have slightly larger housing lots and tracts of open space. This is especially true in the southern parts of Newton, which remained largely agricultural and did not experience its own suburban housing development boom until after WWII. When the Massachusetts Turnpike opened through Newton in 1964, it created a physical division in the City, while also making some portions of Newton more accessible by automobile.

Today, Newton is a fully developed city composed of multiple villages, each with distinct characteristics yet without formally defined boundaries. While over time the location, names, and number of villages has varied, it is generally acknowledged that Newton has 13 village centers. Along with the 13 village centers, Newton has four historic districts and is noted for its retention of some of the finest and most comprehensive collection of late 19th and early 20th century suburban residential architecture, with a wide range of building types, materials, and styles.

The Jackson Homestead, a Federal-style farmhouse and now nationally accredited museum and center for Newton History, was a station on the Underground Railroad, and is a component of the Underground RR Network of Freedom recognized by the National Park Service.

Newton is also known as "The Garden City," as portions of the Newton landscape were designed and laid out by such notable landscape architects as Frederick Law Olmsted and Alexander Wadsworth. See **Figure 3** for a map of villages and historic districts.

Figure 2. Railroads and Development (base map is from 1917)

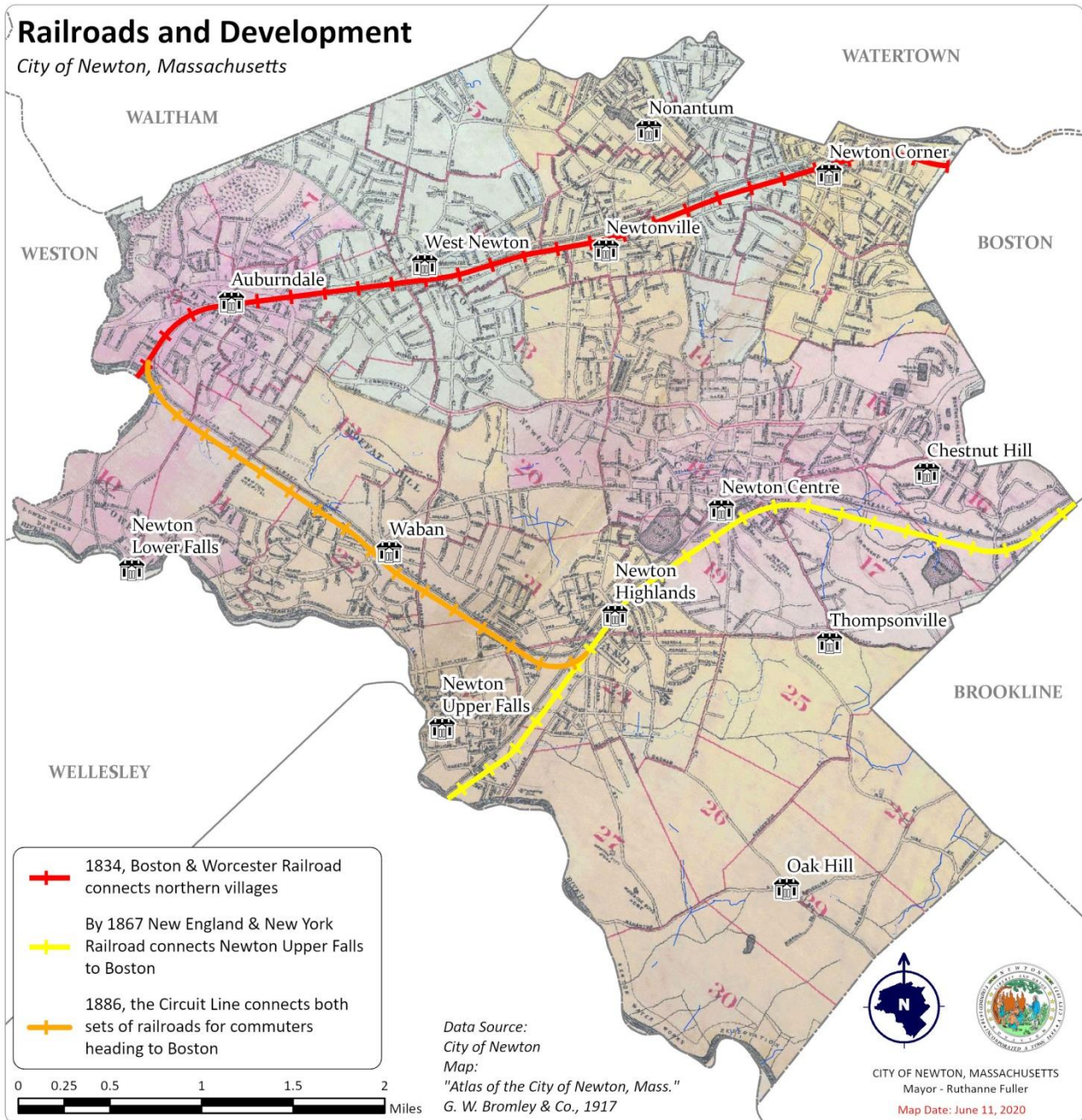
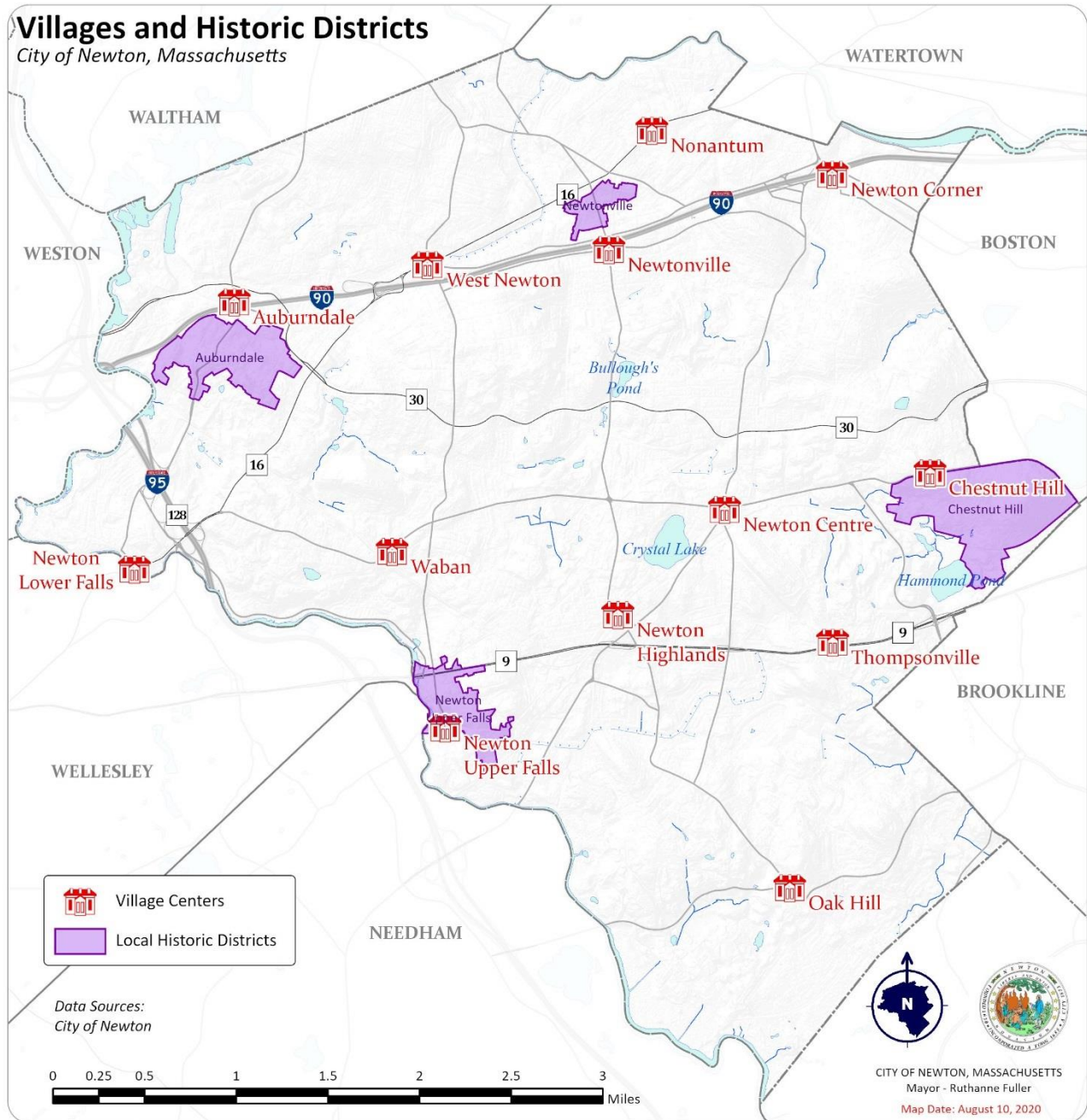


Figure 3. Villages and Historic Districts



C. POPULATION CHARACTERISTICS

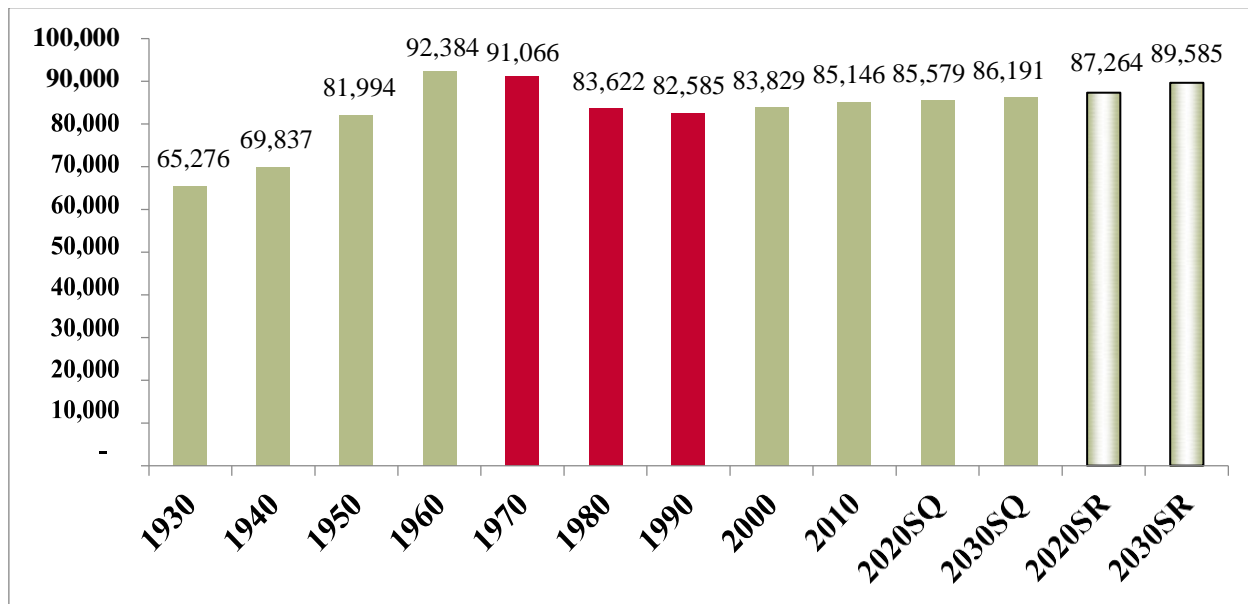
Newton’s population has been characterized by slow growth, a relatively high median age, and a gradually aging population. Its median income is significantly higher than that of the State, as are its home prices.

Population

Newton’s population, which peaked at 92,384 in 1960, and then fell until 1990 to 82,585, has increased slightly over the last two decades, rising to 84,688 in 2000, to 85,146 in 2010, and to 88,904 in 2018 (U.S. Census Bureau, Annual Estimates of the Resident Population, 2018). From 2000 to 2010, Newton’s population grew by 1.6%, a slightly slower rate than the 2.6% growth rate of Middlesex County.

Newton’s population will continue to grow over the coming decades. According to the Metropolitan Area Planning Council (MAPC) “Stronger Region” scenario, in which Metro Boston will retain a vibrant economy even as baby boomers retire, MAPC projects that by 2030, Newton’s total population will grow modestly by 5% to over 89,000 people (Figure 4).

Figure 4. Newton’s Projected Population 1930 to 2030



SQ = Status Quo, a slower growth prediction

SR = Stronger Region, a faster growth prediction

Source: MAPC Projection

In 2018, there were 30,952 households and 22,317 families residing in the City (U.S. Census Bureau, American Community Survey).

As of the 2010 U.S. Census, the population density was 4,643.6 people per square mile, and there were 32,112 housing units at an average density of 1,778.8 units per square mile.

Age

In 2010, when Newton's total population was just over 85,000, approximately 5% of the population was children below the age of five, and 15% were over 65 years of age (U.S. Census, 2010). The median age in Newton in 2017 was 40.5, slightly higher than the State median age of 39.4 (American Community Survey, 5-Year Estimates, 2013-2017).

According to the 2010 US Census, two age groups have increased significantly in Newton since 2000: the 55-74 age group increased by 32% and the 0-24 age group increased 8%. Over the next ten-years, as the Baby Boomers age, Newton's population of seniors will continue to rise. MAPC projects that by 2030, the senior population will increase by 63% and that 1 out of every 3 Newtonites will be age 60 or older. In many of the census block groups in the central portion of Newton, 45-60% of households have someone over 65 years old. In the area around Thompsonville, 60-75% of households have someone over 65 years old (ACS, 5-year study, 2017) (**Figure 5**).

In 2018, 36% of households included individuals under the age of 18 and 42.9% included individuals aged 60 and over.

As of 2017, 22.6% of Newton's households consisted of people living alone (ACS, 5-Year Survey, 2017). People 65 years of age and older were disproportionately represented in this population, accounting for more than 51% ($\pm 3\%$) of residents living alone (ACS 2011-2015). Like much of the country, Newton's baby boomer population is aging in place, and those who stay in Newton may want to downsize their housing. Given that a large percentage of persons living alone are seniors, there may be a greater demand for one- or two-bedroom apartments. In 2016, Newton was designated to be part of the World Health Organization and AARP Livable Communities Age-Friendly network. This designation means that Newton is committed to making demonstrable changes to ensure that it is a city that is welcoming to people of all ages. "Outdoor Spaces and Buildings" is one of the 8 domains of Age Friendliness, and includes making sure that Newton's open spaces are increasingly open and accessible to people of all ages, including older adults.

Income

The 2017 median household income in Newton was \$139,696 as compared with \$79,835 for Massachusetts (US Census, ACS, 2017). While Newton is, on average, wealthier than Massachusetts, segments of the population still struggle to meet their basic needs. The 2014 report *Demographic Trends and Housing in the City of Newton, Massachusetts* (12), notes that while, "nearly 27% of resident households have incomes exceeding \$200,000 a year, nearly one out of eight Newton households (12.2%) are surviving on less than \$25,000 a year. While 40% of married couple households have incomes in excess of \$200,000, more than one out of six (17%) non-family households share incomes of no more than \$25,000."

In Newton, Black residents are more likely to live in poverty than White residents (23% $\pm 14\%$, and 4% $\pm 1\%$, respectively, ACS 2011-2015). Differences in poverty rates between residents of other races are not statistically significant. A household income for a family of \$78,150 is considered low-income. According to ACS, 25% ($\pm 1.7\%$) of households in Newton are low-income.

It can be misleading to map poverty at the census tract or block group level due to high margins of error, but it is possible to identify areas where income is lower than the City average. As shown below, relatively lower income areas of the City include Nonantum, Newton Corner, West Newton, and areas around Boston College (just north of Chestnut Hill) (**Figure 6**). Low-income communities and the distribution and access to open space is discussed in further detail in the Environmental Justice (EJ) section, below.

Figure 5. Households with Residents Over 65 Years of Age

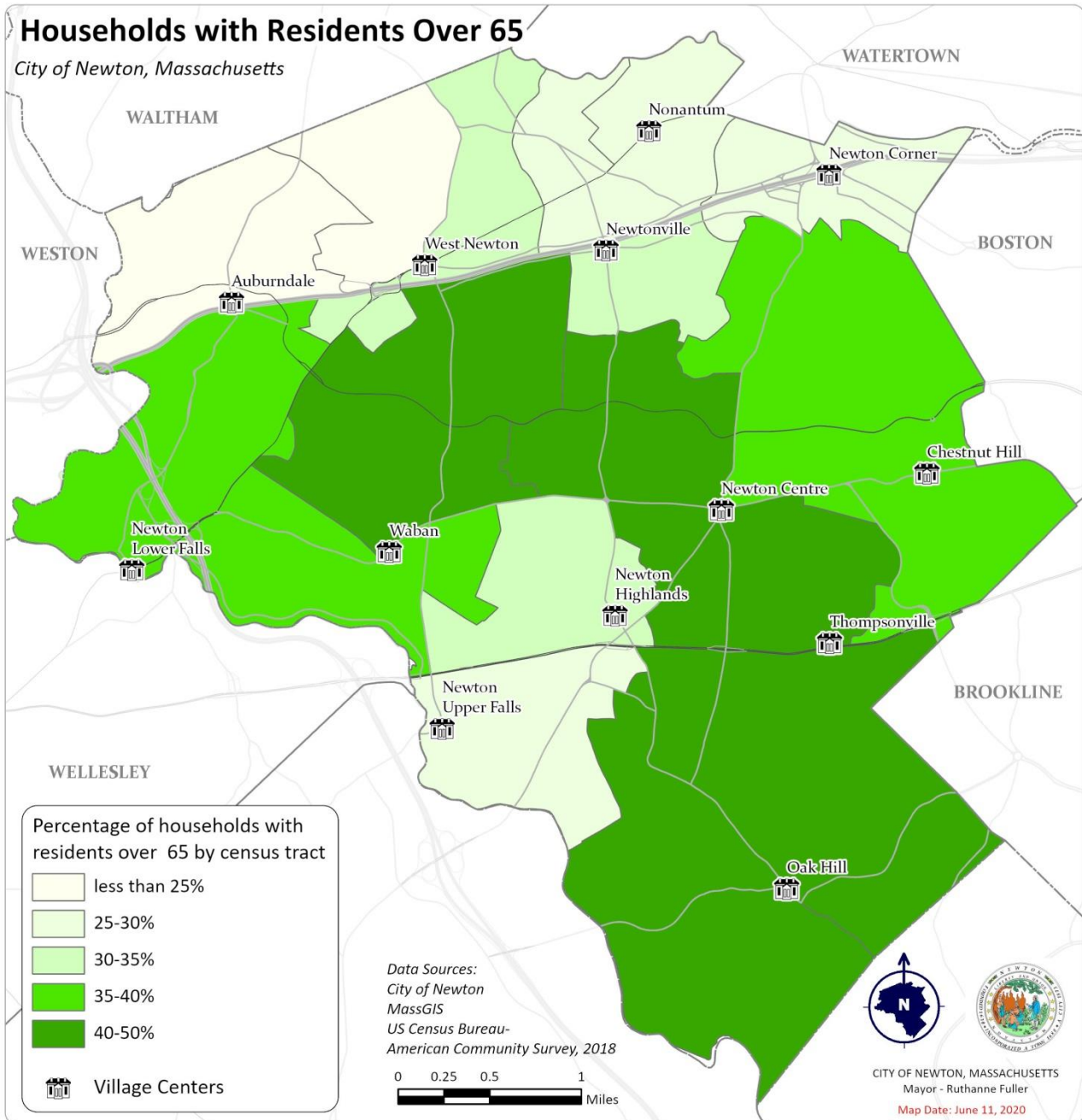
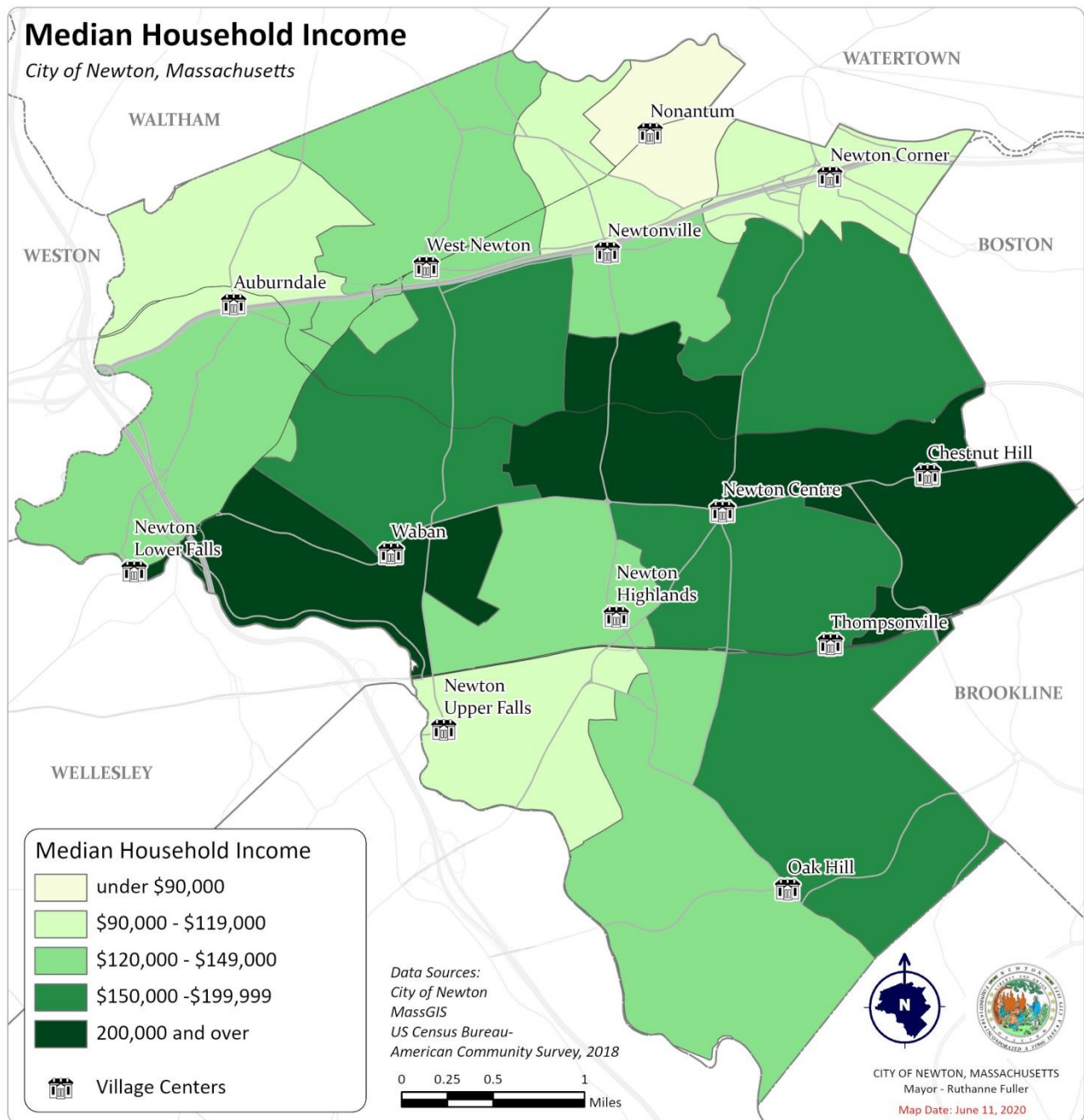


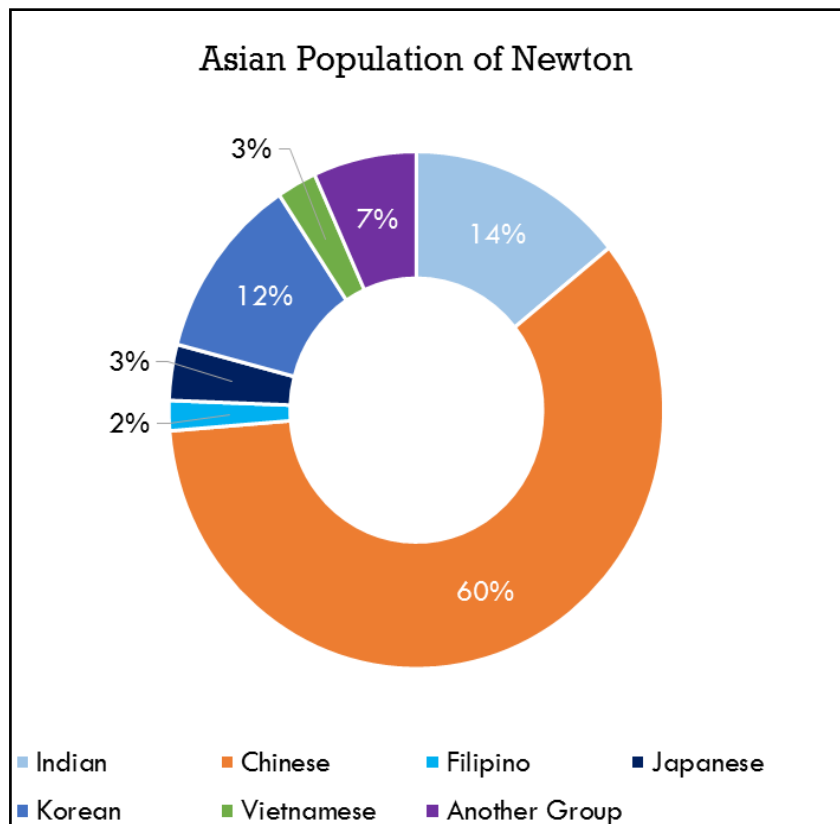
Figure 6. Median Household Income



Race and Ethnicity

Newton is becoming more racially and ethnically diverse. In 2000, people of color comprised 14% of the total population. The 2017 ACS 5-Year Survey revealed that number had grown to 22%. The percentage of Asian residents increased the most, from 8% to 14%. An examination of the country of origin of Asian residents shows there is cultural diversity throughout the population. Over half of those who identify as Asian in Newton have Chinese heritage, and there are significant communities from India and Korea, as well. In 2017, 5% of the population was Latino, 3% was Black, and the remaining 1% was Native American, multi-racial, or other races. (Figure 7).

Figure 7. Country of Origin for Asian Residents in 2017

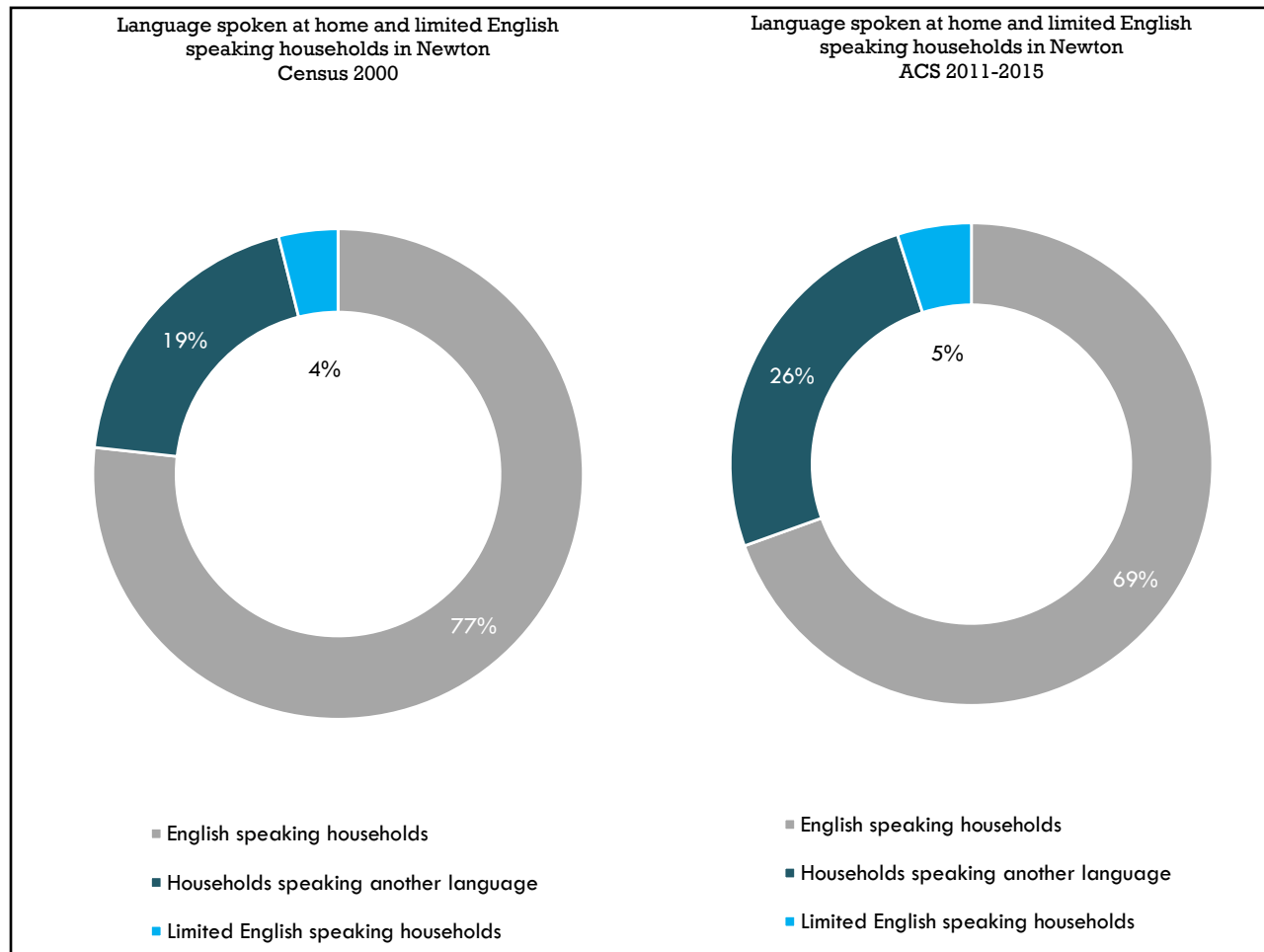


Language and Linguistic Isolation

The percentage of Newton households that speak a language other than English in the home has increased over time. According to the 2000 Census, 23% of households spoke a language other than English; by 2017 (ACS, 5 year survey) that proportion increased to 26.2% (± 1.5%). As the percentage of households speaking another language at home has increased, the proportion of limited English-speaking households has also increased to 5% of the population (in 2010). “Limited English-speaking households,” formerly known as “Linguistically Isolated households”, have no household members age 14 or older who speak English well (Figure 8). Other languages spoken at homes in Newton include Chinese languages (5,470 ±660), Spanish or Spanish Creole (3,153 ±245), Russian (2,963 ±493), and Korean (1,193 ±219). In Newton, Asian and Latino residents are much less likely to speak English very well than residents of any other race (29% ± 3% and 14% ± 4% respectively, ACS 2011-2015). City records of households with flood damage in 2010 indicated that 2.5% of respondents of Asian background and 2.5% of respondents of Russian background had difficulty communicating in English. Reliable data regarding geographic distribution of residents’ language and

linguistic isolation are not available, but as the City diversifies, it will be ever more important to continue to assess communication; this may be facilitated by the recent incorporation of the Department of Culture into the new Department of Parks, Recreation & Culture (PRC).

Figure 8. Languages Spoken at Home and Limited English-Speaking Households in Newton



Environmental Justice (EJ)

“Studies conducted throughout the U.S. have documented patterns of environmental injustice. These studies have determined that lower-income and minority communities suffer from a disproportionately high share of environmental burdens and at the same time lack environmental assets in their neighborhoods” (EOEEA website Mass.gov). The Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) defines EJ populations as neighborhoods (U.S. Census Bureau census block groups) that meet one or more of the following criteria:

- Median annual household income is at or below 65% of the statewide median income; approximately \$50,300 for 2017 (ACS, 1-year Survey, 2017)
- 25% or more of the residents are a racial minority
- 25% or more of the residents are foreign born; or
- 25% or more of the residents are lacking “English language proficiency.”

While certain areas in Newton may be, on average more challenged in these ways (Figure 9), it is important to recognize that residents with heightened vulnerability reside throughout the City. EJ demographic

analyses provide indications of where higher concentrations of vulnerable residents may be located. EJ populations, writ broad, may suffer inadequate access to healthy food, inadequate transportation, higher than average environmental pollution, higher vulnerability to climate impacts, unsafe homes, and/or less access to open space resources.

The EOEEA Environmental Justice Populations map from MassGIS (**Figure 9**) identifies “Environmental Justice” populations in the northern and southwestern parts of Newton. Some of the identified neighborhoods have fewer or limited open space and/or recreational and environmental resources; and residents there may be challenged by language or economic barriers to participate in planning and development decisions in their communities. In these more densely populated areas, where income status qualifies a community as Environmental Justice, the Community Housing Department and Parks, Recreation & Culture proactively seek ways to increase open space and recreation resources to the extent possible, but face challenges in doing so due to the limited availability of land. In and around these neighborhoods, the quality of existing resources and safe pedestrian-friendly access becomes vitally important. As new and low-income-inclusive housing developments are considered in these areas, there may be opportunities to create new open space resources (discussed in further detail in the “Housing” section, below).

In Newton, there are nine areas that are identified as Environmental Justice areas due to their significant (over 25%) minority and foreign-born populations, though they may be affluent, prosperous, and well-endowed with open space and recreational resources and tree-lined suburban streets. Some minority EJ block groups in the Nonantum and Upper Falls communities qualify as low-income, but most are financially well-endowed. There is one EJ census block group, in Newton Corner, identified as below 65% of the statewide median household income (approximately \$50,300).

Other minority-based EJ communities are within heat islands (**Figure 10**). Heat islands result where dark-colored impervious surfaces such as black roofs and asphalt streets and parking lots, absorb and re-radiate heat, leading to increased surface and air temperatures. Areas with more trees and less dark-colored impervious surface experience lower surface level temperatures. Heat islands will be exacerbated by climate change, and, though everyone will feel rising temperatures, those living in heat islands will feel the greatest impact.

Newton’s *Climate Change Vulnerability Assessment and Action Plan* (22) states that “extreme heat can contribute to greater levels of ground level air pollution and allergens. The poor air quality and high humidity that often accompany heat waves can aggravate asthma and other pre-existing cardiovascular conditions. Anyone who does outdoor physical activity during hot days with poor air quality is at increased risk for respiratory illness. Low-income people and people of color may also be at increased risk because these populations have a higher prevalence of chronic disease.”

In planning for Newton’s open space resource development, acquisition, and renovation, it is important to consider the equitable distribution of open space resources. Because of early development trends in the City, Newton has greater housing density around the Mass. Pike/I-90 corridor. Residents living there contend with more impervious surfaces, more heat island effect, and less access to natural areas and outdoor recreational facilities than the rest of the City. The local Community Development and Housing Office and Department of Parks, Recreation and Culture, aims to increase open space and recreation resources to the extent possible, subject to existing conditions and limited availability of land. To ensure the public health benefits of open space for all residents, an emphasis on planting shade trees and developing green spaces and areas for outdoor recreation is needed in the northern part of the City and the other heat island areas in the City. These improvements will not only benefit EJ communities but also native wildlife and local air and water quality.

Figure 9. Environmental Justice Communities and Open Space

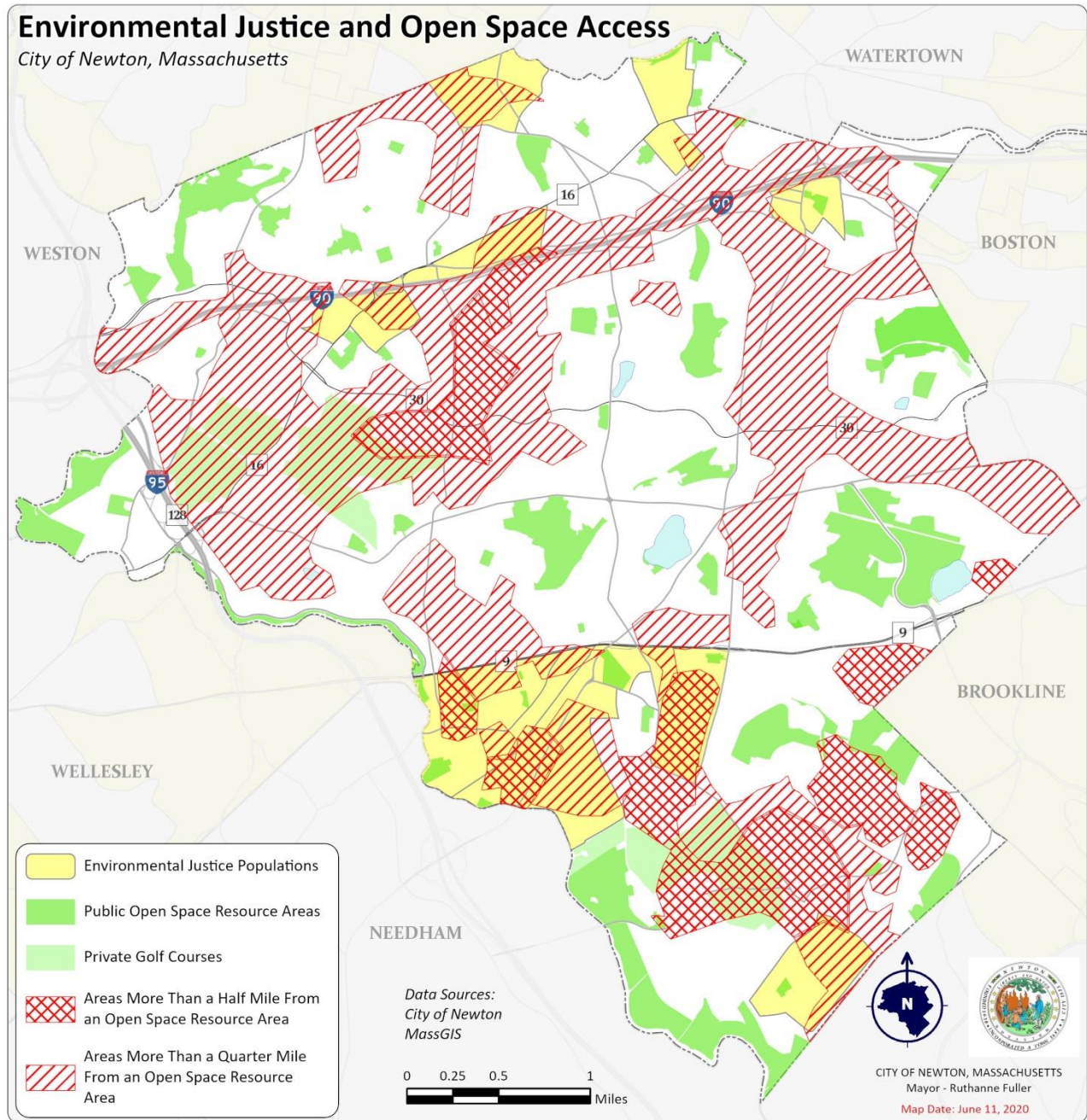
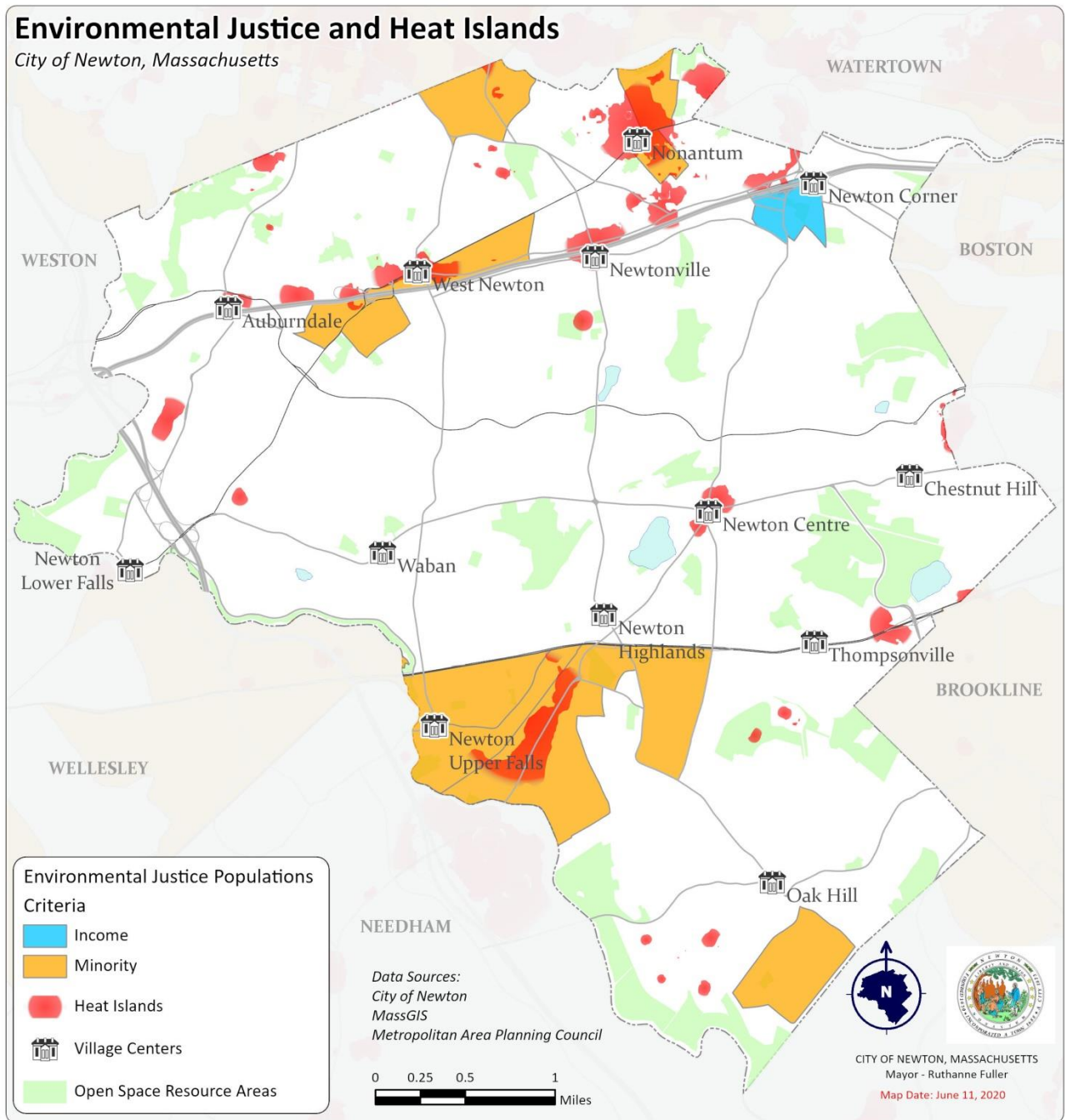


Figure 10. Environmental Justice Communities and Heat Islands



Education

Public Schools

The City of Newton prides itself on the quality of its public schools. Newton's school system comprises 15 elementary schools, four middle schools, two senior high schools, and two alternative high school programs located at the Education Center. The enrollment in October 2019 was 12,611 students. Enrollment is projected to decline by 1,482 over the next 5 years. Over 70 different languages are spoken within the student/parent population, and 6% of the students are English Language Learners. 424 Boston METCO students are enrolled in the schools; METCO is a voluntary program intended to expand educational opportunities, increase diversity, and reduce racial isolation by permitting students in certain cities to attend public schools in other communities. The Newton School Department's 2019-2020 operating budget is \$236,297,312. The approximate per pupil expenditure in 2018 was \$19,395.94 (MA Department of Elementary and Secondary Education) and ranks among the highest per pupil expenditure in the state. The average class size in elementary classrooms is 20.8 students; middle school is 21.7; and high school is 22.2 (Newton Public Schools). All playgrounds, playing fields, and athletic fields affiliated with the public schools are maintained by the Parks, Recreation & Culture Department.

Private Schools

Newton is home to many private schools, including Newton Country Day School, Brimmer and May School, Mount Alvernia High School, Wellan Montessori School, The Chestnut Hill School, The Fessenden School, Solomon Schechter Day School of Greater Boston, Mount Alvernia Academy, Jackson Walnut Park School, Learning Prep, and Dearborn Academy.

Colleges

As in many communities across the country, Newton has experienced institutional changes as some smaller colleges, struggling with lower enrollment and rising costs, have closed. It is difficult to predict future changes, due to the recent transitions, and their related impacts on open space. As campuses are in flux and schools change hands, zoning regulations that limit impervious surfaces and require stormwater management could help to limit detrimental environmental impacts, should these campuses be developed differently.

- **Boston College.** Offers on-campus studies and on-line programs in the Jesuit tradition.
- **Lasell University.** Offers on-campus and on-line graduate and undergraduate programs. (Lasell University).
- **Mount Ida Campus of U. Mass Amherst.** The 72-acre campus was recently acquired by U Mass, and planning for its future use is underway.
- **Andover Newton Theological School.** The oldest graduate school in the nation. Formally joined with Yale Divinity School in 2017. The campus was sold to Winthrop Park School, Inc. an educational entity affiliated with billionaire investor and developer Gerald Chan ("Foundation tied to billionaire Gerald Chan," *John Hilliard, Boston Globe, June 30, 2017*). Newton has proposed that its zoning be changed to Campus zoning as part of the City's zoning redesign process.
- **Hebrew College.** Sold its Newton Centre campus to Winthrop Park School, Inc. in 2018. A graduate school dedicated to Jewish learning. Newton has proposed that its zoning be changed to Campus zoning as part of the City's zoning redesign process.

Housing

Newton has a high rate of owner-occupied housing. Of the 30,952 occupied housing units identified in 2018, 71.5% were owner-occupied, and 28.5% were renter-occupied (US Census 2018 ACS 1-Year Survey). The number of renter-occupied units has decreased by 3.1% from 2010.

The median sales price for a residential unit continues to increase; they rose from \$730,885 in 2010 to \$1,003,800 in 2020 (Zillow). The value of Newton’s housing market has increased steadily over the past few decades; Newton was one of the few communities in the country that did not experience a housing downturn during the 2008 recession.

According to the Newton FY 2016-2020 *Consolidated Plan for Housing and Community Development* (73), approximately 97% of Newton’s affordable units are rentals. Most of these units are for seniors and residents with disabilities.

Recent Housing Development

Until recently, development in Newton has been the subdivision of larger lots, accommodating accessory apartments, undertaking in-fill development, and undertaking demolition and redevelopment of single-family houses.

Current development projects tend to be focused on the principles of smart growth and transit-oriented development (TOD) to densify housing, increase pedestrian connections, and increase downtown networks.

Newton’s 2011 *Comprehensive Plan* includes the goal to “balance conservation and development needs through procedures linking development with open space considerations as part of the permitting process. Consider allowing, for example, increased density (whether dwelling units per acre or commercial floor area ratio) in exchange for open space provided in excess of required minimums” (7-6).

Given the average high cost of living in Newton and the relative dearth of affordable housing, the City qualifies for 40B housing development projects. 40B housing developments are given greater flexibility regarding local ordinances (such as those that affect density), in exchange for ensuring that 20-25% of the new housing units will be affordable. Though no current 40B projects result in open space losses, the City should continue to work to ensure that future developments retain and even expand existing green spaces that mitigate heat islands, clean the air, filter stormwater, and provide access to open space resources wherever possible.

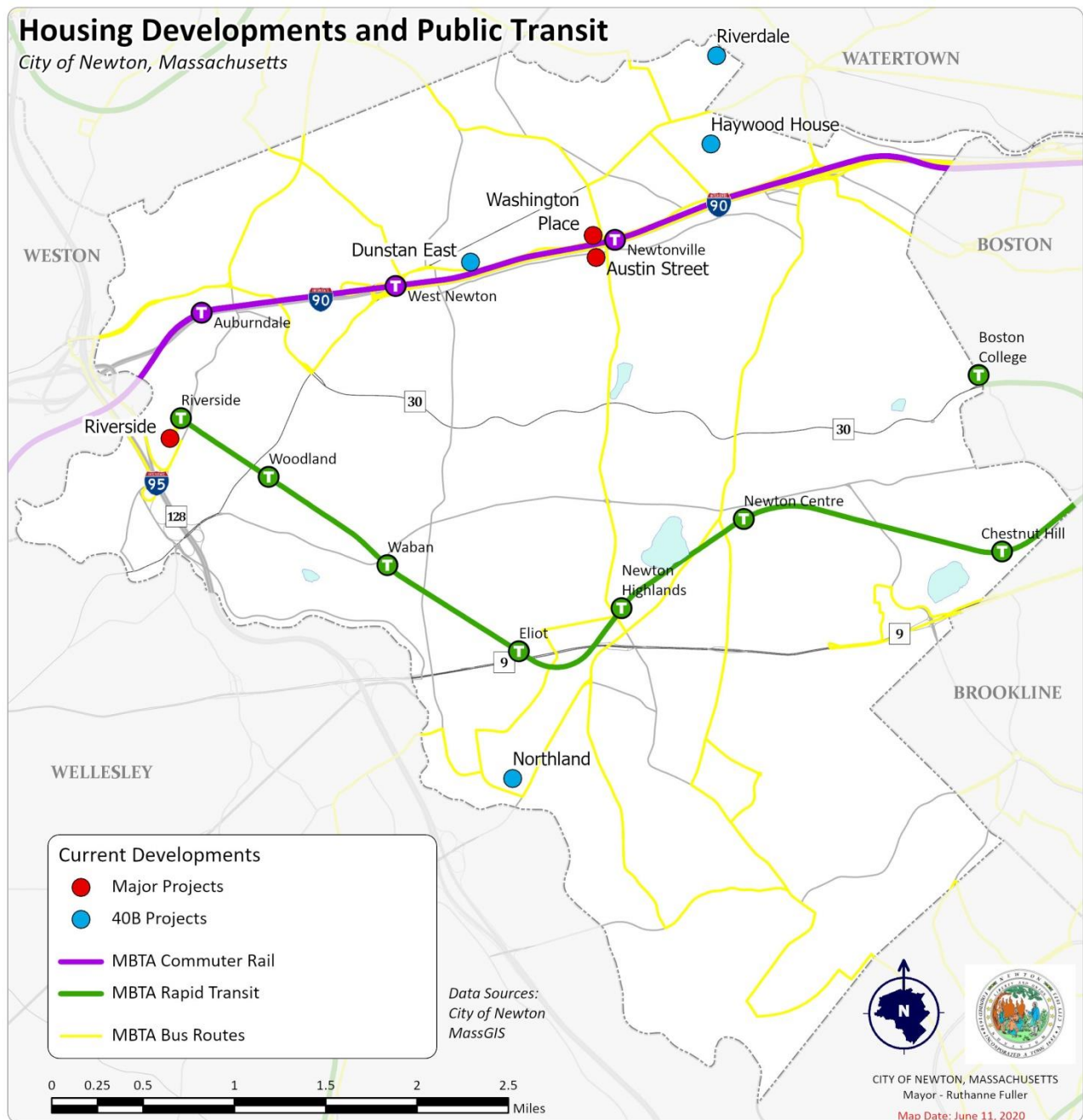
Current 40B development projects (by right and by Comprehensive Permit in accordance with Chapter 774 of the Acts of 1969, M.G.L., Chapter 40B, Sections 20-23) (see **Figure 11**) include:

- **Dunstan East:** 243 rental housing units with 61 affordable; near Washington Street
- **Riverdale:** 204 rental housing units with 51 affordable at 15 Riverdale Avenue
- **Haywood House:** 55 rental housing units with 32 affordable at 83-127 JFK Circle

Other high-profile current or proposed developments in Newton at the time of writing this Plan include:

- **Washington Place:** 140 housing units with 21 affordable units in “the Orr Block” at Washington Street and Walnut Street.
- **Riverside:** large mixed-use development project on a portion of the Riverside MBTA parcel with easy access to the green line subway. The project will include approximately 524 housing units, 547,000 square feet of office space, 65,000 square feet of shops and retail, a new 200 room hotel (replacing Hotel Indigo), an outdoor amphitheater/public park, and a new garage with roughly 3,000 spaces.
- **Northland:** 800 housing units, with 180 affordable units, street-level retail, central parking, and public open spaces, on Needham and Oak Streets.

Figure 11. Housing Developments and Public Transit



Business and Employment

There are 3,742 business establishments in Newton employing over 40,000 people. From 2016-2017, employment in Newton increased by 1.24% from 44,7000 employees to 45,300 employees (U.S. Census Bureau, ACS 5-Year Estimate.) In 2017, Newton’s unemployment rate was 3.7%, slightly below the 3.8% state average and 4.7% for the U.S. average (U.S. Census Bureau, ACS 5-Year Estimate.)

According to 2017 data available from the Massachusetts Department of Employment and Training, the major employment fields in Newton included: management (7,126 people); education instruction and

library occupations (5,006 people); and health occupations (4,131 people). The 2007 *Comprehensive Plan*, using US Census data from 2000, reports that 29.5% of workers living in Newton commute to Boston, 27.4% work in Newton, 6.9% commute to Cambridge and the remaining commute to surrounding towns. The *Comprehensive Plan* does not predict major job growth in the City, instead, it focuses on promoting a, “Flexible Moderate Growth economic development program for Newton which involves preservation of Newton’s residential amenities, strengthening of business in Newton’s village centers, and promotion of commercial development along Newton’s commercial corridors. (p. 6-7)”

D. GROWTH AND DEVELOPMENT PATTERNS

Development Patters and Trends

Newton’s total area is 18.15 square miles, or 11,733 acres. This includes 11,457 acres of land and 276 acres of surface water. Currently about 80% of Newton’s total land area is considered developed and roughly 20% is open space; 60% of Newton’s open space is in public ownership.

Current land use in Newton, sourced from the National Land Cover Database and MassGIS (2016) (**Figure 12**), illustrates that Newton’s land is primarily dedicated to residential housing (mostly single and multi-family residential housing) (**Figure 13**). Historical transportation advancements contributed to Newton’s growth into the fully developed residential City and created the patterns of development we see today. Housing and commercial development densities, and their accompanying impervious surfaces, are greatest around the Mass. Pike/I-90 corridor in the northern part of the City and around the former mill and industrial areas of Newton Upper Falls and Newton Lower Falls; housing and commercial development is less dense in the central and southern parts of the City, where development happened later. Areas with the heaviest industrial and commercial uses are coincident with Newton’s Environmental Justice minority populations.

Newton’s protected open space resources are widely distributed but tend to be sited in areas less ideal for development, such as poorly drained lowlands, steep slopes, and wetlands and are more heavily represented in the central and southern part of the City.

The largest blocks of unprotected open land lie on the western and southern edges of the City.

Almost 20% of the City’s land area is owned by educational, religious, non-profit, and governmental institutions that are campus-based. While there is little opportunity for existing institutions to acquire new land in Newton, current parcels are experiencing heavier use and undergoing building and infrastructure expansions. In the past decade Newton-Wellesley Hospital has renovated and expanded some of its facilities, including the construction of a new Emergency Department, Surgical Center, and parking garage. Boston College has constructed a 183,000 square foot academic building for humanities studies, which opened in January of 2013. Lasell University has constructed multiple dormitories to house over 340 students, while renovating and expanding administrative offices and classroom space. Religious institutions that have expanded or built new places of worship include Congregation Shaarei Tefillah, which constructed an 8,000 square foot addition onto an existing ranch house, and Beth Menachem Chabad, which constructed a new 12,214 square foot facility.

Figure 12. Land Cover

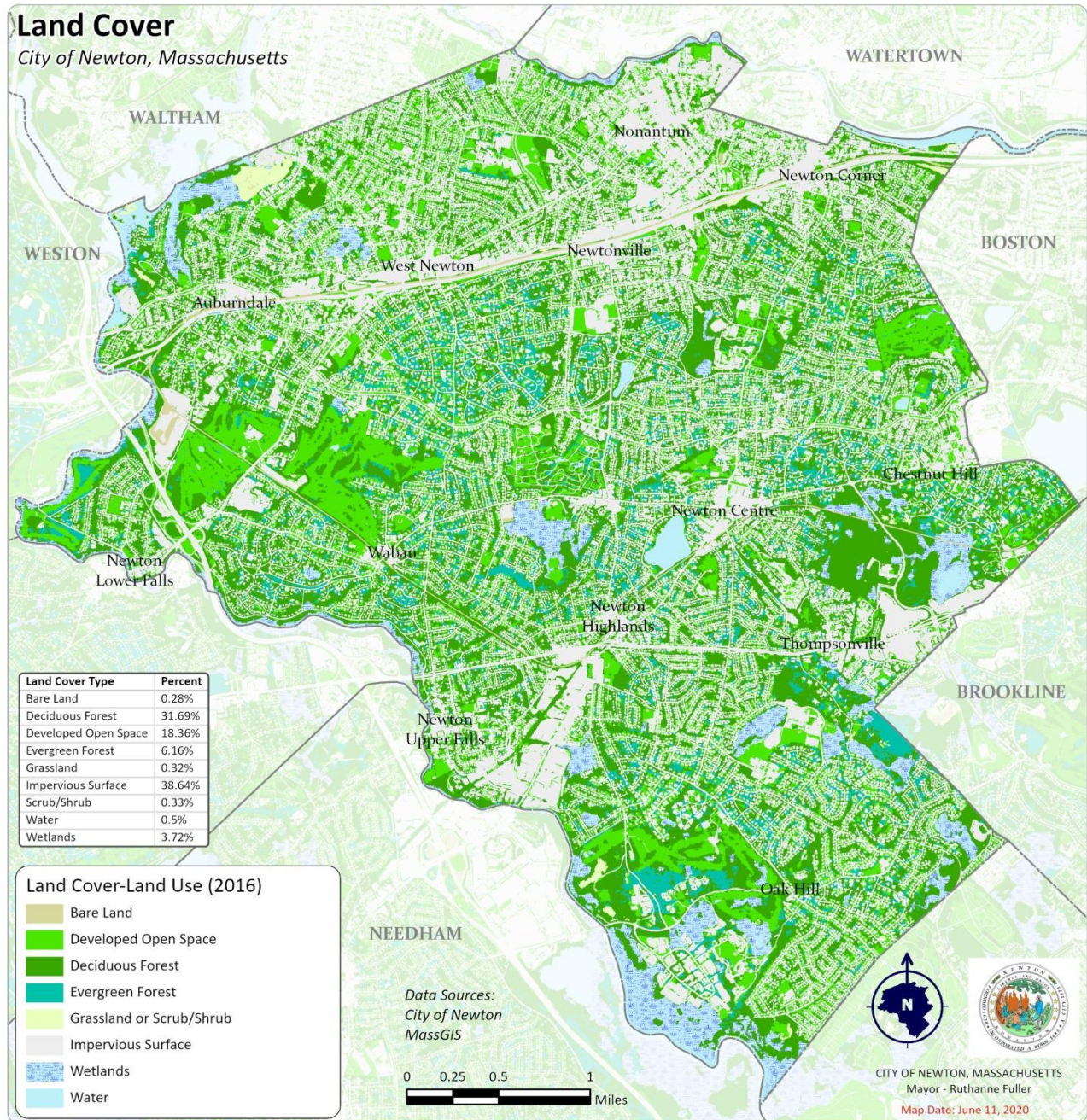
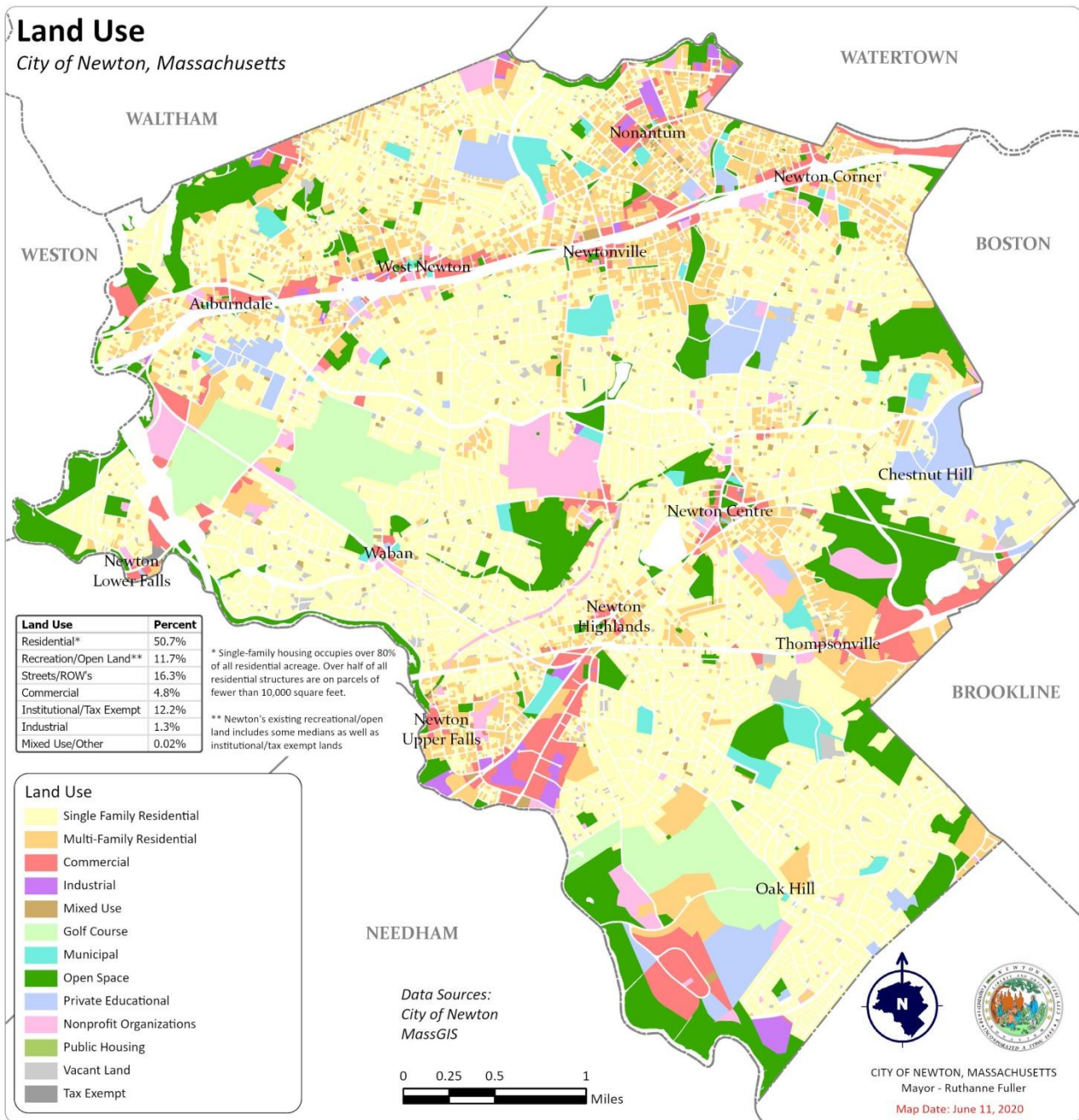


Figure 13. Land Use



Newton lacks a distinct downtown and instead contains the 13 villages of Auburndale, Chestnut Hill, Newton Centre, Newton Corner, Newton Highlands, Newton Lower Falls, Newton Upper Falls, Newtonville, Nonantum, Oak Hill, Thompsonville, Waban, and West Newton, all of which have their own unique and distinct character. While the villages in the southern and central part of the City have relatively more large natural open space parcels than villages in the northern part of the City, they do not necessarily have relatively more recreational park facilities: Oak Hill, Thompsonville, and Chestnut Hill, which are all located in the southern part of the City, are relatively lacking in park facilities. Maintaining Newton as a community of villages and providing a “small-town feel” in an otherwise well-developed environment is essential to preserving the special character and sense of community that are chief among the City’s planning values.

Newton’s *Comprehensive Plan* was adopted by the Board of Aldermean in 2007, with amendments for mixed-use centers added in 2011, and amendments to the Washington Street Vision Plan added in 2019. Newton’s *Comprehensive Plan* sets forth a clear intention for “smart growth” principles, including support for transit-oriented development, development-oriented transit, and smart growth zoning that reflects infrastructure and walkability, land conservation, and applying strategic planning to nodes and corridors, such as Route 9/Boylston Street, Needham Street, and the Riverside MBTA site. Smart growth is about “growing where it makes sense: in and around central business districts or traditional city or town centers, and near transit areas. It is about growing where there is existing infrastructure and utilities, with increased pedestrian access to schools, civic facilities, retail and employment centers, and other destinations” (*Newton Comprehensive Plan*, 15).

Infrastructure

Roadways

The City contains approximately 300 miles of City streets. Most of the streets are owned and operated by the City’s Department of Public Works.

The Mass. Department of Conservation and Recreation owns Nonantum Road, Quinobequin Road, and Hammond Pond Parkway. Both Nonantum Road and Quinobequin Road run near the Charles River, and Hammond Pond Parkway runs through Hammond Pond Reservation and Webster Conservation Area.

MassDOT owns and operates Needham Street, Boylston Street (Route 9), Route 128 (I-95), and the Massachusetts Turnpike (I-90). (**Table 2**).

Most of the primary roadways in Newton traverse the City from east to west and carry large volumes of traffic going to and from Boston and outlying suburbs. Newton contains three major north-south routes: Centre, Walnut, and Chestnut Streets, which primarily carry intra-city traffic.

Freeway	Avg. Daily Traffic Count
Interstate 95 (Route 128)	150,000
Interstate 90 (Mass Pike)	120,000
Route 9	49,350

Public Transportation and Ride Share

Newton has been a well-connected community since its early days and continues to be so today. The advent of rail service to Boston in the mid-1800s contributed to the growth of Newton’s villages, and the subsequent rise of the automobile made the rest of the City accessible.

MBTA: The MBTA provides public transportation service in Newton, including stops on the Green Line (light rail), stops on the Worcester Line of the Commuter Rail system, as well as local and express bus routes. The D Branch of the Green Line connects stations at Riverside, Woodland, Waban, Eliot, Newton Highlands,

Newton Centre and Chestnut Hill, with Brookline and Boston. The MBTA Commuter Rail connects Auburndale, West Newton, and Newtonville with Back Bay and South Station, as well as points west. MBTA bus service covers many of the primary roadways of the City, while express buses provide service to and from Boston. Several areas of Newton have few or inadequate public transportation options due to limited bus routes and a lack of safe connections to train stations.

The MetroWest Regional Transit Authority operates a public shuttle service between Framingham and Woodland MBTA Station.

Wells Avenue Shuttle: Newton recently received a \$250,000 grant from MassDOT to start a shuttle service between the three mass transit lines of Newtonville, Needham Heights, and Newton Highlands as well as the Wells Avenue business district area, which includes the Mount Ida Campus of UMass Amherst. This new Wells Avenue shuttle service is set to begin by Fall of 2020. The shuttle will allow many employees who live close to MBTA lines and students who attend Mount Ida to increase their use of public transportation (“New Shuttle Bus System Will Serve Wells Ave, Mount Ida Campus”, 2020).

Newton-in-Motion: One of Newton’s newest transportation systems is Newton-in-Motion (NewMo) initiated in 2019 for residents age 60 and over. Subsidized by the City, NewMo is a low-cost, on-demand ride-share system like Uber and Lyft, primarily for medical appointments or trips to the Senior Center.

Bike Share: The LimeBike bike share program gained prominence recently in Newton. Lime Bike is a transportation company that runs electric scooters, electric bikes, pedal bikes, and car sharing systems. Lime Bike allows riders to pick up and drop off vehicles and bicycles using a smartphone app and is ideal for out of town visitors and for residents who do not own bikes. However, with Lime Bikes transitioning away from bikes to their more popular scooter offering (which is not permitted in Newton), the City has received grant funding to transition to the Blue Bike system, operated by Lyft.

Newton Leads 2040

In 2017, the City commissioned *Newton Leads 2040: A Transportation Strategy Plan* which drafted a bicycle network plan, implementation of which is still being undertaken. The effort began in Fall 2015 to identify needs and gaps in Newton’s transportation system. The top priorities of this plan are to improve road quality; improve driver experience and safety; enhance safety and visitor experience in business areas and village centers; increase bicycle use and safety; offer shuttle service to Newton residents and businesses; and provide convenient parking. Summarized into main themes, the plan describes the need for transportation to be safe, smart (using technology and data-driven solutions to adapt to current transportation needs), accessible, livable, and sustainable. Each section of the plan contains a list of existing transportation conditions and strategies or proposals which are mapped. The plan includes explanations of how the strategies will be implemented, financial implications, and a rough timeline.

Connectivity to Open Space

Connectivity to and between open space resources via safe and connected bike and pedestrian trails, sidewalks and multi-use paths was raised as an interest during the two community meetings and in responses to the online Open Space and Recreation Survey (outlined in further detail in Section 6: Community Vision). People’s interest in connectivity is related to growing concerns about climate change, increasing knowledge about required improvements for accessibility, and their concern about increasing congestion on City streets. Newton maintains 125 paved paths, roughly 5,000 sidewalks, and 19 protected bike lanes. Newton currently has 12 boardwalks and 41 miles of nature trails and open space pathways, predominantly in large open space parcels. Most of these are short and are often disconnected from each other. Improving bike and accessible pedestrian connections to natural areas, schools, and parks is a priority for residents and would allow for greater access to Newton’s wide array of open space resources.

Bike/Pedestrian Links

Newton Leads 2040 proposals aim to both connect underserved parts of the City to large natural areas and to connect villages to each other. Village centers are a unique aspect of Newton and appreciated by community members, but they can also feel like separate and isolated entities, especially to residents without a car. Creating a multi-modal transportation network would allow residents easier, low-carbon access to all of Newton’s resources (**Figure 14**). Identifying conflict locations (shown in purple squares) between pedestrians, cyclists, and vehicles to increase safety, along with increasing bike (shown in dark and light blue) infrastructure and accessible pedestrian access, supports the transition to a low-carbon transportation system and improves the health of residents.

Road Infrastructure and Safety

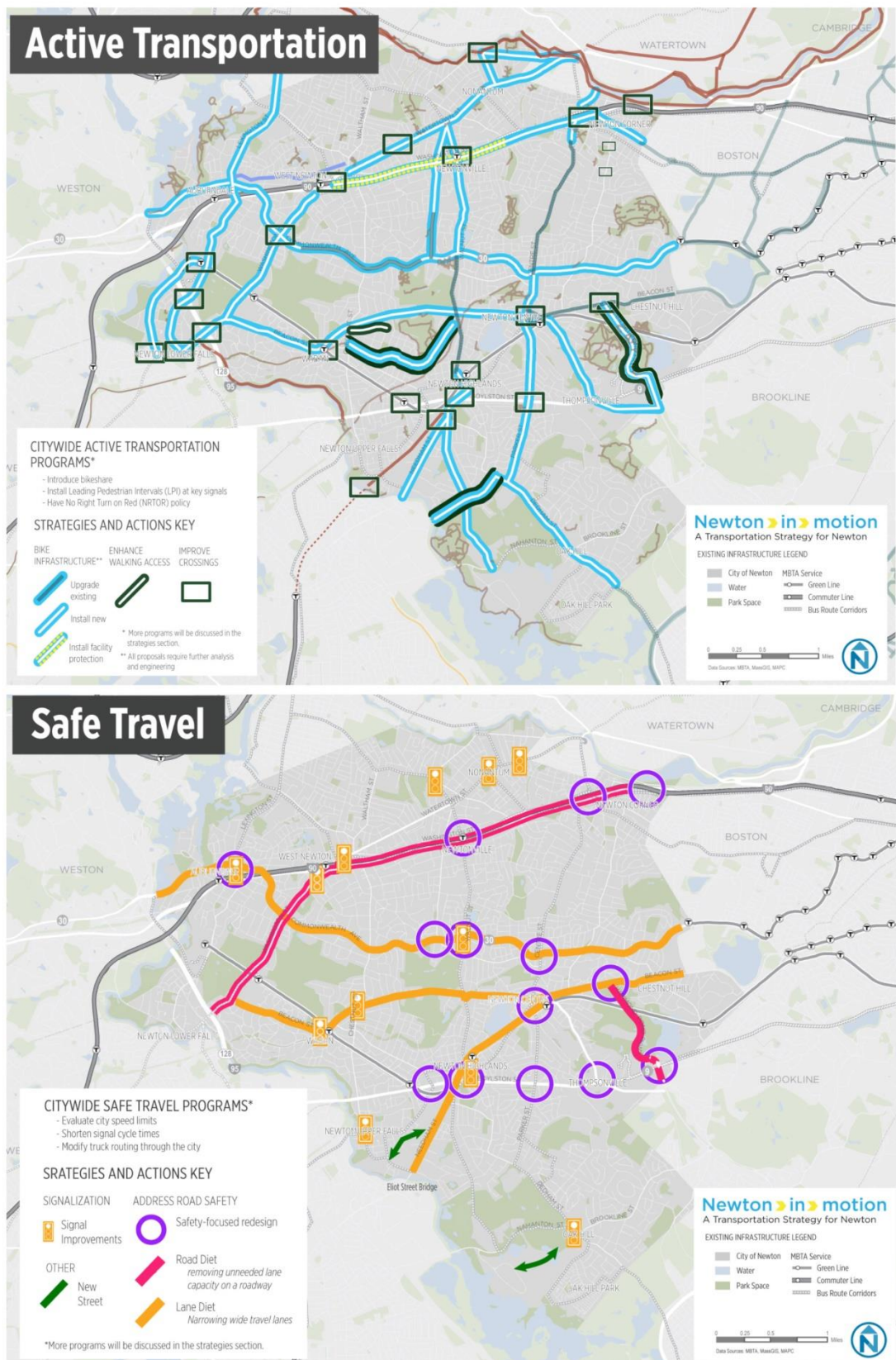
To enhance linkages and connectivity, road designs need to accommodate accessible pedestrian usage. The City has outlined safety and road design improvement concepts in *Newton Leads 2040* (**Figure 14**), the *Newton Street Design Guide* (2018), and *Newton’s Complete Streets Policy* (2016). “Complete Streets” is a transportation policy that requires all streets to be safe, accessible, and convenient for all modes of travel. Residents are more likely to walk to places where they feel safe; even if walking might be convenient because of short trip distances, dangerous walking conditions keep people from walking. Safety improvements include adding (and repairing) sidewalks or dedicated bike lanes, incorporating accessibility improvements, incorporating traffic calming components such as curb bump-outs, adding crosswalks and crosswalk signals, reducing vehicular speed limits, and installing signs. The *Newton Street Design Guide* also includes efforts to decrease erosion along roads, curb stormwater runoff, and increase tree plantings along roads, which not only makes walking more pleasant for residents, as they are shaded and more isolated from oncoming traffic, but also narrows streets to allow for safer vehicle speeds while accommodating the same traffic loads.

According to *Newton Leads 2040*, most pedestrian and vehicle accidents in Newton occur near the Mass. Pike/I-90, Washington St., Route 9, and along Commonwealth Avenue. **Figure 14** shows locations identified for safety improvements. One strategy for decreasing accidents is reduced lane width, which lowers vehicle speeds and allows for easier pedestrian crossing (*Newton Leads 2040*, 34).

Newton’s Water System

Although for many years the wells in what is now Cutler Park in Needham and the adjacent floodplain in Newton supplied part of the City's drinking water, now almost 100% of the City's water supply and wastewater removal needs are accommodated by the Massachusetts Water Resources Authority (MWRA). In 2013 the City began a capital improvement planning effort to help ensure the integrity of the water distribution system to enhance safety for all City residents. The City developed the “City of Newton Underground Infrastructure Strategic Improvement Plan (UISIP)” to address: infiltration and inflow (i/i); sewer back-ups and overflows; steadily increasing MWRA sewer assessments; approximately 165 miles of unlined corroded cast iron water pipe; fire flow deficiencies; and increasing federal requirements for stormwater management. The UISIP created: an 11 -year plan to investigate repair seal, re-line the City’s sewer system (\$49m); a 10-year plan to investigate, replace, clean and line the City’s water system (\$40M); a re-structuring of the City’s stormwater fee; and development of a Master Plan for Capital Projects.

Figure 14. Active Transportation and Safety Improvement Recommendations (from *Newton in Motion*)



Newton's Sewer System

The City is working in cooperation with the MWRA to make significant investments in upgrading and maintaining its aging sewer and stormwater systems. Sanitary and storm sewer lines in the City allow infiltration of ground water to seep into the lines. In 2011 the City's Utilities Division removed 12 sewer-under-drain connections along Commonwealth Avenue and repaired/replaced 15 sewer service connections throughout the City. In addition, the City cleaned and televised over 18 miles of sewer main and 72 service connections, completed 27 repairs of storm drains, repaired and cleaned over 6,000 catch basins. Finally, the City cleaned approximately 15 miles of storm drains, inspected 112 storm water outfalls, and collected outfall samples at 75 locations to test for the presence of contamination. The City continues with the water quality sampling and investigation program for 143 storm water outfalls to help target illegal connections to the stormwater system while enhancing water quality in the Charles River.

Newton's Stormwater System

Newton's drainage system consists of 320 miles of pipe, 12,750 storm drains (also known as catch basins), 384 outfalls, 14 miles of stream, 2 pump stations, 14 ponds and one lake, Crystal Lake. The Department of Public Works manages our drainage system, also known as a Municipal Separate Storm Sewer System (MS4) because we have separate systems to handle the City's wastewater and stormwater collection. See **Figure 15**.

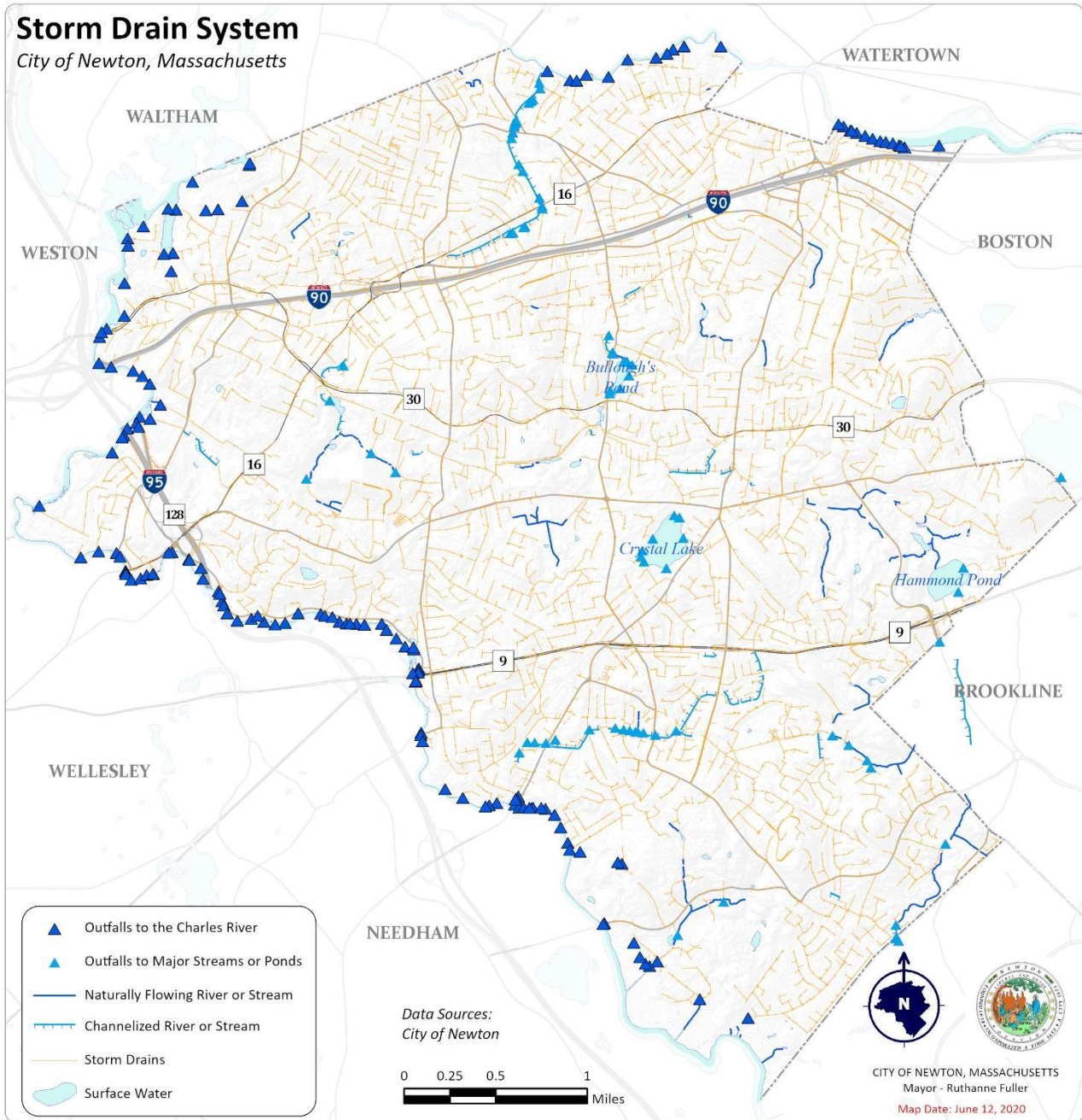
It is a big job to maintain all this infrastructure and comply with the MS4 Federal permit requirements. Newton accomplishes this through its stormwater fee program where property owners pay a fee commensurate to their impact on our system. For simplicity, all residential homeowners pay a flat fee of \$75 per year; all other property owners pay based on the amount of impervious area on their property.

The City is authorized to discharge stormwater through the National Pollutant Discharge Elimination System (NPDES) General Permit for Small MS4's in Massachusetts. The US Environmental Protection Agency (EPA) oversees the NPDES program with support from the Massachusetts Department of Environmental (MaDEP). To comply with the permit, the City must follow six Minimum Control Measures (MCM).

- **MCM 1. Public Education & Outreach:** Provide educational material about stormwater to four audiences (residents, industry, commercial, and construction). The purpose of the educational material is to provide each audience with information about stormwater and how their actions may impact it.
- **MCM 2. Public Participation:** Provide an opportunity for the public to participate in the City's Stormwater Management Program (SWMP). Contact mrose@newtonma.gov if you would like to be notified when this will be available for review.
- **MCM 3. Illicit Discharge Detection and Elimination:** Find and eliminate sources of non-stormwater discharges (e.g. sewage) from the stormwater collection system. Part of this requirement includes development of a system wide stormwater drainage map.
- **MCM 4. Management of Construction Site Runoff:** Adopt an ordinance and procedures for site plan review as well as erosion and sediment control on construction sites that disturb one or more acres of land.
- **MCM 5. Management of Post-Construction Site Runoff:** Address stormwater runoff from new development and redevelopment projects that disturb one or more acres of land. The goal of this measure is to try to management stormwater where it falls and retain it on site. This control measure encourages the use of low impact design techniques and requires the retention or treatment of runoff on site using green infrastructure practices.
- **MCM 6. Good Housekeeping in Municipal Operations:** Implement good housekeeping practices in municipal operations such as vehicle maintenance, open space, buildings and infrastructure. The

permit requires street sweeping twice per year, optimization of catch basin cleaning, and pollution prevention at the DPW garages.

Figure 15. Storm Drain System



Newton, MA Like many communities, the City of Newton’s stormwater system is old and faces challenges related to stormwater quality and quantity; system maintenance and capital upgrades; localized flooding; and NPDES Phase 2 MS4 General Permit (Federal Stormwater Permit) compliance. Even though the City completes regular maintenance tasks such as grate clearing and catch basin cleaning, as well as a variety of stormwater projects, including water quality sampling, relatively little is known about the condition of the City’s 320 miles of drainage infrastructure. A comprehensive plan was required to understand the full range of current and future stormwater needs. The development of Newton’s Stormwater Infrastructure Improvement Plan in 2015 will allow the City to efficiently invest in infrastructure improvements to meet the City’s stormwater goals for 20 years. These include federal permit compliance; protection and improvement of local water quality; and investing in infrastructure improvements to reduce flooding and ensure an adequate level of service. Given these goals, the Stormwater Infrastructure Improvement Plan focuses on four types of projects: federal permit compliance, localized flooding, stream improvements and culverts.

Prioritization and Stormwater Infrastructure Improvement Plan Development Rating criteria and project grouping alternatives were developed for each Stormwater Infrastructure Improvement Plan project. The rating system was used as a basis to prioritize projects and develop the 22-year Stormwater Infrastructure Improvement Plan. Project prioritization is not always consistent with the rating system. For example, if a stream maintenance project was not highly rated individually but was critical to the success of a highly rated flooding project, the two (2) projects were grouped and will be completed together. Other adjustments were made to decrease total project cost through economy of scale. The requirements of the pending Federal Stormwater Permit play a significant role in the scope and prioritization of Projects. Permit work is prescriptive and must be completed in certain years. As such, the Stormwater Infrastructure Improvement Plan was built by scheduling the Federal Permit work first and adding other projects as the budget allowed. Funding has been set at \$1 million for the first five (5) years, \$1.5 million for the second five (5) years, \$2 million for the third five (5) years, \$2.5 million for the fourth five (5) years, and \$3 million for the last two (2) years. The entire cost of the 22-year Program is estimated at \$41 million (in 2015 dollars). Project prioritization will be re-evaluated in Year #6 of the Plan following collection of the additional condition assessment data.

Influences on Development and Long-term Development Patterns

Zoning

Newton’s land use patterns are closely related to the City’s *Zoning Ordinance*, last updated in 1987. By regulating permitted use, location, height, shape, density, and lot coverage of structures, the *Zoning Ordinance* influences the development and the character of the City. Written, “for the purpose of protecting the health, safety, convenience, morals, and welfare of the City,” Newton’s *Zoning Ordinance* regulates land uses through eighteen zoning districts across the City. Procedures for review and evaluation of proposed developments pursuant to the *Zoning Ordinance* establish Special Permit and Administrative Site Plan Review requirements.

Certain areas of the City are covered by the City’s Flood Plain/Watershed Protection Ordinance.

Single family residential development dominates the landscape, and multi-family residential and commercial development characterize the village centers, which developed in the dry, flat areas along the historic railroad corridors. Newton is currently revising its zoning ordinance, which was last updated in 1987. Since 2011 Newton’s Zoning & Planning Committee has been working to bring Newton’s Zoning Ordinance into compliance with the *Comprehensive Plan*. See **Figures 16, 17 and 18**. Phase 1 of the project, primarily a reformatting and reorganization effort, was completed in 2015.

The Newton Pattern Book 2018 shows land use and development patterns at a parcel-by-parcel level and outlines the major zoning changes that have occurred in Newton and how these changes will influence future trends in the City (*Newton Pattern Book 2018*, 2). New contextual zoning districts could support

“smart growth” principles that allow for variations in permitting that encourage denser development, wider sidewalks and greenways, and greater flexibility in protecting key open spaces, regardless of lot size.

On-going phase 2 zoning re-write efforts include:

- inclusionary zoning which is intended to increase the affordable housing stock in the City
- multimodal transportation initiatives, which is intended to increase bike and pedestrian activity.
- rezoning of the private country clubs from Single Family Residential to Recreation to reflect current use and restrict other uses.

Figure 16. Current Zoning (2020)

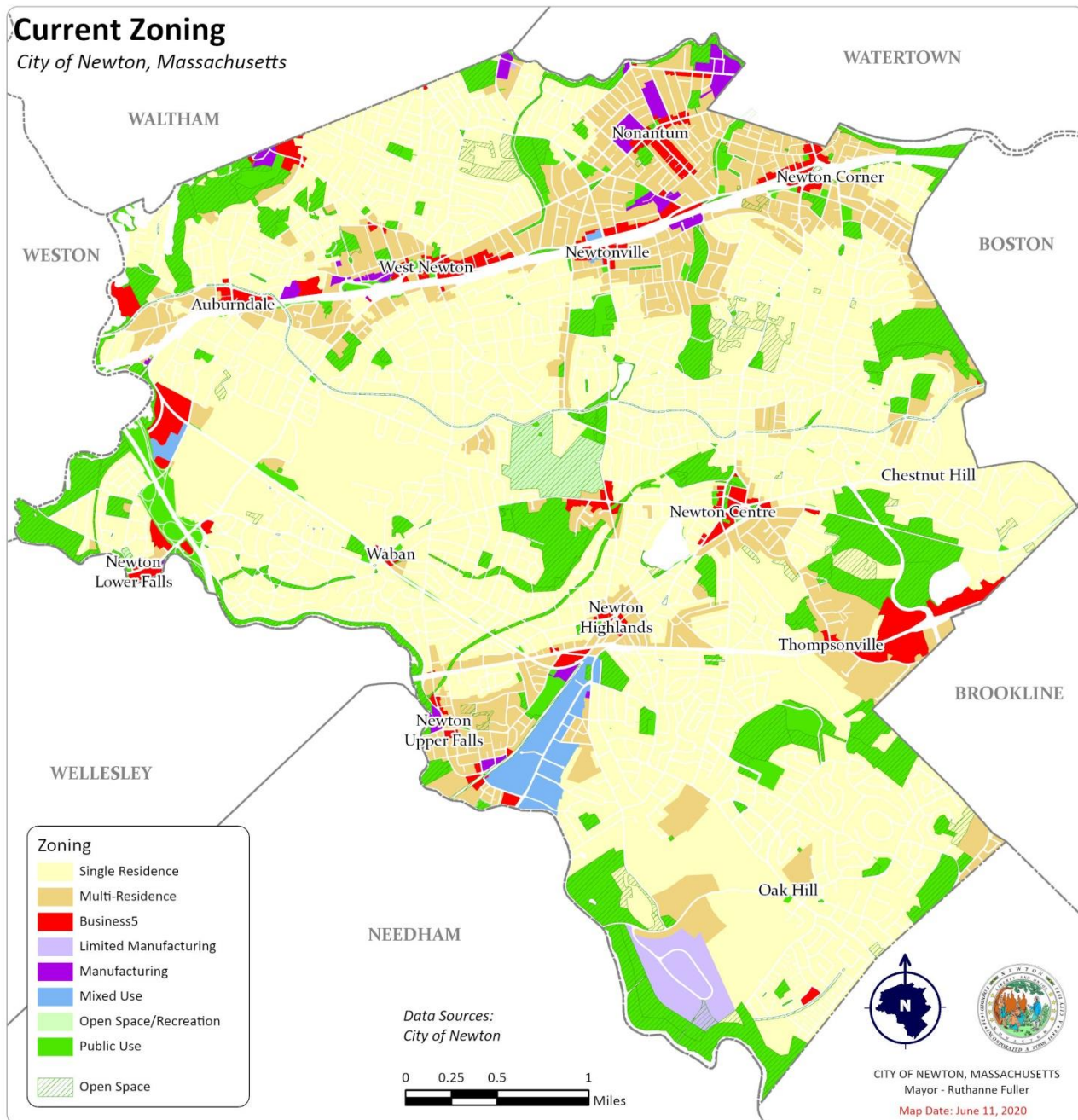


Figure 17. Proposed Zoning

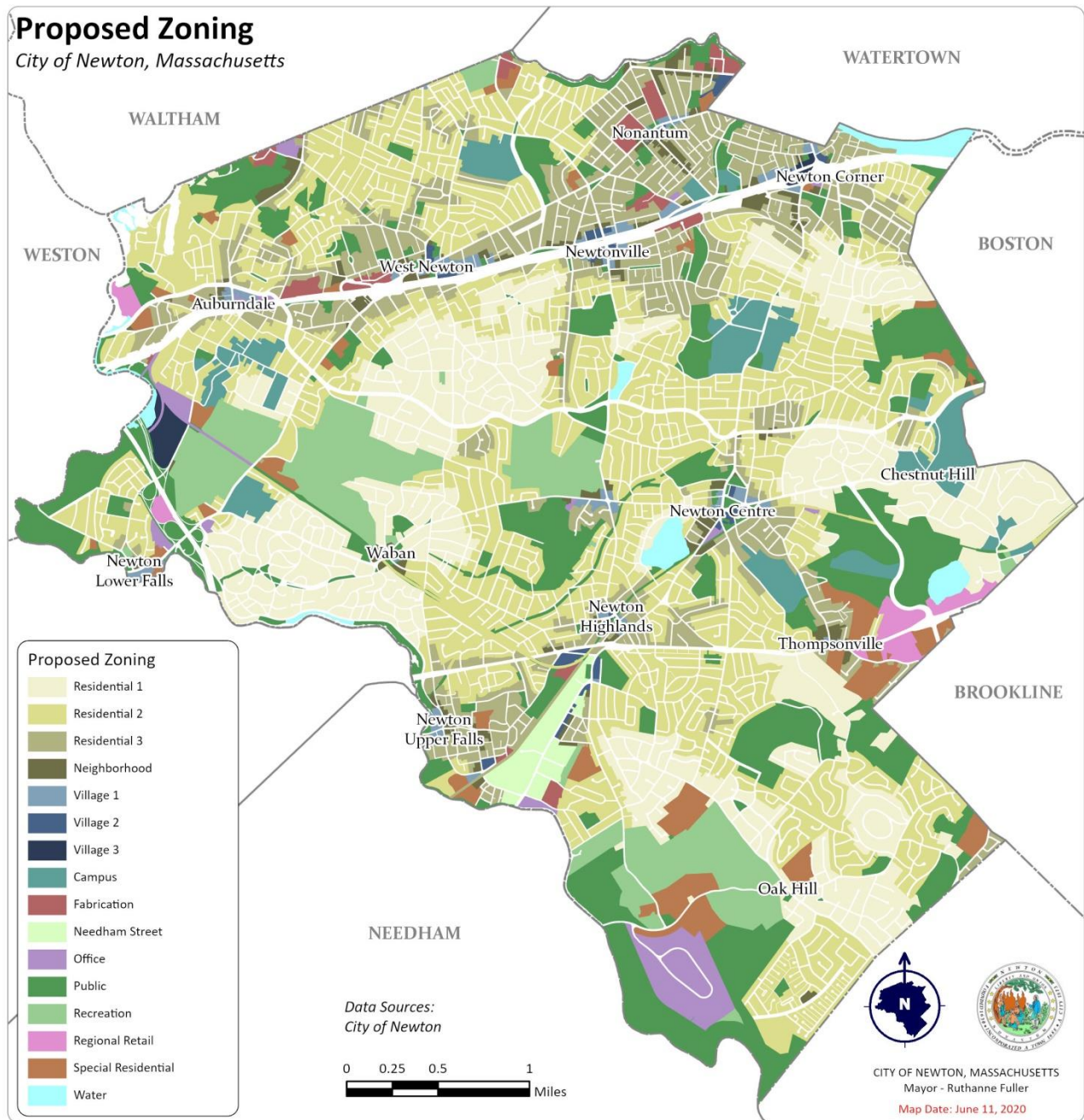
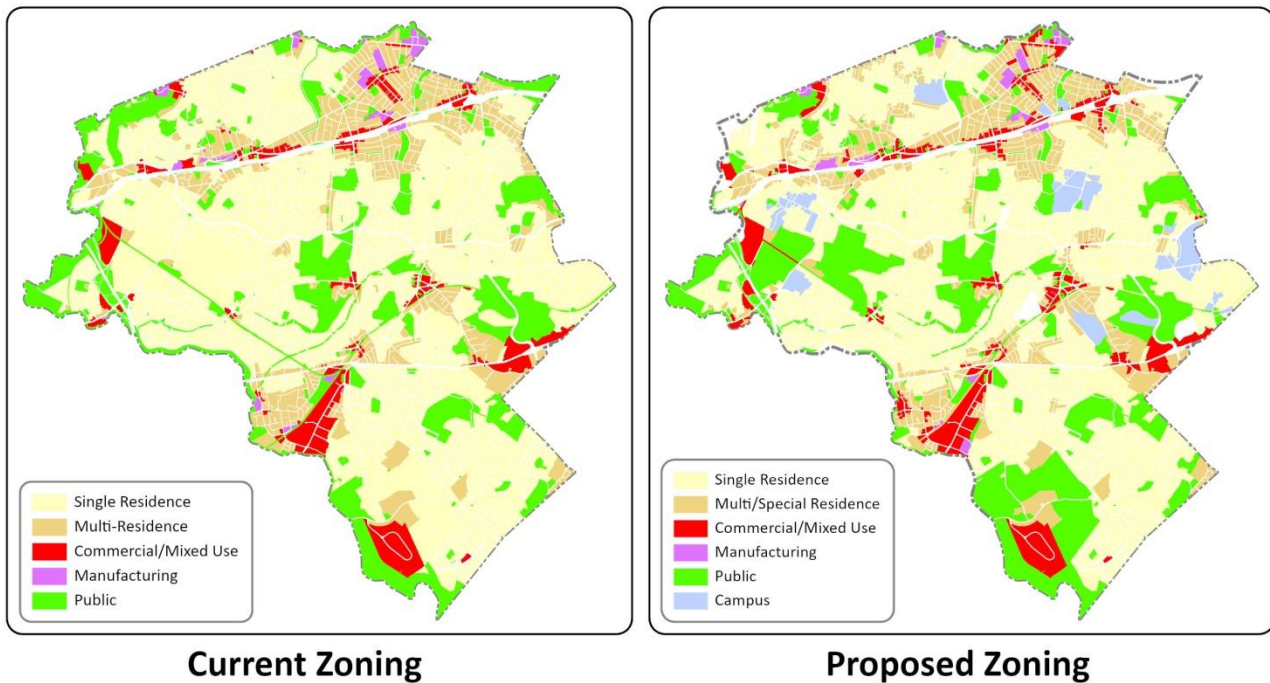


Figure 18. Comparison of Existing and Proposed Zoning



Demolition Review Ordinance

Another tool for regulating development in Newton is the *Demolition Review Ordinance*, adopted in 1985 to provide the opportunity to preserve historic structures. Demolition of any building that is 50 or more years old requires the approval of the City’s Historical Commission. If a structure is determined to be historically significant and preferably preserved, a one-year delay of demolition can be imposed to provide time to seek alternative preservation solutions such as altering and reusing the historic structure, or moving it to another location. The conversion of large older single family homes to a multi-family residences is allowed provided that there are no exterior alterations to the structure other than those necessary to comply with applicable health, building, and fire codes (*Pioneer Institute for Public Policy Research, 48*).

Sustainable Development Trends

As climate change escalates, the City is working to promote more sustainable development. Sustainable design certifications, such as LEED and Passive House (PHIUS), are being incorporated in all the pending development projects. LEED stands for Leadership in Energy and Environmental Design and is the most widely used green building rating system. Passive House is a voluntary standard for energy efficiency in a building, which reduces the building's ecological footprint, verified through the Passive House Institute of the US (PHIUS). Passive House buildings require little energy for space heating or cooling.

Projects pursuing LEED certification earn points for various green building strategies and, based on the number of points achieved, a project earns one of four LEED rating levels: certified (40-49 points), silver (50-59 points), gold (60-79 points), and platinum (80+ points). LEED points are awarded within the categories of Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality.

Other sustainable development strategies which Newton could implement on City-owned properties, and seek to promote through changes to zoning and financial incentives include, but are not limited to:

- Increasing development density in order to limit the total impervious footprint
- Constructing buildings that limit undesirable air and moisture exchange

- Transitioning to electrical utilities, which can be sourced from renewable generators (like hydro, wind, and photovoltaic/solar)
- Installing energy efficient appliances
- Providing public transportation options
- Providing on site services and amenities
- Increasing tree canopy and building lighter-colored roofs to reduce the heat island effect and lowering cooling costs
- Slowing and infiltrating surface water using green infrastructure, to reduce the volume of polluted runoff flowing directly into surface waters.
- Providing designated electric vehicle (EV) parking stalls and EV charging stations
- Supporting bicycle and pedestrian transit
- Reducing impervious surfaces
- Restoring native plant communities
- Using low-carbon and locally sourced materials.

Summary

Development in Newton is limited primarily by zoning regulations and land availability. In Newton’s 2007 *Comprehensive Plan* (3-5), an analysis of maximum build-out capacity was conducted for housing and commercial growth. The *Comprehensive Plan* predicted that for housing growth, “Whereas in 2002 about 31,700 housing units existed in the City, under current zoning rules and expectations of special permit approvals, no more than 35,200 housing units could reasonably be expected at “build-out,” an 11% increase. Variances, zoning changes, open space acquisition, and development exempt from zoning such as “Chapter 40B” development, might be expected to increase that somewhat over time, but probably not resulting in any increase above about a 15% growth above the 2002 figure (3-5)”. The *Comprehensive Plan* also showed, given current zoning, that increases in housing stock would most likely occur around and along major transportation corridors and in village centers. The biggest exception to this growth pattern is the potential development of the land owned by the private golf courses, which is currently zoned for Residential use. The *Comprehensive Plan* predicted that commercial growth has a capacity to grow from 10.8 million square feet of commercial and industrial floor area to 18.6 million square-feet, but that this level of growth was far more than was reasonably expected given an understanding of regional economic development.

Demographic factors limiting development in Newton are slow population growth, a declining household size, and an aging population.