Natural Resources & Environment

York's abundant natural resources, from its beautiful beaches and coastline to its undeveloped wildlife habitats, from its scenic views atop Mount A, to its water bodies, wetlands, forests, and soils, are all central to what makes the town such an attractive place to live and visit. These resources serve important ecological, recreational, and economical functions, and are also vital to preparing for and mitigating impacts from climate change. In planning for the future, it is critically important for York to consider, support, and protect its natural resources.

This topic includes...

Natural Resources

- Underlying natural context, including topography, geology, and soils
- Critical natural resources such as wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas, plants and plant communities, unique natural areas

Water Resources

- Water bodies, including streams, rivers, and lakes
- Surface water, aquifers, and drinking water supplies
- Watersheds
- Pollution sources and water bodies at risk from pollution

Forest + Agricultural Resources

- Existing forests, forestry activities, and farming
- Community farming and forestry activities (community gardens, farmers' markets, etc.)
- Recent trends and impacts from development

Trends Across Topic Areas

- Threats to York's natural resources
- Ongoing protection efforts and policies
- Key takeaways

Natural Resource Context

Topography and Slopes

Topography describes the changes in elevation of the surface of the ground. Elevations in York range from sea level along the Atlantic coast to 692 feet atop Mt. Agamenticus (Mount A). Only Mt. A, Second Hill (555 feet) and Third Hill (526 feet) rise above 400 feet. The Horse Hills, located to the southwest of Mt. A, is a large hilly complex just under 400 feet in elevation. East of the Maine Turnpike there are a few hilltops above 200 feet in elevation, the highest of which is Gulf Hill (elevation about 240 feet) located west of U.S. Route 1 near Dixon's Campground. A significant portion of the area west of the Turnpike and north of the York River is above 200 feet in elevation (Fig. 1).

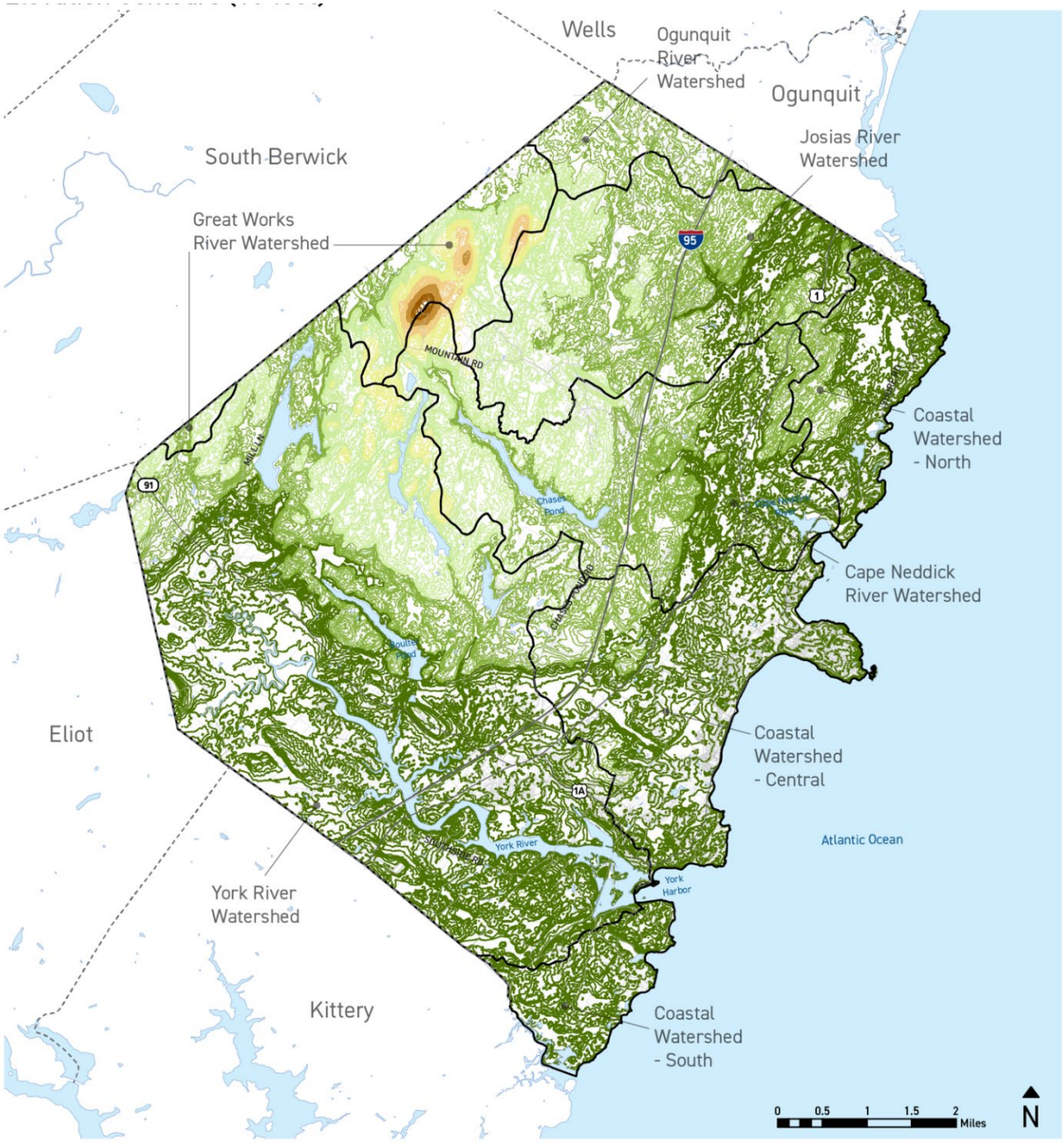
Slope is a measure of elevation change over distance. York has extensive areas of steep slopes associated with the hills to the west and north of town, and along certain stretches of river, stream, and ocean shoreline. In general, the slopes are most gentle along the coast in York Beach and up through the tidal headwaters of the York River. North of the York River and west of U.S. Route 1, slopes tend to be steeper.

In general terms, the suitability of land for development declines with steeper slopes. Development on slopes greater than 15% require more fill and grading as well as more sophisticated sediment and erosion control planning to minimize erosion and protect water quality.[1]

View from Mt Agamenticus to the Atlantic Ocean

[1] Town of York, *York Comprehensive Plan* Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

Figure 1. Elevation Contours Map



Data Sources: Maine Office of GIS, 2004 Comprehensive Plan, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

- 0 - 100 Feet Elevation
- 100 - 200 Feet Elevation
- 200 - 300 Feet Elevation
- 300 - 400 Feet Elevation
- 400 - 500 Feet Elevation
- 500 - 600 Feet Elevation
- 600 - 692 Feet Elevation
- Major Watershed Boundaries

Bedrock + Surficial Geology

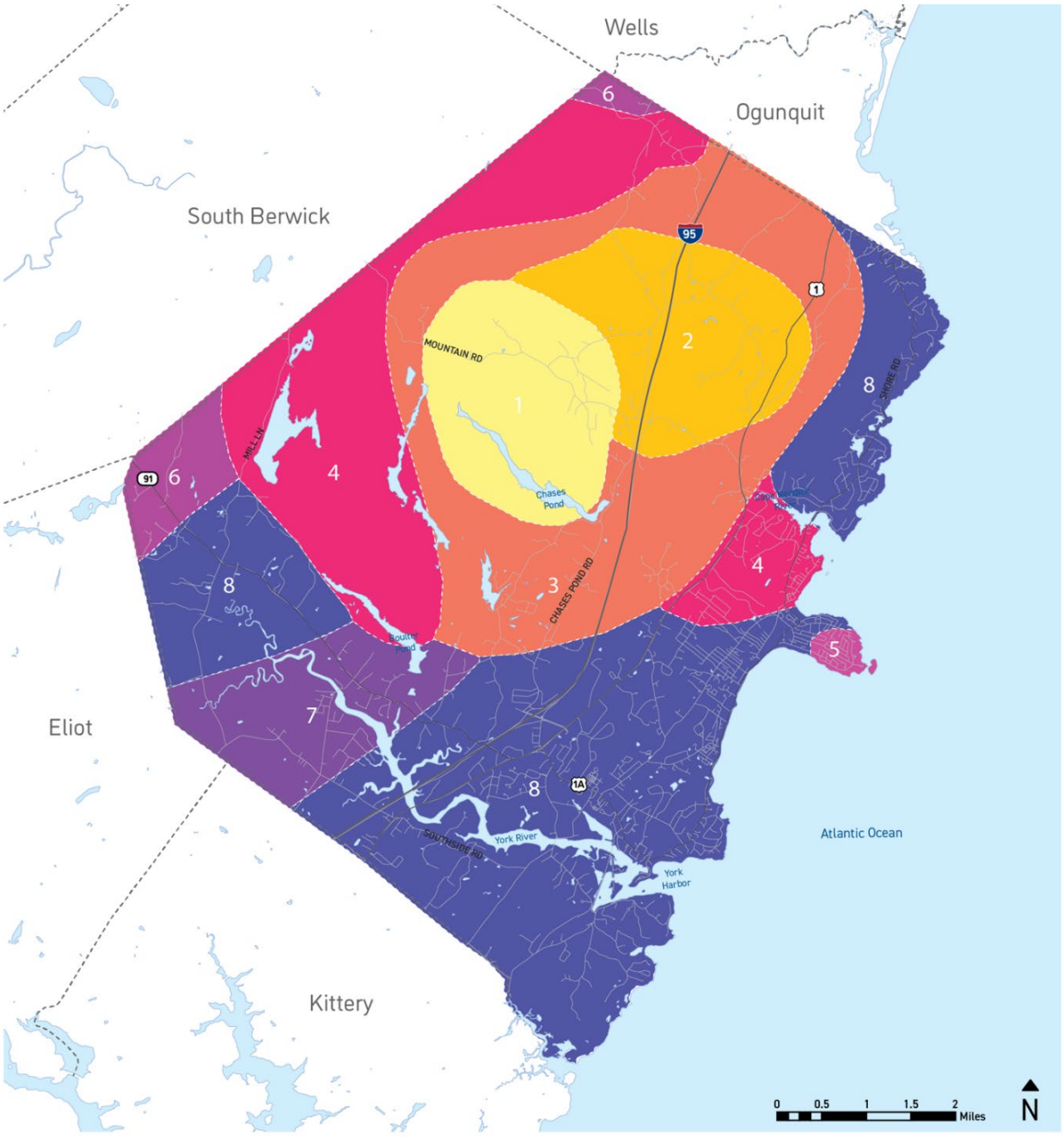
The entire state of Maine is underlain with hard ledge (bedrock) composed of igneous (granite, etc.) and metamorphic (gneiss, etc.) rock (Fig. 2). Almost everywhere, this bedrock is fractured due to the many geological processes the rocks have endured since they formed between 360 and 650 million years ago. The fractures in the rock provide the open space (porosity) through which groundwater flows.

Surficial geologic deposits overlie the bedrock (Fig. 3). The vast majority of York is either glacial till or glacial marine clay, and both of these are generally poor base for land development. Surficial geologic deposits are closely related to soils in importance for septic treatment. Areas underlain by poorly drained materials, especially glacial marine or swamp deposits, do not permit septic wastewater to move quickly enough away from leach fields, and in general these areas are prone to septic failures and related problems.[2] Table 1, Characteristics of Surficial Deposits, gives a brief description of the most common types of deposits and a general description of the usefulness of these materials for planning purposes.

York Harbor Beach

[2] Town of York, York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

Figure 2. Bedrock Geology in York



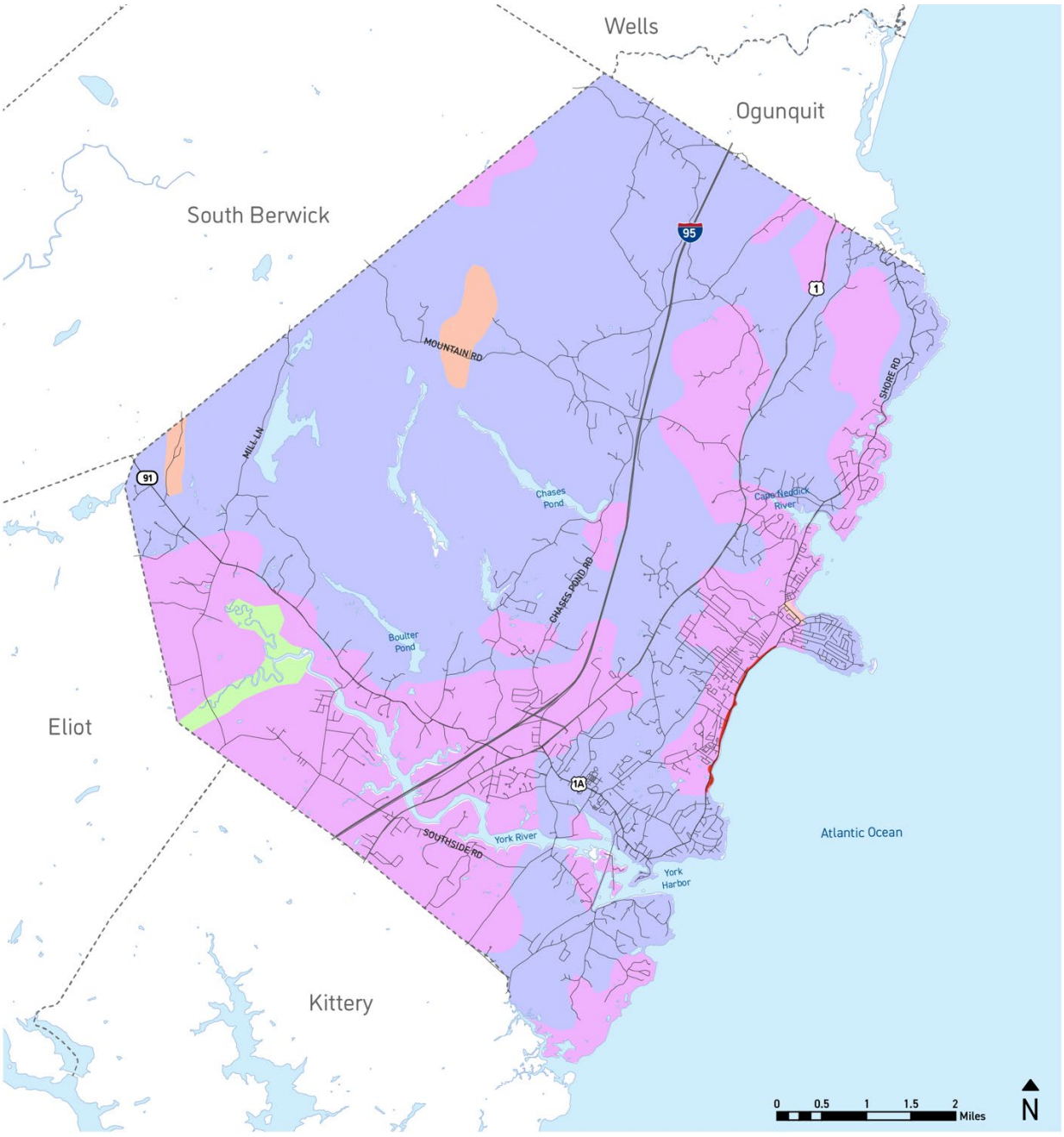
Data Sources: 2004 Comprehensive Plan, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

Youngest

1. Agamenticus Complex - Pink Granite
2. Agamenticus Complex - Syenite
3. Agamenticus Complex - Quartz Syenite
4. Agamenticus Complex - Granite
5. Cape Neddick Complex - Habbro
6. Webhannet Pluton
7. Elliot Formation - Metasiltstone
8. Kittery Formation - Siltstone / Mudstone

Oldest

Figure 3. Surficial Geology in York



Data Sources: 2004 Comprehensive Plan, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

- Dune Deposit
- Swamp/Marsh/Bog Deposit
- Glacial Marine Deposit
- Till
- Ice Contact Deposit

Table 1. Characteristics of Surficial Deposits

Type & Origin of Deposit	Characteristics	Relation to Groundwater	Relation to Development	Distribution
Glacial Till	Low permeable mixture of small-sized (silt & clay) to large-sized (gravel) material	Contains water, but low permeability makes recovery difficult and inadequate for municipal needs	Low permeability could slow vertical flow	Extensive, especially in upland areas
Glacial Marine	Very low permeability dark silts and clays with inter-bedded layers of sand	These materials typically prevent the vertical flow of water and often underlie marshes and wetlands	Unsuitable for most uses, but historical resource for local brick-makers	Extensive, esp. along York River, Cape Neddick River, the coastal area.
Ice-Contact	Usually permeable mixture of sand, gravel, cobble & boulder-sized sediment	Best source of groundwater in southern Maine, excess iron content can be an issue, high permeability means easy contamination from land use	High permeability allows rapid vertical flow of water, but fast flow could affect nearby ponds if any	Along Witchtrot Road in western York, and north of Chases Pond Reservoir
Swamp Deposit	Organic material with some silt, sand & gravel, up to 2' thick	Groundwater discharge areas, often the site of springs	Unsuitable for most uses	Upper reaches of York River
Coastal Dune & Beach Deposits	Fine to medium sand, some coarse sand & gravel, up to 25 feet thick	Moderate permeability, water table close to surface & prone to contamination from land use	Vulnerable to wave erosion, these deposits require protection from harmful uses that may speed up erosion processes	Long Sands Beach and Short Sands Beach

Source: York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

Soils

There are many different types of soils in York and each has a unique combination of characteristics, many of which are important to planning and development (Table 2). For example, some soils tend to heave excessively, not all soils are suitable for subsurface wastewater disposal systems, and contaminants travel better through some soils and pose threats to groundwater. Highly erodible soils, often occurring on steeper slopes, can have negative impacts on water quality and habitats through pollution and sedimentation (Figs. 4 - 6). Generally, soils in York tend to be shallow, and either poorly drained or excessively drained.[3]

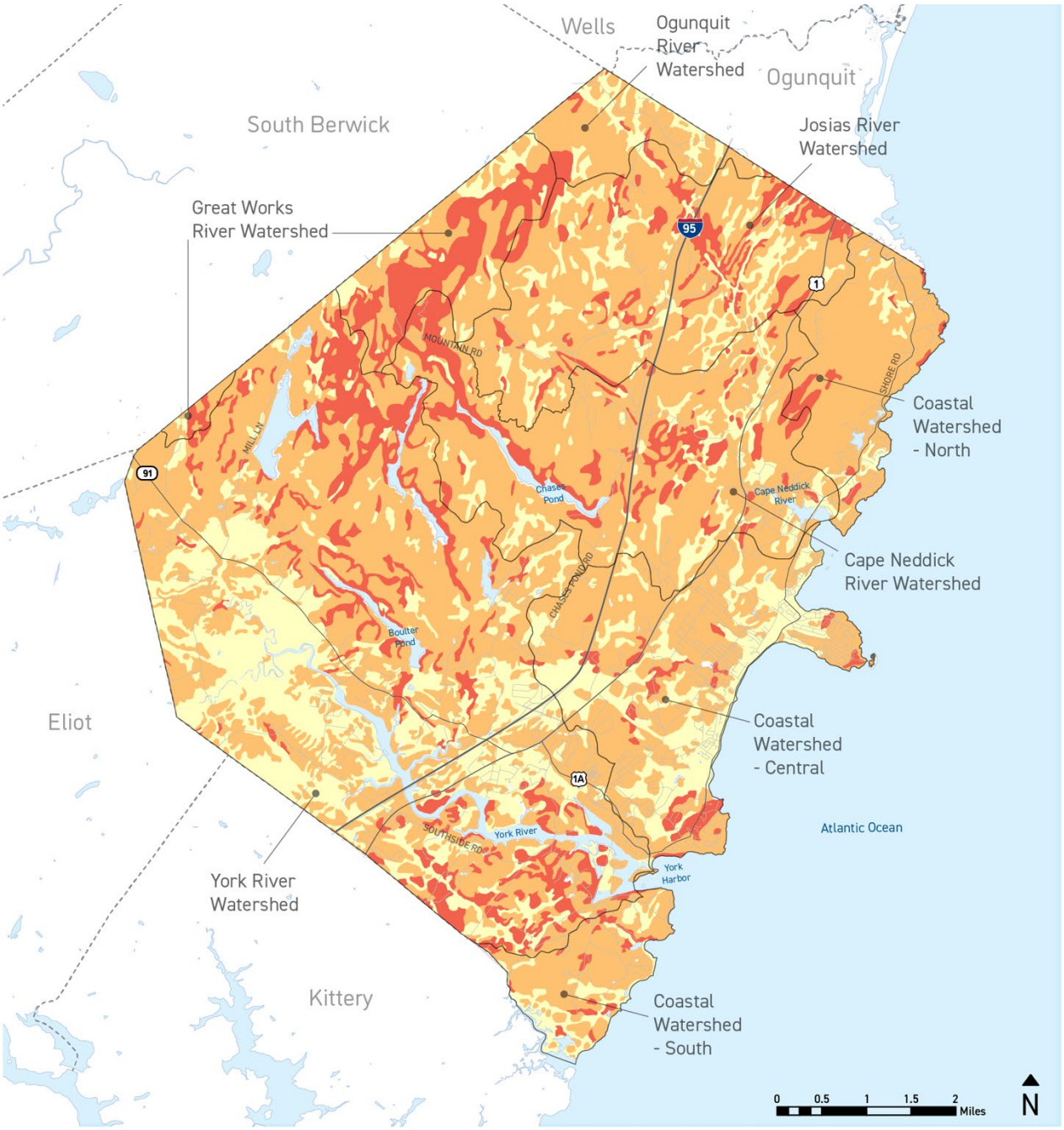
[3] Town of York, *York Comprehensive Plan* Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

Table 2. Soil Types in York

Lyman-Rock Outcrop-Sebago	This is the most prevalent soil association in the Town of York. The association covers all of coastal York and much of the area inland, north of Route 91 to the South Berwick border. The Lyman soils and Rock outcrops are on the ridges and hills and the Sebago soils are in depressions. The Lyman soils are shallow, gently sloping to very steep and somewhat excessively drained soils formed in shallow glacial till. The Sebago soils are deep, level, and very poorly drained soils formed in organic material. Rock outcrop consists of areas of bedrock exposure. The main limitations of the association for non-farm uses are the bedrock exposures on the surface, the shallow soil depth of the Lyman soils, and the high water table and low strength of the Sebago Soils.
Scantic-Raynham-Buxton	A swath of this soil association surrounds the upper York River Valley. The Scantic and Raynham soils are poorly drained and nearly level and have a seasonal high water table. The Buxton soils are moderately well drained to somewhat poorly drained and are gently sloping to moderately steep and hilly. The slope, high water table in the Scantic and Raynham soils and the slow permeability of the Scantic and Buxton soils are the main limitations for non-farm use.
Marlow-Brayton-Peru	There are three pockets of the Marlow-Brayton-Peru association along the west side of Interstate 95. One pocket is on the northern end of town at Clay Hill and two towards the southern boundary at Cider Hill and Beech Ridge. The Marlow soils are well drained, the Brayton soils are somewhat poorly drained to poorly drained, and the Peru Soils are moderately well drained. Slow permeability in the substratum and a seasonal perched water table are the main limitations for most uses of these soils. Slope can also be a limitation.
Hermon-Lyman	These soils cover the entire Cape Neddick Peninsula. This association is described as shallow and deep, gently sloping to very steep, well drained to somewhat excessively drained soils formed in friable glacial till. The main limitations for most non-farm uses are rapid permeability, and the shallow depth to bedrock in the Lyman soils.
Lyman-Rock Outcrop-Scantic	There are two patches of this association in York. At the Kittery border in the area of Dolly Gordon Brook and at the Ogunquit Border. The Lyman soils and Rock outcrops are on the ridges and hills and the Scantic soils are in marine plains. The Lyman soils are shallow gently sloping to very steep, and somewhat excessively well drained. The Scantic soils are deep, nearly level and poorly drained. The main limitations for all uses are the bedrock exposures, droughtiness, the shallow depth to bedrock in the Lyman soils and a high water table in the Scantic soils.
Sulfihemists-Udipsamments	These soils are found around the lower reach of Smelt Brook before it meets with the York River. Sulfihemists soils are very poorly drained and level and are flooded by tidal waters. The soils dominantly consist of organic material more than 51 inches deep. Udipsamments are excessively drained and moderately well drained soils and are undulating to rolling. Sulfihemists soils make for good wildlife habitat.

Source: Town of York, York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

Figure 4. Soils by Erodibility



Data Sources: 2006 Comprehensive Plan Inventory and Analysis Natural Resources Chapter, Natural Resource Conservation Service, Town of York OpenData, 2015 Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Soils - Potential for Erosion

- Highly Erodible Land
- Potentially Highly Erodible Land
- Not Highly Erodible Land

- Major Watersheds

Figure 5. Soils by Slope

Data Sources: 2004 Comprehensive Plan,Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

Figure 6. Soils by Potential for Low-Density Development

Data Sources: 2006 York Comprehensive Plan, Natural Resources Conservation Service, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

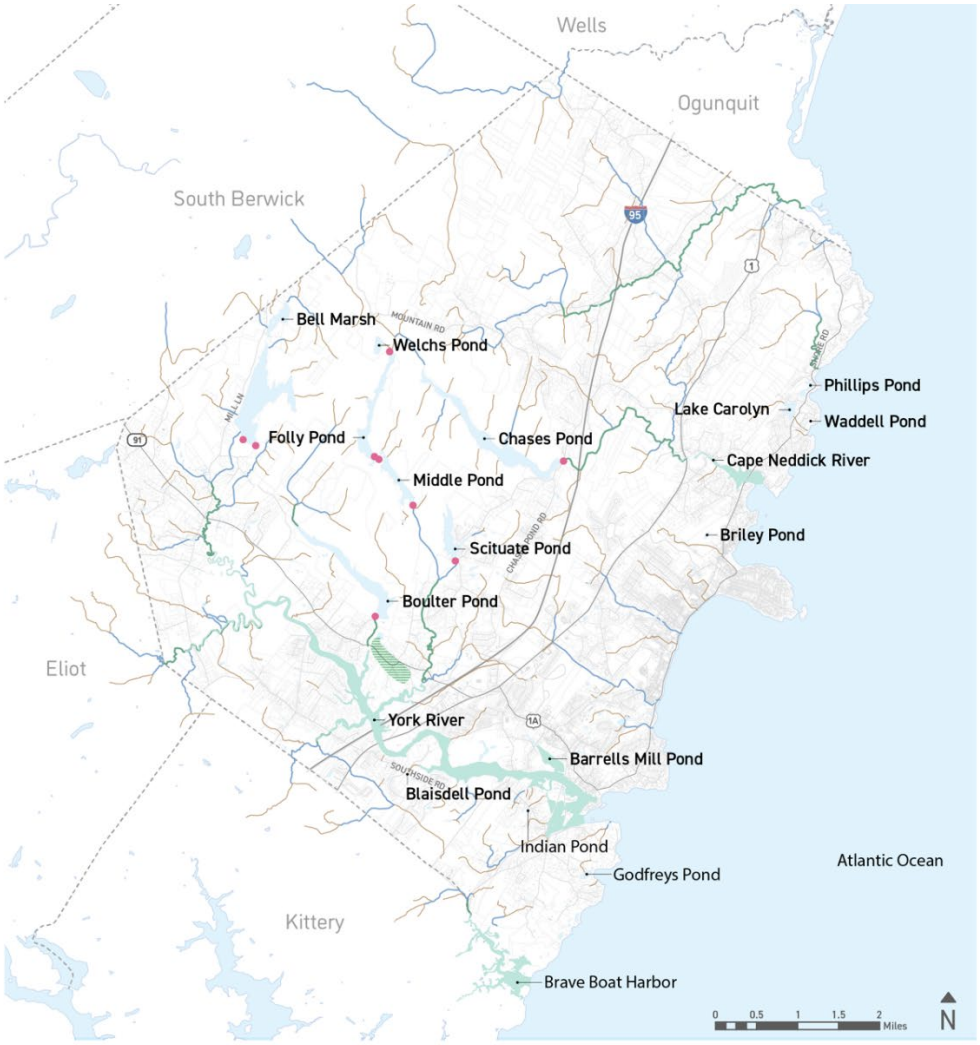
- High Potential for Low Density Development
- Medium Potential for Low Density Development
- Low Potential for Low Density Development
- Very Low Potential for Low Density Development
- Not Rated
- Major Watershed Boundaries

A note on the data: The Natural Resources Conservation Service evaluated soils including texture, permeability, slope, drainage, water table, flooding, and depth to bedrock and assigned a composite rating of very high potential to very low potential for low density development. Throughout the Town of York there are no soils that merit a "very high" rating, and very few which fall into the category of "high."

Water Resources

Water resources in York include major surface water bodies used for public water supply; lakes and ponds; the York River and the Cape Neddick River as well as the many rivers, brooks, creeks, and streams that feed into them; York's beaches and coastal areas; and the many bedrock wells in York outside of public water service areas (Fig. 7).

Figure 7. Key Water Resources in York



Data Sources: Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset, 2019 Aquifers Maine Geolibrary.
Map created by CivicMoxie.

Lake/Pond
Estuary
Aquifer
Dams and Barriers

Stream Order
1
2
3

Water resources in York serve many functions, including providing for drinking water, recreational opportunities such as boating and fishing, and offering scenic views. As a coastal

community, York's economy is also closely tied to its water resources. Beaches and other coastal resources are discussed in greater detail in Appendix A4: Marine Resources Current Conditions.

Watersheds

The land area from which water drains or flows to the same place is known as a watershed. York is located on the coast of the Atlantic Ocean, in the Gulf of Maine drainage basin. Since watershed boundaries follow naturally-existing physical boundaries of the topography such as ridges and high ground, York is divided into a series of relatively small watersheds that drain directly to the ocean in or near York (Fig. 8).

York River Watershed

The York River Watershed is 33 square miles in size, with 70% of the watershed located in York and encompassing 41% of the area of York. There are 109 miles of streams and rivers in the watershed. Notable for its historic structures and buildings, archaeological sites, scenic qualities, intact natural habitats, large forested areas, and ecological resilience,[4] the York River is a critically important estuary system and is among the widest diversity of fish and bird habitats in Maine.[5] York's primary harbor is located at the mouth of the river. Located within this watershed are Kittery Water District's four water supply reservoirs: Bell Marsh Reservoir, Boulter Pond, Folly Pond, and Middle Pond.

With a largely preserved natural landscape and tributaries that are not impaired by major industrial or wastewater discharges that often impact rivers of similar size in Maine and New England, the York River exhibits very good water quality. Many of the River's values depend on preserving this high water quality of the York River and its tributaries, including recreational use through swimming, kayaking, and other water activities, commercial and recreational fishing, and the rich wildlife, biodiversity, and riverine habitat that the watershed supports.[6]

A bill was introduced in the Senate December 1, 2020 to designate the York River as 'Wild and Scenic.' The Bill must be passed by Congress and signed by the President to achieve designation. Designation for the York River and tributary streams in the National Wild and Scenic Rivers System would provide an administrative structure and crucial funding needed to implement the [York River Watershed] Stewardship Plan, enable a watershed approach across the four-town area, leverage additional technical and financial resources, engage key partners and citizens in river stewardship, and bolster ongoing initiatives to protect important watershed resources.[7]

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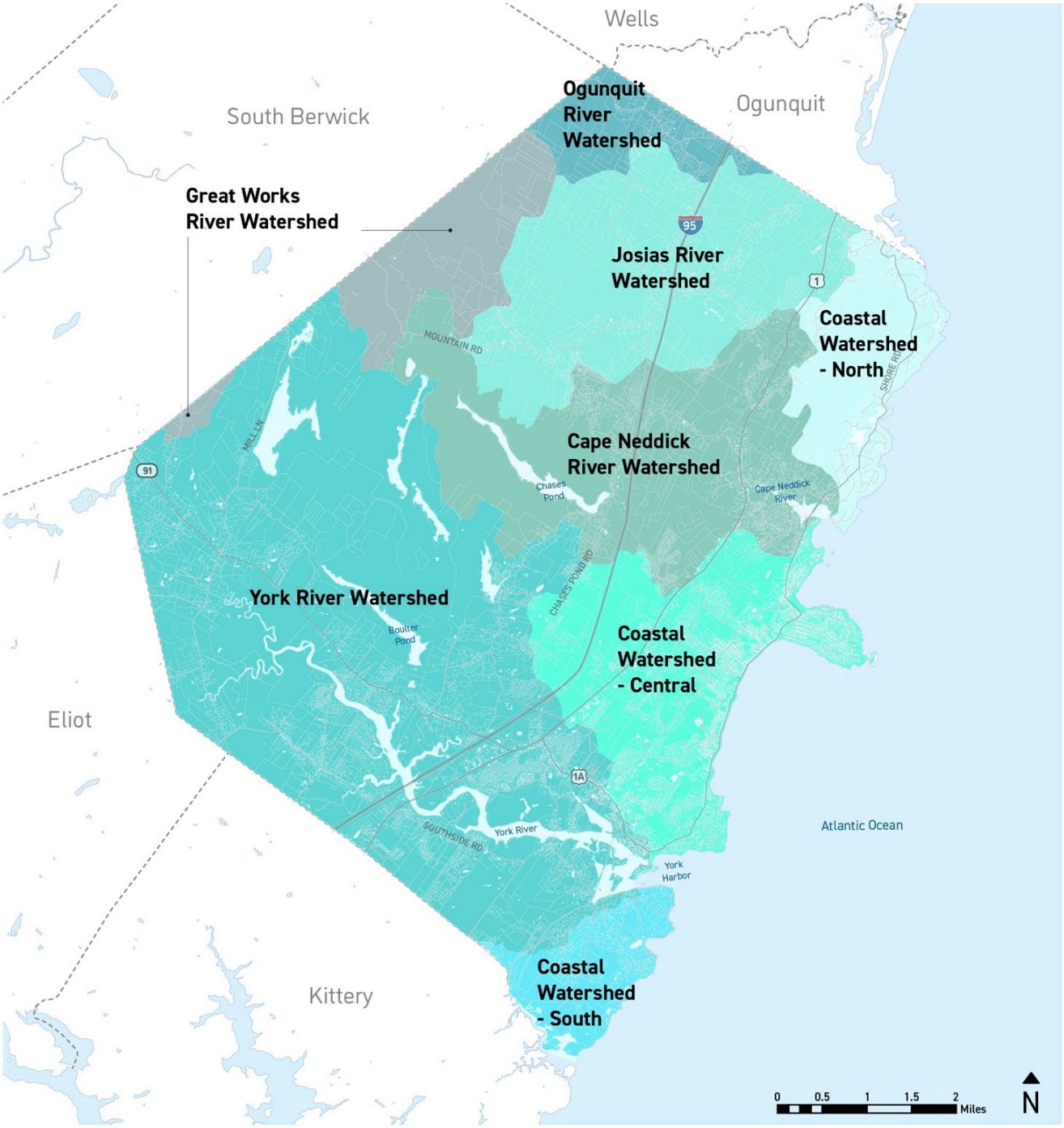
[4] York River Study Committee, *York River Watershed Stewardship Plan*, 2018.
[5] Town of York, *York Comprehensive Plan* Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.
[6] York River Study Committee, *York River Watershed Stewardship Plan*, 2018.
[7] Ibid.

Figure 8. Major Watersheds in York



Data Sources: 2004 Comprehensive Plan, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

York River

The York River is approximately 12 miles long and has its headwaters in South Berwick and flows to the Gulf of Maine at York Harbor. It is tidal for almost nine of its 12 miles, with small unnavigable freshwater tributaries feeding into a relatively large tidal basin. Tidal fluctuations

can be more than 10 feet.[8] Public boat launch sites are located at Scotland Bridge, Rice's Bridge, and Route 103, as well as Strawberry Island and the two Town Docks in York Harbor. Many private docks line the river from Scotland Bridge to the Harbor. The York River main stem was never dammed and has retained healthy smelt, herring, eel, lobster, and flounder populations, as well as seasonal striped bass and bluefish runs.[9]

York Harbor

York Harbor is located in the southerly section of York's coastline and is York's only harbor that is passable at all tides. The York River begins at the Route 103 bridge. Watercraft with high masts are restricted from upriver because of the bridge's low height. Protected from heavy sea conditions by "Rock's Nose" and "Stage Neck," the river hosts a large number of boat moorings in the Harbor. York Harbor supports commercial and recreational uses, with two busy town docks, a paddlecraft launch at Strawberry Island, a private marina and other docks, and adjacent walking trails. There are sections of York Harbor that have been dredged.

Boulter Pond

Boulter Pond is owned and managed by the Kittery Water District (KWD), which provides drinking water to customers in Kittery and parts of Eliot and York. The pond is 91 acres in area with a perimeter of four miles. There is no known invasive aquatic plant infestation.[10] Boulter Pond is a KWD supply source and has a safe yield of 1.6 million gallons per day (MGD). The Boulter Pond Dam and reservoir were constructed in 1951. As a public water source, Boulter Pond is included on the Maine DEP's list of "Lakes Most at Risk from New Development."[11]

Folly Pond + Middle Pond

Folly Pond and Middle Pond are also owned and managed by the KWD. Folly Pond is 56 acres in area with a perimeter of 3.4 miles and Middle Pond is 37 acres in area with a perimeter of 2.1 miles. There is no known invasive aquatic plant infestation at either water body. Both ponds are KWD supply sources. Folly Pond Dam impounds Cider Hill Creek upstream of Middle Pond Dam. Together with Middle Pond, the two have a combined safe yield of 1.2 million MGD. In 2018, the York Water District (YWD) collaborated with KWD to install an emergency line between Folly Pond and Chases Pond. The project allowed the Kittery Water District to purchase water through the current and proposed YWD interconnections in the

[8] York River Study Committee, York River Watershed Stewardship Plan, 2018.

[9] Wells Reserve, York River, https://www.wellsreserve.org/conservation/in-your-community/rivers-and-streams/york-river

[10] Information on water body size and invasive aquatic plant infestation in this section is sourced from the Lakes of Maine website http://www.lakesofmaine.org/ as directed by the state comprehensive planning dataset.

[11] Maine Department of Environmental Protection, 06-096 Chapter 502, Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams.

distribution system while supplying the lost water back to Chases Pond to replenish the water without compromising York's level of service to its own customers.[12]

Bell Marsh Reservoir

Bell Marsh Reservoir is owned and managed by the KWD and has a surface area of about 280 acres. It is a KWD supply source and has a safe yield of 2.5 MGD. Bell Marsh Reservoir and dam (impounding Smelt Brook) were constructed by the KWD in 1987.[13] There is no known invasive aquatic plant infestation.

Scituate Pond

Scituate Pond is 42 acres in area with a perimeter of 2.3 miles. There is no known invasive aquatic plant infestation. Scituate Pond is included on the Maine DEP's list of "Lakes Most at Risk from New Development."[14] Located amongst the York and Kittery Water District ponds, it is one of the few ponds in the area that remains open to anglers; principal fisheries include largemouth bass and chain pickerel.[15]

Indian Pond

Indian Pond is five acres in size with a perimeter of 0.6 miles. There is no known invasive aquatic plant infestation.

Blaisdell Pond

Blaisdell Pond is 0.3 acres in size with a perimeter of 0.1 miles. There is no known invasive aquatic plant infestation.

Barrell's Mill Pond

Originally the site of grist and sawmills that contributed to York's early prosperity, Barrell's Mill Pond is one of the largest and best preserved tide mill sites on the southern Maine coast. Today, a pedestrian causeway follows the course of the original mill pond dam, leading to York's Wiggly Bridge, a local landmark.[16]

Streams, Creeks, and Brooks

Streams connecting to the York River include Cutts Ridge Brook, Rogers Brook, Smelt Brook, Bass Cove Creek, Cider Hill Creek, Dolly Gordon Brook, Libby Brook. Rush Swamp Brook and Rush Swamp are wetlands and streams that connect to the Atlantic Ocean at Phillips Cove.

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[12] Correspondence with York Water District.

[13] Kittery Water District, Master Plan Update, 2020.

[14] Maine Department of Environmental Protection, 06-096 Chapter 502, Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams.

[15] Maine Department of Inland Fisheries and Wildlife Lake Survey, https://www.maine.gov/ifw/docs/lake-survey-maps/york/scituate_pond.pdf

[16] Tide Mill Institute, "Barrell's Mill Pond, York, Maine", February 8, 2021. https://tidemillinstitute.org/Portal/docs/Barrells_Mill_Pond_Illustr.pdf

Cape Neddick River Watershed

The Cape Neddick River Watershed is nine square miles in size, with 100% of the watershed located in York and encompassing 16% of the area of the town. The downstream portion of the watershed, particularly east of U.S. Route 1, is densely developed and experiences heavy influx of population due to tourism in the summer. Located within this watershed are the YWD's water supply reservoirs, Chases Pond and Welch's Pond, as well as many small wetlands, ponds, and tributaries of the river.

A Cape Neddick River Watershed Based Management Plan was completed in 2014 with the intent to protect and improve water quality in the Cape Neddick River, primarily related to bacteria and erosion/sedimentation. Loss of riparian buffers and increasing development may be contributing to water quality challenges that are impacting recreational activities and shellfish harvesting in the lower and tidal portions of the river.[17] More information on water quality is included later in this document.

Cape Neddick River

The Cape Neddick River is a significantly altered river because its headwaters are impounded at Chases Pond for public water supply. A harbor of limited capacity is located at the mouth of the river. The York Sewer District's Wastewater Treatment Plant outfall pipe is also located near the mouth of the Cape Neddick River. The estuary portion of the Cape Neddick River used to be listed by the Maine Department of Environmental Protection as a water body impaired by bacteria ("Category 4-A Estuarine and Marine Waters with Impaired Use"). An approved total maximum daily load (TMDL) of pollutants[18] was completed in 2009 and approved by the Environmental Protection Agency (EPA).[19] The Cape Neddick River was removed from this list in the time period between the State's 2012 and 2014 Integrated Water Quality Reports.[20] The Cape Neddick River Watershed Based Management Plan was completed in 2014 intended to protect and improve water quality in the river.[21] The Cape Neddick River is listed as part of the Maine DEP's 2020 Nonpoint Source Priority Watersheds

[17] Wells Reserve https://www.wellsreserve.org/conservation/in-your-community/rivers-and-streams/cape-neddick

[18] A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant (www.EPA.gov).

[19] FB Environmental, Cape Neddick River Watershed Based Management Plan, 2014.

[20] Maine DEP integrated Water Quality Monitoring and Assessment Reports, https://www.maine.gov/dep/water/monitoring/305b/

[21] FB Environmental, Cape Neddick River Watershed Based Management Plan, 2014.

Lists on its "Impaired Marine Waters Priority List" due to its status as a Maine Municipal Separate Storm Sewer Program (MS4) priority watershed.[22]

Cape Neddick Harbor

Cape Neddick Harbor is situated in the northern section of York and is considered to be one-half accessible as it is not passable below half tide. This Harbor is exposed from the south and is particularly affected by winds from the east and the south. In the winter, however, it is generally ice-free. There are a small number of moorings in Cape Neddick Harbor, which are kept in the water on a year-round basis.[23]

Chases Pond

Chases Pond is 171 acres in size with a perimeter of 5.3 miles. There is no known invasive plant infestation. Chases Pond is the primary water supply used by YWD. When the pond is full it has a capacity of nearly 1 billion gallons, with a safe daily yield of 2.05 million gallons (MGD) of water.[24] The dam at Chases pond was constructed in 1906 and has been modified over the years. Since 2010, Chases Pond has experienced several minor occurrences of concentrations of algal blooms (identified as golden algae Uroglena Americana (UA)) which is a nuisance alga which does not produce cyanotoxins. In 2015, the District installed an air circulation system and applied to, and received approval from, the Maine DEP to add copper sulfate to Chases Pond as an algaecide. Since 2017 there have been no significant increases in the population of UA. However, there was a surface bloom of blue green algae (Dolichospermum) at Chases Pond for the first time in November of 2020. The blue-green algae numbers did not impact the water treatment plan processes and numbers dramatically reduced in December 2020.[25] The YWD reports that source water protection (such as through land ownership), the Watershed Protection Overlay District, and regular patrolling, are critical to maintaining water quality at Chases Pond. As a public water source, Chases Pond is included on the Maine DEP's list of "Lakes Most at Risk from New Development."[26]

Welchs Pond

Welchs Pond is owned and managed by the YWD and contributes flow to Chases Pond, which is YWD's primary water supply source. It is ten acres in size with a perimeter of 0.5 miles. There is no known invasive aquatic plant infestation.

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[22] MDEP NPS Priority Watersheds List – MARINE WATERS (December 2020) https://www.maine.gov/dep/land/watershed/nps_priority_list/NPS%20Priority%20List%20-%20Marine20.pdf

[23] Town of York, York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

[24] York Water District, *Public Water System Report for the Town of York Comprehensive Plan Update*, March 2022.

[25] York Water District Correspondence. August 17, 2021.

[26] Maine Department of Environmental Protection, 06-096 Chapter 502, Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams.

Josias River Watershed

The Josias River Watershed is eight square miles in size, with approximately 95% of the watershed located in York and encompassing 14% of the area of York. Josias River is a third order stream in York that discharges into Perkins Cove in Ogunquit.

Ogunquit River Watershed

The Ogunquit River Watershed is 24 square miles in size, with approximately 4% of the watershed located in York and encompassing 2% of the area of York. The Ogunquit River originates in South Berwick and travels east and southeast through York and Ogunquit. Elevated fecal bacteria found throughout the watershed, likely caused by stormwater runoff and malfunctioning sewer systems, has caused the watershed to be listed as impaired.[27]

Great Works River Watershed

The Great Works River Watershed is 42 square miles in size, with approximately 7% of the watershed located in York and encompassing 5% of the area of York. This watershed is the only area of York that drains into the Salmon Falls/Piscataqua River basin. In York, the watershed is relatively undeveloped, has sensitive resources, and much of the land is conserved. The Great Works River runs 24.5 miles and changes 520 feet in elevation from the headwaters in Sanford to its confluence with the Salmon Falls River in South Berwick.[28]

Coastal Streams Watersheds

The Coastal Streams Watersheds make up the majority of the area along the Atlantic Coast in York. There are three distinct areas: Southern (south of the York River); Central (between the York and Cape Neddick rivers), and Northern (north of the Cape Neddick River). Combined, they have a total area of 13 square miles and encompass 21% of the area of York. Major features include Godfreys Cove, portions of Brave Boat Harbor and York Harbor, Harbor Beach, Long Sands Beach, Short Sands Beach, the Nubble, Phillips Cove, and portions of the mouth of the Cape Neddick River.

Brave Boat Harbor

Brave Boat Harbor is located along the Kittery/York Town line. There are no public moorings situated in Brave Boat Harbor, since it is generally inaccessible to the public for mooring purposes. The harbor is bounded by the Rachel Carson National Wildlife Refuge and privately owned land.

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[27] Wells Reserve, Ogunquit River, https://www.wellsreserve.org/conservation/in-your-community/rivers-and-streams/ogunquit-river

[28] Wells Reserve, Great Works River, https://www.wellsreserve.org/conservation/in-your-community/rivers-and-streams/great-works

Godfreys Pond + Cove

The Pond and Cove are five acres in size with a perimeter of 0.4 miles. There is no known invasive aquatic plant infestation. The Godfreys Cove area includes brackish tidal marsh, which is designated by the Maine Natural Areas Program (MNAP) as a rare or exemplary community in York on the Beginning with Habitat (BwH) map of High Value Plant and Animal Habitats.[29]

Phillips Pond + Cove

Phillips Cove is the only designated Coastal Barrier Resource System in York. Areas designated as coastal barrier resource systems include coastal barriers and adjacent wetlands, marshes, estuaries, inlets, and nearshore waters; the goal is to protect these resources by limiting expenditure of state or federal funds in these areas for incompatible purposes.[30] The system is located along Shore Road, beginning just north of Wadleighs Head to the south and ending just north of Phillips Pond.[31] Phillips Pond is seven acres in area with a perimeter of 0.7 miles. There is no known invasive aquatic plant infestation.

Lake Carolyn

Lake Carolyn is located off Shore Road and is 14 acres in size with a perimeter of 0.8 miles. There is no known invasive aquatic plant infestation. The Town owns the lake and most of the shore frontage. The Town owns three properties in very close proximity to the lake and the York Land Trust owns two others; there could be an opportunity for unified planning and management of these properties.[32]

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[29] Beginning with Habitat data. Beginning with Habitat (BwH) is a state program with the Maine Department of Inland Fisheries and Wildlife that helps Maine municipalities, landowners, and land trusts build habitat conservation into their long-term plans. The program was created in 2000 to collect, connect, and consolidate the wealth of habitat information being produced by separate entities.

[30] Town of York, York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

[31] U.S. Fish and Wildlife Service, Phillips Cove Unit ME-23, https://www.fws.gov/cbra/maps/effective/23-018A.pdf

[32] Town of York, Maine Property & Facility Inventory – Lake Carolyn https://www.yorkmaine.org/DocumentCenter/View/4823/Lake-Carolyn---2021-07-15?bidId=

Waddell Pond

The Pond is one acre in size with a perimeter of 0.2 miles. There is no known invasive aquatic plant infestation.

Briley Pond

This water body is two acres in area with a perimeter of 0.2 miles. There is no known invasive aquatic plant infestation.

Little River

Little River is a 2.9-mile-long river that flows directly to the Atlantic Ocean near the south end of Long Sands Beach. Little River is listed as part of the Maine DEP's 2020 Nonpoint Source Priority Watersheds Lists on its "Threatened Streams Priority List" due to "highway access-related development threat."[33]

Moulton Brook

Moulton Brook is listed as part of the Maine DEP's 2020 Nonpoint Source Priority Watersheds Lists on its "Threatened Streams Priority List" due to "highway access-related development threat."[34]

Beaches

York is home to four major swimming beaches: Cape Neddick Beach, Short Sands Beach, Long Sands Beach, York Harbor Beach. The Town of York Parks and Recreation Department monitors the beach waters in accordance with the Maine Healthy Beaches Program to assess if the water is "swimmable" and beach advisories are posted if results exceed a contamination threshold. Precautionary rainfall advisories are posted online and at the beaches based on beach-specific rainfall thresholds.[35] Long Sands Beach is a particularly busy tourist attraction from mid-June to Labor Day and gets as many as 3,000 – 5,000 visitors daily.[36]

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[33] MDEP NPS Priority Watersheds List – STREAMS (December 2020) https://www.maine.gov/dep/land/watershed/nps_priority_list/NPS%20Priority%20List%20-%20Streams20.pdf

[34] Ibid.

[35] UNH, *Site-specific Precautionary Rainfall Advisory Framework for York, Maine Beaches*, April 2015 and coordination with Town of York Parks & Recreation Department.

[36] Town of York Parks & Recreation website, https://www.yorkparksandrec.org/attractions/beaches/

Public Water Supply

All of York's public water supply comes from surface water sources. Public water in York is supplied by three public water utilities: (1) York Water District, (2) Kennebunk-Kennebunkport-Wells Water District (KKWWD), and (3) Kittery Water District. YWD and KWD lands are shown in Fig 9. The KKWWD supplies a small part of northern York and does not own land in the town. The YWD is the predominate and largest water utility in town serving York Village, York Beach, York Harbor, Cape Neddick, and the U.S. Route 1 corridor. More information on the York Water District can be found in Appendix A9: Town, Public Facilities & Services Current Conditions and in Appendix F: York Water District Public Water System Report for the Town of York Comprehensive Plan Update.

Chases Pond has been the YWD's primary source of supply since 1896. The YWD has protected more than 1,840 acres of land in the watershed to maintain this valuable resource. The YWD now owns 90% of the Chases Pond Watershed and controls the entire shoreline of Chases Pond.[37] Along with land surrounding the KWD supplies, also located in the Town of York, over 5,000 acres of land is protected within town by these two utilities.[38]

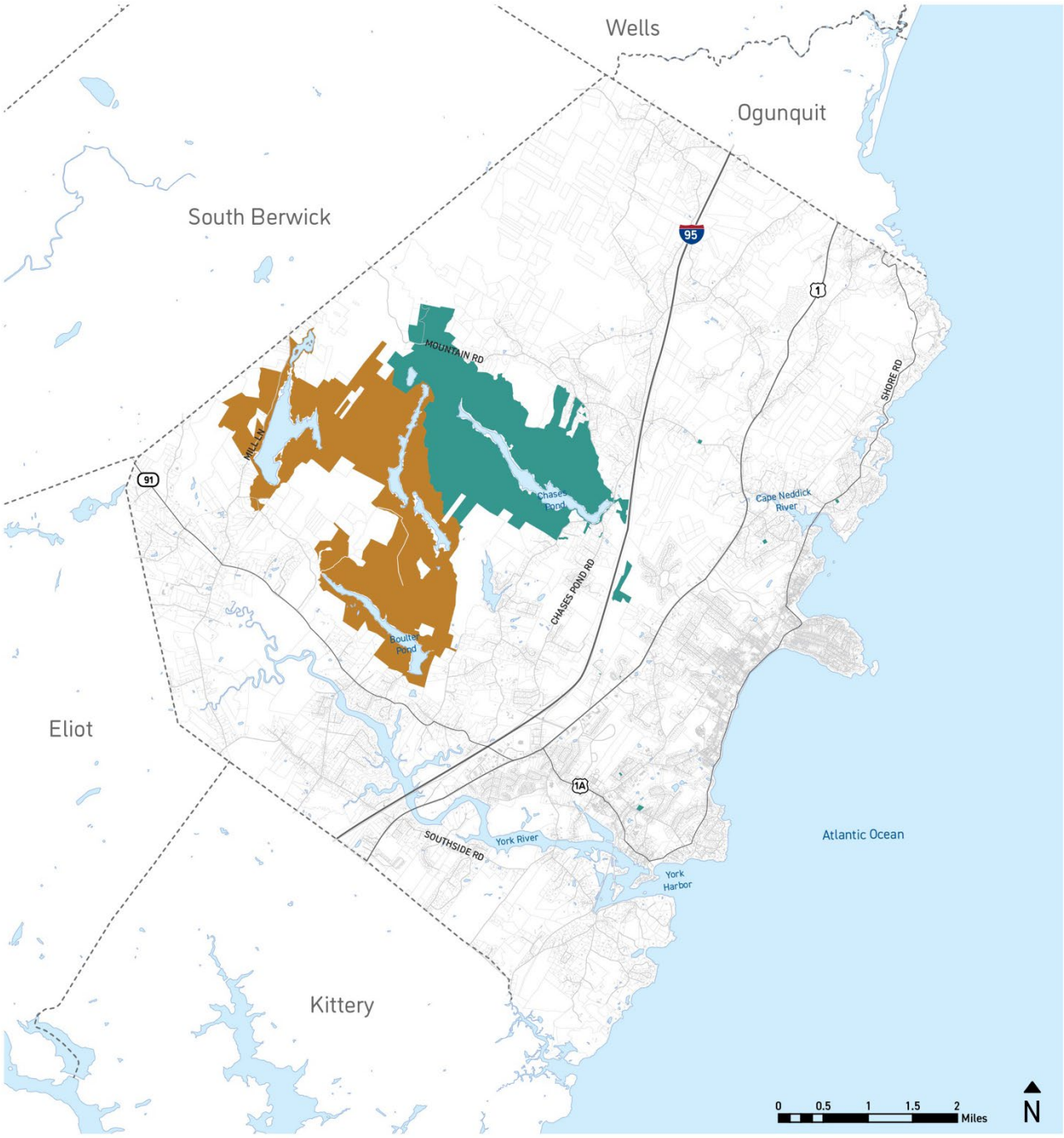
The YWD identifies accidents, spills, wildfires, and recreation as the most likely threats to Chases Pond. The Town and YWD work to protect surface water supplies in many ways, including signage and rules for limited recreational use, regular patrolling and public education, GIS mapping, a Watershed Protection Overlay District, and watershed septic requirements. More detailed information on these efforts is included later in this document.

Chases Pond Signage

[37] York Water District correspondence August 17, 2021.

[38] Kittery Water District Master Plan Update, 2020.

Figure 9. Map of York and Kittery Water District Lands



Data Sources: 2020 Town of York Assessor Database, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Kittery Water District (KWD)

York Water District (YWD)

Groundwater Resources

York does not depend on groundwater for municipal water district supplies, but many home owners get their water from individual fractured bedrock wells. Maine has one of the highest rates of well use in the country, and the Maine Geological Survey has a record of approximately 1,000 private wells in use in York.[39]

Sand and Gravel Aquifers

York has only one small "significant aquifer" zone in the area of Cider Hill. The Cider Hill sand and gravel aquifer has been designated by the Maine Geological Survey as a surficial deposit with moderate to good potential groundwater yields greater than 10 gallons per minute to a properly constructed well.[40]

Bedrock Aquifers

Much of York's groundwater resources consist of fractured bedrock aquifers. Fractured bedrock in Maine is recharged locally and the use of groundwater from drilled wells affects the water table only locally.[41] Groundwater quality in Maine, inclusive of York, is generally quite good.[42] There are natural threats such as radon and arsenic, but these can be managed with water treatment such as aeration. Pollution from nonpoint sources is a concern, and common threats include nitrogen from wastewater and fertilizer, volatile organics from petroleum products, and salt. There is no documentation that these pollutants are present at any significant level in York's groundwater.[43] [44] [45] Particularly in coastal areas, sea level rise increases the risk of saltwater intrusion into the groundwater that supplies drinking water to wells in York. The Town of York has a well-drilling ordinance that prohibits installation in certain districts where public water is available and lot sizes are significantly constrained.

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[39] Maine Geological Survey, Significant Sand and Gravel Aquifer Maps https://www.maine.gov/dacf/mgs/pubs/digital/well.htm

[40] Ibid.

[41] York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

42 Maine State Planning Office, Maine Department of Env. Protection, Oxford County Soil and Water Conservation District, Androscoggin Valley Council of Governments. "Technical Assistance Bulletins: Groundwater" (https://www.maine.gov/dacf/municipalplanning/docs/groundwatertabulletin.pdf)

43 Hewitt, Richard. "Maine groundwater threats examined," Bangor Daily News, January 30, 2011.

44 Maine Geological Survey. "Water Resources in Maine" (https://www.maine.gov/dacf/mgs/explore/water/facts/water.htm)

[45] Maine State Planning Office, Maine Department of Env. Protection, Oxford County Soil and Water Conservation District, Androscoggin Valley Council of Governments. "Technical Assistance Bulletins: Groundwater" (https://www.maine.gov/dacf/municipalplanning/docs/groundwatertabulletin.pdf)

There are no current state or local requirements for well inspections and well owners are responsible for maintaining their water quality.[46]

Wetlands, Vernal Pools, and Hydric Soils

Wetlands in York serve as valuable ecosystem habitats and can help to absorb water and mitigate flooding impacts (Fig. 10). Fifty-seven percent of York's wetlands have been found by the state to have "Values at a Significant Level" for flood flow function.[47] Vernal pools are wetlands with a seasonal cycle of flooding and drying. While fish are top predators in wetlands, they can't survive in pools that dry out. As a result, vernal pools provide key breeding habitat for amphibians that are especially vulnerable to fish predation.

Hydric soils are those that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic (lack of oxygen) conditions in the upper layers.[48] Hydric soils are usually sufficiently wet to support the growth and regeneration of wetland vegetation. These soils are one of the indicators of wetlands, along with vegetation and hydrology (Fig. 11).[49]

Sand Dunes

Dunes are inland areas of sand and gravel deposits associated with a coastal beach. Frontal dunes are closer to the ocean, and back dunes are tucked behind the frontal dunes. In York, the state has identified two coastal sand dune systems: along Long Sands Beach and along Short Sands Beach. Dunes are an important component of the natural environment along the coast, and they fulfill a multitude of functions. Most notably, they buffer inland areas from storms, provide important wildlife habitat, and enhance the scenic beauty of the coastline.[50]

For over a century, the dunes in York have been heavily developed in some places. In the face of future sea level rise, buffering functions will become more vital, and it is likely that much of the development on the frontal dunes will be subject to increasingly frequent and more severe damage during storm events.

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[46] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine." https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/GOPIF_STS_REPORT_092320.pdf

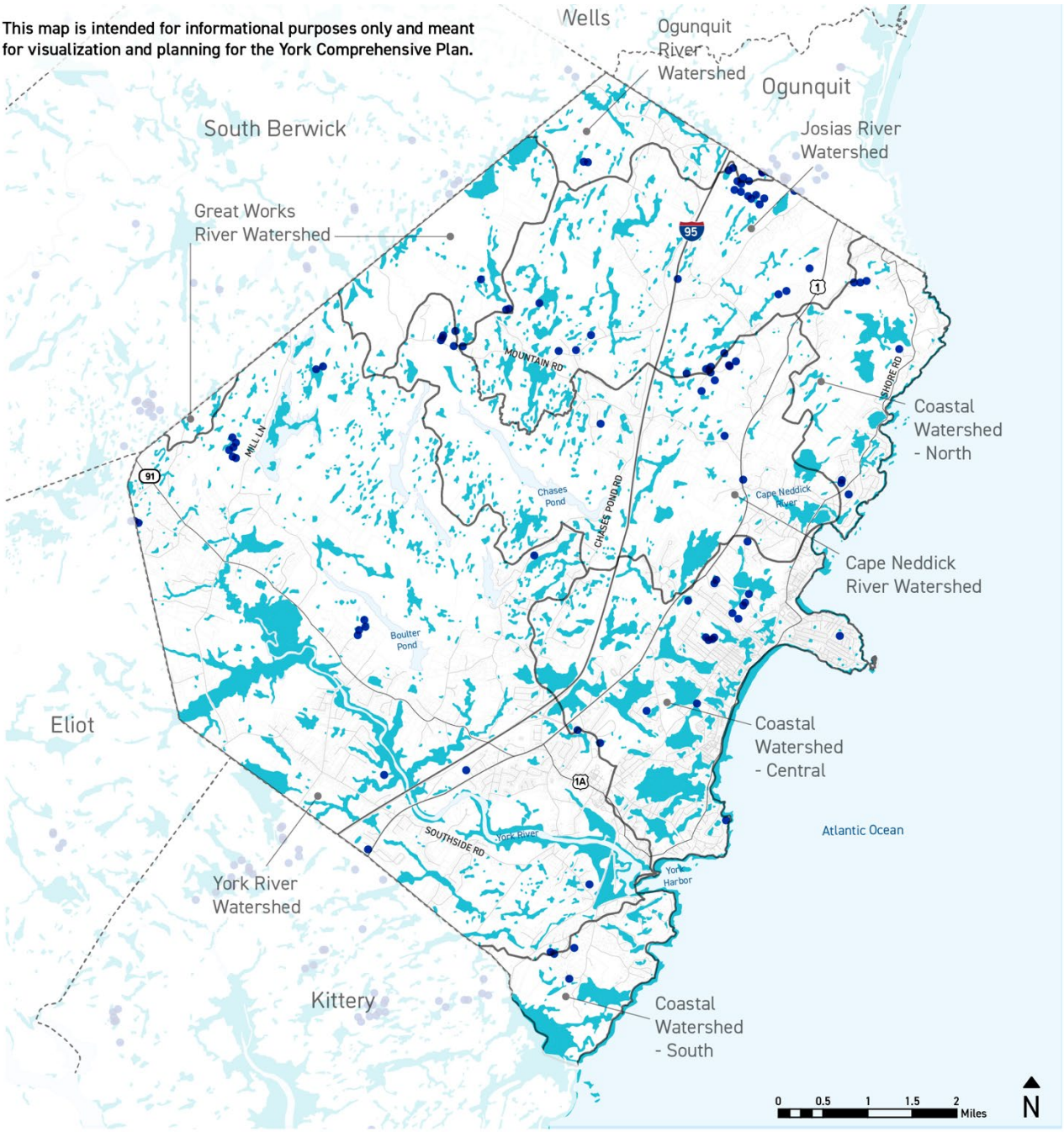
[47] State of Maine, Maine Wetlands Characterization, 2021.

[48] Encyclopedia of Soils in the Environment, 2005.

[49] York Comprehensive Plan Inventory and Analysis Natural Resources Chapter, adopted 2006 as amended through 2013.

[50] Ibid.

Figure 10. Wetlands and Vernal Pools



Data Sources: 2021 National Wetlands Inventory and State of Maine Characterized Wetlands, Town of York OpenData, 2021 Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

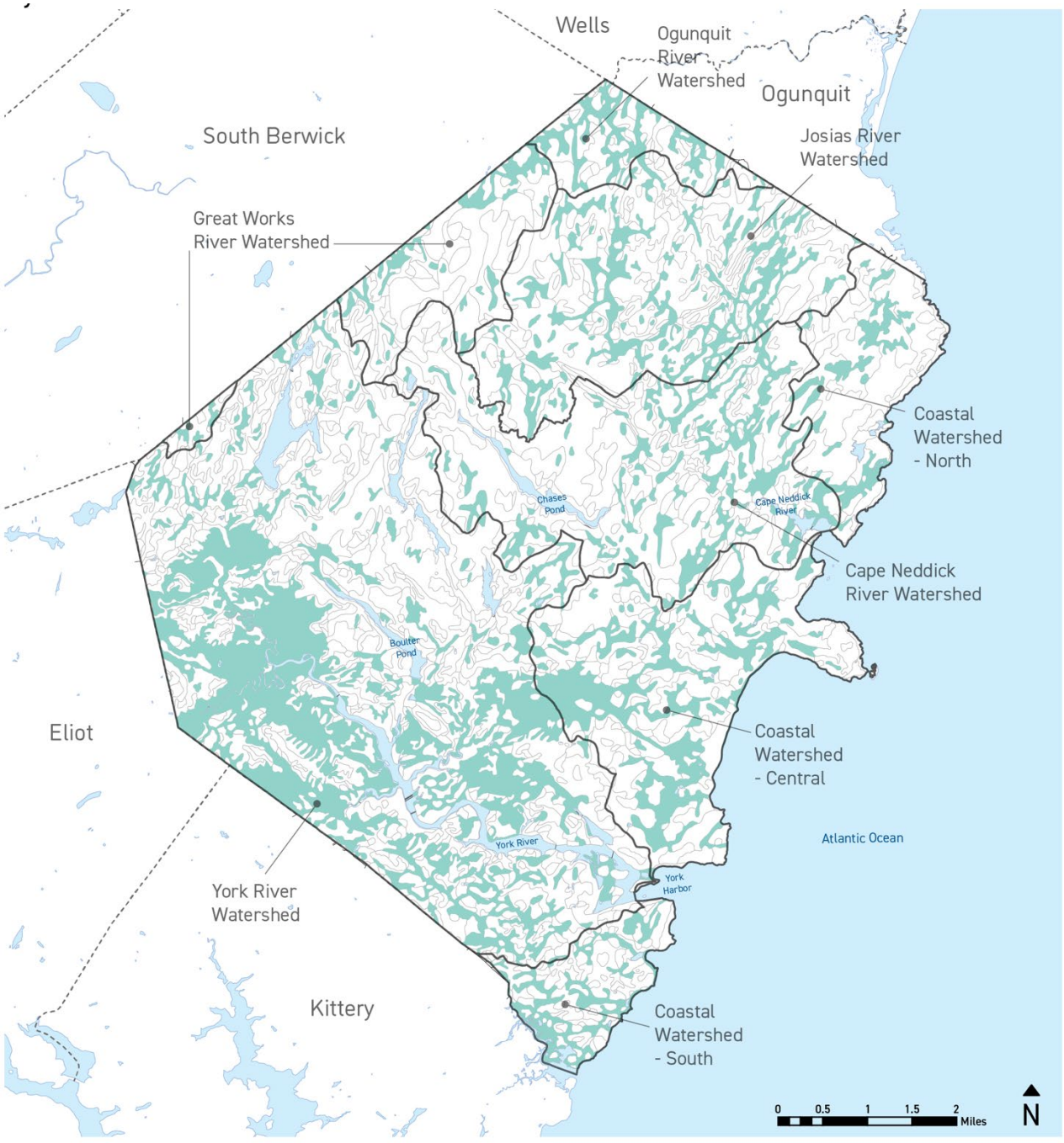
Wetlands

Vernal Pools

Major Watershed Boundaries

Note: The vernal pools dataset includes the center points of all vernal pools submitted for status review as of 2021: significant and non-significant vernal pools (regulatory and non-regulatory respectively). These vernal pools were mapped and surveyed in the field by wetland consultants, Maine Department of Environmental Protection staff, and Maine Department of Inland Fisheries and Wildlife biologists.

Figure 11. Hydric Soils



Data Sources: 2004 Comprehensive Plan, Natural Resources Conservation Service, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Hydric Soils

Not Hydric Soils

Major Watershed Boundaries

Water Quality

Water quality contamination poses a threat to the health of York's species and habitats, the health of its residents, its fishing and other water-dependent industries, its recreational activities, and its appeal as a tourist destination. Direct discharges from point sources of pollution (pollution which comes from a single identifiable source) have been greatly reduced over the past few decades as a result of the Clean Water Act and other federal statutes. The York Sewer District (YSD)'s Wastewater Treatment Plant outfall is located near the mouth of the Cape Neddick River and drains to the Atlantic Ocean. However, previous planning efforts and testing results have not implicated the YSD treatment plant outfall as a significant contributor to bacteria concentrations in the Cape Neddick River.[51]

Unlike point source pollution, non-point pollution comes from many diffuse sources; it is often caused by rainfall or snowmelt moving over and through the ground and picking up natural and human-made pollutants as it goes, finally depositing them into lakes, rivers, streams, wetlands, coastal waters, and ground waters.[52] Run-off from non-point sources, such as impervious surfaces and residential lawns, poses particular concerns to York's water quality. Testing at the beaches continues to result in occasional closures due to high concentrations of fecal indicator bacteria, and the Cape Neddick River watershed continues to be listed as a "Non-point Source Priority Impaired Marine Watershed."[53] The entire Cape Neddick River watershed is reliant on septic systems, and poor soils exacerbate the threat of contamination in this area.[54]

Ongoing efforts to learn more about specific sources of water pollution in York have identified the following primary challenges:

- Groundwater pollution from development on poor soils without public sewer collection and treatment;
- Non-point source water pollution from road maintenance and new development with inadequate erosion/sedimentation control, as well as polluted runoff from the use of herbicides, pesticides, and fertilizers;
- Reduction in surface water quality from increasing the impervious surface coverage in each watershed;
- Pet waste in many areas where pets are permitted near water sources; and

[51] Frick et al., *Cape Neddick River Watershed-Based Management Plan*, 2013.
[52] U.S. Environmental Protection Agency (EPA).
[53] MDEP NPS Priority Watersheds List – MARINE WATERS (December 2020) https://www.maine.gov/dep/land/watershed/nps_priority_list/NPS%20Priority%20List%20-%20Marine20.pdf
[54] Town of York Code Enforcement Office Interview, December 20, 2021.

- Wildlife, especially geese.[55]

Recent efforts to mitigate these pollution sources have included the Lawns to Lobsters public education program focused around environmentally sound lawn care practices, public education around pet waste, installation of geese deterrents and vegetated buffers, distribution of postcards to residents about septic system best practices, targeted bacteria tracking, and watershed-based planning efforts.[56] York is taking proactive efforts to reduce stormwater runoff through compliance with the Small Municipal Separate Sewer System General Permit (Small MS4 GP). In addition, the Town has worked with the Cape Neddick River Association to monitor and correct bacteria water quality impairments of the Cape Neddick River and to implement the Cape Neddick River Watershed Management Plan.

The challenges of non-point source pollution are exacerbated by development, which increases potential sources of pollutants from roadways and other uses while also increasing impervious surfaces. Pollution challenges can also be worsened by potential loss of forests, vegetated buffers, and other natural habitats that protect York's bodies of water by filtering out pollutants and reducing the volume of stormwater.

State Classification

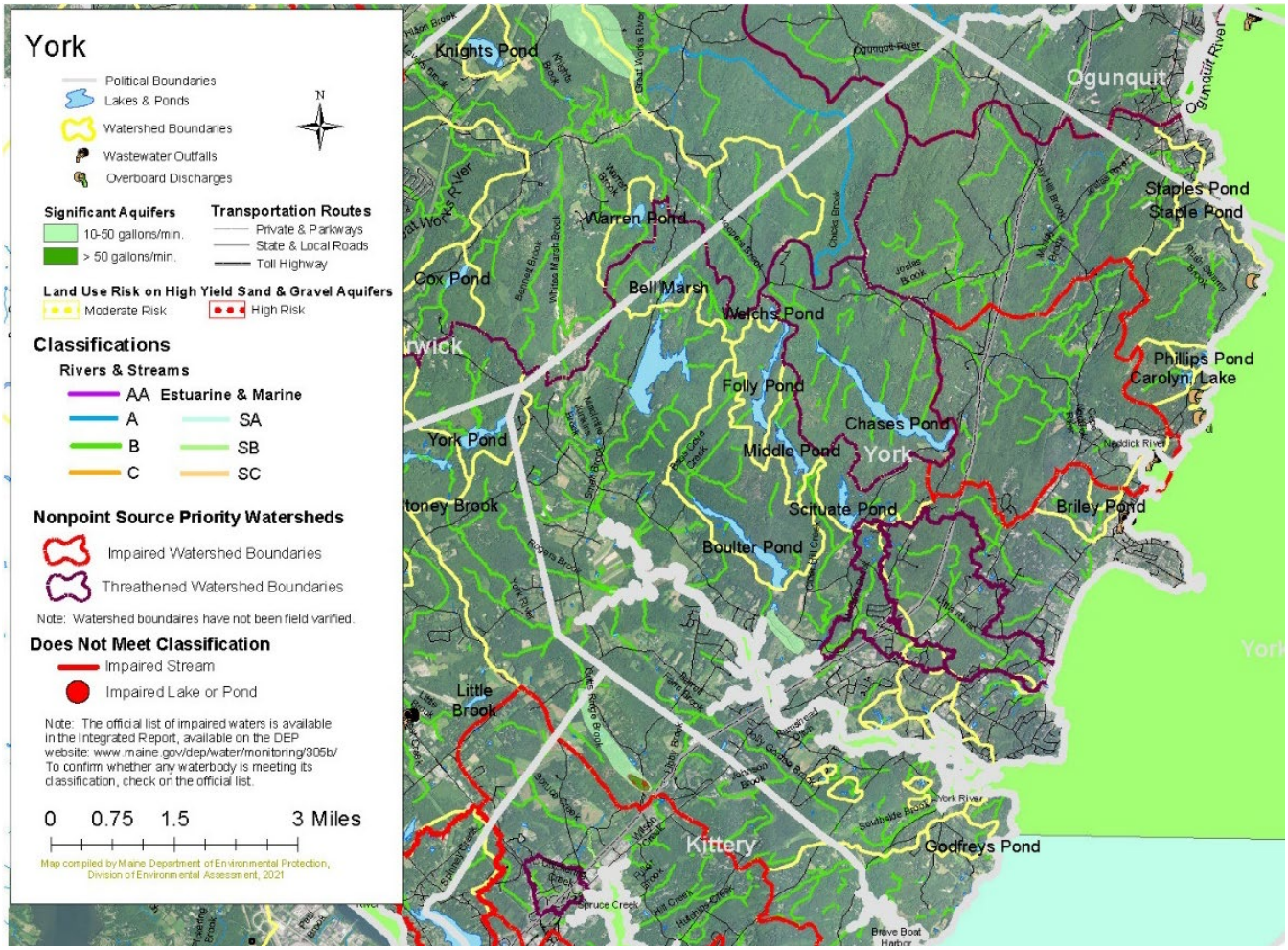
Maine's water quality classification system allows the state to manage its surface waters based on water quality standards. The system designates uses, such as drinking water supply, fish habitat, and recreation, and specifies minimum levels of quality necessary to support such uses. The classifications range from AA to D for fresh surface waters, with AA being the highest water quality conditions. Estuarine and marine waters are classified from SA (highest classification) to SC, and all lakes and ponds are classified GPA.

All of York's rivers and streams have been designated class B, except Chicks Brook, which is designated class A. All marine and estuarine waters are designated class SB. Classes B and SB have fewer restrictions on activities but still maintain high water quality criteria (Fig. 12).

[55] York River Study Committee, York River Watershed Stewardship Plan, 2018; FB Environmental Associates, Cape Neddick River Watershed Based Management Plan, 2014; Town of York Comprehensive Plan Stormwater Chapter, 2015.

[56] Town of York Code Enforcement Office Interview, December 20, 2021.

Figure 12. York Watersheds and Surface Water Quality (2021)



Source: Maine Department of Environmental Protection, Classification of Maine Waters, Map prepared by Maine Department of Environmental Protection, Division of Environmental Assessment, 2021 and provided in the State Comprehensive Planning Dataset.

Maine DEP Integrated Reports

The Integrated Water Quality Monitoring and Assessment Report (Integrated Report) summarizes water quality data collected by Maine DEP as well as numerous other state, federal and tribal government agencies, volunteer water monitoring organizations, and other sources. Required by Section 305(b) of the Clean Water Act, states must submit an Integrated Report to the EPA every even-numbered year. Water bodies are assigned categories based upon whether or not designated uses and the narrative and numeric criteria established to assess those uses are being met (Table 3).

Table 3. Integrated Report Water Quality – Assessment Categories

Water Quality – Assessment Categories	
Category 1	Attaining all designated uses and water quality standards, and no use is threatened.
Category 2	Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).
Category 3	Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired)
Category 4	Impaired or threatened for one or more designated uses but does not require development of a TMDL (Total Maximum Daily Load) report.
Category 5	Waters impaired or threatened for one or more designated uses by a pollutant(s), and a TMDL report is required.

Source: York River Study Committee, York River Watershed Stewardship Plan, 2018.

At the time of this plan writing, the 2018/2020/2022 DRAFT Integrated Water Quality Monitoring and Assessment Report had been posted online for public comment. Consistent with the 2016 assessment, the 2022 Report includes Smelt Brook listed as a Category 2 water body (Rivers and Streams Attaining Some Designated Uses – Insufficient Information for Other Uses) with a comment reflecting updated mapping and a revised length.[57] [58] No water bodies in York are listed in this report as not attaining sufficient quality to meet state classification standards.

In the 2022 Report, coastal designated beaches are listed for the first time using data from the Maine Healthy Beaches (MHB) Program (Table 4). In partnership with the MHB program, the Town of York performs weekly summer testing at York's beaches to monitor for Enterococci bacteria, which indicate the presence of fecal contamination in water bodies. Bacteria levels exceeding Maine's EPA-approved safety threshold, or Beach Action Value (BAV), are used to trigger recommended beach water quality notifications ('contamination advisories'). Precautionary rainfall advisories are posted if a beach receives more than 1.5 inches of rainfall in the past 48 hours, or, at the Cape Neddick Beach, more than one inch in the past 24 hours.[59]

In York, Cape Neddick Beach was listed as a New Category 3 listing for Recreation in the water use category based on 2016-2020 Enterococci bacteria monitoring data, a category which indicates Insufficient Data or Information to Determine if Designated Uses are Attained

[57] 2018/2020/2022 Integrated Water Quality Monitoring and Assessment Report Appendices, January 19, 2022 https://www.maine.gov/dep/water/monitoring/305b/2022/2018-22_ME_IntegratedRpt-LIST-DRAFT.pdf

[58] 2016 Integrated Water Quality Monitoring and Assessment Report Appendices, February 28, 2018 https://www.maine.gov/dep/water/monitoring/305b/2016/28-Feb-2018_2016-ME-IntegratedRptLIST.pdf

[59] UNH, *Site-specific Precautionary Rainfall Advisory Framework for York, Maine Beaches*, April 2015 and coordination with Town of York Parks & Recreation Department.

(One or More Uses may be Impaired). Monitoring stations at Long Sands Beach North, Long Sands Beach South, Short Sands Beach, and York Harbor Beach are listed as Category 2 (Coastal Designated Beaches Attaining Some Designated Uses – Insufficient Information for Other Uses). Table 5 shows the percent exceedances of Maine's BAV for a given monitoring year, or the percent of water quality samples that trigger a contamination advisory recommendation. The Town of York Parks and Recreation Department monitors the beach waters in accordance with the Maine Healthy Beaches Program to assess if the water is "swimmable." Beach postings are made if water quality is unacceptable.

Table 4. New Coastal Designated Beaches Listings (2018/2020/2022 Integrated Report)

AU Name	Cause	Category	Comments
Cape Neddick Beach (York)	Enterococci	3	New Category 3 listing for Recreation in the water Use based on 2016-2020 Enterococci bacteria monitoring data.
Short Sands Beach	Enterococci	2	
York Harbor Beach (York)	Enterococci	2	
Long Sands Beach – North	Enterococci	2	
Long Sands Beach – South	Enterococci	2	

Source: https://www.maine.gov/dep/water/monitoring/305b/2022/2018-22_ME_IntegratedRpt-REPORT-DRAFT.pdf

Table 5. Percent exceedances of Maine's BAV for 2013-2020 monitoring seasons (Maine's enterococci BAV is 104 MPN/100 mL)[60]

Beach Name	% Exceedances							
	2013	2014	2015	2016	2017	2018	2019	2020
Cape Neddick Beach	26.3	13.3	17.6	18.8	7.1	13.3	18.8	30.8
Long Sands Beach North	10.8	15.5	17.0	2.2	2.3	6.5	2.3	9.3
Long Sands Beach South	3.8	0	2.4	0	0	2.7	5.3	0
Short Sands Beach	30	6.7	6.7	0	0	0	13.3	0
York Harbor Beach	6.3	13.3	6.7	12.5	7.7	7.1	7.1	0

Source: https://www.maine.gov/dep/water/monitoring/305b/2022/2018-22_ME_IntegratedRpt-REPORT-DRAFT.pdf

Department of Marine Resources Testing

The Maine Department of Marine Resources (DMR) Growing Area Classification Program classifies state waters as Approved, Conditionally Approved, Restricted, Conditionally Restricted, or Prohibited. The classifications are based on two factors: the results of a shoreline survey which looks for the presence of pollution sources, and fecal coliform test results. The DMR monitors bacteria levels at seven stations in the York River six times per

[60] Enterocci bacteria are present in the intestinal tracks of warm-blooded animals and are used to indicate the presence of fecal contamination in waterbodies (2013 Bacteria Source Tracking and Canine Detection Report, prepared for Town of York by FB Environmental Associates).

year to help inform decisions about classifying shellfish growing areas.[61] The Cape Neddick River and surrounding area is listed as impaired for shellfishing because of its proximity to the York Sewer District's Wastewater Treatment Plant outfall pipe.[62]

To be eligible for shellfish harvesting without needing depuration, sampling sites must have a P90 score below 31.[63] In 2020, all but one of the sampling stations located in the York River had P90 scores below the approved standard of 31. The sampling location with a P90 Score of 45 is the DMR's most upriver station on the York River, near the U.S. Route 1 bridge (Table 6).

Table 6. Bacteria Monitoring Results in the York River (2020)

2020 DMR Bacteria Monitoring Results			
Station	*Classification*	*Geometric Mean*	*P90 Score*
WB020.00	P	7.9	45
WB021.00	R	4.4	14.1
WB023.00	CA	2.4	4.4
WB026.00	CA	5.4	24.5
WB026.50	CA	2	2.7
WB027.00	CA	2.2	4
WB029.00	P	2.9	7.7

Water quality around closed clam flats has been improving and, according to the state, all overboard discharges have been identified and removed. There are still areas west of Sewall's Bridge that are closed to digging based on testing and water samples. The area from Sewall's Bridge to the U.S. Route 1 bridge was upgraded in 2019 from Prohibited to Restricted, which is an improvement but does not yet allow for recreational digging. A large section of Brave Boat Harbor, (from approximately Route 103 to the eastern trolley tracks), that has historically been classified as "Prohibited" by DMR, was reclassified as "Approved" in October 2021. While improvements to water quality are beneficial to the shellfish, better water quality also increases the presence of predators such as green crabs and worms.[64] Shellfish harvesting areas, including DMR growing area maps, are discussed in greater detail in Appendix A4: Marine Resources Current Conditions.

Nonpoint Source (NPS) Priority Watersheds Lists

Included as part of the Maine NPS Management Plan, the purpose of the Nonpoint Source Priority Watershed Lists is to encourage NPS abatement work in watersheds most vulnerable

[61] Maine Department of Marine Resources, Maine Shellfish Growing Area Classification Program, https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/

[62] Ibid.

[63] York River Study Committee, *York River Watershed Stewardship Plan*, 2018.

[64] Correspondence with York Harbor Board and Shellfish Commission, July 13, 2021.

to NPS pollution and to help prioritize DEP NPS water pollution control efforts.[65] In December 2020, Maine DEP issued updated Nonpoint Source Priority Watersheds Lists identifying 71 impaired streams, 21 impaired lakes, and 36 impaired marine waters in the state, as well as 77 threatened streams, 170 threatened lakes, and 2 threatened marine waters. The term 'threatened' in these lists refers to unimpaired waters that are subject to potential impacts from nonpoint source pollution.[66]

In York, there were no impaired streams or lakes on the 2020 lists. However, the Cape Neddick River was listed on the "Impaired Marine Waters Priority List" due to its association with a Maine Municipal Separate Storm Sewer Program (MS4) priority watershed.[67] In addition, Little River, and Moulton Brook were included on the "Threatened Streams Priority List" due to potential development threats associated with highway access.[68] Chases Pond is included on the "Threatened Lakes Priority List" because it is a public water system with a lake or pond as the surface water source.[69]

Lakes Most at Risk from New Development

Another DEP priority list is the result of rules enacted under the Stormwater Management Law (DEP Rules Chapter 500 and 502), which focuses on impacts from new development. Under this law, new developments in these watersheds are required to install additional pollution control measures. Chapter 502 of DEP's rules include lists of "urban impaired streams," and "lakes most at risk from new development." There are no "urban impaired streams" identified in the Town of York. However, Boulter, Chases and Scituate Ponds are listed as "Lakes Most at Risk from New Development" under Chapter 502.[70]

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[65] Maine DEP Nonpoint Source Priority Watersheds List
https://www.maine.gov/dep/land/watershed/nps_priority_list/index.html
[66] Maine DEP Nonpoint Source Priority Watersheds List
https://www.maine.gov/dep/land/watershed/nps_priority_list/index.html
[67] MDEP NPS Priority Watersheds List – MARINE WATERS (December 2020)
https://www.maine.gov/dep/land/watershed/nps_priority_list/NPS%20Priority%20List%20-%20Marine20.pdf
[68] MDEP NPS Priority Watersheds List – STREAMS (December 2020)
https://www.maine.gov/dep/land/watershed/nps_priority_list/NPS%20Priority%20List%20-%20Streams20.pdf
[69] MDEP NPS Priority Watersheds List – LAKES (December 2020)
https://www.maine.gov/dep/land/watershed/nps_priority_list/NPS%20Priority%20List%20-%20Lakes20.pdf
[70] Maine Department of Environmental Protection, 06-096 Chapter 502, Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams.

Table 7. Summary of York Water Bodies on State Priority and Classification Lists

Water Body	State Designation	Reason
Cape Neddick River and surrounding area	Nonpoint source (NPS) Priority Watersheds Lists - Impaired Marine Waters Priority List Shellfish Growing Area WC – Prohibited (Maine DMR)	Maine Municipal Separate Storm Sewer Program (MS4) priority watershed Buffer around York Sewer District's Wastewater Treatment Plant outfall pipe
Cape Neddick Beach	New Category 3 listing for Recreation in the water	Based on 2016-2020 Enterococci bacteria monitoring data
Chases Pond	Nonpoint source (NPS) Priority Watersheds Lists – Threatened Lakes Priority List Chapter 502 – Lakes Most at Risk from New Development	Public water system with a lake or pond as the surface water source
Boulter Pond	Chapter 502 – Lakes Most at Risk from New Development	
Scituate Pond	Chapter 502 - Lakes Most at Risk from New Development (DEP)	
Little River	Nonpoint source (NPS) Priority Watersheds Lists - Threatened Streams Priority List (2020)	Highway access-related development threat
Moulton Brook	Nonpoint source (NPS) Priority Watersheds Lists - Threatened Streams Priority List (2020)	Highway access-related development threat
Upper York River – North of U.S. Route 1 Bridge	Shellfish Growing Area WB - Prohibited (Maine DMR)	
York River – North and West of Sewalls Bridge and South and East of Route 1 Bridge	Shellfish Growing Area WB – Restricted (Maine DMR) (The section of river from U.S. Route 1 to Sewall's Bridge was updated from Prohibited to restricted in 2019, in response to improving water quality).[71]	
Lower York River – East of Sewall's Bridge to most western point of Stage Neck	Shellfish Growing Area WB - Conditionally Approved (seasonal) (Maine DMR)	
Brave Boat Harbor	Shellfish Growing Area WB – Approved (All flats on the York side of Brave Boat Harbor from approximately Route 103 to the mouth of Brave Boat Harbor (a large section was recently reclassified as approved in October 2021) (Maine DMR).	

Source: Maine DEP, Maine DMR

[71] GEI Consultants, *York Harbor & River Capacity Study*, 2019.

Wildlife Habitats

Located on the coast, at a point where the northern and southern forest ecosystems meet, with continued presence of large tracts of undeveloped, unfragmented land, York and the greater Mt. A conservation region support the largest assemblage of species at or near the northern limit of their range within the state and contribute greatly to Maine's biodiversity.[72]

Beginning with Habitat

Beginning with Habitat (BwH) is a program within Maine's Department of Inland Fisheries and Wildlife that helps to collect and consolidate habitat information produced by separate federal, state, and local agencies and other organizations. The goal of the program is to maintain sufficient habitat to support all native plant and animal species currently breeding in Maine. There are three BwH Focus Areas of Statewide Ecological Significance containing unusually high concentrations of at-risk species and habitat located in York (Table 8 and Fig. 13). These areas, identified by biologists from the Maine Natural Areas Program (MNAP), Maine Department of Inland Fisheries and Wildlife (MDIFW), Maine Department of Marine Resources (DMR), U.S. Fish and Wildlife Service (USFWS), The Nature Conservancy (TNC), Maine Audubon, and Maine Coast Heritage Trust (MCHT), support rare plants, animals, and natural communities; high quality common natural communities; significant wildlife habitats; and their intersections with large blocks of undeveloped habitat.[73]

[72]Southern Maine Regional Planning Commission, Mt. Agamenticus Public Access and Trail Plan, 2012.

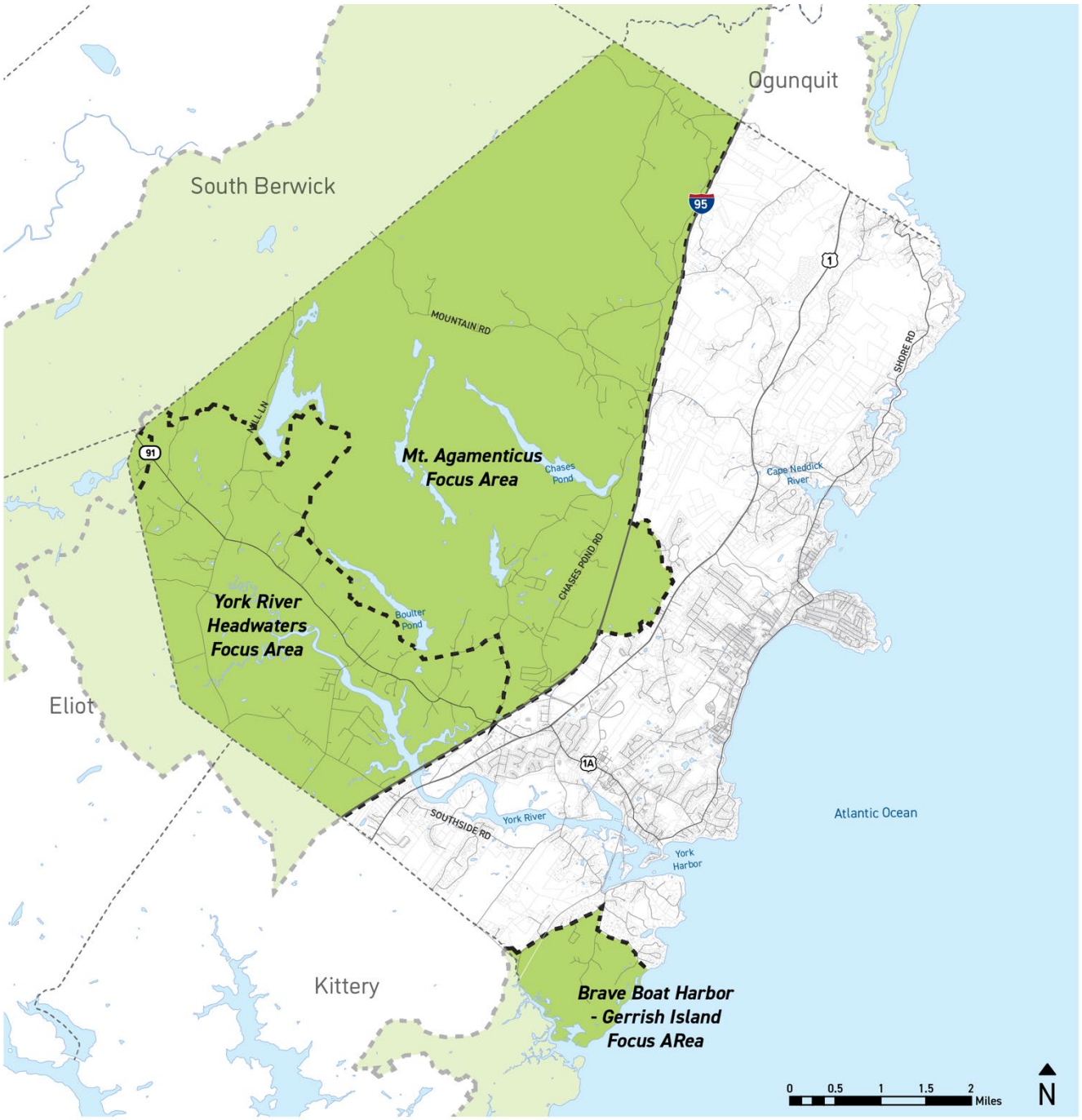
[73] Beginning with Habitat

Table 8. Beginning with Habitat Focus Areas of Statewide Ecological Significance in York

BwH Focus Area	Why is this Area Significant?
Brave Boat Harbor – Gerrish Island	Includes a rich association of natural community types, including upland forests, dune grasslands, spartina saltmarshes, oak forests, freshwater swamps, pocket swamps, vernal pools, and coastal features that provide the habitat needed to support most of the native plants and animals we would expect to find along the south coast of Maine.
Mt. Agamenticus Focus Area	Comprises and is one of the largest remaining expanses of undeveloped forests in coastal New England. The uplands and wetlands around Mt. Agamenticus are inhabited by 12 animal species and 21 plant species that are considered rare in Maine. Many of these rare species are at the northern limit of their distribution range and are more abundant south of the Maine border. Similarly, some natural communities that occur in the Focus Area are restricted primarily to southern New England. The forest that extends northward from Mt. Agamenticus features Maine's only chestnut-oak woodland.
York River Headwaters Focus Area	Encompasses the 1000 acres of uplands and wetlands that comprise the headwaters of the York River. It is notable for the Tidal Marsh Estuary Ecosystem that includes the intertidal bays and one of the largest unprotected spartina saltmarshes, a rare community type, in the state. The extensive York River Estuary is one of the Gulf of Maine's least disturbed marsh-estuarine ecosystems and may be the most ecologically diverse coastal drainage for its size in the Gulf of Maine. Rare plants and animals and extensive areas of high value habitat are found throughout the focus area as well. This diverse system of large, undeveloped, high quality natural habitats is a high priority for additional conservation action because of the rapid pace of development in its immediate vicinity.

Source: Beginning with Habitat Focus Areas documentation provided as part of the 2021 Comprehensive Planning Dataset from the state.

Figure 13. Beginning with Habitat Focus Areas Map



Data Sources: 2021 Beginning with Habitat (BwH) Data, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Focus Area

Significant Wildlife Habitats[74]

Maine's Natural Resources Protection Act (MNRPA) is administered through the Maine DEP and is intended to prevent further degradation of the loss of natural resources in the state. The Maine DEP has regulatory authority over most Significant Wildlife Habitat types. Beginning with Habitat data identifies the following significant wildlife habitats in York: Candidate Deer Wintering Areas; Inland Waterfowl and Wading Bird Habitats; Wildlife Wetlands; Shorebird Areas; Tidal Wading Bird and Waterfowl Habitats; and Significant Vernal Pools (Table 9).

Table 9. Significant Wildlife Habitats in York

Candidate Deer Wintering Area	Forested area possibly used by deer for shelter during periods of deep snow and cold temperatures. Assessing the current value of a deer wintering area requires on -site investigation and verification by IF&W staff. Locations depicted should be considered as approximate only.
Inland Waterfowl and Wading Bird Habitat (IWWH) with 250' Buffer	Freshwater breeding, migration, feeding, and wintering waterfowl or wading bird habitats that qualify as Significant Wildlife Habitat under Maine's Natural Resources Protection Act.
Wildlife Wetlands	Other wetlands valuable for wildlife that are not regulated as IWWH.
Shorebird Areas	Coastal staging areas that provide feeding habitat like tidal mud flats or roosting habitat like gravel bars or sand spits for migrating shorebirds.
Tidal Wading Bird and Waterfowl Habitats (TWWH)	Breeding, migrating/staging, or wintering areas for coastal waterfowl or breeding, feeding, loafing, migrating, or roosting areas for coastal wading birds. Tidal Waterfowl/Wading Bird habitats include aquatic beds, eelgrass, emergent wetlands, mudflats, sea weed communities, and reefs.
Significant Vernal Pools	A pool depression used for breeding by amphibians and other indicator species and that portion of the critical terrestrial habitat within 250 ft of the spring or fall high water mark. A vernal pool must have the following characteristics: natural origin, non-permanent hydroperiod, lack permanently flowing inlet or outlet, and lack predatory fish. Depending on the time of year when surveyed, vernal pools can often be overlooked and need to be surveyed in spring.

Source: Beginning with Habitat Primary Map 2 High Value Plant and Animal Habitats, York (April 2021) and BwH Map Viewer, accessed August 2021.

Endangered and threatened inland fish and wildlife species in Maine are listed either under Maine's Endangered Species Act (MESA), the U.S. Endangered Species Act (ESA), or both. Species listed under MESA receive state protection; species listed under ESA receive federal protection; and species listed under both receive state and federal protection. In Maine, there are currently 26 inland fish and wildlife species listed as Endangered and 25 listed as Threatened under MESA, some of which are also listed under ESA (Table 10).

[74] As defined in the Natural Resources Protection Act 38 M.R.S.A. §480-B(10).

A species of special concern is any species of fish or wildlife that does not meet the criteria of an endangered or threatened species but is particularly vulnerable, and could easily become an endangered, threatened, or extirpated species due to restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors.[75]

Table 10. Endangered, Threatened, or Species of Special Concern in York (2021)

Common Name	Scientific Name	State Protection Status
Black Saddlebags	*Tramea lacerata*	Species of Special Concern
Citrine Forktail	*Ischnura hastata*	Species of Special Concern
Eastern Ribbon Snake	*Thamnophis sauritus*	Species of Special Concern
Great Blue Heron	*Ardea Herodias*	Species of Special Concern
Harlequin Duck	*Histrionicus histrionicus*	Threatened Species
Needham's Skimmer	*Libellula needhami*	Species of Special Concern
New England Cottontail	*Sylvilagus transitionalis*	Endangered Species
Northern Black Racer	*Coluber constrictor constrictor*	Endangered Species
Northern Spring Salamander	*Gyrinophilus p. porphyriticus*	Species of Special Concern
Rare Animal	*Name withheld*	Endangered Species
Rare Animal	*Name withheld*	Species of Special Concern
Rare Animal	*Name withheld*	Threatened Species
Rare Animal	*Name withheld*	Endangered Species
Saltmarsh Sparrow	*Ammodramus caudacutus*	Species of Special Concern
Eastern Ribbon Snake	*Thamnophis sauritus*	Species of Special Concern
Salt Marsh Tiger Beetle	*Cicindela marginata*	Species of Special Concern
Saltmarsh Sparrow	*Ammodramus caudacutus*	Species of Special Concern
Scarlet Bluet	*Enallagma pictum*	Species of Special Concern
Spicebush Swallowtail	*Papilio troilus*	Species of Special Concern

Source: Beginning with Habitat Animal-Plant-Habitat Table provided as part of the 2021 Comprehensive Planning Dataset from the state.

In addition, the Maine Natural Areas Program (MNAP) has classified 104 different natural community types that collectively cover the state's landscape. In York, there are eight natural communities that have been identified by MNAP as Critically Imperiled (S1), Imperiled (S2), or Rare (S3) (Table 11).[76]

[75] Maine Department of Inland Fisheries and Wildlife - Species of Special Concern https://www.maine.gov/ifw/fish-wildlife/wildlife/endangered-threatened-species/special-concern.html

[76] Maine Natural Areas Program – Natural Communities and Ecosystems, https://www.maine.gov/dacf/mnap/features/community.htm

Table 11. Critically Imperiled (S1), Imperiled (S2), and rare (S3) Natural Communities in York

Name	State Ranking
Atlantic White Cedar Swamp	S2 - imperiled
Chestnut Oak Woodland	S1 – critically imperiled
Coastal Dune-marsh Ecosystem	S3 - rare
Oak - Hickory Forest	S1 – critically imperiled
Pocket Swamp	S2 - imperiled
Salt-hay Saltmarsh	S3 - rare
Tidal Marsh Estuary Ecosystem	S3 - rare
White Oak - Red Oak Forest	S3 - rare

Source: Beginning with Habitat Animal-Plant-Habitat Table provided as part of the 2021 Comprehensive Planning Dataset from the state.

MNAP also tracks a list of native vascular plant species in Maine whose populations within the state are highly vulnerable to loss, including species determined to be Endangered, Threatened, or Species of Special Concern. Species on the list are typically known from a very small number of sites within the state, and many require unique habitat for survival (Table 12).[77]

Left: New England Cottontail (Sylvilagus transitionalis), Right: Great Blue Heron (Ardea Herodias)
Source: U.S. Fish and Wildlife Service Northeast Region, Public domain, via Wikimedia Commons.

[77] Maine Natural Areas Program – Rare Plants, https://www.maine.gov/dacf/mnap/features/rare_plants/index.htm

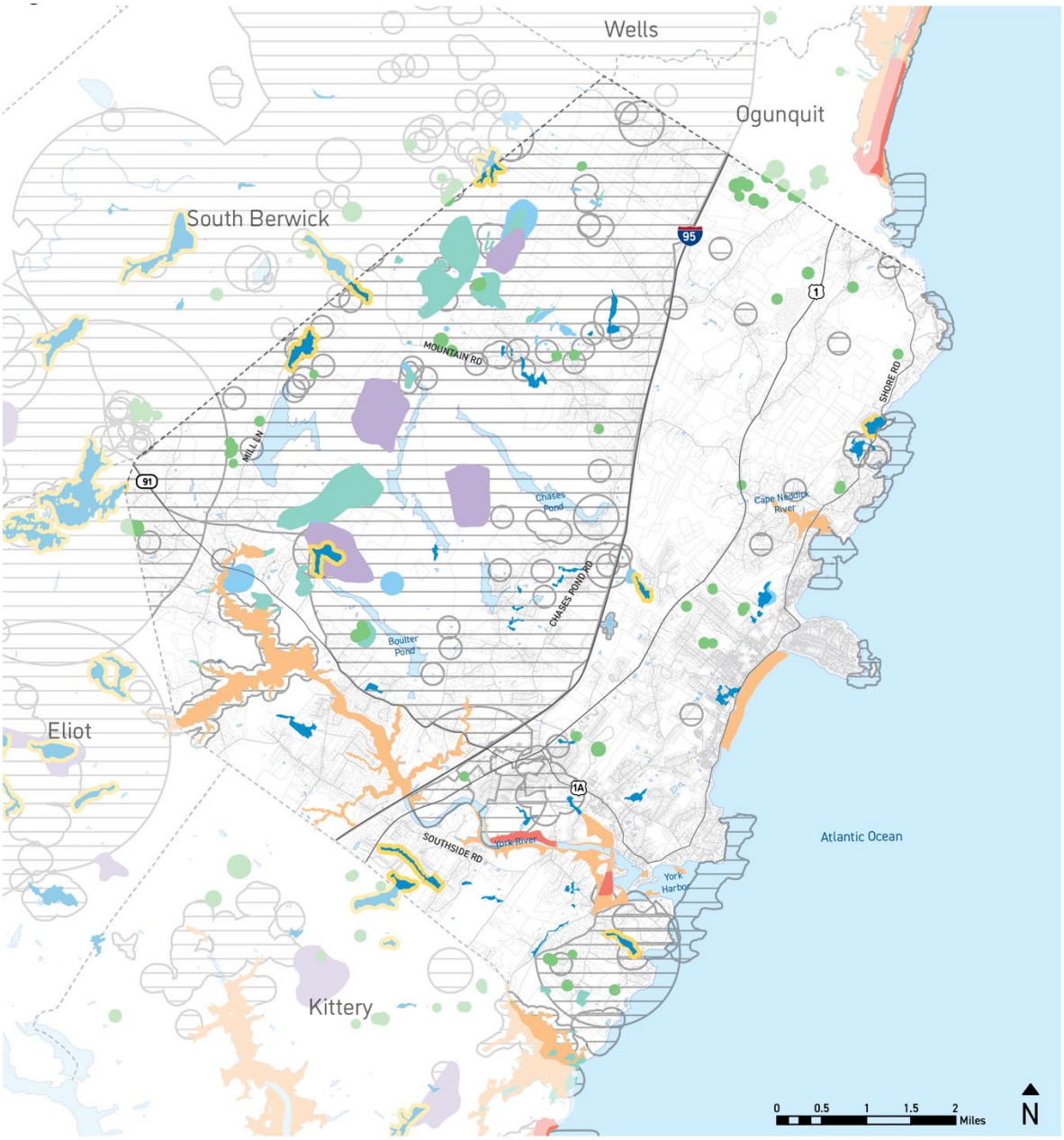
Table 12. Plant Species in York Categorized by the State as Threatened, Endangered, or a Species of Special Concern

Common Name	Scientific Name	State Protection Status
American Sea-blite	*Suaeda calceoliformis*	Threatened Species
Atlantic White Cedar	*Chamaecyparis thyoides*	Species of Special Concern
Broad Beech Fern	*Phegopteris hexagonoptera*	Species of Special Concern
Bulbous Bitter-cress	*Cardamine bulbosa*	Species of Special Concern
Chestnut Oak	*Quercus montana*	Threatened Species
Dwarf Glasswort	*Salicornia bigelovii*	Species of Special Concern
Eaton's Bur-marigold	*Bidens eatonii*	Species of Special Concern
Featherfoil	*Hottonia inflata*	Threatened Species
Flowering Dogwood	*Benthamidia florida*	Endangered Species
Mountain-laurel	*Kalmia latifolia*	Species of Special Concern
Mudwort	*Limosella australis*	Species of Special Concern
Rare Plant	*Rare Plant*	Species of Special Concern
Saltmarsh False-foxglove	*Agalinis maritima*	Species of Special Concern
Sassafras	*Sassafras albidum*	Species of Special Concern
Sharp-scaled Manna-grass	*Glyceria acutiflora*	Endangered Species
Small Reed Grass	*Calamagrostis cinnoides*	Species of Special Concern
Smooth Winterberry Holly	*Ilex laevigata*	Species of Special Concern
Spicebush	*Lindera benzoin*	Species of Special Concern
Spongy-leaved Arrowhead	*Sagittaria montevidensis*	Species of Special Concern
Spotted Wintergreen	*Chimaphila maculata*	Endangered Species
Summer Grape	*Vitis aestivalis var. bicolor*	Threatened Species
Sweet Pepper-bush	*Clethra alnifolia*	Species of Special Concern
Tall Beak-rush	*Rhynchospora macrostachya*	Endangered Species
Upright Bindweed	*Calystegia spithamaea*	Threatened Species
Wild Coffee	*Triosteum aurantiacum*	Endangered Species

Source: Beginning with Habitat Animal-Plant-Habitat Table provided as part of the 2021 Comprehensive Planning Dataset from the state.

Information on the locations of these habitats and ecosystems has been compiled into a map of High Value Habitats (Fig. 14), which includes locations of significant wildlife habitats (Table 9), rare, threatened, or endangered plants (Table 12), rare, threatened, or endangered natural communities or ecosystems (Table 11), and habitats of species that are endangered, threatened, or of special concern (Table 10).

Figure 14. High Value Habitats in York



Data Sources: Beginning with Habitat Data Received from Town of York August 30, 2021; Maine Department of Inland Fisheries and Wildlife Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

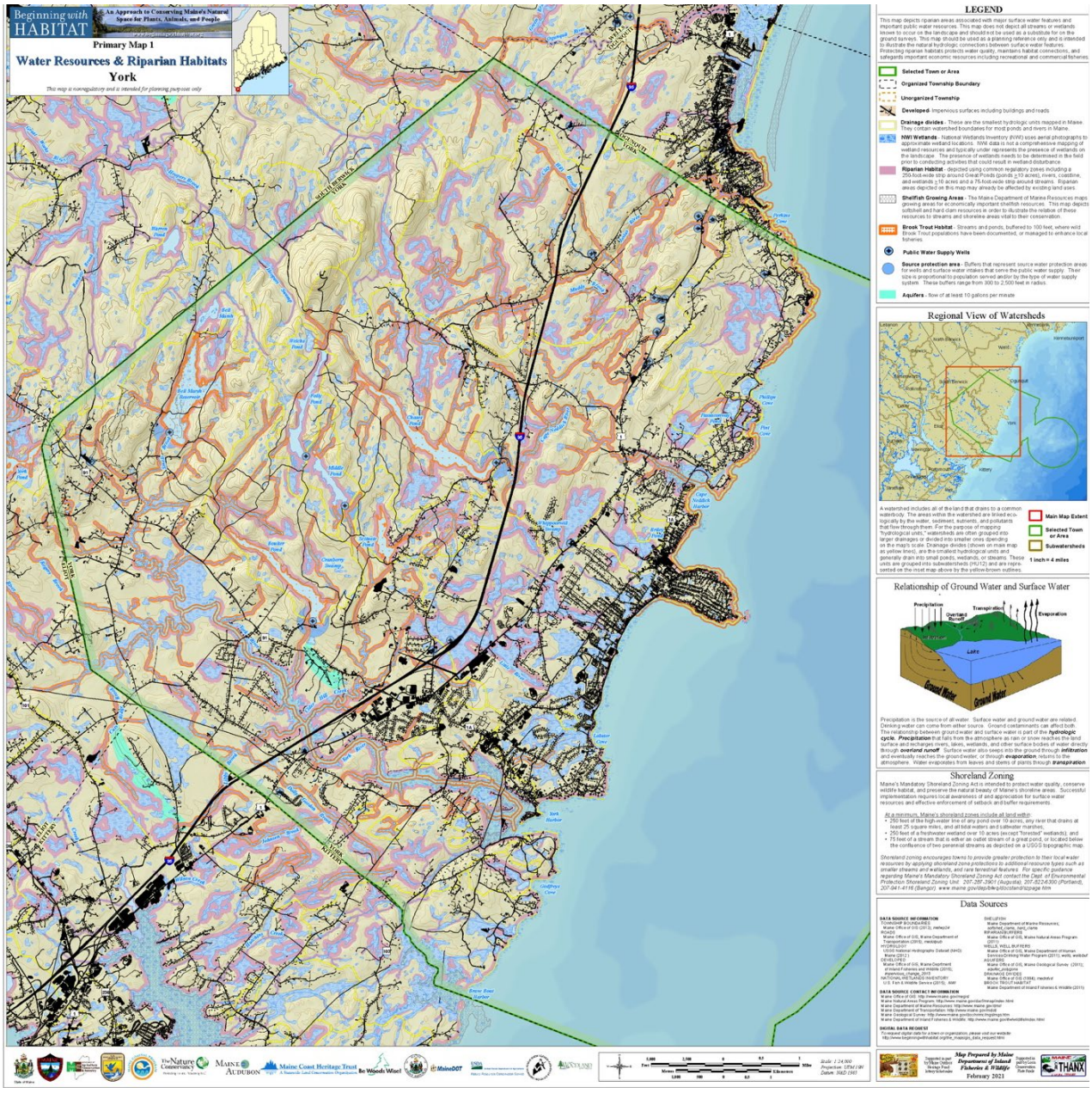
Significant Wildlife Habitats (MDEP)
- Shorebird Areas
- Significant Vernal Pools
- Wildlife Wetlands
- Deer Wintering Areas
- Inland Waterfowl/Wading Bird Habitat
- Tidal Waterfowl/Wading Bird Habitat

Rare or Exemplary Plants and Natural Communities (MNAP)
- Rare/Threatened/Endangered Plants
- Rare/Exemplary Natural Communities and Ecosystems

Rare, Threatened, or Endangered Wildlife (MESA)
- Habitat of Species that are Endangered/Threatened/ of Special Concern

While not reflected in the 2021 Beginning with Habitat GIS data layers received from the state, the state pre-prepared BwH maps show a large amount of Brook Trout Habitat in York, which includes streams and ponds buffered to 100 feet, where wild brook trout populations have been documented or managed to enhance local fisheries, as shown in orange in Figure 15.

Figure 15. Water Resources and Riparian Habitats Map – Beginning with Habitat (2021)



Source: Beginning with Habitat Maps provided as part of the 2021 Comprehensive Planning Dataset from the state.

Unfragmented habitats

The continued presence of large tracts of undeveloped, unfragmented land is essential to York's rich biodiversity. Most notably, an extensive, undeveloped block of forested open space surrounds Mount Agamenticus and the watersheds of the York and Kittery Water Districts' supply areas.

Unfragmented blocks are important because the available acreage generally limits the diversity of animal species (Fig. 16). At 2,500 acres and above, the block size does not generally restrict species. Within York there are two blocks in excess of 2,500 acres—one just to the north, and one just to the south of Mountain Road. Including land area outside of York but still within the blocks (Fig. 17), BwH data approximates the sizes of these two blocks in 2021 at 5,360 and 6,516 acres, respectively.

Figure 16. Maine Wildlife Acreage Needs

WILDLIFE NEEDS: Minimum Acreage Requirement For Supporting Wildlife in Maine

Acreage	Animals *
20-99	Porcupine, beaver, weasel, woodchuck, and hare
100-499	Deer, goshawk, Blanding's Turtle and turkey
500-1,000	Mink, ovenbird, hermit thrush, and redtailed hawk
1,000-2,500	Moose, black throated blue warbler, and northern parula
2,500 plus	Bobcat, fisher, coyote, and black bear

(*Figures adapted from the Maine Department of Inland Fisheries & Wildlife and Maine Audubon Society)

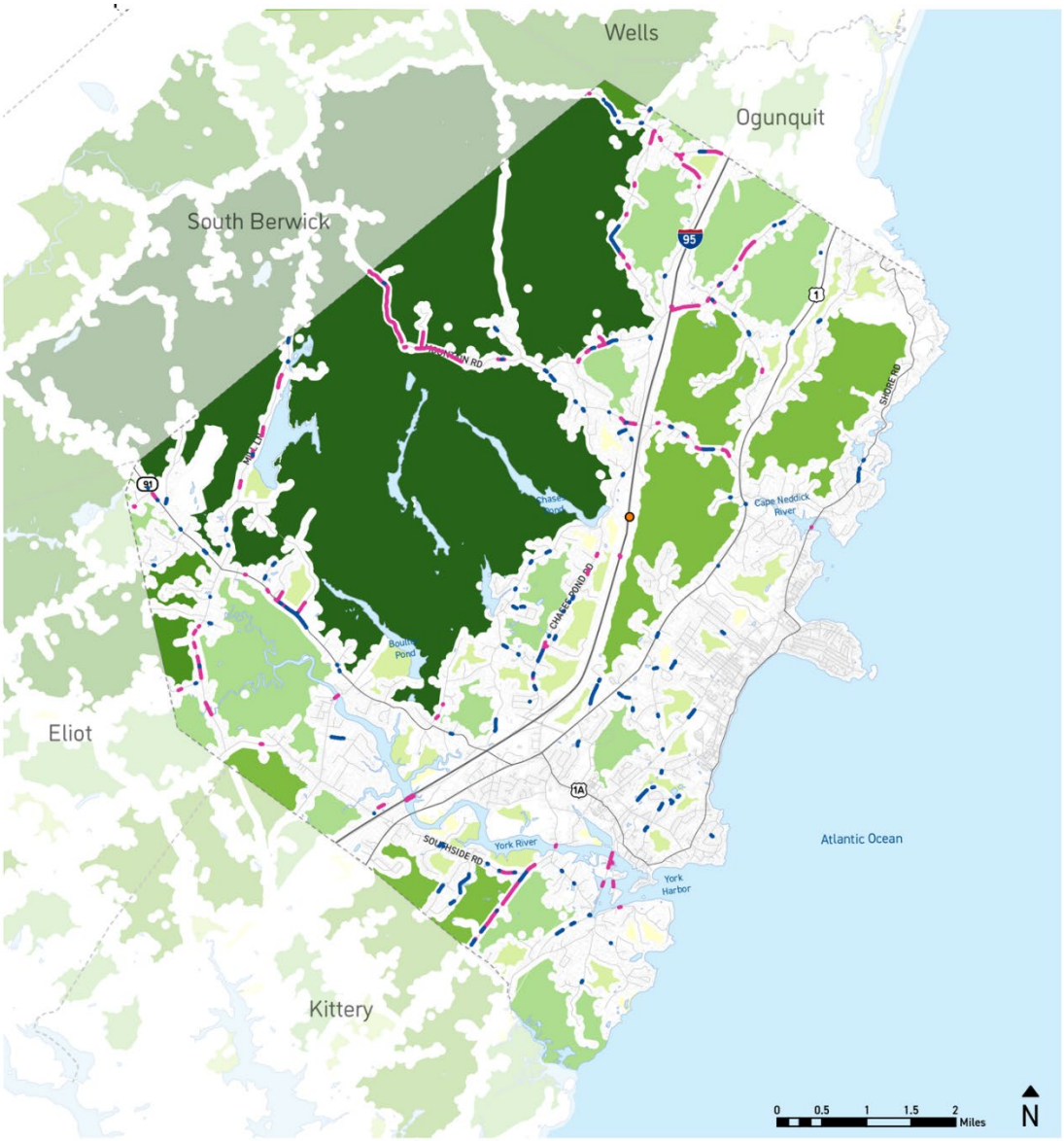
Source: Town of York

While block size is important, so too is connectivity between the blocks. Lacking connections, each block becomes a relatively isolated island. It is important to reserve corridors connecting the blocks to the extent this can be accomplished. Wildlife tends to travel along riparian (stream bank) corridors, along ridges where cover is offered, and in undeveloped areas.

Intact forests in the area surrounding Mount A provide important habitat for wildlife like Moose, Whitetail Deer, Black Bear and Fisher. Rare species of plant include Wild Leek, Large Beak-Rush, Feather Foil, Atlantic White Cedar, and Black Gum. Rare animals include Spotted and Blanding's Turtles, Black Racer Snakes, Swamp Darter Fish, and the Ringed Boghaunter Dragonfly.[78]

[78] Mount Agamenticus Brochure, received from Town of York 2021.

Figure 17. Undeveloped Habitat Blocks by Size, with Connectors

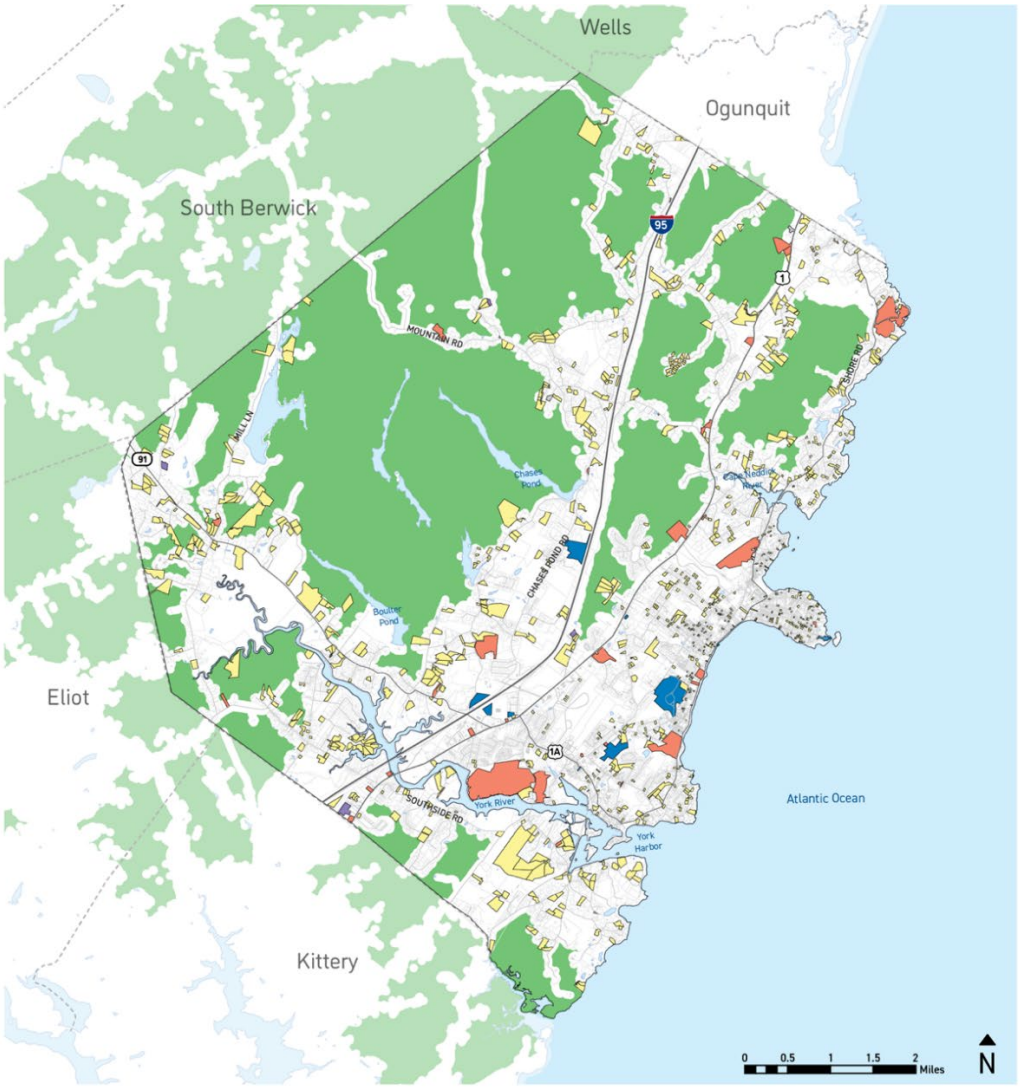


Data Sources: Beginning with Habitat Program, Maine Department of Inland Fisheries and Wildlife, received from Town of York August 30, 2021; Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Development Intrusions

From 2010 to 2021, construction has intruded on undeveloped large habitat blocks (greater than 350 acres in size) as illustrated in Fig. 18.

Figure 18. New Construction Parcels, 2010-2021[79] and Large Undeveloped Habitat Blocks



Data Sources: Beginning with Habitat Program, Maine Department of Inland Fisheries and Wildlife, received from Town of York August 30, 2021; 2020 Town of York Assessors, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Residential
Commercial
Industrial
Government
Undeveloped Habitat Blocks of 350 Acres or More

[79] Town of York Assessors. Based on parcels with "Year Built" listed as 2010 or newer. Data was sorted to require a minimum living area of at least 200 square feet. This is an approximate representation of locations of new construction from 2010 to July 2021 and some records may not be reflected due to some discrepancies between parcel identifiers.

Forest Resources

The abundance of forest resources in York holds significant value for the town and serves a number of ecological, recreational, and climate mitigation purposes, as well as representing the vast majority of undeveloped land in York. The areas surrounding Mount A comprise one of the largest remaining unfragmented forests in all of New England.[80] York forests also hold commercial value; timber harvesting is not the cornerstone of the local economy that it once was, but there is still a small presence in town. Since its acquisition of the land in 2017, the York Land Trust has been working at Fuller Forest to transform a working forest into a nature preserve with publicly accessible trails. More information is included later in this section.

Forests and Tree Cover

Land cover analysis from the 2019 Land Cover Database identified 57% of land in York as forests and woodlands, making up the majority of undeveloped land. An extensive, undeveloped block of forested open space surrounds Mount A and the watersheds of the York and Kittery water supplies, serving as important buffers protecting water quality. Here, the Northern Forest blends into the Southern forest, presenting a rich diversity of plant communities. For example, trees like Chestnut Oak and Shagbark Hickory reach the northern limit of their range in the Mount A region, while species such as Red Spruce and Balsam Fir are at their southern range limit. Together, they present a unique collection of forest species.[81] More information on how the range of species is shifting due to climate change can be found later in this section.

The summit of Mount A is actively managed to maintain scenic vistas and early successional habitat (shrubland, thickets, and young forest). In decline in the northeast, shrublands provide homes and food for animals such as American Woodcock, Brown Thrasher, Eastern Towhee, and Wood Turtles.[82]

Timber Harvesting and Forestry

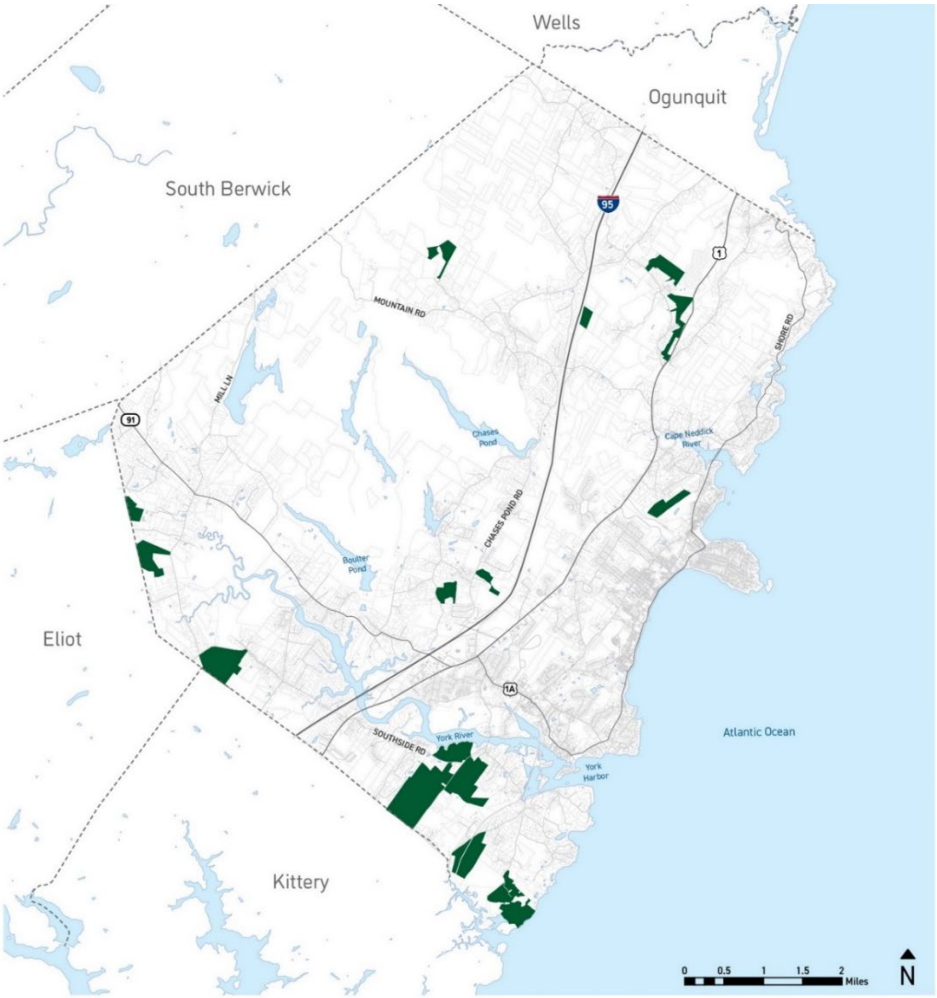
To qualify for the State of Maine Current Use Farmland Tax Credit Program, a property owner is required to have at least ten acres of forest land managed primarily for the production of commercial forest products. Once enrolled, a property owner may benefit from a reduction in property taxes, making it more affordable to own and manage woodlands. In York, as of 2021, there were 17 parcels totaling approximately 889 acres registered as Tree Growth in the state's current use tree growth tax credit program (Fig. 18).[83] Total acres in York enrolled in

[80] Mount Agamenticus Brochure, received from Town of York 2021.
[81] Ibid.
[82] Ibid.
[83] 2021 Town of York Assessor Reports on enrollment in Current Use Tax Programs, received January 2022.

this program have increased by approximately 13 acres since 2019[84] and 34 acres since 2010.[85]

While not reflected in this data, the YWD owns 1,945 acres of forested land around Chases Pond and manages these lands to help the forests stay healthy and vigorous. The YWD states that Best Management Practices (BMP's) are followed during harvests to protect water quality and setbacks are marked from water resources and other sensitive areas.[86] The Town of York does not have any public woodlands under management.

Figure 19. Properties Enrolled in State Current Use Tree Growth Tax Credit Program (2021)



Data Sources: 2021 Town of York Assessor, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

Parcels containing land enrolled in State of Maine Current Use Tree Growth Tax Program

[84] 2019 Municipal Valuation Return Statistical Summary, Maine Revenue Services Property Tax Division.
[85] 2010 Municipal Valuation Return Statistical Summary, Maine Revenue Services Property Tax Division.
[86] York Water District, Annual Water Quality Report, 2020.

Year-End Landowner Reports to the Maine Forest Service reflect approximately 310 acres of timber harvested in York in 2018. Forest land that has been harvested for timber in York totals more than 8,000 acres within a 27-year period (1991-2018) (Table 13). This includes 11 acres associated with a change of land use and a total of 141 acres that were clear cut.[87]

Table 13. Summary of Timber Harvest Information for the Town of York

YEAR	Selection harvest, acres	Shelterwood harvest, acres	Clearcut harvest, acres	Total Harvest, acres	Change of land use, acres	Number of active Notifications
1991	233	0	12	245	12	6
1992	250	10	9	269	49	11
1993	333	0	0	333	0	6
1994	445	0	60	505	60	5
1995	181	0	0	181	0	5
1996	254	0	0	254	0	6
1997	427	0	5	432	5	10
1998	147	0	20	167	20	6
1999	118	0	0	118	2	11
2000	385	0	0	385	41	15
2001	268	0	0	268	10	8
2002	506	0	6	512	0	15
2003	368	10	0	378	0	9
2004	417	0	0	417	13	12
2005	67	40	0	107	7	6
2006	256	20	0	276	19	11
2007	492	0	0	492	1	17
2008	416	0	0	416	0	10
2009-2010	217	0	21	238	0	8
2011	272	0	0	272	5.5	13
2012	190	0	8	198	3	12
2013	206	0	0	206	0	12
2014	431.9	0	0	431.9	2	13
2015	395	170	0	565	25	12
2016-2017	430	150	0	580	0	9
2018	309.9	0	0	309.9	22	10
Total	8014.8	400	141	8555.8	296.5	258
Average	308	15	5	329	11	10

Data compiled from Confidential Year End Landowner Reports to Maine Forest Service.
Department of Agriculture, Conservation and Forestry - Maine Forest Service
We help you make informed decisions about Maine's forests
**** To protect confidential landowner information, data is reported only where three or more landowner reports reported harvesting in the town.***

Source: Maine Forest Service, Comprehensive Planning Agriculture and Forestry Data Set (2021)

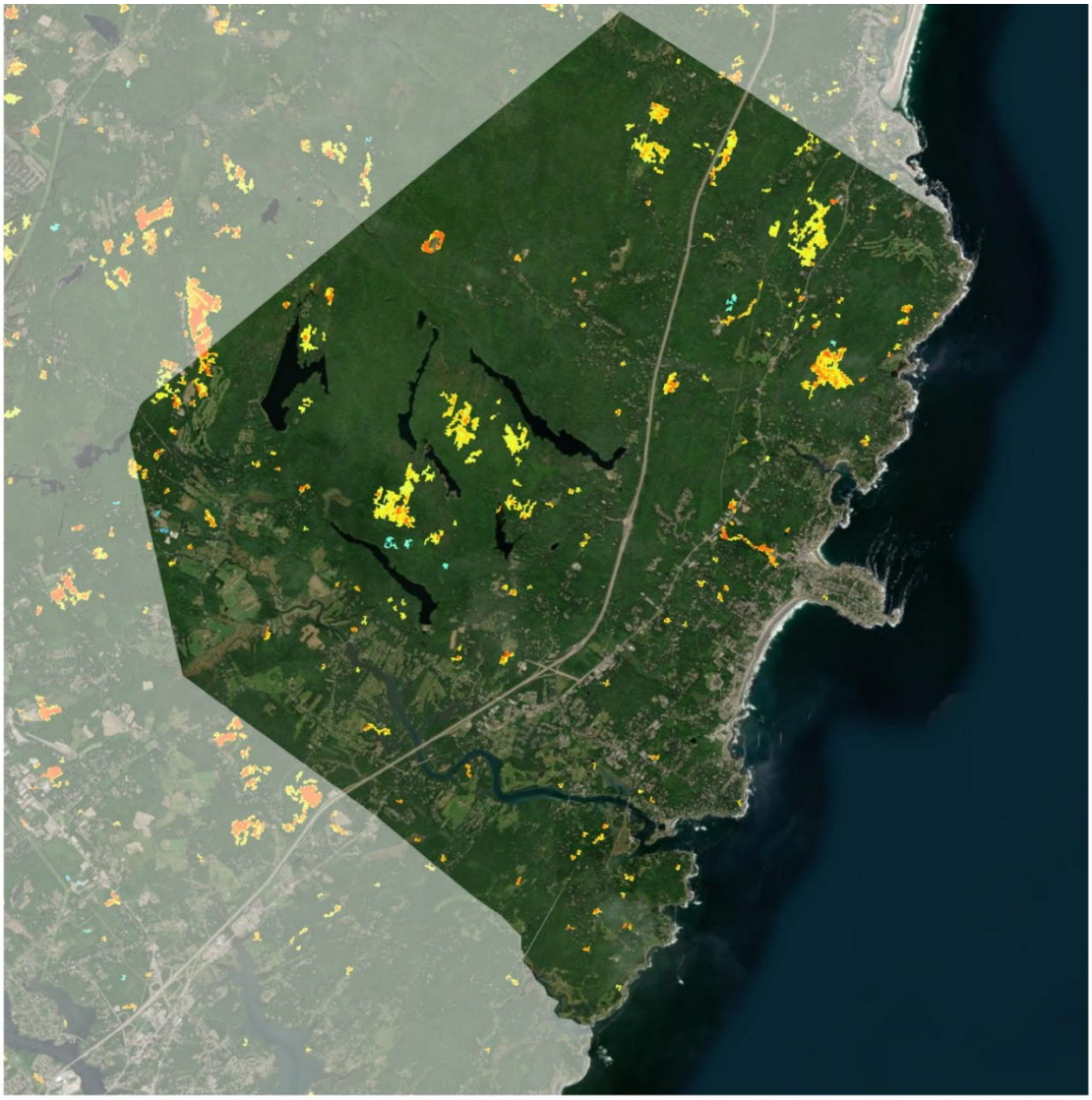
Tree Canopy

Approximately 60% of the land in York is covered by forest. Particularly in the face of climate change, protecting and growing York's tree canopy will be important to maximize opportunities for carbon capture. While minimal, Fig. 20 shows that between 2011 and 2016

[87] Maine Forest Service, Comprehensive Planning Agriculture and Forestry Data Set (2021)

tree canopy cover declined in several pockets in the town. While Town staff do not report any known large tracks of forest land slated to be sold for development in the near future, development pressures remain an ongoing threat to these resources. More information on development pressures and threats to natural resources can be found later in this section.

Figure 20. Change in Tree Canopy in Between 2011-2016



Data Sources: National Land Cover Database (NLCD) 2011 to 2016 Tree Canopy Change, August 31, 2019; Esri World Data Imagery; Town of York Open Data.
Map created by CivicMoxie.

Estimated relative change in tree canopy from 2011 to 2016

Increasing tree canopy cover

Decreasing tree canopy cover

The tree canopy data used here came from the National Land Cover Database (NLCD) created by the Multi-Resolution Land Characteristics Consortium (MRLC), which is comprised of various federal agencies, such as the USGS, NOAA, Department of the Interior, and more. The tree canopy cover data is generated in grids of 30 meters by 30 meters and reflects the estimated change in tree canopy cover between 2011 and 2016. The relatively large grid cells result in a coarse level of information that does not reflect small areas or subtle changes in tree canopy but gives a sense of overall concentrations of changes in tree canopy cover.

Agricultural Resources

Agriculture is an important part of the history of York and the larger region. Starting in the 1700s, early farming families fished, pastured cattle, and harvested marsh hay from adjacent salt marsh areas. Stone walls that are hundreds of years old are visible across these landscapes and were originally used to divide agricultural and pasture land.[88] Today, commercial farming does not have a significant presence in York. Only a very small percentage of the soils in York are identified as prime farmland or additional farmland of statewide significance and York County only accounts for 4% of the State of Maine's agricultural sales.[89] However, a few large, active farms have had a long-standing presence in the community and there are some smaller organic and hobby farms located in town. The Maine Farmland Trust is partnering with the Blaisdell family to pursue an agricultural conservation easement that would permanently protect the historic farm.[90]

Farmland Soils in York

Prime farmland is defined by the U.S. Department of Agriculture as land that is best suited for the production of food, feed, forage, fiber, and oilseed crops. Secondary soils, which are not prime farmland but still important for farming, are known as "additional farmland of statewide significance." A very small percentage of the soils in York are identified as prime farmland or additional farmland of statewide significance. The prime farmland and statewide significance soils are found mainly along the York River (Fig. 21).

Farming Activity in York

To qualify for the State of Maine Current Use Farmland Tax Credit Program, a property owner is required to have at least five contiguous acres in their tract of land and the land must be used for farming, agriculture, or horticulture, including woodland and wasteland. As of 2021, there were 24 parcels totaling approximately 889 acres of land registered in the state's program (Fig. 22). This includes 309 acres of farmland and 590 acres of woodland.[91] Total acres in York enrolled in this program have increased by approximately two acres since 2019[92] and 52 acres since 2010.[93]

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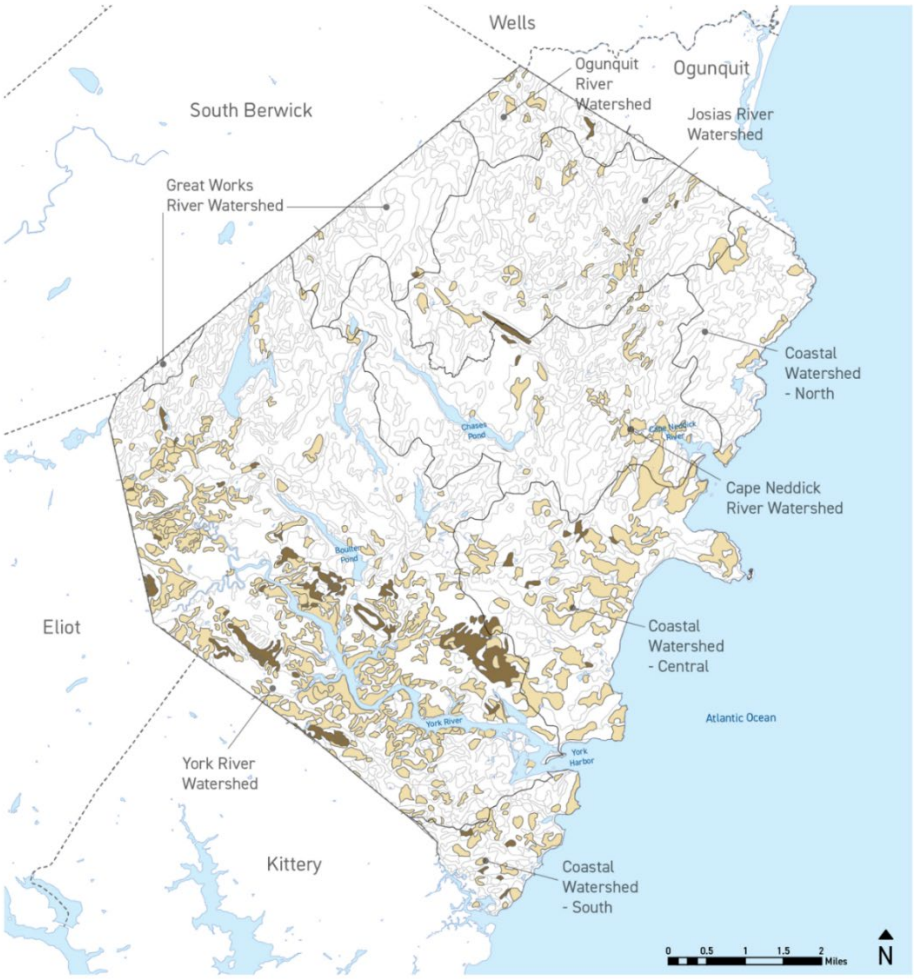
[88] York River Watershed Stewardship Plan. Prepared by the York River Study Committee. August 2018.
[89] USDA, 2017 Census of Agriculture, County Profile – York County, Maine, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Maine/cp23031.pdf
[90] Maine Farmland Trust, Protecting Blaisdell Brothers Family Farm, https://www.mainefarmlandtrust.org/blaisdell/
[91] 2021 Town of York Assessor Reports on enrollment in Current Use Tax Programs, received January 2022.
[92] 2019 Municipal Valuation Return Statistical Summary, Maine Revenue Services Property Tax Division.
[93] 2010 Municipal Valuation Return Statistical Summary, Maine Revenue Services Property Tax Division.

Farm Stands and Community Gardens

The York Region Chamber of Commerce operates a weekly farmers market during the summer months (May to October) and less frequently in the winter months. This gives farms the opportunity to sell directly to residents and visitors. In addition, both Blaisdell and Zach's farms operate popular farm stands. Nubble Hydro Microgreens Farm offers a monthly microgreen crop delivery subscription.

York Town Farm is York's community garden located at Long Sands Road. It includes an estimated seven garden plots and is run informally by a resident who maintains two large vegetable gardens there. There is no formal application process for plots.

Figure 21. Farmland Soils in York



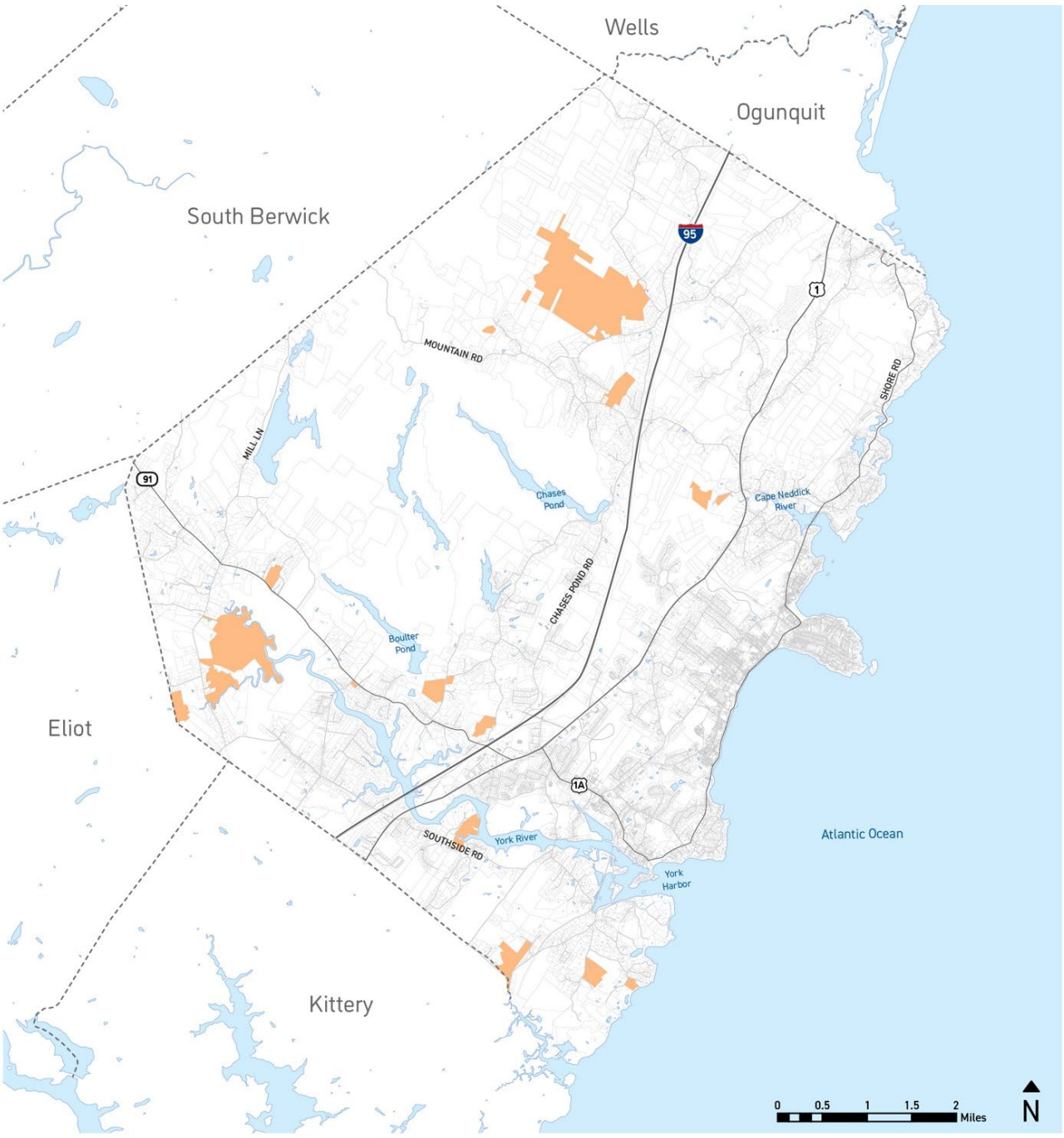
Data Sources: 2021 Beginning with Habitat (BwH) data, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Prime farmland

Farmland of Statewide Importance

Not prime farmland

Figure 22. Properties Enrolled in State Current Use Farmland Tax Credit Program (2021)



Data Sources: 2021 Town of York Assessor, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

Parcels withland enrolled in State of Maine Current Use Farmland Tax Program

Farm Enterprise Overlay District

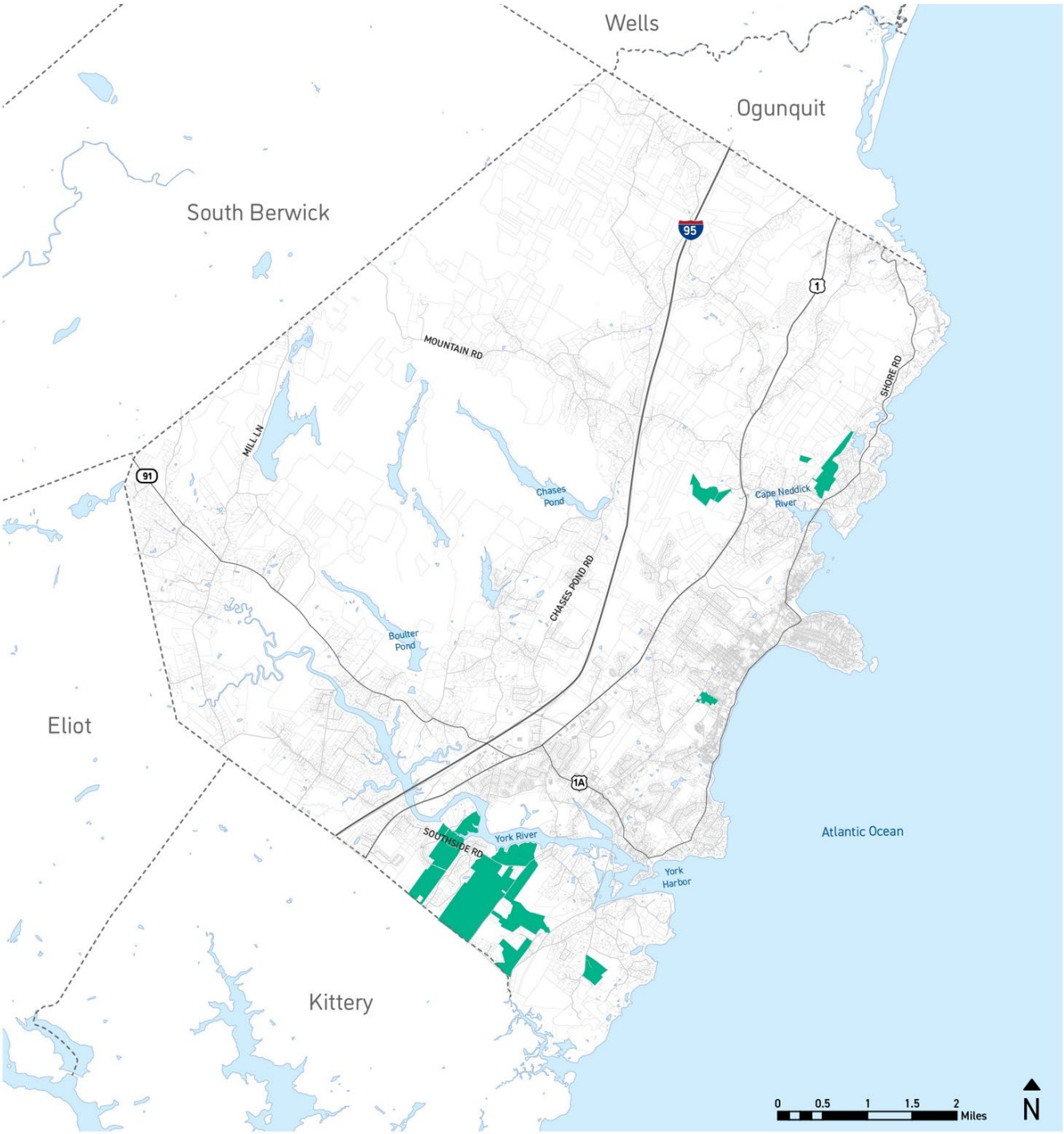
York's Farm Enterprise Overlay District is intended to maintain and promote agriculture and its related activities through allowing agriculture increased flexibility. The zoning regulations recognize that agricultural enterprises often need to encompass hybrids of different, related uses in order to remain economically viable. To be eligible for enrollment, lands must be a minimum of five acres in size and contain at least two contiguous acres on which agriculture has contributed to a gross annual value of at least $2,000 per year. The acreage minimum may be met by any combination of ownership, rental, or lease of agricultural land. Currently, there are approximately 740 acres of land in York enrolled in the Farm Enterprise Overlay District (Table 14 and Fig. 23).

Table 14. Land Registered in Farm Enterprise Overlay District

MAP & LOT	ACRES	FARM
0087-0041-N	24.9	Beltane Farm
0087-0041-R	16.3	Beltane Farm
0087-0024	29.3	Beltane Farm
0087-0057	45.0	Blaisdell
0087-0057-D	1.2	Blaisdell
0075-0002-A	1.6	Blaisdell
0087-0057-C	1.0	Blaisdell
0087-0057-B	1.0	Blaisdell
0087-0057-A	1.0	Blaisdell
0087-0053	0.4	Blaisdell
0087-0052	0.4	Blaisdell
0087-0057-E	4.2	Blaisdell
0075-0002	33.1	Blaisdell
0075-0001	16.6	Blaisdell
0087-0051-B	9.7	Blaisdell
0087-0051	30.5	Blaisdell
0087-0015	46.1	d'Entremont
0097-0044-F	4.2	Osgood/Weare
0013-0004	8.2	Osgood/Weare
0013-0003	4.0	Osgood/Weare
0097-0049	39.6	Osgood/Weare
0097-0007-A	39.1	Osgood/Weare
0087-0046-B	15.2	Rams Head Farm
0087-0039	35.3	Rams Head Farm
0087-0046	3.5	Rams Head Farm
0087-0069-A	57.8	Rams Head Farm
0087-0046-A	228.4	Rams Head Farm
0088-0012	31.3	Windswept Farm/ Cadieux
0035-0015	11.4	Rocky Acres Farm

Source: 2019 Town of York OpenData

Figure 23. Farm Enterprise Overlay District



Data Sources: 2019 Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Properties Registered in Farm Enterprise Overlay District

It is notable that some farms, including Zach's Farm, Old Mountain Farm, and some smaller organic and hobby farms, are not currently enrolled in the District. The Town may wish to explore opportunities for increasing the protections and incentives offered by the Farm Enterprise Overlay District in order to better support existing farming activities in York.

While Town staff do not report any known large tracks of agricultural land slated to be sold for development in the near future, development pressures remain an ongoing threat to these resources. More information on development pressures and threats to natural resources can be found later in this section.

Carbon Sequestration Value

Agricultural and Forest Land provide opportunities for carbon sequestration (absorbing carbon dioxide from the atmosphere). The management, preservation, and expansion of these lands are a key component of York's climate planning efforts and strategies to reduce York's greenhouse gas emissions in the coming years.

Carbon sinks in York include the following:

- Agricultural/open grasslands: Cultivated lands, grasslands, pasture, and shrubland
- Forested areas: Deciduous, evergreen, and mixed forests
- Estuarine wetlands: Tidal wetlands where saltwater and freshwater ecosystems meet, such as salt marshes
- Palustrine wetlands: Inland, primarily, freshwater wetlands that may be either heavily vegetated, like forest swamps, or "open" wetlands with less dense vegetation, like open floodplains.

An inventory conducted between 1996 and 2016 of York's Carbon Sink Resources by the National Oceanic and Atmospheric Administration (NOAA) [94] revealed that approximately 87% of the land area in York (not including open water) was covered by potential carbon sinks in both 1996 and 2016 (Table 15). During the 20 years studied, approximately 212 acres of carbon sink area was lost (less than a 1% decline). Losses included 225 acres from forested areas, a 1% decrease of these areas; approximately 21 acres of open palustrine (inland freshwater) wetlands (7% loss of area of these wetlands). The total area of estuarine, or tidal, wetlands remained approximately the same; it is unclear if marsh migration contributed to this. Both agricultural/open grassland and forested palustrine wetlands had minor gains.

[94] The inventory was conducted for 1996 and 2016, using land cover data from the National Oceanic and Atmospheric Administration (NOAA).C-CAP Regional Land Cover and Change. NOAA. https://coast.noaa.gov/digitalcoast/data/ccapregional.html.

Table 15. Town of York Carbon Sink Inventory, 1996 and 2016.

Category	Carbon Sink Class	1996 Area (Acres)	2016 Area (Acres)	Change in Area (Acres)	% Change
Carbon Sink	Estuarine Wetland	926.09	925.64	-0.44	0.0%
	Palustrine "Forested" Wetland	6,259.82	6,264.86	5.04	0.1%
	Palustrine "Open" Wetland	291.48	270.21	-21.28	-7.3%
	Forested Areas	21,582.08	21,357.16	-224.92	-1.0%
	Agricultural/Open Grassland	1,707.70	1,737.00	29.30	1.7%
	Total	**29,841.08**	**29,629.23**	**-212.30**	**-0.7%**
Not Carbon Sink	High Intensity Developed	150.47	162.70	12.23	8.1%
	Medium Intensity Developed	592.54	624.12	31.58	5.3%
	Low Intensity Developed	2,530.61	2,621.70	91.09	3.6%
	Developed Open Space	855.50	927.77	72.28	8.4%
	Unconsolidated Shore	242.96	242.30	-0.67	-0.3%
	Bare Land	100.80	103.69	2.89	2.9%
	Total	**4,472.88**	**4,682.28**	**209.41**	**4.7%**

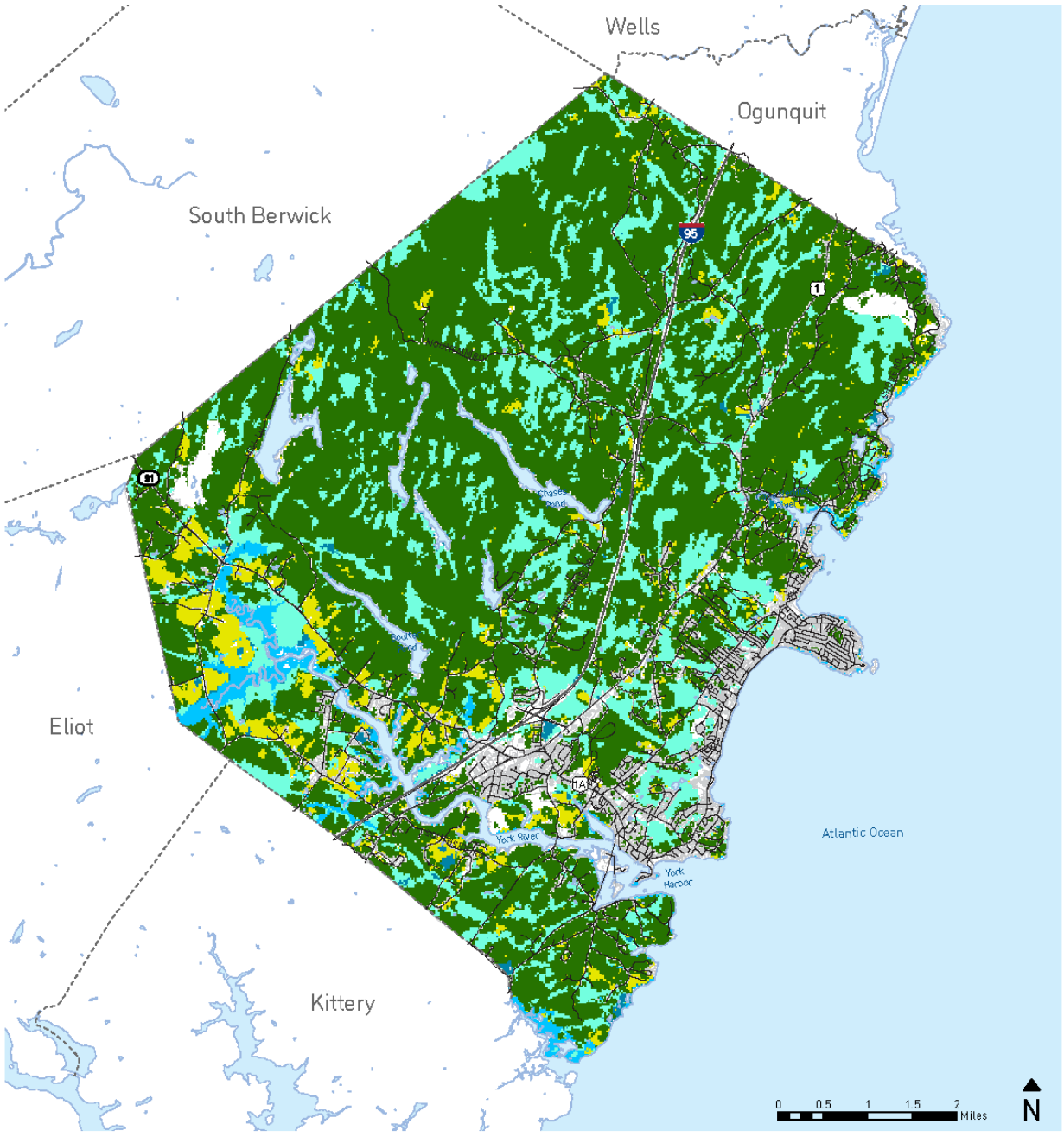
Source: Land coverage percentages were generated using NOAA's land use GIS data (2016 and 1996 NOAA C-CAP Regional Land Cover); relative rankings of carbon sink potential were based on McLeod et al 2011 (https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/110004).

Table 15 shows the land area inventories for 1996 and 2016, as well as the gross area change and percent change for each of the land use types. The carbon sink classes are listed from top to bottom in order of their relative carbon sequestration rates (i.e., estuarine wetlands sequester the most carbon per acre and agricultural/open grasslands sequester the least carbon per acre). These are general rankings as, in reality, carbon sink potential can vary by individual location and based on a number of factors.[95]

Almost all of the nearly 210 acres of non-carbon sink land area gained between 1996 and 2016 was due to development, with a mix of high, medium, and low intensity development, as well as developed open space. Low intensity development is the most prevalent development type in York, suggesting that many property owners may be able to make individual changes on their private land to increase their carbon sink potential of their land by minimizing hard surfaces and adding more vegetation. The approximately three-acre difference between carbon sink area lost and non-carbon area gained could suggest that this land was lost due to encroachment of open water or could be a small statistical anomaly between the datasets for the two years. A map of areas with carbon sink potential is shown in Fig. 24.

[95] These tabulations are for interim use until the State of Maine completes its statewide inventory of carbon stocks, the results of which are expected in 2023.

Figure 24. Forested, Grassland, and Wetland Land Cover



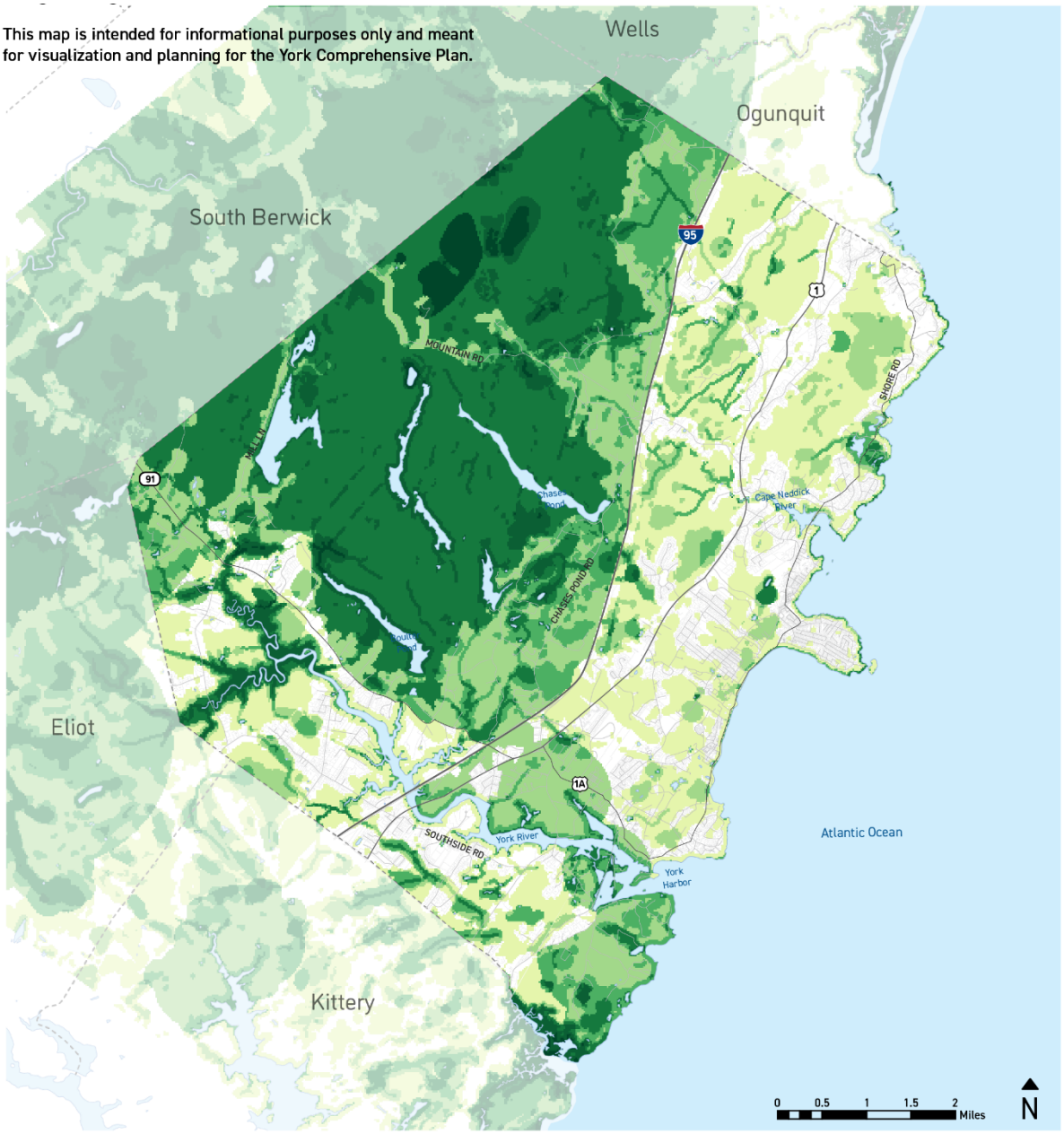
Data Sources: 2016 NOAA Regional Land Cover Data, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

- Forested
- Agriculture + Open Grassland
- Palustrine Forest Wetland
- Palustrine Open Wetland
- Estuarine Open Wetland

Overlap of Natural Resources

Many of York's natural resources are most valuable because of the interconnected nature of multiple high-value resources over large areas of undeveloped, unfragmented land. The Beginning with Habitat (BwH) program has compiled and mapped data from state agencies on locations of important habitats, plant, and water resources, and rated these locations based on the degree of overlap to highlight a given area's relative conservation value (Fig. 25). BwH offers a generalized and subjective view to aid in planning and should be considered as a starting point for discussion that includes local conservation organizations on conservation priorities.

Figure 25. Overlap of Natural Resources



Data Sources: Beginning with Habitat Program, Maine Department of Inland Fisheries and Wildlife, received from Town of York August 30, 2021; Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

BwH Co-occurrence Value

less resource overlap ↓ *more resource overlap*

- 1-2
- 3
- 4-5
- 6-8
- 9-12
- over 12

The Beginning with Habitat Program (BwH) has compiled and mapped data from State agencies on locations of important habitats and water resources and rated these locations based on the degree of overlap to highlight a given area's relative conservation value. It offers a generalized and subjective view to aid in planning and should be considered as a starting point for discussion. Data factored into this map with methodology is listed below (some of the layers listed may not be present on this map).

Rare and Exemplary Natural Communities
S1 (Critically Imperiled). Value of 4
S2 (Imperiled). Value of 4
S3 (Rare). Value of 3
S4 and S5 with A or B viability (Exemplary). Value of 3
Rare plants
S1 (Endangered). Value of 3
S1S2-S2 (Threatened). Value of 2
S2S3 - S3 (Special Concern). Value of 1
Listed Animals
Endangered Species (with buffer). Value of 3
Threatened Species (with buffer). Value of 2
Species of Special Concern (with buffer). Value of 1

Significant Wildlife Habitats
Shoreland Habitat. Value of 3
Seabird Nesting Islands. Value of 3
Essential Wildlife Habitat. Value of 3
Wading Bird and Waterfowl Habitats (inland and tidal). Value of 2
Deer Wintering Areas. Value of 1
Significant Vernal Pools (with 500' buffer). Value of 1
Atlantic Salmon Habitat. Value of 2
Heritage Brook Trout Waters. Value of 2
Shellfish Beds. Value of 1

Riparian Zones and Water Resources
Tidal waters 250' buffer. Value of 2Great Ponds 250' buffer. Value of 1
Rivers 250' buffer. Value of 1
Streams 75'buffer. Value of 1
Wetlands greater than 10 acres plus 250' buffer. Value of 1
Wetlands less than 10 acres plus 75' buffer. Value of 1
Groundwater aquifers. Value of 1
Undeveloped Habitat Blocks
Areas over 1200 acres. Value of 3
Areas of 600 to 1200 acres. Value of 2
Areas of 200 to 600 acres. Value of 1

Scenic Resources

With its coastal location and abundance of other natural resources, York's scenic resources contribute to quality of life for residents and attract visitors to town. Scenic resources in York include its beaches, ocean, forests, water bodies, trails and walking paths, and more. Views can be seen from individual publicly-accessible points (scenic points), or from longer routes with multiple views (scenic routes). While most of these scenic resources are located on publicly-controlled land, a few such as the Cliff Walk, Fisherman's Walk, and Long Sands Beach, are at risk from loss of public access.

Views from Mount A

On a clear day, views from the top of Mount A extend to the Atlantic Ocean – out to Boon Island, the Isles of Shoals, and Cape Ann – as well as inland to the White Mountains. The summit of Mount A benefits from active shrubland management and annual efforts to preserve scenic vistas and to support an early successional habitat of shrubland, thickets, and young forest. The Mount A summit is famous for being one of Maine's favorite hawk-watching sites. An average of 4,000 birds are seen migrating annually and it's not uncommon to see hundreds in just a few hours (Mt. A brochure).

There are a few Town Ordinances that include requirements to limit disruption to scenic resources in York. Article 9-A of the Town of York Zoning Ordinance, which regulates small windmills in York, requires that a small windmill not be placed in a location that would substantially detract from, or block the view of, a designated Scenic Resource, as listed in the Town of York Comprehensive Plan, as viewed from any public road right-of-way within the town. Article 9-A also states that a substantial detraction from/blocking a view of a designated Scenic Resource, as determined by the Planning Board, shall constitute a basis for denial (York Zoning Ordinance 9-A.4.7).

Article 9-B of the Zoning Ordinance regulates Solar Energy Systems and includes a standard that reasonable efforts, as determined by the Planning Board, be made to minimize visual impacts by preserving natural vegetation, screening abutting properties, and protecting scenic resources (York Zoning Ordinance 9-B.6.c).

York's Site Plan and Subdivision Regulations require that information be provided to identify any scenic resources and empowers the Planning Board to require reasonable modification of a proposed development if that modification will help mitigate adverse impacts on aesthetic, scenic, or natural beauty of the area[96] (Site Plan and Subdivision Regulations 6.3.13 and 7.28).

[96] This standard only applies to resources specifically identified and recommended for protection in the *York Comprehensive Plan*, Natural Resources Chapter, adopted 2006 and amended 2013.

Scenic Points[97]

Among the many scenic points and views in York, these are points accessible to the public having a view that encompasses an area, the viewshed, as seen from a particular location, the viewpoint, extending to the visual horizon and may be limited in direction to a particular horizontal sector.

- All viewing platforms on top of Mt. A
- Balcony on Mt A lodge
- Wiggly Bridge
- Sewalls Bridge
- Rice's Bridge
- I95 York River Bridge
- Scotland Bridge
- Cooks Bridge
- Chases Pond from Chases Pond Road
- Chases Pond from Situate Road
- Situate Pond from the boat launch
- Route 103 at Brave Boat Harbor
- South Side Road toward the York River
- York Harbor Beach
- Long Sands Beach
- Short Sands Beach
- Passaconaway (Cape Neddick) Beach
- Phillips Cove
- Hartley Mason Reserve
- Sohier Park
- All ocean views from public roads

Scenic Routes

These are public ways with views that encompass an area, the view corridor, as seen from multiple locations along the route, and are not generally limited to particular directions. The geographical route with starting and end points defines them along with descriptions of what makes the route scenic.

- Spur Road
- Shore Road
- Route 103
- Route 91 / Cider Hill Road
- Route 101 from Eliot to U.S. Route 1

[97] The below lists were sourced from the Natural Resources Inventory & Analysis Chapter of the amended 1999 Comprehensive Plan, adopted 2006 as amended through 2013, and supplemented with input from the Comprehensive Plan Steering Committee.

- Greenleaf Parsons Road
- Cliff Walk
- Fisherman's Walk
- York River, from the Atlantic Ocean to the head of tide
- Cape Neddick River, from the Atlantic Ocean to the head of tide
- Brave Boat Harbor, from the Atlantic Ocean to the head of tide

The 2009 *Mount Agamenticus Summit Plan* notes the importance of scenic views from Mt. A and includes recommendations on soliciting public input on notable viewsheds to develop and/or maintain as well as seeking assistance from certified foresters on best management techniques for developing and/or maintaining these viewsheds. It also recommends consideration of options for consolidating towers within the Summit Management Area to allow for unobstructed views.[98]

The 2018 *York River York River Watershed Stewardship Plan* includes recommendations to support further inventory and identification of protection priorities for scenic resources in the watershed, including those contributing to historic contexts and rural character.[99] Wild & Scenic designation for the York River would provide access to additional sources of funding and other resources that could contribute to protecting scenic resources.

Threats to York's Natural Resources

Growth and Development Pressures

Some of the primary threats to York's natural resources come from continuing growth pressures and their associated impacts. Historic development patterns in York have led to wide-spread development in environmentally sensitive areas, such as coastal dunes, marshlands, and inland wetlands. Many of York's current land use problems are a result of decisions made more than a century ago. Sea level rise will worsen these problems and will create others as the town sees increasing impacts from climate change.

York Harbor Beach

[98] Mt. Agamenticus Steering Committee, Mt Agamenticus Summit Guidelines for Usage, 2009.
[99] *York River Watershed Stewardship Plan*. Prepared by the York River Study Committee. August 2018.

Threats to natural resources from growth and development pressure are wide-ranging. Below are some of the potential impacts of growth and development in York:[100]

- Groundwater pollution from development on poor soils without public sewer collection and treatment;
- Non-point water pollution from road maintenance policies, and new development with inadequate erosion/sedimentation control, as well as runoff pollution from the use of herbicides, pesticides, and fertilizers;
- Reduction in surface water quality from increasing impervious surfaces in each watershed;
- Increased demand for water supply together with more frequent drought conditions and other issues related to climate change;
- Loss of biodiversity by habitat loss and fragmentation from new roads, paved roads (which increases use of the road as well as the speed of use) and development;
- Worsened flooding problems from more than a century of development patterns that did not consider natural resource protection, continued development, sea level rise, and more extreme storm events with heavy rainfall;
- Loss of native species by infestation of invasive species (i.e. introduction of non-native plantings at new developments);
- Loss of the working landscape by escalating land values, subdivisions/development, and neighborhood concerns and impacts;
- Loss of night sky by uncontrolled lighting of new and existing development;
- Reduction in air quality and loss of quiet because of increasing traffic (more people driving more miles because of sprawled patterns of land use and few alternative transportation modes) and because of smog generated up-wind;
- Loss of opportunities for solitude and recreation by reduction in size and loss of shorelines, combined with sea level rise;
- Decline in the health of the Gulf of Maine and the Atlantic Ocean resulting from continued overdevelopment of the coast and along the estuaries; and
- Overcrowding of harbor, other waters, and parks/trails as people compete to use finite resources.

[100] This list was developed based on information in the *York Comprehensive Plan* Inventory and Analysis Natural Resources Chapter (adopted 2006 as amended through 2013) and supplemented with additional information from the consultant team and Comprehensive Plan Steering Committee.

In 2017-2018, the Southern Maine Planning and Development Commission (SMPDC) partnered with Spatial Alternatives, a GIS consulting firm based in Yarmouth ME and the York River Study Committee to conduct a GIS-based build-out analysis for the York River Watershed along with an accompanying Regulatory & Non-Regulatory Recommendations Report. The analysis determined that there were an estimated 3,038 buildings in the watershed with the possible addition of 2,295 buildings at full build-out using existing zoning regulations. Notably, this analysis identified one of the largest undeveloped blocks in York, adjacent to public water supplies, as an area with potential for nearly 150 new building units (Table 16 and Fig. 26).

Table 16. York River Watershed Build-out Analysis – Overall Development Within the Watershed by Town

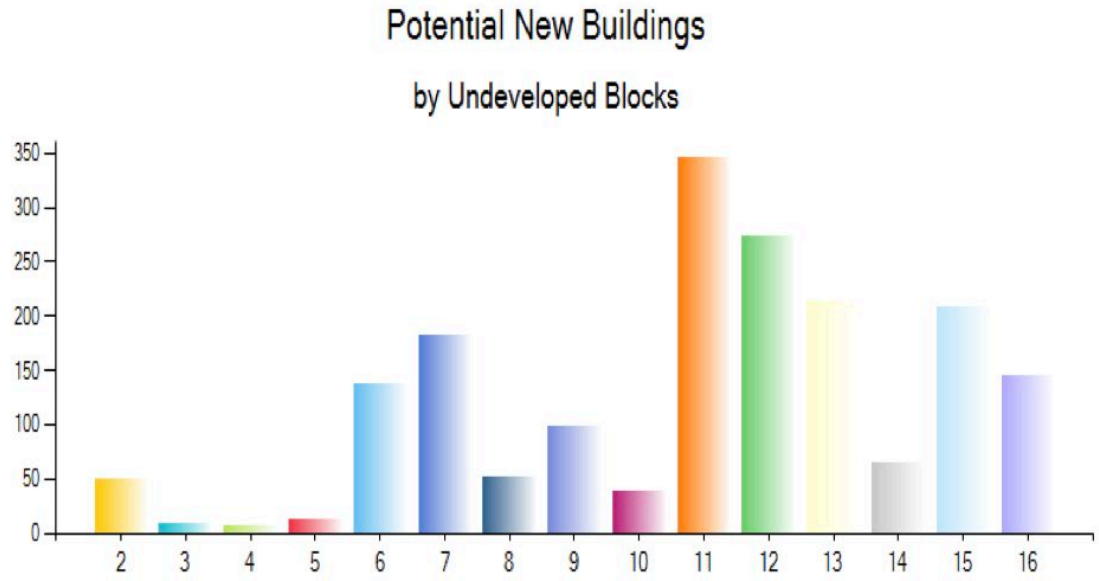
Overall development within the watershed analyzed by town is shown below:

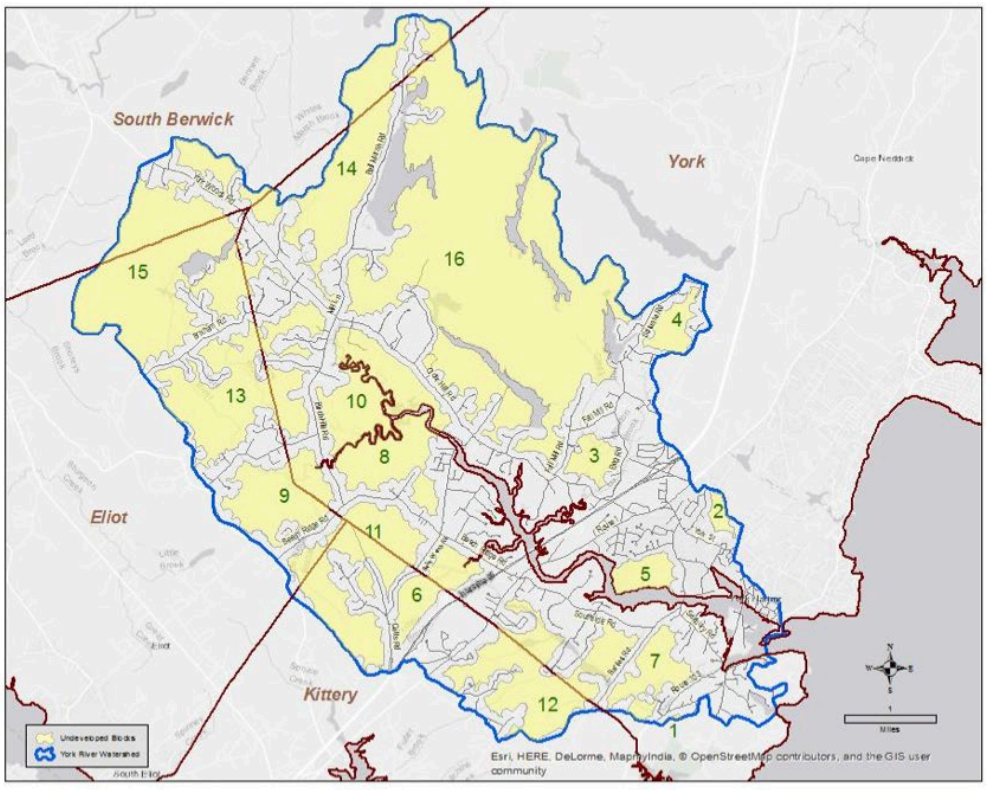
Town	Watershed Acres	Watershed %	Existing Building	%Total Existing Buildings	Existing Density DU/Acre	Potential Buildings	% Potential Buildings	Total Buildings	% Buildings	Potential Density DU/Acre	Conservation (acres)
York	15172	71%	2489	82%	0.16	1116	49%	3605	68%	0.24	4344
Kittery	1981	9%	225	7%	0.11	690	30%	915	17%	0.46	322
South Berwick	1099	5%	93	3%	0.08	90	4%	183	3%	0.17	531
Eliot	3032	14%	230	8%	0.08	399	17%	629	12%	0.21	387
Total Watershed	21284		3037		0.14	2295		5332		0.25	5584

Source: SMPDC and Spatial Alternatives, York River Watershed Study: Build-out Analysis and Recommendations Report, 2018.

Rural road in York

Figure 26. York River Watershed Build-out Analysis - Potential New Buildings by Undeveloped Blocks





Source: SMPDC and Spatial Alternatives, York River Watershed Study: Build-out Analysis and Recommendations Report, 2018.

Climate Change and Sea Level Rise

Climate change could have a devastating effect on York's natural resources, disrupting local ecosystems and destroying some of the best tools for fighting climate change. In addition, loss of dry beach area and property values would have a likely impact on the tourism economy and the Town's tax base. The natural environment plays crucial roles in removing carbon dioxide (CO_2) from the atmosphere and buffering the built environment against flooding and severe weather.[101]

Coastal Erosion

Coastal or shoreline erosion occurs when storms, flooding, storm surge, sea level rise, and human-related activities wear away the rocks, soils, and/or sands along the coast over time. Erosion can occur due to an acute weather-related event or long-term change in the coastline. Erosion is a concern along York's Atlantic coast as well as the shorelines along its tidal rivers, including the York and Cape Neddick Rivers. The York River Study Committee reported that most of the York River archaeological sites recorded by Henry Mercer in 1891 has been destroyed due to shoreline erosion.[102]

The loss of natural barriers to erosion reduces their ability to buffer inland areas from storm surges, threatening adjacent properties and infrastructure and coastal ecosystems.[103] In addition, erosion destroys species habitats, impacts water filtration, and can steepen shorelines and increase the likelihood of abrupt landslides or chronic land loss.[104] Analysis conducted for the Maine Climate Council projected that with 1.6 feet of sea level rise, 42% of York County's dry beach (above the high tide line) and 55% of its dunes will be at risk of inundation and erosion. With 3.9 feet of sea level rise, 75% of dry beach and 92% of dunes are projected to be lost. Eastern Research Group (ERG) has estimated the ecosystem service value of Maine's beaches and dune at about $105,000 per acre.[105]

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[101] Information about how climate change is likely to impact York, including its natural resources, is taken from the Town of York's climate planning work of 2021-2022.

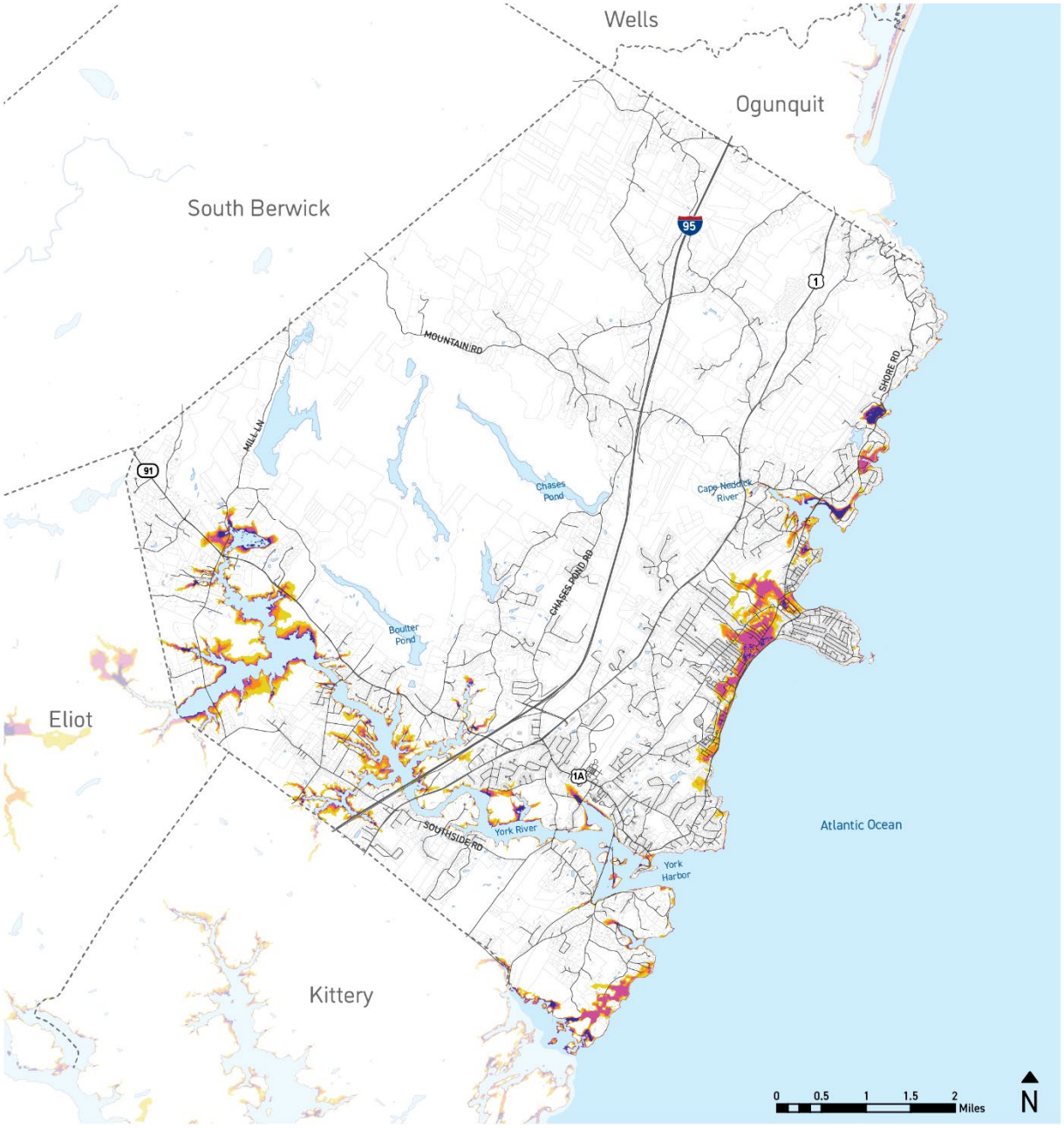
[102] *York River Watershed Stewardship Plan*. Prepared by the York River Study Committee. August 2018. http://www.yorkrivermaine.org/wp-content/uploads/2018/09/York-River-Watershed-Stewardship-Plan-August-2018.pdf.

103 Cities of Portland and South Portland, "Climate Change Vulnerability Assessment."

104 Eastern Research Group, "Cost of Doing Nothing Analysis," https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/ERG_MCC_AssessingImpactsClimateChangeMaine_Summary.pdf, 48; Troy, 2012.

105 Eastern Research Group, "Cost of Doing Nothing Analysis," 48; Troy, 2012 (2018$ adapted from 2011$).

Figure 27. Projected Sea Level Rise and Storm Surge Scenarios in York



Data Sources: Maine Geological Survey, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

- Current Highest Astronomical Tide (HAT)
- 1.5 Feet Above HAT
- 4 Feet Above HAT
- 6 Feet Above HAT
- 9 Feet Above HAT

Marshes and Marsh Migration

Marshes exist in transition zones between uplands and the open ocean, serving as a vital habitat for many species and a natural buffer from coastal flooding and storm waves. In addition, marshes can filter runoff and excess nutrients, minimize the impacts of erosion, and remove greenhouse gases from the air. Due to these benefits and the sensitivity of tidal areas to climate hazards, understanding how marsh communities may respond to sea level rise is key for preservation and restoration efforts.[106]

There are approximately 926 acres of coastal wetlands in York. However, as sea levels rise, this will likely change as marshes migrate and lose suitable habitat. The process of marsh migration occurs naturally, but climate change factors can accelerate and simulate additional migration.[107] Most of the potential marsh migration area in York is along the York River, where the majority of the town's marshes are today. Other areas with some potential for marsh migration are Brave Boat Harbor and the Cape Neddick River.[108]

On the other hand, sea level rise can cause marsh loss when adjacent lands are steep or developed like much of York's coast, which prevents further inland migration. As a result, marshes are converted into open water or mudflats.[109] Loss of marshes is problematic from resilience and mitigation standpoints, as sequestration rates from coastal wetlands, known as "blue carbon," are even greater than terrestrial ecosystems like forests.[110]

The Maine Geological Survey has projected potential marsh migration under various sea level rise/storm surge scenarios (Figs. 28-30). Table 17 shows the potential marsh migration area in York for each of these scenarios. With six feet of sea level rise, the potential marsh migration area in York represents approximately 68% of the town's current coastal wetland area of 926 acres. Most of the potential marsh migration area is along the York River, where the majority of York's marshes are today (Fig. 28). Other areas with some potential for marsh migration are Brave Boat Harbor and the Cape Neddick River (Figs. 29 and 30).[111]

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[106] Cities of Portland and South Portland, "Climate Change Vulnerability Assessment."

[107] Cameron, Donald and Slovinsky, Peter A., "Potential for Tidal Marsh Migration in Maine" (2014). Geology Documents. 145. https://digitalmaine.com/geo_docs/145

[108] https://www.maine.gov/dacf/mnap/assistance/marsh_migration.htm

[109] Cities of Portland and South Portland, "Climate Change Vulnerability Assessment."

[110] Eastern Research Group and Synapse Energy Economics, "Summary Report," https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/ERG_MCC_AssessingImpactsClimateChangeMaine_Summary.pdf, 10

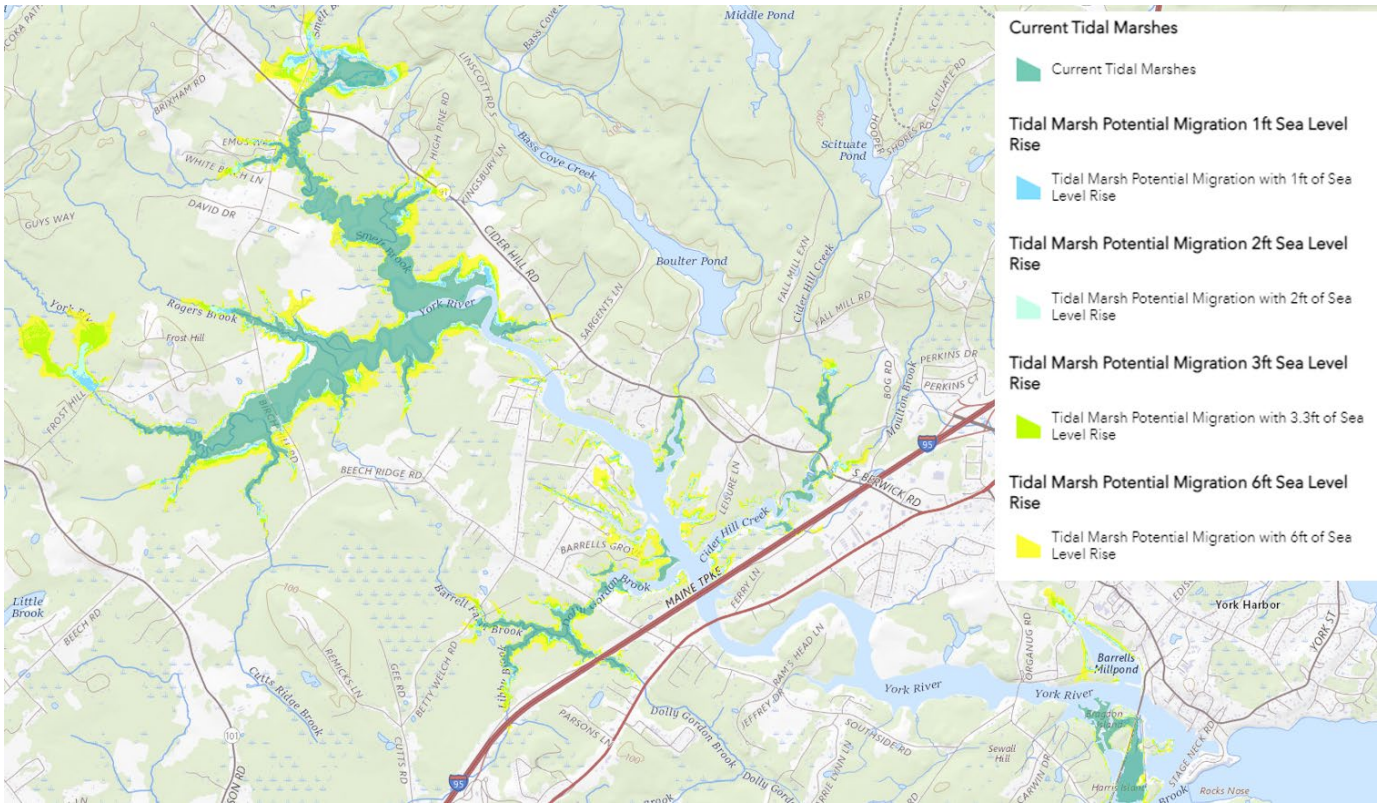
[111] Maine Geological Survey, 2021. https://www.maine.gov/dacf/mnap/assistance/marsh_migration.htm

Table 17. Potential Marsh Migration Area in York in Four Sea Level Rise (SLR) Scenarios

SLR Scenario	Potential Marsh Migration Area (Acres)
1 ft	86.46
2 ft	174.82
3.3 ft	310.12
6 ft	628.74

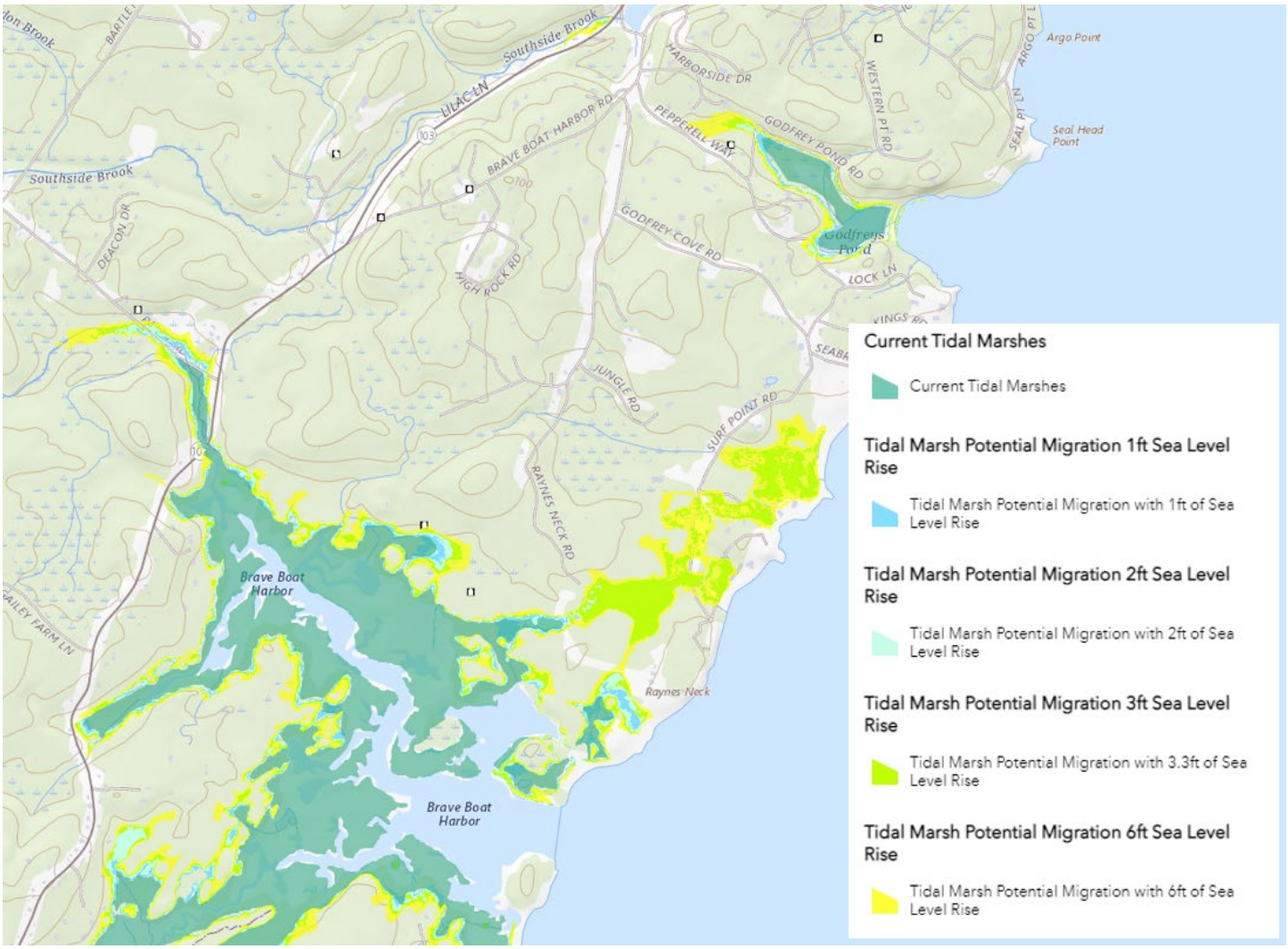
Source: Data from Maine Geological Survey

Figure 28. York River Potential Marsh Migration



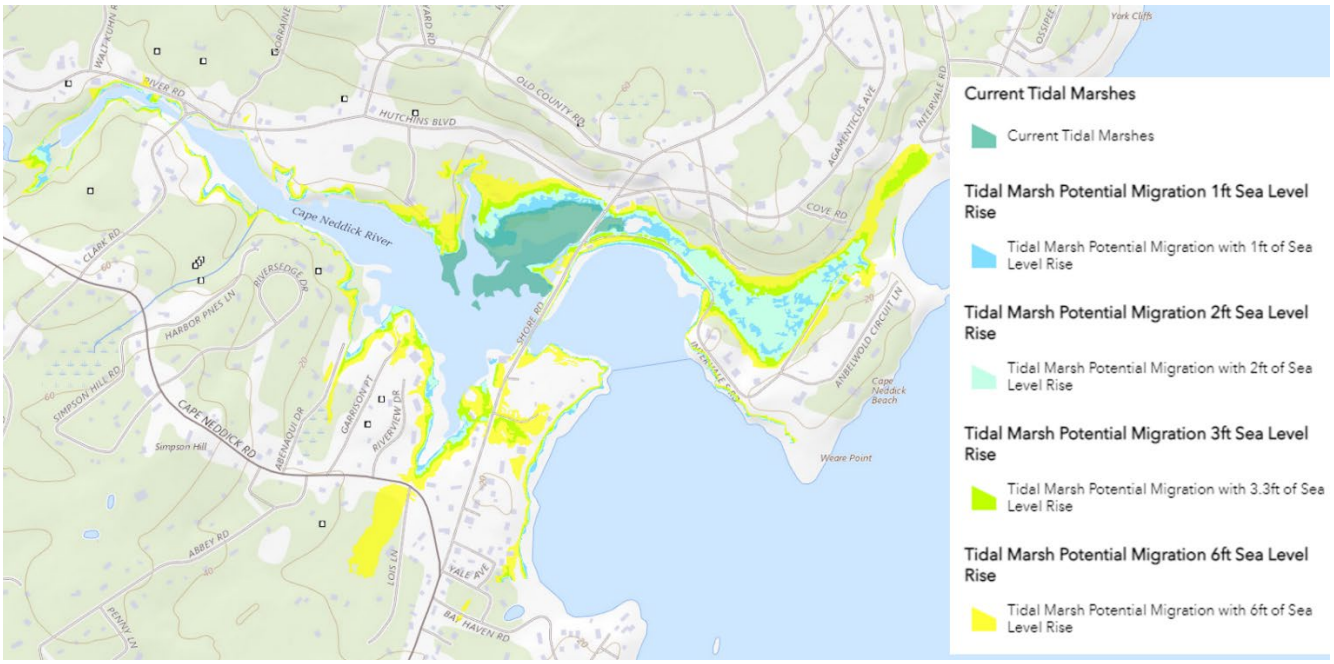
Source: Maine Geological Survey, 2021

Figure 29. Brave Boat Harbor Potential Marsh Migration



Source: Maine Geological Survey, 2021

Figure 30. Cape Neddick River Potential Marsh Migration



Source: Maine Geological Survey, 2021

Pollution from Increased Stormwater Runoff

Stormwater runoff is generated from rain and snowmelt that flows over the land and is not absorbed into the ground, either because a surface is impervious, such as a road, or the soil of over-saturated. Runoff accumulated with pollutants, sediment, and bacteria often flows in lakes, rivers, streams, and coastal waters if not captured by stormwater infrastructure. In developed areas like York, common sources of stormwater pollution are pet waste, failed septic systems, lawn fertilizer, trash, and fuel and oil from cars and boats.[112]

With York's projected increase in rainfall and more frequent and intense flooding events, a greater volume of stormwater carrying these pollutants containing high concentrations of nutrients and other harmful substances will end up in the town's natural water resources. Excess nutrients in York's waters can promote shifts to less-desirable species like invasive species, cyanobacteria, and toxin-producing algal species.[113] Pollutants and bacteria can harm aquatic life and make water unsafe for swimming, resulting in closures to beaches and other swimming areas. York drinking water reservoirs will also be more vulnerable to water quality issues from increased stormwater runoff.

[112] Cities of Portland and South Portland, *Climate Change Vulnerability Assessment*.
[113] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine."

Forest Ecosystems and Composition

While forests will continue to be abundant, the composition and growth patterns of trees in the future will continue to change due to changes in temperature, precipitation patterns, atmospheric concentrations of CO_2, and other air pollutants. Southern Maine is dominated by oak/pine forests composed of red oak, eastern white pine, red maple, eastern hemlock, white ash, and several hickories. Along coastal areas of Southern Maine, forests are also often abundant in wetland areas, containing species like Atlantic white cedar, ash, and hemlock.[114] As a transition zone, York's forests also include a mix of more northern softwood species, including spruce and fir.[115] Already in lower abundance in York, these northern softwood species are likely to decline in the future due to less snow and warmer winter temperatures.[116] On the other hand, hardwoods like oak and maple are projected to tolerate regional changes adequately,[117] while American beech is projected to substantially increase in abundance partly due to higher temperatures and precipitation.[118]

Higher temperatures and more variable precipitation will put forests more at risk from pests, disease, and wildfire.[119] Maine currently has some of the highest densities of non-native forest pests in the US, and climate change and human behavior are expected to increase pest populations in the next decade. Perhaps most notably, Hemlocks are experiencing ever increasing threats from the Wooly Adelgid, which proliferates when winters are warmer. The disappearance of hemlocks would have a cascading impact on the rest of the forest ecosystem.

Marine Ecosystems and Composition

The Gulf of Maine has historically had a subarctic ecosystem that supports fish such as the Atlantic cod and Atlantic herring, right and humpback whales, and seabirds like Atlantic puffins and tern species. However, climate change impacts such as sea level rise, warmer temperatures, ocean acidification, and increased precipitation are likely to shift species composition, alter marine and coastal food webs, and make coastal ecosystems less resilient to other stressors like invasive species, habitat destruction, and elevated nutrient levels.[120] Already, shallow-water fish like Atlantic herring, winter flounder, haddock, and alewife ranges

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[114] United States Department of Agriculture. Maine Forests. 2013. https://www.fs.fed.us/nrs/pubs/rb/rb_nrs103.pdf.

[115] Natural Resources Chapter of the *York Comprehensive Plan* dated 11.5.2013

[116] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine."

[117] https://www.nrs.fs.fed.us/pubs/55635

[118] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine."

[119] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine."

[120] Cities of Portland and South Portland, "Climate Change Vulnerability Assessment."

are migrating northward. Right whales are having fewer calves and moving further north as well.[121]

Warmer temperatures and increasing nutrients in water bodies will likely favor the proliferation of invasive species in marine ecosystems. Green crabs, Asian shore crabs, tunicates, and invasive seaweed are common invasives that continue to threaten marine ecosystem health.[122]

Invasive Species

Invasive species can be plants, animals, insects, and other organisms (e.g., microbes) introduced to areas where they did not exist before.[123] The Maine Wildlife Action Plan identifies invasive non-native species/diseases as a primary threat to species of greatest conservation need (SGCN) and to key habitats throughout Maine. Invasive plant and animal species degrade habitats and directly displace native species through competition or predation. Invasive species impacts are expected to become more problematic with changing climate conditions, and native species whose habitats are increasingly threatened by invasive species are more vulnerable to impacts from a changing environment.[124]

The Maine Natural Areas Program (MNAP) administers a mapping system called iMapInvasives, which shows where locations of invasives have been reported. Invasive species found in York and reported in iMap include: Hemlock woolly adelgid; Asiatic bittersweet; Common reed; Purple loosestrife; Cypress spurge; Glossy false buckthorn; Red alga; Japanese honeysuckle; Japanese knotweed; Variable-leaf milfoil; Multiflora rose; Morrow's honeysuckle; Japanese barberry; Japanese stilt grass; Black locust; Garlic Mustard; Rugosa Rose; Swallowwort; Giant Hogweed; Green crab; and Asian shore crab.[125]

Findings from the 2017 Assessment of Spring Fishing Communities in the York River, Maine identified the following invasive or non-native species in the York River: European green crab, bluegill, and yellow perch.[126]

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[121] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine."

[122] MCC-STS. "Scientific Assessment of Climate Change and Its Effects in Maine."

[123] Town of York, *York Comprehensive Plan*, Natural Resources Inventory & Analysis, adopted 2005 as amended through 2013.

[124] *York River Watershed Stewardship Plan*. Prepared by the York River Study Committee. August 2018.

[125] iMapInvasives, https://imapinvasives.natureserve.org

[126] Wells National Estuarine Research Reserve, Assessment of Spring Fishing Communities in the York River, Maine, 2017.

Invasive species can be transported by birds and mammals through their droppings, or spread through human activities, such as:[127]

- Transporting species between water bodies via watercraft, trailers, and other equipment;
- Releasing invasive species into the wild from aquariums, water gardens, research and education projects, and illegal stocking;
- Discharging untreated biological waste from aquaculture, seafood or other processing facilities that introduce pathogens and other organisms to marine waters;
- Releasing ships' ballast water containing invasive species into marine waters; and
- Transporting infested soils to be used for filling construction sites and wetlands.

In 2020, the York Conservation Commission identified a number of recommendations for actions to be taken by the Town of York to limit the spread of invasive plants and to deal with any existing invasives on town owned or public access land. These recommendations included education for all town departments involved in land management, creating a town map of where all invasives are located, identifying set plans of action across all departments for treatment, prevention, and monitoring of invasive plants.[128]

Interconnected Systems

Because natural resources in York operate as a system of complex inter-relationships, the additional impacts of any one of these threats can be far-reaching and affect multiple natural resources. The last Comprehensive Plan Inventory and Analysis Natural Resources chapter (added 2006, as amended through 2013) highlighted a few examples of the interrelated nature of these resources and the importance of systems thinking:

- Erosion along roads and trails generates non-point pollution: river water quality degrades; fish spawning beds silt in, reducing the habitat value; and less biological integrity contributes to a reduction in ocean's food supply.

- Sea level rises: saltmarsh will change to mud flats; shorelines will destabilize, especially in areas currently at risk for coastal landslide; and flooding will impact buildings currently out of the floodplain, and will force alteration of the road network in flood-prone areas.

- Dividing a large unfragmented block in half with a new subdivision and road: biodiversity will decline; tree species could be impacted; recreation opportunities will decline; and houses will encroach on former hunting areas, restricting firearms

[127] Town of York, *York Comprehensive Plan*, Natural Resources Inventory & Analysis, adopted 2005 as amended through 2013.
[128] York Conservation Commission, Invasive Plants in the Town of York, August 25, 2020.

discharge and resulting in smaller areas for hunting, and reducing the opportunity for finding solitude.

Ongoing Efforts to Protect Natural Resources

Conservation Efforts & Partnerships

There are many organizations and initiatives working to protect and conserve land in York. According to data published by the State's conservation database register, within the Town of York there are approximately 9,453 acres of conservation land in public or private ownership.[129] The vast majority of conservation land in York is located in the greater Mt. Agamenticus area.

Government conservation land and easements are held by the Town of York, the York Water District (YWD), the Kittery Water District (KWD), the Maine Department of Inland Fisheries and Wildlife (IF&W), and the U.S. Fish and Wildlife Service (USF&W). The Town, state and federal holdings are held exclusively for conservation purposes. Town staff and recent planning efforts have reported that more than half of the land, that owned by the two water districts, is conservation land only to the extent it serves to protect the sources of their public water supplies. While the District maintains use restrictions on these lands, the districts are not obligated to keep them. Still, as these lands are reflected in the State database and they are protected from development pressures in the short term, they are shown as conservation lands.[130]

Private conservation land and easements are held by the York Land Trust, the Maine Coast Heritage Trust, and the Great Works Regional Land Trust. Partnership between the Town and the York Land Trust has been the primary method of adding additional conservation land in York.

The York Conservation Commission has identified five Town of York conservation easements totaling approximately 192 acres that have not been registered with the State conservation register by the Town. Once registered, the Conservation Commission plans to monitor these lands.[131] York would benefit from increased Town capacity for tracking registrations and monitoring conservation easements, perhaps through the form of designated staff support to the Conservation Commission.

[129] State of Maine Conserved Lands, 2021.

[130] Town of York, *York Comprehensive Plan*, Natural Resources Inventory & Analysis, adopted 2005 as amended through 2013.

[131] Correspondence with York Conservation Commission Chair, December 2, 2021.

Mt. Agamenticus to the Sea Initiative (MtA2C)

MtA2C is a coalition of ten organizations working together to conserve fields, wetlands, and marshes in a regional focus area that includes parts of Kittery, Eliot, York, Ogunquit, Wells, and South Berwick. Partners involved in the MtA2C initiative include, Great Works Regional Land Trust, Kittery Land Trust, Maine Coast Heritage Trust, Maine Department of Inland Fisheries and Wildlife, The Nature Conservancy – Maine Field Office, Trust for Public Land, US Fish and Wildlife Service/Rachel Carson National Wildlife Refuge, Wells National Estuarine Research Reserve, York Land Trust, and York Rivers Association.[132]

MtA2C identifies six broad areas as conservation targets:

- Significant contiguous forestlands, unfragmented forested uplands and freshwater wetlands
- Water quality and quantity, coastal and tidal communities
- Rare or sensitive habitat patches
- Early successional habitat, Blanding's turtles, vernal pools
- Working farms, forests and waterfronts and traditional sustainable uses of the land and waterways
- Cultural landscape and historic structures, features and viewsheds [133]

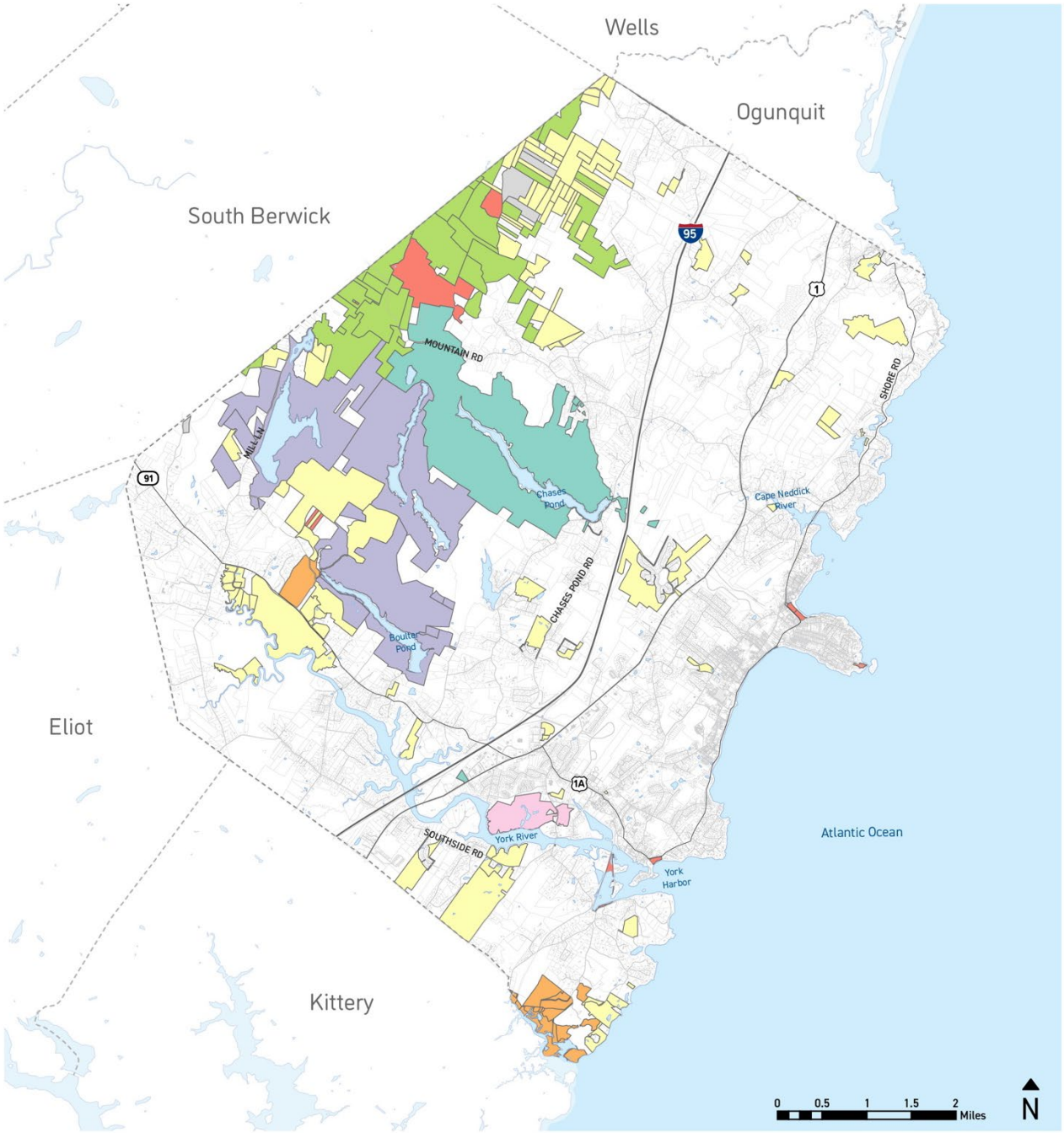
MtA2C's work is guided by a 2005 conservation plan with a goal of reaching 19,000 acres of conserved natural lands and protected watersheds in the Mt. Agamenticus region to benefit people and wildlife. Since 2002, the MtA2C initiative has protected 5,046 acres of land, for a total of 15,086 acres in the MtA2C Focus Area (Fig. 32).[134]

[132] Learn About MtA2C http://www.mta2c.org/learn/

[133] A Conservation Plan for the Mt. Agamenticus to the Sea Conservation Initiative, 2005

[134] MtA2C Conservation Lands Map dated 1/25/21 by Maine Coast Heritage Trust.

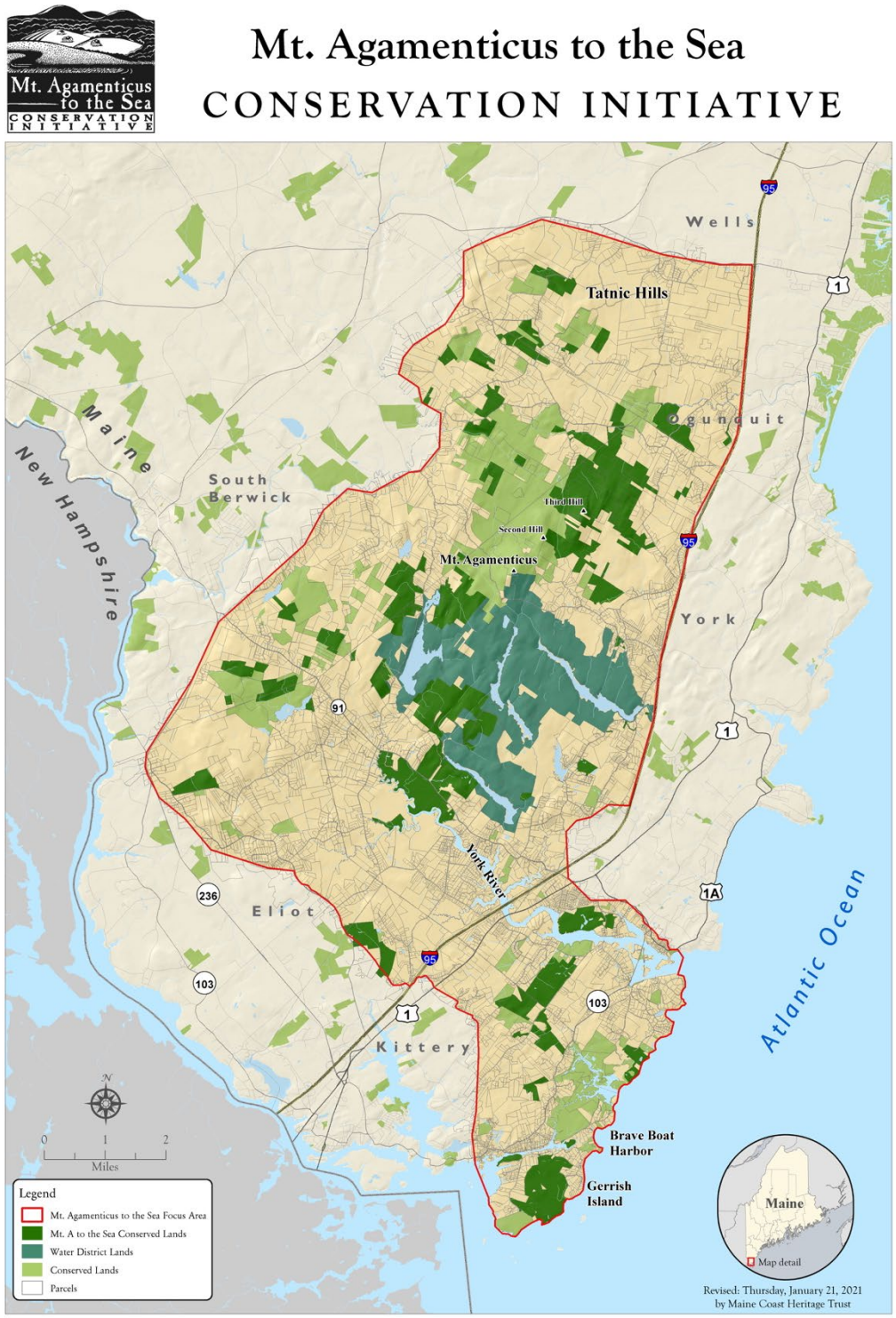
Figure 31. Conserved Land by Land Holder



Data Sources: State of Maine Conserved Lands Data updated April 26, 2021 (credit to Department of Agriculture, Conservation and Forestry, Bureau of Parks and Lands, Land Use Planning Commission, Department of Inland Fisheries and Wildlife, State Planning Office, The Nature Conservancy, New England Forestry Foundation, Maine private land trusts, US Park Service, US Fish and Wildlife, Maine municipal towns, Appalachian Mountain Club), Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

- York Water District
- Town of York
- Maine Coast Heritage Trust
- York Land Trust, Inc.
- US Fish and Wildlife Service
- Great Works Regional Land Trust
- Kittery Water District
- Maine Department of Inland Fisheries and Wildlife

Figure 32. MtA2C Conservation Lands Map (2021)



MtA2C protected lands since 2002: 5,046 acres Total Open Space in MtA2C Focus Area: 15,086 acres

Source: mta2c.org

York Land Trust

The York Land Trust (YLT) owns or maintains a number of preserves in York and also works to facilitate preservation of additional land. The organization has been working in the Mount Agamenticus region for 25 years to help conserve more than 14,000 acres of land within the 48,000-acre area of York, Kittery, Eliot, the Berwicks, and Wells. YLT directly stewards roughly 2,400 acres of community lands, including Public Access Preserves, Limited Access Preserves, and Conservation Easements on privately owned lands.

Looking ahead, the YLT's stated priority focus areas for conservation efforts include coordination with the regional MtA2C initiative to protect as much contiguous area as possible in the Mt. A region across six towns, as well expanding holdings in an 1100 acre area close to the water between Pine Hill Rd and Shore Rd, where YLT has recently acquired 320 acres of land.[135]

Fuller Forest

At Fuller Forest, the York Land Trust has transformed a working forest into a nature preserve. Originally acquired by the Trust in 2017 following a town referendum where York voters approved a $300,000 contribution from the town toward this project, the preserve is now a sustainably-managed working forest with public access trails that opened to the public in December 2020. The preserve totals 220 acres and includes include a mixed hardwood forest, ponds, streams, and forested wetlands that provide habitat for a diversity of wildlife. It abuts additional conservation lands that together create a 1,300-acre contiguous block of undeveloped land.

Source: Jane Murphy, "York Land Trust opens Fuller Forest Preserve to the public", Portsmouth Herald, Dec 28, 2020.

Maine Coast Heritage Trust

The Maine Coast Heritage Trust is a non-profit land conservation organization with stated goals of increasing access to the coast for everyone, making the coast more resilient to climate change, and supporting coastal communities.[136]

Great Works Regional Land Trust

The Great Works Regional Land Trust (GWRLT) works with landowners and communities of Eliot, South Berwick, Berwick, North Berwick, Wells and Ogunquit to conserve important resources including clean water, working landscapes (farmland and woodlots), unfragmented

[135] Correspondence with York Land Trust, Fall 2021.

[136] Maine Coast Heritage Trust Website, https://www.mcht.org

forests, wildlife habitats, cultural and historic features, recreational opportunities, and scenic views.[137]

Maine Wildlife Management Areas

The Maine Department of Inland Fisheries and Wildlife owns and manages Wildlife Management Areas (WMAs) with a mission and purpose to provide a statewide, ecologically based system of land holdings for the protection and enhancement of important wildlife habitats that also provide opportunities for all types of public recreation. The Department manages 69 WMAs across the state, including the Mt. Agamenticus WMA in York.[138]

Rachel Carson National Wildlife Refuge

Established in cooperation with the State of Maine to protect valuable salt marshes and estuaries for migratory birds, the eleven divisions of the Rachel Carson National Wildlife Refuge are located along 50 miles of coastline in York and Cumberland counties.[139]

Maine Farmland Trust

Maine Farmland Trust is a statewide organization that protects farmland, supports farmers, and advances the future of farming. The organization is currently partnering with the Blaisdell family to pursue an agricultural conservation easement that would permanently protect the historic farm.[140]

York County Soil and Water Conservation District

Soil and Water Conservation Districts (SWCDs) are subdivisions of State Government, governed by locally-elected Boards of Supervisors. SWCDs establish local priorities for conservation efforts. The York County Soil and Water Conservation District's work includes lessons on building a vegetated buffer and providing grants to support land and water management projects with an aim of conservation.[141]

State of Maine Open Space Current Use Tax Program

One of the State's four "current use" programs that offer the property owner a reduction in assessed value, the Open Space current use tax program provides an incentive for property owners to register their land as Open Space. To qualify, the parcel must be preserved or restricted in use to provide a public benefit. Benefits recognized include public recreation, scenic resources, game management, and wildlife habitat. Properties enrolled in the Program

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[137] Great Works Regional Land Trust Website, https://gwrlt.org

[138] Maine Department of Inland Fisheries and Wildlife, Wildlife Management Areas, https://www.maine.gov/ifw/fish-wildlife/wildlife/lands/wildlife-management-areas/index.html

[139] Rachel Carson National Wildlife Refuge - About the Refuge https://www.fws.gov/refuge/rachel_carson/about.html

[140] Maine Farmland Trust, https://www.mainefarmlandtrust.org

[141] Maine Department of Agriculture, Conservation & Forestry, Soil and Water Conservation Districts

through the Town of York Assessor, as of 2021, and therefore maintained as open space, are shown in Fig. 33.

Figure 33. Properties Enrolled in the State of Maine Current Use Open Space Tax Program (2021)

Data Sources: 2021 Town of York Assessor, Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset.
Map created by CivicMoxie.

Parcels with land enrolled in State of Maine Current Use Open Space Tax Program

Open Space Conservation Subdivisions ("Cluster Subdivisions")

Another way that land in York is conserved is through conservation easements as part of Open Space Conservation subdivisions. As an alternative to conventional residential subdivision design, the purpose of York's open space conservation subdivision design is to protect important components of the natural and cultural environment while encouraging quality residential neighborhood design. The primary mechanism to accomplish this purpose is the reduction of individual lot sizes and dimensional standards, with the balance of land set aside into a common open space. Some of the York Land Trust's holdings and conservation easements have been received through this process. More information on these subdivisions is included later in this section.

Other Partnerships & Recent Planning Efforts

Mount Agamenticus Steering Committee Partners

The mission of the Steering Committee is to protect the region's water quality and wildlife habitat while managing sustainable recreational opportunities for the general public on over 10,000 contiguous acres. Landowners that make up the Mount Agamenticus Steering Committee include: the towns of York and South Berwick, York Water District, Maine Dept. of Inland Fisheries and Wildlife, Great Works Regional Land Trust, and York Land Trust. The Mt. Agamenticus Public Access and Trail Plan was prepared for the Steering Committee in 2012 to allow the Steering Committee to implement trail and public access development projects without compromising the integrity of the area's ecologically significant habitats.[142]

Friends of Mount Agamenticus (FOMA)

The Friends of Mount Agamenticus (FOMA) is a 501(c)(3) non-profit volunteer advocacy and stewardship group for the Mount Agamenticus Conservation Program. The role of the Friends is to assist Program staff in carrying out educational, interpretive, community outreach and public use objectives without compromising the integrity of the region's sensitive ecological habitat.[143]

York Water District (YWD)[144]

The YWD owns 90% of the Chases Pond watershed and controls the entire shoreline of Chases Pond. The YWD maintains an active land acquisition program in the Chases Pond watershed and reports that its goal is to own all the land in its watershed, including seeking partnerships with conservation interests where appropriate.[145] Each entry point to the

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[142] *Mt Agamenticus Public Access and Trail Plan*, Prepared by SMPDC for the Mt A Steering Committee Partners, 2012.

[143] Friends of Mount A, http://agamenticus.org/foma

[144] Information for this section is from correspondence with the York Water District in Summer and Fall 2021.

[145] *York Water District, Public Water System Report for the Town of York Comprehensive Plan Update, March 2022.*

watershed has a large Rules of Use sign that lists what is expected when on the property and how to contact the YWD if needed. Reasons may include reporting incidents, accidents, injuries or just to ask a question. The watershed boundary is clearly marked and signage identifies the property as public water supply with the rules clearly listed. The District uses GIS to map tributaries, trails, structures, and other features within the watershed.

In 1997, the YWD initiated a Watershed Patrolling Program, which has evolved into a Natural Resource Protection Program. YWD and York Police Department partnered to train a YWD employee to become a part-time police officer and patrol the Chases Pond watershed. In recent years, this employee has taken on the responsibility of patrolling the neighboring KWD watershed and the Mt. Agamenticus Conservation Region a total of 14,000 acres. The patrol officer can be seen regularly on these trails in York looking for subtle changes in the watershed, potential sources of pollution (including wildlife management), and enforcing YWD rules, Town ordinances and State laws. The officer talks with the recreational users and neighbors of the watershed.

The York Water District (YWD) manages, administers, and in many cases enforces its own watershed protection program for itself and watershed protection partner, KWD. The YWD also partners or participates with local and regional advocacy groups to promote safe recreation while also advocating for water resource protection. The District also enforces strict rules of use while the public is using the property for limited recreational use:

1. 4 Wheel Vehicles (Trucks, Jeeps etc.) are prohibited.
2. No motorcycles, dirt bikes or motor driven cycles.
3. ATV's by permit only.
4. No gasoline powered engines allowed on the ponds at any time.
5. Stay on marked trails.
6. Stay out of closed areas.
7. The making of new trails is strictly prohibited.
8. No boating, swimming, or camping.
9. No fishing, open water, or ice fishing.
10. No fires of any kind at any time.
11. No tree cutting.
12. No littering, carry out what you carry in.
13. The maximum speed on all trails is 15 m.p.h.
14. Pet owners must follow the town of York animal control ordinances.
15. Pet owners must also follow the YWD & KWD Public Water Supply Animal Control Policy. Please pick up your pet's waste.
16. No tree stands.
17. Hunting is allowed.
18. Obey all signs.

19. No organized group activities.
20. No rock climbing, rappelling.
21. The possession or consumption of alcohol is prohibited.
22. No recreational uses on the ponds at any time, open water, or ice.

YWD owns a communications tower on Mt. Agamenticus and cooperates with the Mt. Agamenticus Steering Committee who are responsible for planning and development of the area. The York Water District identifies the following additional relationships that assist promotion of water resource protection in York:

- Mt. Agamenticus Conservation Program (patrolling program common interest in water quality)
- Kittery Water District (patrolling program common interest in water quality)
- York Police Department (patrolling program education/enforcement)
- York High School (internship raise awareness in water quality protection)
- York High School (scholarship raise awareness in water quality protection)
- The Maine Forest Service (Forestry Best Management Practices include water quality)[146]

Southern Maine Regional Water Council (SMRWC)

The YWD is a member of the Southern Maine Regional Water Council (SMRWC), a group of seven southern Maine water utilities formed in 2005 to enhance regional cooperation. Combined, the SMRWC members serve over 250,000 persons throughout 23 communities in York and Cumberland Counties. The overarching goal of the council is to improve service and to lower the cost of water for the customer base served by the water systems.[147] Three members of the SMRWC; (1) York Water District, (2) Kittery Water District and (3) Kennebunk, Kennebunkport Wells Water District have been participating in more localized planning. These three systems are interconnected and are engaged to explore options to enhance existing interconnections.[148]

York County MS4 Group

As have many other Phase II communities subject to MS4 General Permits, the Town of York has joined the communities of Berwick, South Berwick, Eliot and Kittery (who have been regulated since 2003) to implement some of the components of the permit cooperatively and to help minimize costs. This group of communities is self-named the York County MS4s. This regional York County MS4 group completes several of the General Permit requirements

[146] York Water District Correspondence, August 17, 2021.
[147] *York Water District, Public Water System Report for the Town of York Comprehensive Plan Update, March 2022*.
[148] York Water District Correspondence, August 17, 2021.

cooperatively within their own group, and collectively with the other 25 regulated communities.[149]

Southern Maine Planning and Development Commission (SMPDC)

The Southern Maine Planning and Development Commission (SMPDC) is a non-partisan non-profit that provides its 39 member towns with services including land use planning, brownfields redevelopment, transportation planning, sustainability and resilience programs, and cooperative purchasing. It seeks to cultivate thriving, sustainable communities and strengthen local governments by leading planning and economic development efforts.

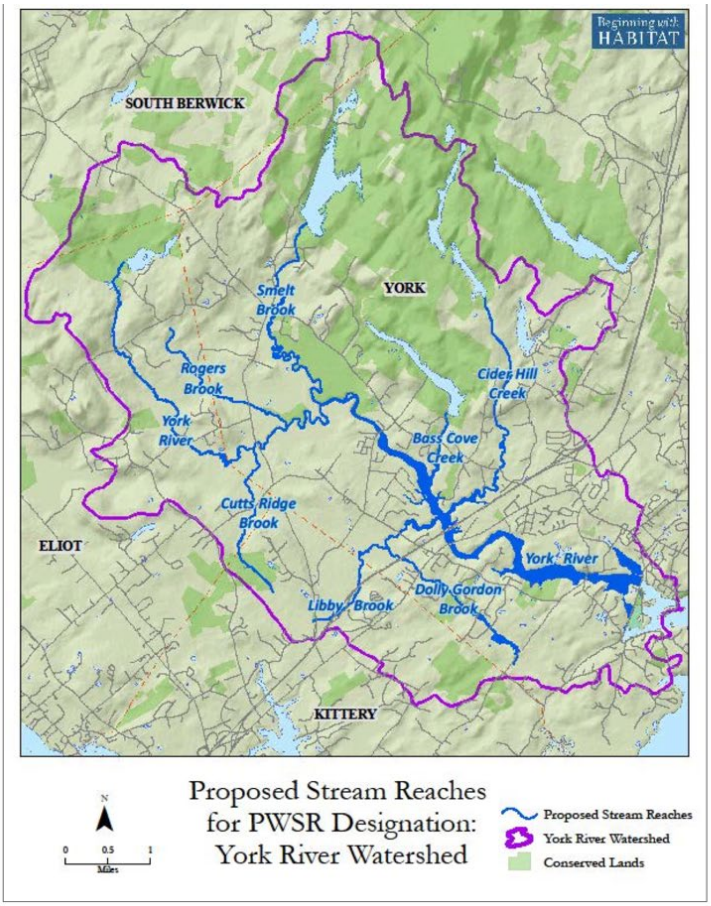
York River Wild & Scenic Stewardship Plan

A bill was introduced in the U.S. Senate December 1, 2020 to designate York River as 'Wild and Scenic'. The Bill must be passed by Congress and signed by the President to achieve designation. A Partnership Wild and Scenic River (PWSR) designation for the York and tributary streams in the National Wild and Scenic Rivers System would provide an administrative structure and crucial funding needed to implement the York River Watershed Stewardship Plan, enable a watershed approach across the four-town area, leverage additional technical and financial resources, engage key partners and citizens in river stewardship, and bolster ongoing initiatives to protect important watershed resources.[150]

[149] Town of York, Stormwater Chapter Comprehensive Plan Inventory & Analysis, Adopted 2015.

[150] York River Watershed Stewardship Plan. Prepared by the York River Study Committee. August 2018.

Figure 34. Proposed Stream Reaches for PWSR Designation



Stream Reaches Recommended for PWSR Designation	Length (miles)
Bass Cove Creek, from Boulter Pond outlet to York River	0.95
Cider Hill Creek, from Middle Pond dam to York River	3.77
Cutts Ridge Brook, in entirety	2.15
Dolly Gordon Brook, in entirety	3.17
Libby Brook, in entirety	1.65
Rogers Brook, in entirety	2.43
Smelt Brook, from Bell Marsh Reservoir dam to York River	4.54
York River, from York Pond outlet to 103 Bridge, including Barrell Mill Pond	12.14
Total length:	**30.80**

Source: York River Watershed Stewardship Plan. Prepared by the York River Study Committee. August 2018.

Beginning with Habitat (BwH)

Beginning with Habitat is a statewide initiative that assists landowners, land trusts, non-profits, and governmental bodies with conservation planning by providing information, creating maps, collecting data, assisting with conservation planning, and helping to create tools and strategies for conservation programs.[151]

Town Policies, Procedures, and Standards

York Conservation Commission

The mission of the Conservation Commission is to ensure the protection and proper utilization of the natural resources and ecosystems of York: rivers and ponds, watershed and wetlands, open spaces, beaches, and scenic vistas. Responsibilities include (among others) conducting studies and making recommendations as to the protection, development, maintenance, and use of the natural resources located within the town limits of York, coordinating its activities with existing municipal agencies, commissions, departments, and bodies organized for similar

[151] Maine Department of Inland Fisheries & Wildlife, Beginning with Habitat.

purposes (e.g., York Land Trust), reviewing current and proposed development projects in town to determine potential impacts on natural resources and making recommendations to the Planning Board/Board of Appeals accordingly, and making recommendations about conservation land acquisitions, Zoning Ordinance and other land use codes.[152]

York's Zoning Ordinance

York's Zoning Ordinance identifies the conditions under which the Code Enforcement Officers may issue permits, and under which the Planning Board will review development (under the Site Plan and Subdivision Regulations. Generally, commercial, office, industrial, public, semi-public, institutional, vehicular, recreation, amusement or miscellaneous use categories require review if there will be a building 5,000 square feet or larger, or if the use requires 25 or more parking spaces. Multi-family housing is also required to be reviewed, and any change which amends a prior approved plan needs to be reviewed and re-approved.[153]

Overlay districts such as the Public Water Supply Watershed Protection Overlay District, the Shoreland Overlay Zoning District, the Wetlands Protection Overlay District, and the Farm Enterprise Zoning District establish areas with stricter requirements to protect natural resources. The Ordinance also lays out a number of town-wide standards that are relevant to natural resource protection in York, including:

- Performance Standards to Control Erosion (Article 6.5)
- Prohibition of Dumping into Waterbodies, Wetlands, and Man-made Drainage Facilities (Article 6.6)
- Performance Standards for Maintenance of Stormwater Facilities (Article 6.7)
- Non-Residential Performance Standards require a Stormwater Management Plan (Article 6.1)

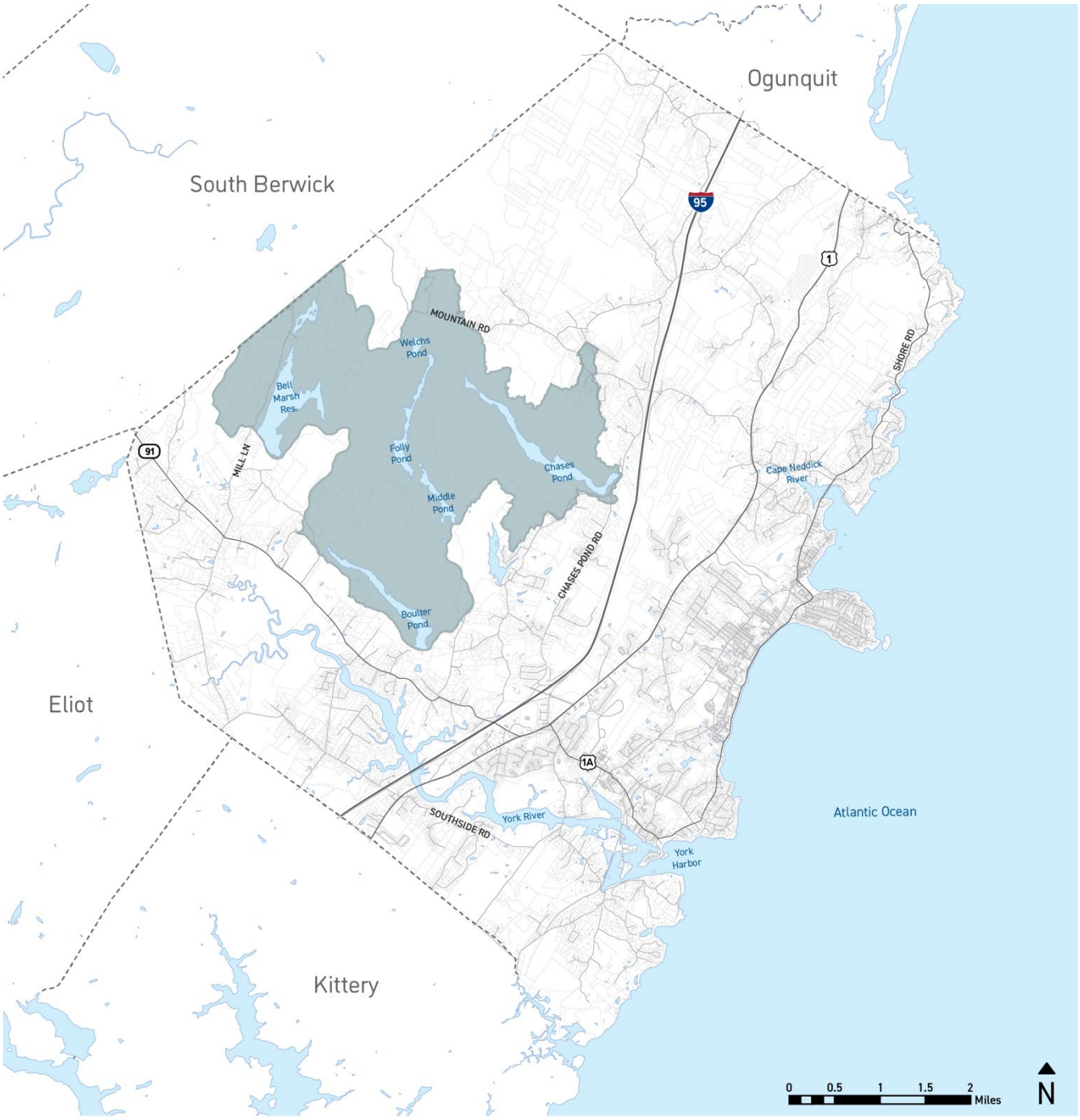
Public Water Supply Watershed Protection Overlay District

The Town of York approved a Public Water Supply Watershed Protection Overlay District in the 1980s to control activities on private property that have the potential to negatively affect the water quality in the six public water supply ponds and reservoirs located in the Town of York. These water supplies are owned and managed by York Water District and Kittery Water District. The Watershed Protection Overlay District consists of that area in which surface and subsurface waters ultimately flow or drain into the public water supply, including the area of the ponds (Fig. 35).

[152] Commission Charter, York Conservation Commission, https://www.yorkmaine.org/DocumentCenter/View/4587/YCC-Charter-Approved-3-22-21

[153] Town of York, Stormwater Chapter Comprehensive Plan Inventory & Analysis, Adopted 2015.

Figure 35. Watershed Protection Overlay District



Data Sources: 2019 Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.
The data shown here is for planning purposes only and is not intended for making legal or zoning boundary determinations.

Watershed Protection Overlay District

The purposes of the Watershed Protection Overlay District are:[154]

- To protect and maintain the present quality and quantity of potable water supplied to residents of York and Kittery from Chases Pond, Folly Pond, Middle Pond, Boulter Pond and Bell Marsh Pond;
- To prevent and control pollution of surface water and groundwater in the watersheds of Chases Pond, Folly Pond, Middle Pond, Boulter Pond and Bell Marsh Pond;
- To maintain safe and healthful environmental conditions in the watersheds of Chases Pond, Folly Pond, Boulter Pond, Middle Pond, and Bell Marsh Pond;
- To restrict or control uses involving hazardous materials or other contaminants which, if introduced to the ground or groundwater, cannot be rendered harmless by dilution or by the attenuative capacity of the soil before reaching the public water supply; and
- To minimize disturbance within the watersheds in order to maintain good water quality.

Permitted uses in the District are Agriculture, excluding Animal Husbandry; Single-family dwellings Open Space Uses accessory to the foregoing; Timber Harvesting (provided all necessary state and local permits have been obtained and the use meets all the applicable performance standards). A conditional use permit is required for the following uses: Expansion of uses, home occupations, public utility facilities; Road construction (except for logging roads).[155] The Overlay District contains performance standards related to buffers, land uses, drainage, erosion and sedimentation control measures, storage of materials, wastewater disposal systems, water quality, and wetlands. The overlay has dimensional standards for lot sizes, lot coverage, lot clearing limits, and structure location.

The YWD reports that the Overlay District is crucial to support the surveillance activities undertaken by the District to protect water quality and to restrict and manage land-use activities in the watershed. Protections include requiring homes within the Overlay District to pump wastewater disposal systems (including septic tanks) every three years, increased setbacks for activities such as logging, erosion and sedimentation control standards, and buffers around public water supplies and streams.[156]

Shoreland Overlay Zoning District

At the direction of York voters, the town has the most stringent Shoreland regulations when compared to other neighboring towns and contains multiple provisions that exceed the state minimums, including regulation of land use around all wetlands rather than just those required by the Mandatory Shoreland Zoning Act (MSZA).

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[154] York Zoning Ordinance, 1.3.5.

[155] Town of York Zoning Ordinance, Article Ten.

[156] York Water District Correspondence.

The Shoreland zone is a 250-foot area surrounding water bodies, wetlands, and 75 feet from protected streams. The Shoreland Overlay District (Fig. 36) specifies dimensional standards (including minimum land area and frontage requirements, erosion and sediment control standards, parking are requirements, and general stormwater runoff standards) and permitted and prohibited land uses in the shoreland zone. Many uses require a permit from the Code Enforcement Officer (CEO). Resource protection sub-districts include coastal wetlands, inland wetlands, map-designated areas, steep slopes, 100-year floodplain, bird habitat areas, and unstable bluffs.

The purposes of the Shoreland Overlay District[157] are:

- to further the maintenance of safe and healthful conditions;
- to prevent and control water pollution; to protect fish spawning grounds, aquatic life, bird and other wildlife habitat;
- to protect buildings and lands from flooding and accelerated erosion;
- to protect archaeological and historic resources; to protect commercial fishing and maritime industries;
- to protect freshwater and coastal wetlands;
- to control building sites, placement of structures and land uses;
- to conserve shore cover, and visual as well as actual points of access to inland and coastal waters;
- to conserve natural beauty and open space; and
- to anticipate and respond to the impacts of development in shoreland areas.

The following standards are applied in making a determination to approve or deny an application for a Shoreland Permit:[158]

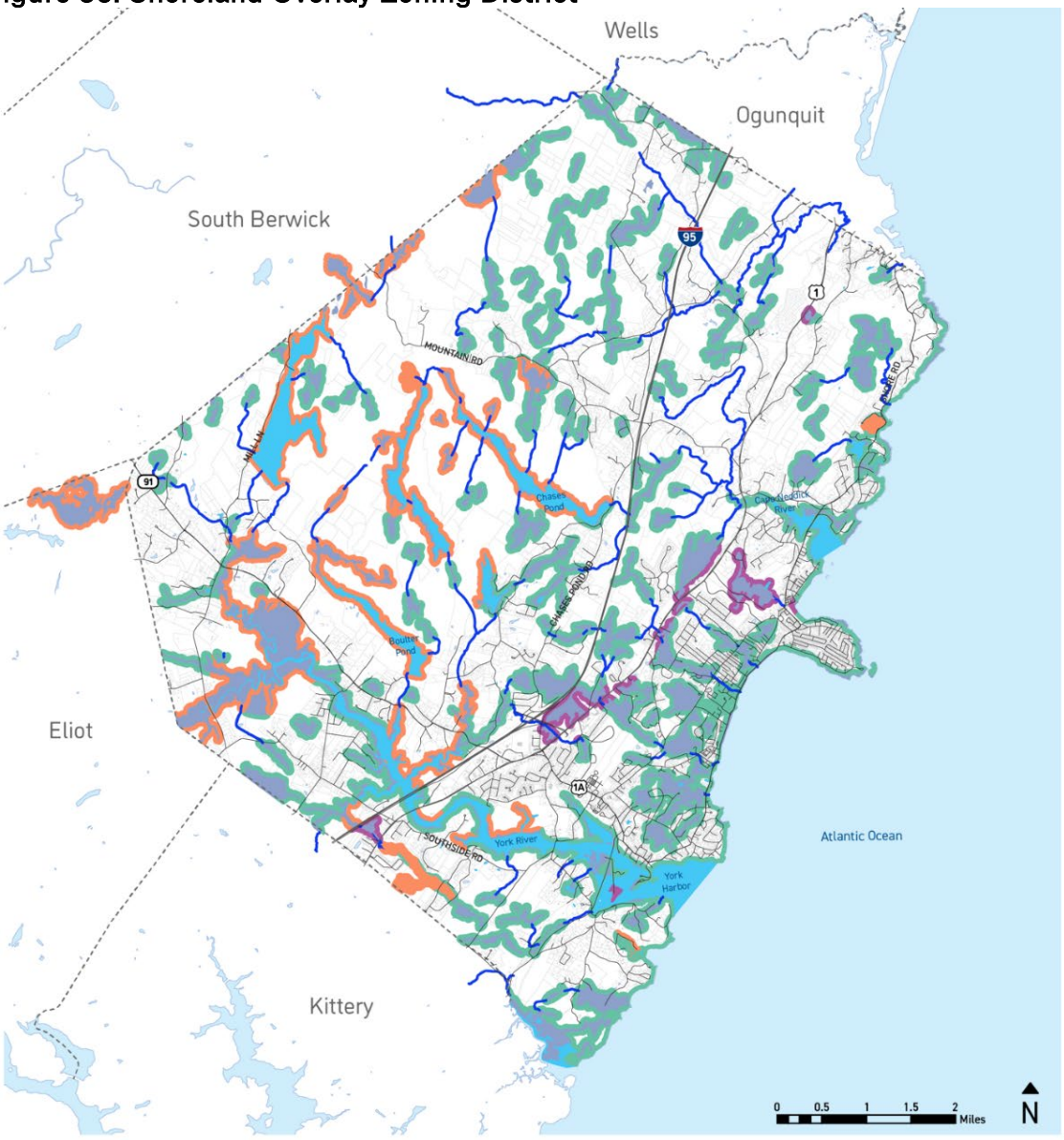
- Will not result in unsafe or unhealthful conditions;
- Will not result in erosion or sedimentation;
- Will not result in water pollution;
- Will not adversely impact spawning grounds, fish, aquatic life, bird and other wildlife habitat;
- Will conserve shoreland vegetation;
- Will conserve visual points of access to inland and coastal waters, and shoreland scenes and vistas as viewed from public facilities and public (Town and state) roads;
- Will conserve actual points of public access to waters;
- Will conserve natural beauty;
- Will avoid problems associated with floodplain development and use;
- Will not interfere with existing navigational uses;

[157] York Zoning Ordinance 1.3.3

[158] York Zoning Ordinance, 18.2.6

- Will not unreasonably alter the natural flow or storage capacity of any waterbody;
- Will adequately provide for disposal of all wastewater;
- Will conserve protective barriers from the normal high water mark of adjacent wetlands; and
- Will conserve the amount of impervious surface.

Figure 36. Shoreland Overlay Zoning District



Data Sources: Town of York OpenData, Maine Geolibrary, USGS National Hydrography Dataset. Map created by CivicMoxie.

Stream Protection
Resource Protection
Limited Residential
Wetland
Mixed Use
Surface Water

Wetlands Protection Overlay Zoning District

The Wetlands Protection Overlay District was established to protect all of York's wetlands, primarily by avoiding impacts and secondarily by minimizing and mitigating unavoidable impacts. Any area that meets the definition of Inland Wetland, regardless of size, is considered a wetland subject to the provisions of the Wetlands Protection Overlay District. Provisions apply only to the wetlands themselves and not to the surrounding upland areas. A Wetland Permit is required for any use, fill, or alteration of a wetland, except for cutting trees for personal use such as firewood. Conditions and activities to minimize impacts are required for utility driveway and road crossings, as well as vegetation removal or disturbance. Existing structures in wetlands or on filled wetlands may be enclosed or expanded in a manner that does not increase the footprint of the building in the wetland or wetland fill area.[159]

The Farm Enterprise Overlay Zoning District

For a farm to qualify for inclusion in the Farm Enterprise Overlay District, the property owner must demonstrate that the total agricultural land is a minimum of five acres in size and contains at least two contiguous acres on which agriculture has contributed to a gross annual value of at least $2,000 per year. The acreage minimum may be met by any combination of ownership, rental, or lease of agricultural land. The Farm Enterprise Overlay District map may be amended by referenda upon application for inclusion by a property owner that has demonstrated they meet the acreage and use requirements of the overlay district. Currently, there were 29 parcels totaling approximately 740 acres of land in York in the Farm Enterprise Overlay District (Table 14, Fig. 23).

Open Space Conservation Subdivisions ("Cluster Subdivisions")

As an alternative to conventional residential subdivision design, York's Zoning Ordinance promotes cluster subdivisions to help protect the natural and cultural environmental and encourage quality residential neighborhood designs. Proposed residential subdivisions that are not created through exemptions in the State Subdivision law are required to be designed as an open space conservation residential development when any of the following exists (7.6.1.A):

(1) The residential subdivision is proposed to contain a public road that provides access to lots/dwellings; or
(2) The lot for which the residential subdivision is proposed abuts conservation land or land that can't be developed that is 10 acres or greater; or
(3) The lot to be subdivided is partially or fully located within the Cape Neddick or York River Watersheds.

[159] Town of York Zoning Ordinance

York's Zoning Ordinance specifies that open space created as part of this process must include one or more of the following public purposes (1.3.12). Open space must contain at least 50% of the total area of the property and must contain at least 50% of the net developable area of the property (7.6.3.A)

A. Protection of open space, particularly those un-fragmented blocks of land that are 550 acres or more in size as identified in the Existing Land Use Chapter of the Comprehensive Plan Inventory and Analysis. These areas are important for wildlife habitat (biodiversity), recreation, scenic values, and contributions to small town character.
B. Provision of undeveloped corridor connections between adjacent un-fragmented blocks of land, particularly between those of 550 acres or more in size as this will magnify the open space value for biodiversity and for recreation;
C. Protection of land for farming or forestry;
D. Protection of historic and archaeological resources;
E. Protection of cemeteries and burial grounds;
F. Maintenance of existing public access to shoreland areas, or provision of new public access to shoreland areas;
G. Preservation of scenic vistas from public ways or public lands;
H. Protection of other unique natural or cultural features on a property, as may be determined to be of public benefit by the Planning Board. The Board may base such decisions on the Town's Comprehensive Plan, other local, regional and state policies, best available science, private studies, and other references found to be credible by the Board.

Site Plan and Subdivision Regulations

The Town of York regulates new developments and redevelopment of land within its municipal boundaries primarily through the Site Plan and Subdivision Regulations, a stand-alone ordinance. The thresholds triggering this regulation are described in the Zoning Ordinance (Article 18). Generally, the regulation contains requirements to preserve natural and historic features, and provisions for parking spaces, street design, and stormwater drainage structure.

Relevant findings of fact required from the Planning Board for approval of any application pursuant to these regulations include:

- Pollution. The development will not result in undue water or air pollution (1.2.1);
- Erosion. The development will not cause unreasonable soil erosion or a reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition results (1.2.4);

- Aesthetic, Cultural and Natural Values. The development will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or the municipality, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline (1.2.8);
- Surface Waters. Whenever situated entirely or partially within the watershed of any pond or lake or within 250 feet of wetland, great pond or river as defined in Title 38, Chapter 3, Subchapter 1, Article 2-B, the proposed development will not adversely affect the quality of that body of water or unreasonably affect the shoreline of that body of water (1.2.11)
- Ground Water. The development will not, alone or in conjunction with existing activities adversely affect the quality or quantity of ground water;
- Freshwater Wetlands. All freshwater wetlands within the proposed development have been identified on any maps submitted as part of the application, regardless of the size of these wetlands (1.2.14);
- River Stream or Brook. Any river, stream, or brook within or abutting the proposed development has been identified on any maps submitted as part of the application (1.2.15);
- Stormwater. The proposed development will provide for adequate stormwater management (1.2.16).

Application requirements include information on phosphorous pollution, scenic resources, soils, flood zones, water and sewer, stormwater drainage plan, soil erosion and sedimentation plan, hydrogeologic assessment when not served by public sewer and meets specific site requirements, and relationship of the applicant's property with respect to Undeveloped Habitat Blocks, High Value Plant and Animal Habitats, and Focus Areas of Ecological Significance as mapped by the Maine Department of Inland Fisheries and Wildlife's Beginning with Habitat Program.

Where the property is found to be located within an Undeveloped Habitat Block of greater than 500 acres, coincides with any habitat identified on the High Value Plant and Animal Habitats Map, or falls within the Mount Agamenticus or Greater Brave Boat Harbor/Gerrish Island focus areas, the application is required to include an analysis of the property and the proposed development prepared by a wildlife biologist with work experience in the region and based on existing data and site visits. Recommendations are required to maximize the habitat values following development, including but not limited to wildlife passage between undeveloped blocks.

Stormwater Management Plan for Small Municipal Separate Sewer System Stormwater General Permit (Small MS4 GP)

York is regulated under the Small MS4 GP program, which includes construction management, post-construction management, and good housekeeping/pollution prevention. Their participation/compliance is documented each year in their annual report for the Small MS4 GP. The Stormwater Manager within the Code Enforcement Department conducts primary oversight and management of the permit implementation.
Requirements of the Small MS4 GP include:

- Public education and outreach on stormwater impacts. The Lawns to Lobsters program is a public education and outreach program that seeks to educate the public on environmentally sound lawn care practices.
- Public involvement and participation includes making meetings and program documents available to the public and holding at least one event each year that is related to implementing the permit.
- Illicit discharge detection and elimination measure requires the Town to update their GIS to include unique identifiers for each outfall and catch basin, keep maps up to date, and inspect outfall ditch and catch basins. (See Non-Stormwater Discharge Ordinance).
- Construction site stormwater runoff control requires additional construction inspections, documentation, and additional training for Code Officers.
- Post-construction stormwater management in new development and redevelopment requires that private developments maintain their storm drain infrastructure and certify to the town they have done so annually (see Post Construction Stormwater Management Ordinance).
- Pollution prevention/good housekeeping for municipal operations in York includes an annually-reviewed inventory of municipal operations, Operation and Maintenance (O&M) Procedures for municipal operations listed in that inventory that have the potential to cause or contribute to stormwater pollution, annual training for Public Works employees and other municipal personnel, street sweeping, regular cleaning and inspections of catch basins, maintenance and upgrading of stormwater conveyances and outfalls, and Stormwater Pollution Prevention Plans.[160]

State of Maine Current Use Tax Programs

The State of Maine has four "current use" programs which offer the property owner a reduction in their assessed value: Farmland Tax Law, Open Space, Tree Growth and Working

[160] Town of York, *Stormwater Management Plan*, MS4 General Permit Effective July 1, 2022, Initial Submittal to Maine DEP March 19, 2021.

Waterfront. This helps to protect the viability of these uses by taxing properties at its current use and not its highest potential use. Current enrollment in these programs is documented in Figs. 19, 22, and 33.

Other Development and Performance Standards

Town of York Well Ordinance

This ordinance prohibits installation in certain districts where public water is available and lot sizes are significantly constrained but these are the only apparent standards for installation. Beyond this, private (i.e., residential) well installation is essentially unregulated in Maine. Chapter 73, section 4853(2) exempts wells for use at single-family private residences from state regulation. Private well drillers are licensed and regulated by the Maine Well Drillers Commission. There is no state or local inspection requirement or standard.

Supplemental Plumbing Ordinance (2009)

This ordinance supplements the state rules. Includes a requirement that septic systems be pumped on a regular basis to promote proper functioning, intended to decrease septic system failures which could allow bacteria to be transported to water resources by stormwater runoff. Inspections are required every two years by a Maine-Licensed Professional Engineer. In addition, Subsurface Wastewater Disposal Systems (i.e., septic systems) are regulated under the State of Maine Subsurface Wastewater Disposal Rules (10-441, chapter 241). These rules are enforced at the municipal level through the Local Plumbing Inspector (LPI). Currently in York, the LPI is the Director of the Department of Code Enforcement. A permit is required for all septic system installation and expansion work. The LPI is responsible for making all the inspections required in the Rules. Development of state rules is done by the Maine Department of Human Services, Bureau of Health, and the Division of Health Engineering (DHE).[161]

Flood Plain Management Ordinance

The Flood Plain Management ordinance requires that development within the areas identified on the FEMA Flood Plain maps be reviewed prior to construction. Applications for a Flood Hazard Development permit are submitted to the Code Enforcement Officer for approval.

Non-Stormwater Discharge Ordinance (2014)

The Town passed a Non-Stormwater Discharge Ordinance in November 2014 which prohibits the discharge of non-stormwater items into the municipal storm drain system. This ordinance was required by the MS4 General Permit.

[161] Enforcement Manual for the Maine Subsurface Wastewater Disposal Rules (DHE, 2003).

Post Construction Stormwater Management Ordinance (2014)

The Town passed a Post-Construction Stormwater Management Ordinance in November 2014 which requires that new developments maintain their stormwater infrastructure and certify to the town annually that they have completed inspections and any required maintenance. This ordinance was required by the MS4 General Permit.

Permitting for Timber Harvesting

York's zoning regulates timber harvesting activities that occur within the Shoreland Overlay Zone and the Watershed Protection Overlay District. Permits from the State of Maine are required throughout Town. The last Comprehensive Plan (adopted 2006, amended through 2013) recommended that the Town prepare new timber harvesting standards that apply to all lands and reforestation and landscaping standards for subdivisions built on land which has been clear cut. Opening of too much land at any single point in time as well as poor timber harvesting practices can lead to unnecessary sedimentation in the York and Cape Neddick Rivers.[162]

Relevant Recent and Ongoing Planning Efforts

York River as Wild and Scenic

Since 2009, the Friends of the York River have been working to determine whether a National Wild and Scenic Partnership River designation would be an appropriate way to recognize, manage and protect the York River. A bill was introduced in the Senate December 1, 2020 to designate York River as 'Wild and Scenic'. The Bill must be passed by Congress and signed by the President to achieve designation.

A York River Watershed Stewardship Plan was completed in 2018 which, if the River is designated, would serve as the "comprehensive management plan" required for all congressionally designated rivers, providing the framework and priorities for A Partnership Wild and Scenic River (PWSR) designation implementation and long-term protection of the river's values and watershed resources. PWSR designation for the York River and tributary streams in the National Wild and Scenic Rivers System would provide an administrative structure and crucial funding needed to implement the [York River Watershed] Stewardship Plan, enable a watershed approach across the four-town area, leverage additional technical and financial resources, engage key partners and citizens in river stewardship, and bolster ongoing initiatives to protect important watershed resources.[163]

2019 York Harbor & River Capacity Study

In July 2019, the Town of York retained GEI Consultants, Inc (GEI) to undertake a capacity study of the York River and Harbor. The primary purposes of the study were to assess the

[162] SMPDC, *York River Watershed Study, Regulatory and Non-Regulatory Recommendations,* 2018.
[163] York River Study Committee, *York River Watershed Stewardship Plan*, 2018.

existing uses on the River and evaluate how those uses compare to River and Harbor capacity in order to inform management and regulatory decisions.[164] This study includes specific recommendations and strategies for improved management of both the physical and spatial resources as well as user education. More information on this study is included in Appendix A4: Marine Resources Current Conditions.

York Water District Water System Master Plan

York Water District completed a *Water System Master Plan* in 2018 and is currently in the process of updating this Plan, expected to be released in 2022. One of the objectives of the Watershed Management section is to Restrict or control any sources of pollution or contamination that may be a threat to water quality.[165]

Build-out Analyses (2001 and 2018)

In 2001, the Town completed a build-out analysis for the areas of York with access to municipal sewer to assess what the impacts to land use and clean water would be once all buildable lots have been built upon in the ways that the zoning ordinances allow. The analysis concluded that for York drainage areas that have access to the municipal sewer system, only a few are currently exceeding the 10% impervious cover criteria that most experts agree cause water quality issues because of runoff.[166]

In 2018, the Southern Maine Planning & Development Commission (SMPDC) and Spatial Alternatives, Inc. completed the York River Watershed Study: Build Out Analysis and Recommendations Report which was designed to provide baseline information related to potential residential growth within the watershed. The analysis determined that there were an estimated 3,038 buildings in the watershed with the possible addition of 2,295 buildings at full build-out using existing zoning regulations.[167]

2014 Sustainable Water Workshop

In 2014, the Town convened a "Sustainable Water Workshop" inviting consultants and industry experts from universities, cooperative extensions, the Wells Reserve, Southern Maine Planning and Development Commission, and regulatory agencies to review the concept of a watershed-based approach to regulating land use. Outcomes of the meeting, as documented by five staff who attended the workshop were segregated into short term, medium term and long-term goals:

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[164] 2019 *York Harbor & River Capacity Study*.

[165] *Water System Master Plan for the York Water District* (2018).

[166] Town of York, Stormwater Chapter for the *York Comprehensive Plan*, 2015.

[167] http://www.yorkrivermaine.org/wp-content/uploads/2018/06/Spatial-Alternatives-York-Watershed-Build-Out-Methodology_Final.pdf

- Short Term goals included: continued public education, benchmarking, adopting MS4 model codes, and researching stormwater utilities
- Medium Term goals included: creation of a clean water utility or user fee or structure to ensure clean water and funding to complete what needs to get done, continued monitoring of water resources to provide a sound basis for action and policy
- Long Term goals included: updating codes and ordinances, continued infrastructure maintenance and capital improvements, and enforcement against those violating ordinances that adversely impact water quality (e.g., failed septic systems).[168]

Cape Neddick River Watershed Management Plan and Implementation (2013)

The Town has worked with a local grass roots effort by the Cape Neddick River Association to correct the bacteria water quality impairments of the Cape Neddick River. After the Cape Neddick River was identified by the Maine DEP as a Nonpoint Source Priority Watershed. The Town completed a Watershed Management Plan for the River which was approved by the Maine DEP in 2014 as an EPA nine element Plan as eligible for state funding to help correct the impairments.[169]

Historic Efforts to Open Shellfishing Areas Along the York River

The Maine Department of Marine Resources monitors bacteria levels at seven stations in the York River six times per year to help inform decisions about classifying shellfish growing areas. In 2007, the Town began cooperative efforts with the Department of Marine Resources to complete shoreline surveys along the York River, including mapping of septic systems along the river and proactive correction of failed systems, which were instrumental in re-opening for shell fishing previously closed sections of the river.[170]

Stormwater Report (2006)

In 2006, the York Public Works Department oversaw a report completed by Edwards & Kelcey that providing a hydraulic analysis under varying precipitation conditions of 25 drainage areas in the Town. Adopted into the Town's Comprehensive Plan, the report identified deficiencies in the existing stormwater conveyance system and provided recommendations for corrective actions. The study area was confined to the area between the Maine Turnpike and the Atlantic Ocean (East and west boundaries), and the Cape Neddick and York Rivers (north and south).[171]

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[168] Town of York, Stormwater Chapter for the *York Comprehensive Plan*, 2015.

[169] Ibid.

[170] Ibid.

[171] Ibid.

What The Community Said

The summary of community feedback below represents the common themes heard during public meetings and events, as well as other outreach. When information is provided from the Fall 2021 Comprehensive Plan Community Survey[172] results, this is specifically noted with the percentage of respondents who replied in this way.

- York residents place a high value on natural resources!
- When asked what was important to quality of life in York, approximately 90% of survey respondents listed Natural Resources as 'very important,' followed by Recreation at 77% (1163 total responses to this question).
- When asked about the top three priorities for the Comprehensive Plan, conserving forests, open space, and land was ranked first as the top priority (approximately 57% of survey respondents) and protecting the town from the impacts of climate change ranked 3rd (approximately 45% of survey respondents) (950 total responses to this question).
- When asked how important local and regional efforts to conserve and protect natural resources in York, approximately 80% of survey respondents said 'very important.' Only 3% of respondents ranked conservation efforts as 'not important.' (1016 total responses to this question)
- Residents also see natural resources as vulnerable, with approximately 70% of survey respondents noting they believe York's beaches and oceans are the most vulnerable natural resources. Other top vulnerable areas included the town's forests and wildlife habitats (approx. 62%), the York River and Harbor (approx. 60%), waterfront areas including the Cliff Walk (approx. 60%). (1016 total responses to this question).
- The Mount Agamenticus area and York's existing forests and tree canopy are among York's most valuable natural resources and warrant proactive preservation efforts to ensure these beloved qualities are not threatened by other competing priorities.
- Achieving a balance between recreational users, commercial users, and conservation/protection of these resources is key.
- Residents are concerned about water quality pollution from runoff and animal waste, particularly at York's beaches and the Cape Neddick River.
- Recreational use of York's natural resources has increased in recent years. More pervasive use of social media has raised demand on lesser-known resources.
- Residents have expressed a desire for more recreational use of Water District lands, including trail connections to other York recreational opportunities. However, recreational

[172] There were 1163 responses to the survey. Not every question had a 100% response rate; the number of responses for questions listed below are noted.

use on these lands must be balanced with protection of drinking water sources, and the Districts have expressed concerns about encouraging any increase in recreational use on these lands.

- There is interest from some members of the community in growing York's agriculture and aquaculture industries. There is also interest in additional community garden space.

Key Takeaways

Natural Resource Value

York is fortunate to have such a range of uniquely valuable resources, including rich biodiversity, beautiful beaches, extensive forests, clean drinking water, and scenic rivers. The Mt. Agamenticus area is one of the largest expanses of undeveloped forests in coastal New England and the York River Estuary is one of the Gulf of Maine's least disturbed marsh-estuarine ecosystems. Protection and growth of these natural resources will be integral to efforts to building climate resiliency in York. Survey responses and other public engagement consistently showed that York residents place a high value on these natural resources and see their protection as a priority and central to quality of life in York. This public interest and support are important for successful conservation and protection efforts.

Balance of Uses

Natural resources in York serve different uses, from wildlife habitats and diverse plant communities, to providing opportunities for recreational hiking and boating, to fundamental resources for commercial fishing and harvesting. These different uses aren't always compatible with one another; hiking traffic on trails can damage ecological resources and recreational boaters can interfere with commercial operations. Balancing these sometimes competing interests is a challenge.

Funding, Capacity, and Stewardship

More than 50,000 people visit Mt. A each year to enjoy the scenery and the network of 40 miles of trails.[173] Long Sands Beach is a particularly busy tourist attraction from mid-June to Labor Day and gets as many as 3,000 – 5,000 visitors daily.[174] Use of these outdoor resources spiked during the COVID-19 pandemic and means of publicizing non-traditional trails or access routes has increased with social media and online crowdsource trials websites. It takes an abundance of maintenance and monitoring to keep up with these visitor levels and limit negative impacts to natural resources and the need for additional stewardship funds, staffing, and improved infrastructure were common themes expressed in interviews and discussions.

[173] Correspondence with Town of York Parks & Recreation Department.

[174] Town of York Parks & Recreation website, https://www.yorkparksandrec.org/attractions/beaches/

Coordination and Partners

There are many conservation and resource protection efforts happening throughout York, such as the MtA2C initiative, the Mt A Steering Committee, the York Land Trust, and the York River Wild & Scenic Committee. The Town should leverage these relationships and cooperate regionally to magnify the impact of its efforts and to access regional funding opportunities. Designation for the York River and tributary streams in the National Wild and Scenic Rivers System would provide funding opportunities for implementation of the York River Watershed Stewardship Plan, and the Town should prepare for the capacity to be able to take advantage of these opportunities once available and to coordinate across the four-town area.

Increasing Public Awareness

York has a strong public outreach and education presence, particularly through the Parks & Recreation Department and programs at Mount A. Programming and newsletters reach many community members and can be a tool for increasing public awareness and stewardship. Topics could be expanded to increase community knowledge around best practices for natural resource protection as well as knowledge of local regulations.

Development Pressure & Environmental Sensitivity

Historical development patterns in York have led to wide-spread development in environmentally sensitive areas, Despite regulations such as the Watershed and Shoreland Overlay Zones, development continues to happen in environmentally sensitive areas, such as coastal dunes, marshlands, and inland wetlands. Construction in York between 2010 and 2021 showed intrusions of some form into all but one large undeveloped habitat block.

Threats to natural resources from the impacts of development include water pollution, increased demand, loss of biodiversity and native species, worsening of flooding problems, loss of the working landscape, and overcrowding of resources. Large stretches of York's soils, underlain by poorly drained materials, are prone to septic failures, erosion, and sedimentation that risk contaminating York's water bodies. Access to public water and sewer have limited extents in town. Many areas of York, particularly west of Interstate-95, include particularly high value natural resources, including high value species habitats, extensive forests, and surface water drinking supplies. Sea level rise is encroaching from the coast. All of these trends, and more, create a complex system of environmental sensitivities to be considered in relation to future development.

Policies, Plans, and Regulations

York has a good foundation of regulations and environmental protections. The value placed on protection of water resources, scenic resources, animal habitat, and agricultural and forest resources is apparent throughout the Town's Zoning Ordinance, Site Plan and Subdivision

Regulations, and stand-alone ordinances and standards. However, a few challenges are apparent.

- York's regulations are distributed across many different Ordinances and Policies and can often be complex or difficult to understand. Clarifying and streamlining York's regulatory and permitting process could improve compliance.
- There has been consistent feedback that enforcement of existing regulations is a challenge in York and has negative implications for the health and safety of York's natural resources.
- While the requirements for Open Space Conservation Subdivisions lay out building strategies to mitigate impacts to natural resources, there has been feedback that, in practice, the way this process operates could be more effective. Improvements to consider might include additional coordination between the Town, the York Land Trust and the applicant earlier in the project process, as well as provisions for long-term maintenance of these areas. The Town may also want to expand the area where Open Space Conservation subdivisions are encouraged or required, perhaps with different standards that are appropriate to natural resource priorities and development patterns in different areas of York.
- Some of the largest farms do not take advantage of enrollment in the Farm Enterprise Overlay District. The Town may want to evaluate the protections offered by this District to increase participation.
- There will likely be a need for an additional overlay or revisions to the shoreland overlay to address impacts of climate change, including sea level rise and marsh migration.

Climate Change

Climate change could have a devastating effect on York's natural resources, disrupting local ecosystems and destroying some of the best tools for fighting climate change; the natural environment plays crucial roles in removing carbon dioxide (CO_2) from the atmosphere and buffering the built environment against flooding and severe weather. Anticipated impacts include coastal erosion, marshes and marsh migration, pollution from increased stormwater runoff, changes in composition and growth patterns of forest and marine ecosystems.

Approximately 60% of the land in York is covered by forest. Particularly in the face of climate change, protecting and growing York's tree canopy and other carbon sink resources will be important to maximize opportunities for carbon capture. Analysis from the National Land Cover Database indicated that between 2011 and 2016 tree canopy cover declined in several pockets in the town.