



Manchester-by-the-Sea Open Space and Recreation Plan

2021-2027



Acknowledgements

This plan would not be possible without the support and leadership of many people in the Town of Manchester-by-the-Sea. Sincere thanks to Mary Reilly, Grants Administrator for the Town of Manchester and Sue Brown, Town Planner. Members of the Open Space and Recreation Committee, Open Space and Recreation Plan Advisory Committee, and supporting Town staff are listed below and in Section 2 of the plan. Funding for this project was provided by the Community Compact Best Practices Program through the Massachusetts Governor's Office and a technical assistance grant from the Metropolitan Area Planning Council (MAPC).

Town of Manchester-by-the-Sea

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- Mary Reilly, Grants Administrator

Manchester Open Space and Recreation Committee

- Steve Gang, Co-chair, Conservation Commission Rep
- Olga Hayes, Co-chair, Parks & Rec Committee Rep
- Deb Fraize, Manchester Coastal Stream Team Rep, 2023
- Parker Harrison, Bicycle and Pedestrian Committee Rep, 2022
- Helen Bethell, At-Large, 2021
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Section 1: Plan Summary

The 2021-2028 Manchester Open Space and Recreation Plan (OSRP) updates and revises the town's 2014 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 Town staff, committees, boards, commissions, nonprofits, and volunteer groups in town working to support open space and recreation.

The foundation of Manchester's unique charm is its exceptional open space and natural resources including its harbor, beaches, tidal lands, fresh water, wildlife habitats, and breathtaking vistas. These irreplaceable resources were driving forces of Manchester's historic development patterns and remain significant components of the town's essence and identity¹. This plan seeks to offer opportunities for improving and protecting open space and recreation land in Manchester, and for developing actions to meet community goals.

The quality of life for Manchester residents and visitors of surrounding communities is enhanced dramatically by Singing Beach, Dexter Pond Conservation Area, Powder House Reservation, Coolidge Reservation and many of the Town's other playgrounds, parks, and natural open spaces. 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 responsible parties, timeframe for achieving the action, and potential funding sources. This OSRP also includes an overview of the history of Manchester, its physical development, demographic characteristics and an environmental analysis.

This OSRP 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 (OSRC) and the Open Space and Recreation Plan Advisory Committee (OSRPAC) as well as staff from the following Town of Manchester departments: Parks and Recreation, Planning, Public Works, Conservation Commission and Harbormaster. During the course of the OSRP update process, MAPC held two virtual public forums, gathered resident input from virtual open houses, created an online survey with over 200 responses, and met numerous times with the OSRC, OSRPAC and staff from the Town of Manchester.

In addition to serving as the town's blueprint for park and open space planning, an approved Open Space and Recreation Plan allows Manchester 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 EOEAA) Division of Conservation Services (DCS), Manchester is eligible for funding opportunities like the Local

¹ "Manchester Community Preservation FY2021-2025" (2021), The Manchester Community Preservation Committee

Acquisitions for Natural Diversity (LAND) and Parkland Acquisitions and Renovations for Communities (PARC) grants, which the Town can use for land acquisition and improvement of parks and other open spaces.

The OSRC, with the help and assistance of the OSRPAC and various town departments and committees, developed seven goals on which the OSRP is based. They are as follows:

- **Goal 1:** *Ensure that the objectives and actions identified in the Open Space and Recreation Plan (OSRP) are implemented and that the plan is updated as needed for resubmission in 2028.*
- **Goal 2:** *Protect Land Significant to Drinking Water Protection, Wildlife Habitat, Natural Resource Protection and Climate Change (for carbon storage).*
- **Goal 3:** *Manage existing town-owned or town-managed open space parcels for the purposes of safe and enjoyable public access and the protection of natural resources and wildlife habitat.*
- **Goal 4:** *Promote awareness, enjoyment and stewardship of Manchester's open space parcels and natural resources through outreach and education.*
- **Goal 5:** *Identify the town's recreational needs and create action plans to address those needs.*
- **Goal 6:** *Promote the use and improvement of the town-owned waterfront resources for the purposes of water-related activities.*
- **Goal 7:** *Continue to advocate for accessibility by ensuring that town officials, boards and committees are aware of Universal Design Standards and ADA requirements and that ADA considerations are incorporated into town projects.*

Section 2: Introduction

Statement of Purpose

Why was this Plan Update Written?

The Town of Manchester-by-the-Sea (Manchester or MBTS) is known and beloved for its scenic beauty, unique natural features, and recreational resource areas. Improving and preserving Manchester's parks, open space and natural resources is critical to the town's character, environmental health, and social well-being.

Manchester's 2021 Open Space and Recreation Plan continues the work of previous open space plans completed by the Town, updating and replacing the most recent version produced in 2014. This document will serve to guide the Town'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 open space and recreational needs of the Manchester community are met.

This 2021 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 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, 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 all considered passive activities. Conservation lands can offer passive recreation opportunities.

This Plan inventories both active and passive recreation areas, as well as open spaces such as cemeteries that serve as historical and cultural features that provide information about the

people, places, and events of an earlier time. The Inventory of Manchester’s recreation and open space resources is in Section 5.

Planning Process and Public Participation²

The planning process and preparation of this OSRP was coordinated by the Metropolitan Area Planning Council (MAPC), under the direction of, and with input from two key advisory bodies the Open Space and Recreation Committee (OSRC) and the Open Space and Recreation Plan Advisory Committee (OSRPAC). The members of the OSRC and OSRPAC and their affiliations are listed below:

Manchester Open Space and Recreation Committee

- Steve Gang, Co-chair, Conservation Commission Rep
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² Full documentation of the feedback collected through the public participation strategies described in this section is included in Appendixes C, D and E.

Town of Manchester-by-the-Sea Supporting Staff

- Mary Reilly, Grants Administrator
- Sue Brown, Town Planner

Planning Process and Public Participation

During this Open Space and Recreation Plan process, the OSRC and OSRPAC, whose members represent the park and open space stakeholders in Manchester, 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 OSRC and OSRPAC, MAPC organized and hosted two virtual community forums. Due to the coronavirus pandemic and public health concerns, an in-person forum was not possible. Using Zoom's teleconferencing platform and Qualtrics' online surveying software, MAPC staff created a virtual meeting space mirroring the format of a traditional open house. Recordings of the virtual meetings and copies of the meeting presentation were posted online to allow residents who were unable to attend the live sessions to view content and provide feedback at their convenience. Information about the forums and the OSRP Community Survey, was distributed through the following means:

- Town website
- Press releases in local newspapers (Manchester Cricket, Gloucester Times)
- Town email listservs
- Social media (OSRC Facebook page)
- Individual outreach to nonprofits and community groups
- Individual outreach to Town Boards and Committees
- Individual outreach to recreation stakeholders and members of the community at large

The OSRP Committee hosted a virtual public forum on August 26, 2020, which 30 community members attended. The meeting started with an interactive presentation and live Q&A session via Zoom. The purpose of the first forum and open house was to introduce the OSRP planning process and gain insight into the community's open space and recreation use, goals, and needs. Immediately following the presentation participants were invited to visit the Virtual Open House where they could:

- Review informational content about the plan
- Review goals from the previous plan and suggest new goals for the 2021 OSRP update
- Provide feedback on park and open space use and priorities
- Provide input on current strengths, deficiencies, opportunities, and challenges in Manchester's park and open space facilities

Manchester residents and other open space stakeholders also had the opportunity to communicate their opinions and preferences through a town wide online survey, administered from October 26, 2020 through November 30, 2020. The survey allowed for open-ended comments and was

designed to help measure and evaluate what residents believe the Town should prioritize as it invests in its parks and open space, e.g. “Acquire land for conservation purposes, Acquire land for recreational purposes;” how frequently respondents visited particular park and open space properties; how respondents get to or would like to get to their parks and open space; what factors limit their utilization of Manchester’s open space and recreation amenities; and the types of programs and amenities they would like to see in the future. In total, the survey received over 200 responses. Information and results from the survey was shared with the OSRC and OSRPAC and used to inform reporting of Manchester’s community needs and priorities in Section 7.

MAPC and the OSRP Committee hosted a second community forum on May 26, 2021. This forum was set up as a virtual open house, with a brief presentation providing an overview of the OSRP planning process and the major phases of work to orient participants. During the presentation MAPC staff presented findings from the OSRP Community Survey and highlighted key themes of the draft 2021 Seven Year Action Plan. Following the presentation participants were encouraged to ask questions and were provided a link to visit the virtual open house to review, comment, and provide feedback on the proposed Seven Year Action Plan. Twenty community members attended the second forum, and several submitted written feedback on the proposed Action Plan which was incorporated into the draft OSRP. A Working Draft of the 2021 OSRP was posted on the Town website and circulated for public review comment, and feedback on June 7, 2021.

Section 3: Community Setting

Regional Context

Manchester-by-the-Sea is a coastal community situated in eastern Massachusetts (Essex County) and is bordered by Gloucester to the east, Essex and Hamilton to the north, Wenham and Beverly to the west, and the Atlantic Ocean to the south. Consisting of 7.73 square miles, or approximately 5,000 acres, the Town is located 32 miles north of Boston on what is considered Boston's North Shore. Manchester is also considered as part of Cape Ann which marks the northern limit of Massachusetts Bay and includes the communities of Essex, Gloucester, and Rockport.

Two state highways, Route 127 and Route 128, traverse the town from Beverly to the west and Gloucester to the east, as does the Rockport branch of the MBTA commuter rail line. Two local roads link the town with neighboring Essex to the north and Hamilton to the northwest. Manchester also shares large expanses of woodlands and wildlife habitats with neighboring communities. The Chubb Creek and Bennett's Brook watersheds and the Round Pond-Gravelly Pond watershed include extensive wooded areas of Beverly and Wenham as well as western Manchester. The Sawmill Brook watershed includes the major part of the woodlands north of Route 128, including a significant portion of the Essex woods. The Kettle Cove watershed combines a mix of forested areas adjoining Gloucester reservoirs and Manchester woodlands with two large industrial parks – the Gloucester Industrial Park which drains to Wolf Trap Brook and the Kettle Cove Industrial Park which drains through Coolidge Point. Both streams ultimately empty into Kettle Cove at Black Beach in Manchester. **Figure 1** is a map that shows the region's open space and recreation resources and how they are (or can be) interconnected between these municipalities.

Regional Planning Context

Manchester-by-the-Sea is one of 101 cities and towns served by the Metropolitan Area Planning Council (MAPC), the regional planning agency for the Greater Boston region. Manchester is a member community of the North Shore Task Force (NSTF), which also includes the communities of Beverly, Danvers, Essex, Gloucester, Ipswich, Hamilton, Marblehead, Middleton, Nahant, Peabody, Rockport, Salem, Swampscott, Topsfield and Wenham. 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 Manchester's Open Space and Recreation Plan, including:

- **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 10:** Growth in the region will be guided by informed, inclusive, and proactive

planning.

- **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 31:** The region's residents—including youth, seniors, and immigrants—will be well informed and engaged in civic life and community planning.
- **Goal 60:** The region will have better air quality, both indoors and out.
- **Goal 61:** Water resources will be carefully budgeted and sustainably managed so that clean water is available for appropriate uses and development.
- **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 63:** The ecological condition of wetlands will improve, and fewer wetlands will be lost to development.
- **Goal 64:** The region will retain its biodiversity and will have healthy populations of native plants and animals, and fewer invasive species.
- **Goal 65:** A robust network of protected open spaces, farms, parks, and greenways will provide wildlife habitat, ecological benefits, recreational opportunities, and scenic beauty.

In addition, Manchester has made progress toward many MetroFuture goals through actions and policy by the Board of Selectmen, the Department of Public Works (DPW), the Conservation Commission and the Planning Board.

Planning Context

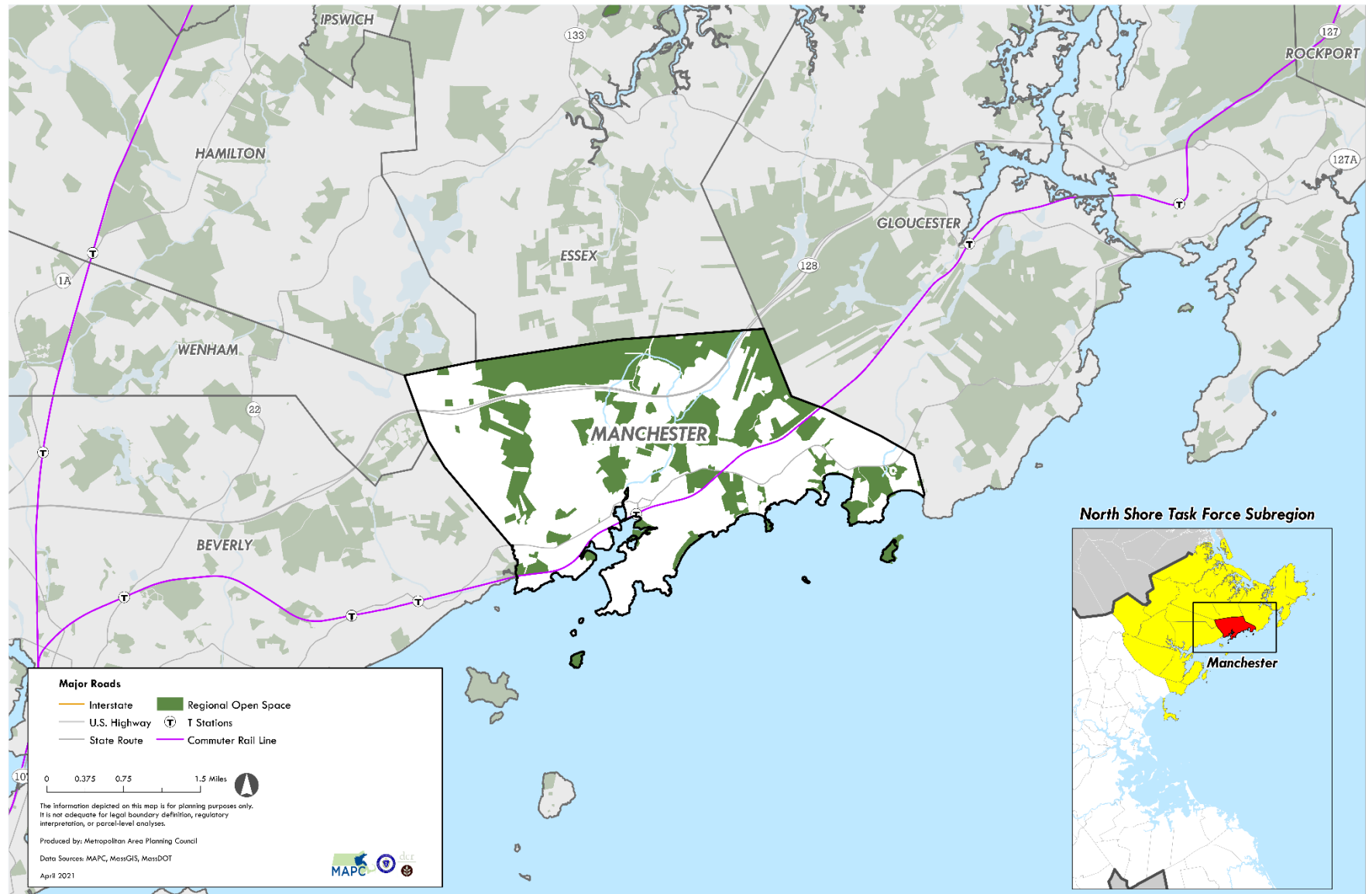
As listed below, several planning efforts in Manchester are on-going or have recently been completed, including:

- Athletic Fields Master Plan (2020)
- Town of Manchester Community Preservation Plan (FY2021-2025)
- Manchester Master Plan (2020)
- Sawmill Brook Culvert, Tide Gate Removal and Stream Restoration Feasibility Study (2018)
- Municipal Vulnerability Preparedness Plan (2018)
- Housing, Economic Development, and Land Use Scenario Study (2018)
- FEMA Hazard Mitigation Plan (2018)
- Visioning for the Master Plan (2016)

In addition, recommendations found in earlier planning documents have not yet been acted upon and remain viable:

- Horsley Witten Water Resources Protection Plan (1990)
- DEP Source Water Assessment and Protection (SWAP) Report (2003)

Figure 1: Regional Context Map



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History of The Community³

The area that is now Manchester was originally part of the town of Salem. It was then called Jeffrey's Creek after an early adventurer, William Jeffrey. The first grants of land at Jeffrey's Creek were made by the town of Salem in 1636-1637. Eight years later, in 1645, the town was separated from Salem and the name was changed to Manchester after the town in England.

Figure 2: 1872 Map of Manchester



Image Source: Digital Commonwealth

In Manchester, as in many other New England coastal towns, the chief occupation was fishing. Cod, pollock and hake brought into Manchester were exported to the colonies in the South, the West Indies, and Europe in exchange for such commodities as coffee, molasses, bacon and rum. The fishing industry reached its height around the turn of the 18th century and began to decline after the War of 1812. Before the Revolution, a new era in the history of the town had begun when Moses Dodge opened a cabinet-making shop in Manchester. His craft was quickly taken up by others and the town gained a reputation for making fine furniture. Toward the middle of the 19th century, the prosperous furniture trade declined in importance as the business moved to other places where lumber, cheap labor and water power were more plentiful. By this time, the "era of the summer resident" began to change the face of the town.

In 1845, Richard H. Dana, Sr., a Boston resident and poet, purchased more than 30 acres of land and built a substantial house, thus becoming Manchester's first summer resident. In a sense, he reestablished a tradition already set by Native Americans who used to spend only the warm months along this shore. Referred to later as "Manchester-by-the-Sea," the town became a fashionable and popular summer haven. Today, many former summer residences have been winterized and are used year-round. The busy, well-protected harbor, sheltered by a narrow

³ Manchester OSRP, 2014

channel and wooded hills, provides an attractive setting for the many 18th and 19th century homes that have been preserved and are still found in the town.

Population Characteristics

Population and Projections

As of the 2010 U.S. Census, Manchester-by-the-Sea's total population was 5,136 people, though 2019 Census data estimates the population closer to 5,434. Manchester-by-the-Sea's population is older than that of Massachusetts and Essex County; about 20% of residents are 65 and older, compared to 14% of residents in the state and the county. Manchester's population has been generally stable since the 1990's; the population has changed less than 5% in the last 20 years, from 5,228 in 2000 to approximately 5,434 in 2019.

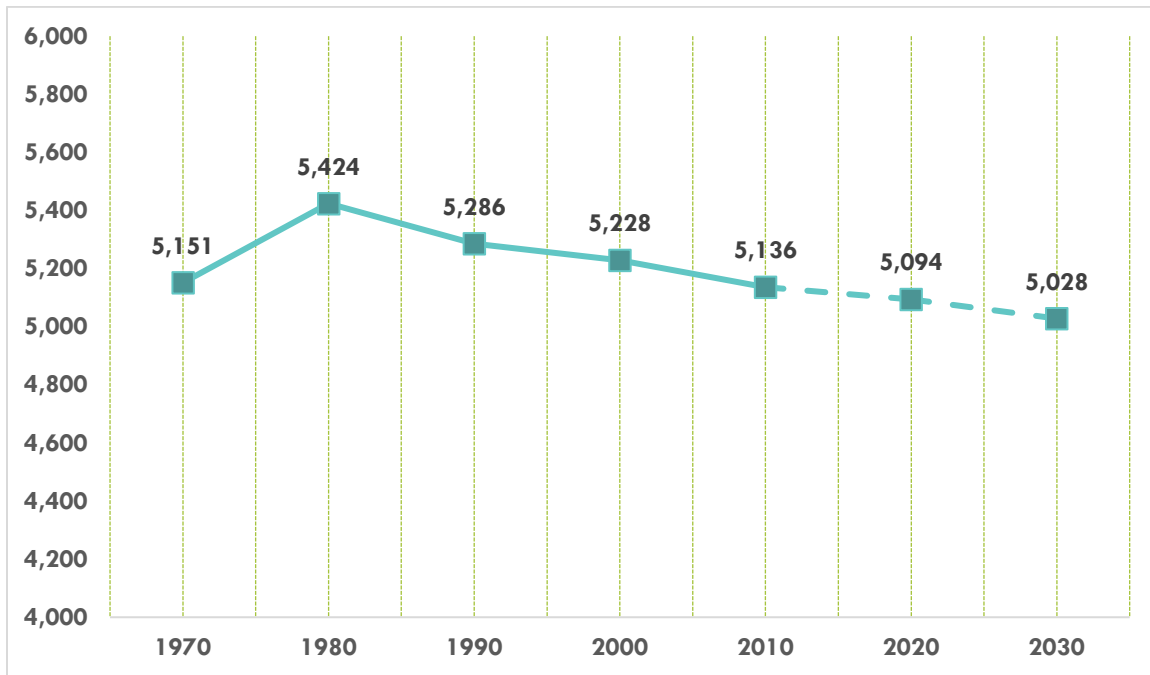
The Metropolitan Area Planning Council (MAPC) has prepared population projections through 2030 for the Metro Boston region. These projections are based on two scenarios: Status Quo (SQ), based on the continuation of existing rates of births, deaths, migration, and housing occupancy; and a Stronger Region (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 Town's population will decrease slightly, with a projected decrease of about 108 residents (2%) in the Stronger Region scenario.

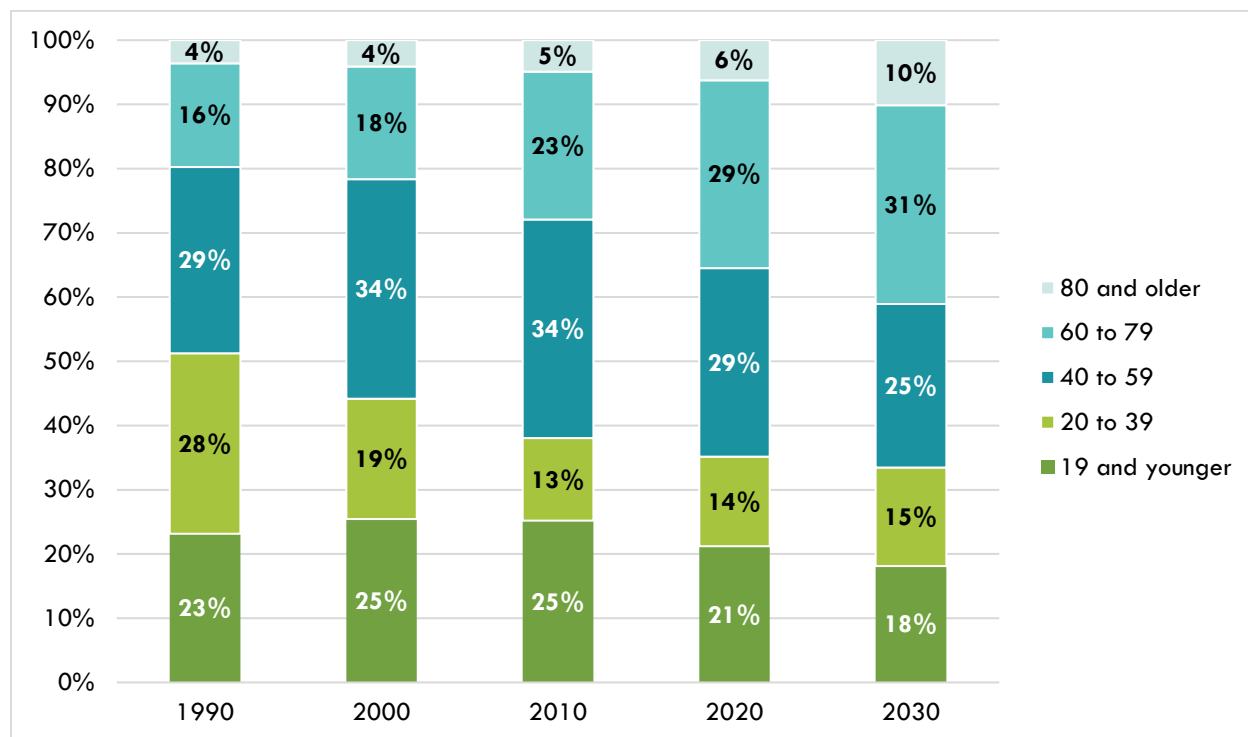
Figure 3: Total Population and Projections, 1970-2030



(Source: U.S. Census and MAPC Stronger Region Projections)

Over the years, population growth in Manchester has not been equally distributed amongst age cohorts, as shown in **Figure 4**. In general, there were significant declines in younger age cohorts and major gains in older ones. Individuals 60 and over are the fastest growing segment of the town's population, with close to 30% of residents falling into this age group based on the 2010 U.S. Census. As shown in **Figure 4**, this age cohort is expected to make up over 40% of the town's population by 2030, according to MAPC Stronger Region Projections. Growth for the younger age cohorts will likely increase at a slower rate as the town's population ages as a whole. In fact, the median age of Manchester has already increased from 43.7 years old at the time of the 2000 Census to 47.6 in 2010. According to the most recent ACS figures, the median age has increased further to 48.9.

Figure 4: Population and Projections by Age



(Source: U.S. Census and MAPC Stronger Region Projections)

Recreational Needs by Age Group

Population demographics can influence open space and recreation needs. For example, while residents young and old differ in their recreational needs based on individual interests, there are some assumptions that can be made about the demand for facilities based on age.

Families with young children tend to need neighborhood playgrounds that provide family recreational opportunities. Additionally, the availability of neighborhood parks and recreational facilities for physical activity may be particularly relevant for youth, seniors and disabled individuals, who are unable to drive and whose activity is limited to the immediate distance they are able to walk or bike. Therefore, their access to parks and open space is dependent on safe and convenient walking, biking, and transit options, or on others who can drive.

Children under five need structured preschool programs that focus on teaching basic social skills while school age youth 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. 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 and adults need athletic fields for sports, and increasingly, areas for running, biking, and walking. Adults may choose to pursue an array of recreational activities including, but not limited to: sports, health and wellness, crafts and fine arts. Some may want to join an adult sports league or practice martial arts, while others may wish to participate in a yoga or fitness class.

It is important for older adults and seniors to remain active as they age. A community’s parks and open space should provide settings for both passive recreation (e.g., places to sit, read, socialize with friends) and active recreation (e.g., walking paths, exercise activities, gardening). As Manchester’s population continues to age, seniors will need recreational programming and spaces that accommodate their limitations in mobility and strength.

More active seniors may enjoy activities such as walking, golf, bocce, tennis, and swimming, while seniors suffering from an illness or disabling condition may be better served through therapeutic recreational activities such as arts and crafts or table and card games.

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 some assistance or programs specifically geared toward those with disabilities. Physical barriers are a key factor for consideration and are evaluated in the ADA Access Self-Evaluation and Transition Plan in Appendix A of this plan. Along with the evaluation, the appendix also includes recommendations for improving accessibility by removing physical barriers and enacting programmatic changes.

Population Density

Population density influences demand for public outdoor parks and recreation spaces. In high density areas, residences may lack private yard space. Typically, these areas would benefit from neighborhood parks or playgrounds. In residential areas with lower density where many properties have private yards, there may be less of a demand for neighborhood parks and more of a demand for trails, playgrounds, and sports fields.

Manchester has a population density of 585 people per square mile. Communities with similar densities are listed in the table below. Generally, these towns have suburban growth patterns with large amounts of open space. However, the open space may be challenging to access without a car and may not all be publicly accessible.

Figure 5: Population Density

Community	Population Density (persons per sq. land miles)
Littleton	614
West Boylston	608
Salisbury	599
Manchester By The Sea	585
Acushnet	573
Dudley	573
Holden	567

Source: Source: MA Department of Revenue, Community Comparison Reports.

Race and Ethnicity

In terms of race and ethnicity, Manchester's population is racially homogeneous and has very little diversity. According to ACS 5-Year Estimates 2015-2019, approximately 98.6% of residents identify as White. Members of minority groups make up approximately 1.3% of the population, with 0.7% identifying as Asian and 0.6% identifying as multiracial.

Households and Projections

Household characteristics can also influence community preferences for open space and recreation. For example, single parent households may increase the demand for public recreation programs that can serve as childcare during work hours. A large percentage of individuals living alone may have increased interest in organized adult recreational programs as people seek out social interactions. A high number of families with children can influence demand for playgrounds and youth recreation programs.

The most recent American Community Survey (ACS) 5-Year Estimates 2015-2019 show 2,075 households in Manchester. This marks a 3.5% decrease in the number of households since 2010 when that figure was 2,147 households. According to ACS 2015-2019, the average household size for Manchester is 2.59 people, slightly higher than the Massachusetts average of 2.52. Family households, those with two or more related persons living together, make up 67.2% of all households in Manchester while households with persons living alone make up 28.8%. **Figure 6** provides a snapshot of family and household characteristics for Manchester.

Figure 6: Household Types in Manchester

Household Type	Manchester
Total Households¹	2,075
Households with individuals under 18 years	30.1%
Households with individuals 65 years and over	39.4%
Family Households²	67.2%
Households with Persons Living Alone²	28.8%

Source:

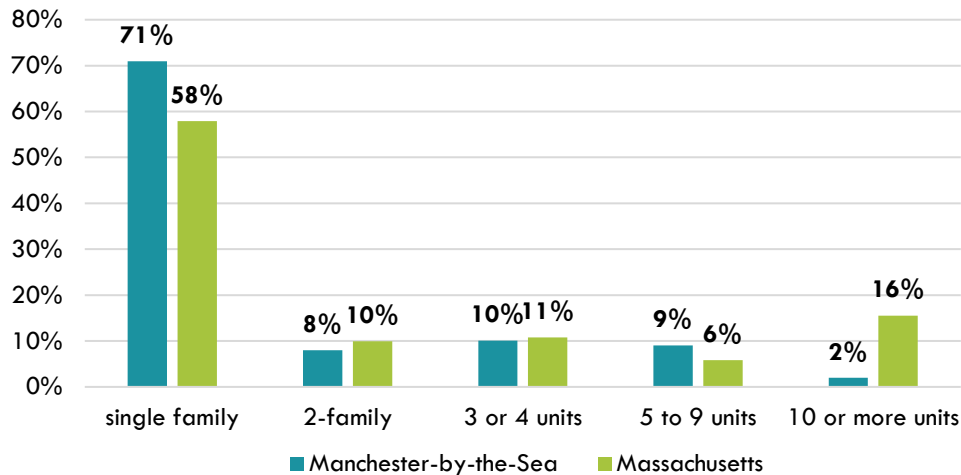
1. 2015-2019 American Community Survey

2. 2010 U.S. Census

Housing and Economic Characteristics

Manchester-by-the-Sea's real estate values are among the highest in the state and a vast majority of residents live in single-family homes. According to Warren Group Data, the median sales price for a single-family home in Manchester-by-the-Sea in 2017 was \$855,000 (for 61 sales), down slightly from the 2016 peak of \$942,000 (for 55 sales).

Figure 7: Housing Units in Structure



Source: 2019 ACS 5-Year Estimates

As shown in **Figure 7**, this particularly land intensive housing typology makes up 71% (1,627 units) of the town's total housing units (2,294 units), compared to 58% of units in the Commonwealth as a whole. Though 61% of all households in town consist of one or two people, only 23% of all houses have fewer than six rooms. Further, only 3% of households contain more than five persons yet over 43% of houses have eight or more rooms. In terms of housing tenure, two-thirds (66%) of Manchester residents own their homes while the other third (34%) rents. There is a need for more housing options for all life stages and household sizes in Manchester-by-the-Sea. In addition to options for seniors, affordable rentals for beginning householders and families are also needed.

Manchester's median household income is \$89,313, compared to \$67,846 for Massachusetts and \$68,776 for Essex County. About a quarter of households make more than \$200,000 a year, though over 20% of households make less than \$35,000 a year. The town has a low poverty rate (6.6%) compared to the county (10.7%) and the state (11.6%).

Employment

Employment characteristics provide a picture of the types of jobs that exist in the Town. According to the Massachusetts Executive Office of Labor and Workforce Development (EOLWD), Manchester had an average annual labor force of 2,865 people in 2019. A majority of the workforce is employed outside of town with nearly one in ten being self-employed. Approximately 65% of Manchester residents drive alone to work, 3% carpool, and 14% take public transportation.

Manchester's largest employers are the Real Estate firm of J. Barrett & Co, Crosby's Marketplace, Essex Country Club, and the Manchester Athletic Club. As of 2019, the town had 209 businesses and an average monthly employment of 1,650 people.

The majority of people who work in Manchester are employed in the Retail Trade, Educational Services, or Arts, Entertainment, and Recreation industries. Collectively, these three sectors make up half of all the jobs in town.

Figure 8: Employment by Industry

Industry	Average Annual Wage	Employees	Percent (%)
Health Care and Social Assistance	\$53,196	119	7.2%
Retail Trade	\$26,624	155	9.3%
Administrative and Waste Services	\$47,268	44	2.6%
Wholesale Trade	\$53,196	40	2.4%
Educational Services	\$61,932	316	19.1%
Accommodation and Food Services	\$23,348	144	8.7%
Other Services, Ex. Public Admin	\$31,772	70	4.2%
Construction	\$59,228	114	6.9%
Real Estate and Rental and Leasing	\$56,368	18	1%
Professional and Technical Services	\$93,964	82	4.9%
Finance and Insurance	\$188,084	72	4.3%
Arts, Entertainment, and Recreation	\$31,096	359	21.7%
Information	\$50,232	22	1.3%
Total, All Industries	\$53,872	1,650	100%

Source: MA EOLWD ES-202 2019

The average weekly wage among those employed by Manchester's businesses in 2019 was \$1,036 for an average annual income of \$53,872. Manchester's median household income in 2019 was \$ 148,854 significantly higher than the State at \$81,215 and Essex County at \$79,263.

The COVID-19 pandemic will impact the economy of Manchester in a variety of ways and may cause substantial changes in the total number of employed workers, as well as the distribution of jobs in different sectors. The implications of these changes for open space and recreation planning are yet to be explored. More people working remotely may increase demand for nearby parks and open space as well as active recreation resources such as hiking, biking, and water sports for youth and adults. The COVID-19 pandemic has shed light on the crucial role of parks and open space in communities and created a renewed appreciation for the physical and mental health benefits that they provide.

Growth and Development Patterns

Patterns and Trends

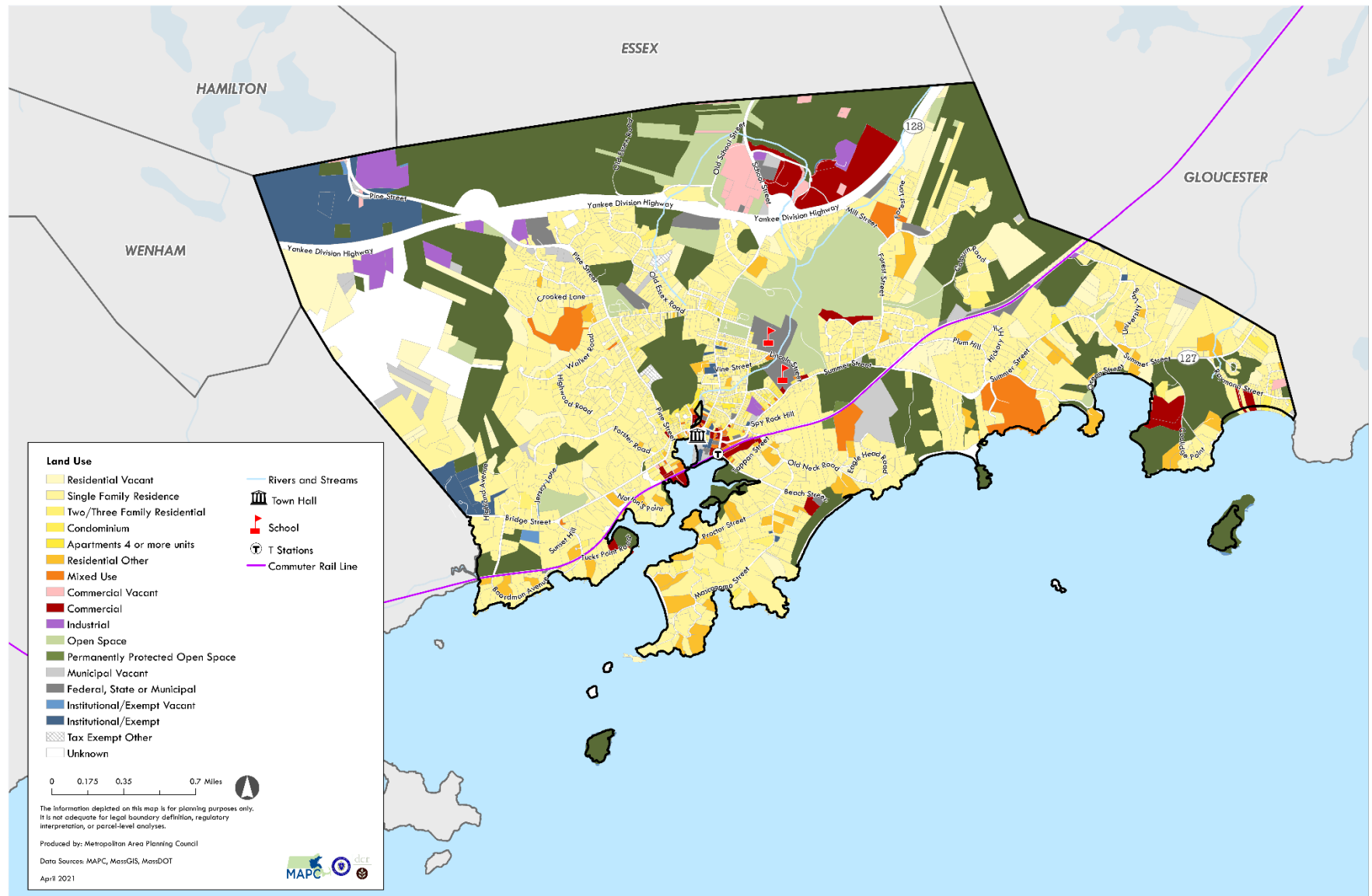
“Land use” is a term used to describe the primary use, or combination of uses, occurring on a parcel of land at any given time. Land use patterns are influenced by numerous factors, including historical development patterns, population and economic growth over time, infrastructure investment, transportation access, natural resources, and environmental constraints. Importantly, land use is not permanent – it can and often does change over time.

Since the earliest days of settlement, Manchester’s harborside location and surrounding topography have been consistent forces in shaping land-use patterns. Once known as Jeffries Creek, Manchester was primarily settled by fishermen upon its incorporation in 1645. Development activity clustered around the inlet while the higher hinterlands remained uninhabited.

Another early settlement pattern that influenced the town’s development was School Street, which stretched toward the northeast and served as a primary connection to Essex, an important shipbuilding town on the north side of Cape Ann. Pine Street was another significant traveling route leading to and from Manchester. Pleasant Street connects Pine and School streets by following a natural break in the rocky topography. These three streets, along with older coastal routes and the later development of Route 128, help us understand modern land-use patterns. A town of approximately eight square miles of land area, Manchester-by-the-Sea has grown to its current size as a primarily residential community.

Figure 9 depicts land use by parcel in Manchester as classified by tax assessment purposes, and **Figure 10** shows the breakdown by area. As previously mentioned, the primary land use in Manchester-by-the-Sea is housing, with over half of the land in town dedicated to residential use.

Figure 9: Land Use Map



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Approximately a third of land is protected open space, made possible by robust planning and land acquisitions on the part of the Town, the Manchester Essex Conservation Trust (MECT), and the Trustees of Reservations. The town has two distinct commercial areas—the Limited Commercial District (LCD) north of Route 128 and Downtown Manchester—that serve both local and regional needs and are important contributors to the town’s commercial tax base. Less than 8% of land in the community is dedicated to commercial or industrial uses. Other land uses in Manchester-by-the-Sea include municipal, institutional, and nonprofit uses.

This combination of uses, along with the presence of scenic resources in town like the beaches and harbor, forested lands and open space, has created a sense of character for the community that residents want to see retained.

Figure 10: Land Use (Massachusetts Land Parcel Database FY 2019)

Property Type	Square Feet	Acres	% Total
Residential	109,573,772.37	2,515.47	50.29%
Single Family	78,970,830.04	1,812.92	36.24%
Two/Three Family	2,493,370.31	57.24	1.14%
Multifamily	289,140.79	6.64	0.13%
Other Residential	7,267,110.44	166.83	3.33%
Vacant	20,553,320.79	471.84	9.43%
Mixed Use	3,907,658.37	89.71	1.79%
Commercial/Industrial	17,321,684.66	397.65	7.95%
Commercial/Retail	12,081,185.82	277.35	5.54%
Office	217,893.46	5.00	0.09%
Industrial	3,053,705.07	70.10	1.40%
Vacant	1,968,900.31	45.20	0.90%
Public	62,249,454.95	1,429.05	28.57%
Exempt	837,013.40	19.22	0.38%
Institutional	39,655,964.37	910.38	18.20%
Chapter 61 Land	139,675.37	3.21	0.06%
Right-of-Ways	16,063,697.09	368.77	7.37%
Other	8,619,956.01	197.89	3.95%
Total	217,875,898.81	5,001.74	100%

Source: Massachusetts Land Parcel Database

Recent and Anticipated Development Activity

Development trends throughout the metropolitan region are tracked by MassBuilds, MAPC's Development Database, which provides an inventory of new development over the last decade. The database tracks both completed developments and those currently under construction. **Figure 11** lists recent and planned development projects in Manchester from 2014 to 2020.

Figure 11: Recent and Planned Development Projects in Manchester (2014-2020)

Development	Type	Status	Location
Knight Circle	Duplex	Completed	38 School St
Open Meadow Realty - Crooked Lane	4 Single Family Homes	Completed	22 Crooked Ln
Blynman Circle	12 Residential Units	Completed	601 Summer Street
Elm Street Village	12 Residential Units	Completed	2 Elm St

Source: <https://www.massbuilds.com/>

Infrastructure

Transportation Systems

Manchester-by-the-Sea's transportation and circulation system includes a variety of road types, a commuter rail, the harbor and coast, and bike and pedestrian trails. Of the 53 miles of roadway in Manchester, 24 miles are Town roads, 14 are state owned and 14 are private or semi-private. The major highways are Routes 128 and 127⁴.

Route 128 is a major state thoroughway that encircles the Metropolitan Boston area approximately 20 miles from downtown Boston. It is the primary vehicle commuting route for Cape Ann and Manchester residents. It runs through the northern section of Manchester near the Essex boundary. Route 127 runs along the southern edge of town and is the principal east west corridor from Beverly to Gloucester. The Massachusetts Department of Transportation (MassDOT) is responsible for both Route 128 and Route 127, except for Route 127 through the town center where it is under local jurisdiction. Pine Street, School Street and Route 127 at each end are considered the town's gateway corridors⁵.

The town is also served by the Massachusetts Bay Transit Authority (MBTA) with a commuter rail train stop on the Newburyport/Rockport line. The commuter rail provides service to destinations between Boston's North Station and Rockport. The Manchester commuter rail station includes 71 MBTA parking spaces. The spaces are open to the public at large on weekends and during the summer they are used extensively by beach goers. Manchester is not accessed by the MBTA's bus system, although this system can be accessed in Salem which can be reached by commuter rail⁶.

⁴ Manchester Master Plan, 2020

⁵ Manchester Master Plan, 2020

⁶ Ibid

Additionally, the Council on Aging (COA) provides transportation for seniors to medical appointments and nutrition-related destinations at no charge. COA also provides weekly trips to the Market Basket supermarket, monthly trips to the North Shore Mall, Trader Joe's and other retailers and monthly outings typically to North Shore venues.

Pedestrian/Trail Connections

Manchester's sidewalk system runs along most major local roads including Route 127, Pine Street, Pleasant Street, School Street, Norwood Avenue and Beach Street. Roads into subdivisions and local non-connecting roads away from town center generally lack sidewalks. A 2017 sidewalk and crosswalk inventory completed as part of the Complete Streets Prioritization Plan process provides a comprehensive overview of the Town's existing sidewalk network⁷.

There is a concerted effort on the part of the Town and the DPW to improve existing sidewalks and extend the system. One of the larger sidewalk improvement projects in recent years has been a Safe Routes to School project at Memorial School, which included sidewalks along Summer and Lincoln streets, sidewalks and crosswalks to the school entrance, signage, lighting, and other pedestrian improvements.

There are no marked bicycle lanes or shared lanes (sharrows) in Manchester, though Route 127, Pine Street and School Street are frequently used by local and regional cyclists. The Manchester Bike and Pedestrian Committee works to make bicycling and walking, safer and more accessible throughout town. This group is also instrumental in helping to implement the town's Safe Routes to School Program. In June 2019, the committee, along with Walk Boston and Mass in Motion conducted a walk audit between Manchester Memorial Elementary School and the village center. Following the audit, a report was produced that outlines the purpose of the assessment and provides a series of recommendations for improving safety, accessibility, and comfort.

The town has an impressive inventory of off-road trails and walking paths that provide access to open spaces and are primarily used for recreation. These trails are maintained mostly by the Manchester Essex Conservation Trust (MECT) and are all located within conservation areas. The Town has an opportunity to expand this network of trails to not only provide additional recreational resources but connect residents to major destinations in the community. A significant pedestrian connection that should be explored by the Town is one that connects downtown Manchester with the Limited Commercial District; this becomes even more important should that area see substantial development. Residents have also expressed a desire for a pedestrian connection in the downtown that would connect the Town Hall parking lot to Beach Street.

⁷ Ibid

Water and Sewer

Manchester's water supply system provides potable water to approximately 95% of all residents with 80% of the water used for residential purposes. The primary sources of water are the Gravelly Pond Reservoir in Hamilton and the Lincoln Street Well in Manchester with a secondary source at the Round Pond Well #1⁸.

Gravelly Pond has been used as the Town's primary water supply source since the early 1900s, providing approximately 60% of the drinking water with an estimated storage capacity of 320 million gallons. It is approximately 49 acres in size and has a maximum depth of around 57 feet. According to the Town's Annual Statistical Reports (ASR) the safe yield of Gravelly Pond is 0.12 million gallons per day (mgd)⁹. The watershed of Gravelly Pond is estimated to cover an area of 145 acres located in the towns of Hamilton and Manchester. The watershed includes conservation land, undeveloped land and single-family homes. While these uses are not considered to be significant threats to the supply, illegal disposal or discharges on these lands could become significant threats to the water supply.

The Lincoln Street Well (LSW) was constructed in 1958 and consists of a 68-foot deep, 24-inch diameter gravel packed well. It can provide up to 40% of the Town's drinking water. It was constructed to a depth of 68 feet in a confined sand and gravel deposit, with approximately 15 feet of clay overlying the water bearing material at the well. The Massachusetts Department of Environmental Protection (MassDEP) Water Management Act approved withdrawal rate is 0.38 mgd. An Order of Conditions issued by the Conservation Commission (#39-0800, Conditions #46 and #56) requires that permanent survey monuments demarcating the 400-foot radius be installed around the Lincoln Street well.

The source area for the LSW consists of recreational, residential and commercial properties. Most significantly, portions of a golf course are located within Zone I of the well, and a confirmed hazardous waste site is located within Zone II of the well. The LSW Chemical Feed Building was constructed in 1997¹⁰. Water from the well passes through the chemical feed facility which provides disinfection as well as corrosion control before it is pumped directly into the distribution system.

To supplement the Gravelly Pond supply and provide water recharge, the Town pumps water from Round Pond Well No. 1 located along Chebacco Road in Hamilton into a series of surface water ponds that flow by gravity to Gravelly Pond. The gravel packed well was constructed in 1966. In 1996 Round Pond Well No. 1 was permitted by MassDEP to act as an overland discharge to supplement Gravelly Pond with a maximum discharge rate of 300 gpm¹¹.

The Town's sewer system serves approximately two-thirds of the community with service primarily directed to the central areas of town. The outlying areas of Manchester must rely on septic systems. The Town owns, operates and maintains one wastewater treatment facility (WWTF). The

⁸ Town of Manchester-By-The-Sea Housing Production Plan, 2014

⁹ Water Treatment Plant Evaluation Report, Tata & Howard, 2017

¹⁰ Water Treatment Plant Evaluation Report, Tata & Howard, 2017

¹¹ Capital Efficiency Plan™, Tata & Howard, 2018

WWTF is located behind Town Hall. The facility was constructed in 1972 and last upgraded in 1999. The 1999 upgrades to the WWTF were designed and permitted to treat an average daily flow of 1.2 mgd, a maximum daily flow of 3.0 mgd, and an instantaneous flow of 5 mgd. The wastewater is discharged to Manchester Harbor through a 9,000 foot long 20-inch outfall pipe that was installed in 1992. A section of this outfall pipe was recently repaired. Permitted flows from the WWTF are limited under the Ocean Sanctuaries Act (OSA)¹².

Long-Term Development Patterns

Manchester is categorized by MAPC as a Maturing New England Town. This type of community is generally characterized by a mixed-use town center surrounded by compact neighborhoods on ¼ - ½ acre lots. Outlying areas are mostly low-density and there are large amounts of vacant and potentially developable land. New growth in these communities consists primarily of conventional subdivision development on vacant land.

Demographic trends for Manchester's population suggest minimal near-term external pressures on the town's remaining open spaces. Nevertheless, Manchester has a long history of concern for its natural assets, including preserving shoreline, water resources, and open spaces. Efforts to preserve and protect the town's natural assets date back to 1879, when private citizens purchased strips of land along upper School Street to save trees. In 1895 the land at Tuck's Point was purchased by the town, and a rotunda was erected there in 1896. In 1903, Manchester acquired land for Masconomo Park and in 1912 acquired land on Powder House Hill to prevent lumbering¹³.

Manchester-by-the-Sea is known for its grand estates, residential character, and historic charm, as well as its tranquil beaches, gorgeous harbor, and scenic vistas. Part of what gives any community its unique character is the way land is used, developed, and preserved. From a social, environmental, and financial perspective, land uses, and zoning greatly impact a town's character, livability, and sustainability.

Zoning

Zoning land use regulations are a tool for communities to slowly shape the physical landscape through permitting, determine the proportion of area dedicated to residential and non-residential uses, and affect tax revenue generation for the Town. Zoning dictates what can be developed on every parcel of land: the allowed uses (there can be multiple allowed), the placement and massing of structures, the amount of open space required, the number of parking spaces, and more.

Manchester is divided into seven (7) zoning districts which are shown in **Figure 13** and described in **Figure 12**. The town has two distinct commercial areas—the Limited Commercial District (LCD) north of Route 128 and Downtown Manchester—that serve both local and regional needs and are important contributors to the Town's commercial tax base. Five (5) of the town's districts are zoned exclusively residential. Residential District "D" allows 2-unit dwellings in certain areas, the General District "G" allows up to 4-unit dwellings, and all residential districts may allow an

¹² *Comprehensive Wastewater Management Plan*, CDR Maguire Inc., 2016

¹³ *MHC Reconnaissance Survey Town Report, Manchester-By-The-Sea, 1985*

accessory dwelling unit with special permission. Minimum lot requirements range from 6,000 square feet to five (5) acres.

Figure 12: Zoning Districts

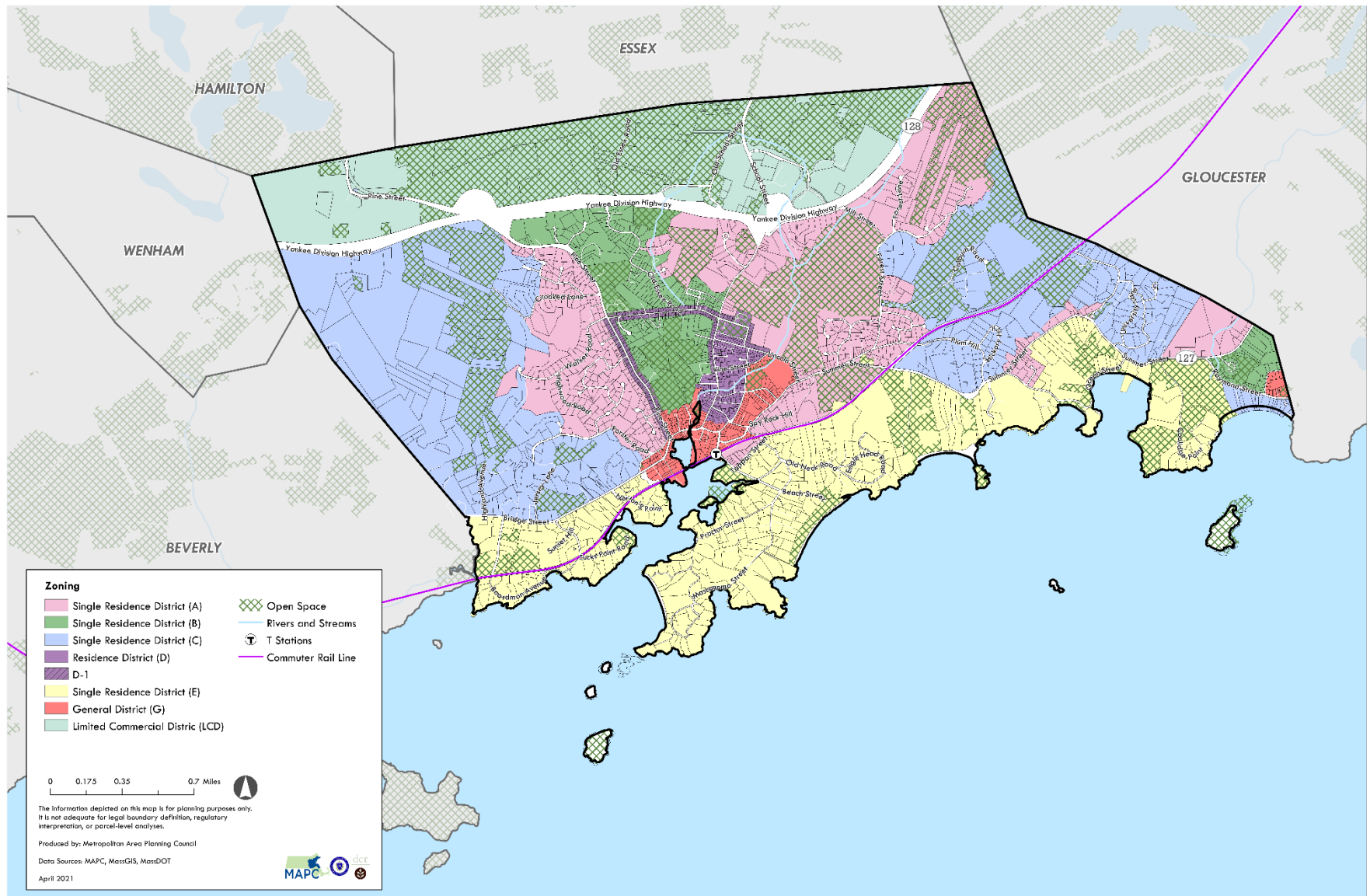
Zoning District	Minimum Lot Size	Minimum Frontage
Single Residential A	22,500 sf	150 ft
Single Residential B	15,000 sf	75 ft
Single Residential C	45,000 sf	150 ft
Residence D	6,000 sf	60 ft
Single Residential E	90,000 sf	150 ft
Limited Commercial	5 ac	
General	6,000 sf	60 ft

Section 6.13 of Manchester's Zoning Bylaw does allow for cluster-style residential development, which is more conducive to open space preservation than other forms of single-family development. The Residential Conservation Cluster (RCC) is a clustered residential development with reduced lot sizes and frontage where the land that is not included in the building lots is generally preserved as open space.

The bylaw suggests that the Town prefers this type of development or redevelopment for projects of five (5) or more acres and/or six (6) or more lots, but the Planning Board retains the final determination as to whether a particular property is best suited to the RCC or a traditional subdivision. Approval is through a special permit. The number of units allowed should not exceed what would be permitted through a conventional subdivision. Other conditions include –

- *The minimum lot size is one-half the square footage otherwise required by the Zoning District.*
- *No lot should have a frontage of less than 50 feet provided that this frontage is located on internal roadways.*
- *Setbacks may be reduced by one-half of what would otherwise be required in the Zoning District.*
- *All land not utilized for lots, roadways, drainage, etc. should be set-aside as open space with a minimum of 60% of the upland area. If the land will be deeded to the Town or other entity, such as a land trust, a minimum of 50% of the upland area must be provided as open space. Open space can be used for recreation, conservation, or agriculture as well as leaching facilities.*
- *As a condition of the special permit, any RCC development containing six (6) or more lots must comply with the provisions of Section 6.14 (Inclusionary Housing).*
- *Units are restricted to one and two-family residential structures.*

Figure 13: Zoning Map



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In addition to its base districts, the Town of Manchester has a Ground and Surface Water Resource Overlay District (GSWROD). The purpose of the GSWROD is to protect Manchester's water resources and ensure a future supply of safe and healthful drinking water for the residents and employees of the town and the general public. The designation of the Ground and Surface Water Resource Overlay Protection Districts and careful regulation of development activities within these districts can reduce the potential for ground and surface water contamination.

The zoning district in Manchester with the most potential for change over the next decade is the Town's Limited Commercial District (LCD). A 40B project has been proposed within the LCD along School Street on the far side of Route 128. The proposed project at Shingle Hill includes a 136 unit, 4-story multi-family building, consisting of a mix of 1BR, 2BR and 3BR units. In accordance with the State's requirements for a 40B project, 25% of the units are required to be rented as Affordable units.

Environmental groups and some residents of Manchester have expressed concerns about the Shingle Hill development and its effect on the surrounding environment. The 24-acre site is adjacent to the Town's 1,600-acre Wilderness Conservation Area, Sawmill Brook, and the groundwater recharge area for approximately 50% of Manchester's water supply.

By state statute M.G.L. Chapter 40B, cities and towns are encouraged to provide 10% of their total year-round housing units as deed-restricted Affordable Housing. Manchester has 2,275 year-round housing units, per the 2010 Decennial Census, of which 115 (or about 5.1%) are deed-restricted Affordable Housing units on the state's Subsidized Housing Inventory (SHI)¹⁴. In communities like Manchester, where less than 10% of housing units qualify as Affordable Housing, developers may override local zoning bylaws through a Comprehensive Permit for mixed-income housing development that includes Affordable Housing units.

A community may claim "Safe Harbor" and thereby deny a developer a Comprehensive Permit if the municipality has a locally adopted and state approved Housing Production Plan (HPP) and is making measurable progress toward reaching the state goal of 10% Affordable Housing. Measurable progress means that the community is producing Affordable Housing units at an annual rate of 0.5% or 1% of its year-round housing units (at these production rates, Safe Harbor lasts for a one-year or two-year period, respectively).

The Town is actively working to promote the development of more affordable housing. In 2019, the Town began working with MAPC on a planning process to rethink its Limited Commercial District and to proactively plan for mixed-use, mixed-income development by exploring the creation of a 40R Smart Growth Overlay District.

Chapter 40R is a state program that encourages cities and towns to implement zoning that allows compact, mixed-income, by-right development in areas with existing or planned infrastructure and adequate access to services. A 40R district must be primarily residential, must allow a certain amount of housing density, and must include at least 20% affordable units; it can include comprehensive development and design standards to ensure that new development is consistent with the town's vision for the area. As an incentive, the state makes payments directly to towns

¹⁴ Town of Manchester-By-The-Sea Housing Production Plan, 2014

that have successfully adopted a 40R district, as well as additional payments after new housing is built in the area.

Manchester's LCD is located north of Route 128. More than half of the LCD is protected land and will remain undeveloped. Establishing a 40R Smart Growth district in this area would advance two principal goals of Manchester's 2020 Master Plan: to increase Town revenue through planned development in that area of town and support a diversity of housing options throughout town.

The Town of Manchester is currently in the process of recodifying and updating the Town's Zoning Bylaws. The updates, changes and additions are intended to create regulations that are easier to understand, provide greater guidance to permitting Boards, reduce redundancy and help align Zoning regulations with the goals and objectives of the Town's recently completed Master Plan.

Section 4: Environmental Inventory & Analysis

Geology, Soils, and Topography

The entire North Shore is underlain by intrusive igneous rocks of the Cape Ann plutonic series. These granites and other rock types were formed approximately 400 million years ago. The rocky hills and outcroppings common to the town originated as expanding pressure in the earth raised and cracked the granite bedrock generally in a northeasterly direction. A series of northeast-southwest trending faults and joints dissect this bedrock. Wind, water, and frost eroded the fractures to create swamp- and pond-filled valleys. These valleys were subsequently widened by the scraping of the glaciers with the resistant bedrock forming the hills and ridges of the area.

Approximately 15,000 years ago, the ice sheets of the Wisconsin Glacier occupied this area. As the ice sheets advanced, they deposited a thin veneer of till over the surface of the bedrock. Later, as the ice sheets melted and retreated, the melt water streams deposited sands, silts and gravel as out wash deposits. These out wash deposits are concentrated primarily within the town's bedrock valleys.

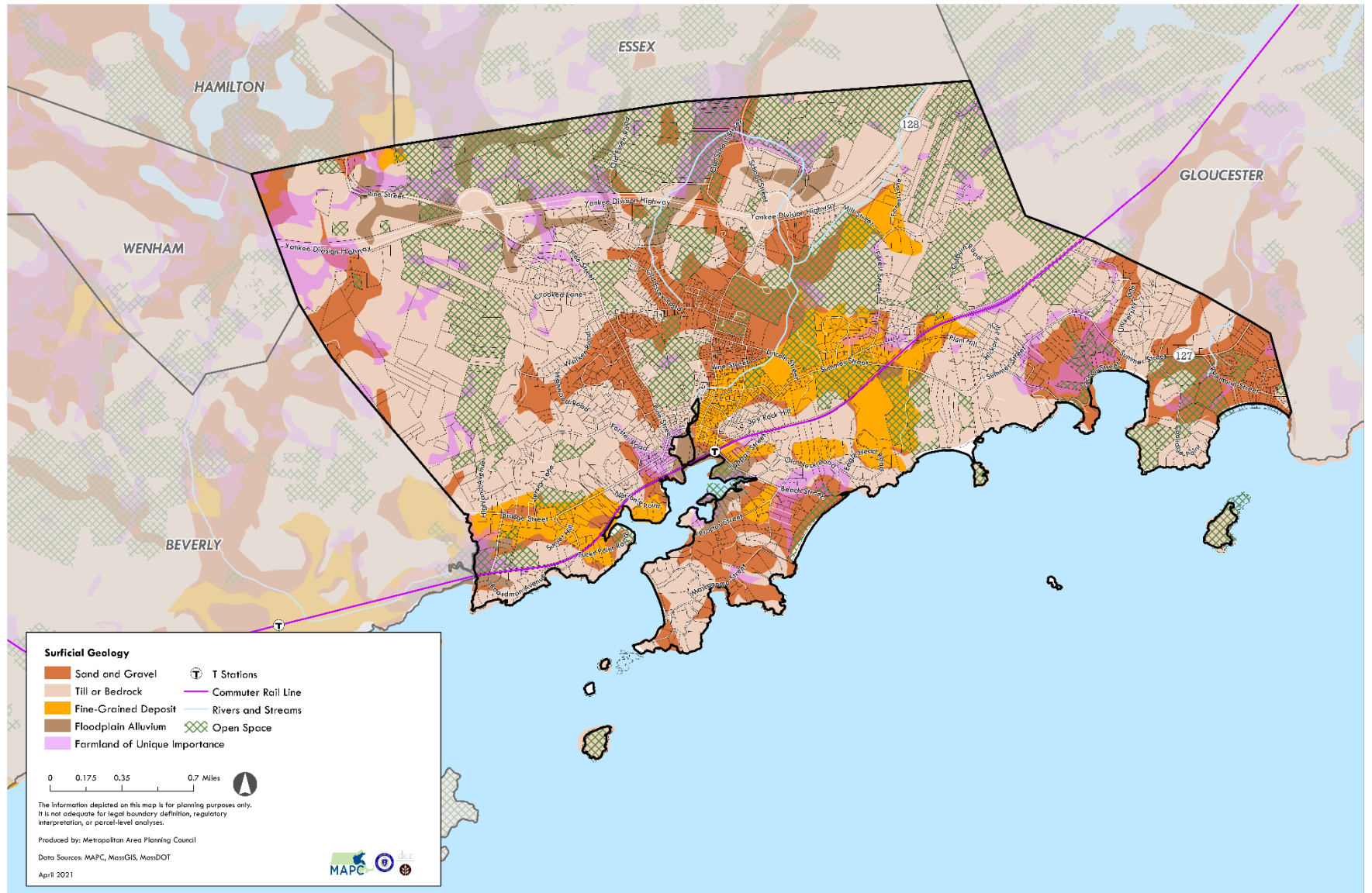
Glacial debris clogged much of the original drainage in the area with the exception of a small opening that is now Sawmill Brook. This opening allowed salt water to enter the valleys as sea levels rose and deposit a layer of fine-grained marine clays and silts over the sand and gravel in the flooded areas. These distinctive "blue" clays are widespread in the town at elevations below 50 feet mean sea level. Over time, many of the low-lying areas became filled with peat and muck and developed into the wooded swamps seen today.

Shallow-to-bedrock soils account for most of the soils in Manchester (see **Figure 14**). It is no surprise that rocky soils account for an even larger percentage of the undeveloped land in town. Next most common are wetlands and marine silts and clays found along brooks and other wetlands. Please refer to the "Custom Soil Resource Report for Essex County, Massachusetts, Manchester Soils and Geology" in Appendix H for more detailed information regarding the town's soils.

Virtually all the undeveloped land in Manchester is characterized as having "severe" or "moderate to severe" limitations for use as building or road sites. And all soils without exception are rated as having "severe" limitations for construction of septic tank absorption fields.

Given the soil characteristics of the town, access to municipal sewage treatment is essential for high-density development; Manchester's preponderance of poor perking soils suggests a need for municipal sewer service for all but isolated single-family homes. Clustered residential units or commercial buildings with moderately heavy water demand would definitely need sewage treatment beyond ordinary on-site septic treatment. Additionally, according to the Soil Conservation Service's soil hydrology rating, Manchester's soils tend toward fast runoff. This characteristic generally raises the cost of development by making it necessary to build detention basins or install infiltration systems on site to prevent flooding of lower elevations.

Figure 14: Soils and Surficial Geology Map



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Landscape Character

Manchester's rugged landscape is one of its most priceless assets. The diversity of landforms—marshes, beaches, rocky shores, inland woodlands and forested uplands, combined with a highly protected and centrally located harbor create great beauty. Fortunately, much of Manchester's natural landscape has been protected and is open to the public. A series of parks, beaches and reservations reveal the town's diverse geologic, cultural, and historic character. These major natural and scenic resources are discussed throughout this section.

Water Resources

Manchester contains a wide variety of surface and ground water resources, including streams, ponds, aquifers, wells, wetlands, vernal pools and coastal resources as shown in **Figure 15**. These water resources provide distinct, though often overlapping functions — providing public and private drinking water supplies, flood control, valuable wildlife habitat, nature study opportunities and passive recreational opportunities.

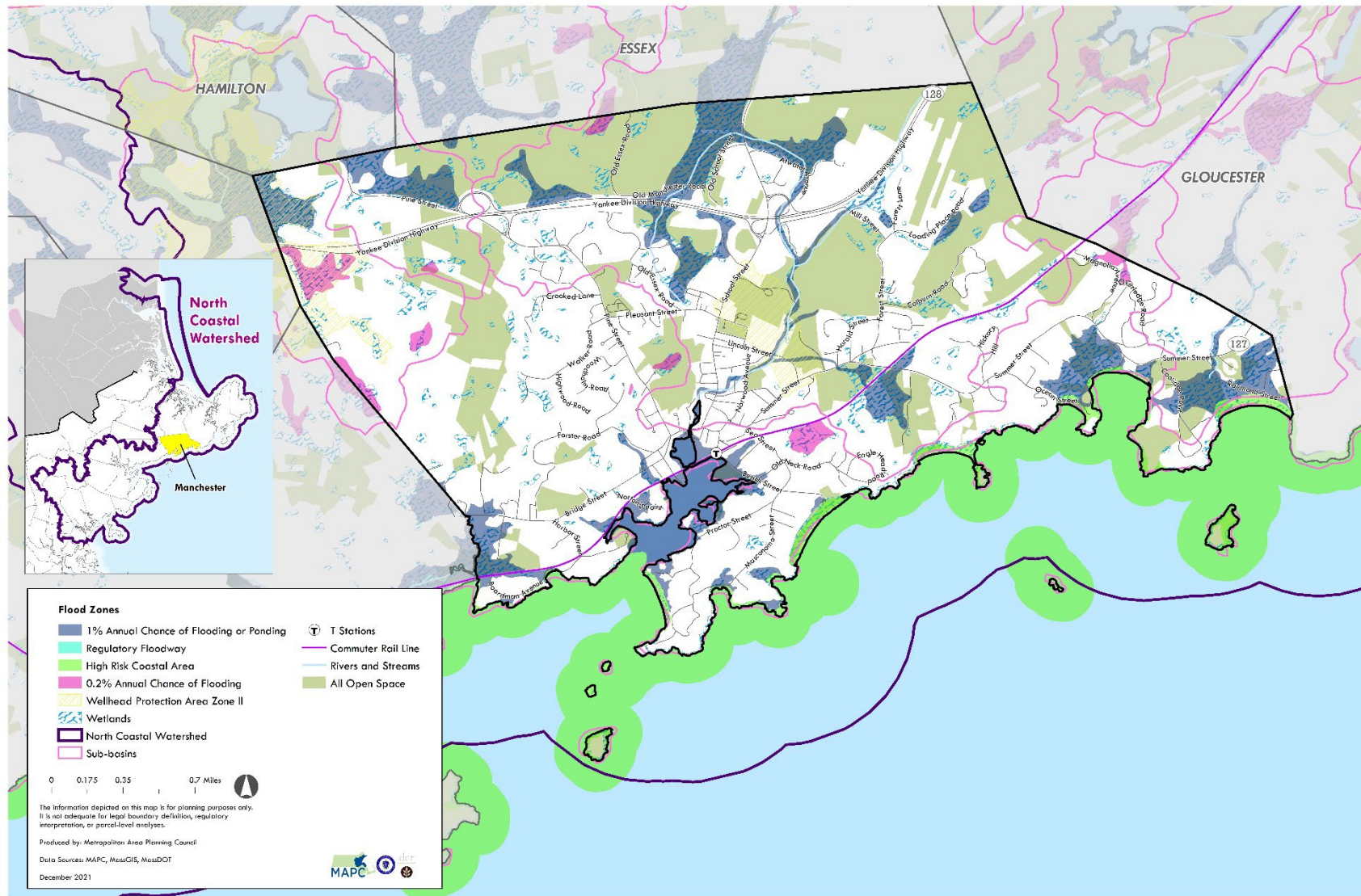
Watersheds

A watershed is an area of land that drains into one river system or body of water. Manchester-by-the-Sea is located in the North Coastal Watershed. The northern reaches of the North Coastal Watershed include the southern tier of the Hampton and the Seabrook salt marsh complexes, while further south, the watershed is dominated by the rocky shores of Cape Ann, which provide the most distinctive rocky coastline in all of Massachusetts. The southern reaches of the watershed consist of an irregular coastline of rocky peninsulas, interspersed with embayments, pockets of salt marsh and vibrant estuaries.

The North Coastal Watershed has a total drainage area of approximately 168 square miles. It encompasses all or part of five river sub-basins, including the Danvers, Essex, Saugus, Pines, and Annisquam Rivers. There are approximately 2,428 acres of lakes and ponds in the watershed. The North Coastal encompasses all or part of 26 Massachusetts municipalities, and supports a population of approximately 500,000 people. The major resources in the region include a major lobster fishery, as well as shell fishing.

Within the North Coastal Watershed, Manchester is part of five major surface watersheds: Gravelly Pond/Round Pond; Chubb Creek; Sawmill Brook Watershed, Kettle Cove and Magnolia Harbor. Most of the town's streams originate beyond the town's boundaries; therefore, a large proportion of their contributing watersheds are located in Essex, Gloucester, Hamilton, Wenham and Beverly.

Figure 15: Water Resources Map



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Drinking Water

Manchester's public drinking water comes from two sources — a deep well located in the village area near Lincoln Street and two surface-water ponds located in the town of Hamilton (Round Pond and Gravelly Pond). Both sources draw on extensive watersheds that include parts of neighboring communities as well as a major state highway, Route 128.

Manchester has in reserve a large aquifer under Cedar Swamp, which lies north of Route 128 and is shared with the town of Essex. Cedar Swamp is owned in part by the town of Manchester and in part by privately funded conservation groups, such as the MECT and The Trustees of Reservations.

Lincoln Street Well

The town's single in-town active water supply is a 68-foot-deep, 500 GPM, gravel-packed well located next to the Manchester-Essex Regional Middle and High School on Lincoln Street. Groundwater is pumped from a sand and gravel deposit that underlies the area. In 2020 the town performed cleaning and rehabilitation as well as replacement of the pumps and motors at both the Lincoln Street Well and Round Pond Well. According to the town's most recent Annual Drinking Water Quality Report, the Lincoln Street well provided approximately 38 percent of Manchester's public drinking water in 2020.

Sawmill Brook, which lies beside the well, appears to have an impact on the surrounding aquifer. This relationship was investigated using pump tests in 1990 as part of the work preceding adoption of a Water Resource Protection Plan. During these pump tests, the water level in the Brook was monitored in six locations. In areas upstream of the production well, it appeared that Sawmill Brook was a gaining stream, receiving water from the underlying aquifer. In the vicinity of the well, the reverse was true. Water appeared to flow from the stream into the aquifer below. Because downward flow only occurred in the vicinity of the pumping well, it is possible that under static conditions Sawmill Brook is a gaining stream along its whole length. The pumping of the well may then cause induced recharge from the stream into the aquifer.

The results of the testing procedures, performed by Horsley Witten Hegemann, Inc., were included in their plan for the town - "Water Resources Protection Plan, June 1990" and were used in numerical modeling to delineate the zones of contribution to the Lincoln Street well in accordance with Mass. DEP's Division of Water Supply guidelines. Zones I, II, and III for the Lincoln Street well are described below.

Zone I is defined as a radius of 400 feet surrounding the well itself and is afforded the highest level of regulatory protection by the Commonwealth. The location of the Manchester-Essex Regional Middle/High School — a large complex that includes paved roadways and parking areas, as well as several natural and artificial turf playing fields — immediately adjacent to Zone I has raised an ongoing threat of polluted runoff reaching the well. As the town's Department of Public Works noted in its most recent Annual Drinking Water Quality Report:

Unfortunately, over many years the Town did not protect its Lincoln St. well and there are numerous activities that would not normally be in a protective Zone I area that are currently there. The Town has or will have agreements with the Regional School District and Essex County Club to assure maximum protection of our drinking water resource is followed.

In addition, the town is under a Consent Order from the Department of Environmental Protection regarding Zone I. Among its requirements is removal of the old pump house, now used for storage, to be replaced by grass. This has not yet been done. It might also be helpful to mark the boundary of Zone I so that the school district could manage its own storage needs appropriately.

The Massachusetts Department of Environmental Protection (MassDEP) published its Source Water Assessment Program (SWAP) Report¹⁵ for Manchester's Public Water Supply on June 27, 2003. The SWAP report notes that both the Lincoln Street Well and Gravelly Pond sources have land uses adjacent to the source that would be prohibited under today's regulations. The SWAP report has seven recommendations. The two critical recommendations are as follows:¹⁶

1. Continue to inspect Zone A and Zone 1 areas regularly, and when feasible, remove prohibited non-water supply activities.
2. Develop and implement a groundwater and surface water supply protection plan.

Given the location of the Middle/High School complex, the first recommendation remains a vital and consistent task for the town. The second recommendation has been addressed through local regulations; now close monitoring and enforcement of protective regulations is needed.

Zone II is defined as the area of an aquifer contributing water to a well under the most severe pumping and recharge conditions that can be realistically anticipated. Zone II by definition extends upgradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary). For the Lincoln Street aquifer, the Zone II boundaries to the north, east and west are the geologic contacts between the sand and gravel aquifer and the neighboring bedrock/till and clay formations. The southern boundary of Zone II is the groundwater divide resulting from the pumping of the well.

The high school complex consisting of paved roadways and parking areas, an adjacent artificial turf playing field and three paved tennis courts lie entirely within Zone II, as does a portion of one municipally owned cemetery. To the extent that rainfall within Zone II no longer infiltrates the ground through a grassy surface, but instead leaves the site as channeled runoff, the well may be deprived of a traditional supply. To the extent that rainfall within Zone II does enter the ground, but passes over paved areas before doing so, there is a risk that pollutants may adversely impact the well. This site clearly needs monitoring and, in time, may require adjustments.

Zone III is defined as the surface watershed area that contributes recharge to the aquifer through overland runoff. For the Lincoln Street well, this surface runoff is contributed in two ways: 1) overland runoff from the sides of the valley which recharges directly into the outcropping sand and gravel aquifer material; and 2) runoff into the streams, a portion of which enters the aquifer via induced infiltration.

The watershed to the Lincoln Street well is large and mainly wooded (Gloucester, Essex and northeasterly Manchester) or open grassland (Essex County Club). Streams that contribute include Sawmill Brook, its tributary Cat Brook, and Causeway Brook, as well as a host of intermittent woodland waterways and culverts under local roads and Route 128. Induced infiltration from

¹⁵ The complete SWAP report can be found here: <https://www.mass.gov/doc/northeast-region-source-water-assessment-protection-swap-program-reports/download>

¹⁶ Manchester by-the-Sea 2020 Annual Drinking Water Quality Report

these streams makes up approximately 15 percent of the water entering the aquifer under Zone II pumping conditions. As the Horsley Whitten Hegemann study demonstrated, the watersheds to these streams encompass a large area to the west, north and east of the aquifer.

Because of the large areas of exposed bedrock and shallow, poorly drained soils associated with much of the watershed area, surface runoff provides a significant proportion of the water reaching Sawmill Brook and its feeder streams. This is reflected in the "flashy" response of streams to heavy rainfall events. Consequently, control of surficial sources of potential contamination, such as road runoff, is essential to protect the water quality of these streams, and the Lincoln Street well.

While largely wooded, the watershed includes a commercial zone in Manchester occupied in part by a truck depot, athletic club, storage facility and medical office space. Apart from the Agassiz Rock Reservation, little of the watershed is under conservation protection.

Gravelly Pond/Round Pond

Gravelly Pond, which lies off Chebacco Road in the southeastern corner of Hamilton, is a surface water reservoir of 49 acres and a capacity of more than 360 million gallons when full. The pond is fed by rainfall, runoff from the surrounding area, and groundwater springs. The pond's watershed is relatively small, and the ability of the pond to recharge, or fill back up, is limited. To supplement the volume of water in Gravelly Pond, the town pumps water from a well beside Round Pond. In 2020 Gravelly Pond provided 62 percent of Manchester's public drinking water.

The Round Pond watershed extends mainly west and south further into the town of Hamilton, as well as into the towns of Wenham, Beverly, and Manchester. Large areas of wetlands and bedrock outcrops are common, with lesser areas of sand and gravel outwash. Surface runoff is an important component of Round Pond's water budget because of the surrounding geology.

As the Manchester Department of Public Works pointed out in its most recent Annual Drinking Water Quality Report noted above:

One of the best ways to protect your drinking water is to take measures so pollutants don't get into it in the first place. To protect Manchester's water supplies, the Town has acquired the land surrounding Gravelly Pond and restricts activities in this area to passive recreation such as hiking and cross-country skiing.

Much of the Gravelly Pond/Round Pond watershed is undeveloped, including 400 acres under joint conservation protection by both Manchester and Hamilton. But the watershed also includes a large paved footprint for Gordon College in Wenham and a half-mile stretch of Route 128. In addition, Gordon College owns more than 100 acres of wooded upland and wetlands between Route 128 and Round Pond that have been proposed for development on several occasions in the past, and may yet attract development interest once again.

A further, ongoing concern is the proximity of Gravelly Pond to the now capped Manchester and Hamilton landfills. Although these two landfills are outside the Gravelly Pond watershed, they lie within close proximity of the pond. Monitoring wells have been placed between the landfills and the pond. It is essential that the wells be monitored regularly for contaminants. It is the only way to determine whether contaminants are approaching the pond.

Under Massachusetts Drinking Water Regulations 310 CMR 22.21(2), as revised November 2020, each of these communities was required to establish a Ground Water Protection District. In compliance with this requirement, Manchester revised its Ground and Surface Water Resource Overlay Protection District. Each of the neighboring communities has done the same. However, while each community's protection district regulations address the protection of its own water supplies, none provide protection for that portion of their land that serves as watershed for a neighbor. Thus, the need to regionalize Water Protection Districts still exists.

The Open Space and Recreation Committee, with the support of other town boards and commissions is interested in forming a coalition with neighboring municipalities to address such issues. The coalition would function as a standing body focused on protection of regional resources as well as coordination, information-sharing, and implementation of cross-boundary environmental and climate resilience projects.

Cedar Swamp and Aquifer

Cedar Swamp, bound on the east by School Street in Manchester and Southern Avenue in Essex, is underlain by a sizable aquifer that is considered a potential alternative water supply source for Manchester, should such a need arise.

Water flows into Cedar Swamp from Millet's Brook and from numerous unnamed streams that cross and re-cross Route 128. The Swamp also receives runoff from many steep hills and small swamps in Manchester and Essex. The aquifer benefits from its location within a large, wooded conservation area. Nonetheless the Swamp also takes polluted runoff from more than a mile of Route 128, School Street, and Southern Avenue.

Tests in Cedar Swamp have shown it to have variable geological deposits. Generally, the swamp contains three to four feet of peat over 15 to 35 feet of fine sand, which is over 20 to 63 feet of clay. The water-bearing artesian aquifer below the clay, composed of out wash deposits from the melt water stream delta created by the melting glaciers, is fifteen to thirty feet thick. It is deepest in areas where the clay layer is missing.

In 1965 the city of Gloucester drew continuously on two 8-inch wells (one in Manchester and one in Essex) in Cedar Swamp for several months. The water was piped directly to Haskell Reservoir in West Gloucester. Temporary damming of Sawmill Brook and increased precipitation actually caused the water level in Cedar Swamp to rise during the pumping. Gloucester took additional water from Cedar Swamp in 1982. Despite a high concentration of iron and manganese, the water drawn from Cedar Swamp was rated as of excellent quality.

Besides its potential as a direct source of water for Manchester, Essex, or Gloucester, Cedar Swamp may be a major recharge area for the aquifer that underlies Manchester's Lincoln Street well. According to the Department of Environmental Protection, basic aquifer mapping suggests that there may well be subsurface flow linking the two via Sawmill Brook and Beaverdam Swamp to the east. Without extensive testing, however, it is difficult to quantify this relationship.

The Cedar Swamp aquifer has not been studied in terms of prolonged and extensive use; at a minimum, water treatment to remove excess minerals would be required. Additionally, measures of watershed and aquifer protection would be necessary and would require a coordinated approach by the towns of Essex and Manchester.

Flood Hazard Areas

Figure 15 delineates the location of the 100-year floodplain (shown as “1% Annual Chance Flood Hazard”) and 500-year floodplain (shown as “0.2% Annual Chance Flood Hazard”) in Manchester. These flood hazard areas are mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program (NFIP) and are based on historical flooding events. The most recent FIRM was issued in 2015, but several areas of map revision were approved in 2017.

Significant portions of the town lie within the 100-year floodplain (FEMA Flood Zones A and AE), areas with a 1% annual chance of flooding. Flooding within Zone A is primarily limited to inland areas in the Sawmill Brook North, West and East hazard areas, with limited impacts in Bennett’s Brook and other areas. Flooding within the AE flood zone includes the downtown area, Bennett’s Brook/Bridge Street, Raymond, Ocean, Beach and Proctor Streets, Magnolia, Highland and Boardman Avenues¹⁷. In the event of a hurricane or other extreme weather event, buildings in these zones are at risk of flooding.

High-risk coastal areas (FEMA Zones V and VE) are those that are subject to a 1% annual chance of flooding with velocity hazard, also known as wave action. Buildings and other structures in these zones are often most susceptible to damage during a hurricane or extreme weather event due to this wave action. Manchester’s entire southern border is considered a high-risk coastal area. Flooding within the VE flood zone includes the downtown area, Raymond, Ocean, Beach and Proctor Streets, Magnolia, and Boardman Avenues¹⁸. There are only a few small portions of town within the 500-year floodplain (FEMA Zone X) and subject to a 0.2% annual chance of flooding. Flooding in this zone is less likely than in the aforementioned zones.

Wetlands and Flood Control

Wetlands, including marshes, swamps, and bogs, serve a number of vital roles in both the natural and built environments. First, wetlands are highly productive systems and provide important habitats for many species of wildlife. They also act as “sponges,” absorbing and detaining surface waters. In this latter role, wetlands are critical to maintaining the quantity of water supplies by maintaining relatively stable groundwater levels. They also protect water quality by filtering out pollutants and thereby reducing the contamination of streams, lakes, and groundwater. Wetlands also prevent downstream damage from flooding.

Because of the important roles played by wetlands, it is essential that they be protected. Activities that create impervious surfaces result in increased runoff rates, reduced flood storage, and elevated peak flows, leading to more significant damage from storms. Alteration of wetlands reduces wildlife habitat and plant diversity and can increase contamination of streams, rivers, and ponds due to reduced filtration of pollutants.

Under the Wetlands Protection Act (M.G.L., Ch. 131, sec. 40), wetlands are defined in terms of vegetative cover and hydrological indicators (including soil characteristics), and the Act regulates dredging, filling or altering areas within 100 feet of such wetlands. Additionally, the Wetlands Protection Act also regulates activities in water resource areas mentioned throughout this section,

¹⁷ Manchester-by-the-Sea Hazard Mitigation Plan 2018

¹⁸ Manchester-by-the-Sea Hazard Mitigation Plan 2018

in order to contribute to eight interests: 1) protection of public and private water supply; 2) protection of groundwater supply; 3) flood control; 4) storm damage prevention; 5) prevention of pollution; 6) protection of land containing shellfish; 7) protection of fisheries; and 8) protection of wildlife habitat. Under Massachusetts law, local Conservation Commissions are responsible for implementing the requirements of the Wetlands Protection Act.

In addition, Manchester passed its own Wetlands Protection bylaw (Article XVII) and corresponding regulations that further protect natural resources. In particular, the Town's bylaw establishes a 30-foot "No Disturb Zone" and a 50-foot No Build zone to wetland resource areas.

Manchester benefits from wetlands, marshes, and floodplain swamps in wooded areas that provide a large, though incomplete, measure of flood control for village homes during most rainfall events. Flooding remains a recurrent problem in several residential areas, however, and solutions are often hard to find. Looking ahead, a lack of conservation protection for much of the wooded areas upstream of the village poses a danger of greater future flooding.

Cedar Swamp, Beaverdam Swamp and Sawmill Brook

Cedar Swamp provides highly significant floodwater storage for Manchester. For many years the swamp, as well as its neighbor, Beaverdam Swamp, regularly dried out between major storms. Recent beaver activity, however, has caused the swamps to have standing water most of the year. Most of its trees have died, as water levels have remained high for more than a decade. In the easterly portion of Cedar Swamp, as Sawmill Brook exits the area, the town maintains beaver deceiver fencing around three culverts to safeguard flood storage capacity for future storms.

Thanks to conservation efforts by the towns of Manchester and Essex and the MECT, Cedar Swamp itself is largely under conservation protection. Much of the Essex portion of the woods east of Southern Avenue is not protected, however, nor is the considerable wooded acreage in the watershed in Gloucester. The need for a regionally coordinated protection effort remains. At the least, a regional dialogue would give Manchester an opportunity to weigh in on decisions made in Gloucester and Essex that will impact its environmental well-being.

Sawmill Brook, which carries excess stormwater from Cedar Swamp down to the harbor, also plays an important role in flood protection. Its ability to handle swamp runoff, as well as runoff from the areas it traverses, was compromised years ago when its banks were pinched and many residences built up to its edge. The Metcalf & Eddy "Hydrologic Study of Millet's Brook and Sawmill Brook Watersheds"¹⁹, issued in February 2008, identified the cause of the overtopping of culverts during 10-year storms at Lincoln Street, Norwood Avenue and School Street as due primarily to the narrowness of the stream channel. Enlargement of culverts would not greatly reduce the flooding.

Development of wooded areas upstream is likely to exacerbate these flooding problems. In addition, the Essex County Club's golf course, which is zoned for half-acre residential use, is not permanently protected, although site plan review and subdivision regulations offer some safeguards. While achieving a conservation restriction on the club's land may be in the town's

¹⁹ *Hydrologic Study Millets Brook and Sawmill Brook Watersheds, Prepared for the Manchester-by-the-Sea Conservation Commission, February 2008 (Metcalf & Eddy| AECOM*

interest, an additional study would be needed to substantiate the environmental benefits. At present the Club has declined to take action toward implementing a conservation restriction.

Millet's Swamp and Brook

Millet's Swamp and Brook, important tributaries to Cedar Swamp and Sawmill Brook, lie just south of Route 128 and extends southward to Pleasant Street. The watershed for Millet's Swamp and Brook is bounded roughly by the peaks of Moses Hill, the low hills of the Reservation, and the hills on the west side of School Street. This watershed encompasses almost 200 acres. Prior to construction of Route 128, Millet's Swamp was an integral part of Cedar Swamp. Now the stream flowing out of Millet's Swamp runs under the highway into Cedar Swamp.

As with Cedar Swamp, Millet's Swamp provides significant floodwater storage. Much of the northerly portion of the Swamp and the brook that empties it into Cedar Swamp is under conservation protection. Approximately 13 acres are preserved by the MECT as a wildlife refuge. Thirteen privately owned acres are under conservation restriction to the town. The northerly half of Jack's Hill, which abuts Route 128 at the edge of the swamp, and is owned by the Commonwealth of Massachusetts, is being preserved as a scenic easement. The other half of Jack's Hill, 14 acres of town-owned land, is managed by the Conservation Commission for flood protection, wildlife habitat and passive recreation.

Flooding in the watershed for the swamp and brook occurs in upstream areas, which are heavily developed. Here, the topography is extremely flat and the brook moves very slowly. Much of the developed area is within the floodplain for a 100-year storm; several areas are in the floodplain for a 10-year storm. Yet the ability of the swamp and brook to handle major storms is limited not just by its flatness, but also because of a normally high-water table.

A hydrologic study of Millet's Brook and Sawmill Brook was completed by Metcalf & Eddy in February 2008. The purpose of the study was to determine whether enlarging the Millet Brook culvert at Blue Heron Lane would reduce the flooding in the area during major storms. It was determined that increasing the size of the culvert would indeed reduce local flooding during a 10-year storm but would increase flooding downstream. There would be no decrease in flooding during 25-year and 100-year storms. No changes were recommended.

Cat Brook

Cat Brook, a narrow stream in the northeast section of Manchester, is a tributary of Sawmill Brook, joining it after passing under Lincoln Street near the town well. The Cat Brook watershed extends well into Essex and Gloucester. Two small streams form the headwaters. One rises in woodlands in Essex just north of Route 128, runs along the highway, then crosses under it. A second branch originates in woodlands in Gloucester and enters Manchester in its northeastern corner, meandering via several ponds and small swamps. Before merging just north of Mill Street these branches each run for about one mile through more than two hundred acres of woodlands and sparsely developed residential land in Manchester, and twice that acreage in Essex and Gloucester. Cat Brook joins Sawmill Brook at Lincoln Street.

The watershed area is characterized by a mix of fairly level lowlands with a few hills of moderate height and occasional steep slopes, particularly along Route 128. Upland soils are rocky. Exposed bedrock or shallow depth to bedrock, and problems of rapid runoff are typical.

Near the highway, soils are deeper but filled with stones and boulders. Steep slopes and a high seasonal water table pose problems for building site development and the watershed is not yet heavily developed. The same is true in the portions of Essex and Gloucester that lie in Cat Brook's watershed. However, the city of Gloucester has studied the possibility of building a large-scale commercial development in its portion of the watershed and there is other land north of Route 128 on the market. A large conversion of woodlands in any of the three communities would cause increased flooding along Cat Brook, as well as add to the flooding problems on Sawmill Brook at Lincoln Street, Norwood Avenue and School Street.

Cat Brook's two branches regularly overflow their banks during periods of sustained rainfall. Most of this flooding occurs on unoccupied land, with the main problem in recent years being flooding where the brook crosses Loading Place Road.

Eaglehead Swamps and Ponds

Just behind the MBTA railroad tracks that mark the southerly boundary of Sweeney Playground on Summer Street, lies an extensive swamp behind the cluster of homes atop Eaglehead. A smaller swamp lies slightly to the west, backing onto the railroad tracks behind Spy Rock Hill and extending toward Old Neck Road. The Eaglehead swamps are wooded and include several shallow ponds. These swamps are important for flood prevention in the Summer Street-Lincoln Street and Beach Street areas in that they decelerate the release of runoff from the areas they drain.

The topography of this area is relatively flat, with a gradient of about 10 feet overall. These swamps take runoff from steep surrounding hills. The easterly swamp is fed by a seasonal stream exiting Dexter Pond, at the foot of Long Hill and the westerly one by local runoff. The easterly swamp drains via Causeway Brook, which empties into Sawmill Brook near Lincoln Street. The second Eaglehead swamp contains the headwaters for Day's Creek, which empties into the harbor.

As Eaglehead homes are at a considerably higher elevation than the swamp, flooding poses no problems to residences, though high groundwater often floods the nearby Sweeney Park playing fields as noted in the 2020 Athletic Fields Master Plan.

Bennett's Brook

Bennett's Brook lies south of the Round Pond watershed in the northwest and central west area of Manchester. It flows from the Walker Road-Highwood Road neighborhood south toward the harbor. The Brook is fed by the rapid runoff generated by the steep, rocky hills in the Walker-Highwood neighborhood.

The drainage area for the Brook's watershed is approximately 375 acres with several rugged hills dominating the area. Wyman Hill and Great Hill are broad as well as high. On the eastern edge of the area a broad flat plain descends gently to the homes along Walker and Highwood Roads. Due to the topography of the area and two major fires over the years, flooding has historically been frequent and severe during periods of high runoff. In 1984, the town established a Flood Control District Overlay for the Bennett's Brook watershed. The Flood Control District regulates building to "protect the public health and safety and property against the damages of flooding conditions caused by new development in areas with inadequate capacity of existing

drainage systems, brook channels, and street culverts to accept storm runoff from the areas drained”.

In 1995-1996, to compensate for development at Walker Road extension and off Forster Road (Brookwood Path) the town required a series of detention basins and a dam to be built at the east end of Walker Road, to meet the 25-year storm event. The new system has functioned well in that area and alleviated flooding elsewhere on Walker Road, although flooding at the base of Highwood Road has continued after several storms that exceeded the 25-year event.

Chubb Creek

The Chubb Creek marsh forms the southern part of the boundary between Manchester and Beverly. The salt marsh extends from Bridge Street to the ocean and covers approximately 40 to 50 acres. Chubb Creek marsh is part of a typical estuary, where fresh and salt waters merge. Characteristically, it includes salt marsh and tidal flat. Certain species of plant and animal life have evolved to live under the frequently harsh conditions that are a common element of the estuary environment — changing salinity, temperature and oxygen supply. The upland area adjacent to the marsh is a coastal buffer between the marsh and the highway to the north.

The Chubb Creek marsh once served as a test site for the Open Marsh Water Management project developed by the Massachusetts Audubon Society in conjunction with the Essex County Mosquito Control Project. This project created shallow ponds that flood at very high tide, thereby encouraging spawning of several anadromous fish species and discouraging mosquito breeding in these areas.

The marsh is privately owned in its entirety. The Essex County Greenbelt Association holds conservation restrictions on part of the marsh in Manchester and Beverly, while the town holds a 2- acre conservation restriction in Manchester. However, much of the marsh in Manchester still lacks deeded conservation protection. The watershed area includes the land in and around the Brookwood School and Brookwood Road, which is largely in the city of Beverly. The area is believed to be attractive for future development. Presently, seasonal flooding in the area occurs as tributary streams overflow their banks and cart paths become waterways. The remaining unprotected areas would benefit from conservation protection against future development.

Kettle Cove and Clark Pond

The Kettle Cove marsh lies between Summer Street and the ocean where Wolf Trap Brook empties behind Black Beach. The area consists of approximately 25 to 40 acres of salt marsh, tidal flats, sand flats and sandy beach. Kettle Cove marsh is part of a typical estuary, where fresh and salt waters merge.

Black Beach Cove is heavily used by recreational boaters. Dive groups and school groups use White Beach for lessons and rocky shore exploration. The marsh is largely owned by residents along Summer Street and Ocean Street whose properties end at the creek. The MECT owns approximately 4 acres and holds a conservation restriction on a large portion of the marsh.

Kettle Cove receives freshwater inputs from both Wolf Trap Brook and a brook that drains from Clark Pond. Clark Pond, an emergent tidal wetland and estuarine pond, receives fresh water from two sources as well. The first water source commences at Wallace Pond in Gloucester,

continues through a large expanse of freshwater marsh and forested wetland, into two small duck ponds north and south of Route 127, and finally into the emergent wetland lying adjacent to Clark Pond.

The second source of fresh water commences in an emergent freshwater swamp that is fed by road runoff originating on Magnolia Avenue in Magnolia and Butler Avenue in Manchester. This wetland drains via a ditch that crosses under Raymond Street and exits into the pond. This area of crossing is below the floodplain elevation and is frequently inundated during spring rains and high seasonal tides. This area is also the location of the outlet to the storm drain system that drains the entire length of Raymond Street. The outflow of Clark Pond runs through a manmade dike and into a narrow channel onto Black Beach and into Kettle Cove. Surf Park was constructed at the end of Raymond Street abutting Magnolia helping to control run off and flooding as well as creating a recreational area.

Since 2006 Salem Sound Coastwatch, in conjunction with the Manchester Coastal Stream Team, has been conducting water quality testing for bacterial contamination in the Wolf Trap Estuary. The results of the Clean Beaches and Streams Program testing have demonstrated bacterial contamination which has prompted the Board of Health to investigate potential upgrades of septic systems in the area. Another concern is the increase of Phragmites in the Kettle Cove Marsh due to probable tidal restriction at the mouth of the estuary at Black Beach.

For several years, the nutrient load of the pond has shown increased vegetation growth and algae blooms. As part of a Coastal Monitoring Grant, the Trustees of Reservations in conjunction with the Board of Health monitor water quality of the Clark Pond vicinity using testing parameters that include total coliform, fecal coliform, nitrate nitrogen, ammonia and phosphorus. Water testing at the reservation identified the presence of fecal coliform and low dissolved oxygen.

The Division of Marine Fisheries has two water quality stations in Kettle Cove which are tested for fecal coliforms. The water quality for the area is highly variable. Because of the elevated fecal coliform counts, the area was reclassified as “Prohibited” to shellfishing in 1988 and has not been officially changed to date.

Other Water Resources

Manchester Harbor

Manchester Harbor is a large tidal estuary around which the town is situated, and it forms the town’s geographic center. Two major streams, Sawmill Brook and Bennett’s Brook, as well as a few intermittent streams flow into the harbor. In relation to the harbors of neighboring cities, Manchester Harbor is small and does not have extensive commercial development or pollution problems. It is, however, a significant asset and defining feature of the town.

The harbor provides substantial recreational and commercial opportunities for the general public. There are approximately 700 boats located within the harbor. Of these, 25 are commercial fishing boats; the remainder are pleasure crafts. There are two yacht clubs with a combined membership of approximately 500 people. There are several public and private piers, two major boat yards, a public boat launching ramp, public kayak storage racks, a sailing school and a surfboard rental shop. The Harbormaster is responsible for the use and safety of the town’s harbor and oversees the placing and management of 653 moorings.

Tuck's Point, Reed Park, Masconomo Park, and Proctors Cove Landing provide easy access and enjoyment of the harbor. In 2021, the Town was awarded a \$943,504 grant from the state Seaport Economic Council. Approximately \$811,500 of the grant will be used to fund a project at Tucks Point. The project will include a new docking system that will be enforced by a string of pilings and an 80-foot ADA accessible ramp. The remaining \$132,000 of grant funds will be used to redesign the commercial fishing facilities at Morss Pier, which the town hopes will feature new floats and more slip space²⁰. In 2020, new floats were built at Reed Park to accommodate more transient boaters. This project added 260 linear feet to the existing docks. Additionally, rental and usage fees collected through the Harbor Department's Dockwa app help offset the cost of maintenance and future improvements.

Figure 16: Manchester Harbor



Image Source: Courtney Lewis

²⁰ Michael Cronin (2021), "Tuck's Point to Receive New Dock System This Summer," Gloucester Daily Times, https://www.gloucestertimes.com/news/fishing_industry_news/tucks-point-to-receive-new-dock-system-this-summer/article_5f39287d-c141-5f5f-9fed-1ed2f0eb8144.html

Tidal lands adjacent to Masconomo Park are held under two conservation restrictions by the MECT. At low tide, the harbor takes on a much different appearance and often attracts a variety of shorebirds. Several points of land jut into the harbor, and on some are located houses of significant architecture. This irregular shoreline, interspersed with numerous little inlets and coves, creates a picturesque feel which lends to the harbor's attractiveness. Certainly, this high scenic value of the harbor is one of its most important assets.

Manchester Beaches

Manchester has several large and various small beaches affording public access to residents and visitors. The larger public beaches are Singing Beach, White Beach, and Black Beach. The beaches also provide the opportunity for recreational fishing. Manchester's private beaches include Gray Beach (Magnolia Beach part is public), Graves (or Dana's) Beach and Long Beach. While these areas are for private use, they do afford scenic vistas for those traveling in the area. All of Manchester's beaches are tested by the Board of Health to protect the safety of the residents and to determine coastal water quality. The Board of Health monitors the following beaches on a weekly basis during the summer: Singing Beach, White Beach, Black Beach, Magnolia Beach, Tuck's Point and West Manchester Beach (Black Cove Beach).

Salem Sound Coastwatch's Adopt a Beach Program trains volunteers to become "beachkeepers" at their favorite beach. Beachkeepers clean up debris, identify and report issues affecting the beach and monitor for erosion, invasive species and pollution. Manchester's beachkeepers monitor and report on Magnolia Beach, White Beach, Black Beach and West Manchester Beach. The Manchester Coastal Stream Team, in conjunction with Salem Sound Coastwatch's Coastal Habitat Invasives Monitoring Program, annually monitors White and Black beaches for invasive species during the summer months.

Vegetation

Manchester's vegetative communities are a mixture of large forestland, fresh and saltwater wetlands, rocky open summits, water-bodies, and a network of streams and tributaries that support specialized communities of plants and wildlife. The terrain in Manchester is generally irregular with rocky uplands, areas with approximately 145 summits and peaks, and lowland areas, commonly intermixed, containing wooded swamps, streams and wetland areas and coastal resources providing many diverse vegetative features and ecological habitats. Manchester is home to many important plant communities that include: red maple swamps, woodland vernal pools, Atlantic white cedar swamps, oak forests and rocky outcroppings that support a number of rare plants and animals.

Originally, with much of the town's land area unsuitable for farming or development, a sizable inventory of open space remained outside of the village for timber and woodland. Currently, many of these historic woodland and timber lots are highly regarded natural communities providing important areas for conservation and areas for recreational use for nature study, birding, walking, hiking and limited hunting.

Generally, Manchester forestland, mostly secondary growth, includes large forested areas mixed of white pine, oak, chestnut, poplar, maple, birch and hardwood species and conifers dominate the upper canopy. Below the canopy, there is a large diversity of dense areas of common shrubs

such as shadbush, winterberry, blueberry, ferns and a mixture of forest flowers. With the terrain generally irregular, with upland and lowlands intermixed, forest areas contain both terrestrial and palustrine communities. Manchester has many significant forested parcels including Powder House Hill, and Great Hill areas, but the most significant areas are the Manchester-Essex Woods, Long Hill and the areas of Cranberry Pond and Rattlesnake Den.

According to information referenced in the 2014 OSRP that was obtained from MassWildlife's Natural Heritage & Endangered Species Program (NHESP), Manchester is one of the towns in Massachusetts with maps showing areas forested in the 1830s and untilled woodlots and wooded pastures that are areas of possible Primary Forest. Such lands have greater biodiversity than areas that have been tilled. These are not "Old Growth" forests, as they have been harvested and pastured, but the ground may never have been tilled. Harvard Forest digitized maps from the 1830s that the Massachusetts legislature mandated that the towns create. Manchester's map shows areas that were forested in the 1830s. NHESP's GIS staff took those data and combined them with information from MassGIS' landcover data layer made from 1999 aerial photos.

Although a great deal has occurred in those areas in the time between the map dates, some areas that were forested in both times won't ever have been tilled. Surveys of the soil structure in the individual sites are necessary to determine whether those sites are primary forest. The importance of primary forest sites is that they retain more native biodiversity than sites that have been tilled. Soil fauna and flora — microorganisms and plants that reproduce primarily vegetatively—contribute to the higher biodiversity. In addition, there are species of wildflowers that are more common in untilled forests than previously tilled lands.

The areas of 1830s forest on private land would be good targets for conservation acquisition to maintain the biodiversity of the town and region. In Manchester, these areas of possible primary forest are located away from the coast and town center, in the northern, eastern, and western areas of town. The Harvard Forest website contains information on the 1830's forest data layer and copies of papers with discussion of the information.²¹

Wilderness Conservation Area – the Manchester-Essex Woods

The 3,400 acres of undisturbed woodlands stretching from the Gloucester water supply area to the Hamilton-Wenham ponds, and from Route 128 in Manchester to the Essex salt marshes is a highly valued wildlife area. This area's unique ecological value derives largely from its size and regional significance. In addition, the soils in the area have never been disturbed (most of Massachusetts soils were plowed during the colonial period), and this factor is highly unusual and significant to the presence of rare and endangered species.

According to a conservation action plan completed by The Nature Conservancy in 1999, the plant communities of the Manchester-Essex Woods, together with the natural landscape that supports them, are among the best of their type remaining on the entire north Atlantic coast. In addition, the Wilderness Conservation Area is registered with the Commonwealth's Natural Heritage

²¹ <http://harvardforest.fas.harvard.edu/hf122-detailed-metadata>; Harvard Forest. 2002. 1830 Map Project. Harvard Forest Archives, Petersham, MA.; Hall, B., G. Motzkin, D. R. Foster, M. Syfert, and J. Burk. 2002. Three hundred years of forest and land-use change in Massachusetts, USA. *Journal of Biogeography* 129: 1319-1135.

Program, which keeps track of natural environments of particular worth. Much of the Manchester-Essex Woods is recognized as a BioMap2 Core Habitat and/or Critical Natural Landscape.

The MECT, which has worked with NHESP for many years, has recognized the need for more data within this large BioMap and BioMap2 Core Habitat. As a result, MECT applied for and received a grant from the Massachusetts Environmental Trust in 2003 for a two-year project to advance the ecological health and biological diversity of the valuable habitats and safeguard the purity of the waters that flow from the Manchester-Essex Woods to the sea. The first proposed objective was to gather specialized knowledge of wildlife habitats within the Manchester-Essex Woods. This data was to be used to assist NHESP reviews under the Wetlands Protection Act and other state statutes and enhance public support for bylaws and regulations that discourage development within the Woods. Another objective of the project was to strengthen land acquisition efforts in the Manchester-Essex Woods, including creating a support base to raise the large sums of money needed to acquire the parcels vital to the area's integrity and encourage property owners to grant conservation restrictions. The final objective was to incorporate the scientific knowledge generated by the project into a revised management plan for the Manchester-Essex Woods.

In 2004, more than 100 acres in the heart of the Manchester-Essex Woods was put under agreement for residential development. In an effort to conserve the land, MECT negotiated the acquisition of the property for \$1.4 million. The highly successful "Save Our Woods" campaign was launched, yielding more than \$3 million toward land purchases to complete the central portion of the Wilderness Conservation Area.

The MECT has conducted several studies over the years to assess, catalog, and protect the ecological value of the Wilderness Conservation Area. The most recent study, Wilderness Conservation Area Management Plan, was published in 2013.²² The plan provides a comprehensive summary of the flora, fauna, and geology of the study area. In 2019 MECT was awarded a grant from the Massachusetts Department of Conservation and Recreation (DCR) Forest Stewardship Program to develop a Forest Stewardship and Bird Habitat Assessment Plan.

Most of the land in Manchester located within the Wilderness Conservation Area has been deeded to conservation, either by private funds from MECT or by the town, with management by the Conservation Commission. Parcels not yet protected have evoked some development interest. This area is zoned for limited commercial use and could be utilized as such by the present owners.

Key unprotected parcels in Manchester include the Gordon College land on the west, the Old School Street/new School Street hill (the westerly half of Shingle Place Hill), and the wooded hills east of Agassiz Rock Reservation which is owned by the Manchester Athletic Club. The topography of these parcels includes steeply sloped knolls and numerous wetlands, including a small part of Cedar Swamp. Upland soils are characterized by shallow depth to bedrock, many rock outcrops, and fast runoff.

Low but steep hills predominate in the area of Dug Hill-Cheever Commons. Soils in the area are shallow to bedrock, with large rock outcrop and fast water runoff. These hills drain mainly toward

²² Wilderness Conservation Area Management Plan: <http://www.mect.org/wp-content/uploads/2013/09/WCA-Management-Plan-7.13.pdf>

Maple Swamp in Essex. This area lacks road access since the Route 128 interchange was built. A portion of an old fire road bisects the site from the northwest to southeast.

Cranberry Pond and Rattlesnake Den

The Cranberry Pond and Rattlesnake Den woodlots located in northeastern Manchester and southeastern Essex comprise a remote woodland that borders the town line with Gloucester and Route 128. This area is identified as Core Habitat featuring Forest Core, Priority Natural Communities, and a Species of Conservation Concern according to the Natural Heritage & Endangered Species Program *BioMap2*. White pine and mixed oak are the dominate species, and scattered throughout are red maple, hemlock, beech and hickory. Though, mostly lightly vegetated, the understory of blueberry, huckleberry, witch hazel, arrowhead, and princess pine are some of the upland species. With good foot trails running throughout the properties, the trails can be accessed from Forest Lane and Dexter's Pond. The Cranberry Pond trails link to the Long Hill and Gloucester trail systems throughout the area. Some of these trails are on private land.

On this property the Manchester, Essex and Gloucester boundaries converge on a hill. The location is marked with an ancient heap of rocks, called "Heap of Rocks Hill." The hillside southeast of Cranberry Pond is littered with boulders and a glacial moraine that is at least ten thousand years old. This rocky setting was a natural habitat for rattlesnakes that were eradicated by colonial farmers and foresters hundreds of years ago.

Cranberry Pond-Rattlesnake Den and much of the abutting land is mostly owned by the Essex County Greenbelt²³, with some parcels owned by the Town of Manchester and private individuals. This land which totals approximately 40 acres, was donated in three different years, 1984, 1999, and 2006, by Stephen and Marion Hall of Manchester. In 2011, the Harrington family donated 5.054 acres of land to the Essex County Greenbelt. The donated land is located off Loading Place Road by Cranberry Pond. This wooded lot features a prominent stand of American Beech (*Fagus grandifolia*). With several parcels in the area owned by private landowners, efforts should be made to protect the neighboring parcels from future development. Generally, the trails are in good condition and are maintained privately by local landowners.

Long Hill Conservation Area

The Long Hill Conservation Area is protected under two separate Conservation Restrictions, both held by the MECT. This area is by far the largest tract of land held under Conservation Restrictions in Manchester, comprised of just over 118 acres. Long Hill abuts the Dexter Pond Conservation Area to the southeast and connects to a large swath of land in Gloucester.

The Long Hill Conservation Area, along with abutting lands in Gloucester comprise 737 acres of *BioMap2* designated Core Habitat (Core 2517) which features Forest Core, Priority Natural Communities and a Species of Conservation Concern (the Sweetbay Magnolia). This area is also designated in *BioMap2* of a 1,127-acre Critical Natural Landscape (CNL 1202) for its large areas of intact, predominately natural vegetation which supports dynamic ecological processes such as buffering, connectivity, natural disturbance, and hydrological regimes – all of which help to support wide-ranging wildlife species and other elements of biodiversity.

²³ http://www.ecga.org/explore_and_engage/view_property/1167-cranberry_pond

The Conservation Restrictions on Long Hill permits public access for recreational and educational purposes to the property's trails and wetlands in perpetuity. Existing trails, local roads and cart paths, provide pedestrian access to Dexter Pond, Long Hill, the Hooper-Trask Pasture, out to Kettle Cove.

Dexter Pond Conservation Area

One of the most unique ecosystems in the town is the Dexter Pond Conservation Area, a highly valued resource for recreation and nature study. The town received ownership of 15 acres around Dexter Pond, as well as an area on the hill at the eastern end of the property to construct a water tower and an easement to get the water off the hill. The Conservation Restrictions permit public access for recreational and educational purposes to the property's trails and wetlands in perpetuity.

Figure 17: *Dexter Pond*



Image Source: Courtney Lewis

The Dexter Pond Conservation Area itself now comprises approximately 30 acres of forested uplands, bordering wetlands and a large open pond surrounded by a perimeter trail. Dexter Pond has a surface area of approximately 2.8 acres and an average depth of only 3-4 feet. The pond is fed from both groundwater flow and a surface stream that enters along its eastern shore. The pond freezes over in the winter months providing recreation for ice skaters.

The area also provides nature study of an assortment of predominantly native plant and animal life. Floating leafed plants such as white waterlily (*Nymphaea odorata*) and watershield (*Brasenia schreberi*) are visible on the surface of the pond, while purple bladderwort (*Utricularia purpurea*) and naiad (*Najas spp*) are submerged beneath the surface. Emergent cattails (*Typha latifolia*), pickerelweed (*Pontederia cordata*) and burreed (*Sparganium*) are common along the shore and extend out into the pond in some locations. A diverse native plant community lines the shore including tussock sedge (*Carex stricta*), buttonbush (*Cephalanthus occidentalis*), spice bush (*Lindera benzoin*), highbush blueberry, (*Vaccinium corymbosum*) and a variety of trees including maple (*Aceraceae*) and birch (*Betulaceae*).

Once a year the Coastal Stream Team organizes members and volunteers from the community to help remove invasive purple loosestrife from the pond and to clear the trail that winds around the pond's perimeter. In 2019, the Open Space and Recreation Committee was granted \$6,000 in CPA funds to replace a rotting pedestrian footbridge at Dexter Pond. The original footbridge was used by visitors to cross over the small stream that branches out from Dexter Pond to reach the site's hiking trails. The new bridge was constructed and installed by Ken King, a Manchester resident, and other volunteers.²⁴ In addition, the "Preservation of Dexter Pond Project", a study conducted using CPA funds was completed and submitted to the Conservation Commission in 2019. The study resulted in an ecological assessment of Dexter Pond and will help determine short and long-term management strategies. Future implementation discussions for the plan are ongoing.

Clark Pond

Clark Pond, a 12-acre coastal salt pond, part of the Coolidge Reservation managed by the Trustees of the Reservation, abuts the east side of Coolidge Reservation and is accessible from Raymond Street on the eastern side of Manchester. It is a former salt marsh cut off from the tide leaving a freshwater dominated pond. Although, still connected to the Kettle Cove through a narrow channelized stream, a combination of marsh and woodland, this site is known for its scenic value and natural setting, with several foot trails with scenic vistas of pond and woodland landscape leading to the Great Lawn. In 2011, the Trustees of Reservation completed a project restoring tidal flow to Clark Pond. They removed multiple restrictions to increase the water flow to the site. They also opened up flow between the pond and Kettle Cove to improve environmental conditions in Clark Pond and to address the serious flooding that was following major rain events.²⁵

²⁴ Michael Cronin (2019), "Manchester Volunteer Creates New Dexter Pond Footbridge," Gloucester Daily Times, https://www.gloucestertimes.com/news/local_news/manchester-volunteer-creates-new-dexter-pond-footbridge/article_203ed07f-a76c-588e-bcc5-628000fcd97.html

²⁵ Kate Kirby (2010), "Manchester's-Clarke-Pond-Targeted-For-Restoration," Gloucester Daily Times, <http://www.gloucestertimes.com/local/x1255113116/Manchesters-Clarke-Pond-targeted-for-restoration>

Offshore Islands

The offshore islands, including House Island, Kettle Island, Graves Island, and the Ram Islands provide important nesting and feeding areas for a variety of seabirds. House Island was recently given permanent protection through acquisition by Massachusetts Audubon and a Conservation Restriction managed by the MECT. The island contains two priority plant communities, the maritime rocky cliff and the marine intertidal rocky shore communities, both designated as “state imperiled” under the community state rank (S-RANK) system²⁶. Graves Island and the Ram Islands remain unprotected but would benefit from the same protections due to their potential for additional bird habitat and plant communities.

Figure 18: Kettle Cove Marsh



Image Source: Courtney Lewis

Saltwater Wetlands

There are two significant salt marsh areas in Manchester, Chubb Creek which is approximately 14 acres and Kettle Cove which is approximately 26 acres. Salt marshes are considered one of the most productive ecosystems on Earth. Vegetation in a salt marsh is salt-tolerant and it provides the basis of the complex food chains in both estuarine and marine environments. Both marshes are salt-water estuaries situated landward of barrier beaches. The upland areas contribute low-volume freshwater to the landward portion of the estuary. The intertidal areas are dominated by high cordgrass and salt marsh hay that provide habitat for birds and wildlife. Chubb Creek is a known spawning ground for Rainbow Smelt. Activities for these areas include kayaking, bird watching, nature study, fishing and other passive recreation.

²⁶ “NHESP Priority Types of Natural Communities,” <https://www.mass.gov/doc/nhesp-priority-natural-communities/download>

Public Shade Trees

Pursuant to Chapter 87 of the Massachusetts General Laws, all trees within a public way or on the boundaries thereof shall be public shade trees and shall not be cut, trimmed, or removed, in whole or in part, by any person other than the tree warden or his deputy, even if he be the owner of the fee in the land on which such tree is situated except upon a permit in writing from said tree warden, nor shall they be cut down or removed by the tree warden or his deputy or other person without a public hearing and said tree warden or his deputy shall cause a notice of the time and place of such hearing.

Manchester's public shade trees include those trees within the right of way along town roads as well as at municipal facilities including the town's parks, cemeteries, schools, library and town offices. These public trees are recognized as valuable to the town's visual character and for the physical comfort they provide in moderating temperatures, offering shelter from sun, wind and precipitation, and filtering pollutants from the air.

The Department of Public Works consults with the town's Tree Warden to assess and remove dead or dying trees and also performs pruning and other measures to keep public trees healthy. The town maintains and updates a Tree Inventory layer which is publicly assessable through MapGeo, the town's interactive online GIS platform.

Additionally, Manchester is a "Tree City USA" community as designated by the National Arbor Day Foundation. To achieve this recognition, Manchester met the program's four requirements: a tree department, observation of a tree-care ordinance which Manchester 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.

The town is also fortunate to have an active volunteer group called the "Friends of Manchester Trees" which coordinates the planting of memorial trees (including five years of aftercare) and donates trees for public spaces around town.

Rare and Endangered Species

As a part of the Massachusetts Endangered Species Act (MESA), the population status of rare species, whether they are plants or animals, is described using three categories: special concern (SC), threatened (T), and endangered (E). Species of special concern have either experienced a decline that could threaten the species without intervention, or whose populations are so small, localized, or dependent upon specialized habitats that they could become threatened.

Threatened species are likely to become endangered in the foreseeable future. Endangered species are in danger of extirpation from Massachusetts. The Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife has identified one rare vascular plant in Manchester: Heartleaf Twayblade (*Listera cordata*), with the last recorded siting older than 25 years. (**Figure 19**).

Figure 19: Rare Plant Species Observed in Manchester

Common Name	Scientific Name	Taxonomic Group	MESA Status	Last Spotted
Heartleaf Twayblade	<i>Neottia cordata</i>	Vascular Plant	E	Historic

Source: Natural Heritage & Endangered Species Program, Rare Species by Town Viewer

Mapping Projects

In partnership with the Nature Conservancy, the Natural Heritage & Endangered Species Program produced strategic biodiversity conservation plans for every city and town in Massachusetts in 2012. *BioMap2* is designed to focus “land protection and stewardship on the areas that are most critical for ensuring the long-term persistence of rare and other native species and their habitats, exemplary natural communities, and a diversity of ecosystems.”²⁷ The project was developed to protect the state’s biodiversity in the context of global climate change.

As a part of the *BioMap2* mapping project, two components in each community are identified: Core Habitat and Critical Natural Landscape. Core Habitat describes areas that are crucial to the long-term existence of rare species, as well as a wide diversity of species in an intact ecosystem. According to *BioMap2*, 569 acres in Manchester is considered Core Habitat. Of this, 324 acres are already protected in perpetuity.²⁸ **Figure 20** shows the locations of the *BioMap2* Core Habitat which include portions of the Manchester-Essex Woods, Agassiz Rock Reservation, and Cranberry Pond-Rattle Snake Creek, along with the majority of Cat Brook and Sawmill Brook.

Critical Natural Landscape describes large areas of natural “Landscape Blocks” that are not greatly impacted by development. As the world’s climate changes, these areas, if protected, will provide habitat for native species, enhance ecological resiliency to disasters, and connect habitats. Approximately 548 acres of Manchester is considered Critical Natural Landscape. Of this, 257 acres are protected in perpetuity. The Critical Natural Landscape areas shown in **Figure 20** overlap with many of the Core Habitat areas and include Kettle Cove Marshes and Chubb Creek Marshes.

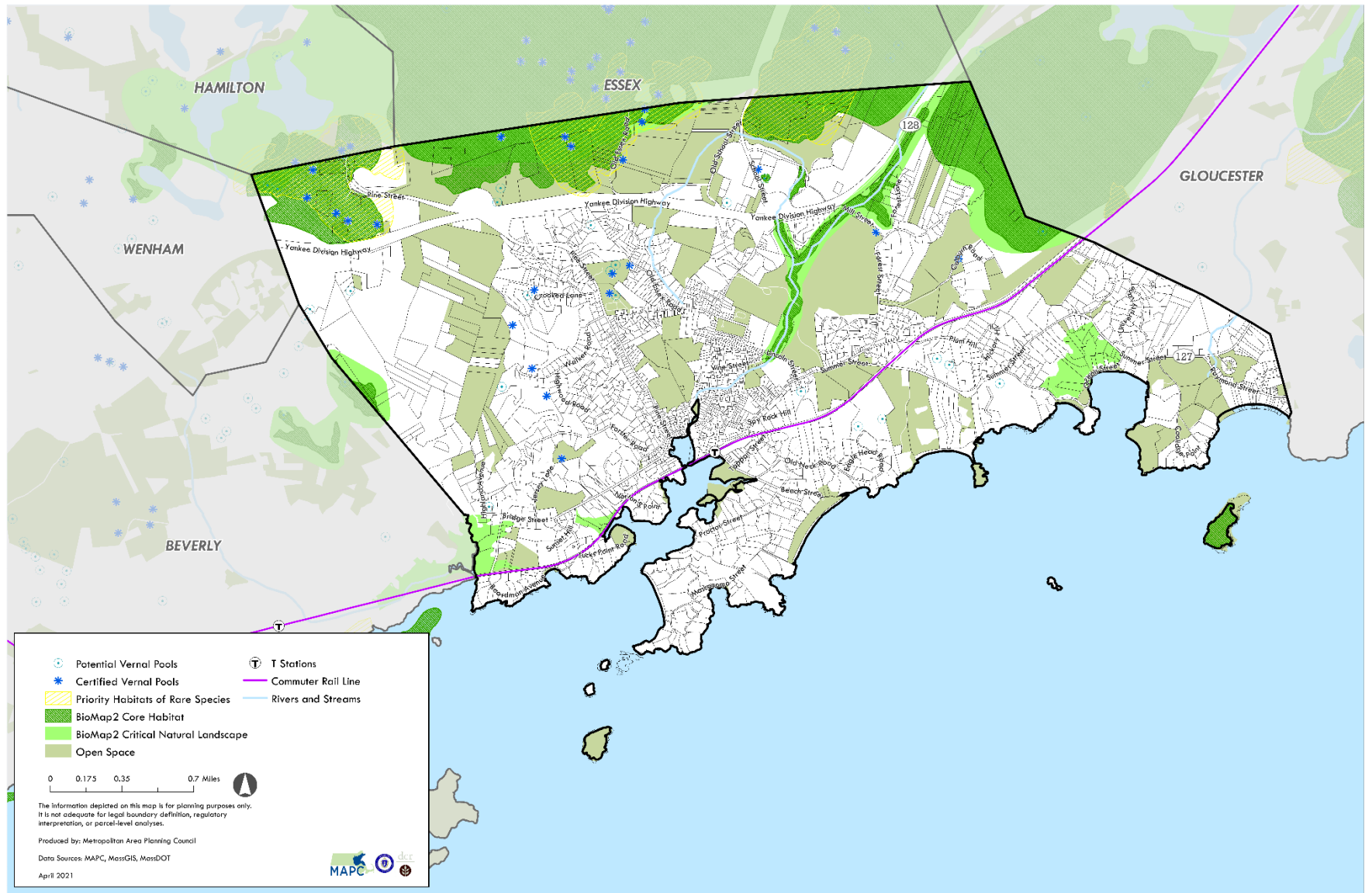
Also shown in **Figure 20** are Priority Habitats of Rare Species. According to MassGIS, “The Priority Habitats of Rare Species data layer contains polygons representing the geographic extent of Habitat of state-listed rare species in Massachusetts based on observations documented within the last 25 years in the database of the Natural Heritage & Endangered Species Program (NHESP).”²⁹ Priority Habitats of Rare Species in Manchester include portions of Agassiz Rock and the Wilderness Conservation Area and an area off Route 128 near the border with Hamilton.

²⁷ “BioMap2,” MA EOEAA, www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/land-protection-and-management/biomap2/

²⁸ “BioMap2: “Manchester” (2012), http://maps.massgis.state.ma.us/dfg/biomap/pdf/town_core/Manchester.pdf

²⁹ “NHESP Priority Habitats of Rare Species,” MassGIS, www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/prihab.html

Figure 20: Plant & Wildlife Habitat Map



Document Path: R:\Data\GIS\Projects\Current\Projects\OpenSpace_Plan\Harcroster_2021\38_Harcroster_Plan_38\Wildlife_Habitat_2020.mxd

Fisheries and Wildlife

With widespread forestlands, wetlands, and coastal areas, Manchester provides critical wildlife habitats that support both terrestrial and aquatic ecosystems. Manchester's animal population includes various species of birds, mammals, amphibians, reptiles, and fish. Below is an abbreviated list of birds and wildlife that were surveyed in Manchester for the Wilderness Conservation Area Management Plan³⁰.

Birds

- Canada Goose (*Branta canadensis*)
- Green Heron (*Butorides virescens*)
- Mourning Dove (*Zenaida macroura*)
- Downy Woodpecker (*Picoides pubescens*)
- Blue Jay (*Cyanocitta cristata*)
- Black-capped Chickadee (*Poecile atricapillus*)
- American Robin (*Turdus migratorius*)
- European Starling (*Sturnus vulgaris*)
- Black-and-white Warbler (*Mniotilta varia*)
- Northern Cardinal (*Cardinalis cardinalis*)

Mammals

- White-tailed deer (*Odocoileus virginianus*)
- Raccoon (*Procyon lotor*)
- Grey squirrel (*Sciurus carolinensis*)
- Chipmunk (*Tanuas striatus*)
- White-footed mouse (*Peromyscus leucopus*)
- Star-nosed mole (*Condylura cristata*)
- Mink (*Mustela vison*)
- Fisher (*Martes pennant*)
- Beaver (*Castor canadensis*)
- Striped skunk (*Mephitis mephitis*)

Amphibians

- Spotted salamander (*Ambystoma maculatum*)
- Blue-spotted salamander (*Ambystoma laterale*)
- Red-spotted newt (*Notophthalmus viridescens*)
- Spring peeper (*Pseudacris crucifer*)
- Gray tree frog (*Hyla versicolor*)
- American toad (*Anaxyrus americanus*)
- Northern leopard frog (*Lithobates pipiens*)
- Bullfrog (*Lithobates catesbeianus*)
- Green frog (*Lithobates clamitans*)
- Wood frog (*Lithobates sylvaticus*)

Reptiles

- Northern Ringneck Snake (*Diadophis punctatus*)
- Northern Brown Snake (*Storeria dekayi*)
- Redbelly Snake (*Storeria occipitomaculata*)
- Eastern Garter Snake (*Thamnophis sirtalis*)

³⁰ Readers should refer to Appendices 1-3 of the [Wilderness Conservation Area Management Plan](#) for a more comprehensive inventory of plants, birds, and wildlife.

- Northern Black Racer (*Coluber constrictor*)
- Eastern Milk Snake (*Lampropeltis Triangulum*)
- Snapping Turtle (*Chelydra serpentina*)

Fish

- Largemouth Bass (*Micropterus salmoides*)
- Striped Bass (*Morone saxatilis*)
- Common Carp (*Cyprinus carpio*)
- Haddock (*Melanogrammus aeglefinus*)
- Chain Pickerel (*Esox niger*)
- Yellow Perch (*Perca flavescens*)
- Atlantic Cod (*Gadus morhua*)

- Spotted Turtle (*Clemmys insculpta*)
- Eastern Painted Turtle (*Chrysemys picta*)
- Stinkpot (*Sternotherus odoratus*)

- Pollock (*Pollachius virens*)
- Rainbow Trout (*Oncorhynchus mykiss*)

In addition, to those named in the report, two other fish species of note are present in Sawmill Brook:

- Rainbow Smelt (*Osmerus mordax*)
- Sea-Run Brook Trout (*Salvelinus fontinalis*)

Rare Species

The Natural Heritage & Endangered Species Program (NHESP) has identified three rare animal species in Manchester: the Hessel's Hairstreak, the Hentz's Red-bellied Tiger Beetle, and the Pied-billed Grebe. Like with plants, they are described as special concern (SC), threatened (T), or endangered (E).

Figure 21: Rare Animal Species Observed in Manchester

Common Name	Scientific Name	Taxonomic Group	MESA Status	Last Spotted
Pied-billed Grebe	<i>Podilymbus podiceps</i>	Bird	E	1959
Hessel's Hairstreak	<i>Callophrys hesseli</i>	Butterfly/Moth	SC	2013
Hentz's Red-bellied Tiger Beetle	<i>Cicindela rufiventris hentzii</i>	Beetle	T	2018

Source: Natural Heritage & Endangered Species Program, Rare Species by Town Viewer

The Pied-billed Grebes (*Podilymbus podiceps*) are small, stocky waterbirds with compact bodies, slender necks and a chicken-like bill. They prefer to nest in marshes, lakes, ponds and other wetlands which have an abundant supply of cattails, and other vegetation. They were last spotted in Manchester in 1959 and are considered an endangered species in Massachusetts³¹.

³¹"Pied-billed Grebe", Massachusetts Natural Heritage & Endangered Species Program, <https://www.mass.gov/doc/pied-billed-grebe/download>

The Hessel's Hairstreak (*Callophrys hesseli*) is a reddish-brown butterfly with a mint-green overlay. They are usually found within 30 miles of the coast and exclusively inhabit Atlantic white cedar swamps and bogs. It is a species of special concern and was last noted in Manchester in 2013³².

The Hentz's Red-bellied Tiger Beetle (*Cicindela rufiventris hentzii*) is a threatened species that was last seen in Manchester in 2018. This insect is mainly dark brown with a copper sheen, has white markings on its wings, and has a bright orange abdomen. It inhabits sparsely-vegetated bedrock outcrops, often of granite composition³³.

Wildlife Corridors

Wildlife corridors enable animals, particularly upland mammals, to migrate to new territories in search of food or breeding grounds. Biologists estimate that undisturbed linear areas of a minimum of 300 feet in width are necessary for many species to feel comfortable moving undetected through an area.

Manchester has vast areas supporting wildlife as described above, these areas support a wide variety of animal habitats and ecosystems. The most viable habitats for rare species and natural communities are located in northern Manchester along the municipal border, and are shared resources with the communities of Hamilton, Essex and Gloucester.

The areas of the Manchester-Essex Woods, Agassiz Rock Reservation, and Cranberry Pond-Rattle Snake Creek, along with the majority of Cat Brook and Sawmill Brook are within areas identified in BioMap2, as Core Habitats, which are considered areas to promote long-term persistence of rare species. While in the same general area, Cedar and Beaverdam Swamps and areas of upper Pine Street and Gull Pond are areas listed as having Species of Conservation Concern (SCC). In BioMap2, SCC include species native to Massachusetts that are listed under the state Endangered Species Act or listed in the State Wildlife Action Plan.

Vernal Pools

Vernal pools serve as an important breeding ground and home to a number of amphibians and invertebrate animals. Also known as ephemeral pools, autumnal pools, and temporary woodland ponds, these natural sites fill with water in the fall or winter due to rain and rising groundwater. They stay ponded through the spring and into summer but tend to dry completely by the middle or end of the summer. This occasional drying prevents fish from permanently populating the pools, allowing amphibians and invertebrate species to reproduce without being targeted by fish predators.³⁴

The Massachusetts Natural Heritage and Endangered Species Program has certified 26 vernal pools in Manchester as of 2019. Certification occurs according to the Massachusetts Division of Fisheries & Wildlife's Guidelines for the Certification of Vernal Pool Habitat. Certified vernal pools can usually be protected from development and are afforded protection under a number of state regulations, including those from the Water Quality Certification (401 Program), Title 5,

³²"Hessel's Hairstreak", Massachusetts Natural Heritage & Endangered Species Program, <https://www.mass.gov/doc/hessels-hairstreak/download>

³³"Hentz's Red-bellied Tiger Beetle", Massachusetts Natural Heritage & Endangered Species Program, <https://www.mass.gov/doc/hentzs-red-bellied-tiger-beetle/download>

³⁴ "Vernal Pools," MA EOEEA, www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/vernal-pools/

and the Forest Cutting Practices Act.³⁵ They are also protected by the State's Wetlands Protection Act regulations if they meet the definitions of "wetlands" under that law.³⁶ There are 22 potential vernal pools in Manchester that have been identified, but not certified, by NHESP. **Figure 20** shows the locations of both certified and potential vernal pools in Manchester.

More than 50 percent of the Certified Vernal pools are located in the Manchester-Essex Woods, the remaining are scattered throughout the town. The vernal pools of upper Pine Street are well known for yellow-spotted salamanders, which live in the area, and cross Pine Street every spring to mate in the vernal pools. Apart from the Manchester-Essex Woods, other well-known vernal pools of Manchester are located at the Agassiz Rock Reservation and contain a series of woodland vernal pools that support wood frogs, spotted salamanders and other obligate rare species. Also, there is the Minnie B. Ball Nature Study area, a 9-acre parcel within the Powder House Reservation which includes frequently visited areas to study vernal pools and their amphibian life. Future efforts should focus on identifying potential vernal pools suitability to be enrolled in the NHESP official vernal pool certification program.

Cold Water Fisheries

The Division of Fisheries and Wildlife maintains a list of environmentally sensitive streams throughout Massachusetts that are identified as Coldwater Fish Resources (CFR). CFRs provide important habitat for trout and other kinds of coldwater fish. Buffers and culverts along these areas are important for maintaining their water and habitat quality. Culverts in the streams should be maintained to allow movement of fish, turtles, and other aquatic species.

In Manchester, Cat Brook and portions of Sawmill Brook are identified as CFRs — the only CFRs in the North Coastal Watershed. Most of the CFR is in *BioMap2* Core 2480. The significant overlap of the CFRs with *BioMap2* Cores indicates good environmental conditions identified by each project and emphasizes the importance of the areas for biodiversity and natural resource preservation.

Scenic Resources and Unique Environments

Manchester is rich in scenic resources and unique environments, many of which have been noted throughout this plan. Below is a discussion of some of the areas not mentioned elsewhere and a further discussion of some of the areas that were mentioned with emphasis on their unique or scenic features.

Beaches, Coves, and Harbor Parks

Some of the most often cited natural resource treasures belonging to Manchester are its beaches, coves, and harbor parks. The town had several beaches and coves that were originally town landings including: Black Beach, Black Cove, Lobster Cove, Proctor Cove, Tuck's Point Beach and White Beach. In 1892, the town took title to Singing Beach under the Park Act. This beach continues to be a strong attraction for area residents and visiting tourists.

³⁵ "MassGIS Data - NHESP Certified Vernal Pools," MassGIS, <http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/cvp.html>

³⁶ "Protecting Vernal Pools," Mass Audubon, <http://www.massaudubon.org/learn/nature-wildlife/reptiles-amphibians/vernal-pools/protecting>

Figure 22: Singing Beach



Image Source: Ralph Wilmer

In 1895, the town purchased additional land at Tuck's Point and created its first harbor park, still the frequent location of summer gatherings for residents. A second harbor park was anticipated in 1903 with the purchase of land and swamp along Day's Creek for Masconomo Park. Masconomo is a popular active recreation site with a sizable playground area and adjacent ball field. The Park is the site for many summer concerts.

In April 2001, Surf Park was established on a 2-acre property formerly known as the Surf Restaurant site overlooking Gray Beach by the Trust for Public Land. The establishment was a culmination of efforts from the Gray Beach Neighborhood Association and the Magnolia Neighborhood Association, and funding from the town of Manchester-by-the-Sea, the federal Coastal and Estuarine Land Conservation Program, Massachusetts Urban Self-Help program, and more than 250 private contributors. Surf Park is jointly owned by Manchester and Gloucester as it straddles the town line, with the majority falling within Manchester. The Park sits on a hillside opposite of Gray Beach, and provides scenic views of Magnolia Harbor and Kettle Island. The park offers a series of walkways, seating areas, open space for picnicking and passive recreation. The Surf Park Trust, a nonprofit established in 2003, oversees management of the park.

Scenic Vistas

The unique topography of Manchester offers many locations for fantastic scenic vistas with some even affording a view as far away as Boston on a clear day. The attractive expanse of woodlands along Route 128 as it traverses Manchester affords residents and passers-by a refreshing landscape view. Much of this vista is under conservation protection, but major stretches and high points remain open to development. These include the westerly portion of Shingle Place Hill and both sides of the highway by the Beverly and Essex-Gloucester borders. A few parcels are town-owned but are not dedicated to conservation.

Agassiz Rock Reservation is a historic scenic site that looks east to a steep forested hilltop in the northeastern corner of Manchester. Through a one-mile trail loop, visitors can enjoy the scenic landscapes of the beautiful wooded forest trees as they reach the smaller of the two glacial erratics known as Little Agassiz with views of Manchester-Essex Woods and Beaverdam Swamp. At the peak, Big Agassiz sits 199.51 feet above sea level. The best view is obtained by looking to the south where hikers can often see the Boston skyline. This reservation is bounded to the north and east by Gloucester's municipal watershed and extensive forested land in Essex. South of the site lies the developed portion of the town's Limited Commercial District (LCD) — rough terrain, a few commercial buildings, and a former rock quarry. All the land in this area is zoned for limited commercial use.

Winthrop Field, off Bridge Street (Route 127) is a beautiful wet meadow, stream, and upland field vista off the street just to the west of the town center; it was deeded to the town by the Winthrop family and its uses are limited by deed restriction. A small private barn and horses offer a more rural picture to the town, and the field is utilized by migratory birds and other wildlife. In the spring 2009, the Winthrop Field Committee and Friends of Manchester Trees sponsored a restoration project, planting 60 native shrubs on the perimeter of the pond to improve aesthetic and habitat values.

Figure 23: *Winthrop Field*



Image Source: Courtney Lewis

Recreational Areas

The town of Manchester is home to the **Essex County Club**, a 183-acre private membership organization founded in 1894 providing golf, tennis and other important scenic and recreational assets to members and non-members. Visually, the grounds provide a wide expanse of open space behind thickly developed School and Lincoln streets. During winter the grounds are open to public use for cross-country skiing and occasional ice-skating. Sheep Pasture Hill attracts numerous snow saucers, sleds and toboggans on snowy afternoons and weekends. As long as the Essex County Club thrives, there appears little cause for concern that any or all of this land will be developed; however, the golf course is zoned for single-family residential use, with a one-half acre minimum lot, and lacks any deeded conservation restriction. The site is within the Water Resource Protection District Zone 1 & 2.

The junction of Wenham, Hamilton and Manchester north of Route 128 and west of Pine Street is home to the trails of **Chebacco Woods**, which provide yet another opportunity for scenic exploration in the area. Chebacco Woods is comprised of 113 acres of woodlands and wetlands in Hamilton, jointly owned by the towns of Hamilton and Manchester, and abutting the 250-acre Manchester drinking water supply land, also in Hamilton. Where buffered from road noise, the dense swamps, ponds, evergreen and deciduous forest, and its stillness are much like the backwoods of northern Vermont or Maine. Chebacco Woods is managed by a volunteer land management committee from both Manchester and Hamilton. A large trail system extends from Chebacco Road around the perimeters of Round Pond, Gravelly Pond and Coy Pond that is part of the Gordon College campus. The trails provide superior access to the majority of the property, and those along pond shores offer beautiful views across the ponds. The property offers an excellent opportunity for walking, hiking, non-motorized boating, birding, fishing and hunting when allowed. In recent years, trails along Gravelly Pond and the other ponds restrict horseback riding and dogs due to high bacterial counts in the ponds.

The **Eaglehead Swamps and Woods** lie south of Summer Street and the major portion lies east of the MBTA rail line. Dexter Pond to the north drains into this swamp. The Eaglehead Swamp drains to Brickyard Pond and to Causeway Brook. The eastern portion of the swamp is privately owned and is protected by a permanent conservation easement held by The Trustees of Reservations. The western portion is owned by the town of Manchester and at present has no conservation protection. The area consists primarily of swamp, ponds, a stream, lowlands and a small upland forest. Over the past 20 years, more than 120 species of migratory and nesting birds have been spotted in the easterly swamp. The area provides critical wildlife habitat. The town owned portion is used as a wildlife study area.

The **West Manchester Woods** lie to the west of Pine Street, south of Route 128 and east of the town boundary with Wenham and Beverly. Much of the eastern portion of this area is included in the Wyman Hill, Christian Hill and Great Hill Conservation Area, the Brookwood Conservation Area and Owl's Nest Woodland. This area is generally upland forest with numerous rocky outcrops. Many foot paths and abandoned dirt roads provide for hiking in this area.

The area further to the west is privately owned and development is curtailed by lack of access from town roads. Much of the northwestern portion lies within the watershed to Gravelly Pond and Round Pond. It would be desirable if this could be placed under conservation to protect the watershed. The entire area provides wildlife habitat, flood control and recreational possibilities.

A town-wide initiative is now underway to protect parcels in the “Western Woods,” comprising approximately 500 contiguous acres along Manchester’s western border. Strategies for achieving this include putting town-owned parcels under Conservation Commission management, purchasing land, and securing conservation restrictions on private property where possible.

The land abutting Manchester in Wenham is primarily owned by Gordon College. The majority of the land in Beverly along the Manchester border is owned by the City of Beverly, taken by tax title. The remainder is privately owned. Most of the area is wilderness and inaccessible by road.

Reservations

In addition to the aforementioned Agassiz Rock Reservation, Manchester is home to Powder House Hill Reservation and Coolidge Reservation. The **Powder House Hill Reservation** is Manchester's central park and is accessible from Pine Street, Elm Street, School Street, and Pleasant Street. It is currently managed by the Conservation Commission, with assistance from the Department of Public Works. This site provides a wonderful opportunity for scenic viewing, nature study and hiking. The area is in good condition and offers four-car parking by the Pleasant Street entrance. In 2007, the Powder House building was restored and brought back to its original condition and a bronze plaque was affixed to the building commemorating the site. Additional informative signage was also added to the entry of the Minnie B. Ball Nature Study area. In 2011, vista pruning was conducted opening views to the town village and harbor. In October 2020, a new walking trail was created at Powder House Hill and seven new informational kiosks were installed along with trail markers. There are also two signs along the trail by the vernal pool depicting information on how to identify plant and animal species that can be found in this location.

Figure 24: Powder House Hill Reservation



Coolidge Reservation is a 64-acre property located on Summer Street (Route 127) near the Manchester-Magnolia border. This site is owned and managed by The Trustees of Reservations. Within the reservation, Bungalow Hill provides panoramic views of the sea as well as picturesque walking trails leading to Clarke Pond. In late 2009, the Trustees of Reservations completed the replacement of a deteriorating stone bridge with a timber bridge and stream widening along the banks of the bridge. A design requirement of the project called for it to be handicap accessible, while the stream widening would provide for increased water flow to benefit wildlife of the stream and pond. This passive recreation site is home to many wildlife species and includes a parking area, nature study area, unique open space scenic vistas, a coastal pond, the "great lawn," and a coastal beach.

Figure 25: Coolidge Reservation



Image Source: Ralph Wilmer

Also in east Manchester is the **Hooper-Trask Pasture**, a 23.5 acre preserve that was donated to the MECT. A cart path off Magnolia Avenue leads to the pasture, which is frequented by migratory birds and home to woodland wildlife. A new trail crosses ancient stone walls and skirts many boulders left behind by retreating glaciers. The pasture is a lovely setting for picnics, nature study, and quiet enjoyment.

Historic and Cultural Areas

Despite its rich heritage, Manchester has no buildings listed in the National Register of Historic Places. However, in 1975, the town established the Manchester Village Historic District (MVHD), which is located on Route 127.

The Manchester Historic District Commission works towards surveying the eligibility of the Town's properties for historic preservation funding. In addition, it works to preserve the streetscape of the Town's historic district by reviewing the appropriateness of changes to structures within the MVHD.

The MVHD is 39-acres and encompasses most of Downtown and the village center. The buildings in the District represent vernacular architecture from the 17th to the early 20th Century and include commercial, residential and institutional properties. Of particular note is the Trask House that today houses the Manchester Historical Society Museum and Seaside No. 1.

The Trask House-Manchester Historical Museum is located on Union Street across from the Manchester Public Library. The building serves as the headquarters for the Historical Society and is open to the public. The museum features an impressive collection of period furniture, artifacts, fine art, and memorabilia reflecting the town's important maritime history and its later prominence as a summer colony³⁷.

Figure 26: Seaside No. 1 Firehouse Museum



Image Source: Manchester Historical Museum

The Seaside No. 1 Firehouse Museum was constructed in 1885 to house Manchester-by-the-Sea's first horse-drawn fire engine. Located on Central Street, this building now serves as a museum and home for the Town's two antique engines and a collection of firefighting equipment and memorabilia. The building also provides space for town offices and public meetings³⁸.

Forster Cemetery, Tappan Cemetery, the 1661 Cemetery, and the Manchester Common are also some of the district's historic landscapes. Located on the corner of Summer and Washington, the 1661 Cemetery is Manchester's oldest burial ground. It includes the former private cemeteries of the Tappan and Forster families, as well as graves of Revolutionary and Civil War soldiers. The earliest legible gravestone dates back to 1714. The iron archway at the corner with a date of 1661 was erected during the town's 250th anniversary celebration³⁹.

The Manchester Town Common is a small parcel of land but an important public place in the historic center of town. In its past the Common has been home to three Town Meeting Houses, the first built in 1656 and the last that stands today was built in 1809 and converted in 1844 to the First Parish Church. In 2019, Town Meeting voters approved \$100,000 in CPA funds to renovate the Town Common. Recently completed, the renovated Common includes improved and accessible circulation paths around a central lawn, porous pavement, new benches, pedestrian scaled lighting, as well as two ADA compliant parking spaces and an ADA access ramp to the entrance of Town Hall. The Common's mature honey locust, stewartia, crabapple, spruce, and elm trees were preserved, and nine new canopy trees were planted.

³⁷ Manchester Historical Museum, "Trask House," <https://manchesterhistoricalmuseum.org/trask-house/>

³⁸ Town of Manchester Community Preservation Plan (FY2021-2025)

³⁹ "A Walking Tour of Historic Manchester-by-the-Sea- The East Walk", Manchester Historical Society

While the historic district focuses attention on the historic architecture and development patterns in the town's core, there are also numerous historic and cultural resources outside the district including the coastal parks and grand estates from the Gilded Era, Crowell Chapel, and the Harbor's boatyards. Whether these resources continue to serve their original purpose or have been adapted to serve a new use, they continue to provide insight into the town's past and contribute to the visual qualities that make Manchester unique.

Following the Civil War, Manchester began a new chapter with the development of coastal parks and the start of grand summer estates. During what came to be called the Gilded Era, the Town purchased land at Tuck's Point creating its first harbor park. The Rotunda built in 1896 is perhaps the harbor's most distinct landmark. It extends into the harbor providing an excellent view of the channel and Misery Islands. Improved in 2008, and 2011 and repaired in 2018 with funding from the Community Preservation Act Fund, the Rotunda is open to the public and is frequently used for wedding, graduation and family portraits. Tucks Chowder House preceded the park, built first in 1880. It has been moved and updated over the years, most recently in 2018 with Community Preservation Act funding. The Chowder House today includes a small kitchen and is rented for events large and small throughout the summer and fall seasons.

The Crowell Chapel, a gothic looking stone structure surrounded by the Rosedale Cemetery was built in 1903 and donated to the Town to be used for many years for funeral and mortuary services. In the early 1980s the Town petitioned the Commonwealth to modify the trust to include weddings, recitals and readings or similar uses. The Chapel was restored and updated with fire safety equipment with Community Preservation Act Funding from 2009 through 2017 and today is available for rent for events with up to 150 people.

Figure 27: Crowell Chapel



Boatyards were also a product of the Gilded Era, arriving after the Harbor's first dredging and catering to the new yachting public. Today the town's boatyards anchor the inner harbor and are principal contributors to the commercial tax base and to community character⁴⁰.

Manchester's historic village center, municipal buildings, such as Crowell Chapel, and town recreation facilities such as those at Tuck's Point, are important historic resources that enhance public spaces, create town revenue, and boost the local economy⁴¹.

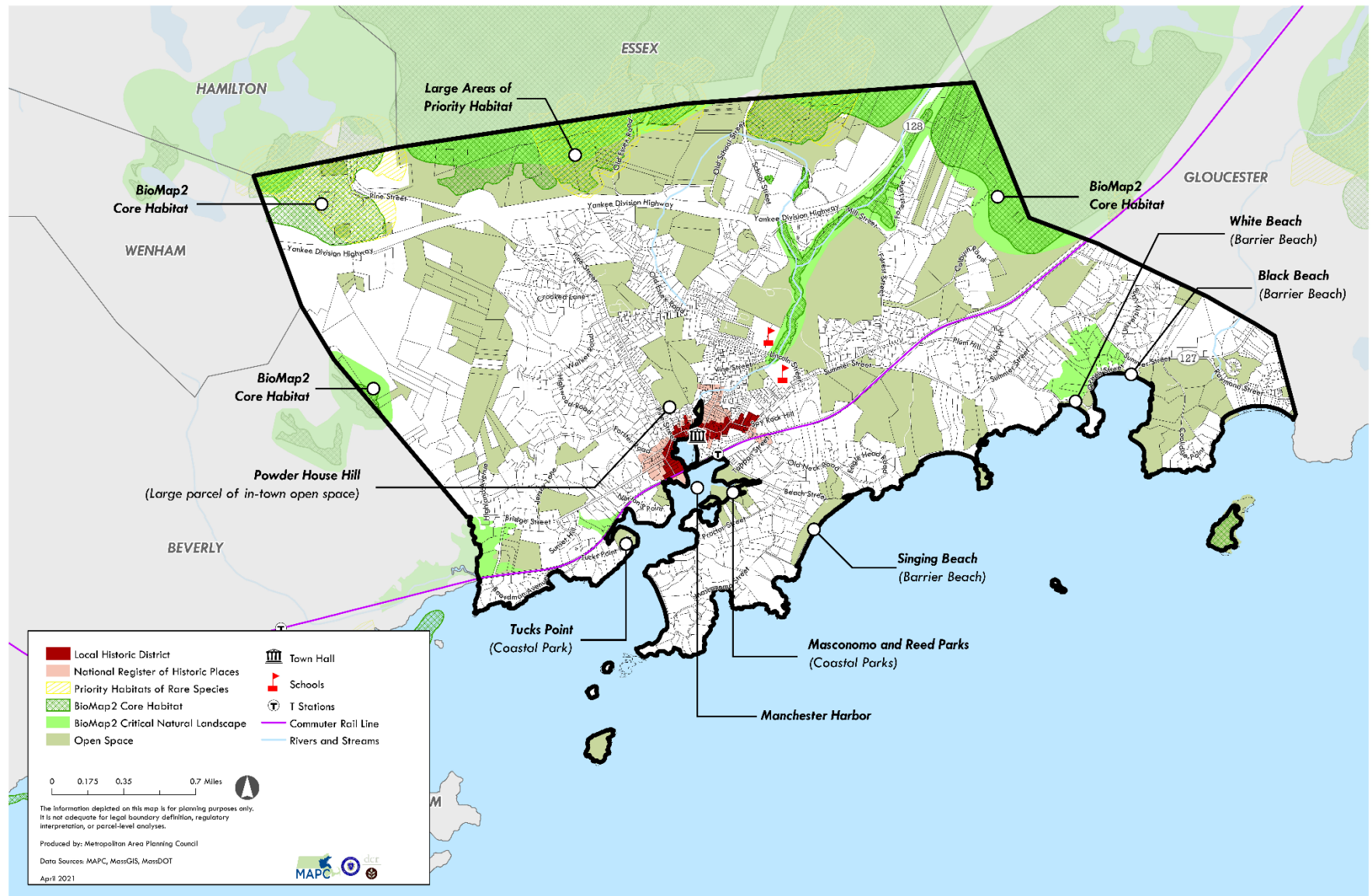
In addition to the Historic District Commission and Historical Society, the Manchester Cultural Council (MCC) is another important entity in the town. The MCC allocates money received from the

⁴⁰ *Manchester Master Plan, 2020*

⁴¹ *Town of Manchester Community Preservation Plan (FY2021-2025)*

Massachusetts Cultural Council on a yearly basis to fund programs in the arts and humanities. Past funding projects have included lectures, concerts (including the Manchester Summer Chamber Music series), arts programs and more. In addition, the Manchester Cultural Council makes space available in Town Hall for local artists to display their work.

Figure 28: Scenic Resources & Unique Environments Map



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Environmental Challenges

Climate Change

As a coastal community, Manchester-by-the-Sea is particularly attuned to the impacts of climate change. Rising sea levels and the effects of extreme weather events have created and will continue to create challenges that must be met. Open space and recreation planning can help mitigate flooding, erosion, invasive species, extreme temperatures, and other climate change impacts.

To strengthen its resiliency to climate change, the Town has looked to both mitigation measures that address the causes of climate change and adaption measures that address the impacts of climate change.

Manchester's municipal mitigation measures may be considered to have started in earnest with the appointment of the Manchester Energy Efficiency Advisory Committee that focuses directly on measures that can be taken to avoid the increase of pollutant emissions. Their efforts have included:

- Greater energy efficiency in municipal buildings – upgraded systems, windows, and lighting
- Greater energy efficiency through conversion of streetlights to LED
- Support for efficient means of transportation through installation of electric charging stations
- Efforts to increase use of renewable energy by looking for sites for photo-voltaic installations

The Manchester-by-the-Sea Coastal Resilience Advisory Group (CRAG)⁴² was formed in 2015 to work with Town staff and consultants on a series of resiliency projects to address the potential impacts of climate change on the Town. This group has been involved with the proposed Sawmill Brook improvements, including the Central Street bridge replacement and widening; the removal of the existing tide gate; and the restoration of Central Pond. After years of studies, planning and securing permits, these projects are expected to commence in 2022.

Additionally, the Town's Bike and Pedestrian Committee also supports mitigation measures by working to create a network of streets, sidewalks, paths and trails that promote walking and biking and reducing citizens' dependence on their cars.

The Town is also focusing on adaptation measures aimed at reducing the town's vulnerability to the effects of climate change in particular flooding, but also other weather-related hazards including drought, storms and rising sea levels.

Manchester has been proactive in planning for becoming more resilient to the impacts of climate change, many of the Town's adaption projects have been initiated through studies funded by

⁴² CRAG formed for the Manchester-by-the-Sea FEMA Hazard Mitigation Plan Enhancement (2014) and includes Town and Grant Administrators, Police, Fire, DPW, Harbormaster, Conservation, and Planning; representatives from local stakeholder groups (Salem Sound Coastwatch, Manchester Coastal Stream Team, residents and businesses).

grants. In the past five years the Town has received over \$400,000 in grant funding for studies and for advancing projects that have resulted from the studies:

2014 Climate Change Impacts Study funded by a Pre-Disaster Mitigation (PDM) grant from Federal Emergency Management Agency (FEMA). This was the first Town study to identify impacts of climate change on the Town and recommend actions.

2015 Downtown Low Impact Development Feasibility Study funded by a Coastal Pollutant Remediation Grant from Coastal Zone Management (CZM). The focus of the feasibility study was on identifying and defining LID BMP solutions that reduce flooding, improve water quality and are workable within the Town's urbanized Downtown setting.

2015 Sawmill Brook Culvert and Green Infrastructure Assessment funded by CZM's Coastal Community Resilience Grant Program. The Assessment documents existing conditions within the Sawmill Brook watershed, and identifies opportunities for flood reduction including flood storage, culvert improvements, and green stormwater infrastructure to mitigate current and potential future flooding, while simultaneously providing water quality and habitat benefits.

2017 Hazard Mitigation Plan (HMP) and 2016 Enhancement funded by FEMA through its PDM grant program. This project identifies risks and vulnerabilities in Manchester associated with natural disasters, and offers long-term strategies for protecting people and property from future hazard events. Climate change impacts determined by the 2014 FEMA funded study were incorporated in the updated HMP. Examples of mitigation include raising seawalls to protect against more intense storms; resizing culverts to reduce flooding, developing reliable warning systems, evaluating and implementing flood proofing measures for municipal facilities.

2018 Municipal Vulnerability Preparedness Plan funded by Municipal Vulnerability Preparedness grant through FEMA. This Plan identifies a series of actions the Town should take to address natural and climate related hazards. Examples include evaluating long term options for the Wastewater Treatment Plant, enhancing emergency preparedness, protecting drinking water supplies, examining options for a more resilient Downtown and commuter rail, flood-proofing municipal facilities, and protecting parks, undeveloped land and conservation areas.

2018 Sawmill Brook Feasibility Study funded by Mass Environmental Trust (MET). This project monitored and evaluated conditions of Sawmill Brook at Central Street culvert to determine options for removing culvert to reduce flooding, improve habitat and improve water quality emptying into the harbor. The study showed removing the culvert would provide multiple benefits. The Town is implementing the study's recommendations.

As a coastal community with much at risk based on the current and future projections, Manchester must continue to take a proactive position to increase its understanding of the risks and opportunities and continue the process of discussing, developing, and implementing adaptive strategies to strengthen the town's resiliency to climate change.

Chronic flooding

Manchester is subject to two kinds of flooding; coastal flooding where wind and tide leads to flooding along the shore and tidal waterways and inland flooding where the rate of precipitation or amount of water overwhelms the capacity of natural and structured drainage systems to convey water causing it to overflow the system.

Areas at risk of flooding are mapped by FEMA as part of the National Flood Insurance Program (NFIP). The Flood Insurance Rate Maps (FIRMs) include areas impacted by 100-year, 500-year flood events, and storm surge and wave action. Floodplains and areas subject to coastal storm surge are shown as high-risk areas or Special Flood Hazard Areas. The most recent FIRM was issued in 2015, but several areas of map revision were approved in 2017. The value of municipal structures within the flood zone including Town Hall, emergency services, and water and wastewater facilities is over \$10 million⁴³.

Coastal flooding impacts low lying areas adjacent to the coast, embayments, and tidal rivers. Inland flooding also occurs along the main stem and tributaries of Sawmill Brook and Bennett's Brook as well as numerous wetland areas throughout Town. Inland flooding is worsened by poorly infiltrating soils, channelized stream flow, and undersized culverts that do not have adequate capacity to handle runoff from larger storm events, particularly in the stretch of Sawmill Brook that extends from the Central Street tide gate to the Manchester Essex High School upstream of the Lincoln Street culvert. Measures have been taken to try and clean several brooks, but owner assistance is needed to help this on-going maintenance problem⁴⁴.

Areas located where both coastal and inland flooding occur are especially impacted when storm surge, high tides, and stream discharge coincide in the same storm and high tides result in backups of water into the inland drainage networks.

Lands abutting Manchester Harbor are partly protected from some coastal storm flooding and subsequent damage by the headlands between Tucks Point and Proctor Point. Storm surge and wave heights are lesser here as compared to the open exposed south/southeastern facing shoreline along west and east Manchester-by-the-Sea. Singing Beach and Graves Beach are particularly exposed to storm waves and surge, where there are no coves or headlands to deflect wave energy⁴⁵.

The Town has implemented both structural and non-structural measures to withstand coastal storms. The shoreline has been fortified in locations with revetment and seawalls, the Town enforces a stricter building code than the State in flood prone areas (100-year floodplain as shown on the FIRM), and the Town has plans in place to respond to flood related emergencies including the Code Red system to inform residents of an emergency⁴⁶.

In spite of these best efforts, a storm with sufficient magnitude could result in damages far greater than any the Town has known, impacting the economy, natural resources, cultural and historic assets, and buildings and structures. Therefore, it is in the best interest of the Town and

⁴³ Town of Manchester-by-the-Sea Hazard Mitigation Plan 2018

⁴⁴ Ibid

⁴⁵ Ibid

⁴⁶ Ibid

residents to understand how climate change may influence flooding for both coastal and inland areas, and continue proactive planning to adapt or mitigate these impacts⁴⁷.

Erosion/Sedimentation

Erosion describes the wearing away of land surfaces (primarily soil and rock debris) by natural forces, such as running water, wind, ice, and others.⁴⁸ One of the most critical threats with respect to erosion occurs on Manchester's barrier beaches during coastal storms.

The 2018 Hazard Mitigation Plan notes that changing climate conditions may accelerate coastal erosion due to increase in frequency and severity of coastal storms and sea level rise. For Manchester-by-the-Sea, where the majority of the shoreline is facing southwest, coastal erosion due to hurricanes and sea level rise is the biggest concern⁴⁹.

Particularly susceptible are Black Beach and White Beach, both barrier beaches. Both of these small beaches are frequently hit by severe storms with considerable blowing of sand across Ocean Street into the marshes beyond and flooding of the roadway. Vegetation helps to hold soil in place and is the best defense against erosion. When soils are exposed erosion is intensified and can have serious effects on area resources including surface and ground waters. Salt-tolerant shrub and beachgrass plantings have helped to stabilize the dunes, but these remedies are only short-term.

New Development

Manchester is primarily a residential community and will likely continue to be so in the future. Its convenience to regional employment centers and attractive small-town character will continue to attract new residential development. At the same time, the community places a high value on its open spaces, public parks, and recreation areas. As allows, a balance will have to be struck between providing adequate services and affordable housing for residents while still protecting the valuable natural, scenic, and recreational resources of the Town.

The 2020 Master Plan promotes diversity in housing options through new planned development within the Limited Commercial District (LCD) and through incremental growth in the Downtown, rather than on previously undisturbed land. However, without permanently protecting open space by publicly acquiring the land, protecting it with conservation easements, and/or promoting Open Space Residential Design (in which natural resources are protected during the subdivision process and housing units are clustered), it is likely that privately-owned, unprotected open space will be developed at some point. The Town's Conservation Commission actively works to prevent or limit detrimental environmental impacts of development in wetland resource areas per the Mass Wetland Protection Act and its regulations and the Town's wetland bylaw and regulations; however, it does not have jurisdiction over non-wetland natural resources. The potential for development in neighboring towns in areas that drain to Manchester also pose a threat. Important examples include the Cedar Swamp/Sawmill Brook Watershed, the Wolf Trap Brook Watershed, and the Clark Pond Watershed.

⁴⁷

⁴⁸ MassDEP (2003), "Erosion and Sediment Control Guidelines for Urban and Suburban Areas," <http://www.mass.gov/eea/docs/dep/water/esfull.pdf>

⁴⁹ Town of Manchester-by-the-Sea Hazard Mitigation Plan 2018

Landfills

There are four abandoned landfills located within close proximity to existing or potential drinking water supplies to the town of Manchester. Two landfills are located near Gravelly Pond, the town's primary drinking water supply. One landfill, which closed in the 1980s, is 1,000 feet directly east of the pond and in the town of Hamilton. Ground water flowing beneath portions of this landfill is suspected of discharging to Gravelly Pond. The other landfill is located 1,500 feet to the southwest of pond, just north of Route 128 and east of Pine Street. It consists of a 10-acre, unlined landfill that stopped accepting refuse in 1981. Under a consent order with the DEP, Manchester closed and capped its landfill in 2000. Both landfills are being monitored by Wright-Pierce engineering firm on a yearly basis in accordance with DEP regulations. There is no sign of leakage.

An abandoned dump in the town of Essex is located off the old fire tower road to the north of Cedar Swamp. Cedar Swamp has previously been identified as a potential source of drinking water for the town of Manchester. There is also an abandoned dump in Manchester south of Route 128 and just east of the junction of Preston Place and Brookwood Road. This dump lies within the watershed of Round Pond but was not identified in the Water Resources Protection Plan of 1990. The characteristics of this dump, particularly its encroachment upon wetlands and its large quantities of exposed material, demand further attention.

Hazardous Waste Sites

Hazardous waste is considered to be any human-created or modified substance released into the environment that constitutes a present or potential threat to public health and safety, to plants and animals, and to the quality and quantity of Manchester's drinking water supply. Hazardous wastes can be solid, semi-solid, liquid, or gaseous in nature. These wastes pose a threat when improperly stored, used, transported, disposed of, treated, or mismanaged.

The Massachusetts Department of Environmental Protection (MassDEP) Bureau of Waste Site Cleanup Reportable Release Lookup Database has identified 49 hazardous waste sites in the Town of Manchester-by-the-Sea in various stages of assessment and cleanup. MassDEP has files for each site regarding their contamination and associated remediation; the files can be viewed online through the Reportable Release Lookup Database. The listed sites are those that may contain potentially contaminated soil, water, and air. Most sites have been restored or deemed close to their original state.

Of the total number of sites, 2 have Activity and Use Limitations (AULs) placed upon them. AULs are legal restrictions meant to limit future exposure to contaminate that may remain on a site after cleanup. AULs are a part of the Massachusetts Contingency Plan and they allow the current and likely future use of a property to be considered during the cleanup of oil and hazardous material disposal sites. AULs provide critical information to the people who will control and use the property in the future about the risks remaining at the site. A full list of the AUL sites in Manchester is provided in Appendix F.

Sites with Activity Use Limitations include a 1.3-acre parcel at 156 Pine Street, owned by the Town and a 0.4-acre gas station site at 2 Pine Street. Sites with AULs are often prevented from being developed for future uses, such as housing, due to past contamination. While this may limit

their development potential, another excellent option for utilizing these sites is to turn them into parks and other open spaces after they have undergone some remediation.

Underground Storage Tanks

Petroleum products stored in underground tanks pose a severe threat to ground water quality. The volatile organic compounds found in gasoline and other petroleum products are known human carcinogens. The EPA has estimated that approximately one-third of all underground storage tanks are leaking nationwide. The average expected lifespan for steel tanks in acidic soils is estimated at 15 years; after this point, small pin-hole leaks may develop, resulting in a discharge of hazardous materials to the subsurface environment. A spill or leak of as little as 10-50 gallons may be sufficient to contaminate a drinking water supply. According to MassDEP's Underground Storage Tank (UST) Data Management System, there are eight known underground storage tanks in Manchester six of which, are in the vicinity of the Lincoln Street well field (see **Figure 29**).

Figure 29: Manchester Underground Storage Tanks

Facility Name	Facility Address
Seabreeze Variety	8 Beach St
Manchester Gas and Service	96 Summer St
Manchester Marine	17 Ashland Ave
Massdot Facility #70	162 Pine St
Phillips 66 - Gibbs Oil Manchester by the Sea	2 Pine St
Essex Country Club	155 School St
Doucette Const Co Inc	9 Morse St
Verizon Massachusetts #593407	52 Summer St

Source: MassDEP Underground Storage Tank (UST) Database

Ground and Surface Water Pollution Sources (Point and Non-point)

In addition to the hazardous waste release site and landfills, a number of potential point and non-point sources of ground and surface water pollution have been identified in the town of Manchester. Potential point sources include underground storage tanks (most of which have been removed), salt storage sites, the town's sewage treatment plant, and industrial, commercial, or agricultural chemical users or storage sites. Potential non-point sources include individual sewage disposal systems, herbicide, insecticide and fertilizer use, and road and driveway runoff from salt, sand and oil drippings.

The National Pollutant Discharge Elimination System (NPDES) permit program regulates water discharged into U.S. waters. Manchester is subject to the Municipal Separate Storm Sewer Systems (MS4) requirements of the NPDES Phase II Storm Water Program, which requires identification of stormwater outfalls, maintenance of the stormwater system, development and implementation of a stormwater management program (SWMP) and obtaining an NPDES permit.

Industrial/Commercial/Agricultural Uses

The town of Manchester offers free collection of household hazardous waste trash (including oil based paint, turpentine, paint thinner, herbicides, pesticides, pool chemicals, solvents, weed killers, and insecticides) each year in April. There are also vouchers available during every other month except for July for the disposal of hazardous waste by other towns nearby.

A variety of chemicals are used or stored in industrial, commercial, or agricultural businesses that may pose a threat to water quality through misuse, spills, or fires. These include fertilizers, pesticides, herbicides, solvents, petroleum products, paints, etc. Specific industrial, commercial and other entities that use or store hazardous materials in the town of Manchester are summarized below and include the schools, the DPW, Essex County Club, greenhouses and nurseries, marinas, dry cleaners, auto repair shops, etc. Eight of these have been issued small hazardous waste generator licenses by the DEP, Division of Hazardous Materials.

Figure 30: List of Massachusetts Hazardous Waste Generators, 2021

Name	Address
Beverly Hospital	195 School St
Black Earth Compost LLC	197 School St
Crocker's Boat Yard Inc	15 Ashland Ave
Essex Country Club	153 School St
Gibbs Oil Manchester by the Sea	2 Pine St
Hall & Emslie Inc	10 Atwater Ave
Manchester Department Of Public Works	85 R Pleasant St
Manchester Marine	17 Ashland Ave
Standleys Garage	2 Summer St
Thompson Auto Body Inc	6 Pine St
Cricket Press Inc	50 Summer St
Gravelly Pond Water Treatment Facility	2000 Pipeline Rd
L A D Co Inc	Rezza Pit Off Atwater Ave
Landmark School	167 Bridge St
Manchester Auto Body	6 Elm St
Manchester Auto Clinic	2 Pine St
Manchester Essex Regional Schools	36 Lincoln St

Source: MassDEP Bureau of Air & Waste: Hazardous Generator

Wastewater Treatment Plant

Manchester's Wastewater Treatment Plant (WWTP) serves half the Town. Adjacent to Manchester Harbor, it is entirely in the FEMA 100-year flood zone. The WWTP Vulnerability and Risk Assessment and the 2015 CREAT Report⁵⁰ both identified serious issues with WWTP's location. There are short-term adaptive flood proofing measures that should be started now, but for the long-term a comprehensive alternatives and cost/benefit analysis will be needed to determine the best course of action for the community⁵¹.

Individual Sewage Disposal Systems

Most of the densely developed portions of town are on public sewer, however, approximately 40 percent of the town is still serviced by on-site sewage disposal systems, including residences and commercial buildings located on Mill Street, Atwater Avenue, Forest Lane, Loading Place Road, and all of the area of town to the east of where the railroad tracks cross Route 127, Summer Street. On-site sewage disposal systems discharge a variety of contaminants into groundwater, including pathogens, nutrients, and synthetic compounds associated with septic system cleaners.

All six town beaches (Singing, Gray, White, Black, West Manchester, and Tuck's Point beaches) are tested by the Board of Health for high bacterial counts once a week. Testing occurs between the week before Memorial Day and Labor Day. High bacterial counts, particularly after heavy rain, have resulted in numerous beach closures including West Manchester, Tuck's Point, Black and White beaches. Failed septic systems in the past have been the cause.

These discharges have been improved in recent years because of Title 5 mandated septic system updates and cesspool elimination. Since Title 5 was instituted in 1995 mandated inspections occur now at the transfer of properties and are valid for two years. As a result, many new systems have been installed. Due to all the bedrock and wetlands in town, the vast majority are "alternative" rather than conventional gravity-based systems. These alternative systems discharge water that is almost as clean as drinking water and have strict operation and maintenance mandates.

Illegal Dumping

Illegal dumping is an issue at several open space locations throughout Manchester. This includes Cedar Swamp, Dexter Pond, Eaglehead Swamps, Powder House Hill Reservation, and the conservation areas off of Crooked Lane. Community-based cleanup projects coordinated by the Town of Manchester, Eagle Scouts, the Manchester Stream Team, students, and other volunteers have helped to remove debris and promote stewardship of these conservation areas. Additional efforts such as education, signage and better enforcement of the town's existing anti-dumping regulations are needed to reduce and prevent illegal dumping.

⁵⁰ Environmental Protection Agency Climate Resilience Evaluation and Awareness Tool

⁵¹ 2018 Manchester-by-the-Sea Community Resilience Building Workshops – Summary of Findings

Fertilizers, Herbicides, and Pesticides

Fertilizers, herbicides and pesticides are widely used for agricultural, recreational, and residential purposes and contribute varying amounts of nitrogen, phosphorus and chemical compounds to surface and ground water. The amount of nutrients that ultimately leach into ground water or enter surface waters as runoff is a function of the slope, soil characteristics, type of ground cover, climate, type of fertilizer used, application rates and extent of irrigation.

A detailed literature review suggests that for nitrogen, 30 percent of the nitrogen applied to lawns and golf courses typically leach into ground water in this region. The degree of surface runoff is much more variable, and depends on slope and soil characteristics. Although golf courses tend to be intensively maintained, fertilizer application rates are usually carefully controlled, and the use of slow-release fertilizers is commonplace. The Essex County Club operates under a special permit from the Planning Board that requires annual reports on all chemicals used on the golf and tennis facilities. Its use of fertilizers and plant protectorants is well below permitted amounts and water test results show the Club's sensitivity to the water supply.

Road Runoff

Typical contaminants found in road runoff include sodium chloride from road salt, oil and grease, gasoline, heavy metals, nutrients, bacteria and silt. The majority of Manchester's road runoff is directed to streams, ponds and other surface waters, most of which ultimately discharge into Manchester Harbor. Leaching catch basins, detention/retention basins and similar drainage mechanisms are uncommon in the town. The Sawmill Brook/Causeway Brook watershed directs a large volume of runoff to these streams, both of which pass within 100 feet of the Lincoln Street well field. The Manchester DPW primarily uses a 50/50 mixture of sand and salt for de-icing roads in the winter.

Salt Storage

Uncovered salt storage areas have been known to leach large quantities of sodium chloride, resulting in contamination of drinking water supplies through direct surface runoff or infiltration into ground water. Once in solution, sodium chloride can travel long distances and is a health hazard to people with high blood pressure and heart conditions.

Two salt storage areas are located within the town of Manchester. One of them is operated by the Commonwealth of Massachusetts and the other operated by the town's DPW. The Commonwealth's salt storage area is located on Pine Street and is used to store up to 2000 tons of salt, in covered sheds.

The salt storage area used by the Manchester DPW is located at 88 Rear Pleasant Street. Approximately 80 to 100 tons of salt and 200 tons of salt/sand mix are stored here in a covered shed. A small quantity is located outside the shed for use by the general public. The town uses approximately 300 tons of salt per year for road maintenance.

Gordon College Property

This 147.6-acre site of rocky hills and wetlands in the northwest corner of town contributes significantly to the watershed for Manchester's public water supply ponds in Hamilton. In addition, the Gordon College land is especially productive wildlife habitat. Studies have confirmed the

presence of a number of certified vernal pools and of essential upland habitat for many salamanders that breed in Maple Swamp.

From time to time the college has entertained development ideas for the area that eventually proved unfeasible. At present the college appears to be content to utilize the site to acquire and dispose of landscaping materials, for nature studies, and for passive recreation. An initiative to secure a conservation restriction that would permanently remove the threat of development should be considered.

Forestry Issues

Along with public shade trees (previously discussed in this section) and forested open space, Manchester has several privately-owned parcels which are managed as forest lands under Chapter 61. The total area of these parcels is approximately 66 acres.

By far, the largest contiguous forested area in town is the Manchester-Essex Woods, most of which is owned and managed by either the Manchester Essex Conservation Trust (MECT) or the town. MECT received a grant in 2012 to update its management plan and in 2013, the *Wilderness Conservation Area Management Plan*⁵² was completed.

Although the Manchester-Essex Woods supports a healthy and diverse upland forest, there have been issues with the introduction of invasive species. Hemlock (*Tsuga canadensis*) has been significantly reduced from its former dominance in the forest community since its decline—first due to the hemlock looper in the 1970s and later by the wooly adelgid which continues to threaten the remaining hemlocks. Open areas where the hemlocks used to reside are now occupied by black birch and understory vegetation including witch hazel, maple-leaf viburnum, teaberry, Canada mayflower and other native plant species.

The MECT and its volunteers actively monitor these woods and maintain its trails. They regularly inspect trails for hazard trees and other damage and signs of disturbance. MECT members also hold annual trail clean-ups. The town-owned parcels within these woods have greatly benefited from MECT's stewardship.

The Powder House Hill Reservation, Manchester's in-town forest, is frequented by residents because of its close proximity to downtown. Most of the reservation is owned by the town and is under the management of the Conservation Commission which responds to requests for removal of hazardous trees, tree limbs and removal of trail obstructions.

Environmental Equity

In the context of open space and recreation planning, environmental equity refers to differences in access to open space and recreational opportunities based on demographics and geography. In Massachusetts, a community is identified as an "Environmental Justice" community based on median household income, race, and English-language proficiency. Manchester does not have any formally identified Environmental Justice (EJ) populations. However, important differences in access to open space and recreation still exist between different groups of residents.

⁵² [*Wilderness Conservation Area Management Plan*](#); prepared for the Manchester-Essex Conservation Trust; July 2013 by Rimmer Environmental Consulting, LLC

For example, residents who do not have access to a vehicle or cannot drive, including the youth, elderly, people with disabilities, and some low-income residents, are unable to access some parks and open spaces in Manchester without the help of someone who can drive them. Generally, Manchester enjoys a relatively even geographic distribution of conservation lands and open space making travel time by car, 15 minutes at most.

In addition to the large swaths of open space located in northern Manchester, there are a number of open space parcels, parks, beaches and other recreational resources scattered throughout town with certain high use recreation and community event areas centrally located. For example, active recreation areas like Coach Field Playground and Sweeney Park are concentrated around the schools in central Manchester.

Powder House Hill Reservation, a 53-acre passive recreation site, is centrally located within an area of town with the greatest population density. The site has public access locations on Pine Street and Pleasant Street but neither access is ADA accessible. Access and recreation facilities specifically designed to serve residents with physical disabilities, as well as young children and elderly adults, presents an ongoing challenge and opportunity for improvement.

In order to promote greater equity throughout the Boston region, it is also important to promote access to public open space areas and parks across municipal lines. While Manchester does not contain any designated EJ areas, there are EJ populations in the neighboring communities of Beverly and Gloucester that could be served by outdoor recreation opportunities in Manchester. For example, during the COVID-19 pandemic in 2020, public beaches throughout New England were closed to non-Town residents, leaving many people without safe and healthy means of recreating and escaping the heat by swimming or walking in a forested area. In particular, lower-income households are often unable to afford homes near the beach or in areas with well-maintained parks. Therefore, providing access to open space areas and parks to non-Town residents, especially those acquired or improved with State and/or Federal monies, is an important equity concern.

In addition, certain environmental challenges affect vulnerable populations more than other populations. According to the Massachusetts Executive Office of Health and Human Services, the factors that lead to vulnerable population health impacts are:

- **Exposure:** Exposure is contact between a person and one or more biological, psychosocial, chemical, or physical stressors, including stressors affected by climate change;
- **Sensitivity:** Sensitivity is the degree to which people or communities are affected, either adversely or beneficially, by climate variability or change; and
- **Adaptive capacity:** Adaptive capacity is the ability of communities, institutions, or people to adjust to potential hazards, to take advantage of opportunities, or to respond to consequences.”⁵³

⁵³ Massachusetts Executive Office of Health and Human Services. *Vulnerable Residents and Areas*.

As climate change will affect different people in different ways, environmental equity is an important consideration in becoming more resilient to extreme weather. For example, older residents are more vulnerable to hot temperatures from climate change, due to their increased sensitivity. Low-income residents who cannot afford air conditioning are more vulnerable to heat due to their increased exposure and lack of adaptive capacity. To clarify, these populations are not inherently more vulnerable—instead, there are systems and policies that result in greater vulnerability for certain populations. If the systems and policies reduced vulnerabilities, the threat of climate change would be mitigated.

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 of the property are some of the other elements of this inventory. The areas shown in the table are depicted in **Figure 31: Open Space and Recreation Inventory Map**.

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 recreation resources in Manchester are important for various reasons that range from social health to economic stability to ecological integrity. Manchester is fortunate to have over thirteen hundred acres of open space within its borders. These parcels of land, which include parks, coastline, forests, and wetlands, are critical to residents' quality of life and provide a wide range of environmental and recreational benefits.

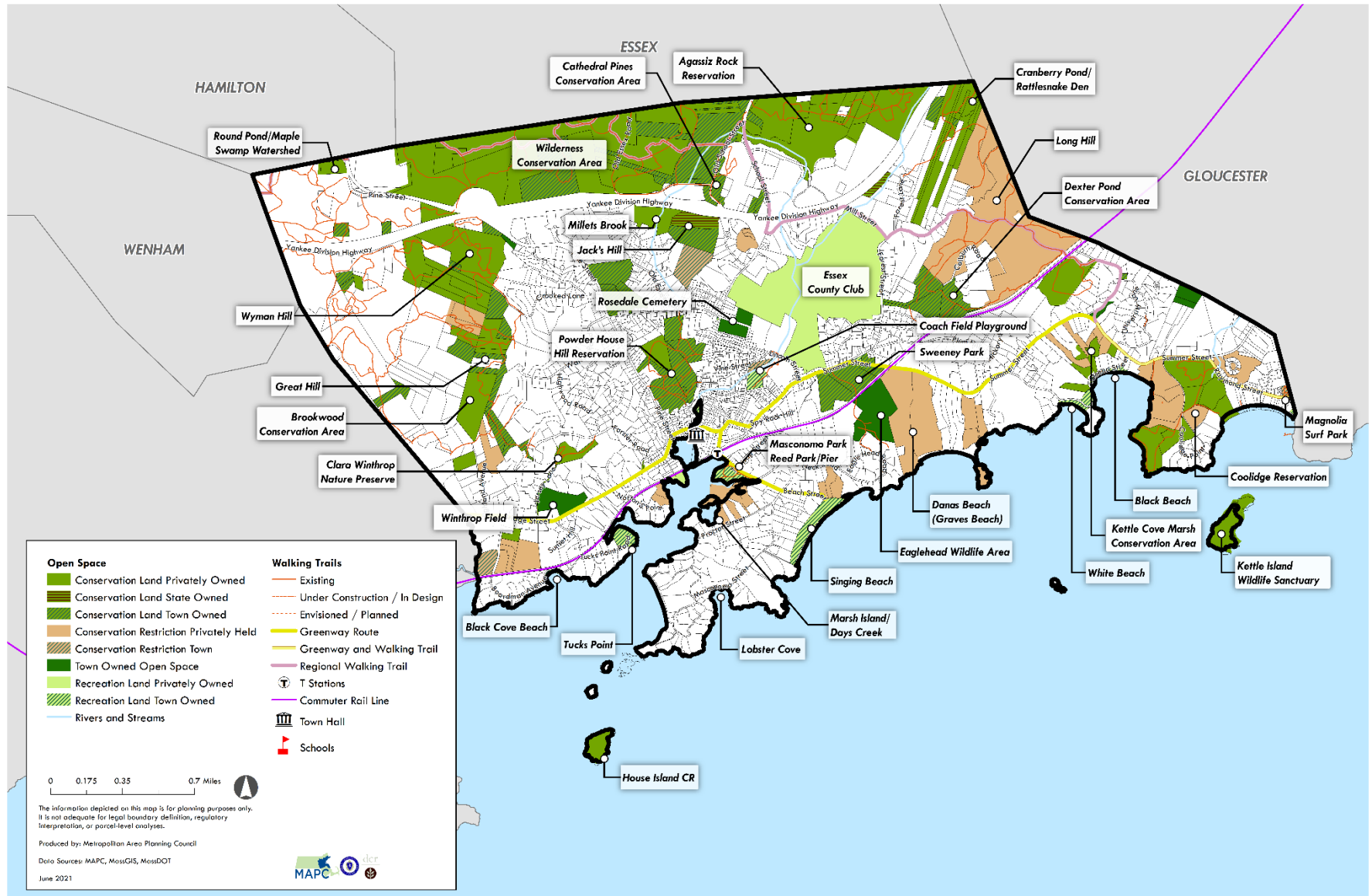
Access to parks and open space can provide public health benefits to youth, adults, and seniors and contribute to enhanced property values and improved environmental quality, including air quality, water quality, and the mitigation of urban heat island effects. Open spaces also provide habitat for a variety of fish, wildlife, and plant species, which increase ecological diversity and provide opportunities for nature study and education.

Determining where the open space and recreation land is located in Manchester is the beginning stage of fully understanding what resources the Town 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 an Executive Office of Energy and Environmental Affairs (EOEEA) agency, 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 Town agencies or the local school system should not be presumed to be permanently protected.

The following inventory was created based on the 2014 Open Space Inventory, Manchester's online GIS mapping platform, MapGeo, and 2019 assessor's data. In addition, committee members, MAPC staff, and volunteers assessed town-owned open space parcels for condition, use, and ADA accessibility.

Figure 31: Open Space and Recreation Inventory Map



Inventory of Open Space and Recreation Resources

The inventory matrix below includes 212 parcels covering approximately 1,690 acres of open space and recreation land owned and managed either by the Town of Manchester-by-the-Sea, the Board of Selectmen, the Manchester Conservation Commission, the Parks and Recreation Department, the Commonwealth of Massachusetts, or private entities.

The column headings of the inventory are defined below:

- **Name** - Names the open space site.
- **Map/Lot** - Indicates the property map and lot number.
- **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). Town-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 of protection are described in more detail in this section.
- **Public Access** - Indicates if the public can access the site. All Town- 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.

Figure 32: Open Space and Recreation Inventory Matrix

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Agassiz Rock	43/12	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking trails; forested woodland	Good	Passive	LCD	Article 97	N/A	Yes	2.07
Ancient Burial Place	6/42	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Historical/Cultural	Good	Passive	A	Limited	N/A	No	0.21
Ancient Burial Place	5/46	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Historical/Cultural	Good	Passive	C	Limited	N/A	No	1.34
Black Beach	7/26	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: small beach	Good	Passive	E	Article 97	N/A	Yes	1.48
Black Cove (West Manchester Beach)	22/34	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: small beach	Poor	Passive; could be made more accessible to kayakers w/safer access thru gate	E	Unknown	N/A	Yes	0.57
Brickyard Pond	11/18	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: Pond	Excellent	None	A	Article 97	N/A	Yes	2.51
Brook St Plgd (Coach Field Plgd)	47/5	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: playground; field hockey; football field; soccer field; lacrosse; tennis courts; portable restrooms	Good	Active; tennis; playing fields	G	Article 97	N/A	Yes	1.20
Brook St Plgd (Coach Field Plgd)	47/4	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: playground; field hockey; football field; soccer field; lacrosse; tennis courts;	Good	Active; tennis; playing fields	G	Article 97	N/A	Yes	3.68

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
				portable restrooms							
Brookwood Conservation Area	26/4	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: upland forest; rocky outcrops	Excellent	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	0.82
Brookwood Conservation Area	31/11	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: upland forest; rocky outcrops	Excellent	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	3.43
Brookwood Conservation Area	29/42	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: upland forest; rocky outcrops	Excellent	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	4.51
Brookwood Path Subdivision Open Space	29/51	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking paths	Excellent	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	1.44
Brookwood Path Subdivision Open Space	32/30	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking paths	Excellent	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	10.32
Brookwood Path Subdivision Open Space (Great Hill Cons Area)	29/47	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking paths	Excellent	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	7.02
Brookwood Rd (Stedman Hanks)	62/24	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation	Fair	Passive; great potential for hiking paths	C	Article 97	N/A	Yes	5.39
Cathedral Pines	43/15	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Good	Passive	LCD	Article 97	N/A	Yes	1.18
Cathedral Pines	43/31	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Good	Passive	LCD	Article 97	N/A	Yes	1.96
Cathedral Pines	43/30	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Good	Passive	LCD	Article 97	N/A	Yes	4.86
Cathedral Pines	43/32	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Good	Passive	LCD	Article 97	N/A	Yes	0.60

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Cathedral Pines	43/40	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Good	Passive	LCD	Article 97	N/A	Yes	1.45
Cathedral Pines	43/41	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Good	Passive	LCD	Article 97	N/A	Yes	1.73
Cedar Swamp Conservation Area	61/11	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	1.55
Cedar Swamp Conservation Area	61/18	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	27.63
Cedar Swamp Conservation Area	61/21	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	2.88
Cedar Swamp Conservation Area	61/3	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	14.26
Central Pond	53/28	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: pond	Poor	Passive	LCD	Unknown	N/A	Yes	1.61
Cheever Commons Cons Area	60/50	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	37.33
Christian Hill	62/37	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation	Fair	Passive	C	Article 97	CPA	Yes	12.00
Dexter Pond Conservation Area	35/49	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails; pond; forested uplands	Fair to Good	Passive	C	Article 97	N/A	Yes	2.96
Dexter Pond Conservation Area	36/8	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails; pond; forested uplands	Fair to Good	Passive	C	Article 97	N/A	Yes	10.20

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Dexter Pond Conservation Area	36/13	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails; pond; forested uplands	Fair to Good	Passive	C	Article 97	N/A	Yes	9.96
Eaglehead Wildlife Study Area	11/19	Town of Manchester-by-the-Sea	School Committee	Habitat protection	Good	Passive	E	Unknown	N/A	Yes	27.55
Forest Street Triangle	11/1	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: Small green area	Good	Open space vista	A	Article 97	N/A	Yes	0.41
Forest Street Triangle	11/2	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: Small green area	Good	Open space vista	E	Article 97	N/A	Yes	1.48
Gloucester Border	5/15	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Buffer	Fair	–	C	–	N/A	–	0.56
Gloucester Border	5/9	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Buffer	Fair	–	C	–	N/A	–	0.54
Gloucester Border	5/37	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Buffer	Fair	–	C	–	N/A	–	1.99
Gloucester Border	5/36	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Buffer	Fair	–	C	–	N/A	–	4.16
Gray's Beach Landing	1/95	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; public landing	Poor	Passive	C	–	N/A	Yes	0.39
Great Hill Conservation Area	62/6	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking trails; hilly woodlands	Good	Passive	C	Article 97	N/A	Yes	6.10
Hatch Property	U/16	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking path	Fair	Passive	C	Article 97	N/A	Yes	0.00
Jack's Hill Conservation Area	59/7	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation: landlocked	Fair	Passive	A	Article 97	N/A	Yes	13.78

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
				wooded parcel							
Kettle Cove Marsh	6/29	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; salt marsh; tidal flats; sand flats	Good	Passive	E	Limited	N/A	Yes	0.07
Kettle Cove Marsh	8/5	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; salt marsh; tidal flats; sand flats	Good	Passive	E	Limited	N/A	Yes	0.08
Little Crow Island	8/4	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: walking path	Fair	Passive	E	Limited	N/A	Yes	2.05
Lobster Cove Beach	18/25	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: small beach	Good	Passive; non-motorized boating, swimming	E	Unknown	N/A	Yes	0.72
Long Hill	36/49	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: walking trails	Excellent	Passive	C	Article 97	N/A	Yes	9.31
Lot Adjacent to Wolf Hill	32/137	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Conservation: walking trails	Fair	–	A	Unknown	N/A	Yes	1.11
Magnolia Ave and Overledge Rd	5/7	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: wooded lot	Fair	–	–	Article 97	N/A	Yes	0.57
Magnolia Park (Surf Park)	1/59	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation: walking paths; benches; bike racks	Excellent	Passive	G	Article 97	Urban Self Help	Yes	1.36
Masconomo Park	16/34	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: playground; baseball field; gazebo; walking paths	Good	Active and Passive	E	Article 97	N/A	Yes	6.74

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Millstone Hill Cons Area	60/64	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	1.18
Millstone Hill Cons Area	61/14	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	10.66
Millstone Hill Cons Area	60/57	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	1.44
Millstone Hill Cons Area	61/20	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking trails	Excellent	Passive	LCD	Article 97	N/A	Yes	4.12
Moses Hill Conservation Area	58/55	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: watershed protection land	Good	–	B	Article 97	N/A		0.98
Moses Hill Conservation Area	58/57	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: watershed protection land	Good	–	B	Article 97	N/A		2.10
Moses Hill Conservation Area	58/56	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: watershed protection land	Good	–	B	Article 97	N/A		6.79
Powder House Hill Reservation	42/30	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea DPW	Recreation & Conservation: walking paths; Powder House building	Excellent	Passive: walking trails	B	Article 97	N/A	Yes	0.01
Powder House Hill Reservation	42/31	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking paths; Powder House building	Excellent	Passive: walking trails	B	Article 97	N/A	Yes	0.25
Powder House Hill Reservation	41/59	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking paths; Powder House building	Excellent	Passive: walking trails	B	Article 97	N/A	Yes	6.52

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Powder House Hill Reservation	41/96	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking paths; Powder House building	Excellent	Passive: walking trails	B	Article 97	N/A	Yes	8.74
Powder House Hill Reservation	42/10	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking paths; Powder House building	Excellent	Passive: walking trails	B	Article 97	N/A	Yes	12.27
Powder House Hill Reservation	42/4	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: walking paths; Powder House building	Excellent	Passive: walking trails	B	Article 97	N/A	Yes	17.53
Reed Park	16/37	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: dock; pier	Good	Passive; boating (dock)	E	Article 97	N/A	Yes	0.14
Reed Park	16/36	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: dock; pier	Good	Passive; boating (dock)	G	Article 97	N/A	Yes	0.35
Round/Gravelly Pond Watershed	63/33	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Water Supply Protection	Fair	–	C	Article 97	N/A	Yes	2.51
Round/Gravelly Pond Watershed	63/34	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Water Supply Protection	Fair	–	C	Article 97	N/A	Yes	1.51
Route 128 Buffer	37/40	Town of Manchester-by-the-Sea	Needs research	Conservation: vegetated buffer	Fair	Viewscape only	A	Unknown	N/A		0.52
Route 128 Buffer	63/25	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: vegetated buffer	Fair	Viewscape only	LCD	Article 97	N/A	Yes	1.69
Route 128 Buffer	63/26	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: vegetated buffer	Fair	Viewscape only	LCD	Article 97	N/A	Yes	3.24

Town-owned Parcels											
Site Name	Map/ Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Route 128 Buffer	37/10	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Conservation: vegetated buffer	Fair	Viewscape only	A	Article 97	N/A	Yes	3.84
Singing Beach	17/24	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; bathhouse; canteen/snack stand; restrooms;	Good	Passive; non-motorized boating, swimming	E	Article 97	N/A	Yes	12.09
Sweeney Park	11/17	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: softball field; little league baseball field; basketball courts; concession stand	Good	Active	A	Article 97	N/A	Yes	13.07
Tucks Point	22/17	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; gazebo; swings; picnic tables; Chowder House; restrooms	Excellent	Passive; non-motorized boating, beach activities; picnicking, rental of Chowder House	E	Article 97	N/A	Yes	0.27
Tucks Point	22/16	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; gazebo; swings; picnic tables; Chowder House; restrooms	Excellent	Passive; non-motorized boating, beach activities; picnicking, rental of Chowder House	E	Article 97	N/A	Yes	5.72
Weems Conservation Area	14/22	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: no trails; undisturbed upland woodlands	Excellent	Passive; hiking nature study	A	Article 97	N/A	Yes	12.31

Town-owned Parcels											
Site Name	Map/ Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
White Beach	8/3	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen	Recreation: beach; portable restrooms	Good	Passive; non-motorized boating, swimming, scuba	E	Article 97	N/A	Yes	1.63
Winthrop Field	27/12	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Board of Selectmen and School Committee	Recreation: wet meadow; stream; upland field	Excellent	Passive	C	Limited	N/A		13.28
Wyman Hill Conservation Area	64/20	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: upland forest; rocky outcrops; walking paths	Good	–	C	Article 97	N/A	U	1.50
Wyman Hill Conservation Area	64/12	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: upland forest; rocky outcrops; walking paths	Good	–	C	Article 97	N/A	Yes	2.20
Wyman Hill Conservation Area	32/28	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea Conservation Commission	Recreation & Conservation: upland forest; rocky outcrops; walking paths	Good	–	C	Article 97	N/A	Yes	2.37
Town-owned Cemeteries											
1661 Cemetery	52/42	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea DPW	Cemetery	Good	None	G	Permanent	N/A	Yes	0.88
Pleasant Grove Cemetery	58/57	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea DPW	Cemetery	Good	None	B	Permanent	N/A	Yes	9.44
Rosedale Cemetery	48/1	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea DPW	Cemetery	Good	None	D	Permanent	N/A	Yes	5.18

Town-owned Parcels											
Site Name	Map/Lot	Owner	Manager	Current Use	Condition	Recreation Potential	Zoning District	Level of Protection	Grant Type	Public Access	Acres
Rosedale Extension Cemetery	40/10	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea DPW	Cemetery	Good	None	D	Permanent	N/A	Yes	3.29
Union Cemetery	49/18	Town of Manchester-by-the-Sea	Town of Manchester-by-the-Sea DPW	Cemetery	Good	None	D	Permanent	N/A	Yes	0.52

State-owned Parcels										
Site Name	Map/Lot	Owner	Manager	Current Use	Recreation Potential	Zoning District	Level of Protection	Public Access		Acres
Jack's Hill Conservation Area	59/8	Commonwealth of Massachusetts	Commonwealth of Massachusetts	Conservation	Passive recreation	A	Unknown	Yes		9.30
Route 128 Buffer	37/75	Commonwealth of Massachusetts, EOTC	Commonwealth of Massachusetts, EOTC	Buffer	None	A	Unknown	No		0.79
Route 128 Buffer	37/76	Commonwealth of Massachusetts, EOTC	Commonwealth of Massachusetts, EOTC	Buffer	None	A	Unknown	No		2.25

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)										
Site Name	Map/Lot	Owner	Manager	Current Use		Zoning District	Level of Protection	Public Access	Acres	
Agassiz Rock	43/16	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland		LCD	Permanent	X	1.21	
Agassiz Rock	43/1	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland		LCD	Permanent	X	0.62	
Agassiz Rock	43/6	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland		LCD	Permanent	Yes	0.79	
Agassiz Rock	43/9	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland		LCD	Permanent	X	0.82	

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
Agassiz Rock	43/5	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	1.78
Agassiz Rock	43/13	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	Yes	2.50
Agassiz Rock	43/11	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	3.65
Agassiz Rock	43/10	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	4.73
Agassiz Rock	43/4	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	5.74
Agassiz Rock	37/1	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	7.05
Agassiz Rock	43/2	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	27.32
Agassiz Rock	43/14	The Trustees of Reservations	The Trustees of Reservations	Conservation: walking trails; forested woodland	LCD	Permanent	X	44.62
Bennetts Brook Salt Marsh	28/34	Manchester Essex Conservation Trust	Manchester-Essex Conservation Trust	Conservation: salt marsh	G	Permanent	X	0.21
Brookwood Conservation Area	31/8	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: upland forest; rocky outcrops	C	Permanent	Yes	4.57
C.B. Winthrop Nature Preserve	27/1	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: Small woodland with vernal pool	C	Permanent	Yes	7.72
Cedar Swamp Conservation Area	61/1	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: walking trails	LCD	Permanent	Yes	24.91
Cheever Commons Cons Area	60/55	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: walking trails	LCD	Permanent	Yes	67.06

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
Coolidge Reservation	4/8	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	5.79
Coolidge Reservation	4/10	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	5.35
Coolidge Reservation	4/2	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	8.45
Coolidge Reservation	4/5	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	18.23
Coolidge Reservation (Ocean Lawn)	3/2	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	5.36
Coolidge Reservation (Ocean Lawn)	3/25	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	16.04
Coolidge Reservation (Observatory Lot)	3/6	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking paths; Woodlands and expansive lawn	E	Permanent	Yes	2.69
Cranberry Pd & Rattlesnake Den	37/39	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	0.51

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
Cranberry Pd & Rattlesnake Den	37/11	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent		10.26
Cranberry Pd & Rattlesnake Den	37/69	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	10.14
Cranberry Pd & Rattlesnake Den	37/37	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	7.41
Cranberry Pd & Rattlesnake Den	37/38	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	1.18
Cranberry Pd & Rattlesnake Den	37/42	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	2.05
Cranberry Pd & Rattlesnake Den	37/46	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	5.01
Cranberry Pd & Rattlesnake Den	37/47	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	1.45
Cranberry Pd & Rattlesnake Den	37/48	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	1.48
Cranberry Pd & Rattlesnake Den	37/60	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	6.13
Cranberry Pd & Rattlesnake Den	37/70	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: Hilly woodland and wetlands	A	Permanent	Yes	3.40
Dug Hill-Spruce Swamp Area	64/1	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; hilly woodlands	LCD	Permanent	Yes	71.18
Great Hill Conservation Area	62/4	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; hilly woodlands	C	Protected	Yes	4.62
Great Hill Conservation Area	64/26	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; hilly woodlands	C	Permanent	Yes	2.22

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
Great Hill Conservation Area	32/26	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; hilly woodlands	C	Permanent	Yes	5.31
Great Hill Conservation Area	32/27	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; hilly woodlands	C	Permanent	Yes	2.21
Harbor Mudflats	16/35	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation	E	Permanent	No	0.09
Hooper Trask Pasture	33/8	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation	C	Permanent	Yes	23.32
House Island	20/25	Massachusetts Audubon	Manchester Essex Conservation Trust	Conservation		Article 97	No	10.83
Kettle Cove Marsh	6/30	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: beach; salt marsh; tidal flats; sand flats	E	Permanent	Yes	0.10
Kettle Cove Marsh	7/18	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: beach; salt marsh; tidal flats; sand flats	E	Permanent	Yes	1.30
Kettle Cove Marsh	6/28	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: beach; salt marsh; tidal flats; sand flats	E	Permanent	Yes	2.77
Kettle Cove Marsh	6/47	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: beach; salt marsh; tidal flats; sand flats	E	Permanent	Yes	1.30
Kettle Island	3/15	Massachusetts Audubon	Massachusetts Audubon	Conservation: wildlife sanctuary		Permanent	No	17.37
MAC Parcel Donated To TTOR Adjacent To Agassiz Rock	37/79	The Trustees of Reservations	The Trustees of Reservations	Recreation & Conservation: walking trails; forested woodland		Permanent	Yes	30.83

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
Millets Brook Reservation	60/20	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: vacant land with no facilities	B	Permanent	Yes	12.93
Millstone Hill Cons Area	60/62	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails	LCD	Permanent	Yes	1.14
Millstone Hill Cons Area	60/58	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails	LCD	Permanent	Yes	1.76
Millstone Hill Cons Area	60/60	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails	LCD	Permanent	Yes	1.93
Off Pine Street	63/26	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: vacant land with no facilities		Permanent	Yes	0.35
Off Pine Street	63/4	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: vacant land with no facilities		Permanent	Yes	0.12
Owls Nest Wldd & Nature Prsv	31/1	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: vacant land with no facilities	C	Permanent	Yes	23.95
Powder House Hill Reservation	41/35	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking paths; Powder House building	B	Permanent	Yes	9.27
Round Pond-Maple Swamp Wtsd	64/9	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Water Supply Protection	C	Permanent	Yes	0.20
Round Pond-Maple Swamp Wtsd	63/19	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Water Supply Protection	LCD	Permanent	Yes	4.86
Round/Gravelly Pond Watershed	63/37	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Water Supply Protection		Permanent	U	1.70
Route 128 Buffer	37/41	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: buffer	A	Permanent	Yes	1.02
Route 128 Buffer	37/77	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: buffer	A	Permanent	Yes	3.87
Route 128 Buffer	37/33	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation: buffer	A	Permanent	Yes	5.37
Welch Conservation Area	23/22	Essex County Greenbelt Association	Essex County Greenbelt Association	Conservation	E	Permanent	Yes	2.36
Wilderness Conservation Area	64/8	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails;	LCD	Permanent	Yes	5.77

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
				woodlands; wetlands				
Wilderness Conservation Area	60/61	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; woodlands; wetlands	LCD	Permanent	Yes	3.47
Wilderness Conservation Area	64/31	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; woodlands; wetlands	LCD	Permanent	Yes	7.51
Wilderness Conservation Area	60/63	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; woodlands; wetlands	LCD	Permanent	Yes	14.63
Wilderness Conservation Area	60/48	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; woodlands; wetlands	LCD	Permanent	Yes	20.14
Wilderness Conservation Area	60/51	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; woodlands; wetlands	LCD	Permanent	Yes	23.57
Wilderness Conservation Area	61/15	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: walking trails; woodlands; wetlands	LCD	Permanent	Yes	27.22
Wyman Hill Conservation Area	64/21	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	6.73
Wyman Hill Conservation Area	64/26	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	4.73
Wyman Hill Conservation Area	64/23	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	6.60

Protected Open Space Parcels Owned by Non-Profits (Land Trusts)

Site Name	Map/Lot	Owner	Manager	Current Use	Zoning District	Level of Protection	Public Access	Acres
Wyman Hill Conservation Area	64/24	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	10.87
Wyman Hill Conservation Area	64/22	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	14.73
Wyman Hill Conservation Area	64/13	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Recreation & Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	44.40
Wyman Hill Conservation Area	32/25	Manchester Essex Conservation Trust	Manchester Essex Conservation Trust	Conservation: upland forest; rocky outcrops; walking paths	C	Permanent	Yes	12.49

Private parcels with Conservation Restrictions held by Land Trusts or the Conservation Commission (protected)

Site Name	Map/Lot	Owner	Manager	Current Use	Address	Zoning District	Level of Protection	Acres
204 Beach St	13/47	Philip R. Dupre, trustee, et al	Manchester Essex Conservation Trust	Conservation	204 Beach St	E	Permanent	1.53
Bigwood Road	57/2	Filius Janet M	Town of Manchester-by-the-Sea Conservation Commission	Conservation	1 Bigwood Rd	A	Permanent	14.02
Cat Brook Farm	36/1	The SRH Nominee Trust	Essex County Greenbelt Association	Conservation		A	Permanent	26.29
Chubb Creek Marsh	24/28	Melissa Landsvik	Town of Manchester-by-the-Sea Conservation Commission	Conservation	22 Boardman Ave	E	Permanent	6.87
Chubb Creek Marsh	23/19	Riordan	Essex County Greenbelt Association	Conservation	21 Boardman Ave	E	Permanent	1.65
Chubb Creek Marsh	23/24	Kiley	Essex County Greenbelt Association	Conservation	23 Boardman Ave	E	Permanent	0.49
Chubb Creek Marsh	23/25	Beach St Real Trust	Essex County Greenbelt Association	Conservation	19 Boardman Ave	E	Permanent	2.77
Chubb Creek Marsh	23/18	Lovett	Essex County Greenbelt Association	Conservation	23 Harbor St	E	Permanent	8.07

Private parcels with Conservation Restrictions held by Land Trusts or the Conservation Commission (protected)

Site Name	Map/Lot	Owner	Manager	Current Use	Address	Zoning District	Level of Protection	Acres
Coolidge Point	4/13	Lily Pond Trust	Essex County Greenbelt Association	Recreation & Conservation	3 Coolidge Pt	E	Permanent	3.01
Coolidge Point	4/3	Lastavica, Catherine	Essex County Greenbelt Association	Recreation & Conservation	Coolidge Pt	E	Permanent	3.89
Coolidge Point	4/4	Lastavica, Catherine	Essex County Greenbelt Association	Recreation & Conservation	1 Coolidge Pt	E	Permanent	6.53
Coolidge Point	4/12	Lily Pond Trust	Essex County Greenbelt Association	Recreation & Conservation	9 Coolidge Pt	E	Permanent	10.75
Coolidge Reservation	3/1	Lily Pond Trust	Essex County Greenbelt Association	Recreation & Conservation	11 Coolidge Pt	E	Permanent	4.64
Danas Beach	11/20	Colburn I W & F A	The Trustees of Reservations	Conservation	185 Summer St	E	Permanent	31.29
Danas Beach (Graves Beach)	12/1	Weems Katherine L	The Trustees of Reservations	Conservation	195 Summer St	E	Permanent	28.89
Graves Island	12/8	Spang Thomas J G & Joseph Peter	Essex County Greenbelt Association	Conservation	Graves Island	E	Permanent	3.73
Highland Avenue	26/42	Perkins, Florence	Manchester Essex Conservation Trust	Conservation	14 Highland Ave	C	Permanent	7.53
Image Hill	13/33	Keverian Kenneth M.	Manchester Essex Conservation Trust	Conservation	27 Old Neck Rd	E	Permanent	0.81
Image Hill	13/31	Miramar Trust William S. Bonaccorso, Tr	Manchester Essex Conservation Trust	Conservation	15 Old Neck Rd	E	Permanent	0.78
Kettle Cove Marsh	6/32	Mehlman Mary C Et Al	Manchester Essex Conservation Trust	Conservation	377 Summer St	E	Permanent	5.36
Kettle Cove Marsh	6/43	Pope Trust	Manchester Essex Conservation Trust	Conservation	398 Summer St	E	Permanent	0.40
Kettle Cove Marsh	6/44	Pope Trust	Manchester Essex Conservation Trust	Conservation	389 Summer St	E	Permanent	0.68
Kettle Cove Marsh	6/45	Pope Trust	Manchester Essex Conservation Trust	Conservation	395 Summer St	E	Permanent	1.23
Kettle Cove Marsh	6/46	Pope Trust	Manchester Essex Conservation Trust	Conservation	465 Summer St	E	Permanent	2.74
Kettle Cove Marsh	6/35	Saltonstall J C	The Trustees of Reservations	Recreation	381 Summer St	E	Permanent	3.35
Leachs Mountain	59/6	Tallett R T & Cynthia	Essex County Greenbelt Association	Water Supply Protection	148 School St	A	Permanent	3.73
Long Hill	36/50	Denormandie Philip	Manchester Essex Conservation Trust	Conservation	Colburn Rd	C	Permanent	2.22
Long Hill	36/53	Denormandie Philip	Manchester Essex Conservation Trust	Conservation	4 Colburn Rd	C	Permanent	3.29
Long Hill	36/3	Denormandie Philip	Manchester Essex Conservation Trust	Conservation	Colburn Rd	C	Permanent	111.86
Manchester Seacoast	9/2	Spang	Essex County Greenbelt	Conservation	291 Summer St	E	Permanent	0.05
Manchester Seacoast	9/7	Spang	Essex County Greenbelt	Conservation	275 Summer St	E	Permanent	4.98
Manchester Seacoast	9/1	Spang	Essex County Greenbelt	Conservation	285 Summer St	E	Permanent	0.09
Marsh Island & Days Creek	16/17	Hall, Ethel Febiger	Manchester Essex Conservation Trust	Conservation	17 Proctor St	E	Permanent	1.06
Marsh Island & Days Creek	16/42	Comb	Manchester Essex Conservation Trust	Conservation	9 Proctor St	E	Permanent	0.30

Private parcels with Conservation Restrictions held by Land Trusts or the Conservation Commission (protected)

Site Name	Map/Lot	Owner	Manager	Current Use	Address	Zoning District	Level of Protection	Acres
Marsh Island & Days Creek	16/16	Singing Beach Llc	Manchester Essex Conservation Trust	Conservation	13 Proctor St	E	Permanent	2.23
Marsh Island & Days Creek	16/11	Herter, Mary C	Manchester Essex Conservation Trust	Conservation	5 Proctor St	E	Permanent	8.88
Norton's Point	21/42	Lauzon Family Ltd Partnership	Manchester Essex Conservation Trust	Conservation	8 Norton's Pt	E	Permanent	0.73
Norton's Point	21/43	William L Meaney Trs	Manchester Essex Conservation Trust	Conservation	11 Norton's Pt	E	Permanent	0.42
Sawmill Brook (Chapman's Greenhouse)	47/16	Alex Magnuson, Rate Realty Trust	Town of Manchester-by-the-Sea Conservation Commission	Flood Control	Vine St and Norwood Ave	G	Permanent	0.14
Sawmill Brook (Chapman's Greenhouse)	47/17	Alex Magnuson, Rate Realty Trust	Town of Manchester-by-the-Sea Conservation Commission	Flood Control	Vine St and Norwood Ave	G	Permanent	0.31
Sawmill Brook (Chapman's Greenhouse)	47/18	Alex Magnuson, Rate Realty Trust	Town of Manchester-by-the-Sea Conservation Commission	Flood Control	Vine St and Norwood Ave	G	Permanent	0.37
Sawmill Brook (Chapman's Greenhouse)	47/19	Alex Magnuson, Rate Realty Trust	Town of Manchester-by-the-Sea Conservation Commission	Flood Control	Vine St and Norwood Ave	G	Permanent	0.85
Sawmill Brook (Chapman's Greenhouse)	47/1	Alex Magnuson, Rate Realty Trust	Town of Manchester-by-the-Sea Conservation Commission	Flood Control	Vine St and Norwood Ave	G	Permanent	0.34
Summer St/Blynman Circle	1/113	Windover Summer Street, LLC	Town of Manchester-by-the-Sea Conservation Commission	Conservation	Blynman Circle	C	Permanent	0.46
Summer St/Blynman Circle	1/8	Windover Summer Street, LLC	Town of Manchester-by-the-Sea Conservation Commission	Conservation	Blynman Circle	C	Permanent	12.67

Private parcels enrolled in Chapter 61

Map/Lot	Owner	Address	Type of Chapter 61 Land	Acres
13/2	Seymour/Kelly	Old Neck Rd.	Forested	1.86
13/9	Kelly	26 Old N13eck Rd.	Forested	11.93
37/22	Mackintosh	30 Mill St.	Recreational	9.69
9/3	Shelving Rock Trust	5 Ocean St.	Forested	39.82

Private parcels (No Protection)

Site Name	Map/Lot	Owner	Current Use	Address	Zoning District	Level of Protection	Acres
Crocker Boat Yard	21/25	Crocker Boat Yard	Boat Slips and Moorings	15 Ashland Ave	G	None	0.60
Essex County Club	38/22	Essex County Club	Private Recreation	153 School St	A	None	166.96
Manchester Marine	21/26	Manchester Marine Corp.	Boat Slips and Moorings	17 Ashland Ave	G	None	2.11

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 Manchester is permanently protected. This includes major town-owned properties such as Powder House Hill Reservation and Dexter Pond, as well as land trust conservation properties, Agassiz Rock and Kettle Cove Marsh, and town-owned recreation properties like, Tucks Point and Sweeney Park. 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. Land is also considered to be permanently protected 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 unanimous vote by the Conservation Commission or parks committee, a 2/3 vote of Town Meeting 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 Town for non-recreational purposes.

In Massachusetts, there are three special taxation programs available to private landowners. Private landowners who enroll in Chapter 61, 61A or 61B (forested lands, agricultural lands and

recreational lands, respectively) benefit by a reduced property tax if they manage their lands for these purposes. This is not truly a protection program because a property owner may withdraw from the program at any time. The town does have the right of first refusal or the ability to assign that right to a nonprofit in the event that the land is put up for sale. Purchase would have to be at fair market value (unless a property owner makes a donation for tax purposes) and the right of first refusal must be exercised within 120 days. Currently, there are two parcels (9/3, 37/22) totaling approximately 50 acres of land in Manchester that are classified as temporarily protected under this tax abatement program.

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 Manchester has no protection. Sites with this categorization include the Essex County Club, Crocker's Boatyard and Manchester Marine.

Town-Owned Open Space

The Town of Manchester owns a variety of parks and open spaces totaling approximately 431 acres. The Conservation Commission manages several of these properties in the town, all of which are permanently protected. The largest of these is Cedar Swamp Conservation Area, which is rich in wildlife and biodiversity and features a 200m long boardwalk over Heron Pond. Local residents love using this site for bird watching and other passive recreation activities. Additionally, the Town also owns several acres of historic conservation lands, some of which are used for passive recreation. These include sites like the historic 1661 Cemetery and the 1879 Brass Plaque in Cathedral Pines.

The town's active recreational facilities include athletic fields and courts, playgrounds, parks and beaches. Town-owned facilities like Masconomo Park, Coach Field Playground, Sweeney Park and Singing Beach support a variety of athletic and recreation programs and opportunities for residents and visitors such as swimming, baseball, softball, soccer, basketball, tennis, and boating.

- **Masconomo Park** is a 6.7-acre park located near the center of town off Beach Street and features a Little League field, playground, and bandstand.
- **Coach Field Playground** is located at the intersection of Brook Street and Norwood Avenue. This 6.1-acre site abuts the Memorial Elementary School and features a multi-purpose athletic field, playground area and two tennis courts.
- **Sweeney Park** is a 12.6-acre park located at the intersection of Brook Street and Norwood Avenue and features a softball field, Little League field, and two small basketball courts.
- **Singing Beach** is located within walking distance of the town's MBTA Commuter Rail station. This site features 12 acres of beach and dunes, parking, and a snack bar. It is considered one of the most beautiful beaches on the North Shore and draws up to 4,000

visitors a weekend day during the height of the season. Other public beaches in town include: Black Beach, White Beach, Magnolia Beach and West Manchester Beach⁵⁴.

Figure 33: Sweeney Park



Image Source: Ralph Wilmer

The Manchester-by-the-Sea Athletic Fields Master Plan (AFMP) was developed by Weston & Sampson Design Studio in 2020. The AFMP provides a comprehensive inventory of the Town's recreational fields, an analysis of existing conditions and conceptual design plans for select properties. Chapter 5 of the plan also lists a series of recommendations for improving facilities throughout town. This OSRP supports these recommendations and readers should refer to the AFMP document for more information regarding the town's recreational fields.

State-Owned Open Space

The Commonwealth of Massachusetts owns a portion of Jack's Hill in northern Manchester. The 9.3-acre site abuts Route 128 and is preserved as a scenic easement. The state also owns approximately 3 acres of land that serve as roadway buffers along Route 128.

Privately-Owned Open Space

Private organizations own approximately 537 acres of conservation and recreation land in town. This includes the Essex County Club and several privately owned parcels with conservation restrictions that are managed by the Manchester Conservation Commission or nonprofit land trusts.

⁵⁴ Town of Manchester Master Plan (2019)