

2019 – 2026 Medford, Massachusetts

Medford Open Space & Recreation Plan Update

Prepared for: **City of Medford, Office of Community Development** Mayor Stephanie M. Burke

Prepared by: **Metropolitan Area Planning Council** Boston, Massachusetts May 2019

Acknowledgments

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Section 1: Plan Summary

The 2019-2026 Medford Open Space and Recreation Plan (OSRP) updates and revises the 2011 Open Space and Recreation Plan approved by the Massachusetts Executive Office of Energy and Environmental Affairs. This document has been prepared to serve as a planning guide for the various City staff, committees, boards, commissions, and volunteer groups in Medford working to support open space and recreation. While acknowledging the financial constraints, dense development, and changing demographics that exist in Medford today, this plan seeks to offer opportunities for improving open space and recreation land in the city, as well as for developing actions to meet community goals.

This plan was prepared by the Metropolitan Area Planning Council (MAPC), which is the regional planning agency serving the people who live and work in the 101 cities and towns of Metropolitan Boston. MAPC prepared the plan under the direction of the Open Space and Recreation Committee and staff from the following City of Medford departments: Community Development, Department of Public Works Park Division, Recreation, and Energy & Environment. Additionally, this plan was funded by a Municipal Vulnerability Preparedness Grant from the Massachusetts Executive Office of Energy and Environmental Affairs in order to serve as a role model for incorporating climate vulnerability and green infrastructure recommendations into an Open Space and Recreation Plan. During the course of the OSRP update process, MAPC organized a series of focus group meetings, held two public forums, created a survey that was completed by over 500 people, and met numerous times with staff from the City of Medford.

The quality of life for Medford residents and residents of surrounding communities is enhanced dramatically by Middlesex Fells Reservation, Mystic River Reservation and the City's many neighborhood parks and playgrounds. An inventory of these areas is included in this OSRP as both an educational resource and as a base for the Seven-Year Action Plan (Section 9), which highlights open space and recreation priorities for the next seven years. The Action Plan provides detailed steps for achieving the plan's goals and objectives, including the relevant parties responsible, timeframe for achieving the action, and potential funding sources. This OSRP also includes an overview of the history of Medford, its physical development, demographic characteristics and an environmental analysis.

In addition to serving as a roadmap, an approved Open Space and Recreation Plan allows Medford to apply for specific types of grant funding for projects related to open space and recreation. With final plan approval from the Massachusetts Executive Office of Energy and Environmental Affairs (MA EOEEA) Division of Conservation Services (DCS), Medford is eligible for funding opportunities like the Local Acquisitions for Natural Diversity (LAND) and Parkland Acquisitions and Renovations for Communities (PARC) grants, which the City can use for land acquisition and improvement of parks and other open spaces. The City of Medford has developed six goals on which the OSRP is based:

- **Goal 1:** Serve the active recreation needs of all residents throughout Medford by expanding its open space resources and upgrading the conditions of existing facilities.
- Goal 2: Establish connections to and along the City's natural resources.
- **Goal 3:** Expand / diversify recreational programming for the City within the existing open space resources.
- **Goal 4:** Improve the ecological quality of the City.
- **Goal 5:** Develop a system for park facility management / maintenance.
- **Goal 6:** Strengthen Medford's climate change resilience through park and open space design and preservation.

Section 2: Introduction

Statement of Purpose

Why was this Plan Update Written?

The City of Medford's 2019 Open Space and Recreation Plan continues the work of previous open space plans completed by the City, updating and replacing the most recent version produced in 2011. This document will serve to guide the City's decision making around open space and recreation planning and implementation, including spending, for the next seven years. The Plan is designed to provide clearly defined open space and recreation priorities and goals, developed through a participatory public process, to ensure that the needs of the Medford community are met.

This 2019 Plan Update has been compiled in accordance with the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), Division of Conservation Services (DCS) requirements and guidelines. In order to be eligible for state and federal grant aid offered through the EOAA, an approved Open Space and Recreation Plan is required.

What is Open Space?

Open space is land that is undeveloped, usually without buildings or structures, and that is accessible to the public. Open space is typically divided into two categories: conservation lands and recreation resources.

Conservation land is usually left in its natural state and it is often, but not always, open to the public. Conservation lands may include animal and plant habitats, water resources/aquifer protection, and other natural, historical or cultural features.

Recreation involves activity. Active recreation activities include team sports, tennis, swimming competitively, golf, etc. taking place in or on developed facilities. Passive recreation is defined as any activity that can be performed outdoors with a minimum disturbance to an area's natural resources. For example, hiking, picnicking, canoeing, ice skating, cross country skiing, swimming in a natural water body, and informal sports activities on an open field are considered passive activities. Conservation lands can offer passive recreation opportunities.

This Plan inventories both active and passive recreation areas, as well open spaces such as cemeteries that serve as historical/cultural features. The Inventory of Medford's recreation and open space resources is in Section 5.

Planning Process and Public Participation¹

The City of Medford supported the development of this plan through the work of the Open Space and Recreation Plan Committee. The members of the Open Space and Recreation Plan Committee and their affiliations are listed below:

Open Space and Recreation Plan Committee Members

- Kevin Bailey, Recreation Department
- Reginald Graham, Park Commission
- Alicia Hunt, Energy and Environment
- Kenneth Krause, Citizen at large, Friends of the Mystic River
- Denis MacDougall, Conservation Commission and Board of Appeals
- Mike Nestor, Department of Public Works, Park Division
- Neil Osborne, Human Diversity Office
- Chenine Peloquin, Citizen at large, Playful Pelican
- George Scarpelli, City Council

City of Medford Supporting Staff

- Clodagh Stoker-Long, Office of Community Development
- Annie Streetman, Office of Community Development

During this Open Space and Recreation Plan process, the Open Space and Recreation Plan Committee, whose members represent the open space stakeholders in Medford, met regularly with Metropolitan Area Planning Council (MAPC) staff to review and contribute to elements of the plan and assist with community engagement.

In cooperation with the City of Medford, MAPC organized and hosted two public forums, on December 5, 2018 and February 27, 2019. Leading up to the community forums, the City of Medford and MAPC did extensive outreach to spread the word about the event. Event flyers were placed in public buildings including City Hall and the Medford Public Library, and flyers were hung throughout Medford: at recreation facilities, the Senior Center and Medford Housing Authority properties, and distributed through the Medford Family Network, Medford Chamber of Commerce, and Interfaith Ministry. Flyers were also sent to the City Council and various boards and commissions. Additionally, two Reverse E911 invitations were sent to the entire community one week and again two days before the meetings.

The event was further advertised on the City of Medford's website, social media, on the local cable access channel, and through City email listservs. Additional targeted outreach took place to

¹ Full documentation of the feedback collected through the various public participation strategies described in this section is included in Appendixes C, D, and E.

reach Medford's environmental community and users of the Recreation Department's programs and facilities. The materials were translated into Haitian-Creole, Spanish and Portuguese.

Both forums were held in the City Council chambers at Medford City Hall. At the December forum, the MAPC project planners provided an introduction to the purpose and utility of Open Space and Recreation Plans generally and presented an overview of Medford's social demographics, land use patterns, and select open space properties. The presentation also included an overview of the risks posed to Medford by the effects of climate change, and how park design and open space can contribute to the City's climate resilience. Members of the public in attendance were then engaged to complete a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of the city's open space and recreation resources. During the open house portion of the forum, attendees were asked to prioritize the Goals and Objectives included in the 2011 OSRP, as well as to provide feedback about what infrastructure and sites throughout the City they felt should be priorities for climate protection.

At the February forum, the MAPC project planners presented preliminary analyses of data drawn from park site visits and public outreach strategies, including focus groups and an online survey. A priority list of parks susceptible to climate risks, such as flooding and the urban heat island effect, was also presented, along with green design recommendations. Finally, highlights from the 2019 Open Space and Recreation Plan's seven-year action plan were reviewed. During the open house portion of the forum, residents were asked to prioritize and comment upon the specific recommendations listed in the Plan's seven-year action plan, as well as comment upon park design opportunities intended to ameliorate specific climate risks.

Medford residents and other open space stakeholders also had the opportunity to communicate their opinions and preferences through an online survey, administered from January 31, 2019 through March 15, 2019. The survey was designed to measure levels of agreement with value statements about Medford's open space, e.g. "Preserving Medford's open space and natural areas is important to me;" how frequently respondents visited particular open space properties; what factors limited their utilization of Medford's open space and recreation amenities; and the relative importance of particular actions relating to open space, e.g. construction of new neighborhood parks, planting more trees. In total, the survey received 540 responses.

Members of the MAPC project team also conducted focus groups with 11 organizations representing a diverse range of open space stakeholders: Medford Family Network, Medford Community Coalition, Vida Nova Baptist Church, Medford Recreation, Medford Senior Center, Medford Housing Authority, Medford High School, Medford Bikes/Walk Medford, Medford Arts Council, Mystic Valley Area NAACP, and the Medford Disability Commission. Discussions in the focus group sessions centered on which parks and open spaces attendees use most frequently, important issues they encounter while using the parks, and suggestions for how the City can improve its parks and recreation spaces and programming. Over 120 attendees were engaged through this targeted outreach. Key informant interviews with individuals representing youth sports and environmental advocacy organizations were also completed. Please see Section 7: Analysis of Needs for a more complete discussion of the data gathered through the described public participation process.

Enhanced Outreach and Public Participation

The Executive Office of Energy and Environmental Affairs (EOEEA) and other state agencies have been implementing an Environmental Justice (EJ) Policy since 2002 to help ensure that all Massachusetts residents experience equal protection and meaningful involvement with respect to the development, implementation, and enforcement of environmental laws, regulations and policies and the equitable distribution of environmental benefits. This policy was instituted because the Commonwealth realized that low to moderate income residents in densely populated older industrial areas often lack open space and recreation resources and may live near old, abandoned, and/or contaminated sites that can pose risks to public health and the environment.

Environmental justice is an integral consideration in all EEA programs, to the extent applicable and allowable by law. The Environmental Justice Executive Order No. 552 requires Secretariats to take action in promoting environmental justice. The Executive Order requires new environmental justice strategies that promote positive impacts in EJ communities.

For example, EOEEA has now amended the PARC and LAND program regulations to incorporate environmental justice in the award scoring system. Similarly, the Division of Ecological Restoration and the Massachusetts Environmental Trust will work with EOEEA to develop systems for incorporating environmental justice as a criterion for awarding grants. The EOEEA also has determined to target its resources to more effectively create, restore, and maintain open spaces located in neighborhoods where EJ populations reside.

Medford is one of 137 communities in the Commonwealth of Massachusetts that includes an Environmental Justice (EJ) population, as identified through analysis by MassGIS. EJ populations in Massachusetts are determined by the following criteria:

- Households earn 65% or less of the statewide household median income; or
- 25% or more of the residents are minority; or
- 25% or more of the residents are foreign-born; or
- 25% or more of the residents are lacking English language proficiency

The most recent analysis completed by MassGIS (Bureau of Geographic Information), using data from the 2010 Census and ACS 2010 5-year Estimates, identifies 20 block groups within Medford that meet one or more of the environmental justice criteria, including foreign-born, minority population, and income. Most of these areas are in the southern half of the City, along or approximate to the Mystic River and Malden River corridors. A map of the Environmental Justice block groups in Medford is included in Section 3: Community Context. In order to specifically engage the City of Medford's Environmental Justice populations, several focus groups were held with organizations who serve, or whose membership is composed of, low-income, minority, or non-English proficient residents. Organizations engaged through focus groups include the MVA NAACP, Medford Housing Authority, and the Vida Nova Baptist Church. Simultaneous translation services were provided at the Medford Housing Authority meeting, with an interpreter available for Haitian-Creole speakers, while the Vida Nova Baptist Church focus group was conducted solely in Portuguese. These conversations addressed ways in which the City of Medford can better serve its Environmental Justice populations in terms of communication and access to open space facilities and programming.

Promotional material for the two public forums were translated into Haitian-Creole, Spanish and Portuguese. Interpreters were also provided at these forums for attendees whose primary language is either Haitian-Creole, Spanish, or Portuguese.

Section 3: Community Setting

Regional Context

The City of Medford is a densely populated residential suburb community situated along the Mystic River in eastern Massachusetts (Middlesex County). It is located approximately five miles northwest of Boston and is bordered by Winchester and Stoneham to the north, Malden and Everett to the east, Somerville to the south, and Arlington to the west. See Figure 1.

The City encompasses a total land area of 8.22 square miles and is located entirely within the boundaries of the Mystic River Watershed, which is a sub-watershed of the Boston Harbor Watershed. Medford has several prominent water features including the Mystic Lakes which it shares with Arlington and Winchester, the Middlesex Fells Reservation which is shares with Winchester and Stoneham, the Mystic River which runs southeast from the Mystic Lakes across the southern third of the City and along the Somerville border and the Malden River which runs south along the Medford/Everett border.

Medford's natural resources offer scenic beauty as well as a variety of recreational opportunities such as swimming, boating, and fishing, hiking, picnicking, and biking. With the exception of a few privately owned parcels along the Mystic River, these exceptional, natural resources are owned by the Commonwealth's Department of Conservation and Recreation (DCR).

The DCR possesses ownership of 1,200 acres of open space in Medford which accounts for approximately 75% of all open space in the City. The Mystic River Reservation accounts for approximately 130 acres of this, and the remaining 1,100 plus acres are in the Middlesex Fells, which provides a unique recreational resource to the surrounding communities of Medford, Malden, Melrose, Stoneham, Woburn, and Winchester. According to the Massachusetts Bureau of Environmental Health, 32% of Medford's land mass is dedicated to forest, recreation, and open space. Permanently protected open space comprises 33% of the City's total land area.

Regional Planning Context

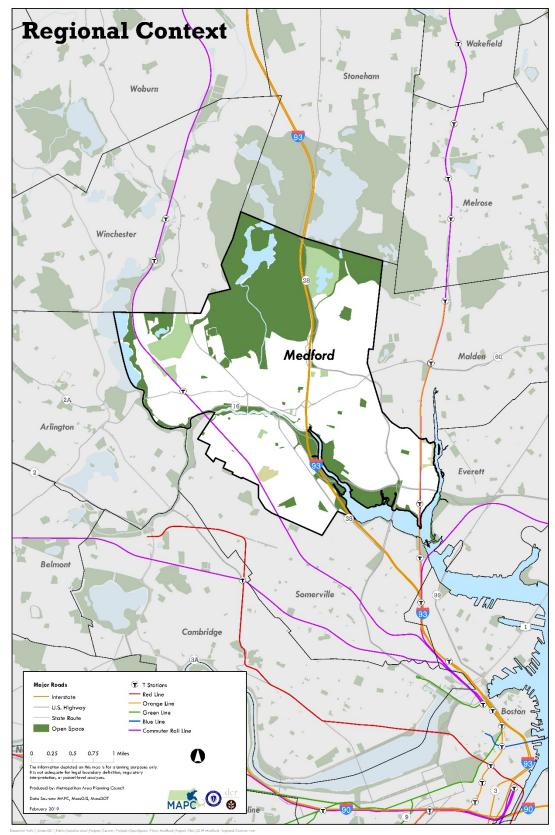
Medford is one of 101 cities and towns that are served by the Metropolitan Area Planning Council (MAPC), the regional planning agency for the Greater Boston region. Medford is a member community of the Inner Core Committee (ICC), one of eight MAPC subregions. Council membership consists of community representatives, gubernatorial appointees, and city and state agencies that collaborate around issues of regional importance. MAPC's professional planners, GIS specialists, demographers, and others provide extensive technical assistance to member communities through the development of comprehensive plans and recommendations in areas of housing, transportation, economic development, public health, environment, and more. In 2008, MAPC adopted a comprehensive plan for the region with goals through 2030 entitled MetroFuture. MetroFuture guides the work of MAPC agency-wide and every project MAPC undertakes works towards reaching these goals. Many MetroFuture goals are applicable to the Medford Open Space and Recreation Plan, including:

- **Goal 3:** Brownfields and other polluted sites will be cleaned up and re-used for parks or development.
- Goal 8: Historic resources will be preserved and enhanced.
- Goal 9: The region's landscape will retain its distinctive green spaces and working farms.
- Goal 11: The region will be prepared for and resilient to natural disasters and climate change.
- **Goal 23:** All neighborhoods will have access to safe and well-maintained parks, community gardens, and appropriate play spaces for children and youth.
- Goal 25: Most residents will build regular physical activity into their daily lives.
- **Goal 62:** The region's rivers, streams, lakes, and ponds will have sufficient clean water to support healthy populations of native fish and other species, as well as recreational uses.
- **Goal 65:** A robust network of protected open spaces, farms, parks, and greenways will provide wildlife habitat, ecological benefits, recreational opportunities, and scenic beauty.

Within the last three years, MAPC has prepared OSRPs in a number of municipalities adjacent to or near Medford including Malden, Saugus, Stoneham, Everett, Chelsea, and Revere. Figure 2 is a map that shows the region's open space and recreation resources and how they are (or can be) interconnected between these municipalities.

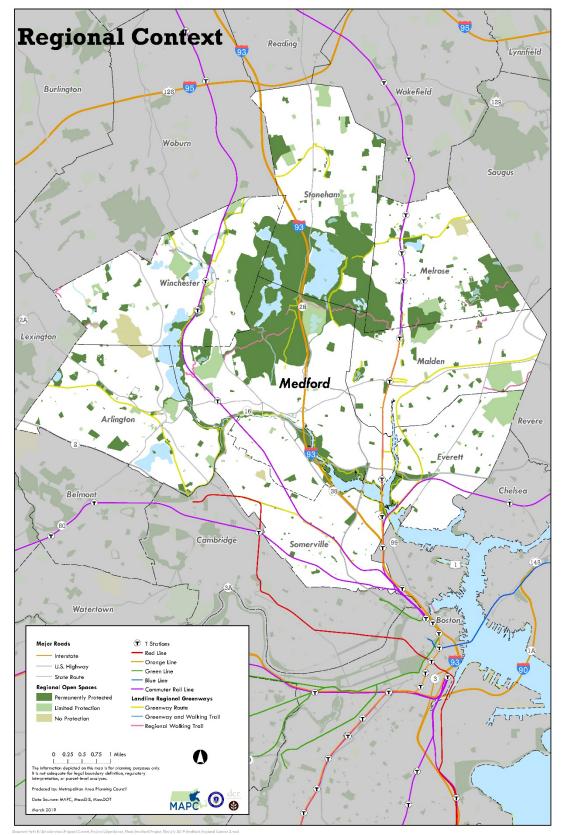
Medford Open Space and Recreation Plan





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Figure 2: Regional Open Spaces Context Map



History of the Community²

Historical movements and key figures helped to shape the Medford open space system into what it is today. Early crusaders fought for wilderness preservation while others fostered a greater public awareness and appreciation for nature and open space.

Inhabited first by the Pawtucket Indians, the landscape of Medford consisted largely of a tidal river, tidal flats, vast wooded areas made up of oak, elm, walnut and pine, as well as open fields maintained annually through burning. The river was used as a trade route primarily to the west of Medford Square and provided sites for annual fishing camps along the Mystic Lakes.

The third oldest settlement in Massachusetts, predated by Plymouth and Salem, Medford was established as a private plantation in 1630 for Matthew Cradock the first governor of the Massachusetts Bay Company. Employees of Cradock saw the trees as lumber for ship masts, the open lands as area for farming and the salt marshes as a supply of hay.

The river became a major thoroughfare for travel early on and Cradock's workers spanned the Mystic with its first bridge in 1637. They chose the site in the center of present day Medford Square at Main Street. This was the easiest point at which to ford the river and was the only crossing point north of Boston until 1787. All traffic traveling in and out of Boston for 150 years had to cross this bridge. Paul Revere crossed the bridge on his historic ride to Lexington having had his route diverted through Medford. Present day Medford Square grew up around the site of the bridge with businesses serving travelers and trade increased to include taverns and rum distilleries.

Ships were first constructed on the Mystic in the 17th century, however, ship building as an industry did not take hold until the 19th century. This industry added a cosmopolitan character to Medford while at the same time fostering a disregard for natural forested areas now seen as profitable for cutting timber. The need arose to straighten segments of the Mystic River to improve navigability and efficiency.

Slavery came to Medford in the 17th century after Cradock was no longer the owner of the plantation. It grew through the 18th century to reach 49 slaves at its peak, the majority of whom were held by Isaac Royall and his son. Slavery was ended in Massachusetts in 1783.

The boundaries of Medford expanded beyond those of the original plantation to include 760 acres south of the Mystic River acquired from Charlestown in 1754. Smaller parcels were acquired from Malden and Everett in the 19th century to fill Medford out to its current boundary. Medford Square continued to serve as the 'crossroads' and was the nexus for the physical layout of roads into surrounding areas.

The Middlesex Canal was completed in 1803 and was the largest transportation project in the United States before the Erie Canal. It ran through Medford, roughly along Boston Avenue, Sagamore Avenue and along the Mystic Lakes. The 27-mile canal was a major factor in the building of 19th century America, transporting lumber, bricks and bulk goods to and from New

² Community History adopted from Medford's 2011 OSRP.

Hampshire via its terminus in Lowell. Today the entire Middlesex Canal is on the National Register of Historic Places.

Elizur Wright played a key role during the 19th century establishing the Middlesex Fells Association. He is known as the "Father of the Fells" and was instrumental in the overall movement towards wilderness preservation. The process was an uphill struggle for him and his vision was not realized during his lifetime. He desired the Fells to be preserved as a public park for metropolitan Boston. In 1891 landscape architect Charles Eliot assisted in the creation of the Trustees for Reservations and continued the vision Wright had for a public park. Out of these efforts the Metropolitan Parks Commission was established laying out an even larger vision of Eliot's for a metropolitan park system for greater Boston.

Samuel Crocker Lawrence, the first mayor of Medford, opened up his estate to the public to encourage an appreciation for "nature" and the importance of vegetation. This was part of a larger movement during the late 19th and early 20th centuries to link cities and towns to the outdoor open space and fresh air. He also led the challenge to rid Medford of the gypsy moth, where it originated.

The original 400 acres of the Brooks Estate were purchased in 1660. For 330 years it has remained an important part of the Medford landscape. A 12-acre parcel was purchased by Medford in 1853 after the Salem Street burial ground ran out of space. An additional 22 acres were purchased from the Brooks family in 1875, leading to the creation of the Oak Grove Cemetery. Today the remainder of the Brooks Estate has been preserved in perpetuity. Coupled with the adjoining open space in Winchester, the area makes up a natural and historic landscape second only to the Middlesex Fells.

Medford joined other communities in the Victorian land preservation movement in greater Boston, and played a prominent role in the creation of the Middlesex Fells Reservation, and parklands along the Mystic River and Mystic Lakes. In doing so, residents recognized the threat of an expanded population and industry to these natural areas, and worked to ameliorate both for future generations. In a broader sense, this activism was consistent with Medford's proud role in abolitionism, the Civil War and social movements of the late 19th century.

Demographic Characteristics

Population Trends

As recorded by the 2010 Census Medford's residential population numbers 56,173, with a population density of 6,859 residents per square mile. The most recent American Community Survey (ACS) 5-Year Estimates from 2012-2016 put the population at a slightly higher figure of 57,180 people. The City's population grew by more than 60% in the 20 years following World War II. Although Medford experienced its most significant growth in 1950, with a peak population of 66,113, the population began steadily declining from 1960 to 2000. From 2000 to 2010 the City saw a modest 0.7% increase in population.

The Metropolitan Area Planning Council (MAPC) has prepared population projections through 2030 for the Metro Boston region. These projections are based on two scenarios: Status Quo (SQ), based on the continuation of existing rates of births, deaths, migration, and housing occupancy; and a Stronger Region (SR) that assumes higher population growth, greater housing demand, and a larger workforce. Specifically, the Stronger Region scenario assumes that in the coming years:

- the region will attract and retain more people, especially young adults, than it does today;
- younger householders (born after 1980) will be more inclined toward urban living than were their predecessors, and less likely to seek out single family homes; and
- an increasing share of senior-headed households will choose to downsize from single family homes to apartments or condominiums.

Current trends appear to bear this out, so the Stronger Region scenario was used to project population and demographic changes in this plan.

Looking forward to 2030, MAPC's 2014 Metro Boston Population and Housing Demand Projections indicate that the City's population will continue growing, with a projected increase of about 6,063 residents (11%) in the Stronger Region scenario.

City of Medford Historic and Projected Population, 1970-2030 66,000 64,397 64,000 62.236 62,000 60,000 58,842 58.076 57,407 58,000 +6% 56,173 55,765 56,000 -10% 54,000 -1% +5% 52,000 -3% +0.7% 50,000 1970 1980 1990 2010 2020 2030 2000 U.S. Census MAPC Stronger Region Projections

Table 1: Historic and Projected Population

Medford Open Space and Recreation Plan

The age distribution in Medford shows that a significant percentage of the population is between the ages of 20 and 64, with the largest age group being 35-64 years. It is projected that Medford residents over the age of 65 will experience the most growth as an age cohort between now and 2030; the senior population will increase nearly 43% from 2010 levels. Residents in age cohorts 0-4 and 35-67 are expected to experience the next most growth with both groups increasing nearly 15%.

Age	1990	2000	2010	2020	2030	% Change, 2010-2030
0-4	3,224	2,718	2,923	3,326	3,348	14.5%
5-19	9,249	9,097	8,221	8,122	8,769	6.7%
20-34	16,755	13,772	14,782	14,632	14,145	-4.3%
35-64	18,584	20,512	21,684	23,453	24,847	14.6%
65+	8,601	8,299	6,991	8,040	9,991	42.9%

Table 2: Population and Projections by Age Table

Although all age groups benefit from access to natural and recreation spaces, different user bases use recreations spaces with variable frequency and for a range of activities. For example, the facilities required by a large youth sports organization differ significantly from those enabling individual passive recreation activities pursued by older residents.

Most recreational opportunities for children requires parental supervision. For children under five, this recreation tends to occur close to home due to the difficulties of traveling with children, and neighborhood playgrounds often serve this function. This age group also needs structured preschool programs that focus on teaching basic skills. For older children, adults often seek places to take their children for walks or seek programs for their children that provide family recreational opportunities.

Adolescents are typically served recreationally through school and after-school sports programs. This can pose difficulty for those not interested in participating in traditional programs that are structured or involve adult supervision, or for those activities requiring financial contributions that are not affordable. For adolescents who are interested in being more actively involved in determining their activities, they may prefer programs like rock climbing, adventure programs, skateboarding, hiking, band concerts, cook outs, dances, and more. Adolescents also need access to developmentally appropriate, attractive, and safe public places to gather. Unstructured time to be with friends is as important to the formation of identity and belonging as formal youth development programming. Creating public spaces with adolescents in mind also sends a clear message that they are valued by and welcome in their community.

The needs of elderly residents are divided between the younger, more active senior citizens and the frail elderly. The frail elderly generally require therapeutic recreational services. More active seniors tend to enjoy walking, golf, bocce, tennis, swimming, and more. It will be especially important for the City to consider the needs of older adults as Medford's senior population grows.

The needs of residents with disabilities also vary. Some residents with disabilities can participate in regular recreational programs without any modifications while others may need accommodations or prefer adaptive or specialized programs. Individuals have the right to participate in the most integrated setting: every single recreation opportunity available to people without disabilities is also available to the resident who has a disability. Separate programs may be offered, but the most integrated setting must be provided along with reasonable accommodations. Physical barriers are a key factor for consideration and are evaluated in the ADA Access Self-Evaluation and Transition Plan of this plan (See Appendix F). Along with the evaluation, the plan also includes recommendations for improving accessibility by removing physical barriers and enacting programmatic changes, such as training staff on how to work with disabled residents. A Certified Therapeutic Recreation Specialist can help meet the needs of residents who are elderly or have a disability and build the community's capacity for including people throughout general programming.

Medford has become slightly more racially and ethnically diverse in recent years. At 76.2% of the 2010 population, the majority of Medford residents are White, Non-Hispanic. This majority decreased by 9.7% of the overall population from 2000, when 85% of Medford residents were White, Non-Hispanic. With the exception of residents identifying as Pacific Islander, Non-Hispanic all categories of minorities have increased since 2000.

Race and Ethnicity	Medford	Inner Core Committee (ICC)	MAPC Region	Massachusetts
White Non-Hispanic	76.2%	59.4%	72.2%	76.1%
Black Non-Hispanic	8.5%	12.7%	7.9%	6.0%
Native American, Non-Hispanic	0.1%	0.2%	0.1%	0.2%
Asian/ Pacific Islander, Non-Hispanic	6.9%	10.1%	7.6%	5.3%
Other Race, Non-Hispanic	1.7%	1.3%	1.1%	0.9%
Multi-Race, Non-Hispanic	2.3%	2.3%	1.9%	1.9%
Hispanic/ Latino	4.4%	14.1%	9.1%	9.6%

Table 3: Race and Ethnicity, Census 2010

Table 4: Percent Change in Race and Ethnicity, 2000-2010

% Change by Race and Ethnicity, 2000- 2010	Medford	Inner Core Committee (ICC)	MAPC Region	Massachusetts
White, Non-Hispanic	-9.7%	-7.6%	-5.2%	-4.1%
Black, Non-Hispanic	44%	8.3%	15.8%	23.1%
Native American, Non-Hispanic	53%	-13.8%	-4.5%	-4.3%
Asian, Non-Hispanic	79.5%	36.8%	45.9%	46.8%
Pacific Islander, Non-Hispanic	-41.7%	-31.2%	-18.7%	-14.0%
Asian/Pacific Islander, Non-Hispanic	78.8%	36.5%	45.5%	46.3%
Other one race, Non-Hispanic	296.2%	53.4%	81.7%	41.2%

Source: U.S. Census, 2010

% Change by Race and Ethnicity, 2000- 2010	Medford	Inner Core Committee (ICC)	MAPC Region	Massachusetts
Multi-Race, Non-Hispanic	10.4%	-8.8%	6.3%	10.8%
Hispanic/Latino	69.6%	43.5%	47.8%	46.4%

Source: U.S. Census, 2000, 2010

Household Trends

In addition to population trends, examining changes to household number and composition should also inform open space and recreation planning. MAPC projections indicate that both the population and the number of households in Medford is expected to grow by 2030. As each household requires its own unit of housing, growing household numbers will add development pressure on existing open space.

At the time of the 2010 Census, Medford was home to 22,810 households, for an average of 3.00 persons per household. Medford's total number of households increased by 1.1% from 1990 to 2000 and then by 3.4% from 2000 to 2010. Going forward, projections show a continued increase in households in the Stronger Region scenario. By 2030, Medford may see the addition of 3,181 households, a 13.9% increase from 2010. Due to continued declines in household size, the number of households is expected to grow faster than the population. This corresponds to trends in the broader MAPC region and the state between 2000 and 2010. Reasons for decreased household size range from families delaying having children, having fewer children, and smaller households in the oldest age cohorts as baby boomers age.

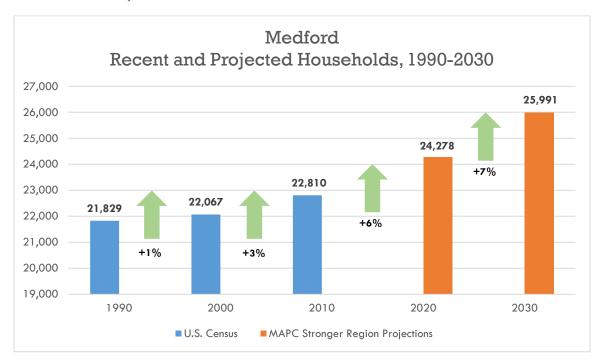


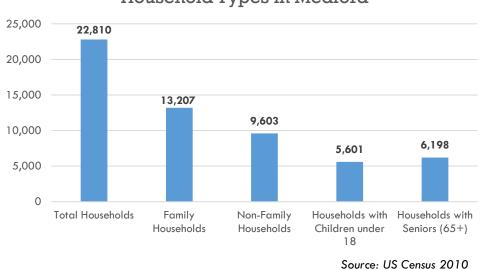
Table 5: Recent and Projected Households

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Medford Open Space and **Recreation Plan**

At 13,207, family households make up 58% of the total number of households in Medford while non-family households make up the remaining 42%. A nonfamily household is one where the householder is living alone or with nonrelatives only. Nearly a quarter of all households in Medford have children under the age of 18 which is slightly lower than the number of households with seniors 65 and over which accounts for 27% of all households.





Household Types in Medford

Jobs and Income

According to the ACS 5-Year Estimates 2012-2016, median household income in Medford is \$79,607. The median family income is higher at \$97,422 and the median non-family income is significantly lower at \$53,634. Medford's non-family households are primarily individuals living alone. Compared to surrounding communities, the City of Medford is most similar to the City of Somerville in terms of median household income and income distribution.

Table 7: Median Household Income, Revere and Surrounding Communities			
South Shore Coalition	Median Household Income		
Winchester	\$149,321		
Arlington	\$98,103		
Stoneham	\$83,783		
Medford	\$79,607		
Somerville	\$78,673		
Malden	\$60,085		
Everett	\$52,457		

Table 7: Median Household Income, Revere and Surroundi	ng Communitie
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Source: American Community Survey 5-Year Estimates, 2012-2016





Source: American Community Survey 5-Year Estimates, 2012-2016

Approximately 26.2% of Medford's households earn less than \$40,000 in income, with 12.6% earning less than \$20,000. Medford households earning between \$40,000 and \$74,999 accounts for 21% of households while, 52.4% of households earn \$75,000 or more.

Industry

Employment characteristics provide a picture of the types of jobs that exist in the City. According to data maintained by the State Executive Office of Labor and Workforce Development (EOLWD), 1,425 wage paying establishments were located in the City of Medford in 2017, employing 20,178 workers and paying an average weekly wage of \$1,207. The largest portion of jobs in Medford is currently in the Services industry, which accounts for approximately 85% of all jobs. The second-largest sector is Education and Health Services which accounts for 22% of the jobs in Medford's economy.

Industry	Establishments	Total	Average	Average Weekly
industry	LStabiismitents	Wages	Employment	Wage
Total, All Industries	1,425	\$1,266,520,024	20,178	\$1,207
Construction	182	\$117,057,707	1,472	\$1,529
Health Care and Social Assistance	295	\$198,901,806	3,219	\$1,188
Professional and Technical Services	159	\$97,124,178	1,086	\$1,720
Retail Trade	138	\$68,598,703	1,977	\$667
Wholesale Trade	57	\$76,044,616	978	\$1,495
Other Services, Except Public Administration	163	\$29,500,110	830	\$684
Accommodation and Food Services	104	\$31,234,615	1,384	\$434
Manufacturing	29	\$26,290,138	542	\$933
Administrative and Waste Services	70	\$76,191,626	1,126	\$1,301
Finance and Insurance	52	\$73,822,605	1,053	\$1,348
Real Estate and Rental and Leasing	30	\$6,417,913	133	\$928
Transportation and Warehousing	36	\$18,644,354	384	\$934
Educational Services	21	\$320,410,585	4,337	\$1,421
Arts, Entertainment, and Recreation	24	\$2,999,351	211	\$273
Management of Companies and Enterprises	8	\$54,827,546	654	\$1,612
Information	27	\$26,117,577	256	\$1,962

Table 9: Average Employment and Wages by Industry, All Ownership, 2017

Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD)

Below is a table showing the largest employers in the City. The largest employer, Tufts University employs 1,865 individuals in Medford, but additional people are also employed within the City of Somerville.

Medford Open Space and Recreation Plan

Table 10: Largest Employers in Medford

Company Name	Number of Employees	Production/Function
Tufts University	1,865 in Medford	Educational Institution
Cross Country Group LLC	508	Offices
Genesis	474	Nursing Homes
Hallmark Health/LMH	449	Health Care
Wegmans	396	Retail Grocery
Century Bank	301	Financial Services
Anheuser-Busch	295	Brewing Company
Harvard Vanguard	213	Health Care
Whole Foods	190	Retail Grocery & Bakery
BJ's Wholesale	132	Wholesale Club
Marriott International	100-150	Administration
Lifetime Brands	100	Home Furnishings
Management Sciences for Health	81	Health Care Nonprofit
Target	60	Retail Store

Source: City of Medford Office of Community Development, March 2019

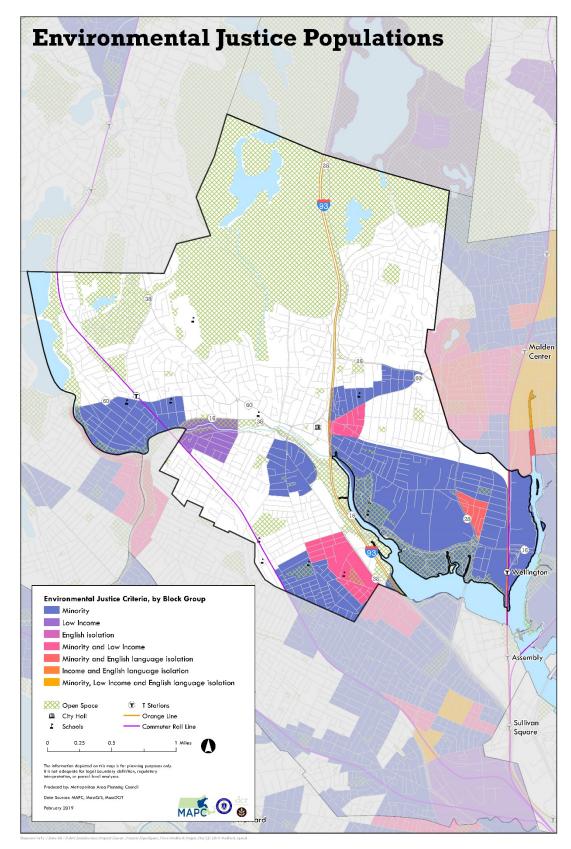
Environmental Justice Population Characteristics

In 2002 the Commonwealth of Massachusetts developed an Environmental Justice Policy. Environmental justice is "based on the principle that all people have a right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment."

Massachusetts uses three criteria to identify Environmental Justice (EJ) communities, including income, race & ethnicity, and English language proficiency. The Massachusetts Executive Office of Energy and Environmental Affairs (EEA) defines EJ populations as neighborhoods (U.S. Census Bureau census block groups) that meet one of more of the following criteria:

- Median annual household income is at or below 65% of the statewide median income;
- 25% or more of the residents are a minority;
- 25% or more of the residents are foreign born; or
- 25% or more of the residents are lacking English language proficiency.

The most recent analysis completed by MassGIS (Bureau of Geographic Information), using data from the 2010 Census and ACS 2010 5-year Estimates, identifies areas within Medford that meet one or two of the environmental justice criteria, including foreign-born, minority population and income. Most of these areas are in the southern half of the City, along or approximate to the Mystic River and Malden River corridors. A map of the Environmental Justice populations in Medford is below. Figure 3: Environmental Justice Map



Patterns and Trends

The Metropolitan Area Planning Council (MAPC) categorizes Medford as a Streetcar Suburb, a community characterized as a high-density suburb near the urban core composed of villageoriented residential neighborhoods with multifamily homes and smaller apartment buildings. The DCR owns nearly 26% of the 8.22 square miles of land in Medford, City-owned open space accounts for another 8%. The largest portion of the remaining developed land is composed of residential land uses that include single-family homes, higher density multi-family properties, and condominiums. Although, Medford has been nearly fully developed for many years several development changes have occurred.

Recent and Anticipated Development Activity

Situated on the Mystic River, just five miles north of Boston, Medford is a vibrant suburban community, with a typical downtown and additional commercial centers, as well as a variety of different residential areas. Development interest in the City is at a peak. Proximity to Boston, a quality school system, access to public transit, significant open space and a mix of housing choices contribute to the popularity of the City as a location to live, work and do business. Planning efforts are focusing on identifying and guiding growth and development. Using smart growth principles, the City is creating walkable, mixed use areas oriented to transit services. The City's Office of Community Development worked with MAPC to complete a Master Plan for Medford Square. The major areas of focus include economic development and vitality, land use and sense of place, transportation and connectivity, and open space and quality of life. The plan was funded through District Local Technical Assistance funds and a grant funding from the Barr Foundation. The implementation plan includes zoning changes, leveraging municipal parcels of land for private investment, transportation improvements, and the creation of a business entity to foster business development and retention. The final plan was completed in December 2017 and the City has been has been moving forward on implementation of a number of the recommendations. This includes working with the Central Transportation Planning Staff on the soon to be completed Medford Square Priority Roadways Improvement Study, along with MassDevelopment, to consider disposition of City-owned parcels of land to leverage housing and economic development and engage zoning expertise to assist with the implementation of changes designed to encourage and facilitate desired redevelopment in the Square.

The Mystic Avenue area, which currently operates as an underutilized commercial strip is also designated for planning and zoning changes. With a grant from MAPC and Mass Housing, MAPC and the Office of Community Development are in the process of reviewing current zoning and proposed changes to spur commercial and residential growth. Development interest includes a proposed redevelopment of 7.2 acres of land by Combined Properties.

With a surge of interest in new residential development, the City has been working to encourage and facilitate several new multi-family developments, while ensuring that these include an affordable component whenever possible. In order to formalize this process, the City passed an Inclusionary Housing Ordinance in 2019. Major private developments include:

- The occupancy of 163 residential units at 3780 Mystic Valley Parkway
- The completion of the 152 room AC Hotel at Station Landing
- Building permit issued for first phase of 200 luxury condos at 320 Middlesex Avenue
- Renovation by Tufts University of 554 Boston Avenue to lab and academic space, new labs at 4 Colby Street, the Energy Plant at 451 Boston Avenue, renovation of Anderson Hall at 200 College Avenue, Carmichael Dining Hall at 200 Packard Avenue and rehabilitation of the Miller/Houston Halls at 196 Boston Avenue, in addition to a restaurant at 572 Boston Avenue and dorms adding 141 new bedrooms to the existing supply
- Construction phase of 8 residential units at 244 Central Avenue
- Construction phase for 7 units at 1025 Fellsway
- Permitting stage for a re-envisioned, 350 luxury apartment complex at 61 Locust Street
- Medford Square luxury housing, restaurant expansion and hotel project
- Occupancy of 297 units at Modera, 5 Cabot Road, as well as 282 luxury units at 600 River's Edge Drive and 42 transit-oriented units at 640 Boston Avenue
- Residential projects are also in the pre-construction stage creating 21 units at 236-240 Salem Street, and 55 luxury apartments at Medford Street and 10 new single-family homes on Winthrop Street
- Permitting of 20,000 square feet of office space at 3850 Mystic Valley Parkway
- Initial permitting state of new 9 story, 12 8- bedroom hotel at Station Landing

The largest nonresidential project was the conversion of the Meadow Glen Mall into a retail plaza including Wegmans, Dick's Sporting Goods and Petco as well as Marshalls and Kohl's. Additionally, Bianco's Sausage relocated to and renovated 1 Brainard Avenue. Interest has also been expressed in the development a hotel on Mystic Avenue.

Tufts University, which is the City's largest employer, continues to thrive and grow as evidenced by the numerous new buildings, renovations and dorm expansions outlined is the listing of recent major private developments above.

Hallmark Health, the owner of Lawrence Memorial Hospital, is in early talks to expand its facilities at Governors Avenue in Medford. Proposals to develop a 17,500 square foot Ambulatory Surgery Center were presented at an initial public meeting in early May 2018. The proposed center, with an estimated value of \$16 million, is currently envisioned as a self-contained building on the hospital property.

The official ground breaking for the Green Line Extension to College Avenue in Medford took place on June 25, 2018. Initial work on the design/build project began in July 2018 and the project is slated to come into service in 2021.

The project has spurred interest in transit-oriented development with the completion of 42 residential units with ground floor commercial at 640 Boston Avenue and the initial permitting phase for 55 luxury apartments on Medford Street. Interest in other parcels in the area has also been expressed by potential developers. Tufts University is constructing a new academic building, the Joyce Cummings Center, on College Avenue next to the forthcoming Green Line Station. The Office of Community Development coordinates with developers throughout the planning process to encourage high quality development which serves to enhance the tax base and meet the needs of the community.

The City has been working with the GLX project management team to minimize any negative construction related impacts. The City of Medford's engineering team and a three-member GLX working group participate in regular meetings to ensure that residents are represented throughout the decision-making process.

Also of note is the prospective redevelopment of the Malden Hospital site. Approximately 20% of the site is located in Medford. Although specific development plans have not been finalized, there is potential for a portion of that site to provide increased open space near the Fellsway / Salem St. environmental justice minority area.

Encore Boston Harbor (previously referred to as Wynn Everett and Wynn Boston Harbor) is a luxury resort and casino that is under construction in Everett, Massachusetts, and will impact the region as a whole. It is located on what was a blighted 33 acre site along the Mystic River. The project includes a hotel, harborwalk, restaurants, casino, spa, retail outlets, and meeting and convention space. Public amenities include a picnic park, paths for bikers and pedestrians that connect with others in adjacent communities, viewing decks, waterfront dining and retail, a performance lawn, floral displays, and boat docks. The resort is slated to open in June 2019.

Recent Open Space Projects

The City continues to leverage public and private resources to implement open space projects. The Krystle Campbell Peace Garden is open. The park, named for Medford resident, Krystle Campbell, includes a central seating area focused on a fountain and interpretive features. The City worked with various state agencies to secure grant funds, coordinate the design process and to coordinate the construction contract with MassDOT. The City secured a 2009 Section 125 earmark grant of \$475,000, \$100,000 in grant funding from the Cummings Foundation, City linkage funds in the amount of \$163,305 and \$299,350 in PARC grant funds as well as private donations.

The City was successful in securing \$250,000 in funding from the Federal Land and Water Conservation funding for the creation of a plaza and public gathering space adjacent to the Salem Street Cemetery in the heart of Medford Square. These funds were supplemented by \$95,000 in parks linkage funds for design and \$300,000 in matching City funds for construction. The project was completed in July 2018.

The City has recently been awarded \$300,000 in Federal Land and Water Conservation funding, matched with \$300,000 in CPA funding and \$217,000 of City funds for design and construction of Phase I of Harris Park. Design began in September 2018, and the project is currently out to bid and due for construction in Summer 2019.

The City has also leveraged a \$60,000 Municipal Vulnerability Preparedness grant, which matched with \$20,000.00 in municipal linkage funds, is being used to update this Open Space and Recreation Plan and Climate Resiliency Plan.

Using \$1.4 million in federal CDBG funds, the Medford Senior Center renovation is complete. Improvements include window replacement, masonry repairs, a new roof and interior renovation.

The City received \$250,000 from the Stanton Foundation to build the first ever formal Off Leash Recreation Area in Riverbend Park. Early design and continued operations have been supported by the fundraising and advocacy of the community group "Paws 4 Medford". The dog park opened in December 2017.

The City has received \$280,000 from the Mass Gaming Commission for a feasibility study, design, and engineering for the "South Medford Connector" which is envisioned as a multi-use path along the south side of the Mystic River from Medford Square to Route 16 at Harvard St. This mile-long path would provide an off-road route for bicycle commuters connecting existing segments of multi-use path in the Mystic River Reservation, from West and North of Medford Square to Assembly Row and eventually the Encore Boston Harbor Casino. This route was envisioned by the DCR's Mystic River Master Plan. The Mystic River Watershed Association is assisting to develop and manage this project with the DCR and MassDOT participating as active partners as the path would go on state-owned land.

The Mystic Greenways Initiative is a collaborative effort led by the Mystic River Watershed Association (MyRWA) to connect 20 miles of paths and parkland from the Mystic Lakes to the Boston Harbor. The portion of the pathway from Medford Square to Riverbend Park has been a strategic missing link in this web, disconnecting the paths in the Wellington area of Medford, Malden and Everett from the portions in West Medford, Arlington, Somerville, and beyond. This pathway has been under development as a Partnership Project between the DCR, Walk Medford, the Mystic River Watershed Association, and City of Medford during the past two years. This half-mile section is currently in the permitting stage and is expected to be built in 2019-2020 when it will connect Clippership Park, the Medford Housing Authority high rise at 101 Riverside Ave and Riverbend Park. The Wellington Greenway is a 2.5-mile-long multi-use trail that is part of the larger Mystic Greenways Initiative. The Greenway is composed of six separate sites along the Mystic and Malden Rivers and passes through a mix of public and private properties. The landscape varies from naturalistic parklands to urban mixed-use developments and provides a critical pedestrian link for the area to the Wellington MBTA Station and downtown Boston. Many Transit-Oriented Development projects have sprung up along the Greenway, including millions of feet of office and retail space, and well over a thousand units of housing. In 2019 the Woods Memorial Bridge project created a pedestrian underpass connecting existing sections of the path along the Malden River to the edge of the Wellington MBTA Station parking lot. The section of the path between the parking lot and the Mystic River has been designed and submitted to the Medford Conservation Commission for permitting. This link will connect off-road paths from the border of Medford along the Malden River, around the Wellington MBTA Station to the Mystic River and into the transit-oriented development Station Landing arriving at Route 28. The City has submitted a grant request to the Mass Gaming Commission to design a boardwalk under Route 28 next to the Mystic River to connect the pathways to Torbert MacDonald Park, further extending this passive recreational route.

In December 2017, the City of Medford's Office of Community Development partnered with MAPC to prepare the Medford Square Master Plan to guide economic development and physical improvements. The Master Plan defines coordinated strategies and actions that focus on immediate improvements and positioning of Medford Square for long term success. The major areas of focus include economic development and vitality, land use and sense of place, transportation and connectivity, and open space and quality of life.

Many of the strategies outlined in the Open Space/Quality of Life section of the plan are applicable to the Medford Open Space and Recreation Plan, including:

- Strategy A: Create Concentration of Active Mystic River Edges
- Strategy B: Enhance and Expand Medford Square Plazas
- Strategy C: Embrace Culture and Arts Activity
- Strategy D: Enhance District Management

The Community Preservation Act (CPA) helps communities preserve open space and historic sites, create affordable housing, and develop outdoor recreational facilities. The CPA is funded through a local option surcharge on property tax bills and a state match or those surcharges. The City of Medford adopted the CPA in 2015, implementing a 1.5% property tax surcharge rate and establishing a Community Preservation Committee (CPC). The CPC subsequently developed the City of Medford's Community Preservation Plan, which includes an analysis of local needs, goals for CPA program areas (i.e. Housing, Open Space and Recreation, Historic Preservation), as well as priorities and potential projects to utilize CPA funding over the coming years. The Plan functions as an informational document and as a blueprint for the CPC to guide their

recommendations to the City Council for project funding. In 2018, the Community Preservation Committee and the Medford City Council approved more than \$2.3 million in funding for 23 projects across two funding rounds; more than half of the approved projects related to Open Space and Recreation. The City Council declined one CPC approved project, the Mystic Lakes Linear Park Improvements, citing the need to confirm DCR's commitment to implementation prior to dedicating City funds to the design work.

Applicant	Project Name	Program Area	Amount
	Round 1 F	unding Cycle	L
Office of Community Development (OCD)	Phase I: Harris Park	Open Space/ Recreation	\$300,000
Mayor's Office	Condon Shell Renovation	Open Space/ Recreation	\$80,265
School Department	Roberts School Playground	Open Space/ Recreation	\$109,540
Medford-Brooks	Access Drive Design	Open Space/ Recreation; Historic Preservation	\$90,000
Estate Land Trust (M- BELT)	Manor East Entryways Restoration	Historic Preservation	\$50,000
	Remove Invasive Plants	Open Space/ Recreation	\$3,000
	HVAC Improvements	Historic Preservation	\$82,817
Historical Society	Preserve Textile Collection	Historic Preservation	\$9,110
Medford Community	3 Affordable Units (pre-development tasks)	Housing	\$30,000
Housing	3 Affordable Units (early construction tasks)	Housing	\$250,000
Housing Authority	LaPrise Village Gas Conversion	Housing	\$452,000
Somerville Community Corporation	29 Affordable Units Adaptation	Housing	\$200,000
	Round 2 F	unding Cycle	
OCD	Phase II – Harris Park	Open Space/ Recreation	\$121,900
Park Division; Friends of Wright's Pond	Wright's Pond Beautification	Open Space/ Recreation	\$5,000

Table 11: City of Medford, Funded Community Preservation Projects

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Applicant	Project Name	Program Area	Amount
Roberts Elementary PTO; Department of Public Works	Hickey Park Canopy Gathering Area Project	Open Space/ Recreation	\$5,000
	Brooks Estate Stone Wall Restoration	Historic Preservation	\$45,000
M-BELT	Brooks Manor 3 rd Floor Trim Restoration	Historic Preservation	\$63,000
	Brooks Estate Trails Restoration	Open Space/ Recreation	\$10,000
Medford Historical	Brooks Park & Slave Wall Master Plan	Open Space/ Recreation; Historic Preservation	\$25,000
Commission	Oak Grove Cemetery Landscape Restoration	Open Space/ Recreation; Historic Preservation	\$16,000
Mayor's Office; Medford Housing Authority	Bocce Court	Open Space/ Recreation	\$51,825
Park Division; Medford Little League	Gills Field Enhancement	Open Space/ Recreation	\$25,000
Mayor's Office	Chevalier Theatre Air Conditioning Project	Historic Preservation	\$300,000

Several waterfront park and path projects within the City of Medford are currently in the planning and design stage of project development. The Clippership Connector is a proposed halfmile waterfront path that will connect more than 10 miles of contiguous greenways. The project will provide a safe and scenic route between Medford Square, Andrews/McGlynn Schools; and Riverbend Park. The Clippership Connector will allow public access along a section of the river that has historically been blocked. This project is a partnership between the Mystic River Watershed Association, DCR, City of Medford, Lawrence and Lillian Solomon Foundation, the Medford Bicycle Advisory Commission, WalkMedford and Wegmans.

Torbert Macdonald Park is the largest waterfront park in the Mystic River Reservation. The park is currently undergoing major renovations that include a new river overlook with a boat launch and picnic area. Improvements that have already been made to the park include the removal of 15 acres of phragmities, an invasive plant species, to provide better access to the shoreline and three miles of repaved walking trails.

Transportation

Vehicular commuters benefit from supportive infrastructure which makes the City easily accessible by car. The City is bisected by Interstate I-93, running north-south and Routes 16 and 60 running east-west.

Those commuters who prefer or rely on mass transit enjoy direct transit service to Boston from the Wellington station which is located on the Massachusetts Bay Transportation Authority's (MBTA) Orange Line. Additionally, the West Medford Station which is located on MBTA's Lowell Commuter Rail line provides service to Boston's North Station. Medford also hosts a multitude of MBTA local and express bus routes, transporting residents to and from various points within the City, as well as surrounding communities and downtown Boston. Additionally, MBTA has begun construction on the Green Line Extension (GLX) project. The project will extend the existing MBTA Green Line north of its current terminus at Lechmere Station to Union Square in Somerville and terminate at College Avenue in Medford. SCM Transportation, Inc. offers transportation to medical appointments and nutrition-related destinations for individuals over the age of 60 and those with a mobility impairment. The TRIP Senior Transportation Program – sponsored by the Mystic Valley Elder Services – gives riders over the age of 50 or adults living with a disability mileage reimbursement money to pay friends and neighbors for transportation to any destination. Door-to-door, shared-ride para-transit services are provided through The RIDE, which is operated by the MBTA. Transportation is often the single largest barrier to parks and recreation participation for people with disabilities.

Water and Sewer

The City of Medford's water and sewer service is supplied and treated through the Massachusetts Water Resources Authority (MWRA). MWRA is a Massachusetts public authority established by an act of the Legislature in 1984 to provide wholesale water and sewer services to 3.1 million people and more than 5,500 large industrial users in 61 metropolitan Boston communities. The MWRA owns 41 acres of land north of Wright's Pond that is part of the regional water system. This land is inaccessible to the public for recreational uses however, it does provide green space and wildlife habitat area within the City limits.

Long-Term Development Patterns

Zoning

The City of Medford is divided into twelve zoning districts including six residential districts, two commercial districts, one industrial district, one office district, one mixed-use district and a recreational and open space district.

Table 12: Zoning Districts

*See subsection 94-172(h)(4): The minimum total lot area for an institutional use in a residential district shall be 80,000 square feet

Medford's zoning is consistent with the City's policy that supports development in appropriate

Abbreviation	District Name	Max. Height/Stories	Minimum Lot Size
SF-1	Single Family 1	35 feet/2.5	10,000* sf
SF-2	Single Family 2	35 feet/2.5	10,000* sf
GR	General Residence	35 feet/3	10,000* sf
APT-1	Apartment 1	35 feet/3	10,000* sf
APT-2	Apartment 2	125 feet/15	10,000* sf
APT-3	Apartment 3	125 feet/15	10,000* sf
C-1	Commercial 1	50 feet/4	N/A
C-2	Commercial 2	50 feet/4	10,000 sf
I	Industrial	50 feet/4	10,000 sf
0	Office	125 feet/4	50,000 sf
MUZ	Mixed use	100 feet/7	20,000 sf
ROS	Recreational Open Space	35 feet/2.5	10,000* sf

areas and protects the community fabric in existing neighborhoods. The City's policy also

emphasizes the importance of community benefits from development, developer-assisted open space both mitigates the localized impacts of development and helps to integrate business into the larger community.

MAPC is working with the City to prepare a draft zoning ordinance for the City's Mystic Avenue Corridor. The impetus for the potential rezoning is to determine whether multi-family housing projects in this corridor are appropriate. Under the existing Commercial 2 (C-2) zone, housing is not allowed. The draft zoning proposal could accomplish the dual goals of accommodating multi-family housing (including as part of a mixed-use project) and preserving land for existing and future business uses.

The City has been actively engaged in efforts to promote economic development and vitality, transportation and connectivity, and open space and quality of life. The work done for both the Medford Square Master Plan and the Mystic Avenue Corridor support those efforts.

Section 4: Environmental Inventory & Analysis

Geology, Soils, and Topography

Relatively low flatlands characterize the topography of the City of Medford's southern and central quarters. North of the Central Business District, the topography graduates into a hilly, irregular terrain extending across the Middlesex Fells Reservation eastward to the Malden River Basin. Overall elevations range from less than 10 feet above mean sea level to 190 feet plus throughout the City.

Both the land bordering the southeastern section of the Mystic River Basin and the hilly terrain of North Medford have topographical characteristics that limit development. Natural and man-made shifts in the course of the river have left a substantial amount of land rated with poor structural bearing capacity. North Medford is limited in development because of its many rock outcroppings and ledge deposits. With the exception of the high ledge outcrops at Hastings Park, Medford's other parks consist of level or gently sloping sites with topography and bearing capacities suitable for most recreational facilities.

The bedrock geology of Medford divides north/south along a line from the east boundary of Medford, running parallel to the Fellsway West, then south to Medford Square, and then west along the Mystic River. The northern section contains harder rocks, being primarily Lynn volcanic complex, Dedham granodiorite and Newburyport quartz diorite. The rocks to the south are the softer Cambridge slate. The Rand Street area is granite with pink to purple volcanic intrusions.

The surficial geology consists of a series of ground and recessional moraines or glacial deposits in the Middlesex Fells and Rand Street area. The area where the Mystic and Malden Rivers intersect is an outwash plain consisting chiefly of glacial deposits of sand and gravel. The hills of Medford are primarily drumlins, long narrow smoothly rounded hills of unstratified glacial drift.

As mentioned earlier, most of Medford's parks are located on relatively flat, well-drained sites. Construction suitability for the expansion of athletic facilities could be rated moderate to good on an overall basis. The little parkland that is too steep and rocky for recreational development is actually an asset to the City's parks by giving character and texture as unique natural features; Hastings Park is a good example of this type of open space.

Soils

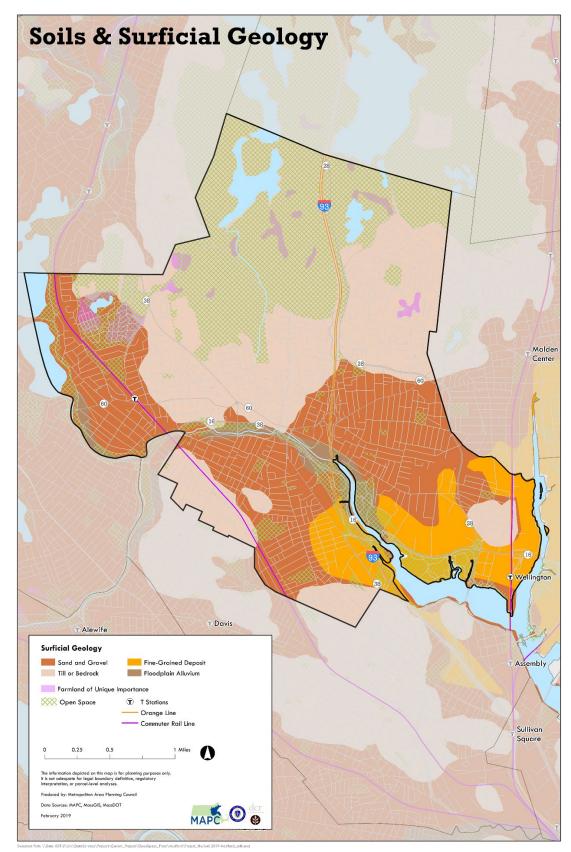
The soils of Medford were originally laid down by glacial drift deposits and weathered to form present soil types. However, given that the City has been extensively developed, much of its area is covered by Urban Land, which is defined by the U.S. Soil Conservation Service as streets, parking lots, buildings and other impermeable structures.

According to the Middlesex County Interim Soil Survey Report, published in March 1991, Merrimac, Scio, and Charlton-Hollis Urban Land Complexes dominate the western, central and southern parts of the City. While Merrimac soils have few limitations for most uses, the major limitations for Scio soils are related to wetness, while those for Canton and Charlton series are related to stoniness and slope. Udorthents and Udorthents with a wet substratum are also found in these areas. These soils consist of areas from which the soil has been excavated and/or deposited due to construction operations. Original soils are no longer recognizable and are no longer a major factor in determining limitations of capability of the land.

North Medford is characterized by Charlton-Hollis Urban Land Complex, with areas of Freetown Muck and Hinckley Loamy Sand; Charlton-Hollis soils are limited by slope and stoniness, the Mucks are wet soils and have marsh vegetation such as cattails, rushes and other wetland herbaceous plants.

The Middlesex Fells area is covered by Hollis or Charlton-Hollis Rock Outcrop Complexes in combination with areas of Swansea and Freetown Mucks in the wetter areas.

Figure 4: City of Medford, Soils and Surficial Geology Map



Landscape Character

The landscape of Medford can be divided into three characteristic zones: the north is rough, stony, hilly land with poorly drained swampy areas between the hills; the central area is an outwash plain, heavily built upon and urbanized, bisected by the previously tidal Mystic River, such that the banks retain their poorly drained features; and the south is an area of softer rocks, dotted with drumlins.

Public outreach conducted as part of prior open space planning efforts – including the 2001 Open Space and Recreation Plan and the 2011 Update – identified key features of Medford's landscape considered important by city residents. In particular, participating residents cited the views from the drumlins in the Brooks Estate, Oak Grove Cemetery, Middlesex Fells and Hastings Park; the woods in the Fells and Brooks Estate and around Wright's Pond; Medford's many mature trees along its streets and in its parks; and the water bodies around the City, including the Mystic River, Mystic Lakes, Wright's Pond, and the pond in the Brooks Estate. The large expanse of woods in the Middlesex Fells and the long riverfront corridor on the Mystic River were found to be – and remain – the most striking natural elements among those composing Medford's landscape character. Additionally, the city's many trees, vegetated yards, and gardens along its residential streets provide a pleasing landscape punctuated by neighborhood parks.

These elements are still highlights of Medford's character today, and Medford's residents continue to value and benefit from them. Many of Medford's most valued landscape features and natural assets are owned by the state Department of Conservation and Recreation, the City of Medford, or nonprofit organizations dedicated to protection of historical and natural resources. As a result of their ownership status, these important resources have been preserved and are largely protected from future development.

Water Resources

Watersheds

Medford is located entirely within the boundaries of the Mystic River Watershed, which is a subwatershed of the Boston Harbor Watershed composed of a collection of rivers, streams, lakes, and ponds which drain an area of approximately 76 square miles and 22 communities north of Boston. As the most densely populated and urbanized watershed in New England with a long history of industrial development, the Mystic River Watershed faces especially acute challenges relating to legacy contamination and stormwater runoff. Despite these challenges, the watershed remains a vital system which provides critical ecological services and recreational opportunities for the City of Medford and other communities within the Mystic River Watershed.

The City of Medford works diligently with municipal, state, federal, and community partners to remediate environmental damage within the watershed and reclaim its waterfront and waterways as community resources. In early 2009, the Mystic River Watershed Initiative was created as an organizational structure through which environmental advocates, state and federal regulators, and business and municipal leaders could work collaboratively to improve water quality and environmental conditions, as well as create and protect open space and public access to the Mystic River and its tributaries through safe public pathways and access points. In 2013, the federal Environmental Protection Agency (EPA) designated the watershed as an Urban Waters

Partnerships location, which improves coordination among federal agencies collaborating with community-led efforts to improve the Mystic River Watershed's water system.

The Mystic River Watershed Association (MyRWA) is a nonprofit organization headquartered in the neighboring Town of Arlington which works to protect and restore the Mystic River, its tributaries, and watershed lands for the benefit of present and future generations. The City of Medford works closely with MyRWA on projects including stormwater education and green infrastructure development, as well as the advancement of the Mystic River Greenways Project, which seeks to develop a network of multi-use paths along the Mystic River waterfront. In 2017 Medford was a founding member of the Mystic River Stormwater Educational Collaborative, hosted by the MyRWA to improve and increase stormwater education in the Mystic River Watershed.

Surface Water

The Mystic River, which flows from the Mystic Lakes southeastward to its confluence with the Malden River at Wellington, crosses through the City and is the central feature of Medford. Originally estuarine in character and tidal as far as Medford Square, the river was altered by a gate and a series of weirs in 1900 and dammed between 1967 and 1976. Despite these major changes, it remains an extensive body of water. The northern riverbank, with the exception of an area in the vicinity of Medford Square, is devoted to parkland and is part of the Mystic River Reservation. This provides area residents with opportunities for walking, boating, fishing and picnicking. The southern riverbank on the other hand has mostly been developed, and areas that are not developed are largely inaccessible to the public. Recent planning efforts, such as the 2017 Medford Square Master Plan, have sought to re-center the Mystic River as an aesthetic and recreational resources.

Water quality in the Mystic River is comparable to many other urbanized watersheds where dense development on land contributes to pollutants in the water. Beginning in 2006, the EPA began assessing and publicizing the water quality of the Mystic River using a basic grading system applied to the whole of the watershed. In coordination with the Mystic River Watershed Association (MyRWA) the EPA subsequently developed an enhanced, more locally specific analysis of water quality – implemented in calendar year 2014 – which issues grades for each segment of the watershed, totaling 14 separate stretches of river and its tributaries.

The water quality grading system takes monthly water quality monitoring data and applies an algorithm to calculate an average percentage of days that bacteria levels met MassDEP water quality standards for swimming (235 E.coli/100ml of water) and boating (1260 E. coli/100ml of water). Qualitative criteria are also considered. These data are then translated into the following grades:

- A. meets swimming and boating standards nearly all of the time
- B. meets swimming and boating standards most of the time
- C. meets swimming standards some of the time, and boating standards most of the time
- D. meets swimming and boating standards some of the time
- F. fails swimming and boating standards most of the time

Under the older grading system, between 2011 and 2013 the Mystic River received an overall grade of D. Despite the static grade, the City of Medford and its partners undertook important

work during this time. Since 2014, water quality in the portions of the Mystic River and its tributaries located in or adjacent to Medford have improved more or less consistently.

	20	14	20	15	2016		20	17
Sites	Grade	Grade	Grade	Total	Grade	Total	Grade	Total
Malden River	C-	C-	с	63%	C+	65.1%	с	63.7%
Meetinghouse Brook	D	D	C-	58%	C+	66.5%	В	78.4%
Mystic River (fresh)	В+	В+	A-	85%	A-	85.8%	A-	87.6%
Upper Mystic Lake	A+	A+	A+	96%	A+	98.9%	A+	98.6%

Table 13: Mystic River Water Quality Grades & Compliance Rates for Freshwater Sites

Source: US Environmental Protection Agency

The Malden River runs into the Mystic River at Wellington in the southeastern corner of the City. This area of reclaimed tidal marsh was once a primarily industrial district which resulted in fairly severe legacy contamination. However, local leadership, brownfields redevelopment, and associated cleanups have begun the process of transforming the river as a whole. Since the 2011 Open Space and Recreation Plan, great progress has been made in the continued development of the Rivers Edge development which has transformed blighted industrial waterfront land into luxury apartments, environmentally friendly office buildings, and public passive open space that includes a restored wetland area for habitat and water quality improvement. In 2017, the Mystic River Watershed Association, in partnership with the cities of Everett, Malden, and Medford completed the Malden River Greenway Vision Plan to reimagine the future of the Malden River. Within Medford, several Malden River Greenway projects are ongoing, including the Wellington Greenway Phase IV and the Woods Memorial Bridge Reconstruction. The Wellington Greenway is a 1.3 mile path along the Malden and Mystic Rivers envisioned to run from the Mystic Wellington Yacht Club to Wellington Business Park, just beyond Route 16. The reconstruction of the Woods Memorial Bridge includes at-grade shared use path connections along the banks of the Malden River underneath the bridge, which will allow for the completion of the Wellington Greenway's fourth and final phase of development.

The Mystic Lakes, two extensive bodies of water located at the headwaters of the Mystic River, provide significant recreational opportunities, including swimming at Shannon Beach (on DCR land, just over the Winchester border), and boating at the Medford Boat Club, as well as natural

ponding areas. These fall into a potential aquifer recharge area and are under the protection of the DCR.

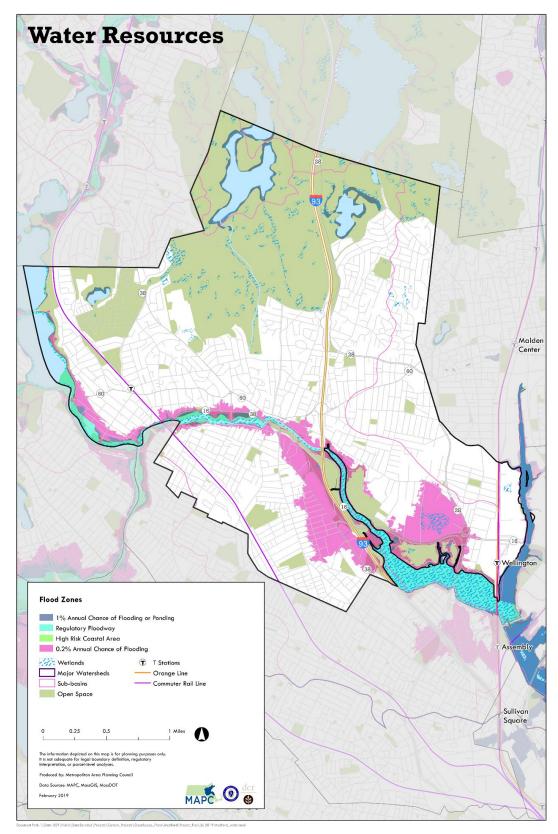
Wright's Pond is a significant City-owned resource, which is contiguous with the Middlesex Fells Reservation. This area is home to the City beach and is used extensively for swimming and sunbathing during the summer months. The pond is open and staffed with lifeguards between late June and late August. Medford residents can purchase a walk-in season pass for \$20 or a parking pass for \$50. The pond and its recreation amenities are highly valued by residents who use it and was cited by many who participated in resident focus groups as part of the 2019 Open Space and Recreation Plan Update. Surrounding wetlands also host a variety of interesting flora and fauna. Wright's Pond is operated by the Recreation Department and maintained by the Parks Division. The City regularly monitors water quality and circulates water with an aerator when needed, but are occasionally forced to close the pond to swimming due to elevated bacteria levels. The City has undertaken a number of efforts to reduce pollutants and maintain water quality within the pond. In 2011, the City Council amended an ordinance to restrict dogs from Wright's Pond, due to ongoing water quality issues caused by waste from off-leash dogs washing into the Pond. In 2018, the City installed a rain garden designed to help filter out pollutants and conserve water, partially funded through a grant received from the Massachusetts Office of Coastal Zone Management.

South Reservoir, though partially located within the City of Medford, is owned by the Town of Winchester and is utilized in its water supply system. It is restricted from public use.

Quarter Mile Pond is part of a wetland area that encompasses all of the Fells north of Wright's Pond, east ofl-93, and west of Woodland Road to the Medford City boundary. The pond, which extends beyond the City limits, is generally in good condition.

Brooks Pond is located on the grounds of the Brooks Estate. The pond had been overgrown by the mid-1990s but wetlands restoration undertaken by the City in cooperation with the Brooks Estate Preservation Association in 1997 has improved access to this resource significantly. Funds for the improvements came from both the City and the Massachusetts Department of Environmental Management (DEM) Lakes and Ponds program. In 2012, the Medford-Brooks Estate Land Trust (M-BELT) rebuilt the Brooks Pond Boardwalk. This pond remains a popular resource for the City and is a key feature in the Brooks Estate Master Plan.

The City also contains a number of smaller brooks and streams. These include Straight Gully Brook, Meetinghouse Brook, Rams Head Brook and Whitmore Brook, which are all located in the Middlesex Fells. Numerous residents attending the 2000 public meeting mentioned the Whitmore Brook off Grove Street as a valued resource that they enjoy walking along. Figure 5: Water Resources Map



Aquifer Recharge areas

The City's drinking water is supplied by the Massachusetts Water Resources Authority (MWRA). The MWRA pumps water to 42 Massachusetts communities from three sources in western Massachusetts – the Quabbin Reservoir, the Ware River, and the Wachusett Reservoir. The MWRA and DCR's Office of Watershed Management have worked together to protect these resources, and have been operating under DEP-approved watershed protection plans since 1991.

The reservoirs in the Middlesex Fells (including Spot Pond) are backup reservoirs intended to support the MWRA system only in case of emergency. These water bodies are also protected by land use and activity restrictions, but these restrictions are less stringent than those around the three primary drinking-water-resource watersheds. The Fells permit walking and running, mountain biking, horseback riding, cross-country skiing and snowshoeing, fishing, and canoeing/kayaking (in on-location rental boats only). The surface water protection areas form a buffer around the reservoirs, but a large area of the Middlesex Fells remains outside of the boundaries of the protection areas. The Middlesex Fells reservoirs are the only areas within Medford classified as Surface Water Protection Areas. There are no Zone I or Zone II recharge areas in Medford; the closest Zone II areas are on the opposite side of neighboring Winchester, extending into Woburn.

Wetlands

Wetlands within the City of Medford include ponding areas such as Hemlock Pool in the Fells in the northeast corner of Medford; Fulton Puddle, just off Fulton Spring Road; and Rand Street, which is a rugged area of small ponds and marshes. The Middlesex Fells is an extensive area containing many small ponds and swamps. Also of ecological importance are the several vernal pools that can be found throughout The Fells and also near Brooks Pond and a potential pool at Carr Park. These special resources offer unique habitat and offer a depth to the biodiversity of Medford.

Former wetlands, which have in the past played a significant part in Medford's hydrologic systems, include Playstead Brook, Little Creek, Clay Pit, Winter Brook and Two Penny Brook.

Flood Hazard Areas

The majority of Medford's flooding problems are associated with the City's drainage system and the filling or channeling of natural water resource areas. There are a variety of issues that affect the drainage system in the City. In some cases, the system is served by older infrastructure that has been impacted by additional or increased development and does not have the necessary capacity to accommodate the resulting runoff. There are instances where waterways serve as part of the drainage system, such as along Winter Brook, but these can become restricted or blocked due to siltation in the open channel or connecting pipes. Lastly, debris from roadways or from residents dumping (e.g., lawn clippings and other yard waste) have blocked pipes and culverts which has resulted in flooding of homes and public ways.

In Medford, the areas most susceptible to flooding are along the Mystic River where land has historically been filled in over earlier river bed and marshes, and the wet areas of the Middlesex Fells. The areas around the Fells are protected from development and are able to provide a buffer between flood waters and the developed areas of Medford. The present and anticipated effects of climate change threaten additional flooding risks for the City of Medford. Extreme weather and precipitation events will result in significant inland flooding; in the late century, sea level rise with storm surge may also negatively affect Medford. Please see Appendix B: Medford Parks and Open Space for Climate Resilience Report for detailed descriptions of the present and future flooding risks, as well as strategies the City of Medford can pursue to increase its resilience against these threats.

Vegetation

Medford is located in an area where the flora of the Northern Forest (spruce, pine, beech, white birch, hard maple, balsam fir and hemlock) blends with the flora of the Central Forest (oak, hickory, yellow poplar, chestnut, sweet gum, yellow pine, and red cedar). However, the City has been extensively developed and the remaining natural areas are under the jurisdiction of the DCR. The predominant tree species here are red, white, and black oak; red and white pine; and white, yellow and black birch with an understory of black huckleberry and maple leaf viburnum among others. Wetland areas are characterized by red maple and sweet pepper bush, while highbush blueberry, maleberry, choke cherry, and swamp azalea are also common.

According to the 2012 USDA Plant Hardiness Zone Map (the most recent map published by the USDA) the City of Medford lies in hardiness zone 6b, which indicates an average annual minimum winter temperature in the zone between -5 to 0 (F). There are numerous tree species that are appropriate for urban plantings in zones 6 or colder. It is important to note that site-specific soil and light conditions as well as any overhead or underground utility limitations should be assessed to determine the appropriate tree species for a particular site.

The urban forest of Medford is a critical environmental, economic, and health asset to the City. The City Forestry Division is directed by the City Tree Warden in the maintenance of existing trees, planting of new trees, removal of dead or dangerous trees, and assisting with post-stormevent tree litter cleanup. The City of Medford is a "Tree City USA" as designated by the National Arbor Day Foundation. To achieve this recognition, Medford met the program's four requirements: a tree department, observation of a tree-care ordinance which Medford follows under the Massachusetts General Laws regarding public shade trees, an annual community forestry budget of at least \$2 per capita and an Arbor Day celebration and proclamation. In 2017, the Arbor Day Foundation also awarded Medford its ninth Tree City USA Growth Award, which recognizes higher levels of innovative programs and projects as well as increased commitment of resources for urban forestry. The Forestry Division's exemplary work would be aided by the completion and regular updating of a city wide tree inventory.

In recent years the impact of significant populations of exotic invasive plant species on the open and natural spaces of Medford and the region has become a key issue. These plants thrive in disturbed soil conditions, which are common throughout urbanized areas and the heavily used natural spaces that serve these densely populated areas. In the woodlands and woodland margins species, there are Japanese knotweed, Phragmites, Norway maple, Oriental bittersweet, and Garlic mustard. The City of Medford and MyRWA have managed over 1000 hours of volunteer time removing oriental bittersweet from MacDonald Park in Medford under a US Fish & Wildlife Service grant. Water Chestnuts are of particular concern in the Mystic River, and several local groups (including Groundwork Somerville, Friends of the Mystic River, the Riverside Yacht Club, and the Mystic Wellington Yacht Club) have collaborated with state and local officials and the MyRWA in efforts to control the spread of these plants through both hand-pulling and mechanized harvesting. Medford arborists also organize a day of service each year in which volunteers learn about local plants, remove invasive plants, and plant new trees along the Mystic River riverbank.

Climate change also poses increasing threats to the trees and plants within the City of Medford and surrounding areas. Within the Middlesex Fells, Eastern Hemlock trees have been lost to an invasive insect, the wooly adelgid, whose spread into Massachusetts is partly attributable to warming temperatures. The City of Medford's Tree Warden has begun to diversify the species of street trees planted; while in 2009, the City primarily planted two or three species – i.e. Norway Maples, Bradford Pears, and Purple-leaf Plum – now more than two dozen different species or varieties of trees which may be better suited to warming temperatures.

There are recorded observations of vascular plants listed as endangered, threated, and special concern species of vascular plants within the City of Medford dating back to the 1860s. However, within the last 100 years only two species have been observed and identified.

City	Taxonomic Group	Scientific Name	Common Name	Status	Most Recent Observation
MEDFORD	Vascular Plant	Desmodium cuspidatum	Large- bracted Tick- trefoil	Threatened	2008
MEDFORD	Vascular Plant	Nabalus serpentarius	Lion's Foot	Endangered	2011

Table 14: Threatened, Endangered, and Special Concern Plant Species

Source: Massachusetts Natural Heritage & Endangered Species Program

Fisheries and Wildlife

The City of Medford owns very little undeveloped land apart from its parks. These parks, with the exception of Wright's Pond and the Brooks Estate, are urban in nature and unlikely to support a great variety of wildlife. However, lands controlled by the DCR, (i.e. the Middlesex Fells, the Mystic Lakes, and Mystic River Reservation, as well as the Brooks Estate, and the MWRA land), constitute fairly substantial natural areas and support a variety of flora and fauna. Deer and otter have been sighted in the Middlesex Fells area, and weasels, minks, raccoons, opossums, skunks, squirrels, chipmunks, voles, moles, and field mice are common. Salamanders, turtles, and frogs are abundant in the area, which also boasts a wide variety of butterflies. The DCR lands host a considerable variety of songbirds, in addition to some waterfowl and a resident geese population.

In 2010, the Upper Mystic Dam was rebuilt to include a passable fish ladder. This construction allowed for an annual migration of river herring, including Blueback Herring (Alosa aestivalis) and Alewife (Alosa psuedoharenous), to travel from the Atlantic Ocean up the Mystic River to the Mystic Lakes to spawn. The Mystic River Watershed Association's Herring Monitor Program has documented an increase from an estimated 199,000 river herring in 2012 to an estimated

589,000 in 2018. River herring play a crucial role in the ecosystems they inhabit and local conservation and environmental stewardship have an impact far beyond their borders.

Current fish populations in the Mystic Lakes and the Mystic River also include american eel, killifish, sunfish, shiner, bullhead, perch, pickerel, stickleback, darter, sucker, mummichog, and pumpkinseed.

Within the last 100 years, several animal species considered threatened or of special concern have been observed and recorded.

City	Taxonomic Group	Scientific Name	Common Name	Status	Most Recent Observation
MEDFORD	Beetle	Cicindela	Eastern Red-	Threatened	1988
		rufiventris	bellied Tiger		
		hentzii	Beetle		
MEDFORD	Butterfly/Moth	Callophrys irus	Frosted Elfin	SC	1988
MEDFORD	Butterfly/Moth	Pyrrhia	Orange	SC	2010
		aurantiago	Sallow Moth		
MEDFORD	Crustacean	Limnadia	American	SC	2009
		lenticularis	Clam Shrimp		

Table 15: Threatened, Endangered, and Special Concern Animal Species

Source: Massachusetts Natural Heritage & Endangered Species Program

Scenic Resources and Unique Environments

Medford, being a highly urbanized City, has little undeveloped land apart from its own parks and the lands controlled by the DCR. The DCR properties are a major asset to the City. With over 1,200 acres of DCR-owned open spaces and 28 City-owned parks, Medford attracts residents who enjoy living in the City close to extensive open space. Open space remains a significant factor in the decision to move to Medford.

The Mystic River, originating in the Mystic Lakes, is the City's central and most attractive feature. Flanked by DCR parkland on much of its northern bank, the river provides opportunities for boating and fishing. Most of the riverbank is open and accessible except in the Medford Square area. At Medford Square, historic development patterns created buildings that back up to the river; while this gives it scenic character, it also poses practical problems of access.

The DCR-owned Middlesex Fells is an attractive wooded area of rocky outcrops, streams and wetland areas. The Fells is a regionally significant open space that provides recreational opportunities for residents of Medford as well as residents from nearby towns.

The Fellsway and the Mystic Valley Parkway – along the Middlesex Fells and the Mystic River, respectively – are scenic drives that provide easy vehicular access to the recreational opportunities in Medford's two most significant natural areas. They have also become busy throughways heavily used by area commuters which now impede pedestrian and bicycle access across these roads to the Fells and the Mystic River Reservation lands.

As noted above under Water Resources section, the Mystic Lakes and several ponds in the City are highly prized for their scenic beauty. Wright's Pond also has a well-used walking path along its wooded shoreline. The Malden River has only recently been recognized for its scenic and wildlife potential, as new developments along its banks have improved its environmental and aesthetic condition and created public access.

Outcrops and drumlins as found in the Fells, Brooks Estate, and Hastings Park also provide scenic character and distant views, enhancing the landscape and giving it interest. The Middlesex Fells is part of a much larger formation called the Lynn Volcanics. The Fells was also a site of a gabbro quarry where a large dike of what is called Medford gabbro was sited, which was frequently used as a building stone in the Boston area.³

Cultural, Archeological and Historic Areas

The City of Medford has a rich heritage and is home to many historic sites and buildings, some of which are listed on the National and State Historic Registers, but many others have local recognition.

The Isaac Royall House & Slave Quarters (15 George Street) is a National Historic Landmark which has been open to the public since the early twentieth century. Once home to the largest slaveholding family in Massachusetts, the site encompasses a colonial mansion house built in the 1730s and designed in the mid-Georgian architectural style, as well as the only extant slave quarters in the northern United States. The house is owned by a nonprofit organization, the Royall House and Slave Quarters Association, and is operated as a museum during the summer and early fall.

Another National Historic Landmark within Medford, the Peter Tufts House (350 Riverside Avenue) dates to the 1680s and has been identified as one of the oldest brick buildings in the country. This house is considered to be transitional in style, with both Medieval and Georgian features. The independent, nonprofit Medford Historical Society purchased the property in 1986, but decided to sell the property in 2018 due to the resource intensity required to maintain and preserve the property. The City Council and mayor approved preservation restrictions tied to the sale which were designed to ensure the house is preserved in perpetuity under private ownership. The sale was finalized in February 2019.

A third property of particular note is the Brooks Estate, located at 275 Grove Street. The approximately 50-acre site is the remnant of the historic Brooks property, which originally consisted of 400 acres along and to the east of the Mystic Lakes. The property was used by the Brooks family from about 1660 to 1939, and reached its apogee as a gentleman's country estate from about 1850 to the 1930s. The current property includes the 9-acre Brooks Pond, about 40 acres of woodlands, some field areas, and the "Historic Core." This core area is the location of the Shepherd Brooks Manor and its Carriage House that were built in 1880 to a design by Peabody and Stearns. A much larger house, Point of Rocks, was designed by Calvert Vaux and built in 1859; it was demolished in 1946. The Shepherd Brooks Manor was used for veterans' housing, a nursing home and a group home in the period between 1946 and the early 1980s. The property is owned by the City of Medford and managed by the Medford-Brooks Estate Land Trust, Inc. (M-

³ <u>http://bostongeology.com/geology/fieldtrips/teacher/fells.htm</u>

BELT), a community-based membership nonprofit, under an agreement with the City of Medford. It is on the National Register of Historic Places and is protected by a permanent Conservation and Preservation Restriction, granted in 1998. The Conservation and Preservation Restriction includes the Massachusetts Historical Commission, Trustees of Reservations and DCR as Grantees. Today the Brooks Estate is a unique and invaluable natural and historic landscape enjoyed by walkers, joggers, anglers, ice skaters and birders, as well as those who appreciate its architecture and local/regional history.

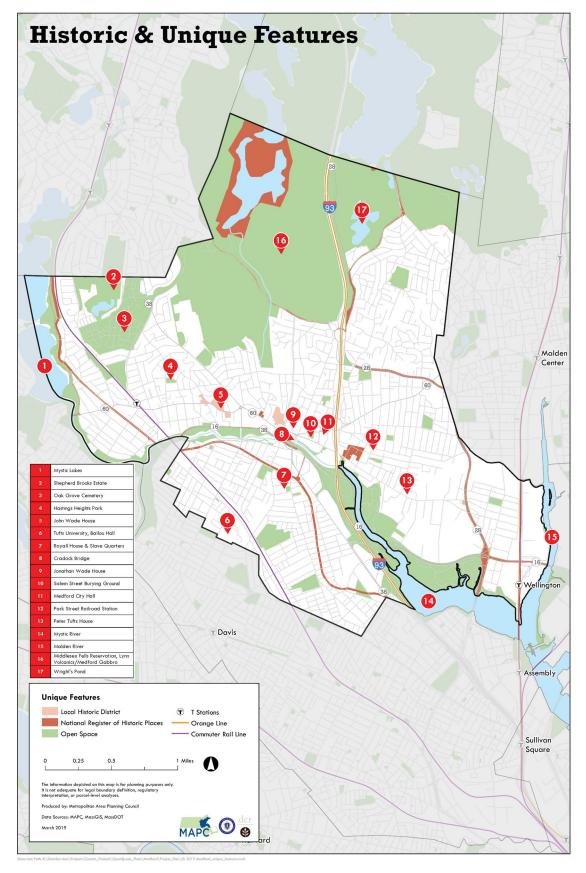
M-BELT finalized a Master Plan for the Brooks Estate in 2012. The Master Plan calls for the complete restoration of the Shepherd Brooks Manor (presently about 60% complete) and the complete reconstruction of the Carriage House into a multi-purpose function facility that will generate revenue for the maintenance of the buildings and landscape. The Master Plan also calls for rebuilding the access drive, restoration of the landscape, improved walking trails, invasives removal, restoring a historic vista between the Manor and Brooks Pond, and common-sense forest management. The execution of the Master Plan will greatly expand public access to the Brooks Estate and the types of public uses that the buildings and property can accommodate. Two of the most urgent needs are to stabilize and restore the Carriage House, and to reconstruct the access road to the Manor and Carriage House and open up the Grove Street entrance to the Estate. In 2019, the City Council approved several Community Preservation Act projects in line with the Brooks Estate Master Plan. Community preservation funds will be used to fund the design phase of the access drive, restore two of the entrances to the Shepherd Brooks Manor, and remove invasive plants on the property.

The Oak Grove Cemetery started with a 12-acre parcel purchased by the City of Medford from the Brooks family in 1853 for use as a cemetery. The City later purchased an additional 22 acres in 1875. Today, the Oak Grove Cemetery remains a solemn site of repose and reflection. Its rocky rises provide scenic vistas, and the historic graves and vegetation provide a window into the character of old Medford.

Other features of historic interest include the "Slave Wall." This brick wall capped with stone slabs is located on Grove Street and is said to have been built in 1765 by a man named Pomp, a black slave held by Thomas Brooks. A project to stabilize this historic wall was completed in 2001.

The Cradock Bridge, which spans the Mystic River at Main Street, was originally built as a wooden bridge in 1637, and was the only bridge across the river until 1787. The original bridge was rebuilt in 1880 and 1909, after the Medford shipyards were closed. In 2017 and 2018 the MA Department of Transportation undertook a major project to completely rebuild and restore the Cradock Bridge, including a resiliency project of removing the remaining locks infrastructure from under the surface of the water. The restored bridge allows increased water and boat traffic under its spans and remains a historic landmark in the City.

Many of Medford's parks contain war memorials of local historic significance. These include Veterans Memorial, Victory, Barry, Playstead, Grant, Hillside, Harris and Dugger Parks. A similar monument also stood at Stabile Center and was incorporated into the landscaping plan for the South Medford Fire Station built on this site. In 2016, the City unveiled the Krystle Campbell Peace Garden, a park established to remember the victims, their families, first responders, and survivors of the Boston Marathon bombings. Figure 6: Scenic, Historic & Unique Features Map



Environmental Challenges

There are no active landfills within the City of Medford or adjacent to its boundaries. Erosion and sedimentation have been identified as growing problems in the Mystic basin. The City of Medford has drafted Stormwater Rules and Regulations, and the City's Stormwater Board is in the process of reviewing the drafted regulations. Erosion and sediment control best management practices and requirements will be established during the review process.⁴

As a highly developed municipality, the City of Medford faces some challenges related to both point and nonpoint source (NPS) pollution. Point source pollution is largely attributable to sanitary sewer overflows (SSO), occasional unintentional discharge of raw sewage from a municipal sanitary sewer. In order to reduce SSO, which often result from too much infiltration/inflow (I/I) in the sewer system, the City has undertaken studies to identify and address the sources of I/I and disconnect private sump pumps from the sanitary sewer system. Through the Mystic River Watershed Initiative, the EPA has enhanced enforcement efforts that have stopped over 14,000 gallons per day of sewage from being discharged to the watershed through illicit connections.

The City has developed a storm water management plan and actively works to reduce nonpoint source (NPS) pollution, which results from storm water runoff from impervious surfaces and wildlife and pet wastes. Many of the City's Department of Public Works regular operations contributes to this effort, through activities such as increased street sweeping, catch basin cleaning, and leaf/yard waste collection. The City also conducts public outreach and education campaigns within the City and through the Mystic River Watershed Association's storm water education collaborative. In recent years, the City has applied for and received grants to identify appropriate locations to install green infrastructure, such as rain gardens, which are designed to collect and filter runoff.

Hazardous Waste Sites

As in most older developed areas, localized site contamination from petroleum and other substances may be found when industrial sites are redeveloped; the Massachusetts 21E program provides a framework for the control and remediation of these situations. Since 1985, the Massachusetts Department of Environmental Protection has identified 365 sites on its Reportable Release database. In reviewing the reports of site contamination throughout the City, there are a number of sites with Activity and Use Limitations (AUL) in the south eastern quadrant of the City with a few outlying sites to the west. Many of them involve a release of oil and have been resolved, although there are a number of sites undergoing remediation efforts.

An AUL provides notice of the presence of oil and/or hazardous material contamination remaining at the location after a cleanup has been conducted pursuant to Chapter 21E and the Massachusetts Contingency Plan (MCP). The AUL is a legal document that identifies activities and uses of the property that may and may not occur, as well as the property owner's obligation and maintenance conditions that must be followed to ensure the safe use of the property. The complete AUL is filed at the County Registry of Deeds office. In addition, a copy of the AUL is available in MassDEP BWSC site files and in City offices.

⁴ City of Medford, NPDES PII Small MS4 General Permit Annual Report 2018

Air Quality

Medford is an urbanized community located along a major highway (Route 93) with numerous arterials carrying traffic throughout the region. Pollution from mobile sources can present significant health hazards to this densely populated city. As a result, it is important for the City to identify opportunities to expand alternative forms of transportation that encourage mass transit, as well as interconnected bike paths, walkways and walking trails. The Action Plan includes recommendations for making these improvements.

Flooding

Past flooding in Medford indicates that flooding can occur during any season of the year. However, most major floods have occurred during February, March, and April and are usually the result of spring rains and/or snowmelt. Floods occurring during the summer are often associated with tropical storms moving up the Atlantic coastline. A number of major floods have occurred in the Mystic River basin during the twentieth century, but flooding hazards have become particularly pertinent in recent years as Boston's urban areas have become increasingly developed (and increasingly impervious), and changing weather patterns have brought larger storm events into the region.

In Medford, the areas most susceptible to flooding are along the Mystic River where land has historically been filled in over earlier river bed and marshes, and the wet areas of the Middlesex Fells. The areas around the Fells are protected from development and are able to provide a buffer between flood waters and the developed areas of Medford. Although portions of the City adjacent to the Mystic River fall within flood plains, the majority of flooding in the City is caused by deficiencies in the drainage system rather than location within the flood plain. Locally identified flood hazard areas include the Cranberry Brook area, Lincoln Road and Daly Road in the Meetinghouse Brook Area, and the South Medford Area.

Remnants of the Cradock dam underneath Cradock Bridge, which spans the Mystic River at Main Street, have historically impeded the flow of the river and contributed to upstream flooding in West Medford, East Arlington, and Winchester. As part of the Cradock Bridge's reconstruction in 2017 and 2018, these concrete panels were removed and the bridge's hydraulic opening enlarged, which should mitigate these upstream flooding issues.

The present and anticipated effects of climate change threaten additional flooding risks for the City of Medford. Extreme weather and precipitation events will result in significant inland flooding; in the late century, sea level rise with storm surge may also negatively affect Medford. Please see Appendix B: Medford Parks and Open Space for Climate Resilience Report for detailed descriptions of the present and future flooding risks, as well as strategies the City of Medford can pursue to increase its resilience against these threats.

Urban Forestry

The City of Medford is designated as a "Tree City USA" by the National Arbor Day Foundation. The City meets criteria each year to maintain this status and is dedicated in a tree planting program resulting in the planting of over 100 trees each year (when appropriations are available). Under the supervision of the Tree Warden, the Forestry Division of DPW maintains all public shade trees in the City. Forestry personnel manages on a daily basis trimming (pruning) of right-of-way trees, removal of dead or diseased trees and stump removal. At times they will be called upon to deal with trees infested with insects and areas with poison ivy. The Tree Warden also oversees a private contractor to assist with the City crew in maintaining public shade trees.

See Appendix B for more information about the use of shade trees as part of the program to enhance climate resiliency at the City's park and open spaces. This Plan also recommends that the City consider preparing a tree succession plan.

Development Impact

Due to the density of existing development patterns, the development which occurs in Medford is redevelopment which poses little threat to established open spaces. Any large new developments with potential impacts on local neighborhoods, infrastructure or recreation areas are carefully examined through the site plan review process, and mitigation measures are requested of developers. In addition, the City's linkage program makes major new developments subject to linkage fees to offset the infrastructure impacts of the development, as well as the demand for new park and recreation facilities. Funds collected through this program are used to ensure that existing City facilities can accommodate the resulting additional demand.

Linkage between development and public infrastructure is well established in constitutional law. There is in effect a private/public partnership in all development: the development adds to the economic and tax base and the City provides extensive infrastructure and services ranging from police and fire protection to roadways and recreational facilities. Developments also have varying degrees of impact and those fees have been used in many localities nationwide to ensure that new development pays its fair share of infrastructure improvements as well as the public services supported through the tax base. Linkage programs providing direct developer support of specific improvements accomplish the same goal as impact fees and are, in fact, the traditional way in which residential developers provided. For example, land for schools to serve the new populations that would occupy their subdivisions.

Developer-provided open space is a common type of mitigation for development impacts that is used in the Massachusetts Chapter 91 program for development in historic tideland areas, and more generally through the state's MEPA process. Open space with pedestrian and bicycle paths and improvements to public parks impacted by development are often-used forms of mitigation. In the example of River's Edge (discussed above), as a result of coordination and review by the City and state regulators, the development is not only providing adjacent open space on the Malden River but is also providing the design of the Wellington Greenway which, not contiguous to the development, makes an important contribution to the larger waterfront open space system and forms a link that ultimately connects the development to the extensive DCR Reservation along the Mystic River.

Environmental Equity

Environmental equity refers to the distribution of open space and recreational opportunities throughout the City of Medford. Medford has a large number of parks and open spaces providing a wide variety of activities. As described under Community Needs in Section 7, an analysis of park distribution was undertaken using the ParkServe® tool which was created by The Trust for Public Land (TPL). This is a platform that identifies the locations and 10-minute walk

service areas for all parks, playgrounds and natural areas offering public recreational opportunities in almost 14,000 cities, towns, and communities in the US. According to the analysis, 98% of residents are located within a 10-minute walk of a park, playground, or open space. For more details see Section 7 and Appendix G of this Plan. Additionally, Appendix A contains a number of maps that illustrate the location of low- and moderate-income block groups and the service areas of various parks in the City.

Section 5: Inventory of Lands of Conservation & Recreation Interest

Introduction to the Inventory

The first step in being able to make decisions about future needs for open space and recreation is to have an accurate account of existing lands and facilities. This section contains an inventory of all conservation, open space, and recreation lands, both publicly and privately owned. Information on ownership, management responsibility, level of protection, and primary use the property are some of the other elements of this inventory. The areas shown in the table are depicted on Figure 7: the Open Space and Recreation Inventory Map.

The importance of open space and recreation resources to a community is immense. The protection and stewardship of these assets via past, future, and current Open Space and Recreation Plans is a crucial piece in shaping an environment where people want to live. Open space and recreation resources provide opportunities for the average citizen to relax, play, and explore, and are integral to life in the City of Medford.

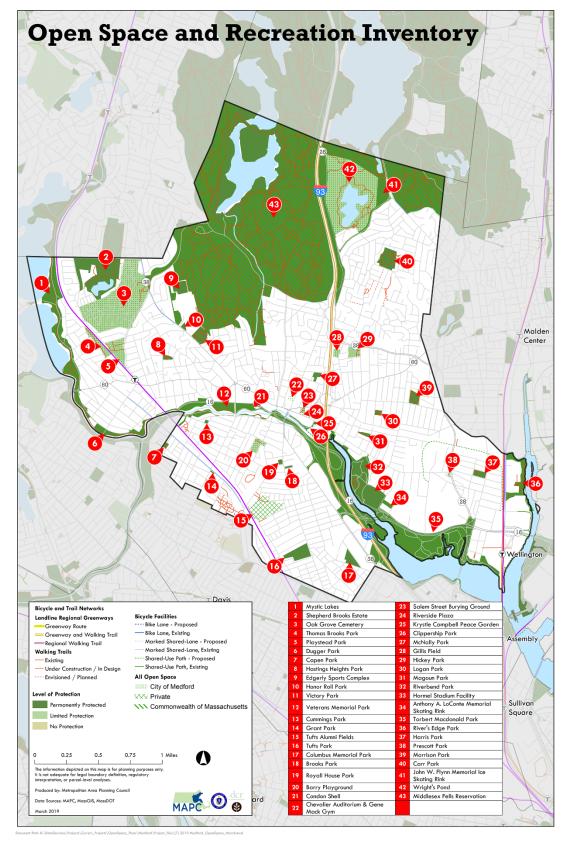
Open space has many different definitions and can mean different things to different people. What is considered open space in a suburban or rural community can be very different from what is considered open space in an urban community. The Open Space and Recreation Planners Workbook defines open space as "conservation land, forested land, recreation land, agricultural land, corridor parks and amenities such as small parks, green buffers along roadways or any open area that is owned by an agency or organization dedicated to conservation." A broader definition of open space can and should include undeveloped land with conservation or recreation potential.

Open space and parks are critical to the quality of life in a community and provide a wide range of benefits. Access to parks can contribute public health benefits, enhanced property values, and improved environmental quality including air quality, water quality, and the mitigation of urban heat island effects. Public health benefits include reducing the incidence of childhood obesity by providing safe places for kids to be active. Open spaces and parks also serve as important meeting places for neighbors to get to know one another.

Determining where the open space and recreation land is located in Medford is the beginning stage of fully understanding what resources the City has and how best to manage them. Once this land has been identified, it is important to ensure its protection and maintenance into the future to help guarantee that many more generations of residents can enjoy them. According to the Division of Conservation Services, land within a community is permanently protected if it is managed by the local Conservation or Parks & Recreation Commission, by Executive Office of Energy and Environmental Affairs (EOEEA) agencies, by a nonprofit land trust, or if the municipality received state or federal monies for the improvement or purchase of the land. Typically, land owned by

other City agencies or the local school system should not be presumed to be permanently protected.

Figure 7: Open Space and Recreation Inventory Map



Inventory of Open Space and Recreation Resources

The inventory matrix below includes 44 sites covering more than 1,821 acres of open space and recreation land owned and managed either by the City of Medford, the Department of Conservation and Recreation (DCR), or private entities.

The column headings of the inventory are defined below:

- Name Names the open space site.
- **Owner** Indicates the owner of the property.
- **Manager** Indicates the agency or department responsible for managing and maintaining the property. May be the same as the owner.
- Current Use Details the main use for the site and its facilities.
- **Condition** Identifies the site condition (excellent, good, fair, or poor). City-owned open spaces and parks were surveyed to obtain a general sense of the condition of the property and any facilities located on it.
- **Recreation Potential** Indicates the recreational use of sites. For land not used for recreational purposes, potential for recreational activities is identified. Conservation land is generally deemed to have limited recreation potential except for passive recreation such as hiking and walking. Some small tax title lands and sensitive environmental areas are presumed to have no recreational potential.
- **Funds Used** Identifies the funds used for the acquisition of or upgrades to the site, including grant funds.
- Zoning District Identifies the zoning district in which the site is located.
- Level of Protection Indicates if the site, either by virtue of its ownership, existence of deed restrictions, or by the fact that it has received state or federal funding, is protected against conversion to some other use. Levels are protection are described in more detail in this section.
- **Public Access** Indicates if the public can access the site. All City- and State-owned sites are publicly accessible.
- Acres Gives the site's acreage or an approximation in cases where specific information was not attainable. One acre is 43,560 square feet or 1/640 of a square mile.

Name	Owner	Manager	Current Use	Condition	Recreation Potential	Funds Used	Zoning District	Level of Protection	Public Access	Acres
			Public Lands -	Parks and Pla	aygrounds					
Barry Park/ Playground	City of Medford	City of Medford Park Division	Baseball, basketball, tennis, tot lot	Good	No changes planned at this time	CDBG, City	F2	Limited	Yes	4.3
Medford Honor Roll Park	City of Medford	City of Medford Park Division	Historical/Cultural	Good	None	City	SF1	Article 97	Yes	0.9
Tufts Park	City of Medford	City of Medford Park Division	Softball, soccer, basketball, tot lot, pool	Fair	No changes planned at this time	CDBG	GR	Article 97	Yes	10.6
Royall Park	City of Medford	City of Medford	Historical/Cultural	Fair	None	CDBG	SF2	Article 97	Yes	0.76
Brook Park	City of Medford	City of Medford Park Division	Passive	Fair	Used for passive recreation	City	APT1	Article 97	Yes	0.36
Hastings Heights Park	City of Medford	City of Medford Park Division	Passive	Fair	Used for passive recreation	City	SF1	Article 97	Yes	1.3
Harris Park/ Playground	City of Medford	City of Medford Park Division	T-ball, tennis, basketball, tot lot	Good	No changes planned at this time	CDBG, City, L&W, CPA	GR	Article 97	Yes	2.8
Hickey Park/ Playground	City of Medford	City of Medford Park Division	Baseball, softball, tennis, basketball, tot lot	Fair	No changes planned at this time	CDBG, City	GR	Limited	Yes	4.4

Name	Owner	Manager	Current Use	Condition	Recreation Potential	Funds Used	Zoning District	Level of Protection	Public Access	Acres			
	Public Lands - Parks and Playgrounds												
Playstead Park	City of Medford	City of Medford Park Division	Baseball, basketball, soccer, tennis, tot lot	Fair	No changes planned at this time	City	SF1	Limited	Yes	12.3			
McNally Park	City of Medford	City of Medford Park Division	Softball, tot lot	Excellent	No changes planned at this time	PARC, City	APT2	Article 97	Yes	1.7			
Gillis Field	City of Medford	Little League Association	Baseball	Poor	No changes planned at this time	CPA, Private	APT1	Limited	Limited	1.9			
Prescott Park	City of Medford	City of Medford Park Division	Passive	Good	Used for passive recreation	City	GR	Limited	Yes	0.25			
Capen Park/ Hillside Memorial Park	City of Medford	City of Medford Park Division	Basketball, tot lot, spray park	Fair	No changes planned at this time	USH, Private	GR	Article 97	Yes	0.77			
Morrison Park/ Playground	City of Medford	City of Medford Park Division	Baseball, tennis, basketball, tot lot	Fair	No changes planned at this time	CDBG	GR	Article 97	Yes	4.4			
Carr Park	City of Medford	City of Medford Park Division	Baseball, tennis, basketball, tot lot	Poor	No changes planned at this time	USH	SF2	Article 97	Yes	11.5			
Columbus Memorial Park	City of Medford	City of Medford Park Division	Baseball, softball, basketball	Good	No changes planned at this time	CDBG	GR	Article 97	Yes	5			

Name	Owner	Manager	Current Use	Condition	Recreation Potential	Funds Used	Zoning District	Level of Protection	Public Access	Acres
			Public Lands -	Parks and Pl	aygrounds					
Clippership Park	City of Medford	City of Medford Park Division	Passive	Good	Used for passive recreation	PARC & EDI	C1	Article 97	Yes	1.52
Victory Park	City of Medford	City of Medford Park Division	Soccer, basketball, tennis, tot lot	Fair	No changes planned at this time	USH, City	SF1	Article 97	Yes	6.12
Thomas Brooks Park	City of Medford	City of Medford Park Division	Passive	Good	Used for passive recreation	State	SF1	Limited	Yes	6.6
Cummings Park	City of Medford	City of Medford Park Division	Basketball, tot lot	Fair	No changes planned at this time	CDBG	GR	Article 97	Yes	0.45
Grant Park	City of Medford	City of Medford Park Division	Historical/Cultural	Fair	None	City	C1	Article 97	Yes	0.21
Magoun Park	City of Medford	City of Medford Park Division	Basketball, tot lot	Good	No changes planned at this time	Our Common Back- yards, CDBG	SF2	Article 97	Yes	1.3
Logan Park/ Playground	City of Medford	City of Medford Park Division	Tot lot, passive recreation	Fair	No changes planned at this time	City	SF2	Article 97	Yes	1.3
Veterans Memorial Park	DCR - Division of State Parks and Recreation	City of Medford Park Division	Baseball, softball	Fair	No changes planned at this time	City, DCR	ROS	Article 97	Yes	9.6

Name	Owner	Manager	Current Use	Condition	Recreation Potential	Funds Used	Zoning District	Level of Protection	Public Access	Acres
		• •	Public Lands -	Parks and Pla	aygrounds					
Dugger Park	DCR - Division of State Parks and Recreation	City of Medford Park Division	Basketball, soccer, tennis, tot lot, spray park	Poor	No changes planned at this time	CDBG	ROS	Article 97	Yes	3.2
Riverbend Park and Hormel Stadium	City of Medford	City of Medford Park Division; Hormel Commission	Baseball, soccer, football, running track, tot lot, community garden	Good	No changes planned at this time	CDBG, PARC	ROS	Article 97	Yes	46.5
Medford High School (Edgerly Sports Complex)	City of Medford	City of Medford Park Division	Basketball, volleyball, swimming pool, turf field, theatre	Good	No changes planned at this time	City	SF1	Article 97	Limited	7.5
Wright's Pond	City of Medford	City of Medford Park Division	Swimming with bath house and concessions	Poor	No changes planned at this time	City	ROS	Article 97	Limited	147.5
Krystle Campbell Peace Garden	City of Medford	City of Medford Park Division	Historical/Cultural	Excellent	None	City, Private, Fed, PARC	C1	Article 97	Yes	0.44
Riverside Plaza	City of Medford	City of Medford Park Division	Passive/Cultural	Excellent	None	City, L&W	C1	Article 97	Yes	0.30
Mystic Lakes State Park	DCR - Division of State Parks and Recreation	DCR - Division of State Parks and Recreation	Passive/Recreation	Fair	DCR	State	ROS	Article 97	Yes	56.7

Name	Owner	Manager	Current Use	Condition	Recreation Potential	Funds Used	Zoning District	Level of Protection	Public Access	Acres	
			Conse	ervation Land	s	·					
Condon Shell/ Winthrop St. Community Garden (Mystic River Reservation)	DCR - Division of State Parks and Recreation	City of Medford Park Division	Conservation and cultural	Fair	DCR	EDI	ROS	Article 97	Yes	7.5	
Middlesex Fells Reservation	DCR - Division of State Parks and Recreation	DCR - Division of State Parks and Recreation	Hiking, biking, conservation	Fair	DCR	DCR	ROS	Article 97	Yes	1156	
Brooks Estate	City of Medford	Medford-Brooks Estate Land Trust (M-BELT)	Conservation	Poor	None	CDBG, State, Private	ROS	Article 97	Yes	49.8	
Torbert Macdonald Park (Mystic River Reservation)	DCR - Division of State Parks and Recreation	DCR - Division of State Parks and Recreation	Passive/Recreation	Good	DCR	DCR	ROS	Article 97	Yes	70	
Massachusetts Water Resources Authority	MWRA	MWRA	Conservation/ Water Supply	Fair	None	MWRA	ROS	Article 97	No	41	
Cemeteries											
Salem Street Burying Ground	City of Medford	City of Medford Park Division	Historical/Cultural	Fair	None	MA Preser- vation Fund	C1	Limited	Yes	0.81	

Oak Grove Cemetery	City of Medford	City of Medford Park Division	Historical/Cultural	Fair	None	СРА	SF1	Limited	Yes	109
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Name	Owner	Manager	Current Use	Condition	Recreation Potential	Funds Used	Zoning District	Level of Protection	Public Access	Acres		
	Indoor Recreation											
Anthony A. LoConte Memorial Skating Rink	DCR - Division of State Parks and Recreation	HS Athletic Dept., City of Medford Park Division	Skating, hockey	Good	No changes planned at this time	State	I	Article 97	Yes	N/A		
John W. Flynn Memorial Ice Skating Rink	DCR - Division of State Parks and Recreation	Friends of the Flynn Rink	Skating, hockey	Improve- ment project underway	No changes planned at this time	State	ROS	Article 97	Yes	N/A		
Chevalier Auditorium and Gene Mack Gym	City of Medford	City of Medford Recreation Department	Recreation and Medford Youth Center	Fair	Variety of indoor activities	City	SF2	Article 97	Yes	N/A		
			Pr	ivate Lands								
Tufts Alumni Fields	Tufts University	Tufts University	Playing fields	Fair	Used for active recreation	Private	GR	None	Limited	19.5		
Cousens Gym	Tufts University	Tufts University	Indoor gym	Fair	Used for active recreation	Private	GR	None	Limited	N/A		
River's Edge Park	Preotle Lane Assoc.	Preotle Lane Assoc.	Conservation	Good	Used for passive recreation	Private	0	Conservation Restriction on 4.9 acres MGL ch. 184 §31-33	Yes	16.7		

Levels of Protection

For planning purposes, it is important to be aware of the degree of protection for each parcel. Knowing the level of protection (or lack thereof) will point out how easily some properties assumed to be open space can be developed. This knowledge can help in identifying those open space and recreation areas that require additional efforts in order to ensure their long-term preservation and protection. The following designations regarding level of protection are used.

Permanently Protected

The majority of open space in Medford is permanently protected. A site is considered to be permanently protected if it is recorded in a deed or other official document. Such land is to be considered protected in perpetuity if it is deeded to and managed by the local Conservation Commission or Parks & Recreation Department and thereby subject to Article 97, if it is subject to a conservation restriction or easement in perpetuity, if it is owned by one of the state's conservation agencies and thereby subject to Article 97, if it is owned by a nonprofit land trust, or if the municipality received federal or state assistance for the purchase or improvement of the property. Private land is considered protected if it has a deed restriction in perpetuity or a conservation restriction has been placed on it.

Article 97 of the Massachusetts Constitution protects publicly-owned lands used for conservation or recreation purposes. In order for a property to be sold, transferred, or converted to a different use, Article 97 requires a 2/3 vote of City Council in support of the disposition, a 2/3 vote of the Massachusetts Legislature in support of the disposition, demonstration of compliance with applicable funding sources, and the municipality must file an Environmental Notification Form (ENF) with the Massachusetts Environmental Policy Act (MEPA). Given the extensive nature of this process and the rarity with which the disposition process occurs, these public recreation and conservation lands are assumed to be permanently protected.

Limited Protection

Sites in this inventory have limited protection if they are legally protected for less than perpetuity (i.e. short term conservation restriction) or temporarily protected through an existing functional use. These lands could be developed for other uses when their protection expires or when their functional use is no longer necessary. In general, this includes all land owned by other municipal departments or commissions, including lands managed by the City for non-recreational purposes.

There are no Chapter 61 parcels in Medford.

No Protection

This category includes land that is totally unprotected by any legal or functional means. This land is usually privately owned and could be sold without restriction at any time for another use. Only a small percentage of open space in Medford has no protection.

City-Owned Open Space

The City of Medford maintains a variety of parks and open spaces totaling more than 390 acres, about a quarter of which is protected in perpetuity. There are a number of active recreation facilities distributed throughout the city, including small tot lots and playgrounds serving the various neighborhoods, as well as larger, city-wide facilities such as the Hormel Stadium Facility adjacent to Riverbend Park. The City also owns a number of school-based recreation facilities as each school has some recreation appropriate to the age group that it serves. The City also owns the Gene Mack Gym in the Chevalier Auditorium complex, which provides indoor programming and office space for the Medford Recreation Department and Medford Youth Center. With limited exceptions, the Park Division manages all active recreation facilities (school-based or not) in the city.

Large City-owned facilities like Wright's Pond, Carr Park and Playstead Park provide a number of active recreational opportunities to residents and visitors such as swimming, baseball, soccer, basketball, and tennis. While active recreation facilities make up over half of the open space owned by the City, historic and conservation lands, some of which are used for passive recreation, make up approximately 43%. These include the extensive Oak Grove Cemetery, the historic Salem Street Burial Ground, Macdonald Park, as well as smaller areas like Royall Park, and Grant Park.

State-Owned Open Space

The Commonwealth of Massachusetts is a major landowner in Medford, owning about three quarters of all open space in the City. The Department of Conservation and Recreation (DCR) owns and manages Middlesex Fells Reservation and Macdonald Park (Mystic River Reservation). Veterans Memorial Park, Dugger Park, LoConte Memorial Skating Rink, Riverbend Park and Condon Shell are owned by DCR but managed by the City's Park Division. Additionally Flynn Memorial Ice Skating Rink is also owned by DCR but is managed by a nonprofit group, Friends of the Flynn Rink. The Massachusetts Water Resources Authority (MWRA) owns 41 acres in North Medford for water protection purposes. All State-owned land is considered protected in perpetuity.

Privately-Owned Open Space

Private organizations own approximately 36 acres of recreational land in the City. This includes Tufts University's Alumni Fields in South Medford and River's Edge Park along the Malden River which is subject to a Conservation Restriction on 4.9 acres under MGL ch. 184 §31-33. This is the only Conservation Restriction in Medford and there are no Agricultural Preservation Restrictions

Section 6: Community Vision

Description of Process

Open space and recreation planning in Medford is conducted in a cooperative effort between a number of City departments and commissions, including the Recreation Department, Park Commission, Office of Community Development, Energy and Environment Office, Department of Public Works, School Department, and Conservation Commission. Further, the City collaborates with outside organizations, including the Department of Conservation and Recreation (DCR) and local nonprofits such as Mystic River Watershed Association (MRWA), whenever possible on matters pertaining to open space.

During this Open Space and Recreation Plan process, the Open Space and Recreation Plan Committee, whose members represent the open space stakeholders in Medford, met regularly with Metropolitan Area Planning Council (MAPC) staff to review and contribute to elements of the plan and assist with community engagement. In order to bring in the larger Medford community, MAPC and the City of Medford held two Community Forums to better understand how residents are using the City's open space and recreation facilities and what their suggestions are for improving them. At the first forum, attendees also weighed in on the plan's goals and objectives. Interpreters were provided at these forums for those people whose primary language is either Haitian-Creole, Spanish or Portuguese.

Leading up to the Community Forum, the City of Medford and MAPC did extensive outreach to spread the word about the event. Event flyers were placed in public buildings including City Hall and the Medford Public Library, and flyers were hung throughout Medford: the Senior Center and Medford Housing Authority properties, and distributed through the Medford Family Network, Medford Chamber of Commerce, Interfaith Ministry. Additionally, flyers were sent to the City Council and various boards and commissions. Additionally, two Reverse E911 invitations were sent to the entire community one week and again two days before the meetings.

The event was also advertised on the City of Medford's website, social media, on the local cable access channel, and through City email listservs. Additional targeted outreach took place to reach Medford' environmental community and users of the Recreation Department's programs and facilities. Much of this outreach was conducted through a series of interviews and focus groups with key stakeholders. The input received through these efforts are summarized in Appendix C. The materials were translated into Haitian-Creole, Spanish and Portuguese. Finally, a survey was prepared which received 486 responses, which are summarized in Appendix C.

In order to address both the fact that Medford is an aging community and that a significant portion of the City's population is located with Environmental Justice block groups, focus groups were held in strategic locations including Medford Housing Authority property (with interpreters) and a focus group was held for seniors at the Medford Senior Center. These conversations addressed ways in which the City of Medford can better serve its non-English speaking and senior populations in terms of access to open space facilities and programming available.

Statement of Open Space and Recreation Goals

Medford is endowed with a wealth of open space and recreational resources. These resources range from small neighborhood parks to larger parks and ballfields, as well as large regional open spaces such as Middlesex Fells. This balance helps provide for a high quality of life for Medford residents of all ages, and also creates unique destinations for outside visitors. It is important to safeguard and maintain these resources, as well as identify opportunities for the addition of new resources in the face of development pressures.

Overall, the goals of this plan are established to build on what Medford has achieved and to protect and expand its open space and natural resources, enhance and diversify the recreational opportunities in the City, ensure that its facilities are well-maintained, and strengthen climate change resilience.

Section 7: Analysis of Needs

Introduction

Medford has approximately 1,821 acres of parks and open space overall, which includes more than 396 acres maintained by the City. Comparisons with national standards suggest that Medford has ample park space to meet the needs of its community and to have a high-quality park system. National Recreation and Park Association (NRPA) standards recommend that a city of Medford's population should have about 538 acres of parks, and Medford has 1,821 acres within its boundaries.

Community Needs

Park equity is a critical component of building community, physical and mental wellbeing, neighborhood beautification, and in some cases, reduction in violence and crime. Combined with park maintenance, diversity in amenities and park programming, these benefits are achieved when residents have access to close-to home parks. One measure of park equity is the geographic distribution of parks within a 10-minute walk of resident's homes.⁵

ParkServe®, created by The Trust for Public Land (TPL) is a platform that identifies the locations and 10-minute walk service areas for all parks, playgrounds and natural areas offering public recreational opportunities in almost 14,000 cities, towns, and communities in the US. The data platform measures 10-minute walk park access for over 80% of the US population. In Medford, 98% of residents are located within a 10-minute walk of a park, playground, or open space. This figure is 44% higher than the national average of 54% of residents within a 10-minute walk to a park.⁶

The majority of Medford's residents have equitable access to parks. According to an analysis performed by TPL's ParkServe®, high income individuals have the greatest access to parks, as well as adults between the ages of 20-63 and White individuals. Demographics in need of park access include seniors over the age of 64, Pacific Islander/Hawaiians, Native Americans, and Mixed-Race individuals. Middle income individuals have the least access to parks. See Appendix G for the full ParkServe® analysis.

According to ParkServe®, there are a few locations in Medford that are in high to moderate need of a park, where residents in these locations are not served.⁷ However, these locations are in fully developed areas that are not necessarily appropriate for new parks. The areas identified

⁵ National Recreation and Park Association, Trust for Public Land, Urban Land Institute.

https://www.10minutewalk.org

⁶ ParkServe® <u>https://ParkServe.tpl.org</u>

⁷ ParkServe® uses ESRI Network analyst ArcGIS Extension to create a 10-minute walk service area using a nationwide walkable road network dataset provided by ESRI. It creates service areas around parks from entrance points and considers physical barriers such as highways, railroads, rivers without bridges, etc. in determining accessibility.

in high to moderate need can be found in a map in Appendix G. Overall, Medford's park system is serving the majority of its residents, significantly higher than the national average.

Many different groups in society struggle to be included in parks and recreation spaces, so it is important that Medford's parks provide active, healthy and engaged recreational opportunities for all users. Community meetings and focus groups produced significant feedback about current needs. Among the most frequent comments participants expressed a need for more social and recreational spaces for teens, seniors and those with disabilities.

Generally, local youth would benefit from more organized and informal play as well as a greater variety of programed events and recreational activities dedicated to teens. In order to include teens in the OSRP planning process MAPC facilitated a focus group with students from Medford High School.

Students participating in the focus group were asked to design their own parks and discuss what type of amenities would be included in their ideal park or open space. Students were also asked to indicate their favorite and least favorite outdoor spaces through a mapping exercise using dots. Overall, group participants expressed disappointment with park cleanliness, overgrown and dilapidated fields, broken and deteriorating playground equipment, and the poor conditions of some parks throughout Medford. Responses from the focus group are recorded in Appendix D of the plan.

As an example for how a municipality can reach out to teens, the City of Boulder, convened the Colorado's Youth Opportunities Advisory Board (YOAB), which is a group of 16 area high school students, who work to promote the youth voice in the community, provide opportunities for city youth, and advise the municipal government on youth-related policies and issues.

In 2016 the City of Boulder's Parks and Recreation Department worked with YOAB to engage teens on what features they would want to see in city parks.⁸ The students participating in the focus group were overwhelmingly enthusiastic about having an active voice in the planning process for parks in their community. The ten most consistent park features requested by teens in Boulder included:

- WiFi
- Movie Nights
- Food Trucks and Cafes
- Interactive Lighting and Art
- Play Spaces for both Children and Adults
- Study Spaces
- Trees, Flowers, Nature

⁸ https://www.childinthecity.org/2015/12/02/parks-for-teens-10-features-teens-want-to-see/

- Music Events
- Lighting and Safety Features
- Water Features

To gain a better understanding of youth needs, the City should consider organizing a similar advisory board that focuses on the inclusion of teens in public space planning and neighborhood design in Medford.

Seniors, especially those living alone are more vulnerable to social isolation and physical and mental health issues. Parks, open space and recreational facilities provide settings where seniors can interact with other seniors, exercise, relax and enjoy the beauty of their natural surroundings. The needs of elderly residents are divided between the younger, more active senior citizens and the frail elderly. The frail elderly generally require therapeutic recreational services. More active seniors tend to enjoy walking, golf, tennis and swimming. Elderly residents may also have similar needs as residents with disabilities in terms of their ability to access recreation facilities.

To explore and better understand seniors' needs and preferences relevant to designing open spaces and parks MAPC facilitated a focus group with seniors at the Medford Senior Drop-In Center. Participants were asked to complete a brief survey and encouraged to discuss issues that revolved around seniors' needs for open space and physical activity as well as preferred park amenities and programs.

As it relates to open space areas, seniors and those with disabilities would benefit from more benches, paved pathways around parks, sufficient shade trees, and more age-appropriate programming such as bocce, shuffleboard, corn hole, and walking groups. Participants love the Medford Senior Drop-In Center and its recreation offerings. Responses from the focus group are recorded in Appendix D of the plan.

Different age and user groups within the City each have particularized needs, which can be accommodated through good planning and design. The use of Universal Design concepts in parks provides accessibility for those with disabilities and enables multi-generational play between youth, teens and seniors. The Center for Universal Design at NC State University provides the following seven guiding principles for Universal Design:

- 1. Equitable Use: The design is useful and marketable to people with diverse abilities
- 2. Flexibility in Use: The design accommodates a wide range of individual preferences and abilities.
- 3. Simple and Intuitive Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
- 4. **Perceptible Information:** The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities

- 5. Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions.
- 6. Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue.
- 7. Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

In order to best serve elderly residents and other individuals with mobility limitations, both the design of internal park layouts and the pathways residents take to access them should be evaluated and improved if necessary. Additionally, access to park and recreational resources should be considered for disabilities that are not just physical, such as opportunities to stimulate the senses through creative use of colors, textures, etc. For example, tlighis would be particularly helpful for the City's elderly population such as those suffering from various forms of dementia.

In addition, the focus groups identified the following subject areas where improvements could be made.

Facilities

Lack of restrooms and water fountains were by far the most noted issues with parks and recreation facilities. When there are bathrooms and water fountains, many participants indicated that they were not maintained properly. Several participants indicated that parks needed trash receptacles. Carr, Dugger, Hickey, Playstead, Wright's Pond, and Barry were all specifically mentioned in this category.

Maintenance

General maintenance was a specific problem mentioned at some point during all focus groups and interviews that were conducted. In several focus groups, participants indicated that the maintenance issues in parks discouraged or prevented them from visiting. Among the issues most often cited as maintenance issues were:

- Geese and dog droppings
- Litter and trash
- Overgrown parks, weeds
- Old and rusty structures

Programming

There are a diversity of suggestions and issues relating to programming, including things such as an obstacle course, longer pool seasons, more outdoor movies, yoga classes, grills for cooking, and more. Participants indicated that there was a lack of programming for teens more generally and pointed out that shortened hours at certain recreational facilities (either officially or incidentally, such as through the lights turning off) has made that lack of programming worse. Participants in several focus groups indicated that they wished they had more information about programming in Medford's parks and recreation facilities. Several participants also indicated a desire for more programming around the Mystic River and the Mystic Lakes, such as kayak rentals.

Awareness about Parks and Recreation

Many participants indicated that they do not go to parks and/or visit recreation facilities because they are not aware of them and do not feel that there is a good place to go to get more information. In addition, many participants also indicated that signage about parks (and signage in parks) is severely lacking, which several felt exacerbated the existing issues about awareness. Attendees who have worked with the City have also indicated that it can be confusing to identify which permits they need and when they need to apply for them.

General Improvements

Many participants mentioned that they wished there was more shade at parks, particularly in the Krystle Campbell Peace Garden and Carr Park. Participants also suggested providing more trash cans and dog waste bags as well. Several participants also suggested improvements to access to the Mystic River from certain parks. Suggestions included better boat entry spots and fishing access.

Access

Most participants accessed parks by walking or driving. Several participants indicated that they would take the bus but either did not have a bus pass or did not know which parks they could get to by bus. Participants pointed out a variety of barriers to accessing parks, however poor (or non-existent) sidewalks and crosswalks, both inside and outside parks, were among the most frequently mentioned. For example, several participants indicated that the crosswalks and sidewalks on South Border Road feel unsafe and are hard to cross. Members of the Commission for Persons with Disabilities indicated that sidewalks inside parks are often damaged due to tree roots, which negatively impacts their ability to move around inside parks. Many participants indicated that wayfinding and directional signage in parks more was significantly lacking. In the Fells in particular, several participants mentioned that they underutilize the park because they are afraid of getting lost on a hiking trail or of walking where they should not.

Cost

In general, cost was not raised as an issue associated with accessing and using Medford's parks and recreation services. However, multiple participants indicated that Tufts Pool and Wright's Pond are often too expensive to use, particularly because single use/day passes are not available. Most participants indicated that if they could buy a single use/day pass for these parks, they would use them more often.

Resource Protection Needs

Medford is fortunate that the majority of its open space and recreation lands are permanently protected from future development, whether due to protection through Article 97 status, the

presence of a conservation restriction or easement, or through other means. Though these protected sites include very large and environmentally sensitive areas such as Middlesex Fells Reservation and Mystic River Reservation, there are other sites along the Mystic and Malden Rivers waterfront that would also benefit from permanent protection.

A Resource Management Plan for Middlesex Fells was adopted by the DCR Stewardship Council in January 2012. The overall purpose of this plan is to "protect the cultural and ecological resources at the DCR Middlesex Fells Reservation and provide diverse recreational opportunities that are compatible with resource protection".⁹ In recognition of the fact that DCR owns and manages environmentally important open space resources in Medford, the City should work with DCR to ensure implementation of the management plan, as well as the continued protection of the Fells and its accessibility for passive recreation. Additionally, the City should work with DCR and Friends of the Fells to support projects that improve community access, educational programming, and habitat maintenance and restoration.

Management Needs

Medford parks provide residents and visitors with a wide variety of recreational opportunities however, staff levels, deferred maintenance, decreasing budgets, and high levels of use have all created significant challenges for the City's parks.

Communication amongst the regulatory and planning authorities in the City of Medford will be imperative to the success of this Open Space and Recreation Plan. Historically and presently, there has been a lack of coordination and communication among the actors involved. The City could benefit from increased collaboration and coordination amongst the Parks Division, the Recreation Department and the Park Commission to improve maintenance, scheduling and programing of Medford's parks.

Scheduling for the athletic fields was raised more than once as a challenging issue for the various sports leagues in Medford. With limited numbers of fields and increasing demand it can be difficult for the different leagues to accommodate all of their games, especially when weather conditions force delays in the schedule. In the interest of fairness, and to help ensure over time that the field types offered are correctly matched to the demand, it may be beneficial for the City to create an online sports facility management and scheduling database that can be viewed and used by the public.

The Parks Division of the Department of Public Works maintains fields and operates facilities such as Tufts Pool and the beach at Wright's Pond. Maintenance activity is highest during the spring, when fields and other areas must be prepared for their peak use season. While the City Parks Division works to ensure that the parks they maintain are kept in the best possible condition, many

⁹ Department of Recreation and Conservation, Resource Management Plan, Middlesex Fells Planning Unit, January 2012, <u>https://www.mass.gov/files/documents/2016/08/xk/rmp-midfellls.pdf</u>

attending the public meetings and participating in focus groups felt there were still significant maintenance issues to be addressed.

Effective long-term maintenance of Medford's could benefit from adopting a number of recommended organizational and operational practices. To further facilitate effective long-term parks management, the Parks Division should conduct annual condition audits to assess the status of each park, its equipment, surfaces and overall environment and use it to develop annual maintenance work plans, budgets and maintenance schedules, as well as to plan capital expenditures for the parks. The parks condition audit should look at a variety of maintenance elements, including: turf care, fertilization, irrigation, hardscape surfaces, play equipment and special features such drinking fountains, basketball netting, soccer goals, signage, placement and number of little receptacles, etc. The condition audit can give a maintenance score to each park and for each of the park's key elements, all of which can be used to guide development of a maintenance plan to sets out the key actions needed for weekly park maintenance.

Medford already has the building blocks for such a plan, but could go further to spell out parks maintenance tasks beyond trash collection and field lining. Maintenance plans should also detail how often turf, planted areas, irrigation systems, playgrounds and equipment will be inspected. The plan should set out schedules for mowing, but also further plant control, such as weed removal, tree pruning and watering and mulching planted areas. Beyond the current weekly trash and field lining schedule, a full maintenance plan should set out all the tasks and timetables for that work to be conducted throughout the year.

Medford uses the SeeClickFix tool enabling residents to visually report any infrastructure damage or issues to City officials. To the degree it is not already used by the DPW as a maintenance management software and workflow system, it could be purposed in such a way to support parks maintenance. Any issue reported by parks maintenance staff could be entered into the SeeClickFix system to ensure it is addressed. Signage at parks should also let residents know that they can relay any information about parks maintenance to City officials using the SeeClickFix tool.

As described in the Climate resilience Appendix to this plan, Medford could consider deploying green infrastructure assets into its parks to capture and filter stormwater runoff and improve drainage. Green infrastructure assets, such as rain gardens or porous pavement, a certain level of upkeep beyond current activities. For example, rain gardens require additional inspection to assess plant health and ensure litter removal. Regular weeding and mulching are also necessary for such installations. Porous pavement can require power washing and vacuuming every few years to ensure it retains its permeability. If gravel or other porous surfaces have been used in parks to enable water infiltration, such materials will need to be refilled due to erosion or compacting. Other cities have implemented green infrastructure successfully and would be able to advise Medford's DPW parks about maintenance requirements for such assets. See Appendix B.

According to NRPA, staffing at the typical park and recreation agency includes 36 full-time equivalent employees (FTEs) that include a mix of both full-time and part-time staff.¹⁰ Park and recreation agencies serving jurisdictions having a population of 50,000 to 99,999 people have a median of 56.5 FTEs.¹¹ In 2010 Medford's population was 56,173. The Park Division currently has only five full time employees with limited seasonal staff to support aquatics programs. On average, there are more than 75 acres of park space per park employee responsible for care. The current number of staff dedicated to maintenance falls significantly short of what is required to meet even the basic needs of Medford's park system.

The City should expand and create new partnerships with local nonprofits and the business community to implement elements of this plan. These relationships are beneficial and important for a myriad of reasons. Working with such organizations could significantly contribute to improved maintenance and programing of Medford's parks, it also opens up eligibility for grant funds that only nonprofits can apply for.

The creation of Friends Groups, similar to Friends of the Fells, would transfer property management from the City to such a group that could actively manage a piece of land. Establishing Friends Groups or similar community organizations could assist with the day-to-day maintenance of parks as well as provide programming and help promote a positive image of the City's parks.

Volunteers and sports leagues could be enlisted to help maintain parks and parts of the City's athletic fields. Additionally, staffing resources for fields could be augmented with the use of college interns from UMass Amherst majoring in turf management. The City should consider hiring a qualified volunteer coordinator to maximize volunteer help and corporate support.

Fiscally, Medford's parks operate with a significantly limited budget. Funding to maintain, expand, and upgrade parks and recreation facilities in the City is an important issue. Historically, park funding for routine upgrades and maintenance is funded through the City budget. Funding for major upgrades has been derived almost exclusively from grants and linkage fees, which has limited the City's ability to make planned improvements to match the available funding.

Creative use of existing facilities, acquisition, partnership and alternative funding mechanisms may be required to meet the City's park and recreation needs. Options for funding open space may also include earmarking existing and future revenue streams, designating a percentage of the budget, development fees, or fees on park use. Determining an appropriate funding source will require a careful and collaborative assessment by the City, the Parks Division, the Recreation Department and the Park Commission.

 ¹⁰ 2018 NRPA Agency Performance Review Park and Recreation Agency Performance Benchmarks
¹¹ 2018 NRPA Agency Performance Review Park and Recreation Agency Performance Benchmarks

Statewide Comprehensive Outdoor Recreation Plan (SCORP)

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) is the Commonwealth's equivalent of a municipal open space plan. SCORP plans are developed by individual states in order to be eligible for federal Land and Water Conservation Fund (LWCF) grants. In 2017, the Executive Office of Energy and Environmental Affairs completed the Massachusetts SCORP to help guide the distribution of federal funding to state agencies and municipalities for the acquisition of open space, renovation of parks, and development of new parks. The SCORP is a planning document that discusses the available recreational resources in a state, as well as its needs, and identifies the gaps between the two. The goals and objectives of the 2017 SCORP are to:

• Goal 1: Improve Access for Underserved Populations

• Objectives:

1. Support the acquisition of land and development of new open spaces in areas that lack existing or useable open spaces, such as Environmental Justice neighborhoods

2. Develop parks and open spaces that offer amenities that go above and beyond ADA requirements for people with disabilities

3. Consider the needs of underserved demographic groups — senior citizens and teenagers — in park and open space designs

4. Encourage establishment of programming endowments

Goal 2: Support the Statewide Trails Initiative

• Objectives:

1. Support the acquisition of land and development of new open spaces that can provide a trail network

- 2. Fill in the gaps of existing trail networks
- 3. Ensure that any existing or new trails are fully accessible to people with disabilities

Goal 3: Increase the Availability of Water-based Recreation

- Objectives:
 - 1. Support the acquisition of land that will provide for water-based recreation

2. Support the acquisition of land that will increase drinking water supply protection

3. Develop water-based recreational facilities, including swimming areas, spray parks, boating facilities, fishing areas, etc.

• Goal 4: Support the Creation and Renovation of Neighborhood Parks

• Objectives:

1. Promote the acquisition and development of neighborhood parks where none currently exist

2. Develop amenities supported by neighborhood parks, such as playgrounds, offleash dog parks, and community gardens

3. Work with community development organizations to improve walking access to local parks

This Plan is consistent with these goals and objectives.

Section 8: Goals and Objectives

The following goals and objectives were created by the Open Space and Recreation Plan Committee, and feedback from the first Community Forum has been incorporated.

- Goal #1: Serve the active recreation needs of all residents throughout Medford by expanding its open space resources and upgrading the conditions of existing facilities. • Objectives:
 - - 1.1 Provide each neighborhood with a safe open space that provides multi-generational opportunities for recreation.
 - 1.2 Meet community needs for organized and informal team and individual sports.
 - 1.3 Meet the needs of all citizens through universal design.
 - 1.4 Extend playing hours for adult leagues and facilitate Youth League night-time play.
 - 1.5 Provide a clean, safe playground for each neighborhood that provide a variety of play spaces and experiences.
 - 1.6 Extend the playing season and minimize use limitations due to wet conditions.
- Goal #2: Establish connections to and along the City's natural resources.
 - Objectives:
 - . 2.1 Create a multi-use path system along the Mystic River and Malden River.
 - 2.2 Provide access to the water for pedestrians, personal water crafts, and as an alternative route for transportation.
 - 2.3. Prioritize DCR's Mystic River Master Plan findings and leverage common goals.
- Goal #3: Expand / diversify recreational programming for the City within the existing open space resources.
 - Objectives:
 - 3.1 Expand community garden sites within the City to serve more moderate to low income neighborhoods.
 - 3.2 Ensure that passive recreation opportunities are available throughout the City.
 - 3.3 Provide separate and distinct open space resources for residents with dogs who are not allowed off-leash in many of the City's parks.
- Goal #4: Improve the ecological quality of the City.
 - Objectives:
 - 4.1 Expand the urban forest canopy.
 - 4.2 Restore wetlands within the riverfront areas to create better ecological function and native habitat.

- 4.3 Manage the presence of exotic invasive vegetation in ecologically significant landscapes.
- 4.4 Deploy stormwater management pilot projects throughout the City to improve water quality.
- 4.5 Protect water quality and important natural resource areas and buffer zones.
- Goal #5: Develop a system for park facility management / maintenance.
 - Objectives:
 - 5.1 Improve the overall quality of Medford's existing inventory of open spaces and facilities.
 - 5.2 Educate the residents as to the resources available throughout the citywide open space system.
 - 5.3 Facilitate the management of playing fields to protect their condition.
 - 5.4 Support programming that supports public art and use of public outdoor venues throughout the City.
 - 5.5 Leverage permit fees as income for parks maintenance.
- Goal #6: Strengthen Medford's climate change resilience through park and open space design and preservation.
 - Objectives:
 - 6.1 Perform ecological restoration and maintain the ecological integrity of Medford's natural areas to maximize natural systems' benefits, such as cooling, sequestering carbon, avoiding and capturing stormwater, and mitigating air pollution.
 - 6.2 Include design improvements in park renovations that incorporate strategies that mitigate climate change risks of urban heat island, stormwater runoff, inland flooding, and riverine/coastal flooding.
 - 6.3 Prioritize new parks and open space acquisitions in locations where climate change mitigation can address risks such as extreme heat, inland flooding, and coastal flooding.
 - 6.4 Increase park access and distribution for neighborhoods where residents are most vulnerable to climate change.