DRAFT Local Comprehensive Plan

Town of Barnstable, MA

Phase I Existing Conditions Report

Barnstable Local Comprehensive Plan

Community Vision, Goals, and Strategic Actions

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1. Vision

[Currently being developed]

2. Community Engagement

[Summary forthcoming]

3. Natural Systems

The Town of Barnstable is rich in natural systems and centers around water, water-dependent resources, and habitat. High-quality natural systems are part of the Town's attraction for residents and visitors, but they are also susceptible to pollution from various land uses and activities and are increasingly vulnerable to changes in climate.[1] Barnstable residents' and visitors' continued appreciation of natural systems requires active stewardship, protection, and restoration of clean water and ecosystems.

[1] Cape Cod Regional Policy Plan, Cape Cod Commission, February 22, 2019, 27.

Groundwater

Overview

Groundwater on Cape Cod is derived solely from precipitation and the aquifer deposits are generally very permeable, making them ideal for development of high-yielding water supplies, but simultaneously vulnerable to contamination from land uses in their watersheds. The Cape Cod aquifer is designated as a Sole Source Aquifer under the Safe Drinking Water Act by the Environmental Protection Agency (EPA), a designation that requires Federally funded projects to assess project impacts to the aquifer. [2]

In general terms, the groundwater system can be described as the saturated zone of water-bearing glacial deposits beneath the land surface. The upper surface of this zone, known as the water table, lies at depths beneath the land ranging from more than 100 feet in the highest part of the moraine to 0 to 10 feet along the shores and in the vicinity of ponds and lakes. In cross-section, the groundwater body is shaped like a lens, with the highest elevations of the water table being found along the groundwater divide, which in Barnstable roughly parallels the east-west axis of the moraine. Groundwater flows from the higher water table contours along the divide north and south to the lower elevations near the town's shores and beaches.

The USGS, in cooperation with the Town of Barnstable and MassWildlife, is assessing the potential effects of new water-supply withdrawals on groundwater levels in the Hyannis Ponds Wildlife Management Area on Cape Cod. A groundwater-flow model is being used to simulate the effects of several possible withdrawal and wastewater-return flow scenarios developed by the Town of Barnstable and MassWildlife on the groundwater-flow system.

The Town of Barnstable is evaluating options for developing new groundwater supplies to meet current and future needs for potable drinking water. The Town of Barnstable Water Supply Division of the Barnstable Department of Public Works operates the water system in the Village of Hyannis.[3]

[2] Cape Cod Regional Policy Plan, Cape Cod Commission, Effective February 22, 2019, 28.
[3] Town of Barnstable Source Exploration Report (Volume I), by Weston & Sampson, April 2021.

Groundwater Protection

Barnstable's public drinking water supply source is its underground sole source aquifer. Public wells draw water from wide surface areas known as Zones of Contribution to Public Water Supply wells, which occupy approximately 30 percent of the land area of the Town.

Map 3.1 shows Wellhead Protection Areas, which include Massachusetts Department of Environmental Protection (DEP) Approved Zone I, DEP Approved Zone II, and Interim Wellhead Protection Areas (IWPA). DEP Wellhead Protection Areas Zone I means the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gpd or greater, the protective radius is 400 feet.

A Zone II is a wellhead protection area that has been determined by hydro-geologic modeling and approved by the Department of Environmental Protection's (DEP) Drinking Water Program (DWP). In cases where hydro-geologic modeling studies have not been performed and there is no approved Zone II, an Interim Wellhead Protection Area (IWPA) is established based on DEP DWP well pumping rates or default values. Certain land uses may be either prohibited or restricted in both approved (Zone II) and interim (IWPA) wellhead protection areas.

The Base Zoning map (Map 3.2) shows Barnstable's three groundwater protection overlay districts:

- Wellhead Protection Overlay District
- Groundwater Protection Overlay District
- Aquifer Protection Overlay District

The Aquifer Protection Overlay District consists of all areas of the Town, except those areas within the Groundwater and Wellhead Protection Overlay Districts. The Wellhead Protection Overlay District consists of the area within the five-year time of travel zone to existing, proven future and potential future public water supply wells. The Groundwater Protection Overlay District consists of all those areas within Zones of Contribution to existing, proven future and potential future public water supply wells.

Groundwater Pollution

The Town's groundwater system, like the whole of Cape Cod, is replenished entirely by precipitation. The level of the water table fluctuates seasonally due to evaporation, precipitation, and water withdrawals. A major threat to the aquifer is from contamination due to land use impacts, primarily from wastewater disposal (individual on-site septic systems).[4] Barnstable's Community Preservation Committee (CPC) continues ongoing conversations with the Fire/Water Districts about wellhead protection and open space acquisition, in order to meet the goal from the 2010 LPC that no development should occur within a 400 foot radius of a future public supply well and lands within the 400 feet of wells should be acquired whenever possible.

Marine Waters

Overview

Marine and shoreline systems in Cape Cod include open ocean, sounds, estuaries and coastal embayments, beaches, dunes, and salt marshes. Marine and coastal waters are vitally important across the Cape and specifically in Barnstable, supporting rich marine life and complex ecosystems such as shellfish habitat and spawning grounds for fish, as well as recreational opportunities for fishing and boating. Salt water embayments and salt marshes are particularly important in Barnstable, serving as spawning grounds and nurseries for a great variety and quantity of marine life. Local aquaculture and fishing industries rely on these resources to stay in business. Dunes, barrier beaches, and salt marshes provide storm protection to coastal banks and properties and provide habitat for wildlife. Our marine waters and shorelines also help define who we are as a community, shaping our character, adding to our beauty, and attracting visitors from all over the world.

In brief, the sustained health of our marine waters and other coastal resources is absolutely critical for our environment, our economy, and our way of life.

[4] Town of Barnstable Open Space and Recreation Plan, 2018, 40-41.

The Town completed a Coastal Resources Management Plan focused on the Three Bays and Centerville River Systems over 13 years ago (2009). It covers, among other things, marine services and facilities such as marinas, moorings, and other boating access; fisheries and aquaculture; natural resources such as water quality and plant and wildlife biodiversity; and potential impacts of sea-level rise. The Town's Hazard Mitigation Plan, recently updated in 2022, is another important policy document for marine waters and coastal areas, emphasizing protection of barrier beach areas and coastal dunes and mitigation against flooding, erosion, and sea-level rise.

The Town is also working to map existing conditions and proposed expansion areas for critical coastal habitat, mooring fields, public and private navigation channels, docks and piers, with the intent that water dependent uses will be allowed or limited based on this data.

Nitrogen and Other Threats to Estuaries and Embayments

Nearly 80 percent of the Cape Cod region's land area drains to coastal embayments and estuaries. All of Barnstable's watersheds that drain to the south drain to nutrient-sensitive coastal embayments and estuaries.

What is a TMDL?

A TMDL is the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

For coastal waters, the nutrient of concern is nitrogen. Development can be a major contributor of nitrogen to groundwater, either through wastewater from on-site septic systems or other sources such as fertilizer and stormwater runoff. Stormwater runoff from roads, parking lots and other impervious surfaces contains a variety of contaminants, including hazardous chemicals derived from oil, gasoline and other automobile fluids; heavy metals; fertilizer, pesticides and herbicides washed off lawn surfaces; and bacteria from animal droppings. Such pollutants ultimately travel to coastal embayments. Increased nitrogen often results in excessive algae and degradation of water quality, posing a serious threat to coastal habitat that can result in fish kills and depleted shellfisheries.

In the past, local coastal embayments and estuaries were able to naturally take in and flush out nitrogen without significant environmental impacts. However, as developed areas have increased,

the amount of nitrogen has overwhelmed nature's ability to assimilate it. Barnstable, and most other communities across the Cape, are now required by the federal government to find ways to remove excess nitrogen from coastal embayments and estuaries.

Through the Massachusetts Estuaries Project (MEP), the Town, County and Commonwealth have mapped recharge areas for all major estuaries and embayments to identify areas where development and land use have the most impact on coastal water quality. This effort has guided the Massachusetts Department of Environmental Protection (DEP) to establish Total Maximum Daily Loads (TMDLs) for nitrogen. These TMDLs are a management tool to restore and protect coastal water quality from the impact of septic systems, fertilizers, and runoff. Each embayment has a TMDL. These critical nitrogen-loading rates should not be exceeded. Where they may be exceeded, the Town is developing management strategies to reduce the nitrogen load on the embayment. MEP reports have been completed for areas across Barnstable, including: Popponesset Bay (2004), Centerville River (2006), Three Bays (2006), Lewis Bay (2008), Rushy Marsh (2008), and the Barnstable Great Marshes (2017). Map 3.3 shows the four embayment areas in the Town of Barnstable (Barnstable Harbor, Centerville River, Lewis Bay, and Three Bays) and their subembayments.

Through its Comprehensive Wastewater Management Plan, the Town has begun a town-wide Nutrient Management Plan. This plan includes an assessment process to establish wastewater alternatives to restore and protect coastal waters.

Climate change can exacerbate this situation. For example, increased temperature can spur even greater algal blooms and sea level rise is a threat to natural and built coastal resources. As the Coastal Resource Management Plan is updated, the expected impacts of climate change should be front and center in setting policies and planning for the future. The Town's Hazard Mitigation Plan, Municipal Vulnerability Preparedness (MVP) plan, and other planning documents are important resources for guiding marine waters sustainably in spite of changing conditions.

Aquaculture

Aquaculture is an important aspect of Barnstable's ecology, culture, and economy, with a particular emphasis on shellfish. Oysters, quahogs, softshell clams, mussels, and other bivalve

species filter our coastal waters to remove algae, cleaning up the water. They also provide food for other marine animals and are a harvestable product for our commercial shellfishing industry. Recreational harvest of shellfish in Barnstable has been a treasured pastime for Cape Cod residents and visitors for hundreds of years. The Town of Barnstable Natural Resources team is responsible for sustainable management of this vital marine resource.

Shellfish are abundant in the shallow, sheltered coastal embayments in Barnstable. Clams, both soft-shelled and hard-shelled, scallops and oysters can be found in the saltwater embayments and along the shore. Cotuit oysters, cultivated since the mid-19th century, are internationally renowned delicacies. Shellfish resources require pristine water quality to thrive in the quantities necessary to support these activities. In recent years, contamination of coastal waters has caused a decline in harvests.

Road runoff is the principal cause of closure for shellfish beds and swimming areas. Many existing stormwater drainage systems that discharge directly to coastal areas have been prioritized for remediation. The Town actively monitors water quality in shell fishing areas and maintains a map of open and closed areas.

Marinas and Harbors

Town landings and ways to water are a vital part of Barnstable's marine infrastructure and support a variety of commercial and recreational activities. The Town operates four marinas, two in Hyannis (Bismore Park and Gateway), one in Marstons Mills (Prince Cove) and one in Barnstable (Barnstable Harbor Marina). In 2022, the Town issued 2,519 mooring permits. As the year-round and seasonal population has grown, these resources are more heavily used and some show the stress of this heavy use. Moorings and marinas are in high demand in town, and on-going management issues include increasing the full

Degraded water quality can negatively impact coastal property values.

Initial findings from a recent Cape Cod Commission study evaluating home prices in the Three Bays area in Barnstable indicate a 1% increase in nitrogen is associated with a decrease in single-family home sale prices in the range of 0.407% to 0.807% (average 0.61%), with a 95% confidence level. *Source – Cape Cod Regional Policy Plan, 2018.*

utilization of existing mooring permits to increase access to waterways and managing the environmental impacts of moorings and marinas.

The highly successful No Discharge Area (NDA) designation obtained in 2001 has helped to curtail the threat to water quality from the discharge of treated boat sewage. Other environmental impacts from boating include emissions from use of internal combustion engines; accidental spillage of petrochemicals; prop dredging; erosion impacts to banks and marsh caused by vessel waking; and noise impacts from motorized vessels. Marinas around the world are working to make their operations more sustainable, both for general environmental impacts and direct impacts to neighboring water quality. Green infrastructure improvements have been used as a way to capture and absorb stormwater before it reaches marine waters. Other strategies such as electric boats and vehicles, renewable energy, and water recycling, can all help improve marine water quality near marinas.

The Town maintains and regularly updates an inventory of public and private uses in its harbors and needed repairs.

The Town is also actively implementing and updating its Comprehensive Dredge Plan, adopted July 2017 and updated as of XXXXXXX. Historically, the Town had independently permitted and performed dredging on a site-by-site, as-needed basis. Because of the significant costs associated

with this type of work, dredging oftentimes has been postponed due to other competing priorities. Consequently, this approach made it challenging to ensure that dredging is addressed in a prioritized, effective, and efficient manner. Dredge and disposal management had grown time consuming, inefficient, and costly for the Town.

Through the development of the Comprehensive Dredge Plan (CDP), a complete understanding of Town-wide dredging needs and priorities were defined to implement a long-term dredging plan for a total of 31 dredge sites. The CDP prioritizes dredging needs, estimates costs, and provides additional recommendations for an effective dredging system. The identified dredge sites are divided into three categories:

Category 1 – Beach Nourishment Sites: Those which have previously generated beach-quality sediments suitable for the purpose of nourishing eroded shoreline areas. These sites are collectively permitted under a 10-year Permit issued by local, state, and federal regulatory agencies with dredging and nourishment activities performed by the Barnstable County Dredge (BCD). This approach greatly simplifies and streamlines the required permitting process as well as the overall management required for this type of dredging project. Beach nourishment is prioritized for public coastlines but can also be used along privately owned coastlines.

Category 2 – Standalone Sites: Those which have previously generated fine-grained sediments ***not*** suitable for nourishment purposes. These sites will be addressed as stand-alone projects since they require site specific sediment testing to confirm the appropriate disposal option(s) on a project-by-project basis. Disposal methods for stand-alone projects may include unconfined offshore disposal at the Cape Cod Bay Disposal Site (CCBDS), upland disposal or reuse, and/or daily cover or disposal at a regulated Massachusetts landfill facility. Stand-alone projects are not anticipated to be suitable for dredging by the BCD. Each project will therefore need to be publicly bid and performed by a private contractor.

Category 3 – "To-Be-Determined" Sites: Those for which sediment characteristics and associated disposal requirements could not be identified based upon review of available record

information. These sites will require that hydrographic surveys and sediment sampling and grain size analyses be performed to determine if they are Category 1 or 2 sites.

Offshore Threats and Opportunities

Land under the ocean, seawater, and the space above the ocean surface are increasingly in demand for new marine uses. Changes to the Massachusetts Ocean Sanctuary Act in 2008 made renewable energy development and cable and pipeline installations possible in offshore locations, and other changes in state policies have created incentives for these development activities. The federal government's creation of offshore wind leasing areas in federal waters south of Martha's Vineyard and Nantucket meant interconnection cables are needed to make landfall on Cape Cod. Vineyard Wind, the nation's first commercial off-shore wind project, interconnects at Covell's Beach. In 2023, the Vineyard Wind project is in the implementation phase (under construction) and is complying with the terms of the Host Community Agreement with the Town. The second project proposed to make landfall is the Park City Wind project, with a proposed landing at west end of Craigville Beach. In 2023, the Park City Wind project is in advances stages of permitting and the Town has a Host Community Agreement in place for the project. A third offshore wind project, Commonwealth Wind, is proposing to interconnect at Dowses' Beach in Osterville. In 2023 the project proponent, Avangrid did not have a Power Purchase Agreement in place with the state and the Town has not entered into a Host Community Agreement.

Enforcement and Capacity

The Town's Marine and Environmental Affairs staff is responsible for, among many other things, the health and proper care of marine waters. Enforcement efforts are always on-going, and staff compare their work to that of the Police Department. Marine and Environmental Affairs staff have oversight of 107 miles of coastline with jurisdiction extending three nautical miles out. They also maintain 89 ways to water and four marinas. While staff reports that speed and wake enforcement is the greatest challenge, it can also be a challenge to enforce discharges (whether intentional or unintentional). As is true for all regulations and policies, they are only as effective as the Town has the capacity to enforce them and as residents and visitors alike are both informed and care about these issues.

Freshwater Lakes and Ponds

Overview

The Town of Barnstable has 163 freshwater ponds, 90 of which are one acre or more. Twenty-seven ponds are greater than 10 acres and are considered "Great Ponds" under state regulations. Collectively, ponds occupy 1,912 acres within the town. The Town has 70 ponds which are at least two acres. They contain a total area of 2.9 square miles (1,846 acres).[5] Many of these smaller ponds are used for swimming, boating, and fishing. They also provide habitat for waterfowl and fish.

Table 3.1. Town of Barnstable Summary of Ponds

Village	# of Ponds	Acres of Ponds	# of Great Ponds (>= 10 ac)	Ponds >= 1 acre	Ponds >= 2 acres
Barnstable	20	57.0	3	6	4
Centerville	21	850.7	5	10	9
Cotuit	14	93.6	2	6	5
Hyannis	46	147.9	3	29	19
Marstons Mills	21	562.8	7	13	11
Osterville	19	119.0	5	14	12
W. Barnstable	22	81.2	2	12	10
Totals	163	1912.2	27	90	70

Source: Cape Cod Commission GIS Open Data Hub, Ponds, November 23, 2022.

Water Quality Impacts

Development of water quality impacts in surface waters generally follow a progression from higher nutrient concentrations to low oxygen conditions: More nutrients create more plants (either algae

[5] Cape Cod Commission Open Data Hub, GIS Data, Ponds, November 23, 2022.

or rooted plants), which in turn create more decaying material falling to the pond bottom, where bacteria decompose the dead plants. Since the bacteria consume oxygen, more decomposing plant material can remove oxygen from the water, which in turn produces chemical conditions that allow nutrients in the decomposing plants to be regenerated back into the water, creating the opportunity to start the cycle all over again by prompting more plant growth.[6]

As part of the regional aquifer system, ponds are directly linked to drinking water and coastal estuaries. Freshwater ponds are particularly sensitive to additions of phosphorus, which is associated with development and land uses close to a pond (such as wastewater, fertilizer, and stormwater sources). Buffering pond shorelines from development is an effective strategy for protecting freshwater ponds and lakes by taking advantage of the soil's ability to adsorb and store phosphorus, thereby storing and delaying this nutrient from entering the pond. [7]

Freshwater lakes and ponds in the Town of Barnstable are significant scenic, recreational, and wildlife habitat resources. All the Town's ponds and lakes intersect with the groundwater table. The majority of these water bodies are located on the outwash plain, having formed in kettle holes. They range from the 596-acre Wequaquet Lake, the third largest freshwater body on Cape Cod, to numerous smaller ponds of just a few acres in size. A Great Pond is defined as any lake or pond that is ten acres or more in size in its natural state. Permitting of structures such as a dock or pier in a Great Pond is subject to review by MassDEP Waterways in accordance with MGL Chapter 91.

Barnstable also has ponds identified as having characteristics of Coastal Plain Ponds, a habitat community of global significance. The Hyannis Coastal Plains Ponds—Mary Dunn, Lamson, Israel Pond and pondlets, Flintrock, Campground and Lewis Ponds—have shores and surrounding vegetation supporting habitat for significant populations of very rare plant and animal species. Most of these ponds are shallow, with average depths from 0.6 to 3.4 feet, and several occasionally dry up in the summer. The inundation/desiccation cycle is part of the coastal plain pond shore ecology. Seasonal fluctuations in the water level help to create and maintain the special Coastal Plain Pond Shore, which provides habitat for some important rare species. However, dramatic

[6] Barnstable Water Resources, Accessed January 2023.

[7] Cape Cod Regional Policy Plan, Cape Cod Commission, February 22, 2019, 29-30.

changes in hydrology can threaten these habitats. Groundwater levels in the area of the ponds are strongly affected by nearby public water supply wells and are subject to seasonal changes in groundwater levels of three to four feet.

Freshwater streams or rivers within the Town of Barnstable are shallow and are largely not navigable. Several town rivers (for example, the Bumps, Centerville, and Marstons Mills Rivers) are groundwater-fed streams running north-south across the outwash plain, receiving drainage from surrounding shallow watersheds and frequently connecting existing kettle hole ponds or lakes, thereby creating runs for herring and other anadromous fish to gain access to the ponds and lakes to spawn. In addition to the natural runs, several artificial channels have been excavated to serve as herring runs, and two are still in use: a 2,000-foot channel running from the outlet of Middle Pond to the Marstons Mills River, and channels connecting Wequaquet Lake, Long Pond, and the Centerville River. A third run is currently undergoing restoration between Lake Elizabeth and the Centerville River. Dry most of the year, these channels are opened by the Town's Marine and Environmental Affairs Division in spring and fall during herring migration periods. They also provide a means of shunting stormwater flows to reduce high lake levels.[8]

***Hydrilla** is a submerged, perennial aquatic plant that has earned the illustrious title "world's worst invasive aquatic plant." Listed as a federal noxious weed, it can grow up to an inch and day, and can continue to survive as a free floating mat at the water surface. It was originally brought to the US as an aquarium plant in the 1950s.*

Freshwater Restoration Efforts

Seven freshwater pond restoration projects are highlighted on the Cape Cod Commission website. Santuit Pond, located in Cotuit, is 171 acres and has algae blooms from elevated phosphorus levels. The restoration technology is Solar Bee Recirculators and it was deployed in 2012. The results are improved lake clarity. Hamblin Pond, 115 acres, in Marston Mills had an issue with algae blooms. An alum treatment was deployed in 2015 and the result is it is now open for swimming.

[8] Town of Barnstable Open Space and Recreation Plan, 2018, 42-43.

Lovells Pond, 56 acres and located in Barnstable, has algae blooms from elevated phosphorus levels. Alum treatment was deployed in 2014 resulting in lake clarity improvement. Shallow Pond, 78 acres in Barnstable, has the issue of weeds which has been addressed by herbicide treatment. Schoolhouse Pond, 4 acres in Barnstable, has algae blooms from elevated phosphorus levels. The restoration technology is Solar Bee Recirculators and it was deployed in 2016. Mystic Lake, 148 acres in Marston Mills, has algae blooms from elevated phosphorus levels and hydrilla. The restoration technologies applied are alum treatment and mechanical treatment in 2015. Long Pond, 51 acres in Centerville, has the issue of hydrilla (invasive species). Sonar restoration technology was applied in 2003 and has been effective until recently. Another treatment will be necessary.[9]

The redesign of a fish passage at Upper Marstons Mills Pond and Middle Pond in Barnstable are two of 21 projects that are part of the Cape Cod Water Resources Restoration Project that is underway and funded by the United States Department of Agriculture's (USDA) Natural Resources Conservation Service.[10]

The Barnstable Clean Water Coalition (BCWC) has made its first land acquisition for the Marstons Mills River Cranberry Bog Restoration Project. BCWC is working to restore 55 acres of cranberry bogs to natural freshwater wetlands. This restoration would entail filling drainage ditches, grading the bog surface, removing water control structures, reconstructing stream channels, loosening the sand layer, and moving sediment. The goals of this restoration project include:

- Attenuate nitrogen and reduce the nitrogen flow downriver
- Improve water quality in the Three Bays Estuary
- Habitat restoration
- Public recreation and education opportunities[11]

[9] Cape Cod Freshwater Ponds Restoration Projects, Cape Cod Commission. Accessed February 28, 2023.
[10] Denise Coffey, Cape Cod Times. "$42.5 Million Coming to Cape For Water Resource Projects", April 28, 2022.
[11] Marstons Mills Cranberry Bog Restoration Project, Barnstable Clean Water Coalition. Accessed March 10, 2023.

Invasive Species in Lakes and Ponds

The Town annually manages the growth of Hydrilla and Fanwort, two invasive non-native plants in several freshwater ponds. While widespread across the country, very few municipalities in the Commonwealth are challenged with managing these invasive species. Hydrilla is present in Long Pond, Centerville (first discovered in 2001) and Mystic Lake and Middle Pond in Marstons Mills (first discovered in 2011), as well as Lake Wequaquet/Gooseberry Cove. These water bodies are also home to native and protected species of plants, mollusks, fish and other animals which makes controlling the invasive weed crucial. Fanwort, another invasive weed, is present and managed in Bearse Pond. The Town manages these species through a combination of mechanical means (diver assisted suction harvesting and mats) as well as controlled application of aquatic herbicides. Figure 3.1 illustrates common sources of phosphorus entering fresh and coastal water bodies.

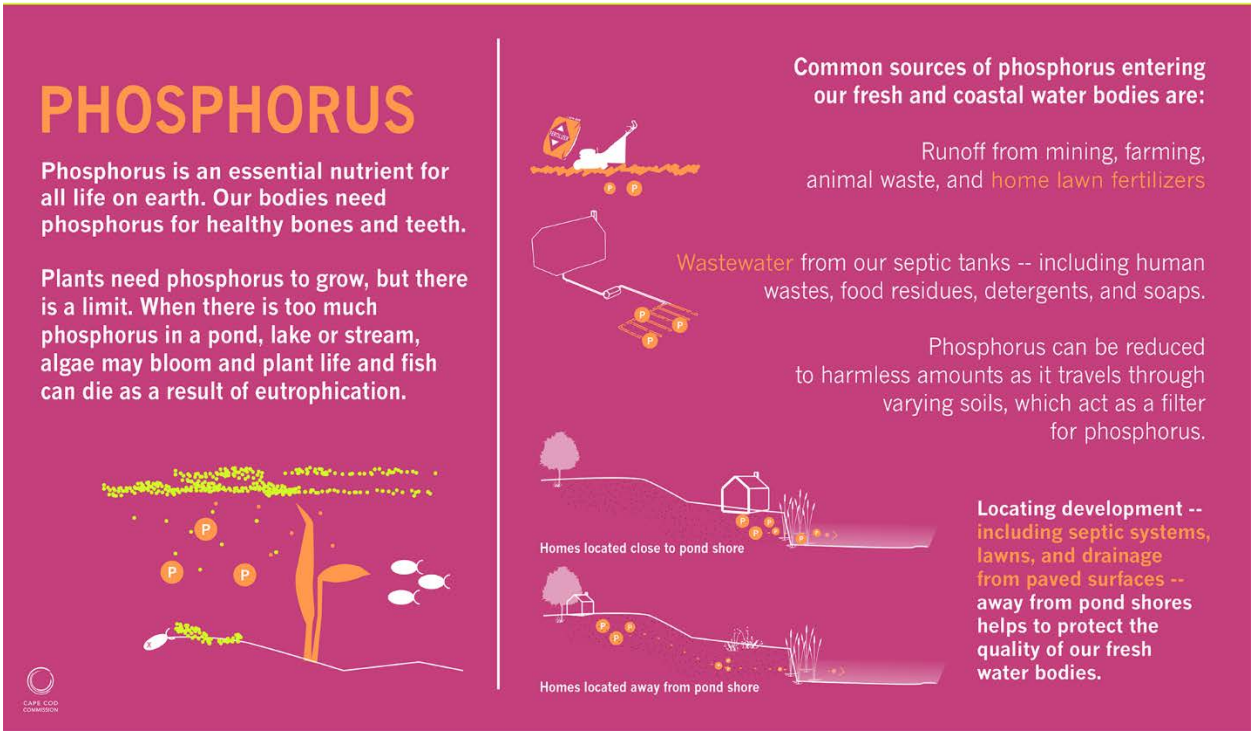


Figure: 3.1 Phosphorus – Common Sources of Phosphorus Entering our Fresh and Coastal Water Bodies, Cape Cod Commission.

Pond and Lake Stewardship

Barnstable has participated in the Pond and Lake Stewardship (PALs) Program that has helped establish baseline water quality. Barnstable Clean Water Coalition (BCWC) is an active participant in the Cape Cod Commission's Cape Cod Pond and Lake Stewardship (PALS) program. This monitoring program, established in 2001 in response to concerns over impacts of excess nutrients on freshwater ponds and lakes, provides an annual "snapshot" of the Cape's pond and lake water quality.

During the month-long PALS snapshot event in August/September, water samples are collected and sent for analysis to the Coastal Systems Program lab at the University of Massachusetts-Dartmouth School for Marine and Technology (SMAST). The water samples are analyzed for total nitrogen, total phosphorus, chlorophyll a and pH. Associated water quality data collected at each site include dissolved oxygen, turbidity (water clarity), temperature, depth, water color and vegetative cover.

Since 2018, BCWC staff and volunteers monitor 31 ponds and lakes in Barnstable. These ponds and lakes range in depth from less than a half a meter (1.6 feet) to over 19 meters (62 feet). Kayaks are used to access the deepest points to collect the water samples and data. Prior to 2018, only 9 ponds and lakes were monitored in the Three Bays Watershed.[12]

The Cape Cod Ponds Network was convened in 2022 as a response to growing concern over the health of Cape Cod's 890 freshwater ponds. Coordinated through a collaboration between the Cape Cod Commission and Association to Preserve Cape Cod (APCC), the Network is targeted towards pond stewardship organizations, but meetings are open to any interested parties. The Pond Network includes more than 40 pond organizations.

[12] Barnstable Clean Water Coalition, "Pond and Lake Stewardship", Accessed January 2023.

Wetland Resources

Overview

The Town of Barnstable has 14,352 acres of wetlands subdivided into: pond/lake (5,520 ac.), marsh (4,230 ac.), beach (3,205 ac.), wooded wetland (1,143 ac.), and cranberry bog (253 ac.). Barnstable contains 163 ponds totaling 1,912 acres, and 37 certified vernal pools.[13]

The Cape's groundwater and stormwater runoff discharge to surface waters in ponds, lakes, rivers and streams, coastal waters, and wetlands. These wetland resources support much of the plant and wildlife that makes the Cape such an environmentally rich and interesting place. In addition, wetlands play a vital role in regulating the environment by absorbing and filtering storm and flood waters, providing natural removal of nitrogen, recharging the aquifer, storing carbon in wetland peat and vegetation, and providing vital habitat. [14]

Wetland Protection

Critical to protecting wetlands and their natural functions are healthy, naturally vegetated buffers. Buffers provide important habitat as well as assist in the management of pollutants, trapping or arresting nutrients and sediment before they can flow into wetlands and clog or impair them. Increasingly important, wetland buffers preserved from development will help to store increased stormwater runoff as the climate changes and will allow wetlands to migrate as changes in groundwater levels and increased precipitation events occur. [15]

Wetlands in the Town are shown on Map 3.4. These include extensive areas of salt marsh. Barrier beaches, coastal beaches, dunes and bluffs are among the coastal landforms that make up the Town's 170 miles of coastal shoreline. Freshwater wetlands also are a large-scale resource. Wetlands total approximately 13,692 acres, 21.4 percent of the Town's surface area.[16] In addition there are associated bordering vegetated wetlands, swales, creeks, and bogs. These vast and varied

[13] Town of Barnstable Online GIS Viewer, January 2023; * NHESP GIS Data shows 39 Certified Vernal Pools in the Town of Barnstable.

[14] Cape Cod Regional Policy Plan, Cape Cod Commission, February 22, 2019, 30.

[15] Ibid, 30.

[16] MassGIS, "Wetlands", updated 2022.

wetland resource areas provide a number of important ecosystem services. They provide habitat for terrestrial and aquatic plants and animals, they filter pollutants before they enter water bodies or groundwater, and in many cases they provide a buffer against storm damage.

Barnstable's extensive coastal wetlands are an important resource requiring protection. According to Barnstable's 2010 Comprehensive Plan, more than a quarter of Cape Cod's salt marshes are located in Barnstable, mostly in the Great Marsh south of Sandy Neck. Salt marshes are among the most productive ecosystems on the planet, rivaling the productivity of rain forests. In addition to providing vital aquatic and wildlife habitat, salt marshes filter pollutants, and buffer shorelines from storm surge. Blue carbon represents another ecosystem service provided by salt marshes. Blue carbon is a term used to describe carbon that is absorbed by salt marsh and other coastal wetlands. Salt marsh systems absorb large amounts of carbon that otherwise would be released as carbon dioxide and contribute to global climate change.

The Town of Barnstable has a Wetlands Protection Regulation (Chapter 237 of the Town of Barnstable Code) and Chapter 704 of the Town of Barnstable Code that regulates activity in the 100-foot buffer zone of wetlands.

Cranberry Bogs

Barnstable is home to over three hundred isolated wetlands, with many being cranberry bogs. While some are an active part of the Cape Cod economy some are abandoned or protected as open space. The Barnstable Land Trusts lists the Bridge Creek Conservation Area and Shaws Lake Trail as locations to hike, bike, or ride horses near abandoned or privately-owned bogs. These swale environments are distinct in their soil composition with excellent drainage that alternates between sand, moss, and organic matter often identified as older cranberry plants. Cranberries are native to Plymouth and Barnstable County with a growing cycle of sixteen months, with a dormant period during the freezing months.

Vernal Pools

Vernal pools are vulnerable wetlands found across natural landscapes from woodlands, meadows, sandplains to floodplains across the state of Massachusetts. They naturally occur in topographic depressions where snow melt, runoff, groundwater, or springs may settle temporarily.[17] According to the Cape Cod Commission GIS Data Hub there are 39 certified vernal pools in the town of Barnstable, eight more than reported in the 2018 Open Space and Recreation Plan.

These small environments are unique because they have the capacity to recharge local aquifers and provide for a diverse set of animals with conditions ranging from saturated, dry, or frozen. They are home to salamanders and frogs while acting as the breeding ground for amphibian and vertebrate species like Fairy Shrimp (Eubranchipus vernalis) that thrive in environments without fish as predators.[18] Vernal pool habitats support the life cycle of insects and amphibians while advancing the life cycle of their predators.

Vernal pools are often at risk and undetected due to long periods of dry conditions that allow them to blend in with traditional wetland settings. The certification of vernal pools helps both developers and local conservation commissions draft plans with proper safeguards for the land and the animals that inhabit them. Identified and certified vernal pools are protected under the Massachusetts Wetlands Protection Act, and up to 100 feet past established boundaries in some cases may be protected. Volunteers may assist in the certification process through surveying and documenting of these habitats for review by the Department of Environmental Protection.

Open Space

Overview

The open space of the Town of Barnstable is critical to the health of the natural systems, economy, and population. Open space provides habitat for the Town's diverse species and protection of the drinking water supply. Wooded open space provides a carbon sink for mitigating the impacts of climate change, both through the storage of carbon that would otherwise be lost to the atmosphere

[17] Mass Audubon, "Vernal Pools", accessed January 2023.
[18] Ibid.

through development, and through the carbon-absorbing capacity of trees. The beaches, farms, woodlands, and marshes of the Town provide recreational outdoor activities that attract visitors and residents and provide the necessary land and resources for agricultural activities. [19]

Stewardship and Collaboration

Barnstable has a strong history of protecting open space, whether for water supply and habitat protection or preserving the character and beauty of the natural landscape. The Town has a state approved Open Space and Recreation Plan (2018), which includes an inventory of existing protected open space, community vision and goals, and priorities for future land acquisitions.

Community Preservation Act

The Town of Barnstable and local land trusts work in concert to protect new properties as they become available for purchase. Community Preservation Act funds have been critical in generating dedicated funding for preserving land. Community Preservation Act (CPA) projects that have been recently approved (2018-2021) include five open space projects and five recreation projects in the Town of Barnstable (Table 3.2).

Table 3.2. Community Preservation Act Projects, Open Space and Recreation, approved 2018-2021.

Project Name	**Description**	**Approval Date**	**Category**
3600 Falmouth Road - CR Acquisition	Acquisition of a conservation restriction for open space and passive recreation.	6/7/2018	Open Space
CC Rail Trail - Alternate Route Study - Phase IV	This complete study is required in order to submit the project for inclusion on the state Transportation Improvement Program for funding the construction of the project.	8/16/2018	Recreation
0 Bumps River Road Acquisition	Acquisition of 5.92 acre vacant lot in Marstons Mills village for open space and passive recreation, education, and nature study purposes. Acquisition of this parcel will protect water	1/17/2019	Open Space

[19] Cape Cod Regional Policy Plan, Cape Cod Commission, Effective February 22, 2019, 30.

Table 3.2. Community Preservation Act Projects, Open Space and Recreation, approved 2018-2021.

Project Name	Description	Approval Date	Category
	quality and wildlife along Bumps River, Scudder Bay and Coombs Bog and provide connection to 27 acres of Town-owned land for opportunity for walking trails.		
Barnstable Hollow Field	Rehabilitation of underutilized baseball field into a multi-use green space for a variety of events, functions and user groups including HP accessible entrance.	8/15/2019	Recreation
Orenda - Great Marsh Road Conservation Restriction	Creation and acquisition of a conservation restriction on 3 wooded lots addressed 150 and 180 Great Marsh Road and 55 Hayes Road, Centerville.	5/7/2020	Open Space
28 Falcon Road Acquisition	Acquisition of 28 Falcon Road, West Barnstable for open space purposes with a conservation restriction to be held by Barnstable Land Trust.	11/19/2020	Open Space
830 Wakeby Road Acquisition	Acquisition of 15.8 acres of land in Marstons Mills for open space/water resources purposes.	11/19/2020	Open Space
Pickleball Courts - Osterville/W Barnstable Rd.	Rehabilitation of town-owned existing tennis courts to create 10 new pickleball courts and 2 tennis courts with pickleball lines overlaid for dual purpose.	12/3/2020	Recreation
Centerville Recreation Playground	Renovation of the town-owned recreation resource Centerville Recreation Playground by replacing existing outdated playground equipment with ADA-compliant equipment, playground surfaces, and pathway from parking area; and landscaping.	8/19/2021	Recreation
Barnstable Hollow Field Playground	Renovation of town-owned recreation resource by replacing existing playground equipment with ADA-compliant equipment, walkways, playground surfaces. Installation of new seating with shade and water bottle filling station.	8/19/2021	Recreation

Source: Community Preservation Coalition, CPA Projects Database

Level of Protection and Ownership

The amount of open space in Barnstable that is protected in perpetuity is 11,469 acres. This is an increase of 524 acres from 2010 to 2022.[20] Table 3.3 lists Open Space by Level of Protection and shows 30 parcels totaling 570 acres with no open space protection. Thirty-four parcels totaling 189 acres have limited open space protection and are located in all seven villages and include school playgrounds, cemeteries, nine privately held properties with conservation restrictions (see Map 3.5). Barnstable contains 931 parcels totaling 11,469 acres of open space protected in perpetuity. The vast majority of parcels protected in perpetuity are located throughout the town in all seven villages and consist of Land Bank parcels, conservation areas, water department land, fire district land, as well as private properties with conservation restrictions.

Table 3.3. Town of Barnstable, Open Space by Level of Protection.

Level of Protection	**# of Parcels**	**Total Area (ac)**
None	30	570
Limited	34	189
In Perpetuity	931	11,469
Totals	995	12,228

Source: MassGIS, "Protected and Recreational Open Space", updated August 2022.

In addition to government entities, private land trusts have been critical in protecting open space as well. Open Space classified by owner type can be found in Table 3.4 and illustrated in Map 3.6. Municipally owned land accounts for 77 percent of open space parcels, followed by 10 percent for land trusts. That leaves the remaining 13 percent of open space owned by the Town of Barnstable Conservation Commission, Three Bays Preservation (managed by Mass Audubon), DCR Division of State Parks & Recreation, Department of Fish & Game, Non-Profits, Private Conservation Restrictions, and Private Recreation Clubs.

[20] Town of Barnstable online Map and Data Viewer, acquired 1/18/2023.

Table 3.4. Town of Barnstable, Open Space by Owner.

Owner Type	# of Parcels	Owners	Total Area (ac.)
County	5	Town of Barnstable Conservation Commission	90
Conservation Organization	1	Three Bays Preservation (managed by Mass Audubon)	91
State	11	DCR - Division of State Parks & Recreation; Department of Fish & Game	418
Land Trust	233	Barnstable Land Trust; Compact of Cape Cod Conservation Trusts; Mary Barton Land Conservation Trust; Mass Audubon Society; Native Land Conservancy; Orenda Wildlife Land Trust; Nature Conservancy; The Trustees of Reservations	1256
Municipal	643	Town of Barnstable	9422
Non-Profit	2	Roman Catholic Bishop of Fall River (Pope John Paul II H.S.; Cemetery)	3
Private	99	Barnstable Fire Tower; Private Conservation Restrictions (CRs); Private Recreation Clubs	948
Totals	994		12,228

Source: MassGIS Data, "Protected and Recreational Open Space", updated August 2022.

The Barnstable Land Trust has protected 620 acres in the Town of Barnstable.[21] It worked together with town leaders to protect large sections of Barnstable's Great Marsh, Crocker Neck, Bridge Creek, and many smaller parcels. Barnstable's on-going commitment to open space protection was demonstrated by strong public and private efforts.

Other major open space needs have guided preservation efforts. Lands held by the water districts for drinking water protection represent a large portion of the undeveloped land in Barnstable. Working landscapes, including local farms and cranberry bogs, also are an integral part of Barnstable's landscape.

[21] MassGIS Data, Protected and Recreational Open Space, August 2022.

Collectively, these properties represent a long history of conservation efforts in Barnstable that have produced a varied and well-connected network of open spaces throughout the Town.

Chapter 61 Lands

The Chapter 61 statues offer property owners preferential tax treatment to assist with keeping open spaces with natural and scenic value from being sold and developed. Individuals and households that do not develop their land, for a defined period of time, could be eligible under Massachusetts Chapter 61 Classification and Taxation of Forest Lands and Forests Products to be exempt from having to pay property taxes. There are three programs that exist under Chapter 61 that focus on different land uses and have different regulations for stewardship.

Table 3.5 Chapter 61 Programs

Program	Acreage Minimum	Land Use	Forest Management Plan	Public Access
Chapter 61	10 Acres	Undeveloped, Forest Land or Forest Products	10-Year Plan Required	No
Chapter 61 A	5 Acres	Agricultural	10-Year Plan Required	No
Chapter 61 B	5 Acres	Open Space Recreation	10-Year Plan Required No	No Access Required

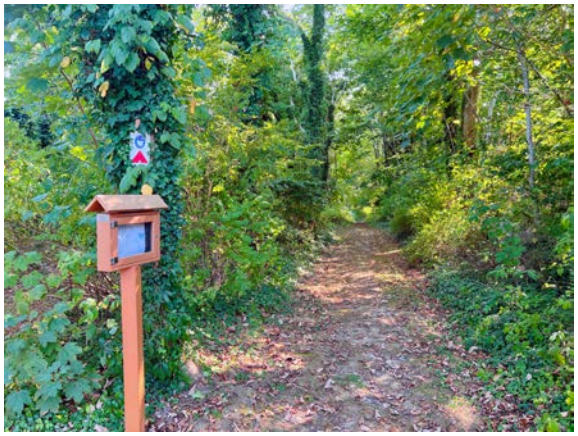
Source: UMass Cooperative Extension and Massachusetts Department of Conservation and Recreation, Chapter 61 Programs: Understanding Massachusetts Ch. 61 Current Tax Programs (n.d.).

Most Chapter 61 programs require the completion of a ten-year management plan reviewed by a state service forester with an inventory of the property's resources, maps, and long-term stewardship goals, with the exception of Chapter 61B land designated as recreational. Depending on the program type, minimum acreage requirements range from five to ten acres. Chapter 61A mandates land uses, requiring an owner to produce garden or agricultural products like produce,

timber, animal products, or decorative plants for a minimum of two years before application.[22] Chapter 61B is the final program for tax relief with the least regulation and is best for property owners who take a passive approach. Those who decide to apply for Chapter 61B can navigate between an open space or recreation designation; open space uses require a management plan, but do not mandate public access, while recreational designations do not require review plans but mandate the public or members of a nonprofit organization have access to land.

Greenways, Corridors, and Connectivity

Over the past several decades the Town's strong commitment to planning for open space and recreation has been guided by a corridors and greenways strategy. The priority upland greenway is the east-west oriented glacial moraine, which roughly follows Route 6. This area is valued for its hilly terrain, forest cover, and wildlife habitat. Many of the Town's significant conservation parcels are located along this greenbelt, including the West Barnstable, Old Jail Lane, Hathaway's Pond, Hyannis Ponds, and Otis Atwood Conservation Areas. The Town's two golf courses add to the significant open space acreage along the corridor. These acquisitions along Route 6 make up the "backbone" of the Town's conservation lands and contribute to regional green infrastructure and Cape Cod Pathways goals. [23]



Additional conservation efforts continue to focus on smaller corridors running north-south and linking to the larger conservation greenway along the moraine. Numerous parcels along the

[22] UMass Cooperative Extension and Massachusetts Department of Conservation and Recreation, Chapter 61 Programs: Understanding Massachusetts Ch. 61 Current Tax Programs (n.d.).

[23] Town of Barnstable Open Space and Recreation Plan, 2018, 71-72.

Marstons Mills River, Centerville River, Maraspin Creek, Little River, and other sensitive riparian corridors have been preserved. Property acquisitions along Barnstable coastlines support highly productive ecosystems, provide popular recreation opportunities, and preserve the scenic quality of the seashore. Collectively, the conservation of these parcels is essential to the health of Barnstable's coastal resources.

Sandy Neck Area of Critical Environmental Concern (ACEC)

An equally important long-range objective has been the preservation of the Great Marshes in West Barnstable, which are part of the Sandy Neck Area of Critical Environmental Concern (ACEC). Areas of Critical Environmental Concern are places in Massachusetts that receive special recognition because of the quality, uniqueness and significance of their natural and cultural resources. Barnstable Great Marsh is an integral part of the ecologically significant 3,800-acre Sandy Neck salt marsh and barrier beach system. Along with the expansive salt marsh views, the sanctuary features two open ponds, shady oak woodlands, and numerous wildlife. Three species of owls commonly inhabit the sanctuary in winter, and five species of turtles nest here in summer.[24]

[24] "Barnstable Great Marsh Wildlife Sanctuary, Mass Audubon, accessed January 2023.

In the Great Marshes, large tracts are held as town conservation land; the Barnstable Land Trust, Orenda Wildlife Trust, and Massachusetts Audubon Society also have important holdings in this area. Incremental parcel acquisitions north of Route 6A by the Town and private conservation groups have contributed to the preservation of this environmentally sensitive area.

Sandy Neck is a tremendous asset to the town as it is a protective barrier to the north and is undeveloped land. Sandy Neck Park encompasses 4,700 acres of extensive barrier beach that is accessible via boat or off-road vehicle (ORV), including the nine acres on the far west side of the Park categorized by the Assessing Department as a beach. Sandy Neck Park is part of the Sandy Neck Area of Critical Environmental Concern (ACEC) petitioned by the Towns of Barnstable and Sandwich and designated by the State in 1978. Sandy Neck Park acreage is apportioned as follows:

- Land Bank/CPA – 33.01 acres;
- Town Beach - 9.1 acres;
- Municipal Property - 135.95 acres;
- Private Open Space (Barnstable Land Trust and The Nature Conservancy) – 62.55 acres;
- Conservation – remainder.

Sandy Neck Beach Park allows ORV access with a permit and this activity occurs on the front beach corridor, which is 4.5 miles long. However, the ORV corridor is reduced in length for much

of the summer season due to nesting Plovers and Least Terns that require protection under state and federal law. Along the south side of the property is the Marsh Trail that runs east to west. There are six trails that run north-south between the front beach and the Marsh Trail. These trails are used by hikers and are also utilized for vehicular access to Sandy Neck cottages. There are 50 privately owned cottages. Some are on private lands and those that are located on town owned land require a yearly property lease. These cottages are situated along the Marsh Trail and within the Cottage Colony, which is also where the Sandy Neck Lighthouse is located.[25]

A management plan for the Park was developed in 2003. Management activities are overseen by the Sandy Neck Board with staff support from the Town Marine and Environmental Affairs Division. [26]

Education and Public Awareness

The Barnstable Natural Resources Program provides educational and outreach opportunities for local school groups, libraries, and community centers with such topics as wildlife, turtles, natural resource officer work, and river herring. The Natural Resource Program staff also participate at various wildlife, environment, and nature expos in the Barnstable area with a traveling animal exhibit, shellfish tank, or live turtles. These classroom visits and outreach expos help the local community and visitors become aware of natural resources, wildlife, habitat, and environmental regulations in Barnstable.

Parks and Recreation

The Recreation Division manages the Town's public swimming beaches, and the Hyannis and Olde Barnstable Fair Grounds Golf Courses as well as numerous public playing fields and parks. The town has implemented an environmentally sustainable land management plan at the golf

[25] Massachusetts Piping Plover Habitat Conservation Plan Certificate of Inclusion Request 2020 Sandy Neck Beach Park, Barnstable Massachusetts, Prepared by Marine and Environmental Affairs Division, Town of Barnstable, December 2019.

[26] Town of Barnstable Open Space and Recreation Plan, 2018, 73-74.

courses to reduce the use of fertilizers and pesticides. The town is in the process of making improvements to the golf course, including cart path improvements at Hyannis Golf Course.

The Recreation Commission conducted a facilities assessment in 2012 that was used to set priorities for facilities improvements. To date, there has been progress towards each project. The Commission is considering another study to reprioritize needs identified in the 2017 Field Study.

The Hyannis Youth and Community Center built in 2009 continues to serve as a focal point for many community recreation programs and services. The center is a year-round full-service facility with two skating rinks, two basketball courts, a skateboard park, a cafe and a Youth Center with after-school programming.[27]

Several goals of the 2010 LCP have been accomplished in the area of Recreation with field upgrades throughout the villages including the pickleball complex in Marstons Mills that opened last year. Lombard Field improvements were completed with a combination of Community Preservation Act (CPA) funding and Capital funds. The Osterville Bay Softball Field was completed and funded through the Capital Improvement Program (CIP). The Barnstable Hollow Playground improvements project was completed which included replacing existing playground

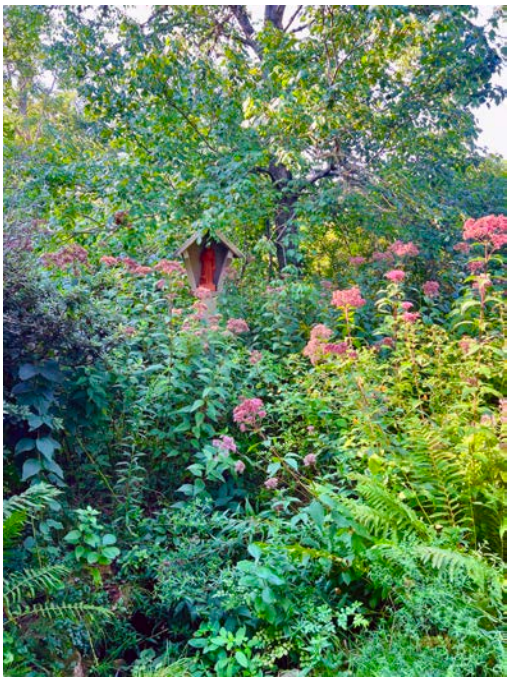
[27] Town of Barnstable Open Space and Recreation Plan, 2018, 15-16.

equipment with ADA-compliant equipment, walkways, playground surfaces, installation of new seating with shade and water bottle filling station. The redesign of the Centerville Playground is underway. The Town is seeking CIP funds to redesign the HYCC grounds to expand recreational opportunities.

Habitat

Overview

The Southeastern Massachusetts Pine Barrens is the eco-region that the Town of Barnstable and the entire peninsula of Cape Cod are located within. Pine barrens are a globally rare habitat type composed of a unique mixture of plants and animals that thrive on the nutrient-poor soils and variable climate found on Cape Cod. Within the pine barrens eco-region, there are many and varied habitat types, including pitch pine-oak woodlands, transitional hardwood-pine forests, streams and rivers, ponds and lakes, vernal pools, shrub and forested swamps, estuaries, salt marshes, dunes, beaches, grasslands, and others.[28]



[28] Cape Cod Regional Policy Plan, Cape Cod Commission, February 22, 2019, 32.

Critical Habitats

Critical habitats in Barnstable have been identified by the MassWildlife's Natural Heritage and Endangered Species Program (NHESP), Core Biomap, and Cape Cod Wildlife Conservation Project.

Three major NHESP Core Habitat areas include and surround the Town's three largest conservation areas: West Barnstable Conservation Area, Sandy Neck barrier beach, and the Division of Fisheries and Wildlife Land.[29]

BioMap incorporates enhanced knowledge of biodiversity and habitats, improved information on the threats to biodiversity, and new understandings of how to ensure that natural systems are more resilient in the face of climate change. **Core Habitat** identifies areas that are critical for the long-term persistence of rare species, exemplary natural communities, and resilient ecosystems across the Commonwealth.

Core Habitat contains six *components* of biodiversity conservation:

Priority Natural Communities are two types of natural communities—groups of plant and animal species that share common environmental conditions and occur together repeatedly on the landscape—are priorities for protection: those that are rare and those that are exemplary. Protection, management, and conservation of these communities will help to support the persistence of characteristic common species as well as rare species throughout Massachusetts. Barnstable has seven priority natural communities covering over 5,700 acres, the vast majority of which is in the Great Marsh and Sandy Neck areas: Coastal Plain Pond Shore Community, Interdunal Marsh/Swale, Maritime Dune Community, Maritime Forest/Woodland, Maritime Juniper Woodland/Shrubland, Maritime Pitch Pine Woodland on Dunes, and Salt Marsh.

Rare Species Core captures areas critical to long-term conservation of our most vulnerable species and their habitats. It includes habitat for more than four hundred state-listed animals and plants protected pursuant to the Massachusetts Endangered Species Act (MESA), based on information contained in the Natural Heritage & Endangered Species Program (NHESP) database. Barnstable

[29] Town of Barnstable Open Space and Recreation Plan, 2018, 51-52.

has 10,391 acres of Rare Species Core habitat, including but not limited to the West Barnstable Conservation Area, Hyannis Ponds Wildlife Management Area, Skunkett River Wildlife Sanctuary, Long Beach, Great Marsh, and Sandy Neck.

Forest Core represents the most intact forests of Massachusetts, least impacted by roads and development. These forests provide unique forest interior habitat important for animals and plants that depend on these remote sanctuaries. Barnstable does not have any land that is classified as forest core habitat according to BioMap.

Aquatic Core encompasses those segments of rivers and streams and entire lakes and ponds with the highest native fish and freshwater mussel species diversity, rivers with the strongest anadromous fish runs, and occurrences of rare species. Floodplains are active parts of the stream channel and so were therefore incorporated into segments of rivers and streams. Barnstable has 2,079 acres that are classified as aquatic core habitat, mainly consisting of the interior pond areas throughout the town.

Wetland Core comprises the most intact, least disturbed wetlands—those with intact buffers and little fragmentation or other stressors associated with development, like pollution. Wetlands provide irreplaceable habitat for hundreds of unique plant and animal species found nowhere else on the landscape. Barnstable has 198 acres of wetland core habitat, mainly along the Skunkett River and in Sandy Neck State Park.

Vernal Pool Core includes high quality vernal pools—small seasonal wetlands that typically fill with water in the autumn or winter and dry up by the end of summer—along with surrounding upland habitat for connectivity. These temporary wetlands provide important habitat for a variety of species, including amphibians and invertebrates, that use them to breed. The Vernal Pool Core habitats total 1,541 acres in Barnstable and are located in Sandy Neck, Great Marsh, Bridge Creek Conservation Area, Hyannis Ponds Wildlife Management Area, Sandy Hill Pond, and the Water Department Land west of Hathaways Pond Conservation Area.

The Massachusetts Natural Heritage & Endangered Species Program (NHESP) documents the presence of plant and animal species protected under the Massachusetts Endangered Species Act (MESA) across the Commonwealth. Table 3.6 identifies plant Species of Conservation Concern

(e.g., species protected under MESA or of significant regional conservation concern) found in Barnstable. By protecting Species of Conservation Concern, Massachusetts communities can help ensure the long-term survival of rare and other native species and maintain a high level of biodiversity.

Table 3.6. Plant Species of Conservation Concern in Barnstable.

Common Name	**Scientific Name**	**MESA Status**
Adder's Tongue Fern	*Ophioglossum pusillum*	Threatened
Bristly Foxtail	*Setaria parviflora*	Special Concern
Commons' Rosette-grass	*Dichanthelium commonsianum*	Special Concern
Cranefly Orchid	*Tipularia discolor*	Endangered
Dwarf Bulrush	*Lipocarpha micrantha*	Threatened
Grass-leaved Ladies'-tresses	*Spiranthes vernalis*	Threatened
Heartleaf Twayblade	*Neottia cordata*	Endangered
Long-beaked Beaksedge	*Rhynchospora scirpoides*	Special Concern
Maryland Meadow-beauty	*Rhexia mariana*	Endangered
Mitchell's Sedge	*Carex mitchelliana*	Threatened
New England Blazing Star	*Liatris novae-angliae*	Special Concern
Papillose Nut Sedge	*Scleria pauciflora*	Endangered
Philadelphia Panic-grass	*Panicum philadelphicum ssp. philadelphicum*	Special Concern
Plymouth Gentian	*Sabatia kennedyana*	Special Concern
Pondshore Smartweed	*Persicaria puritanorum*	Special Concern
Purple Needlegrass	*Aristida purpurascens*	Threatened
Redroot	*Lachnanthes caroliniana*	Special Concern
Sandplain Gerardia	*Agalinis acuta*	Endangered
Short-beaked Beaksedge	*Rhynchospora nitens*	Threatened
Slender Bladderwort	*Utricularia subulata*	Special Concern

Table 3.6. Plant Species of Conservation Concern in Barnstable.

Common Name	Scientific Name	MESA Status
Slender Marsh Pink	*Sabatia campanulata*	Endangered
Stiff Yellow Flax	*Linum medium var. texanum*	Threatened
Swamp Oats	*Sphenopholis pensylvanica*	Threatened
Terete Arrowhead	*Sagittaria teres*	Special Concern
Torrey's Beaksedge	*Rhynchospora torreyana*	Endangered
Wright's Rosette-grass	*Dichanthelium wrightianum*	Special Concern

Source: Rare Species Viewer, MassWildlife's Natural Heritage & Endangered Species Program, acquired 1/18/2023.

Barnstable's beach, dune, bay, wetland, and forest habitats support a range of fish and wildlife species. Barnstable's barrier beaches and ponds provide important quality habitat to migratory shorebirds. Large, protected open space areas provide recreation opportunities for people and connect habitat, facilitating the movement of wildlife.

However, encroachment by development, water quality impairments, invasive plants, colonization of open areas by tree and shrub growth, and rising sea levels can negatively affect fish and wildlife habitat. Table 3.7 lists fish and wildlife species identified by the NHESP as Species of Conservation Concern in Barnstable.

Table 3.7. Fish & Wildlife Species of Conservation Concern in Barnstable.

Common Name	Scientific Name	Taxonomic Group	MESA Status
Agassiz's Clam Shrimp	*Eulimnadia agassizii*	Crustacean	Endangered
Arctic Tern	*Sterna paradisaea*	Bird	Special Concern
Bald Eagle	*Haliaeetus leucocephalus*	Bird	Threatened
Bridle Shiner	*Notropis bifrenatus*	Fish	Special Concern
Buck Moth	*Hemileuca maia*	Butterfly/Moth	Special Concern
Chain Dot Geometer	*Cingilia catenaria*	Butterfly/Moth	Special Concern

Table 3.7. Fish & Wildlife Species of Conservation Concern in Barnstable.

Common Name	Scientific Name	Taxonomic Group	MESA Status
Chain Fern Borer	*Papaipema stenocelis*	Butterfly/Moth	Threatened
Coastal Heathland Cutworm	*Abagrotis benjamini*	Butterfly/Moth	Special Concern
Common Tern	*Sterna hirundo*	Bird	Special Concern
Eastern Box Turtle	*Terrapene carolina*	Reptile	Special Concern
Eastern Pondmussel	*Ligumia nasuta*	Mussel	Special Concern
Eastern Spadefoot	*Scaphiopus holbrookii*	Amphibian	Threatened
Frosted Elfin	*Callophrys irus*	Butterfly/Moth	Special Concern
Grasshopper Sparrow	*Ammodramus savannarum*	Bird	Threatened
Least Tern	*Sternula antillarum*	Bird	Special Concern
Long-eared Owl	*Asio otus*	Bird	Special Concern
Mustard White	*Pieris oleracea*	Butterfly/Moth	Threatened
North Atlantic Right Whale	*Eubalaena glacialis*	Mammal	Endangered
Northern Diamond-backed Terrapin	*Malaclemys terrapin*	Reptile	Threatened
Northern Long-eared Bat	*Myotis septentrionalis*	Mammal	Endangered
Northern Parula	*Setophaga americana*	Bird	Threatened
Pine Barrens Bluet	*Enallagma recurvatum*	Dragonfly/Damselfly	Threatened
Pine Barrens Speranza	*Speranza exonerata*	Butterfly/Moth	Special Concern
Pine Barrens Zale	*Zale lunifera*	Butterfly/Moth	Special Concern
Piping Plover	*Charadrius melodus*	Bird	Threatened
Purple Tiger Beetle	*Cicindela purpurea*	Beetle	Special Concern
Roseate Tern	*Sterna dougallii*	Bird	Endangered
Scarlet Bluet	*Enallagma pictum*	Dragonfly/Damselfly	Threatened
Short-eared Owl	*Asio flammeus*	Bird	Endangered
Tidewater Mucket	*Leptodea ochracea*	Mussel	Special Concern

Table 3.7. Fish & Wildlife Species of Conservation Concern in Barnstable.

Common Name	Scientific Name	Taxonomic Group	MESA Status
Tule Bluet	*Enallagma carunculatum*	Dragonfly/Damselfly	Special Concern
Water-willow Stem Borer	*Papaipema sulphurata*	Butterfly/Moth	Threatened

Source: Rare Species Viewer, MassWildlife's Natural Heritage & Endangered Species Program, acquired 1/18/2023.

Critical Natural Landscapes

Natural Landscapes support ecological processes and a wide array of species and habitats over long time frames. BioMap identifies Critical Natural Landscapes (CNLs) encompassing 15,107 acres within the Town of Barnstable.[30] CNLs include large landscape blocks that are minimally impacted by development, as well as buffers to core habitats and coastal areas, both of which enhance connectivity and resilience.

CNL contains several *components* of biodiversity conservation:

[30] MassWildlife and the Nature Conservancy, BioMap, November 2022.

Landscape Blocks comprise large areas of intact lands and waters that provide habitat for wide-ranging species and support dynamic and resilient ecosystems. These landscapes allow species to move freely among habitats and buffer smaller natural communities from development and other stressors. There is one Landscape Block critical natural landscape in Barnstable totaling 6,136 acres in the Great Marsh and Sandy Neck area.

Coastal Adaptation Areas include salt marsh and other habitats along the Massachusetts coast that support unique and important habitat, rare species, and intact coastal ecosystems of global significance. These rich ecosystems provide abundant resources for species and also absorb storm surges, protecting inland infrastructure and property. Barnstable has 4,650 acres of Coastal Adaptation areas found along the northern coast of town as well as smaller areas located across the southern portion of town.

Tern Foraging Habitat comprises coastal areas including sandy gravelly islands and barrier beaches, bays, lagoons, estuaries, tidal marshes, ponds, and tidal inlets that are vital to the survival of these migratory species. Three species—the common tern, least tern, and arctic tern—are of special concern in Massachusetts, while the roseate tern is endangered. Great Marsh and Sandy Neck along the northern coast of town, along with several areas along the southern coast of town comprise the 9,513 acres of Tern Foraging Habitat in Barnstable.

Aquatic Buffers include both intact lands and wetlands that help to support Aquatic Core habitats and functionality as well as provide important areas of connectivity for species that move between habitats. Pond areas including: Mystic Pond, Middle Pond, Hamblin Pond, Shubael Pond, Wequaquet Lake, Hathaways Pond, Long Pond, and Lovells Pond make up the vast majority of the 2,079 acres of aquatic buffer.

Wetland Buffer comprises areas of intact habitat surrounding each Wetland Core. These protective buffers support vital wetland habitat, water quality, and other functions as well as provide important connectivity for species that move between upland and wetland habitats. Mary Dunn Pond, Long Pasture Wildlife Sanctuary, Skunkett River Wildlife Sanctuary, and Sandy Neck Beach area account for the 859 acres of wetland buffer areas around the wetland core areas.

Ongoing development poses a major threat to the protection of significant habitats. Of particular concern is the subdivision of large tracts of land for residences, which replace native vegetation with impervious surfaces and lawns. The Town has undertaken measures that seek to address this threat, including:

- Implementing the Resource Protection Overlay District which increased the minimum lot size to two acres in most areas of Town;
- Promoting Open Space Residential Design subdivisions in place of grid subdivisions; and
- Mapping Sensitive Habitat Areas and using the map as a guide for review and permitting development in affected areas.

Habitat Restoration and Fire Prevention

The Conservation Division also works on fire management improvements throughout the Town. Improvements that have taken place since 2010 include controlled prescribed burns for wildlife habitat restoration and forest fire fuel reduction, removal of dead pines on Old Stage Road, maintaining 33 acres of fields for habitat protection and fire prevention at Seabury Farms Conservation Area, West Barnstable Conservation Area, and Bridge Creek Conservation Area.[31]

[31] Town of Barnstable Open Space and Recreation Plan, 2018, 14-15.

4. Built Systems

Barnstable is comprised of seven villages, unique landscapes, and an infrastructure network to support it all. Early village-based development led to a rich local setting that continues to respond to climate resiliency measures and strives for an increased sustainability consciousness. The community continues to develop to meet the needs of year-round populations and tourists while adapting to the physical environment as a coastal community.

Land Use and Development

Overview

Land use and development lives at the intersection of natural, built, and community systems. Decisions about land use directly impact the protection of our sensitive environmental areas and waterbodies; the most efficient, effective, and resilient locations for development, redevelopment, and infrastructure; and where people live and work, how they can travel from place to place, and how they interact with one another in community.

This section is designed to be consistent with the minimum standards of the Cape Cod Regional Policy Plan (RPP). While the most populous town on the Cape, Barnstable is home to a variety of important water, coastal, wetland, wildlife, historic, and open space resources. In fact, being the center of commerce and population on the Cape makes it especially important that Barnstable protect, preserve, and where possible restore these resources and be mindful of how development may affect them. A large part of this is promoting development and redevelopment where infrastructure can support it, where impacts from climate change, sea-level rise, flooding, and other hazards are minimized. However, like many communities up and down the New England coast, much of Barnstable's historic population and economic activity is located on the waterfront. Evaluation of the need to protect, accommodate, or in extreme cases, retreat existing development will be a future planning challenge. Another challenge is the nation's housing crisis, which is felt acutely on Cape Cod. Land use and development policies that increase housing affordability and diversity will be critical to maintaining a sustainable local economy and the town's sense of community.

In brief, Barnstable has a tremendous duty to current and future residents to be good stewards of its land, balancing human and environmental imperatives. Fortunately, Barnstable has a long history of sound land use policy to build on, focusing more intense development in and around Hyannis, investing in its historic village centers, and working to conserve and minimize disturbances to natural areas. This LCP update continues that legacy.

Current Land Use and Land Use Trends

The history of land use in Barnstable is very similar to other parts of New England. Village centers initially huddled around harbors, rivers, and other natural features, with agricultural lands, and working and wild forests beyond. While this pattern of village development remains, over time, residential subdivisions, auto-oriented commercial corridors, and light industrial uses have fanned out from the traditional centers. See Map 4.1, a map of Barnstable's traditional village centers.

Map 4.2. illustrates current land use. As can be seen, denser residential development is concentrated in the central and southeastern portions of town with more conservation lands to the north and northwest. Commercial uses are largely concentrated along the eastern end of Route 132 and in downtown Hyannis, with industrial uses mostly clustered along Independence Drive between the Cape Cod Gateway Airport and Route 6.

Barnstable consists of many different and unique land use types; these areas serve as a conceptual framework for future land use planning.

Natural Areas: Natural Areas are generally the Town's least developed and most sensitive areas. While Barnstable is the most populous and also one of the most built out municipalities on the Cape, it has a wealth of natural areas such as Sandy Neck, the Great Marshes, and other local and privately held conservation lands.

Rural Development Areas: Rural Development Areas are defined by a high percentage of open lands and sparse building development patterns that contribute to the unique rural and scenic character of the region. Areas such as West Barnstable, larger lot areas around village centers, and the Town's few remaining agricultural areas and farms all contribute to the Town's rural character.

Suburban Development Areas: Suburban Development Areas include residential neighborhoods built primarily between the 1950s and 1990s as well as automobile-oriented commercial development established during the same time period. A great deal of Barnstable has been developed in this manner, as seen in the many residential subdivisions and strip shopping centers.

Regional Commercial Center: The Regional Commercial Center in Hyannis and Barnstable Village is characterized by larger-scale commercial and light-industrial uses, interspersed with higher density residential development. This area serves an important role in the regional economy, providing goods and services, year-round jobs, and economic stability and sustainability in a seasonal region. This area includes land designated as centers for industrial activity, suitable for industrial uses and emerging industries. Continued multi-family development in these areas is challenging the traditional characterization of these areas as exclusively commercial and industrial.

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Historic Areas: Historic Areas consist of concentrations of historic structures, including local and/or National Register districts located in a small-scale village setting. Particularly notable historic areas in Barnstable are found in and around the village centers of Barnstable, Centerville, Cotuit, Craigville, Hyannis, Hyannisport, Osterville, and West Barnstable. These areas include not only historic buildings, but cemeteries, landscape features, and viewsheds.

Maritime Areas: Maritime Areas are clusters of commercial and mixed-use development that contribute to Cape Cod's working waterfronts and harbors. Barnstable is home to some of the most active maritime areas on the Cape, including productive fishing industries, commuter and visitor ferry service, recreational marinas, and more. Barnstable Harbor, Hyannis Harbor, and multiple other marinas and yacht clubs provide jobs, attract tourists, and are an integral part of the local culture and quality of life.

Transportation Areas: Transportation Areas consist of large land areas developed with and devoted to infrastructure such as airports, transfer stations, waste disposal facilities, and Joint Base Cape Cod. As noted, Barnstable is the most significant transportation hub on the Cape, home to the Cape Cod Gateway Airport, Cape Cod Airfield, and Hyannis Transportation Center. These are great resources for town residents, visitors, and residents across the Cape. Barnstable is also home to a large transfer station and recycling center for local use.

Development Trends

As is true across Cape Cod, development trends have slowed significantly in recent years. Barnstable largely maintained its village-centered development pattern up until World War II. After this time, as was the case in much of the country, residential development boomed, and many farms, forests, and other undeveloped lands were developed into residential subdivisions, commercial, industrial, institutional, and other uses. The rate of development peaked in the 1970s and 1980s, but generally continued throughout the 1990s, when building permits regularly exceeded 230 per year.

The Town's Growth Management Ordinance, adopted in 2001, sets an annual building permit limit of 96 new market rate units and 36 new affordable units. However, instituted at the end of the construction boom, the limits of this ordinance have not been met or exceeded since their adoption.

At this time, most of the "easy" development parcels had been developed. Since 2001, increases in conservation land, more stringent policies for wetlands, floodplains, and water quality, the cost of land and construction, and limited regulatory opportunities for infill development and denser housing alternatives have all combined to dampen development activity, even though demand (particularly for housing) remains high.

Table 4.1. Building Permit Data

Calendar Year	Residential New Construction	Residential Additions & Renovations	Non-Residential New Construction	Non-Residential Additions & Renovations
2000	201	527	19	132
2001	180	458	27	97
2002	111	573	17	119
2003	96	607	29	126
2004	67	693	17	148
2005	98	604	16	167
2006	73	607	10	157
2007	67	722	8	161
2008	50	775	21	220
2009	40	554	20	326
2010	58	681	10	226
2011	40	810	15	315

Table 4.1. Building Permit Data

Calendar Year	Residential New Construction	Residential Additions & Renovations	Non-Residential New Construction	Non-Residential Additions & Renovations
2012	50	1,066	14	325
2013	65	1,230	11	265
2014	83	1,421	17	288
2015	94	1,562	5	304
2016	58	1,796	17	217
2017	60	1,609	16	459
2018	43	1,587	19	570
2019	28	1,783	4	264
2020	33	1,664	14	239
2021	38	1,180	11	205
2022*	47	635	7	402

Source: Town of Barnstable

* 2022 YTD through 11-30-22

As the data above shows, new residential construction remains very low. In the seven years from 2015 - 2021, an average of just over 50 new residential units were permitted each year. This is down from an average of 118 per year in the seven years from 2000 - 2006 leading up to the Great Recession, and far below the peak construction rates from the 1950s through the 1990s.

New non-residential construction has seen a similar though less sharp decline, with an average of just over 12 new permits each year from 2015 – 2021, down from an average of just over 19 from 2000 – 2006.

Conversely, permits for additions and renovations to existing homes and buildings have been booming, roughly doubling in an average year what used to be seen earlier in this century. This suggests that as new construction becomes more difficult and expensive to build, housing and development needs are being met by altering what we already have.

Another way Barnstable is meeting the changing housing needs of the community is by permitting more multi-family dwellings. While the data above does not differentiate between types of residential units, Town staff have been tracking new multi-family housing development. In recent years, according to the Barnstable Department of Planning and Development, the Town has seen 356 multi-family dwellings completed in new and renovated buildings. Of these, just over 10 percent are deed restricted affordable housing, most reserved for households with incomes at or below 65 percent of the area median income (AMI). The table below shows the projected multi-family dwelling development over the next few years based on proposed and permitted projects and those currently under construction.

Table 4.2. Multi-Family Unit Permit Data

	Total Units	**Affordable**	**50% AMI**	**65% AMI**	**80% AMI**	**100% AMI**
Proposed	481	39 (8.1%)	0	39	0	0
Permitted	326	39 (12%)	0	28	11	0
Under Construction	130	15 (11.5%)	29	126	126	126

Source: Town of Barnstable

As can be seen, this pipeline is likely to significantly bolster new housing opportunities in Barnstable, in terms of both housing type and affordability.

Land Use Management

The Town has adopted many ordinances and other policies and procedures over the years to ensure that land use and development are properly managed and consistent with Town goals.

Zoning and Other Land Use Bylaws

The Zoning Ordinance is the primary land use regulation in Barnstable. It contains provisions for land use in all zoning districts, and provisions for nonconforming uses and use variances. The Town of Barnstable's Town Council form of government allows the Planning Board and other entities to propose changes to the Zoning Ordinance to the Town Council, which acts as the legislative body. This structure allows more frequent opportunities for zoning amendments than the traditional town meeting form of government and allows the Town to be more responsive to change.

The Town's Zoning Ordinance is complex, with a wide array of zoning districts, subdistricts, and overlay districts. Two maps (Map 4.3 Base Zoning and Map 4.4 Zoning Overlay Districts) that depict these various zones and overlays. In summary, these include:

- **12 Residential Districts** – These districts primarily allow single-family detached homes at various densities, but also include provisions for open space residential development and private-initiated affordable housing.
- **8 Business and Office Districts** – These districts allow for a wide variety of commercial uses and most also allow for residential uses, including multi-family housing.
- **4 Village Districts** – These include special districts for Pond Village (Barnstable), West Barnstable, and Hyannis, each with very different scopes and purposes.
    - **Marston Mills** – This district allows for mixed-use with an emphasis on retail and office uses on ground floors and residential above.

  - **Pond Village** – This district is largely meant to retain the residential and rural nature of this village, protecting freshwater pond quality, a portion of Barnstable Harbor, and the historic and scenic character of the area.
  - **West Barnstable** – This district is meant to retain a small-scale mixed-use village character, with single-family homes, small-scale retail, and offices.
  - **Hyannis** – This district is a collection of subdistricts, dividing Hyannis into zones for business, medical, office, single-family residential, multi-family residential, harbor uses, transportation uses, etc. Mixed-use is allowed in many of these subdistricts, and there are special site development and design standards that apply only within this district. This district also has its own overlay district that manages certain open air parking lots south of Main Street.

- **4 Service & Distribution and Industrial Districts** – These districts, as the names suggest, allow for a range of commercial, warehousing and distribution, light industrial, and industrial uses.
- **12 Overlay Districts** – Overlay districts are designed to "overlay" as opposed to replace the underlying zoning district. They can add additional standards to a property and/or override certain standards of the underlying zoning district. They often account for sensitive environmental areas that require extra protection but can also regulate complex uses that may require extra scrutiny or more flexibility. The Town's overlay districts include:
  - Adult Use
  - Dock & Pier
  - Floodplain
  - Former Grade 5 School Planned Unit Development
  - Groundwater Protection
  - Medical Marijuana
  - Medical Services (which includes a mixed-use subdistrict)
  - Recreational Shellfish Area and Shellfish Relay Area Dock & Pier
  - Resource Protection
  - Senior Continuing Care Retirement Community
  - Shopping Center Redevelopment

Town staff reviews the Zoning Ordinance after the adoption of each Local Comprehensive Plan, to make sure that zoning is consistent with the plan. For example, since the 2010 plan was adopted, planning staff worked with local village representatives to review and revise all four village zoning districts. Zoning is supplemented by several other local land use regulations. These include:

- **Growth Management Ordinance** - In 2001 the Town adopted a Growth Management Ordinance that established a limit on the number of residential building permits that may be issued in a single year. This ordinance remains in effect.
- **District of Critical Planning Concern (DCPC)** - A DCPC is a powerful planning tool that allows a town or a group of towns to adopt special rules and regulations that will protect natural, coastal, scientific, cultural, architectural, archaeological, historic, economic, or recreational resources or values of regional, statewide, or national significance. Barnstable has identified four DCPCs.
    - In February 2001, Barnstable nominated the entire town as a DCPC to address the rate of residential growth.
    - A DCPC for the Pond Village area of Barnstable Village was designated in January 2006 (see the Pond Village District above). Implementing regulations were never adopted for this DCPC, but the Pond Village District was locally adopted in response to the DCPC designation.
    - A DCPC for Centerville Village was designated in 2009, with the purposes of respecting its historic character and supporting neighborhood-serving mixed-use.
    - A DCPC for Craigville Beach was designated in 2011, with the purposes of minimizing inconsistent development, protecting scenic views and natural resources, and preparing against flood hazards and sea-level rise.
- **Subdivision Rules and Regulations** (SRR) - The SRR provides regulations for dividing land and laying out roadways.
- **Wetland Regulations** - The purpose of these regulations is to protect wetlands and related water resources, and their values and functions.
- **Board of Health Regulations** – These regulations are meant to preserve and maintain the Town's public health standards and protect its environmental resources.

Growth Incentive Zone

A Growth Incentive Zone (GIZ) is a planning tool that allows communities to exempt certain development activities from Cape Cod Commission regulatory review. The intent is to encourage residential and commercial development and redevelopment in geographically defined economic centers supported by community amenities and appropriate infrastructure.

First approved in 2006, the Downtown Hyannis GIZ was reauthorized in 2018. Working in concert with the Town of Barnstable, the Commission developed comprehensive changes to the GIZ framework to ensure regulations promote and support a program of long-term iterative investment in the place, in keeping with both Regional Policy Plan and Town goals.

Land use, housing production, infrastructure, social and demographic characteristics, and the overall regulatory environment were reviewed during the latest renewal. The GIZ looks at Hyannis holistically, reviewing connections between Downtown Hyannis and Route 132 to better understand how both areas and the residential areas that surround them connect and function. To achieve the goals of the GIZ, the Town will implement planning initiatives, develop decision support tools, make planned infrastructure investments, and enact regulatory changes to support continued public and private investment there.

In order to ensure holistic development throughout Barnstable, all significant development outside the GIZ is reviewed by the Cape Cod Commission.

Downtown Hyannis Design & Infrastructure Plan

The Town of Barnstable has a longstanding effort to revitalize downtown Hyannis. The area's unique roots as a bustling Main Street, active harbor, and maritime village make downtown Hyannis an ideal place to promote redevelopment. In July 2005, new zoning (described above) was passed to encourage a more livable, mixed-use environment downtown while also balancing human and natural systems. The Downtown Hyannis Design & Infrastructure Plan is an extension of that zoning. It establishes building and site design standards for all development within the Hyannis Village Zoning Districts (with the exception of single-family residences) and creates a set of guidelines to anticipate and direct expected growth.

The Plan is a reference manual for developers, designers, town boards, and officials to guide improvements to private properties and public infrastructure in downtown Hyannis. It includes development guidelines for architecture and site design, procedures for establishing vehicle trip generation, suggested redevelopment strategies to mitigate development impacts, and more. All development within the Hyannis Village Zoning Districts shall comply to the maximum extent possible with the design guidelines, recommended development strategies, and other recommendations of the Plan.

Resource Protection Overlay District (RPOD)

The purposes of the RPOD include protecting groundwater quality, reducing nitrogen contamination, and reducing development potential to be more in line with infrastructure capacity. The boundaries of the RPOD include the recharge areas to the Centerville River, Popponessett and Shoestring Bays, and the Three Bays area of Cotuit and Osterville, together with areas dependent upon private well water supplies. The only regulation related to the RPOD is that minimum lot area is 87,120 square feet (approximately two acres) regardless of the underlying zoning. Current land use planning and water protection practices, however, suggest that there are many better ways to protect groundwater, and that two-acre zoning can even lead to unintended harms due to sprawl, extensive lawns, fertilizer use, etc. The RPOD may be reevaluated to make sure it results in outcomes more in line with its stated purposes.

Chapter 168 Regulatory Agreement Districts

A Regulatory Agreement is a contract entered into between a property owner who wants to develop or redevelop their property, and the Town and/or the Cape Cod Commission, the primary purpose of which is to negotiate and establish the development regulations and conditions that will apply to the property during the term of the agreement.

This is a flexible tool that can allow development in a way that the current zoning regulations would prohibit and can streamline the permitting process. In return, the developer agrees to provide certain benefits that contribute to the Town, such as improving Town infrastructure, land preservation, community or recreational facilities, affordable housing, or other benefit that serves

the development and the Town. A Regulatory Agreement requires approval of both the Planning Board and the Town Council.

Barnstable has three Regulatory Agreement Districts. The primary district encompasses downtown Hyannis from the Airport Rotary and Iyannough Road to the north to just south of South Street. Two much smaller districts are located along Iyannough Road at Airport Road and at South Main Street at Craigsville Beach Road.

Water Supply

Barnstable's water supply comes from the Cape Cod Aquifer, the underground layer of porous soil through which fresh water can flow. A Sole Source Aquifer (SSA) provides at least half of the drinking water for the area above it, but on Cape Cod, the SSA is truly singular: all of the Cape's drinking water comes from the same source.[32] The aquifer is unconfined, which means the area's sandy soils allow water to filter through the ground and directly into the aquifer. Water flows well through sand, which helps the groundwater system to be productive, but the quick flow also means that the aquifer is vulnerable to contamination because there is less time and opportunity for natural filtration.

*A **Sole Source Aquifer (SSA)** provides at least half of the drinking water for the area above it, but on Cape Cod, the SSA is truly singular: all of the Cape's drinking water comes from the same source.*

To address community concern for the quality and supply of drinking water in Barnstable, the Town contracted consultant Weston and Sampson in 2019 to locate alternative water supply resources. The New Sources Alternatives Evaluation Report from 2019 projected deficits close to 1.87 million gallons per day (MGD) in 2020, which are projected to increase to 3.32 MGD in 2040.[33] After numerous test wells and short-term pump tests, their recommendations include the development of one of three potential well sites. Cost estimates for these sites are $25.4, $19.6,

[32] "Learn More: Drinking Water on Cape Cod." Cape Cod Groundwater Guardians. Accessed October 2022.

[33] Weston & Sampson Engineers. Source Exploration Final Report. Prepared for the Town of Barnstable. April 2021.

and $22.2 million respectively, without a guarantee that any of these sites will reach the projected demand gap of 2.16 million gallons per day.[34]

While Barnstable is connected by a single water supply, the town is divided into five independently governed districts for the provision of water and emergency services known as fire districts. Today, three of these districts (Barnstable, Cotuit, and C.O.M.M.) provide public drinking water. The Water Supply Division of the Barnstable Department of Public Works is enterprise-account funded and manages the assets of the former Barnstable Water Company (Town-acquired in 2005) and serves Hyannis's residents and businesses. The West Barnstable District is unique in that its residents primarily use private wells for water provision, rather than village services. Voters in each district elect three members each to a Prudential Committee, which oversees the budgets for fire and emergency services, and a Board of Water Commissioners (except in Hyannis). The district breakdown increases citizens' ability to dictate the services they desire from their division (Fire Chiefs Interview September 9, 2022).[35]

Across communities on Cape Cod and throughout Barnstable, growing concerns about water pollution factor into discussion of current and future water supply as the region struggles with

[34] Ibid.

[35] Chief Francis M. Pulsifer, *Organizational Analysis – 2019*, Barnstable Fire Department, 2019, p 3-4.

increased chemical detection, including polyfluoroalkyl and perfluoroalkyl substances (PFAS) such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), which are growing concerns throughout the Commonwealth and the nation. All three potential sites for a new water supply source must include a well and water treatment to ensure future quality. Governor Baker's office recognized the swift response to PFAS in the water supply by local water districts through additional grant funding. The governor's administration awarded the Barnstable and C.O.M.M. water districts a total of $350,000 for initial remediation efforts. Protecting Barnstable's potable water requires continued action and support against PFAS, in addition to existing stormwater management and groundwater protections.

Wastewater Management

Overview

Protecting water quality is vital to the health and future of Barnstable and the region, and wastewater management plays a critical role. Infrastructure to handle and treat wastewater (household, commercial, and industrial wastes) can protect embayments and groundwater for the health of the community and natural environment. Barnstable collaborates with the Cape Cod Commission on wastewater mitigation strategies highlighted in the *Cape Cod Area-Wide Water Quality Management Plan* (also known at the 208 Plan), and Cape-wide cooperation is critical due to the sole source aquifer. The 208 Plan was certified by the U.S. Environmental Protection Agency in September 2015. The Town followed the Commission's planning by advancing wastewater management mechanisms by completing a municipal Comprehensive Wastewater Management Plan (CWMP) in January 2020. The CWMP was certified by the Secretary of Energy and Environmental Affairs through the MEPA process on December 20, 2020.

The Water Pollution Control Program (WPCP) under Barnstable's Department of Public Works (DPW) is an enterprise-account funded and manages the Town's wastewater and sewer infrastructure including a secondary wastewater treatment plant, 30 sewage pump stations, and 55 miles of sewer collection lines, as well as a pretreatment program for industrial wastewater and laboratory for wastewater testing. The CWMP calls to expand the Town's sewer collection system by approximately 190 miles of sewer lines over the next 20 to 30 years. The plan outlines three

phases of ten years each "to address… nutrient removal, pond protection, drinking water protection, economic development, and other wastewater concerns."[36] During Phase I, the Town is concentrating on the eastern Route 28 sewer expansion and additional sewer projects that reduce contaminants from septic systems.[37] Figure 4.1 shows that most of the nitrogen contamination across Cape Cod comes from septic systems, which are controllable sources. The DPW is providing instructions and a sewer connection form to property owners along the Phase I expansion route as construction gets underway.

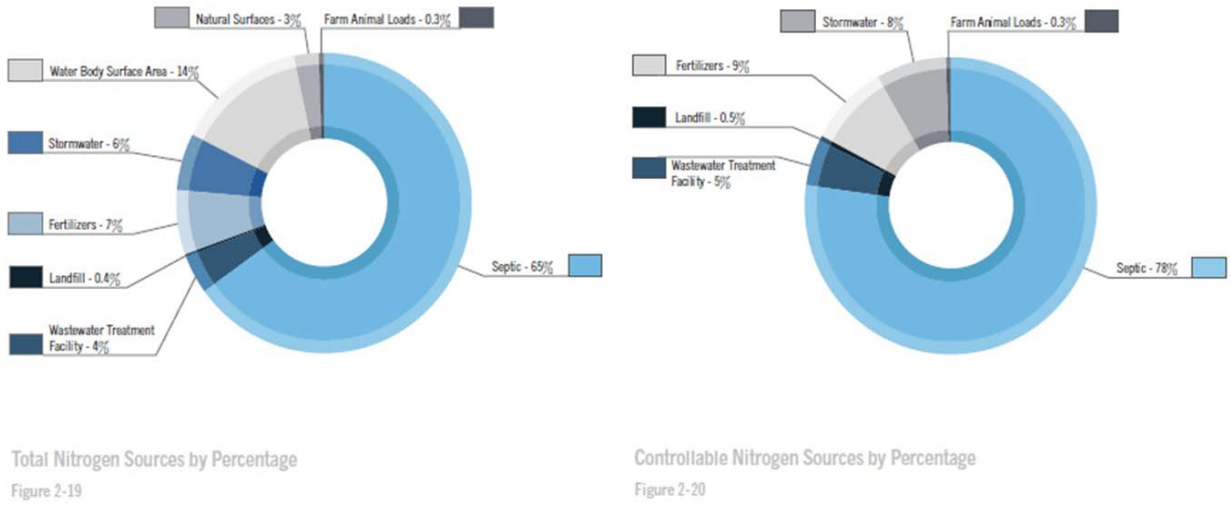

Figure 4.1. *Sources of Nitrogen on Cape Cod (Source: Barnstable CWMP)*

The United States Environmental Protection Agency (EPA) establishes total maximum daily loads (TMDL) to limit daily contaminants in a watershed to levels compliant with the U.S. Clean Water Act. TMDLs protect Popponesset Bay, the Three Bay System, the Centerville River System, Halls Creek, and Lewis Bay. While the Town is monitoring water quality for their working harbor, Barnstable Harbor and Rushy Marsh do not require a total maximum daily load threshold due to their sizes. Septic systems are the largest source of nitrogen by percentage across Cape Cod and the most addressable source. Barnstable's efforts to expand public sewer connections, along with other best practices, can decrease the amount of nitrogen leaching into the groundwater.

[36] CWMP 2020, 5-1.

[37] "Route 28 East Sewer Expansion Project Public Information Session August 15, 2022." Barnstable Water Resources. August 3, 2022, accessed October 2022.

The CWMP process identified traditional and non-traditional techniques to manage pollutants' total maximum daily loads (TMDLs) and keep contaminants below harmful thresholds through a watershed-specific approach. Barnstable manages the quality of its watersheds through further collaboration with the EPA and the Massachusetts Department of Environmental Protection (DEP). Wastewater across Barnstable impacts eight watersheds, and three entirely within its borders, including:

- Centerville River System Watershed
- Halls Creek Watershed
- Rushy Marsh Watershed
- Popponesset Bay Watershed
- Three Bays System Watershed
- Lewis Bay Watershed
- Barnstable Harbor Watershed
- Scorton Creek Watershed

Recent initiatives to lower nitrogen load include the Town expanding sewer lines in coordination with the Vineyard Wind project installing offshore cables under public roadways.[38] Sewer extension projects include the Route 28 East, Attucks Lane, Phinney's Lane, Long Pond, Strawberry Hill, Old Yarmouth Road, and Merchant Way sewer expansions. Recent wastewater system failures in other communities on Cape Cod also reoriented community concerns about the location of sewer pumping stations relative to sea level rise and type of operating system. The Department of Public Works identified the conversion of vacuum systems to low pressure pump systems or gravity sewer systems in locations less prone to flooding during sea level rise as the next step to maintain existing systems and expand sewer service.

Non-profit organizations like Barnstable Clean Water Coalition (BCWC) partnered with the Environmental Protection Agency to employ innovative wastewater solutions. Non-traditional solutions to mitigate excessive nutrients include innovative/alternative septic systems, dredging, and bog restoration. Eight out of every ten septic systems across the Cape Cod region have traditional septic systems that treat effluent while allowing nitrogen to leach into the

[38] "Barnstable, Massachusetts." Vineyard Wind. Accessed October 2022.

groundwater.[39] New innovative/alternative (I/A) systems include a denitrification chamber between septic tanks and leaching that converts nitrates to nitrogen gas for a cleaner effluent in the leaching process. Projects like the Shubael Pond Project are installing clusters of I/A systems to demonstrate nitrogen reduction impacts and adoption potential across municipalities instead of sewering.[40]

Another initiative facilitated by non-profits and the Town of Barnstable is the three-phase dredging project in the Cotuit Cut between Dead Neck and Sampson's Island. Widening this waterway aimed to improve navigation, safety, and water quality through enhanced tidal flushing and dilution of nutrients in the water body.[41] The restoration of bogs in the Village of Marstons Mills also aims to use decrease nutrients in Barnstable ground water, but instead using the denitrification properties of cranberry plants.[42] Rather than carrying excess nitrogen into the Three Bays, redirected water from the Marstons Mills River and restructured stream channels will naturally filter out nutrients through the cranberry plants lifecycle.

Additional efforts by the Town of Barnstable to reduce nitrogen from point source contamination include a geographic information systems (GIS) tool that analyzes the water conditions on a lot-by-lot basis. The tool evaluates sanitary conditions related to public health concerns but can also be used by the DPW and other municipal departments in the case of water supply protections, nutrient enrichment concerns, aesthetic issues, and in economic development considerations.[43] Multiple potential sources ranging from septic systems to landfills and stormwater will continually need creative tools to solve.

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[39] "I/A Septic Systems," Barnstable Clean Water Coalition, accessed March 2, 2023, https://bcleanwater.org/what-we-do/mitigate/innovative-alternative-septic-systems/

[40]"The Shubael Pond Project," Barnstable Clean Water Coalition, accessed March 2, 2023, https://bcleanwater.org/what-we-do/mitigate/shubael-pond-project/

[41] Dredging Dead Neck Sampson's Island, Barnstable Clean Water Coalition, accessed March 2, 2023, https://bcleanwater.org/what-we-do/mitigate/dredging/

[42] Marstons Mills Cranberry Bog Restoration Project, Barnstable Clean Water Coalition, accessed March 2, 2023, https://bcleanwater.org/what-we-do/mitigate/mm-cranberry-bog-restoration/

[43] Barnstable Department of Public Works. Comprehensive Wastewater Management, FY2022 Annual Report. Prepared for the Town of Barnstable. August 2022.

Stormwater Management

Overview

The Town of Barnstable considers stormwater management an essential component of its Comprehensive Wastewater Management Plan (CWMP) due to stormwater's potential impact on the bays, watersheds, and groundwater. Stormwater includes all precipitation and snowmelt that runs off surfaces such as roofs, pavement, and even lawns instead of absorbing into soil and natural groundcover. This runoff picks up sediment, bacteria, fertilizers, oils, pesticides, and other harmful chemicals, and often carries them directly into existing drainage infrastructure or surface waters. Untreated stormwater can lead to water quality, ecosystem, and public health degradation. Stormwater that is infiltrated without proper pretreatment can also threaten groundwater. Groundwater quality is a regional concern since Cape Cod has a sole source aquifer. In addition to water quality issues, stormwater quantity (flooding) is an increasing concern due to our changing climate. More frequent and larger storms are bringing more rain, wind, and waves that along with rising sea levels are threatening infrastructure, particularly in coastal areas such as Barnstable. Cape Cod organizations like the Association to Preserve Cape Cod (APCC), Mass Bays Program, Barnstable County Coastal Resources Committee, and the Cape Cod Commission support educational programs, new stormwater management systems, and the maintenance of existing systems alongside municipal efforts.

Green Stormwater Infrastructure

Stormwater management is an ongoing effort in Barnstable through the assessment and prioritization of sites to improve operation and maintenance (O&M) of existing systems and install new green stormwater infrastructure (GSI). GSI uses natural processes to manage stormwater quality and quantity, providing more resiliency to climate change impacts. GSI includes a variety of practices to reduce and treat runoff that may range from installing rain gardens, porous pavement, and constructed wetlands, to reducing impervious cover and installing cisterns. Research has shown that GSI does a better job of treating and reducing stormwater than traditional "gray" stormwater infrastructure and also provides other benefits such as shade, habitat, and beautification. Recent efforts in the Three Bays Watershed displayed a collaborative effort

between the Town of Barnstable DPW, APCC, private consultant Horsley Witten Group and various other non-profit environmental advocacy organizations, to install and maintain a variety of GSI systems.

MS4 Permit

The Barnstable (CWMP) identifies meeting the requirements of the national pollutant discharge elimination system (NPDES) Phase II 2016 Massachusetts Municipal Separate Storm Sewer System (MS4) General Permit as a priority in the recommended 30-year implementation plan. An MS4 permit from the EPA authorizes a community to discharge stormwater from its MS4 into waterways in accordance with regulations and conditions to protect water quality. An MS4 permit is required for communities with urbanized areas as identified with census data. Figure 4.2 shows that a majority of Barnstable is designated as an urbanized area. As such, Barnstable has applied for and received an MS4 permit for discharging stormwater from its 207 outfalls into waterbodies across several villages and watersheds as identified in Table 4.3.[44] The Town is actively working on regulations to assure future stormwater runoff meets and exceeds these standards.

[44] Barnstable Department of Public Works. Comprehensive Wastewater Management, FY2022 Annual Report. Prepared for the Town of Barnstable. August 2022.

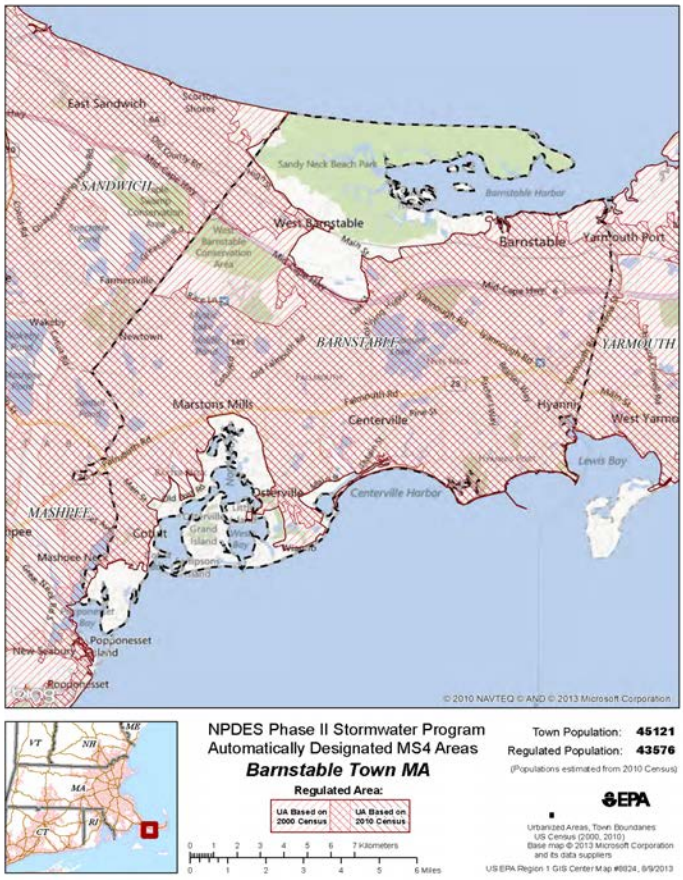


Figure 4.2. Town of Barnstable NPDES Phase II Stormwater Program Regulated MS4 Areas.

Table 4.3. MS4 Stormwater Outfall Locations

Identified Stormwater Outfalls	**Watershed Location**
59 Stormwater Outfalls	Lewis Bay Watershed
15 Stormwater Outfalls	Halls Creek Watershed
40 Stormwater Outfalls	Centerville Watershed
36 Stormwater Outfalls	Three Bays Watershed
1 Stormwater Outfall	Popponesset Bay Watershed

Table 4.3. MS4 Stormwater Outfall Locations

Identified Stormwater Outfalls	Watershed Location
54 Stormwater Outfalls	Barnstable Harbor Watershed

Source: Barnstable CWMP

Future upgrades to the storm sewer system were appropriated $750,000 annually with the adoption of the CWMP; this includes the identification and improvements of failed catch basins, leaching structure replacements, and additional best management practices.[45]

Existing GSI projects, including the Three Bays Stormwater project, will continue as Barnstable prioritizes the mitigation of nutrients, bacteria, and sediment in stormwater runoff. Barnstable will also continue collaboration with its neighboring communities to address stormwater issues on a watershed scale. Regional efforts are vital to the Cape Cod community as sea level rises on an international scale and more intensive weather patterns further impact aspects of the built environment.

Transportation Network

Overview

Barnstable has facilities for many modes of transportation for residents and visitors, but mobility throughout the town is largely car-centric. Automobile traffic may navigate Barnstable by three east to west roadways: the transcontinental U.S. Route 6, Barnstable's Main Street Route 6A (also known as Old King's Highway), or state Route 28 along the southern harbor. These highways comprise 37 miles under state jurisdiction, followed by 354 miles under Barnstable's jurisdiction, and 214 miles of private roads.[46] While road jurisdiction determines the institution in charge of

[45] Ibid.

[46] US Federal Highway Administration. Road Function Classifications. November 2000.

maintenance and upkeep, road function classification determines design standards that impact mobility and land access depending on classification type. The main lateral roads in Barnstable include different types of arterials with multiple lanes and varying speeds connecting individuals to local roadways.

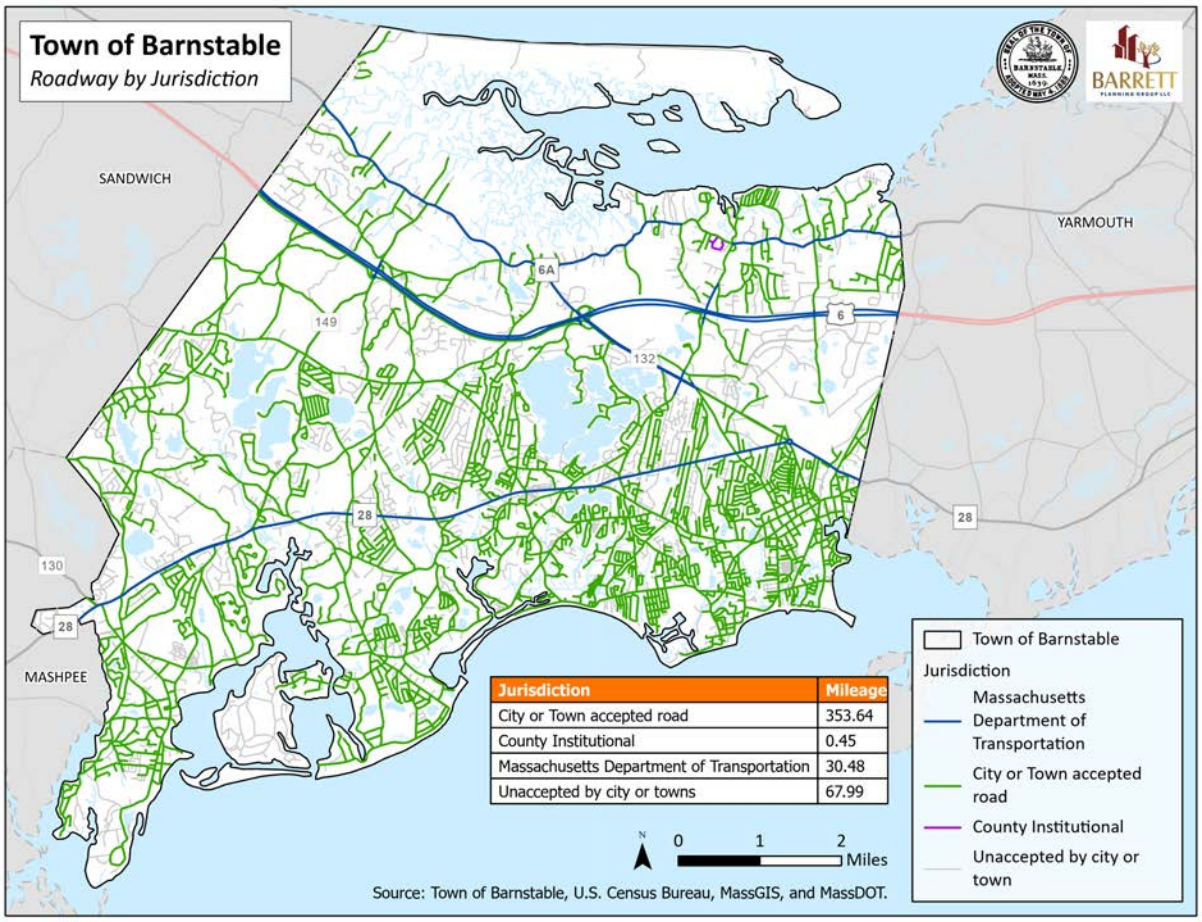


Figure 4.3. Functional Roadway Classifications.

Table 4.4. Functional Classification of Cape Cod Roadways

Barnstable Roadway	Functional Classification
Route 6	Urban Extension of Rural Principal Arterial
Route 6A, Old King's Highway	Urban Minor Arterial
Route 28	Urban Extension of Rural Minor Arterial

Source: Cape Cod Commission, Regional Policy Plan, 2002.

Low-lying Roads

Of these 605 miles of roadway, many along the north and south bays become impassable due to their proximity to water during storm surge, culvert flooding, and sea level rise. The Cape Cod Commission and the Town of Barnstable have identified twenty-three low-lying roads identified.[47] Projections ten and forty years in the future show temporary flooding of low-elevation roads increasing in occurrence and severity. The Town is pragmatic in their assessment of sea level rise and intense weather patterns; they are actively looking for adaptations to divert water and keep infrastructure operational.

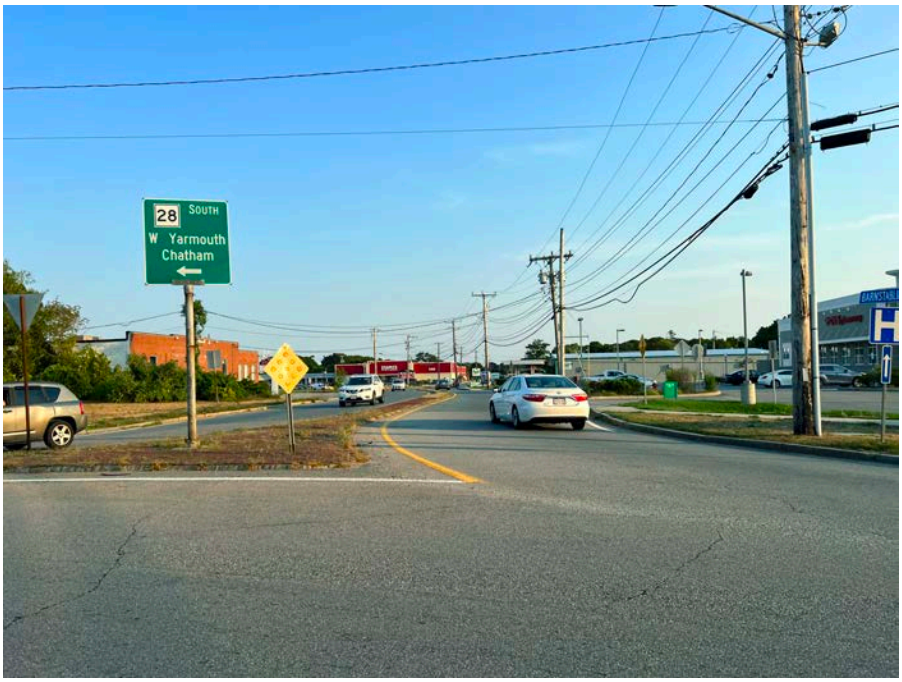
Congestion & Safety

Barnstable's transportation and traffic trends are distinct due to the town's position as both a destination and throughway. Seasonal travel trends through the mid-cape region increased between 2008 and 2018, with 2.70% total growth over the ten-year period, 0.26% annual growth, and a one-year growth rate of 1.26% from 2017-2018.[48] Mobile counts through the Cape Cod

[47] Cape Cod Commission.2020 Regional Transportation Plan. Technical Appendix G: Congestion Management Plan. July 15, 2019.

[48] Cape Cod Commission.2020 Regional Transportation Plan. Technical Appendix G: Congestion Management Plan. July 15, 2019.

Commission show Barnstable consistently supports some of the highest volume-to-capacity thresholds throughout Cape Cod year-round. Seasonal variability recorded on Route 28 by monthly remote counts shows traffic volumes are relatively stable throughout the year. Volumes for vehicles entering at the intersection of Route 28 and Lumbert Mill Road during the winter months drop as low as 20,000 while the peak summer months climb gradually to 25,000.[49]



Route 28 is unique because it does not experience two daily travel peaks with morning and evening commutes. Instead, vehicle traffic peaks with morning commuter travel and remains constant through a typical evening peak. Intense travel densities span Barnstable by Route 6 and Route 28 year-round. In the case of intense congestion, local connector roads under municipal or private jurisdictions take on additional wear and tear. Town infrastructure bears a disproportionate impact from automobile travelers and additional hazards with a high volume of travelers. Seven of the top ten crash locations in the region between 2012 and 2016 were in Barnstable on Route 28, with a total of 552 collisions occurring at those seven intersections.[50] Intersection and arterial

[49] Ibid.

[50] Cape Cod Commission.2020 Regional Transportation Plan. Technical Appendix G: Congestion Management Plan. July 15, 2019.

maintenance as a result of increased throughput and crashes bear an impact on Barnstable resident's local travel and potentially the appropriation of their tax funds.

The Barnstable Department of Public Works highway division currently maintains 218.19 miles of public roads, seventy-four parking lots across town, six bridges, and 4,000 drainage systems through methods like street sweeping, grading gravel roads, mowing and brush removal on road shoulders, and litter control.[51] Safety infrastructure, including 6,332 guardrails, and signage, is also managed by DPW. When looking ahead at future capital improvements, this municipal infrastructure maintenance will cost more than $11.5 million over the next three years, while improvements are projected to amount to $16 million and pedestrian infrastructure $8 million.

	FY2023	FY2024	FY2025
Pedestrian Infrastructure	4,395,000	2,575,000	1,090,000
Maintenance	3,750,000	3,850,000	3,950,000
Improvements	2,478,500	4,537,425	9,205,296

Source: Town of Barnstable FY2021-FY2025 Capital Improvements Plan. [52]

Barnstable has a history of permitting private roadways to the extent that almost 50 percent of all roadways or 200 miles in Barnstable are private. DPW highway division facilitates emergency repairs, including drainage, through a petition process in which fifty-one percent of abutters petition for the betterment of a road open to the public for more than five years. The betterment process includes a deposit by abutters to cover the initial inspection and cost estimates compiled by the municipal engineer.[53] Private roadway maintenance as of the fiscal year 2023 is projected to cost $975,000 and $375,000 in the fiscal year 2024. This privatization trend challenges long-term infrastructural upkeep and consistent emergency response throughout town.

[51] "Town Roads," Town of Barnstable, accessed March 2, 2023, https://town.barnstable.ma.us/Departments/Highway/pageview.asp?file=Programs%5CTown-Roads.html&title=Town%20Roads&exp=Programs

[52] "FY 2021 Capital Budget and FY 2021 - FY 2025 Capital Improvements Plan," accessed March 2, 2023, https://town.barnstable.ma.us/Departments/Finance/Budget_Information/FY21-Capital-Improvements-Plan.pdf

[53] Town of Barnstable Zoning Bylaw: Article III "Temporary Repairs on Private Ways"

Transit

Individuals looking for access throughout Barnstable and the region without automobiles can turn to public transportation as an alternative. The Cape Cod Regional Transit Authority (CCRTA) and Barnstable Council on Aging fulfill the mobility needs of many individuals. CCRTA service includes six full-time and seasonal bus routes, Dial-a-ride services, Smart DART connector, and seasonal train service. Bus passengers may also elect to bring a standard two-wheel bicycle on fixed route frontal bike racks. Year-round bus service routes and connectivity are included in Table 4.5.

Table 4.5. Cape Cod Regional Transit Authority Fixed Routes

Route Name	**Connection**	**Route**
Sealine	HTC to Woods Hole	Route 28 & Woods Hole Rd.
H20 Hyannis	Hyannis to Orleans Center	Route 28 & Route 39
Barnstable Villager	HTC to Barnstable Courthouse	Route 132 & Route 6A
Hyannis Crosstown	Local Shopping in Hyannis	
Sandwich Line	Hyannis to Sandwich	Route 28 & Route 130

Source: Cape Cod Regional Transit Authority

Alternative CCRTA services include DART, a door-to-door ride by appointment service for all residents and visitors seven days a week for a fixed fare.[54] Smart DART is a new service that operates like Uber and Lyft; riders may request fixed fare, private rides with free transfers to

[54] Cape Cod Regional Transit Authority: "Overview, DART: Dial-A-Ride Transportation." Cape Cod Regional Transit Authority. Accessed October 2022

CCRTA bus routes between 7:30 am and 6:30 pm Monday through Friday.[55] Additional ADA Paratransit service aims to close any accessibility gaps in service through their door-to-door shared-ride service for those unable to use fixed bus routes.[56]

Elderly individuals in the community may choose to use CCRTA services to navigate medical appointments, banking, or grocery shopping through the Council on Aging's Silver Express.[57] Fares on the Silver Express are suggested donations, and a Title IIIB grant subsidizes the service, allowing users to ride who would otherwise be unable to pay. CCRTA offers additional transportation for appointments at all major Boston-area Hospitals by reservation Monday through Thursday from the Barnstable commuter lot on Route 132.[58] Fixed bus routes run along the main roads laterally through Barnstable, but still additional services are necessary to meet the more complex needs of the suburban villages. Routes like the Sealine, Sandwich line, and Barnstable line serve arterial roads including Route 28 and Route 132, but leave the village of West Barnstable, Barnstable, and Cotuit underserved with few regular bus stops aside from those connecting Cape Cod Community College.

Alternative Transportation & Modes (Trains, Ferries, Airport)

Alternative, private transportation based in Barnstable includes a variety of options. The Plymouth and Brockton bus line and Peter Plan bus line connects individuals in Barnstable through services out of the Hyannis Transportation Center and public Park & Ride lots and Boston, with stops at South Station and Logan Airport.[59] Seasonal Cape-Flyer rail service allows visitors from Boston and southeastern Massachusetts to avoid automobile congestion on weekends between Memorial

[55] Cape Cod Regional Transit Authority: "Smart DART." Cape Cod Regional Transit Authority. Accessed October 2022

[56] Cape Cod Regional Transit Authority: "ADA Paratransit, Door-To-Door Service." Cape Cod Regional Transit Authority. Accessed October 2022

[57] "Transportation." Barnstable Council on Aging. Accessed October 2022.

[58] Cape Cod Regional Transit Authority: "Boston Hospital, The Cape to Boston Hospitals." Cape Cod Regional Transit Authority. Accessed October 2022

[59] "Plymouth and Brockton Daily Bus Routes." Plymouth & Brockton. Accessed October 2022.

Day and Labor Day. Service extends as far north as South Station in Boston and as west as Middleborough, offering free wireless internet and bicycle passage.[60]

Individuals may also leave Barnstable bound for Nantucket and Martha's Vineyard on Steamship Authority ferries and Hy-line Cruises licensed as a subsidiary of the Steamship Authority. As the dominant mode of travel to the islands, the Steamship Authority offers both high-speed and traditional services to Nantucket from Barnstable Harbor with the opportunity to reserve passage for vehicles. Hy-line Cruises offer high-speed passenger trips with year-round passage to Nantucket, seasonal travel to Oak Bluffs on Martha's Vineyard between May and October, and recreational charter boats. Ferry service from Barnstable Harbor provides convenient service for Barnstable residents. Still, it poses challenges to Hyannis congestion and development due to the prioritization of through traffic and parking near Main Street Hyannis.

Travelers also elect to travel through the Cape Cod Gateway Airport, previously known as the Barnstable Municipal Airport. It is one of two publicly owned active airfields in the Town of Barnstable. Home to Cape Air and Southern Airways Express, there are daily flights to Boston, New York, Nantucket, and Martha's Vineyard during the summer season. Additional destinations

[60] Cape Cod Regional Transit Authority: "CapeFLYER Schedules & Services." Cape Cod Regional Transit Authority. Accessed October 2022. https://capecodrta.org/schedules-services/capeflyer/

are accessible through the Cape Cod Gateway Airport through private partnerships with JetBlue and other affiliated airlines.[61] Recent trends show that despite the express service offered between Cape Cod and Nantucket, the accessibility and lower price point of regular ferry travel is difficult competition.[62] Despite the recuperation of airlines in the late stages of the Coronavirus pandemic, corporate aviation including private flights and the shipment of goods is more viable than commercial flights in and out of the Barnstable community.[63] Individuals seeking a getaway to the Cape have multiple options to get to Barnstable, but the challenge of navigating the area without a car encourages many to drive to the region.

Bicycle & Pedestrian Infrastructure

As of January 2022, the Massachusetts Department of Transportation (MassDOT) named the Town of Barnstable a Complete Streets community. Barnstable sought the Complete Streets designation to improve the experience of motorists, pedestrians, and bicyclists. The Town may obtain up to $500,000 in MassDOT funding assistance to complete multi-modal projects that improve safety and mobility. Current Complete Streets initiatives focus on extending and improving the 101.7 miles of sidewalk across the seven villages to ensure ADA compliance and pedestrian safety.[64]

[61] "About the Airport." Cape Cod Gateway Airport. Accessed October 2022. https://flyhya.com/airport-info/about-the-airport/

[62] Transportation: Katie Servis, Airport Manager, Cape Cod Gateway Airport

[63] Ibid.

[64] Cape Cod Commission: "Town of Barnstable, Local Comprehensive Plan: Map & Data Viewer."Cape Cod Commission.ArcGIS Web App Viewer.Accessed October 2022.

Barnstable has limited protected infrastructure for cyclists. There are 11 miles of existing pathways with a proposed additional 11.4 miles, along with efforts to extend the Cape Cod Rail Trail through Yarmouth into Barnstable, expected to commence construction in 2024.[65] There are currently 0.7 miles of existing, on-street bicycle lanes with consideration of an additional bike lanes suggested through Complete Streets Prioritization Plan.[66] Figure 4.4 shows the proposed extension of the Cape Cod Rail Trail.[67]

[65] Cape Cod Commission: "Town of Barnstable, Local Comprehensive Plan: Map & Data Viewer", Cape Cod Commission.ArcGIS Web App Viewer.Accessed October 2022.

[66] Ibid.

[67] "Cape Cod Rail Trail." Town of Barnstable, Department of Public Works. Accessed October 2022

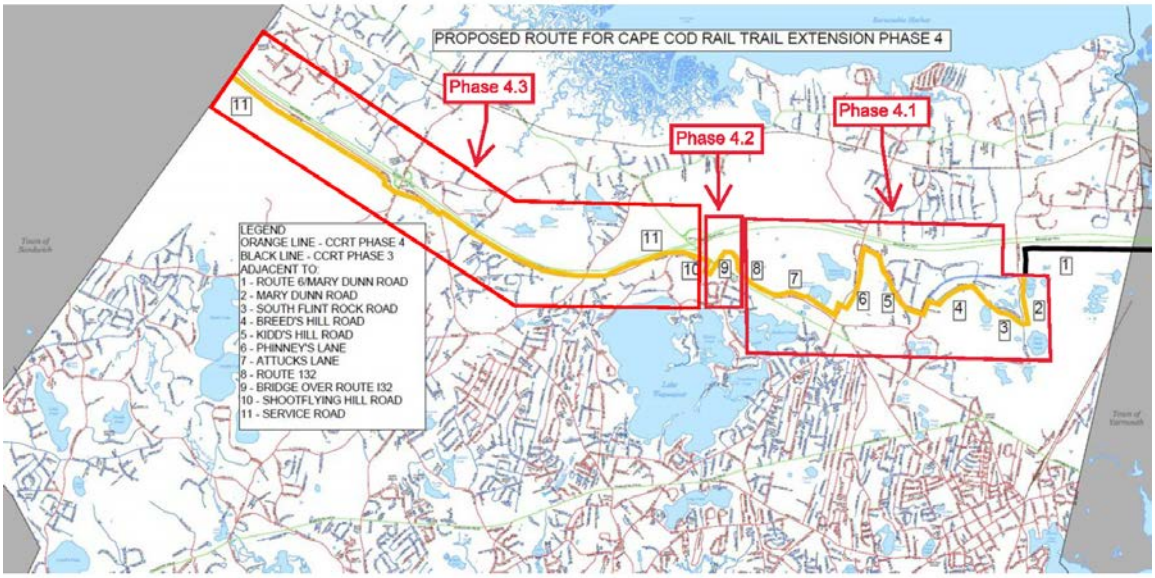


Figure 4.4. Cape Cod Rail Trail Phase 4 Barnstable Extension.

A lack of protected bicycle infrastructure often deters less experienced cyclists. West Barnstable and Barnstable village attract recreational riders with various mountain biking trails and routes across Cape Cod, but the trails do not facilitate connections throughout town or welcome casual riders. Between 2010 and 2020, Barnstable saw a total of 6,783 vehicle crashes, with 281 bike related collisions and 278 involving pedestrians.[68] While these represent relatively few collisions, cyclist infrastructure and education initiatives on sharing the road can increase safety throughout the community.

Public Services & Utilities

Overview

Within the Town of Barnstable, public services and utilities are provided for people who live and work in Town as well as it's many visitors. Those services include schools, libraries, police, and solid waste disposal and the utilities include household utilities such as electricity, natural gas, heating oil, propane, telecommunication, and internet. Residents have a variety of choices including an increasing number of environmentally friendly options.

[68] Massachusetts Department of Transportation. "Operations Dashboard, Statewide Crashes by Severity and Year." Accessed October 2022.

Public Schools

The Barnstable Public School District operates a local preK-12 school system with nine school facilities. As of the 2022-2023 school year, the district educated 4,838 students. The student body is comprised of a diverse population and educates many students recognized by the State of Massachusetts as "selected populations" or those who may need additional educational support.[69] Table 4.6 lists the public schools in the Town of Barnstable.

Table 4.6. Barnstable Public Schools

School	Grades	Location
Barnstable High School	8 - 12	Hyannis
Barnstable Intermediate School	6 - 7	Hyannis
Barnstable United Elementary	3 - 5	Osterville
Barnstable West Barnstable Elementary	K - 3	West Barnstable
Barnstable Community Innovation School	K - 3	Hyannis
Hyannis West Elementary	K - 3	Hyannis
Centerville Elementary	K - 3	Centerville
West Villages Elementary	K - 3	Marstons Mills
Enoch Cobb Early Learning Center - Preschool	Pre-K Ages 3 - 5	Hyannis

Source: Barnstable Public Schools

[69] Massachusetts Department of Elementary and Secondary Education (DESE), "School and District Profiles", Barnstable, Accessed January 2023.

Support programs help a range of students including those for whom English is a second language (ESL), English learners, students with disabilities to students with high needs due to socioeconomic backgrounds or those deemed low-income. In addition to support programs for higher-need students, the district maintains a low teacher-to-student ratio of 11.6 students per teacher and focuses on educating the whole child through social emotional learning opportunities.[70] Figure 4.5 shows the percentage of selected populations in the Barnstable School District.

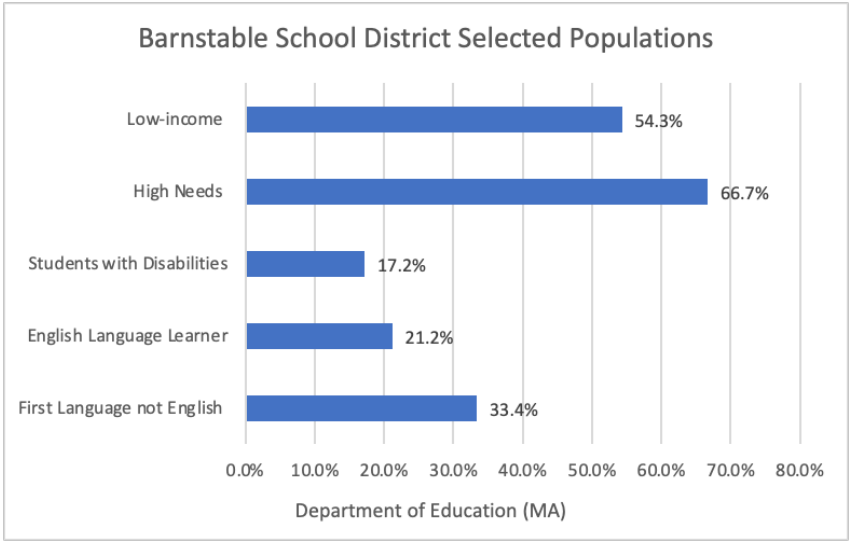


Figure 4.5. Barnstable School District Selected Populations.

The Massachusetts Comprehensive Assessment System (MCAS) shows Barnstable students' performance is "partially meeting expectations" in 2022 achievements.

Barnstable Public Schools have a strong foundation and leadership that plans to continue its dedication to future generations. The Town welcomed a new Superintendent, Sarah Ahern, in 2022. Her early efforts include development of an entry plan focused on building relationships to identify the district's strengths and opportunities and collaborative development a multi-year *Strategy for District Improvement*. Initial findings reflect the District's diversity, dedicated staff and faculty, and breadth of opportunities afforded to students as strengths. The regional high cost of living and housing are recognized by the District as challenges in developing a recruiting talent.

[70] Massachusetts Department of Elementary and Secondary Education (DESE), "School and District Profiles", Barnstable, Accessed January 2023.

After a District facility consolidation effort that closed three elementary schools in the 2000's the District is faced with mounting space constraints and questions about long-term enrollment trends. Further challenges include a portfolio of aging buildings, concerns about adequacy of spaces and educational equity, as well as ongoing concerns about having two, two grade schools (4-5, 6-7) and Grade 8 at the high school.

The region's network of public and private schools also supplements the diverse needs with school choice so Barnstable residents may elect to send their student out of district, to charter schools, private institutions, or the regional technical high school. While not located within Barnstable, Cape Cod Regional Technical School in nearby Harwich offers programs in trades such as carpentry, plumbing, electrical, HVAC, horticulture, auto tech and collision repairs, marine services, culinary arts, cosmetology, health tech, dental assisting, information technology, graphic design, and others. Through these designated career pathways, students can earn OSHA 10-hour cards or state-level certifications and help students launch their career.

Higher education opportunities are also available in Barnstable and surrounding areas through Cape Cod Community College located in West Barnstable through a variety of Associate's degree programs and the Cape Cod Regional Technical High School's adult programming, with the Community School. The Community School offers short-term courses in career-focused and

enrichment areas like cosmetology, HVAC technology, bicycle repair, and even sewing. These resources actively help individuals enhance technical skills, achieve career goals, and meet the needs of the everchanging regional economy.

Libraries

The Town of Barnstable is home to seven independent libraries (listed in Table 4.7); with one private, non-profit organization contracted with the town in each village to provide library services to residents. Each institution has its own staff and board of trustees.

Table 4.7. Libraries in Barnstable

Library	**Village**
The Sturgis Library	Barnstable
Centerville Public Library	Centerville
Cotuit Library	Cotuit
Hyannis Public Library	Hyannis
Marstons Mills Library	Marstons Mills
Osterville Village Library	Osterville
Whelden Library	West Barnstable

Source: Town of Barnstable

Each library varies in size, operating hours, and collections, but their resources ultimately support the continued education of Barnstable residents and provide a space to exchange knowledge. While each mission is slightly different, each library is devoted to fostering civic, intellectual, and cultural

pursuits, curiosity, and literacy at all ages. They support the community through abundant in-person and remote opportunities.

Among adult and youth programming, Barnstable's libraries offer research resources like computers, databases, catalogs, access to ebooks and audiobooks, museum passes, language resources, and technological assistance, to name a few. The Barnstable public library network is an asset to the community that provides opportunities for lifelong learning.

Public Safety

The Barnstable Police Department is currently led by Chief Matthew K. Sonnabend with close to 150 staff members including sworn in officers, civilians, and dispatchers with the mission to protect the lives, property, and rights of citizens through proactive strategies. The department faces seasonal fluctuations in community needs with an influx of tourists and seasonal populations. As the dispatcher for police and fire calls, they are one of the busiest dispatch centers in the State of Massachusetts.[71] Aside from patrol and responding to emergencies, the Barnstable Police have specialized resources and units to meet the needs of the community. Two canines comprise their

[71] Public Services: Chief Matthew K. Sonnabend, Barnstable Police.

K-9 detection unit focused on patrol and narcotics detection and help the wider Cape Cod Community without canine resources.

Additional specialized programs include school resource officers, an emergency notification system, college internship programs, and community resource officers that patrol Hyannis Main Street as liaisons between sworn personnel, businesses, and tourists. There are clinicians on staff designated to aid officers to mitigate community impact as the medical health hub of the region. The Community resource program was extended as of 2022 as a year-round program.[72]

The Barnstable Police continue to advance their response techniques and technology to reflect the needs of their community; still, challenges with new technology include long-term data storage, licensing fees, and equipment maintenance are an obstacle to these efforts. Challenges across the department include difficulty hiring and outgrowing their physical space. While the headquarters in Hyannis are in good condition, the staff have outgrown existing office spaces and now employ cubicles and village substations in Barnstable and Hyannis to supplement facility needs. There will be more implications for these spaces once the department reaches full capacity after surmounting challenges to hire officers with previous technical experience.

[72] Public Services: Chief Matthew K. Sonnabend, Barnstable Police.

Fire & Emergency Services

Fire and emergency medical services align under the same districts as drinking water. The Hyannis Fire District was the first department formed in 1896 after Town Meeting rejected petitions to create a town-wide fire department due to Barnstable's size and number of villages. In 1926, residents of Barnstable Village, Cotuit, and Centerville and Osterville together petitioned the state legislature to establish three additional fire districts. The enabling legislation for these districts provided for many powers, including village-level taxation.[73] The Barnstable Fire District in Barnstable Village, for example, allowed the village to fund and install streetlights. However, it didn't offer organized fire protection until 1935, following two 1934 fires that prompted the Barnstable Fire District to create and combine water and fire departments that shared infrastructure.[74] In 1949, the West Barnstable Fire District became Barnstable's fifth fire district with a majority volunteer base. Marstons Mills joined the Centerville-Osterville district in 1956 to form the Centerville-Osterville-Marstons Mills (C.O.M.M.) Fire District.

[73] 1926 Massachusetts House Bill 1433. An Act To Establish The Cotuit Fire District In The Town Of Barnstable.

[74] Chief Francis M. Pulsifer, *Organizational Analysis – 2019*, Barnstable Fire Department, 2019, p 3-4.

Solid Waste

Solid waste disposal in Barnstable is facilitated through a town-wide Solid Waste Disposal Facility and a transfer station for households and independent commercial trash haulers. The Solid Waste Disposal Facility located in Marstons Mills is overseen by the Department of Public Works; it is specifically for solid waste generated within the town of Barnstable. Households may purchase up to two transfer station stickers for weekly household waste and recycling, with accommodations for households experiencing financial hardship.

Hazardous waste pickup is also available on multiple occasions throughout the spring, summer, and fall at the Marstons Mills for households and local businesses.

Private Utilities

Households and businesses across Barnstable have a diverse set of needs, requiring a variety of utilities. Eversource provides electricity throughout the town of Barnstable. Residents may participate in renewable energy programs with Cape Light Compact, including no-cost energy assessments for Eversource customers seeking more sustainable energy consumption. Cape Light Compact supports the modernization of the current, single-source power grid which relies on power plants.[75] The expansion into microgrid systems diversifies energy sources to include multiple renewable power sources to meet communities' needs and support environmental options for businesses. Aside from electricity, households may differ in their utility needs such as gas, heating oil, or propane due to internal heat or water systems. National Grid is Cape Cod's natural gas provider.

Additional utilities in Barnstable, such as wireless internet and other telecommunication services for residential and business needs, are available through a larger market. Barnstable residents and businesses may purchase wireless internet, cable, or telecom through various providers, including Comcast, Verizon, HughesNet, Viasat, Ultra Home Internet, and T-Mobile Home Internet. Comcast remains the most pervasive vendor for these needs, with the highest internet speeds available. Fiber optic through Open Cape continues to expand infrastructure improvements

[75] "2015 Grid Modernization." Cape Light Compact. Accessed October 2022.

throughout the region to homes and businesses. Wireless internet service is available through a cable connection, satellite, and even 5G LTE. An overlapping list of companies also offers mobile telephone services in the region with the addition of AT&T Wireless.

5. Community Systems

Barnstable's community systems include its cultural and historic resources, economic activity, housing, and — most importantly — its people. Together these resources foster Barnstable's local identity while enhancing the community networks that serve and support those who live in, work, and visit Barnstable. Healthy, sustainable community systems depend on the thoughtful integration of built systems with the protection of natural systems.

Cultural Heritage

Overview

Barnstable's natural landscapes and built environment reflect its rich heritage. Many historic buildings, structures, cemeteries, homesteads, and streetscapes within town represent community assets that tell Barnstable's story and create a strong sense of place. The Town's cultural resources, including two cultural districts, celebrate and enhance the Town's vibrant arts scene, maritime traditions, and historic assets.

Barnstable is comprised of seven villages each with their own history, identity, and character, and each with a village center with its own unique historic and cultural assets. Barnstable Village, which also includes the Cummaquid neighborhood, is characterized by its intact historic resources and scenic roads, an active harbor and ways to water on the sheltered waters of Barnstable Harbor, and the County seat. Centerville is a year-round community with popular beaches on Nantucket Sound, beautiful historic neighborhoods, the third largest freshwater lake in the region, and convenience shopping areas on Route 28. Cotuit, surrounded on three sides by water, is a residential village with valued open spaces and historic buildings, and a commercial area on Route 28. Hyannis, which also includes the Hyannis Port and West Hyannisport neighborhoods, is the economic center of the region, defined by the presence of the regional commercial center and a historic Main Street and working waterfront. Marstons Mills has a rural village character dotted with cranberry bogs, freshwater ponds, and preserved open spaces. Osterville is an attractive seaside residential community with a quaint and valued village center. West Barnstable is home to the Great Marshes and Sandy Neck, historic resources along Route 6A, and a rural character.

Village Organizations

Each of Barnstable's villages is represented by voluntary membership organizations that work with Town officials on local projects, advocate for the unique needs of their village, host events and resident meetings, produce educational materials, and more. These organizations include the Barnstable Village Association, West Barnstable Civic Association, Centerville Civic Association, Marstons Mills Village Association, Cotuit-Santuit Civic Association, Osterville Village

Association, Osterville Village and Professional Association, Greater Hyannis Civic Association, and Hyannis Port Civic Association.

Cultural Resources

Strong cultural sectors attract residents, tourists, businesses, artists, and entrepreneurs while defining the community's distinctive atmosphere. Barnstable promotes its cultural resources through its Arts Barnstable program, a Town-sponsored directory of events, places to visit, and resources for artists. Figure 5.1 shows a Town-wide map of cultural attractions, including Barnstable's cultural districts in Barnstable Village and Hyannis.

Figure 5.1. ArtsBarnstable Town-wide Map of Cultural Resources

Cultural Districts

Barnstable has two established cultural districts - the Barnstable Village Cultural District and the Hyannis HyArts Cultural District. Established cultural districts can pursue a variety of resources, including marketing opportunities and Mass Cultural Council programs to develop cultural economic development strategies, cultural facilities planning and construction, and more.

What are Cultural Districts?

A cultural district designated under M.G.L. Chapter 10 § 58A acts as a hub of cultural, artistic, and economic activity within a community. Cultural districts are typically easily navigable, compact areas that include a concentration of cultural facilities, activities, and other resources. This designation is awarded by the Mass Cultural Council and serves to drive economic growth; support arts, humanities, and science organizations; and cultivate a local sense of identity and character.

Sources – M.G.L. Chapter 10 § 58A and Mass Cultural Council

massculturalcouncil.org/communities/cultural-districts

HyArts Cultural District

The first state-designated cultural district on Cape Cod, the HyArts Cultural District in Hyannis provides arts and cultural experiences, outdoor activities, shopping, and dining. Sites include the JFK Hyannis Museum, Kennedy Legacy Trail, Cape Cod Maritime Museum, Mass Air and Space Museum, and the Zion Union Heritage Museum. While unique shops, boutiques, and galleries are available year-round within the district, seasonal opportunities to enjoy the arts include free outdoor concerts and "Artist Shanties" where local artisans sell hand-made or crafted work (Figure 5.2).[76]

Figure 5.2. Artist Shanties, Hyannis

[76] ArtsBarnstable, "Hyannis HyArts Cultural District." Accessed February 2023 at https://artsbarnstable.com/destinations/hyarts-district/

Barnstable Village Cultural District

Located on the north side of Barnstable, this cultural district includes historical buildings, restaurants, locally-owned shops, artist studios and galleries, and musical and theater groups. The district borders Barnstable Harbor, where visitors can learn about the working waterfront, enjoy scenic views of Sandy Neck Beach and Sandy Neck Lighthouse, or partake in a variety of educational tours. The district also includes the U.S. Coast Guard Heritage Museum, the oldest wooden jail in the United States (the "Old Jail," Figure 5.3), and the Sturgis Library, the oldest library building in the United States.[77]

Figure 5.3. The Old Jail, Barnstable Village

Mid-Cape Cultural Council

The Mid-Cape Cultural Council is an affiliate of the Massachusetts Cultural Council and awards grants to support community-based cultural proposals within the Towns of Barnstable and Yarmouth. The Council particularly encourages "community programs that build awareness of local heritage, multi-cultural awareness, natural resources or arts [e.g., public art, festivals or concerts]" that fulfill a cultural need of the Mid-Cape region. In FY2023, the Mid-Cape Cultural Council awarded over $27,000 to thirty-one projects, with grants ranging from $360 to $1,500. [78]

[77]Mass Cultural Commission, "Barnstable Village Cultural District." Accessed February 2023 at https://massculturalcouncil.org/communities/cultural-districts/designated-cultural-districts/

[78] Massachusetts Cultural Council. "Mid-Cape Cultural Council." Accessed February 2023 at https://massculturalcouncil.org/local-council/mid-cape/

Historic Resources

Barnstable has submitted documentation for over 2,400 properties to the Massachusetts Historical Commission's Cultural Resource Information System (MACRIS). These resources date from 1644 to 1995 and include 2,249 buildings, 92 objects, 34 structures, 59 areas, and 18 burial grounds. Maps 5.1 and 5.2 show the distribution of these resources by type and area throughout the Town. In addition to these identified resources, according to the 2010 LCP, there are over 40 known sites of indigenous settlement activity that have archaeological value, and 70 recorded 18th- and 19th-century historic archaeological sites within Barnstable.[79]

National Designations

National Historic Landmarks (NHLs) are nationally significant historic places designated by the Secretary of the Interior that illustrate the heritage of the United States. Approximately 2,600 historic places in the United States have been honored with this distinction and include historic buildings, sites, structures, objects, and districts. The Kennedy Compound on Irving and Marchant Avenues received NHL designation in 1972 and represents one of two NHLs on Cape Cod.[80]

The National Park Service's National Register of Historic Places is the official national list of historic places deemed worthy of preservation. Categories of properties include buildings, districts, sites, structures, or objects, and places. Listed places must meet criteria relating to age, structural integrity, and historical significance at the local, state, or national level. The Cape Cod Commission reviews significant changes to, or the demolition of, buildings listed on the National Register, as well as buildings located within a National Register District. Barnstable has fourteen National Register Districts within its borders, as well as 63 buildings, three objects, and two sites that are individually listed in the National Register. Map 5.3 displays National Register listings across the Cape and shows that Barnstable's listings far surpass other Cape communities, accounting for 40 percent of listings in the County. These listings include the portion of Old King's Highway/Route 6A that runs through Barnstable, which was added to the National Register of

[79] Town of Barnstable, *2010 Local Comprehensive Plan*, Section 6, "Heritage Preservation," p.1.

[80] The Louis Brandeis House in Chatham is the one other NHL on Cape Cod. National Park Service, "List of NHLs by State." Accessed March 2023 at https://www.nps.gov/subjects/nationalhistoriclandmarks/list-of-nhls-by-state.htm#onthisPage-21

Historic Places in 1987. While the Old King's Highway Regional Historic District was enacted in 1974, this historic byway covering 34 miles from Sandwich to Orleans received National Scenic Byway status from the U.S Department of Transportation in 2021.[81]

Local/Regional Historic Districts

Barnstable has two historic districts - the Old King's Highway Regional Historic District, which includes all land north of Route 6A, and the Hyannis Main Street Waterfront Historic District. Historic District Commissions review project applications relating to construction, demolition, movement, or alteration of external architectural features.

The Old King's Highway Regional Historic District is the largest historic district in the nation, running from Sandwich to Orleans. Each Town within the district has their own Historic District Committee. In Barnstable, the Old King's Highway Historic District Committee (OKH Committee) serves this role and reviews applications for any change in the exterior of buildings and structures, fences and signs, and applications for new construction or demolition within the district. The Hyannis Main Street Waterfront Historic District was created in 1996 as part of ongoing efforts to address revitalization and historic preservation in downtown Hyannis. Like the OKH Committee, the Hyannis Main Street Waterfront Historic District Commission (HHDC) is responsible for reviewing applications for new construction, demolition, and changes to the exterior of buildings, structures, or settings within the district, and strives "to create a desirable place to live, work and enjoy through the preservation, maintenance and improvement of historic vernacular."[82]

Barnstable Historical Commission

Local historical commissions (LHCs) established under M.G.L. Chapter 40, § 8D are the official municipal agency responsible for historic preservation planning within the community.

[81] Cape Cod Commission, "Old King's Highway Achieves National Scenic Byway Status," February 22, 2021. Accessed February 2023 at https://www.capecodcommission.org/about-us/newsroom/old-kings-highway-achieves-national-scenic-byway-status/

[82] Town of Barnstable, "Hyannis Main Street Waterfront Historic District Commission." Accessed February 2023 at https://www.town.barnstable.ma.us/boardscommittees/HyannisMainStreet/default.asp?brd=Hyannis+Main+Street+Waterfront+Historic+District+Commission&brdid=13&year=2023

Established in 1967, the Barnstable Historical Commission (BHC) assists the Town in preserving and protecting historical buildings and settings throughout Barnstable. The BHC focuses on educating the public about town history, inventories historic properties, serves an advisory role to the Town Council regarding municipal policies affecting the town's historic resources, and is responsible for oversight of the Town's Protection of Historic Properties Ordinance, described below.

Historical Societies

Historical Societies are private, non-profit organizations that preserve a community's historical collections and records. Historical societies often operate local museums and undertake educational programming. All of Barnstable's villages have historical societies, and the Cotuit, Barnstable, Centerville, and Osterville Historical Societies all operate museums from notable historic buildings. The Barnstable Historical Society, founded in 1939 to represent all of the Town's seven villages, is located in the historic Phinney-Jones House on Main Street across from the Sturgis Library. The Society's collection is showcased in nine exhibit rooms and focuses on the maritime and cultural history of the Town from the 18th to early 20th centuries.

Protection of Historic Resources

Regulatory & Policy Protections

Article I of the Town's Historic Properties Ordinance, Protection of Historic Properties, imposes a demolition delay of 18 months for "preferably preserved significant buildings." This designation applies to buildings outside of the Town's two local historic districts but which: are listed or in a pending application for listing on the National Register of Historic Places; are listed on the Massachusetts Register of Historic Places; or are over 75 years of age and determined by the LHC to be historically or architecturally important. This ordinance was recently amended in 2017 to increase the duration of the imposed delay from six months to 18 months.

Other regulatory or policy protections for historic resources include:

- The Town's local Wetlands Protection Ordinance requires identification of historic resources located within the affected resource area.

- The Town adopted a Scenic Roads Ordinance in 1983 and has sixty-two local roads subject to the ordinance. This designation requires Planning Board approval of alteration or removal of stone walls and the cutting or removal of trees located within the public right-of-way in accordance with defined thresholds. Roads receive this designation by Town Council vote.
- The Town's Site Plan Review process requires information on historic resources in the development parcel.
- To encourage the preservation of larger, older homes, the Town's zoning ordinance allows the conversion of single-family homes to bed and breakfast establishments by special permit within several of the Town's residentially zoned districts.
- In January 2022, the Town was recognized as a Complete Streets community with an approved Complete Streets Policy that incorporates mindful consideration for prioritization of character and scenic roads.

Planning Efforts

The Town's most recent Historic Preservation Plan was completed in 2010 as an update to previous efforts in 1990 and 1985. The Barnstable Historical Commission commissioned the plan, along with a historic resource inventory of all historic structures within the Hyannis Main Street Waterfront Historic District and the Growth Incentive Zone. The Historic Preservation Plan includes recommendations relating to education and advocacy, regulatory protections for historic resources, and municipal policy and management.

Funding for Historic Preservation

Between 2006 and 2021, the Town appropriated $11.4M in Community Preservation Act (CPA) funds toward sixty-seven historic preservation projects. Historic preservation represents the most funded CPA project type in Barnstable, with 36 percent of appropriated CPA funds from 2006-

2021 going toward this activity compared to 29 percent for open space preservation, 24 percent for community housing, and 11 percent for recreation.[83] In addition, the Town received grants through the Massachusetts Historical Commission's Massachusetts Preservation Projects Fund (MPPF), which was established in 1984 as a 50 percent reimbursable matching grant to support the preservation of properties, landscapes, and sites listed in the National Register of Historic Places. Barnstable MPPF-supported projects include the Unitarian Church, Olde Colonial Courthouse, US Custom House and Carriage House, and Barnstable Customs House.

Community Preservation Act

M.G.L. Chapter 44B, "Community Preservation," was signed into law in 2000, granting communities the right to raise local property taxes to fund land conservation, historic preservation, and affordable housing efforts. The law also provides significant matching funds to participating communities. Barnstable adopted CPA in 2005 and has allocated over $31.3M in CPA funds from 2006-2021. Project applications are reviewed by the Town's Community Preservation Committee (CPC), which then makes recommendations to the Town Manager and Town Council.

People

Overview

Barnstable is a growing community: it has seen population increases reported in all but one of the last ten decennial Census counts. Most of this growth occurred between 1960 and 2000, particularly the 1970s and 1980s where the population grew by over 10,000 in each decade.[84] As Barnstable continues to grow and welcome new residents, the Town has also become more racially and ethnically diverse. In Downtown Hyannis, 48 percent of the population belongs to a racial or

[83] Town of Barnstable Community Preservation Committee, "All Community Preservation Fund Appropriations by Town Council Order Through 6/30/21 – DRAFT." Accessed January 2023 at https://www.town.barnstable.ma.us/BoardsCommittees/CommunityPreservation/CPC_Plan/All-CPA-Appropriations-to-6-30-2021.pdf?tm=3/7/2023%208:09:27%20AM

[84] US Census Bureau, Decennial Census, 1930-2020, via Massachusetts State Data Center/Donahue Institute, UMass President's Office.

ethnic minority as of the 2020 Census compared to 28 percent in 2010.[85] The overall concentration of minority populations has not shifted as much, with 41 percent of the Town's minority population living in Downtown Hyannis as of 2020 compared to 43 percent in 2010. Town-wide, there has been a similar increase in diversity, with 24 percent of the Town's total population belonging to a racial or ethnic minority in 2020, nearly doubling from 13 percent in 2010. [86]

Population and Household Sizes

Despite a population decrease of 5.5 percent between 2000 and 2010, the 2020 Census indicates that Barnstable's population has rebounded and once again exceeds the 2000 population. The 2020 Census reported a population of 48,916. The Town is Barnstable County's seat and most populous town, accounting for 21.4 percent of the total county population. The number of households counted in Barnstable in 2020 also represents an all-time high at 20,613 households, which is a 7.2 percent increase from Census 2010 counts and 5.0 percent increase from Census 2000 counts.[87] The 2020 Census showed modest growth in household size, with an estimated average 2.34 people per household up from 2.33 in 2010. The estimated average household size for Barnstable County 2.17, and of all the Cape Cod communities, only Sandwich has larger average household sizes than Barnstable.[88]

[85] Census block groups used to define Hyannis/Downtown Hyannis in this section align with the Town's Neighborhood Revitalization Strategy Area (NRSA), designated under the Community Development Block Grant (CDBG) program. The NRSA includes Census Tract 152.02, Block Groups 2, 3, and 4; Census Tract 126.02, Block Groups 2, 3, and 4, and Census Tract 153, Block Groups 2 and 3.

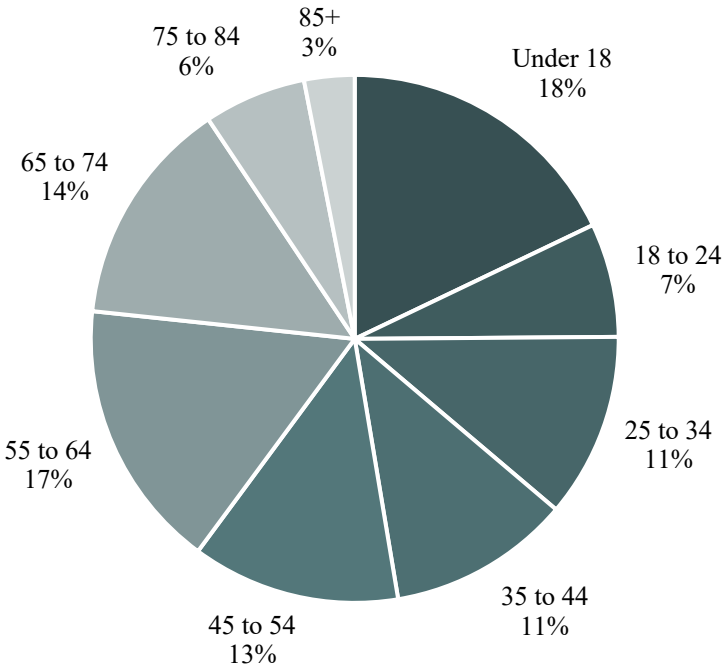
[86] US Census Bureau, Decennial Census 2010 and 2020, via Social Explorer.

[87] US Census Bureau, Decennial Census 2000-2020, via Social Explorer.

[88] At the time of this LCP draft, the complete 2020 Decennial Census was not released in its entirety. The Demographic and Housing Characteristics File is expected to be released May 2023 and will include official average household size. For purposes of this estimate based on Census 2020, the Group Quarters population (651 for Barnstable and 4,423 for Barnstable County) has been subtracted from the Total Population (48,916 for Barnstable and 228,996 for Barnstable County), with the result divided by the number of Occupied Housing Units (20,613 for Barnstable and 103,368 for Barnstable County).

Population Age

Figure 5.4. Barnstable's Age Composition
Source: ACS 5-Year Estimates 2017-2021, Table B01001



Larger household sizes often indicate larger proportions of children in a community, and in Barnstable's case, this seems to be true. Higher than the county average of 14.3 percent, 16.5 percent of Barnstable's population is under 18, and only Sandwich has a larger share of children (18.4 percent). Figure 5.4 shows age composition among Barnstable residents, where the largest age groups are 55 to 64 and under 18.[89] Between 2010 and 2020, the under-18 population dropped by 2.4 percent (198 children) in Barnstable and 12.2 percent (4,537 children) across the county. While two communities had small gains in under-18 population (Eastham and Wellfleet), every other Cape community had losses in this age group. Table 5.1 shows that by comparison, Barnstable's loss of population in this age group was relatively small. Enrollment in the Barnstable school district reached a ten-year high in the 2019-2020 school year with 5,041 students, and then dropped 6.5 percent the following year. The effect of the COVID-19 pandemic on school enrollment is unclear, but all but one of the elementary schools saw proportionally larger losses in student populations than the Intermediate and High Schools.[90] Map 5.4 displays the concentration of households with children under 18 and shows that Hyannis has the highest percentage of households with children throughout Barnstable.

[89] The US Census Bureau publishes the decennial Census and the American Community Survey (ACS). The Census includes exact counts, and ACS uses a different sampling method to generate estimates based on a rolling five-year average. This is why there can be discrepancies between these sources. Age data from the 2020 Census is not yet available beyond over/under 18 years old.

[90] Massachusetts Department of Elementary and Secondary Education (DESE), Enrollment Data, 2012-2022.

Table 5.1. Under-18 Population on Cape Cod in 2010 and 2020

	2010			2020			Comparison 2010 to 2020			
	Under 18	All Ages	Under 18 / Total	Under 18	All Ages	Under 18 / Total	Difference under 18	Difference All Ages	% Change under 18	% Change All Ages
Barnstable County	37,249	215,887	17.3%	32,712	228,996	14.3%	**-4,537**	**13,109**	**-12.2%**	**6.1%**
Barnstable	8,284	45,193	18.3%	8,086	48,916	16.5%	**-198**	**3,723**	**-2.4%**	**8.2%**
Bourne	3,642	19,753	18.4%	2,922	20,452	14.3%	**-720**	**699**	**-19.8%**	**3.5%**
Brewster	1,603	9,828	16.3%	1,432	10,318	13.9%	**-171**	**490**	**-10.7%**	**5.0%**
Chatham	749	6,125	12.2%	610	6,594	9.3%	**-139**	**469**	**-18.6%**	**7.7%**
Dennis	1,977	14,207	13.9%	1,620	14,674	11.0%	**-357**	**467**	**-18.1%**	**3.3%**
Eastham	627	4,956	12.7%	652	5,752	11.3%	**25**	**796**	**4.0%**	**16.1%**
Falmouth	5,470	31,531	17.3%	4,566	32,517	14.0%	**-904**	**986**	**-16.5%**	**3.1%**
Harwich	1,970	12,235	16.1%	1,856	13,440	13.8%	**-114**	**1,205**	**-5.8%**	**9.8%**
Mashpee	2,697	14,006	19.3%	2,203	15,060	14.6%	**-494**	**1,054**	**-18.3%**	**7.5%**
Orleans	650	5,890	11.0%	641	6,307	10.2%	**-9**	**417**	**-1.4%**	**7.1%**
Provincetown	201	2,942	6.8%	175	3,664	4.8%	**-26**	**722**	**-12.9%**	**24.5%**
Sandwich	4,986	20,675	24.1%	3,729	20,259	18.4%	**-1,257**	**-416**	**-25.2%**	**-2.0%**
Truro	263	2,003	13.1%	248	2,454	10.1%	**-15**	**451**	**-5.7%**	**22.5%**
Wellfleet	369	2,750	13.4%	394	3,566	11.0%	**25**	**816**	**6.8%**	**29.7%**
Yarmouth	3,761	23,793	15.8%	3,578	25,023	14.3%	**-183**	**1,230**	**-4.9%**	**5.2%**

Source: US Census Bureau, Census 2020 via Social Explorer, Tables T003 and T020; Barrett Planning Group.

Across the Cape, while numbers of school-age children are decreasing, numbers of older adults are increasing. According to American Community Survey (ACS) 5-Year Estimates, between 2011 and 2021, there was an 18.8 percent increase in the population 65 and older in Barnstable (1,792 residents) while the overall population increased by an estimated 3,070 residents, so 41.6 percent of Barnstable's net population growth was among seniors.[91] Table 5.2 shows that over that

[91] Because the full 2020 Census data is not yet publicly available, age-related data (other than for the under 18 population) are not yet available. Table 5.2 instead uses American Community Survey data and should be reviewed upon release of the full 2020 Census.

same interval, the overall number of seniors on the Cape increased 30.4 percent (16,248 residents), and Map 5.5 shows the higher concentration of households with seniors within Osterville.

Barnstable also has the youngest population of all its neighbors. The median age for all residents is 47.5, with the median for men at 46.2 and women 48.3. The population age 65 and over is correspondingly the lowest on the entire Cape, at 23.3 percent. The median age for all other Cape jurisdictions is 50 or older, with four towns exceeding a median age of 60. For all other Cape Cod towns except Barnstable, the 65 and above demographic composes a quarter of the population or more. Despite being the youngest town on the Cape, Barnstable is still significantly older than both the state (median age, 39.6; 65 and over, 17.4 percent) and New England overall (median age 40.8; 65 and over 16.5 percent). The aging of the community presents both immediate and long-term implications for the local economy.

Table 5.2 Population 65 and Older on Cape Cod in 2011 and 2021

	2011			2021			Comparison 2011 to 2021	
	65 and Older	All Ages	% Older Adults	65 and Older	All Ages	% Older Adults	Difference in Older Adults	% Change Older Adults
Barnstable County	53,403	216,639	24.7%	69,651	227,942	30.6%	**16,248**	**30.4%**
Barnstable	9,532	45,486	21.0%	11,324	48,556	23.3%	**1,792**	**18.8%**
Bourne	3,732	19,632	19.0%	5,695	20,364	28.0%	**1,963**	**52.6%**
Brewster	2,679	9,853	27.2%	3,607	10,282	35.1%	**928**	**34.6%**
Chatham	2,170	6,177	35.1%	3,041	6,554	46.4%	**871**	**40.1%**
Dennis	4,176	14,392	29.0%	5,124	14,664	34.9%	**948**	**22.7%**
Eastham	1,545	5,011	30.8%	2,202	5,674	38.8%	**657**	**42.5%**
Falmouth	8,342	31,674	26.3%	10,390	32,526	31.9%	**2,048**	**24.6%**
Harwich	3,658	12,259	29.8%	4,662	13,329	35.0%	**1,004**	**27.4%**
Mashpee	3,212	13,900	23.1%	4,305	14,996	28.7%	**1,093**	**34.0%**
Orleans	2,552	5,946	42.9%	3,079	6,276	49.1%	**527**	**20.7%**
Provincetown	424	2,994	14.2%	1,075	3,582	30.0%	**651**	**153.5%**
Sandwich	2,852	20,635	13.8%	5,166	20,369	25.4%	**2,314**	**81.1%**
Truro	416	1,903	21.9%	591	1,575	37.5%	**175**	**42.1%**
Wellfleet	1,075	2,858	37.6%	1,182	4,305	27.5%	**107**	**10.0%**
Yarmouth	7,038	23,919	29.4%	8,208	24,890	33.0%	**1,170**	**16.6%**

Source: US Census Bureau, American Community Survey 5-Year Estimates 2007-2011 and 2017-2021, Table B01001; Barrett Planning Group.

Racial and Ethnic Composition

Barnstable is becoming more racially and ethnically diverse. According to Decennial Census figures, in 2010, 89.3 percent of residents were White compared to 77.2 percent in 2020. The population of residents who are of two or more races saw the most growth, accounting for 3.1 percent of residents in 2010 and 11.1 percent in 2020. The Black population grew from 3.0 percent (1,366) to 4.6 percent (2,235) of Barnstable residents. There was a modest increase in the Asian population, from 1.2 to 1.8 percent of residents. The number of people who selected "Other" for race climbed from 1,217 (2.7 percent) to 2,319 (4.7 percent) residents, and there were even more who indicated that they were of more than one race including "Other" increased even more, from 560 to 4,014. The only racial category that saw a decrease in representation between 2010 and 2020 was "American Indian or Alaska Native" alone, which dropped from 280 to 260 individuals.[92] The Hispanic population grew from 3.1 percent of the town (1,418) to 5.4 percent (2,626).[93] According to the ACS, the largest share of Hispanic residents is Ecuadorian, followed by Dominican, Puerto Rican, and "Other."[94]

Among children, these demographic changes are even more apparent: while 83.2 percent of the under-18 population (6,895) was White in 2010, this figure dropped to 64.5 percent (5,215) in 2020. The population of children of more than one race increased from 582 to 1,543.[95] Young families choosing to raise their children in Barnstable are likely key to the Town's increasing diversity. Figure 5.5 shows the racial and ethnic demographics of Barnstable's 18 and older and under 18 populations.[96]

[92] US Census Bureau, Census 2020, Table T024.

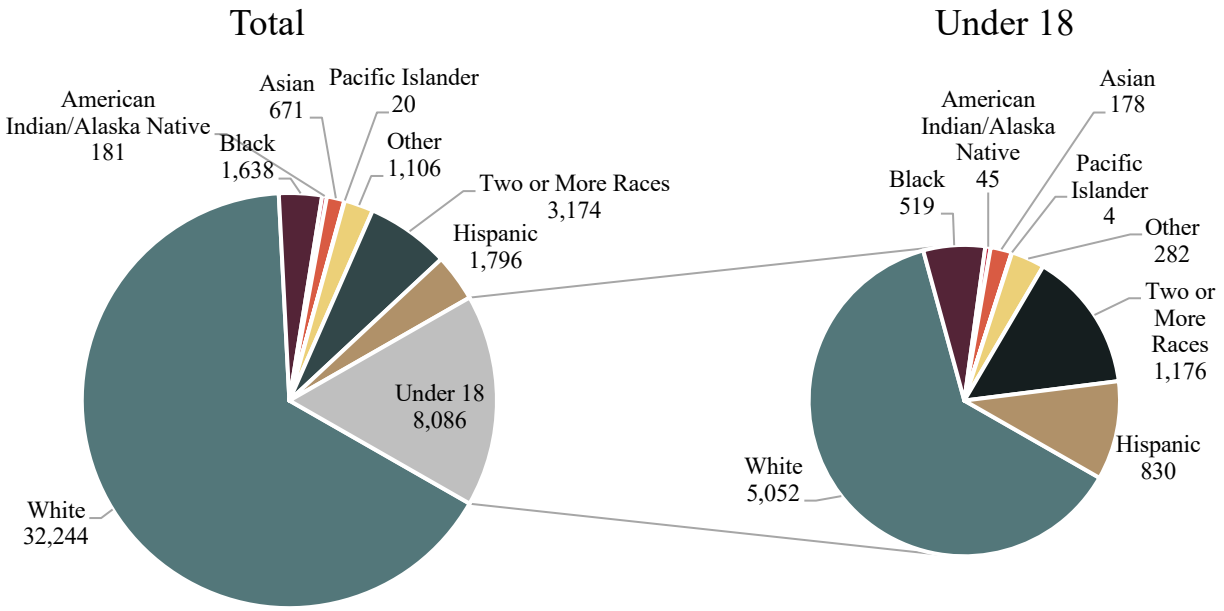
[93] US Census Bureau, Census 2020, Tables T004 and T021.

[94] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table B03001.

[95] US Census Bureau, Census 2020, Tables T005-007 and T022-024.

[96] The Census does not provide a race designation in these tables for Hispanic residents, so these residents are included in their own category in Figure 5.6 for the purpose of illustration.

Figure 5.5. Racial/Ethnic Demographics of Adults and Children
Source: 2020 Census, Tables T022-T023 and T026-T027



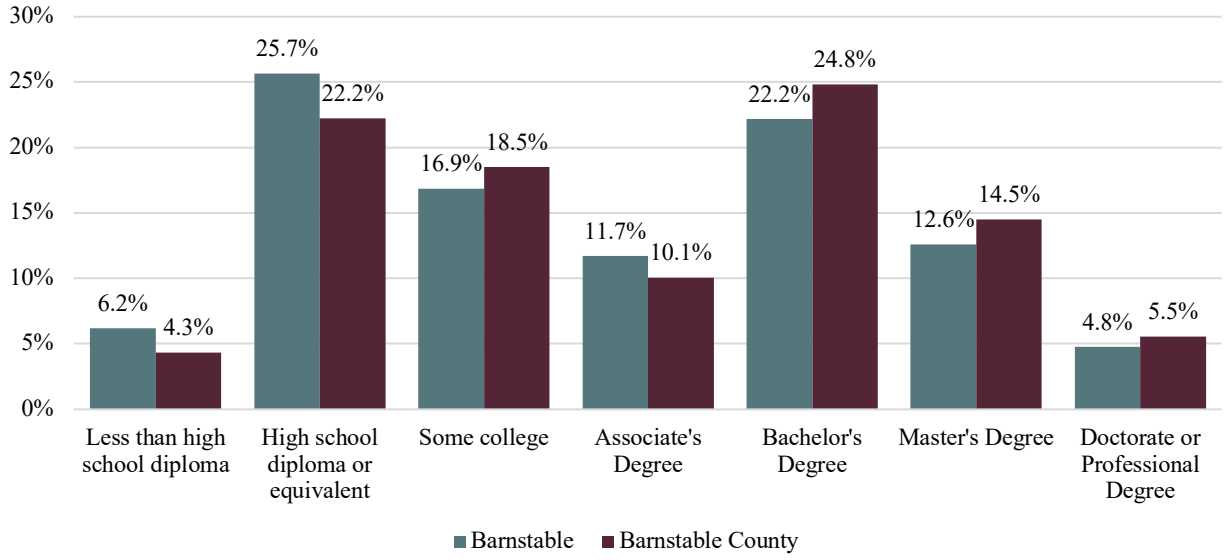
Nearly one in five Barnstable residents (8,374, 18.0 percent) were born outside the United States. More than three-quarters (78.3 percent) of Barnstable's foreign-born population is from Latin America.[97] Brazil, Jamaica, and Ecuador are residents' most common countries of origin, and about two-thirds (68.2 percent) of Barnstable's foreign-born population originates from one of those three countries. While most Barnstable residents speak English at home, 20.3 percent speak languages other than English at home, and 8.9 percent have limited English proficiency.[98]

Educational Attainment

On average, Barnstable residents have slightly less education than Barnstable County as a whole. A high school diploma or equivalent is the highest level of education completed for 43 percent of Barnstable residents, compared to 41 percent throughout the Cape. Just under 40 percent of Barnstable residents have a bachelor's degree or higher, whereas throughout the county, that figure is about five percentage points higher (44.9 percent). Figure 5.6 compares the educational attainment of Barnstable residents and that of all of Cape Cod.

[97] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table B05006.
[98] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table B06007.

Figure 5.6. Educational Attainment for Barnstable and Barnstable County Residents 25 and Older
Source: ACS 5-Year Estimates 2017-2021, Table B15003



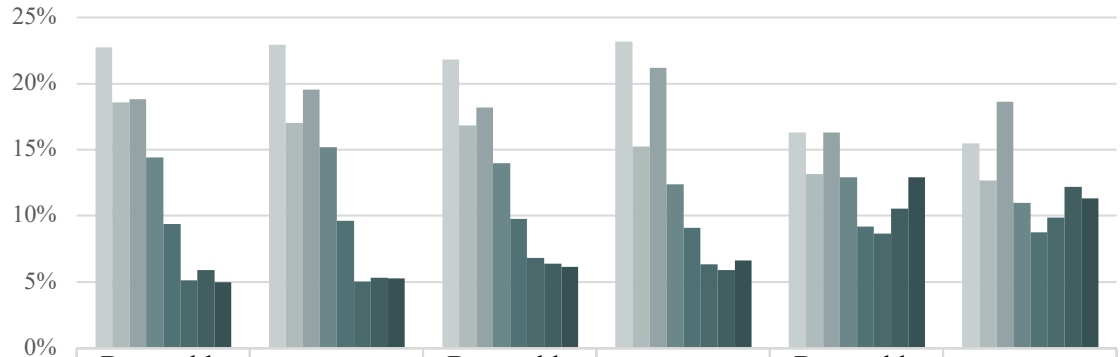
Household Income

Household incomes in Barnstable tend to be very similar to those throughout Barnstable County. According to the American Community Survey 5-Year Estimates 2017-2021, the median household income in the past 12 months in Barnstable was $82,816, and $82,619 for the county. Figure 5.7 illustrates the proportion of households in each income bracket (adjusted for inflation) for the town and the county in 2011, 2016, and 2021. While the 2011 and 2016 data show very similar distributions with higher numbers of lower-earning households, 2021 incomes show significant growth in higher-earning households, both within Barnstable and across Cape Cod. As incomes in Barnstable and across the Cape are very similar, the proportions of households receiving Supplemental Security Income (SSI), Cash Public Assistance, or Food Stamps/SNAP in the last 12 months are also very close: 7.9 percent of households across the county and 8.1 percent of households in town receive public assistance.[99]

[99] US Census Bureau, American Community Survey 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Table B19058.

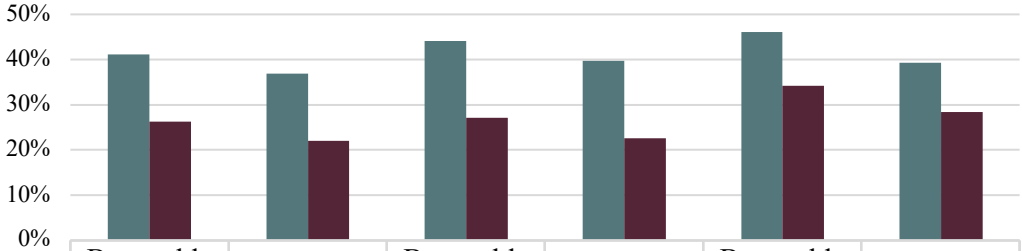
Like other communities, Barnstable's increasing share of adults over 65 is reflected in the growing percentage of households with retirement income or social security income, as shown in Figure 5.8. Nonetheless, Barnstable has one of the lowest percentages of households with retirement income (28.5 percent) and social security income (39.3 percent) among Cape communities, although both figures are still well above Massachusetts estimates (20.2 percent with retirement income and 29.8 percent with social security income).

Figure 5.7. Household Income Distribution 2011-2021
for Barnstable and Barnstable County (Inflation-Adjusted)
Source: ACS 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Table B19001



	2011		2016		2021	
	Barnstable County	Barnstable	Barnstable County	Barnstable	Barnstable County	Barnstable
Less than $30,000	22.7%	22.9%	21.8%	23.2%	16.3%	15.5%
$30,000-$49,999	18.6%	17.0%	16.8%	15.3%	13.2%	12.7%
$50,000-$74,999	18.8%	19.5%	18.2%	21.2%	16.3%	18.6%
$75,000-$99,999	14.4%	15.2%	14.0%	12.4%	12.9%	11.0%
$100,000-$124,999	9.4%	9.6%	9.8%	9.1%	9.2%	8.8%
$125,000-$149,999	5.1%	5.0%	6.9%	6.3%	8.6%	9.9%
$150,000-$199,999	5.9%	5.3%	6.4%	5.9%	10.5%	12.2%
$200,000 or more	5.0%	5.3%	6.2%	6.6%	12.9%	11.3%

Figure 5.8. Households with Social Security or Retirement Income 2011-2021 for Barnstable and Barnstable County
Source: ACS 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Tables B19055 and B19059



	Barnstable County	Barnstable	Barnstable County	Barnstable	Barnstable County	Barnstable
	2011		2016		2021	
With Social Security Income	41.1%	36.9%	44.1%	39.8%	46.1%	39.3%
With Retirement Income	26.3%	22.0%	27.2%	22.6%	34.2%	28.5%

Environmental Justice Areas

The US Environmental Protection Agency (EPA) defines environmental justice (EJ) as "the fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies."[100] The state of Massachusetts uses demographic data from the Census Bureau's American Community Survey (ACS) to identify areas that meet one or more criteria: annual median household incomes are at or below 65 percent of those statewide; racial/ethnic-minority residents make up 40 percent or more of the community; at least a quarter of households speak English less than "very well"; or incomes are at or below 150 percent of statewide annual household incomes and at least 25 percent of residents represent racial/ethnic minorities.[101]

[100] US Environmental Protection Agency, "EJ 2020 Glossary," updated August 18, 2022.

[101] MA Executive Office of Energy and Environmental Affairs (EEA), "Environmental Justice Populations in Massachusetts," updated January 20, 2023.

Of Barnstable's 38 population-based statistical areas (called Census block groups), twelve meet one or more conditions for EJ designation. These twelve block groups are all situated within or include parts of Hyannis, and they are home to 32.4 percent of Barnstable's total population.[102] Map 5.6 displays Barnstable's Environmental Justice block groups and identifies the criteria they meet. Each of the twelve block groups meets the minority population criterion; six also qualify by household income; one also has a population with limited English proficiency; and one, the most densely settled area of town, south of Route 28/Falmouth Road between Winter Street and Bearses Way and north of Stevens Street, meets all of these criteria. Overall, 8.9 percent of Barnstable's population identify as speaking English less than "very well," but in parts of Hyannis, this figure can be more than 300% higher.[103] The two Hyannis block groups flagged as EJ populations because of English isolation are Cape Cod's only areas that received that designation.

Greening the Gateway Cities in EJ Communities

In Spring 2022, Barnstable was selected as one of five Gateway Cities to participate in the Greening the Gateway Cities program, which is concentrated in **Environmental Justice** neighborhoods, and targets areas within gateway cities that have lower tree canopy, older housing stock, higher wind speeds, and a larger renter population. The program plants trees free of charge on eligible properties within active Gateway City planting zone.

Source: DCR Massachusetts, "Greening the Gateway Cities" Fact Sheet, available at https://www.mass.gov/doc/greening-the-gateway-cities-program-fact-sheet/download

[102] *2020 Environmental Justice Populations*, MA Executive Office of Energy and Environmental Affairs (EEA), updated November 2022.

[103] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Tables B06007 and B16004.

Local Economy

Overview

As the largest town on Cape Cod and often referred to as the "downtown" or "heart" of the Cape, Barnstable features a strong and diverse economy year-round as well as during the peak summer season.

Labor Force

A community's **labor force** is defined as all residents aged 16 and older who are classified as either employed or unemployed and actively looking for work. Members of Barnstable's labor force *live* in Barnstable but may work elsewhere. Labor force characteristics reflect a community's level of household wealth, which is a large driver of local economic conditions. According to 2017-2021 ACS estimates, Barnstable's labor force consists of an estimated 27,344 residents out of the population age 16 and older (40,769), for a labor force participation rate of 67.1 percent, significantly higher than the county at 59.9 percent.[104] Barnstable's higher labor force participation rate makes sense because the share of retired households in Barnstable is relatively low within the county. Table 5.3 shows that communities with higher labor force participation rates tend to have a lower share of retired households, although this is not always the case.

Table 5.3. Select Labor Force Characteristics across Cape Cod

	Labor Force Participation Characteristics		Employment Characteristics		Educational Characteristics	
	Labor Force Participation Rate	**% Households w/ Retirement Income**	**% Working in Town of Residence**	**% Self-Employed**	**Dropout Rate for Population Ages 16-19**	**Bachelor's Degree or Higher, Ages 25+**
Massachusetts	67.2%	20.2%	35.6%	8.7%	2.8%	45.2%
Barnstable County	59.9%	34.2%	42.6%	15.1%	1.9%	44.9%
Barnstable	67.1%	28.5%	54.0%	15.1%	3.9%	39.6%
Bourne	63.2%	31.8%	31.8%	13.6%	2.4%	43.4%
Brewster	54.6%	42.5%	24.7%	23.3%	0.5%	44.9%
Chatham	45.3%	39.3%	49.0%	19.0%	0.4%	62.6%

[104] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Tables B23025 and B23027.

Table 5.3. Select Labor Force Characteristics across Cape Cod

	Labor Force Participation Characteristics		Employment Characteristics		Educational Characteristics	
	Labor Force Participation Rate	**% Households w/ Retirement Income**	**% Working in Town of Residence**	**% Self-Employed**	**Dropout Rate for Population Ages 16-19**	**Bachelor's Degree or Higher, Ages 25+**
Dennis	55.9%	37.0%	32.1%	13.9%	<0.0%	39.3%
Eastham	50.7%	43.5%	32.6%	16.9%	<0.0%	47.2%
Falmouth	56.7%	33.3%	58.4%	15.2%	3.3%	50.1%
Harwich	59.4%	36.4%	34.7%	14.4%	<0.0%	44.9%
Mashpee	61.0%	30.7%	34.2%	11.4%	0.8%	39.4%
Orleans	47.9%	38.7%	48.0%	8.7%	<0.0%	60.4%
Provincetown	62.6%	26.5%	69.1%	23.4%	<0.0%	57.6%
Sandwich	65.5%	36.8%	30.2%	28.9%	<0.0%	48.1%
Truro	64.8%	31.7%	51.6%	11.3%	<0.0%	56.5%
Wellfleet	52.4%	32.6%	44.8%	15.1%	<0.0%	52.5%
Yarmouth	57.6%	38.9%	35.3%	21.6%	0.1%	39.5%

Sources: US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Tables B08008 and B15003, and Social Explorer ACS Tables A10015, A12003, A17002, and A17009.

Employment Sectors

Like nearly all economies, the private sector provides the lion's share of employment for Barnstable residents, representing 61.2 percent of the employed labor force. Despite being both the largest town on the Cape and the county seat, Barnstable has a lower percentage of workers employed in the public sector (11.8 percent) as compared to the county (12.6 percent) and state (12.4 percent). Barnstable is also an outlier when it comes to self-employment compared to its neighbors; in Barnstable 15.1 percent of all resident workers are self-employed, higher than adjacent communities and well above the state's rate of 8.7 percent, although in line with the county, also at 15.1 percent. [105] Table 5.3 above shows that some Cape Cod communities have significantly higher rates of self-employment – most notably Brewster, Provincetown, and Sandwich.

[105] Social Explorer Table A17009 based upon the US Census Bureau, American Community Survey 5-Year Estimates 2017-2021.

Education

While the "People" section of the Community Systems portion of this plan describes educational attainment of Barnstable's residents, Table 5.3 provides further detail by town. Barnstable is among the lower end of residents age 25+ having earned a bachelor's degree or higher as compared to other Cape Cod communities. More significantly, based on ACS 2017-2021 estimates, Barnstable has the highest estimated dropout rate among the population ages 16-19 compared to other Cape Cod communities and even the state.[106]

Industries of Labor Force

The top two industries Barnstable residents work in include "Educational Services, and Health Care and Social Assistance" (23.8 percent) and "Construction" (12.5 percent), with the latter representing a significantly larger share of the local labor force compared to the state (5.9 percent). Table 5.4 also shows that earnings by industry vary between geographies, although Barnstable residents have lower median earnings across industries than the county and state ($40,276, $40,979, and $48,078, respectively).[107] While residents in industries such as "Information," "Agriculture, Forestry, Fishing and Hunting, And Mining," and "Wholesale Trade" earn more than their counterparts statewide, for other industries earnings are significantly less, particularly in "Finance and Insurance, Real Estate, and Rental and Leasing" and "Professional, Scientific, Management, and Administrative and Waste Management Services."

[106] Department of Elementary and Secondary Education district profiles indicate a 2020-2021 dropout rate of 1.8 percent for the Barnstable Public Schools and a 1.5 percent rate for the state. District profiles show a higher rate for Dennis-Yarmouth in 2020-2021 at 3.1 percent, as well as Falmouth Public Schools at 2.7 percent. All other public school districts on Cape Cod have lower dropout rates than these three districts. Profiles are available at https://profiles.doe.mass.edu.

[107] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table B20017.

Table 5.4. Percent Labor Force and Median Earnings by Industry for the Civilian Employed Population 16 Years and Older

	% Labor Force			Median Earnings		
Industry	**Barnstable**	**Barnstable County**	**MA**	**Barnstable**	**Barnstable County**	**MA**
Agriculture, Forestry, Fishing and Hunting, And Mining	0.5%	0.8%	0.4%	$63,633	$47,670	$50,705
Construction	12.5%	10.1%	5.9%	$47,073	$55,103	$65,723
Manufacturing	5.5%	4.6%	8.9%	$58,906	$68,789	$75,174
Wholesale Trade	2.2%	2.2%	2.1%	$76,650	$71,496	$64,824
Retail Trade	11.0%	12.4%	10.0%	$53,365	$49,585	$51,288
Transportation And Warehousing, And Utilities	3.5%	3.8%	4.1%	$64,795	$64,118	$63,973
Information	1.9%	1.8%	2.2%	$122,716	$77,041	$88,210
Finance And Insurance, And Real Estate, And Rental and Leasing	6.3%	6.1%	7.3%	$60,592	$73,875	$88,086
Professional, Scientific, And Management, And Administrative, And Waste Management Services	11.6%	12.9%	14.8%	$60,841	$75,614	$92,228
Educational Services, And Health Care and Social Assistance	23.8%	24.4%	28.1%	$64,459	$65,486	$64,654
Arts, Entertainment, And Recreation, And Accommodation and Food Services	10.0%	11.2%	7.9%	$39,102	$43,727	$41,083
Other Services, Except Public Administration	5.8%	4.9%	4.3%	$44,830	$50,712	$49,544
Public Administration	5.3%	5.0%	3.9%	$78,967	$82,254	$81,646

Source: US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Tables B24041 and C24050.

Employment Base

A community's **employment base** includes its wage and salary jobs. People counted in the employment base may or may not live in Barnstable and the employment base does not include self-employed people. Several industries dominate employment in Barnstable: Educational Services and Health Care and Social Assistance (30.5 percent of local jobs); Retail Trade (17.3 percent); and Arts, Entertainment, and Recreation and Accommodation and Food Services (14.2 percent). Leisure and hospitality service industries are among the strongest in Barnstable, but also have the lowest average weekly wages. Compared to the weekly wage average of $1,187 across industries for Barnstable's employment base, Accommodation and Food Services workers earn $615, while Retail Trade workers earn $798.[108] These sectors were also significantly affected by the COVID-19 pandemic and are also susceptible to other economic shocks, particularly those that have an outsized impact on tourism.

Location quotients (LQ) indicate the strength of local industries by comparing a community's employment base with that of a larger geographic area, called a "reference economy." The proportion of jobs in each industry in the community weighted against the proportion of jobs in those industries in the larger reference economy results in a ratio that sheds light on the unique employment characteristics of a community. Generally, a ratio between 0.90 and 1.10 means the proportion of jobs per industry is similar between the compared geographies, and a ratio below 0.85 or over 1.15 points to a noteworthy difference. The higher the ratio, the stronger the industry is in the community. Table 5.5 reports location quotients for Barnstable's employment base, considering two reference economies: Barnstable County and Massachusetts.

[108] Executive Office of Labor and Workforce Development (EOLWD), "Employment and Wages," (ES-202), 2021 Annual Reports for Barnstable, Barnstable County, and Massachusetts.

Table 5.5. Location Quotients for Select Industries

	Share of Jobs (Average Monthly Employment)			Location Quotients	
Description	**Barnstable**	**Barnstable County**	**MA**	**Barnstable to County**	**Barnstable to State**
Agriculture, Forestry, Fishing and Hunting, And Mining	0.7%	0.7%	0.7%	0.93	0.95
Construction	6.0%	7.9%	5.1%	**0.75**	**1.17**
Manufacturing	2.9%	2.5%	6.7%	**1.16**	**0.44**
Wholesale Trade	2.0%	1.8%	3.4%	1.12	**0.58**
Retail Trade	17.3%	16.1%	9.6%	1.07	**1.80**
Transportation And Warehousing, And Utilities	3.4%	3.2%	3.6%	1.08	0.94
Information	1.2%	1.3%	2.9%	0.89	**0.42**
Finance And Insurance, And Real Estate, And Rental and Leasing	5.4%	3.8%	6.2%	**1.41**	0.87
Professional, Scientific, And Management, And Administrative, And Waste Management Services	7.0%	10.3%	17.8%	**0.68**	**0.39**
Educational Services, And Health Care and Social Assistance	30.5%	23.9%	28.5%	**1.28**	1.07
Arts, Entertainment, And Recreation, And Accommodation and Food Services	14.2%	19.2%	8.8%	**0.74**	**1.62**
Other Services, Except Public Administration	4.6%	3.8%	3.1%	**1.22**	**1.50**
Public Administration	5.0%	5.7%	4.0%	0.87	**1.24**

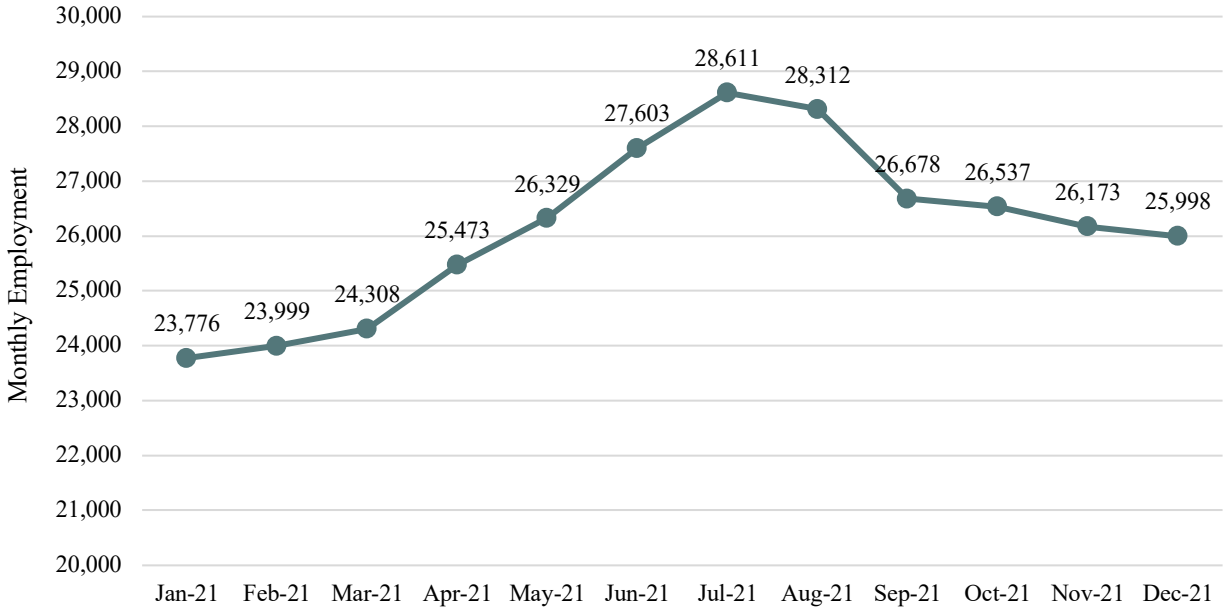
Source: Executive Office of Labor and Workforce Development (EOLWD), "Employment and Wages," (ES-202), 2021 Annual Reports for Barnstable, Barnstable County, and Massachusetts.

For Barnstable, the LQs show some local industries may be relatively weak compared to one reference economy, yet strong compared to the other. For example, Finance and Insurance, Real Estate, Rental and Leasing is a strong local industry in Barnstable compared to the county (LQ: 1.41) but weaker when compared to the state (LQ: 0.87). Arts, Entertainment, Recreation, and Accommodation and Food Services in Barnstable is weaker compared to the county (LQ: 0.74) but strong compared to the state (LQ: 1.62).

Seasonality of Employment Base

While these figures provide a yearly picture of employment and wages in Barnstable, seasonal fluctuations occur — more significantly for some industries than others. Overall, there is a marked increase in jobs within Barnstable during the summer tourist season based on ES202 Employment and Wage data from the Massachusetts Department of Economic Research. Figure 5.9 shows that January 2021 had the lowest level of employment that year at 23,776 jobs in Barnstable. By the July peak there were 28,611 jobs, a 20 percent increase compared to January. This seasonal trend is even more pronounced in sectors that are especially dependent on the tourism industry, such as entertainment, retail, transportation, and hospitality. While the retail industry sees a bump in employment approaching the winter holiday season, it does not match the strength and growth of the peak summer season. Barnstable County sees similar seasonal trends, with a 34 percent increase in jobs between a February 2021 low (79,019) and a July 2021 high (106,434).[109]

Figure 5.9. Seasonal Shifts in Local Employment within Barnstable, 2021
Sources: Executive Office of Labor and Workforce Development (EOLWD), "Employment and Wages," (ES-202), 2021 Annual Report for Barnstable



[109] Executive Office of Labor and Workforce Development (EOLWD), "Employment and Wages," (ES-202), 2021 Annual Reports for Barnstable and Barnstable County.

Employers

The ten largest employers in town are:

- Cape Cod Health:
  2,548 employees
- Town of Barnstable:
  1,331 employees
- Cape Cod Community College:
  514 employees
- Cape Air:
  306 employees
- Barnstable County:
  250 employees
- Macy's (2 stores)
  230 employees
- The Cape Codder Resort & Spa:
  200 employees
- Stop & Shop in Hyannis:
  185 employees
- Stop & Shop in Marstons Mills:
  161 employees
- Cape Cod Times:
  135 employees[110]

Collectively, these ten employers represent a quarter of the Town's employment base, with Cape Cod Health alone employing over 11 percent. [111]

Jobs to Workers

The ratio of the employment base (i.e., jobs in a community) to the labor force (i.e., resident workers) indicates whether a town serves as an importer or exporter of jobs within a particular industry and provides insight as to how easily residents can find local employment in their industries of choice. Where the ratio of available jobs to residents who work in that industry is higher than 1.0, that industry is a **net importer** of jobs to the community; conversely, where the ratio is less than 1.0, there are more resident workers in the industry than there are jobs available, making the industry a **net exporter** of jobs. Table 5.6 shows that most industries are net exporters of jobs, meaning more residents leave town to work in their industry. The top three net importers of jobs are Retail Trade; Arts, Entertainment, Recreation, and Accommodation and Food Services; and Educational Services, Health Care and Social Assistance. These industries largely align with Barnstable's largest employers described in the previous section.

[110] Town of Barnstable Finance Department, *Annual Comprehensive Financial Report for the Year Ended June 30, 2022*, p.157.
[111] Ibid.

Table 5.6. Jobs to Resident Workers

Description	# Local Jobs	# Resident Workers	Difference	Ratio
Agriculture, Forestry, Fishing and Hunting, And Mining	181	143	**38**	**1.266**
Construction	1,559	3,311	**-1752**	**0.471**
Manufacturing	770	1,460	**-690**	**0.527**
Wholesale Trade	520	575	**-55**	**0.904**
Retail Trade	4,519	2,907	**1612**	**1.555**
Transportation And Warehousing, And Utilities	895	919	**-24**	**0.974**
Information	313	514	**-201**	**0.609**
Finance And Insurance, And Real Estate, And Rental and Leasing	1,408	1,669	**-261**	**0.844**
Professional, Scientific, And Management, And Administrative, And Waste Management Services	1828	3,056	**-1228**	**0.598**
Educational Services, And Health Care and Social Assistance	7,973	6,295	**1678**	**1.267**
Arts, Entertainment, And Recreation, And Accommodation and Food Services	3,701	2,633	**1068**	**1.406**
Other Services, Except Public Administration	1,211	1,543	**-332**	**0.785**
Public Administration	1,302	1,410	**-108**	**0.923**

Sources: Executive Office of Labor and Workforce Development (EOLWD), "Employment and Wages," (ES-202), 2021 Annual Report for Barnstable; US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table C24050.

Commuting Patterns

As shown previously in Table 5.3, Barnstable has a higher crossover between its labor force and employment base than most Cape communities, with an estimated 54 percent of its employed residents working in town. This is also reflected in commuter patterns shown in the Census Bureau's Commuting Flows, which are derived from American Community Survey data. While the most recently available Commuting Flows data are based on the 2011-2015 ACS, they still support this finding, showing that an estimated 51.9 percent of working residents commute within Barnstable. The next largest destination for Barnstable residents is Yarmouth, where 13.0 percent of residents work, followed by Mashpee at 4.6 percent. Inbound commuters going to work in

Barnstable come from a similar profile of Cape and regional communities, reflecting Barnstable's position as the Cape's major hub. Barnstable residents make up an estimated 45.6 percent of the town's employment base, with Yarmouth residents accounting for 11.6 percent and Sandwich residents making up 7.5 percent.[112] Barnstable residents and the workers employed in Barnstable most commonly drive alone to work for transportation, as shown in Table 5.7.

Table 5.7. Means of Transportation to Work

Out of every 100 working Barnstable residents…	**Out of every 100 workers in Barnstable…**
74 drive alone	79 drive alone
10 carpool	8 carpool
1 take public transportation	0-1 take public transportation
3 walk	3 walk
1-2 take some other means of transportation	0-1 take some other means of transportation
10 work from home	9 work from home

Source: US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Tables B08301 and B08406

Economic Development Resources

Education and Workforce Development

The Cape & Islands Workforce Board (CIWB) is a private non-profit corporation responsible for overseeing all publicly funded vocational education and training programs serving the entire Cape and the Islands. As their name suggests, CIWB covers all the communities in Barnstable, Dukes, and Nantucket counties. The CIWB is one of sixteen workforce boards across Massachusetts, all of which work in collaboration with the US Department of Labor's One Stop Career Center system. These workforce boards carry out the mandates of the federal Workforce Innovation and Opportunity Act (WIOA).[113] The CIWB's Board of Directors includes a range of members representing various affiliations, including the Cape Cod Chamber of Commerce, Cape Cod

[112] US Census Bureau, 2011-2015 5-Year ACS Commuting Flows.

[113] Cape and Islands Workforce Board, "About." Accessed March 2023 at https://masshire-capeandislandswb.com/about/

Community College, two regional technical high schools, the MA Department of Transitional Assistance, and many more.[114]

The CIWB recently issued its *WIOA Local Plan for Fiscal Years 2022-2025*, which identified healthcare and social assistance; construction; professional, scientific, and technical services; and hospitality/tourism as the industries most vital to the region's economic health. The group also highlighted the importance of the Blue Economy, which refers to industries dependent or related to the ocean like fishing, marinas, environmental conservation, and boat charters.[115] The plan also noted the following challenges of the Cape & Islands workforce area:

- There is a lack of regional transportation options, with limited transit and bus service.
- The Cape and Islands is the oldest regional labor market in the state; which can result in a depleted workforce and limited possibility for the expansion of pipeline growth.
- Housing costs remain high and inventory low.
- The Cape and Islands region has a limited number of training providers within the region.[116]

The CIWB's 2018 *Regional Workforce Blueprint* is included as an appendix to the WIOA Local Plan. This blueprint noted existing shortages in several industries: food preparation and service; building and grounds cleaning maintenance; personal care and service occupations in the health care sector; office and administrative support occupations in the health care sector; and education, training, and library occupations.[117] Looking into the future, the CIWB *WIOA Local Plan* prioritizes hospitality, healthcare, and construction as three core industries given their growth among regional occupations and their ability to support the Blue Economy.[118]

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[114] Cape and Islands Workforce Board, "Board of Directors." Accessed March 2023 at https://masshire-capeandislandswb.com/about/board-of-directors/

[115] Cape and Islands Workforce Board, *WIOA Local Plan, Fiscal Years 2022-2025*, p.4-5. Available at https://masshire-capeandislandswb.com/wp-content/uploads/2021/09/MassHire-CIWB-FY22-25-WIOA-Local-4-Year-Plan.pdf

[116] Ibid., p.15

[117] Cape and Islands Workforce Board, *The Cape & Islands Regional Workforce Blueprint*, 2018, p11. Available as an Appendix within the WIOA Local Plan referenced above.

[118] Ibid., p.18-19

Business Barnstable

Like its cultural counterpart Arts Barnstable, Business Barnstable (http://BusinessBarnstable.com) is Town-sponsored program supported by the Planning & Development Department. This resource acts as a recruitment tool for drawing businesses to Barnstable and includes an online directory of assistance, resources, grants, and incentives for businesses, information about housing opportunities, and a GIS-based commercial site finder, plans and reports.

Regulatory Tools

Commercial Districts

Barnstable's seven villages provide a wide range of commercial and industrial district settings for businesses. The commercial and industrial districts are designated by the Town's zoning ordinances. All of the villages contain commercially zoned land parcels, though Cotuit only has one commercial parcel in this classification, adjacent to Marstons Mills and connected to one of its commercial districts. The main industrial zone is in Hyannis and Barnstable Village, centered on an area near the airport north of Route 132 and south of Route 6, the Mid-Cape Highway. The largest commercial district is in Hyannis, centered on downtown and westward down Main Street toward Barnstable High School. Job intensity is strongest in Hyannis and along the Route 132/Route 28 corridor.

Growth Incentive Zone

The Downtown Hyannis Growth Incentive Zone serves to encourage a concentrated mix of residential and commercial uses within Hyannis. Certain projects within the GIZ are exempt from Cape Cod Commission regulatory review. The Town's GIZ was enacted in 2006, extended in 2016, and re-designated in 2018.[119]

[119] Business Barnstable, "Growth Incentive Zone (GIZ)." Accessed March 2023 at https://businessbarnstable.com/growth-incentive-zone-giz/

Regulatory Agreements

Chapter 168 of the Town's General Ordinances outlines the Town's procedures for Regulatory Agreements, flexible tools that allow development that would otherwise be prohibited by zoning and streamline the permitting process. In return, developers agree to provide benefits to the Town, including infrastructure, land preservation, affordable housing, or other resources that enhance both the development and the Town. Regulatory Agreements require Planning Board and Town Council approval and can occur in areas designated on the Regulatory Agreement Districts Map, most recently updated in 2018.[120]

Business Improvement District

Established in 1999 as authorized under M.G.L. Chapter 40O, the Hyannis Main Street Business Improvement District is a special assessment district whereby a common area fee is levied on properties within its boundaries to finance supplemental enhancements above the baseline provided by municipal services. The Hyannis Main Street BID has used these funds to organize and sponsor events, support the addition of a police station to Main Street, work with homeless social programs, leverage funding for new lights, support maintenance and beautification projects including flower planters and seasonal street decorations, increase and improve signs and banners along Main Street, and more.[121]

Taxes and Finances

In addition to offering a lower tax rate for commercial and industrial properties, Barnstable enters into Tax Increment Financing (TIF) agreements on a case-by-case basis to support investment for development and redevelopment projects. Participating businesses may receive state tax credits or local property tax incentives in exchange for a commitment to new job creation, existing job retention, and private investment in the project.[122]

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[120] Business Barnstable, "Regulatory Agreements." Accessed March 2023 at https://businessbarnstable.com/regulatory-agreements/

[121] Hyannis Main Street, "BID Programs." Accessed March 2023 at http://www.hyannismainstreet.com/hyannis-main-street-business-improvement-district/bid-programs/

[122] Business Barnstable, "Economic Development Incentive Program (EDIP)." Accessed March 2023 at https://businessbarnstable.com/economic-development-incentive-program-edip/

In addition, the Hyannis Opportunity Zone provides federal tax incentives for private entities to reinvest capital gains into projects within the federally designated area.

Housing

Overview

Barnstable's housing environment is largely defined by its seasonal economy, natural resources, demographic trends, and regional market forces.

Housing Types

An estimated 85 percent of Barnstable's housing stock is single-family units, most of which are detached homes. Because most of Barnstable's multifamily housing is in Hyannis, the split there is more even, with 60 percent of units being single-family and 40 percent multi-family.[123] Map 5.7 displays housing units by type based on Fiscal Year 2022 Assessor's records and shows the spread of single-family units throughout town, and Table 5.8 shows housing types by land use code.[124] Many of the properties with multiple homes on one parcel are in waterfront areas along the coast and on major ponds, while multifamily housing is more concentrated in Hyannis.

Table 5.8. Residential Land Uses by Parcel

	Parcels	Percent
Single Family	21,068	88.1%
Condos	1,746	7.3%
Two Family	248	1.0%
Three Family	25	0.1%
Multiple Houses on One Parcel	556	2.3%
Apartments 4-8 Units	69	0.3%
Apartments More Than 8 Units	29	0.1%
Mixed Use with Some Residential	93	0.4%
Housing Authority	82	0.3%
Total	23,916	

Source: FY2022 Assessor's Records, Town of Barnstable, via MassGIS

[123] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table B25024.

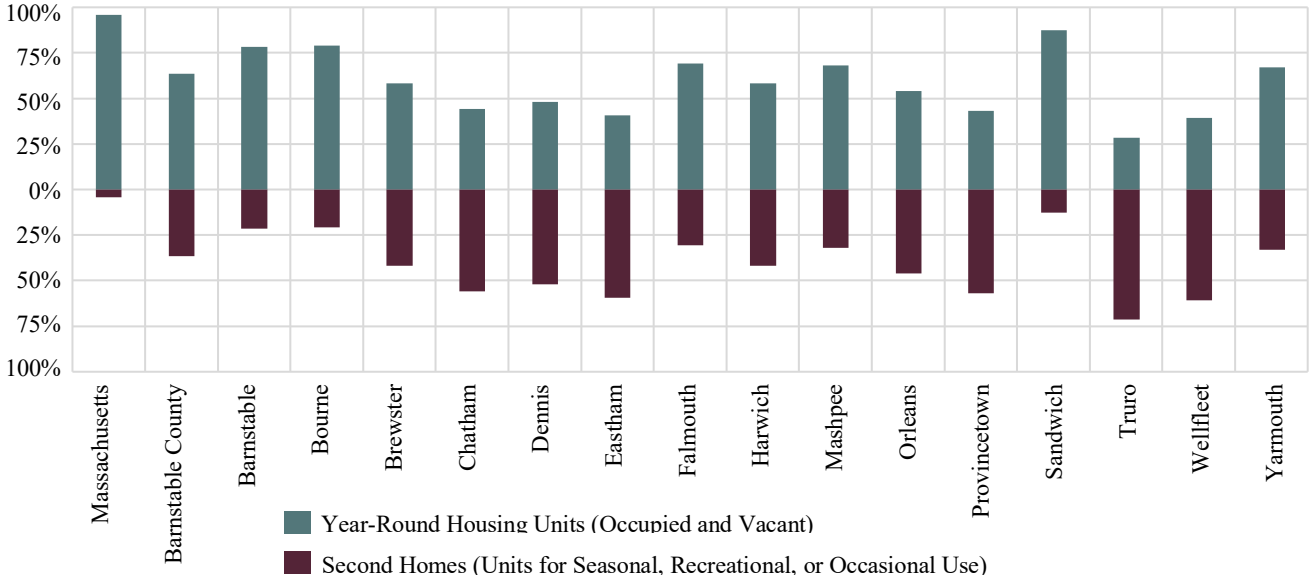
[124] Differences between the Assessor's records and ACS estimates occur because the Assessor's records are based on individual properties, some of which have multiple units in multifamily buildings, whereas the ACS estimates are based on the units themselves.

Housing Trends and Needs

Seasonal Housing

About 22 percent of homes in town are second homes that may or may not be seasonally rented. This is much higher than the state rate (4.1 percent) but lower than all of Barnstable County (36.3 percent).[125] This varies significantly across communities on Cape Cod, as shown in Figure 5.9. All of the Outer Cape (Eastham, Wellfleet, Truro, and Provincetown), Orleans on the Lower Cape, and Dennis on the Mid Cape all have more second homes than first homes. For purposes of reporting to the US Census Bureau, these second homes are considered vacant, which means communities with a higher share of second homes appear to have high vacancy rates. Thus, while Barnstable's total vacancy rate is an estimated 27.1 percent, vacancy rates for *year-round* units are estimated at 1.2 percent for ownership units and 8.2 percent for rental units.[126]

Figure 5.9. Percent Year-Round Housing Units vs. Second Homes
Source: ACS 5-Year Estimates, 2017-2021 Table B25004



[125] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Table B25004.

[126] US Census Bureau, American Community Survey 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Tables B25003 and B25004.

Single Family Homes[127]

Table 5.9 includes information about the Town's detached single-family homes, which represent most of Barnstable's housing stock. Seventy-one percent of existing single-family homes in Barnstable were built between 1960 and 2000, coinciding with a boom in population growth on Cape Cod during this time. The average lot size, building area, number of rooms, and building height were at their smallest from 1940 until 1980 when these features began trending back upward again as the Cape-style home became more popular than smaller ranch homes.

Assessed values on average are highest for older homes built before 1920 and again from 2000 onward. However, the source of the higher assessed values differs between the older and newer housing stock; in older homes, the value tends to be associated with the *land*, as many of these homes are built on larger lots closer to the coast while the buildings themselves may not hold much value compared to newer buildings. Many newer homes built in the 2000s are much larger on average (although very old 19th century homes also were quite large), and 90 percent of these single-family homes have improvement value to land value ratios (IVLVR) over 1.0. "Improvements" on assessed properties refers to everything *but* the land – buildings, structures, driveways, etc. When the IVLVR is above 1.0, the value of the building and other improvements is greater than the land itself; conversely, when the IVLVR is below 1.0, the land value *exceeds* building value. The latter is fairly common on older homes located in desirable areas of a community, as is true for Barnstable. In Barnstable, properties holding comparatively greater land value are more commonly found among homes built before 1960, likely because these homes would have been developed on the "easier" or otherwise desirable areas first, and are also more common in coastal areas (see Map 5.8, Map 5.9, and Table 5.9).

[127] This section is based upon data from FY2022 Assessor's Records for the Town of Barnstable, accessed via MassGIS.

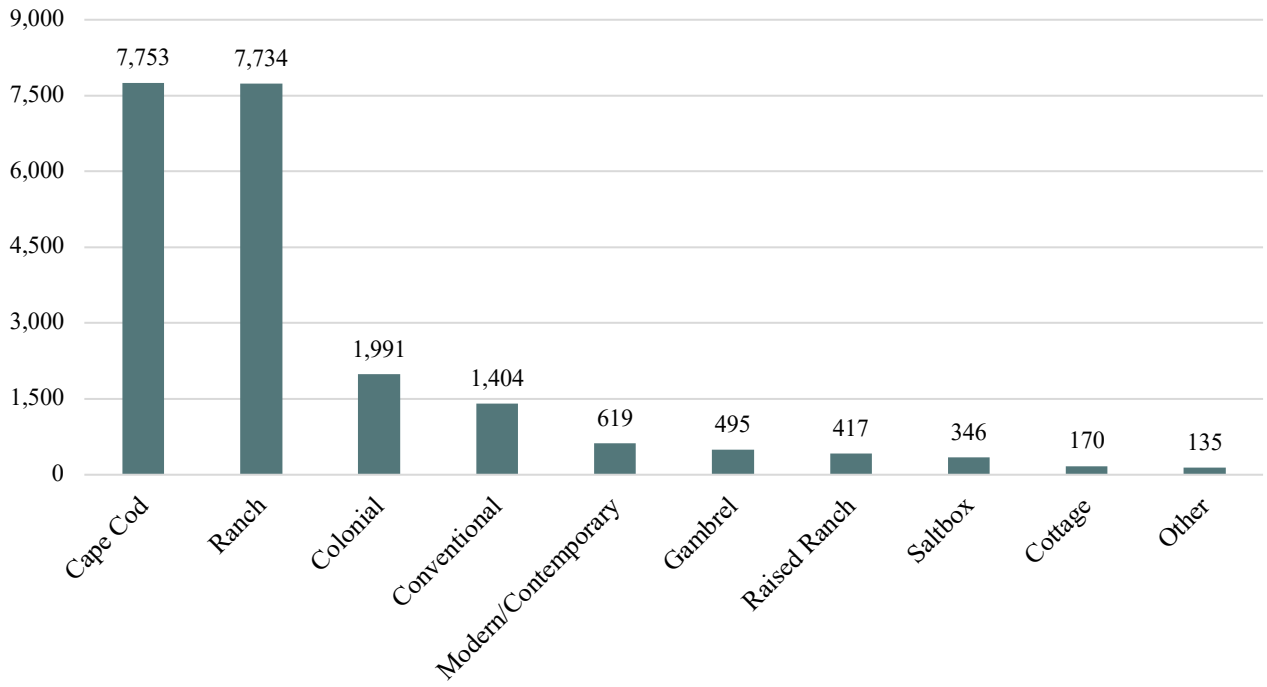
Table 5.9. Summary of Single-Family Homes in Barnstable

Year Built	Entries	Average # Rooms	Average Stories	Average Res. Building Area	Average Lot Size (Acres)	Average Total Assessed Value	Average IVLVR	% Homes with IVLVR <1.0	Most Common Style
Pre-1865	404	8.3	1.8	2,501	1.22	$824,705	1.10	27%	Conventional
1865-1899	269	8.3	1.8	2,398	0.87	$1,035,818	0.79	48%	Conventional
1900-1919	392	7.4	1.7	2,188	1.11	$1,024,650	0.67	49%	Conventional
1920-1939	1,041	6.7	1.6	1,810	0.68	$769,009	0.75	38%	Conventional
1940-1959	2,282	6.1	1.3	1,544	0.53	$547,317	0.98	26%	Ranch
1960-1979	7,473	6.3	1.3	1,598	0.53	$473,799	1.71	8%	Ranch
1980-1999	7,491	6.6	1.5	1,931	0.75	$593,035	1.92	5%	Cape Cod
2000-2021	1,712	7.4	1.7	2,843	0.94	$1,202,954	1.60	10%	Cape Cod

Source: FY2022 Assessor's Records, Town of Barnstable, via MassGIS

Despite the apparent high number of "conventional"-style homes based on Table 5.9, the most common styles among single family homes are Cape- and ranch-style homes due to the popularity of the style during the times when population growth increased the most rapidly in Barnstable. Figure 5.10 shows the popularity of different styles among Barnstable's single-family homes.

Figure 5.10. Styles of Single Family Homes in Barnstable
Source: FY2022 Assessor's Records, Town of Barnstable, via MassGIS



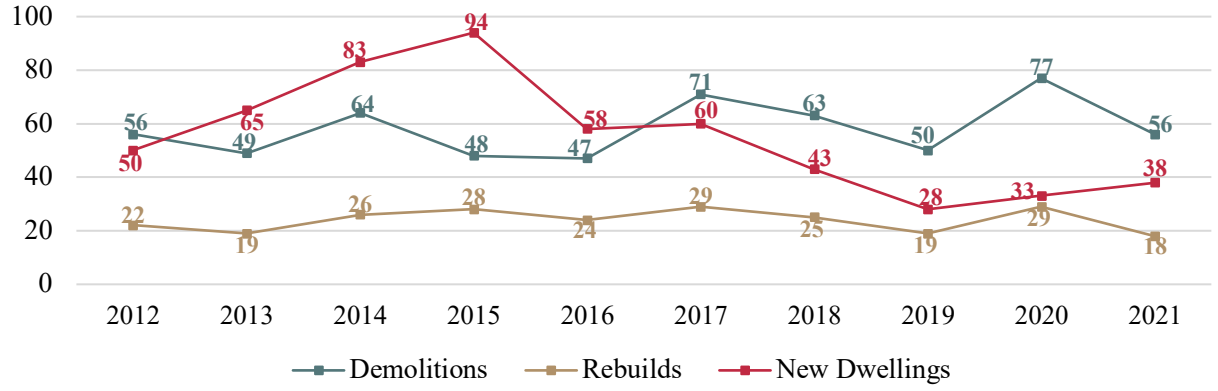
Unit Size & Household Size

Barnstable experiences a mismatch between the number of people living in a home and the number of bedrooms in that home. While an estimated 68 percent of Barnstable households are one or two people, over two-thirds of its homes have at least three bedrooms, suggesting a need for more studio, one-, and two-bedroom housing options. This discrepancy is more apparent among owner households; an estimated 70 percent of households are one or two people while 81 percent of the owner-occupied units have at least three bedrooms.[128]

Development

As discussed in the Land Use and Development Trends section, overall new residential development has slowed since 2000, which matches a slower period of population growth in addition to the Town's 2001 adoption of the Growth Management Ordinance.[129] Renovations and additions remain popular, with an average of 1,490 building permits for renovations or additions issued during the ten-year period from 2012-2021.[130] In the five-year period from 2017-2021, demolition permits exceeded new dwelling permits each year, with an average of 58 demolition permits issued annually from 2012-2021. Rebuilds lag somewhat behind demolitions, with an average of less than one rebuild permit for every two demolition permits issued from 2012-2021. Figure 5.11 displays these trends over a ten-year period from 2012-2021.

Figure 5.11. Residential Building Permits, 2012-2021
Source: Town of Barnstable Annual Reports



[128] US Census Bureau, American Community Survey 5-Year Estimates 2017-2021, Tables B25009 and B25042.

[129] As noted in the Land Use and Development Trends section, the limit on building permits issued annually under the Growth Management Ordinance has not been met or exceeded since its adoption.

[130] Data provided by the Town of Barnstable Building Department

Tenure & Income

The Town saw an estimated 3 percent increase in renter-occupied housing between 2011 and 2021 based on ACS estimates.[131] Across the Cape, about four of every five households own their own homes (80.8 percent), whereas in Barnstable, three of every four households (75.6 percent) own their homes. While renter households in Barnstable *increased* from 4,686 to 4,809 households, across the county, renter households *dropped* from 19,531 to 18,864.[132]

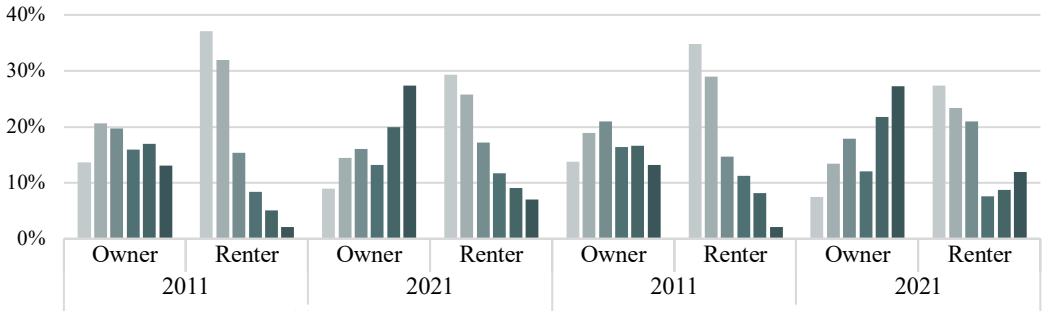
Barnstable incomes largely follow county trends, and that includes a stark contrast in the incomes of homeowner and renter households. Figure 5.12 illustrates that in 2011, more than a third of renter households had incomes less than $25,000; in 2021, the proportion of renter households earning less than $25,000 has dropped between seven and eight percentage points for the Town and county alike. In 2021, there were significantly fewer renters in the income groups below $50,000 in Barnstable and throughout Barnstable County, but the Town saw gains of even greater proportion in the highest income group. This suggests that low-income renters are being priced out of the rental market. Growth in gross median rent confirms this trend: while the county saw an average increase of 28.1 percent in gross median rent, Barnstable's increase notably outpaced the county's at 40.3 percent.[133] Median gross rent does not fully show the strains placed on those renting market rate units, as the median gross rent includes rent paid by those in affordable units or with other subsidies.

[131] US Census Bureau, American Community Survey 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Table B25003.

[132] US Census Bureau, American Community Survey 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Table B25118.

[133] US Census Bureau, American Community Survey 5-Year Estimates 2007-2011, 2012-2016, and 2017-2021, Table B25064.

Figure 5.12. Household Income Distribution 2011-2021 by Tenure for Barnstable and Barnstable County (Inflation-Adjusted)
Source: ACS 5-Year Estimates 2007-2011 and 2017-2021, Table B25118



	Barnstable County				Barnstable			
	2011		2021		2011		2021	
	Owner	Renter	Owner	Renter	Owner	Renter	Owner	Renter
Less than $25,000	13.7%	37.1%	9.0%	29.3%	13.7%	34.8%	7.5%	27.3%
$25,000-$49,999	20.6%	31.9%	14.4%	25.7%	19.0%	29.0%	13.4%	23.4%
$50,000-$74,999	19.7%	15.4%	16.1%	17.2%	21.0%	14.7%	17.9%	20.9%
$75,000-$99,999	16.0%	8.4%	13.2%	11.7%	16.4%	11.2%	12.1%	7.6%
$100,000-$149,999	16.9%	5.1%	19.9%	9.0%	16.7%	8.1%	21.8%	8.8%
$150,000 or more	13.1%	2.1%	27.4%	7.0%	13.2%	2.1%	27.3%	11.9%

Those looking to purchase a home in Barnstable are similarly faced with rising costs, with the median sales price of a single-family home in Barnstable growing 26 percent between 2020 and 2021.[134] Nonetheless, renter households are more likely to experience need, with one in three Barnstable homeowners considered cost-burdened compared to one in two renters. In Barnstable, 35 percent of households are spending more than 30 percent of their monthly income on housing costs. For low- and moderate-income earners, this number jumps to an estimated 64 percent.[135]

What is Cost Burden?

Cost burden is defined as paying more than 30 percent of one's household income toward select housing costs (including utilities), while severe cost burden is defined as paying more than 50 percent.

This metric is particularly important for understanding the needs of low-to-moderate income households, defined as those earning no more than 80 percent of the Area Median Income (AMI), determined annually by the U.S. Department of Housing and Urban Development (HUD) for the region.

[134] Banker & Tradesman/The Warren Group. "Town Stats: Barnstable, MA – Median Sales Price – Calendar Year." Report pulled March 2023. The median sales price for a single-family home in Barnstable for 2020 was $539,500 compared to $680,000 in 2021 and $775,000 in 2022.

[135] US Department of Housing and Urban Development, Comprehensive Housing Affordability Strategy (CHAS) data, 2015-2019.

Affordable Housing

Subsidized Housing Inventory

Under M.G.L. Chapter 40B, an affordable housing unit has its affordability secured for households earning at or below 80 percent of the Area Median Income (AMI) by a long-term use restriction and is made available to eligible households through an approved affirmative marketing plan that meets Department of Housing and Community Development (DHCD) guidelines.

Upon approval by DHCD, housing that meets these requirements is added to the Subsidized Housing Inventory (SHI), a list of housing units that "count" toward a community's 10 percent statutory minimum of affordable year-round units under Chapter 40B. The percentage is determined by dividing the number of SHI-eligible affordable units by the number of year-round housing units based upon the most recent decennial Census. Because Census 2020 year-round housing counts are not yet available, DHCD still uses 2010 Census figures.

In 2022, 7.23 percent (1,485 units) of Barnstable's year-round housing stock was included on the Town's Subsidized Housing Inventory (SHI). A total of 103 properties are single units permitted through the Town's Accessory Affordable Apartment Program. Under this program, the Town permits the unit through a Comprehensive Permit through the Zoning Board of Appeals. That

The Importance of the Year-Round Housing Count under Chapter 40B

Communities with a high share of second homes conversely have a lower share of year-round units. For purposes of calculating a community's percentage of affordable units under M.G.L. Chapter 40B, the Department of Housing and Community Development (DHCD) determines the year-round housing count by subtracting units considered vacant because they are for "seasonal, recreational, or occasional use" from the total housing unit count. In communities that do not have a strong tourism-based economy or a high share of second homeowners, the year-round housing count does not differ markedly from the total housing unit count, however, for much of Cape Cod, the difference is significant.

unit is rent-restricted and is rented to low- and moderately low-income households via DHCD's income guidelines.

Barnstable Housing Authority

The Barnstable Housing Authority (BHA), based in Hyannis, manages and operates local public housing and housing voucher programs to provide safe and affordable rental housing for eligible families, elderly individuals, and people with disabilities. Public housing programs include rental units owned and managed by the BHA, as well as voucher programs that subsidize household rents paid to private landlords. The Barnstable Housing Authority owns a total of 376 housing units, with 103 affordable family units, 221 affordable units dedicated to elderly and young disabled people, and 52 units for special needs housing throughout town. In addition to these properties, the BHA also manages nine affordable family units for Cape Ministry and facilitates over 650 subsidies for state and federal programs. Eligibility for the range of Barnstable Housing Authority programs is determined through an application process that accounts for characteristics including gross annual income, age, ability, and citizenship. Families are granted the highest priority based on application criteria to direct limited resources to those experiencing intense need. Residents may stay in public housing or voucher programs as long as they continue meeting eligibility criteria and comply with leases but may choose to leave if affordable housing becomes available through the private market.

During the recently completed consultation process for the development of Barnstable County's HOME-ARP Allocation Plan, the BHA reported that they had 845 applications for the local lists they manage, with a need for all bedroom sizes and all ages. This is in addition to applicants for BHA housing from the state's online waiting list, which was up to 14,305 applicants, including 7,224 families applying for 1–4-bedroom units, 490 congregate applicants, 1,178 elderly applicants, and 1,942 disabled applicants. There were also 6,904 applicants for BHA's Alternative Housing Voucher Program (for young disabled) at the time of the consultation process.[136, 137] Due

[136] Barnstable County HOME Consortium, *HOME-ARP Allocation Plan*, March 2023 Draft for HUD Submission, p.45. Prepared for Barnstable County by Barrett Planning Group LLC.

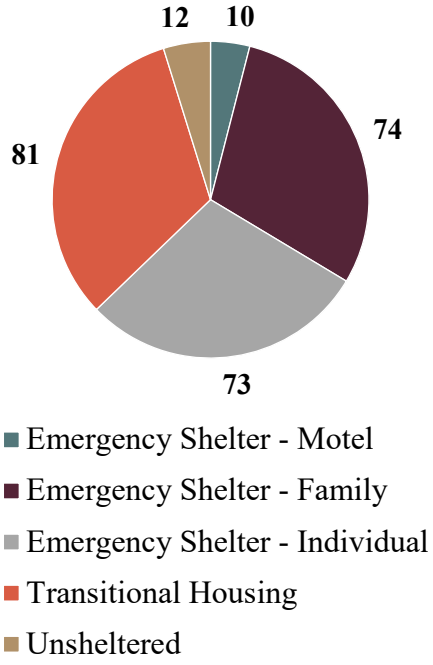
[137] The HOME-ARP program was authorized under the American Rescue Plan Act of 2021 and allocated $5 billion to fund shelter, housing, and services for homeless and at-risk populations. Jurisdictions participating in the federal HOME Investment Partnerships Program, a block grant program to fund low-to-moderate income housing, are eligible

to the state's use of a centralized waiting list, these numbers could represent households from off Cape Cod, and there is no way to determine exactly how long applicants will be waiting for a unit.

Homelessness

In February 2022, the Cape Cod & Islands Continuum of Care conducted its annual Point in Time (PIT) count, a HUD-mandated one-night annual snapshot of homelessness within a designated geography. The 2022 PIT count identified 250 individuals experiencing homelessness in Barnstable, out of a total of 397 individuals throughout the Cape & Islands. While most of those counted were either in emergency shelter or transitional housing, there were 12 unsheltered individuals in Hyannis (Figure 5.13).[138]

Figure 5.13. Homeless Individuals in Barnstable, 2022
Source: 2022 PIT Count, Cape Cod & Islands Continuum of Care



During the consultation process for the HOME-ARP Allocation plan, numerous providers spoke to the challenges with the PIT count and its unreliability as a measure of need. In addition to it only accounting for one night, it fails to capture households who are "couch surfing" or doubling up with another family, nor does it include those who are homeless but staying in a hotel or motel at their own expense. The Homeless Management Information System (HMIS) provides additional insight, as it includes client-level data for participants enrolled in programs to support homeless or at-risk populations. One such HUD program is called Street Outreach, which is designed to meet the immediate needs of unsheltered homeless population by providing non-facility-based care. The Housing Assistance Corporation (HAC) administers one of two Street Outreach programs on the Cape & Islands, with

to receive HOME-ARP funds upon successful HUD approval of an Allocation Plan. Barnstable County is eligible to receive $1.5M under HOME-ARP.

[138] MA-503 Cape Cod and Islands CoC, 2022 PIT Count Location Summary

Vinfen administering the second. HAC reported that their Street Outreach program had 205 unduplicated clients from October 2021 to October 2022 – *much* higher than the 35 unsheltered individuals reported on the night of the PIT count.[139] While presumably not all 205 clients were in Barnstable, the significant difference between the PIT and HAC's Street Outreach program indicate that the actual unsheltered count in Barnstable is likely much higher than twelve.

School districts provide additional data on homelessness, as they are required to report the number of homeless students to the Department of Elementary and Secondary Education each year to ensure compliance with federal laws relating to the education of homeless youth. Under the McKinney-Vento Act, school districts must provide resources to ensure the education of homeless youth enrolled in the district, including transportation to and from the district they were enrolled in prior to becoming homeless. For the 2021-2022 academic year, there were 107 homeless youth enrolled in the Barnstable Public Schools. Under McKinney-Vento, students who are doubling up with another family or staying in a hotel/motel without a voucher are considered homeless. This definition does not qualify them as homeless for purposes of the PIT count, which explains why the number of homeless youths reported by the school districts is higher than the PIT count.[140]

Resources to Address Housing Needs

Barnstable has numerous local and regional resources for implementation of affordable housing initiatives including Barnstable Housing Authority, Barnstable Council on Aging, Cape Cod Commission, and multiple nonprofit organizations. Barnstable has access to a wide range of affordable housing advocates and experts working with the homeless, seniors, victims of domestic abuse, and the disabled, as well as families and other individuals in need of affordable housing.[141]

[139] Barnstable County HOME Consortium, *HOME-ARP Allocation Plan*, March 2023 Draft for HUD Submission, p.27. Prepared for Barnstable County by Barrett Planning Group LLC.

[140] Massachusetts Department of Elementary and Secondary Education, 2021-2022 McKinney Vento Homeless Data Report. Report shared by email from the Department on September 20, 2022.

[141] Ibid, p. 115.

Local Resources

The Housing and Community Development Program and the Accessory Affordable Apartment Program are housed under the umbrella of the **Barnstable Planning and Development Department.** Specific initiatives of the **Housing & Community Development Program** including affordable housing preservation and production, Community Development Block Grant Administration, promoting home ownership opportunities, and administration of the Housing Development Incentive Program, a Gateway Cities program offering tax relief for the creation of market-rate rental units. Since its inception in 2000, the **Accessory Affordable Apartment Program**'s main objective has been to use existing housing stock to provide affordable housing. Other municipal housing strategies include zoning initiatives, such as the adoption of a town-wide Accessory Dwelling Unit ordinance and revisions to the Downtown Hyannis zoning districts (the Growth Incentive Zone) to promote mixed use and multi-family development. This Program also partners with other Town departments to explore appropriate uses of municipal property for affordable housing.

Barnstable Housing Authority was established in 1948 and is not only an important partner in developing in new units of affordable housing for individuals and families, but also managing such units and administering important rental subsidies that enable lower-income families and individuals to remain in the community by renting units in the private housing stock.

Barnstable Housing Committee's purpose is to promote the production and preservation of balanced housing resources that address the unmet needs of the Town of Barnstable. In addition to the Local Action Unit work, the Housing Committee is currently working on an Inclusionary Zoning Feasibility Analysis, partnering on updating the Housing Production Plan, and exploring a tax exemption for those who participate in the Affordable Accessory Apartment program.

Barnstable Affordable Housing Growth & Development Trust Fund provides funding for the preservation and creation of affordable housing in the Town of Barnstable for the benefit of low- and moderate-income households.

Community Preservation Committee (CPC) is charged with recommending the expenditure of funds generated from the Community Preservation Act that was approved by the residents of the

Town of Barnstable in 2005. The CPC has priorities related to housing that including but not limited to affordable rental projects in areas outside of Hyannis, projects that propose the creation of affordable and community housing homeownership units in Hyannis, projects that convert existing buildings and structures into new affordable/community housing units, and projects that provide housing to vulnerable populations and offer supportive services.[142]

Barnstable Council on Aging is a Town department that supports the quality of life of the community's elderly through a wide variety of services.

Regional Resources

The **Cape Cod Commission** supports the advancement of regional efforts to create affordable housing and support housing where appropriate through the facilitation of a Regional Housing Market Analysis and by drafting model zoning (such as the model bylaw for ADUs).

Barnstable County HOME Consortium consists of the 15 communities on Cape Cod and is eligible to receive and disburse federal HOME funds, which are federal formula grant funds provided to state and local governments exclusively for the creation and preservation of affordable housing for low-income households.

Housing Assistance Corporation was founded in 1974 to provide rental vouchers to year-round workers on Cape Cod; it expanded over the years to include the Cape, Nantucket, and Martha's Vineyard. HAC serves more than 6,000 households each year in three main areas: homeless prevention, housing stabilization, and empowerment.[143]

Habitat for Humanity of Cape Cod is an ecumenical, nonprofit Christian ministry dedicated to building simple, decent homes in partnership with families in need.

Barnstable County Human Services coordinates regional work on homelessness and administers grant-funded programs of regional impact. This County Department has recently taken over

[142] Town of Barnstable Community Preservation Committee Annual Plan, Fiscal Year 2022, p.11-12

[143] Housing Assistance Corporation, "About Housing Assistance Corporation." Accessed March 2023 at https://haconcapecod.org/about/

administration and oversight of the HOME Program funds on behalf of the Barnstable County HOME Consortium.

Cape and Islands Regional Network on Homelessness carries out the responsibilities of the HUD Continuum of Care Program.

The **Community Action Committee of Cape Cod and the Islands, Inc**. efforts are focused primarily in the areas of access to health insurance and care, immigration resources, coordinating subsidized food (SNAP) assistance, income tax preparation, emergency assistance, seasonal assistance, and an emergency shelter for women and children.

Homeless Prevention Council's mission is to provide personalized case management solutions to promote stability for all those who live in the Lower Cape communities.

Located in Hyannis, **Living Independently Forever (LIFE), Inc.** is a private, nonprofit organization that provides support and resources in the areas of vocation, education, social and community involvement, and daily living, encouraging each resident's aspirations, strengths, and abilities.

CapeAbilities (formerly Nauset, Inc.) provides housing, jobs, and therapeutic services for individuals with developmental disabilities on the Cape.

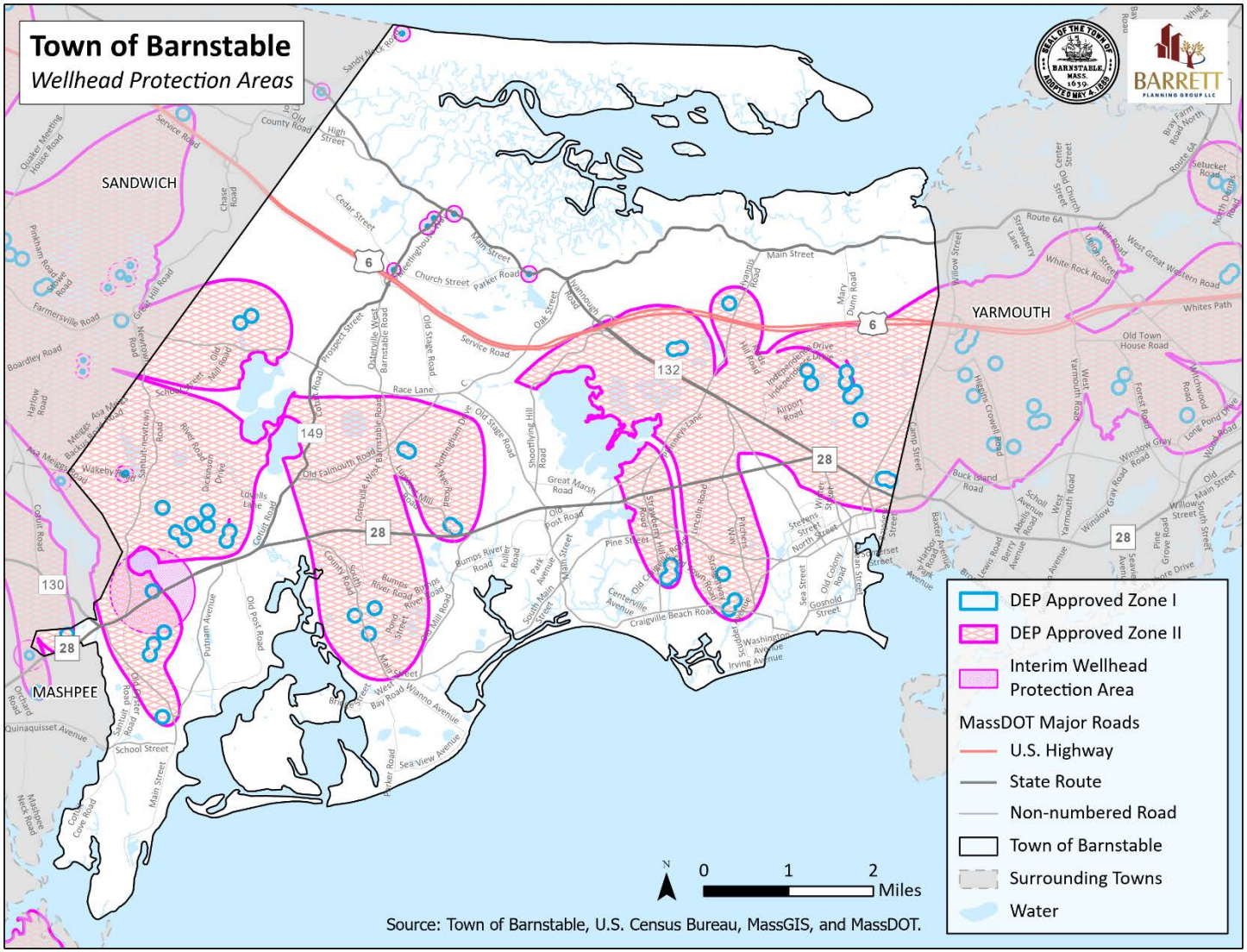
The Cape Head Injured Persons' (CHIP) Housing and Education Group provides support and assistance for head-injured residents of Cape Cod and is committed to providing community-based housing for these individuals.

Champ Homes provides multi-generational housing for individuals who are physically disabled, in recovery from drug or alcohol abuse, mentally ill, or have other assorted needs.

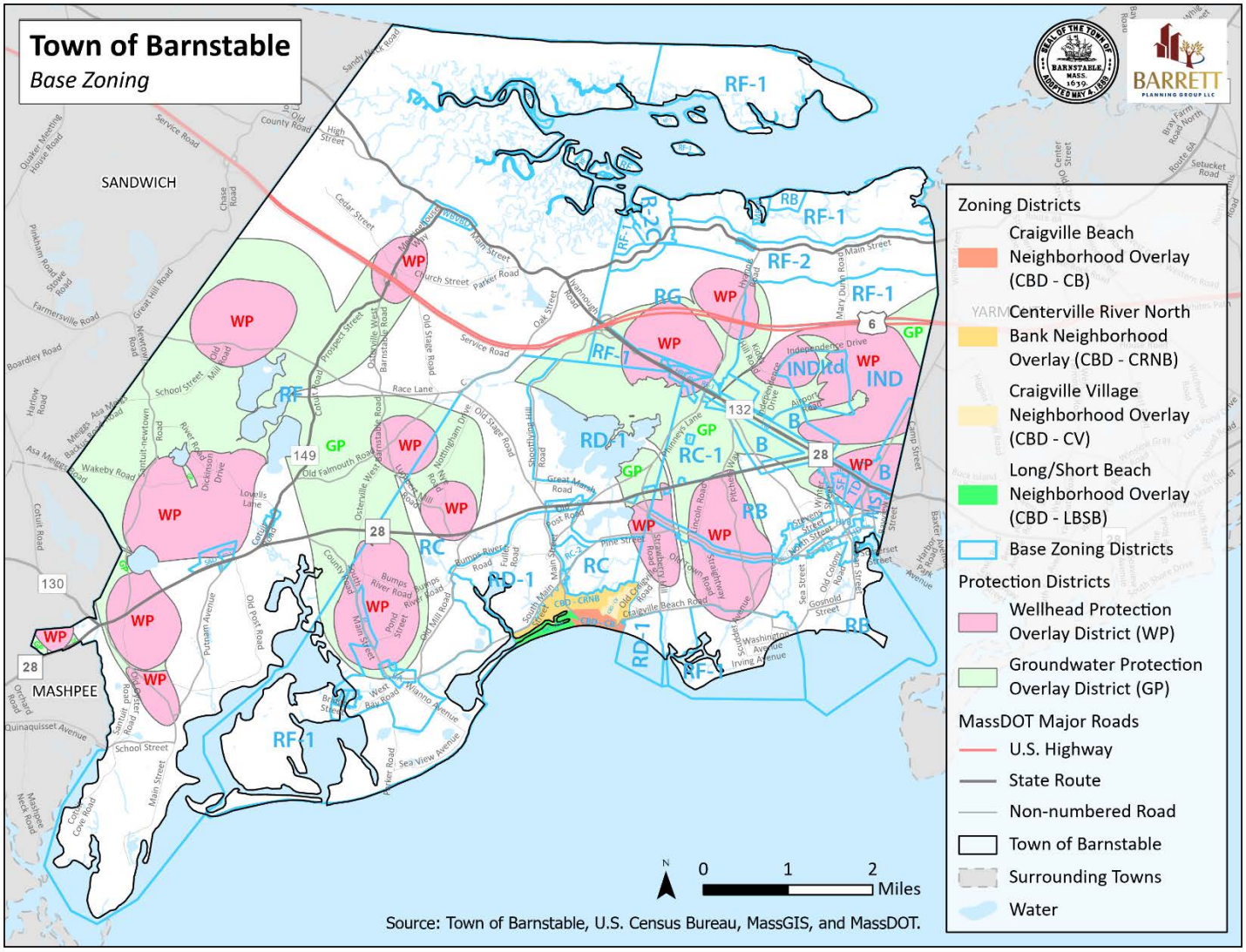
APPENDIX A

Natural Systems Maps

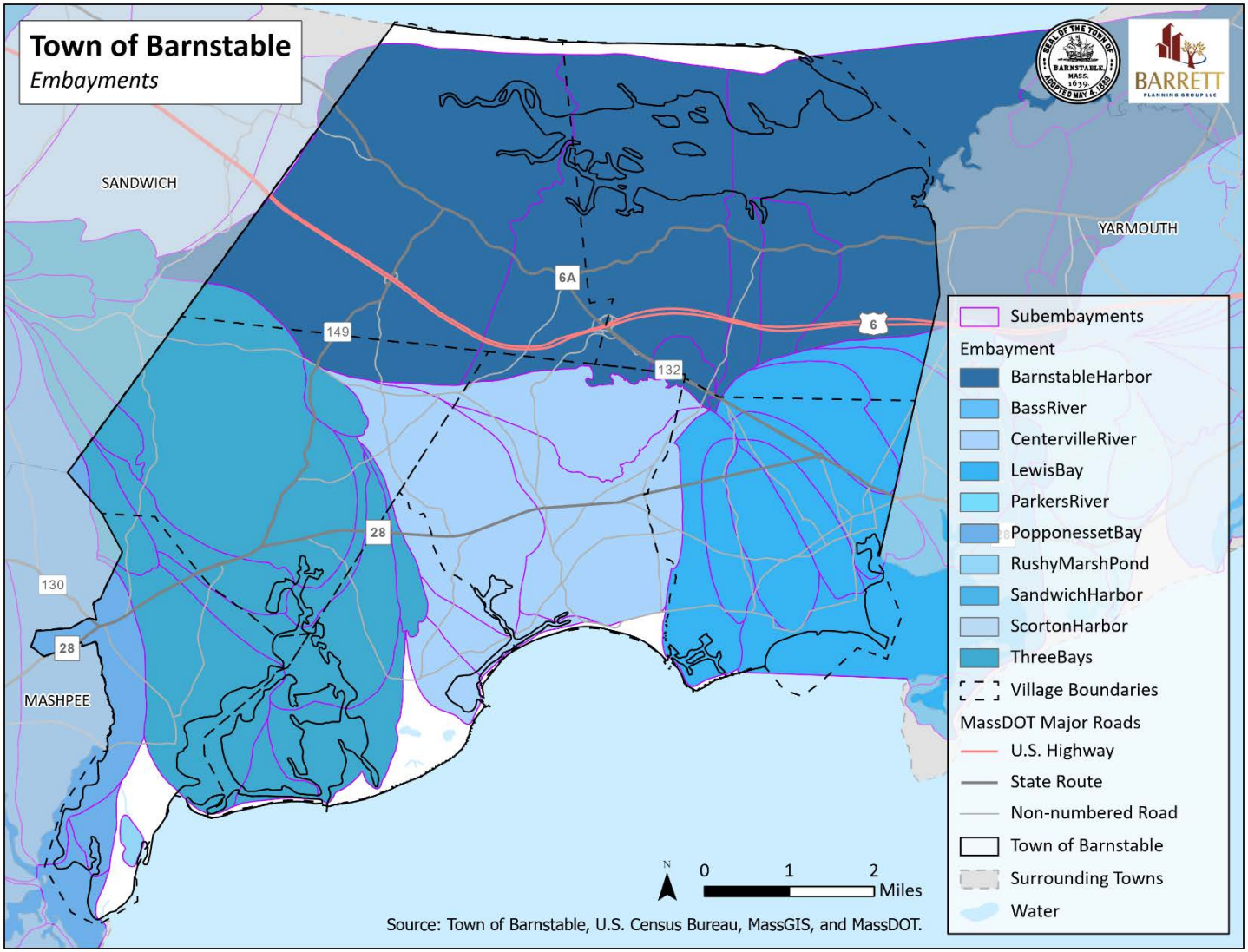
Map 3.1. Wellhead Protection Areas



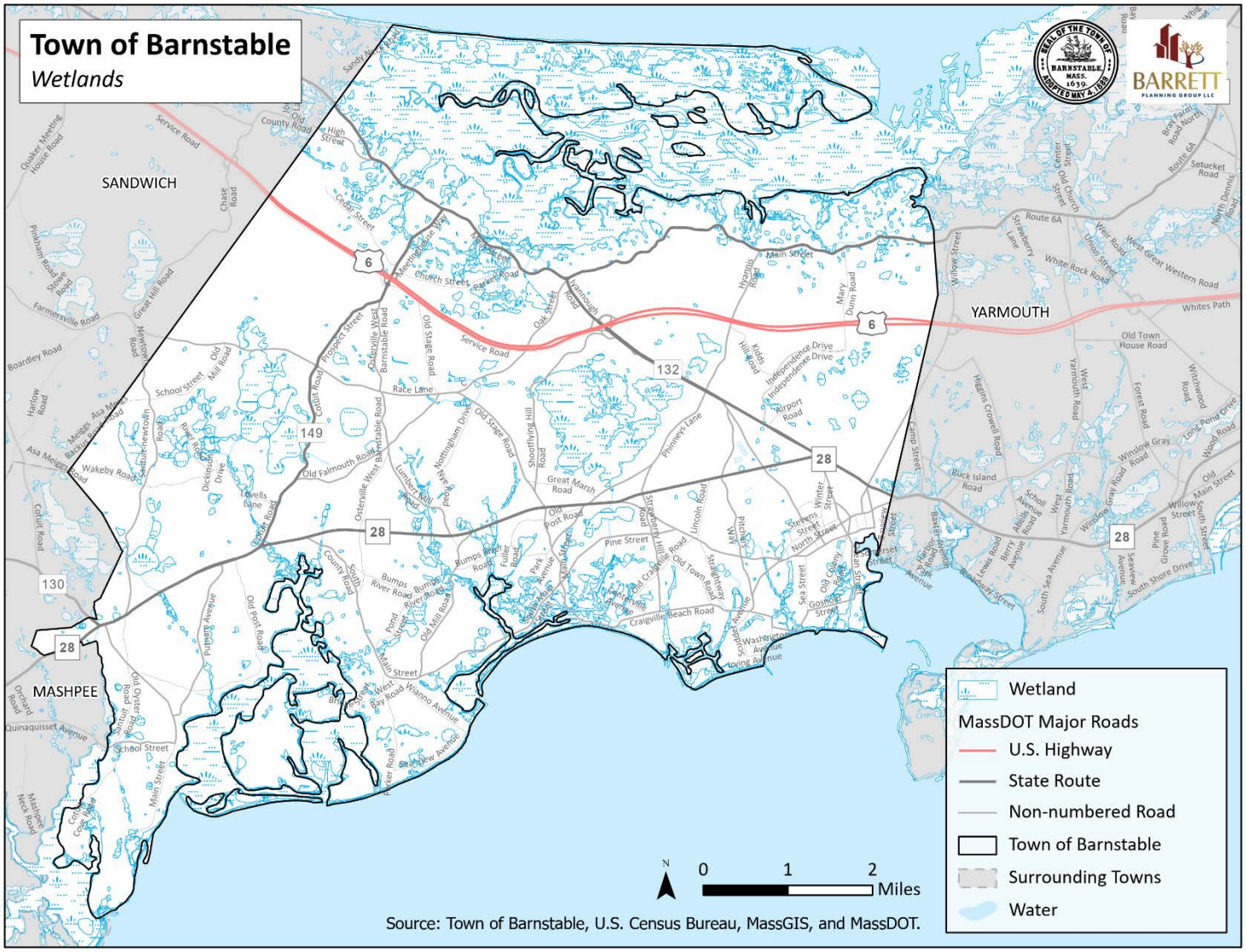
Map 3.2. Base Zoning Map



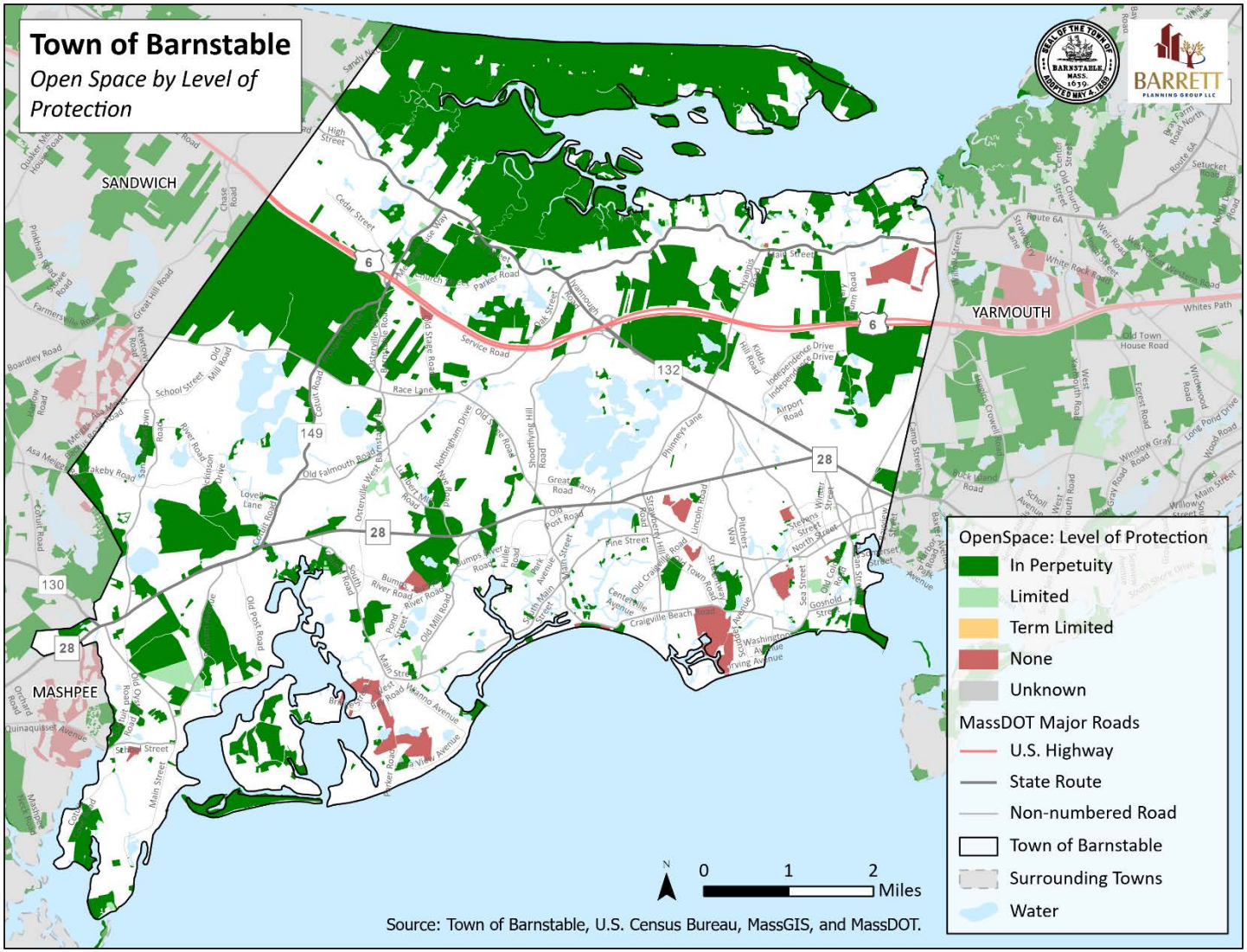
Map 3.3. Embayment Areas and Subembayment Areas



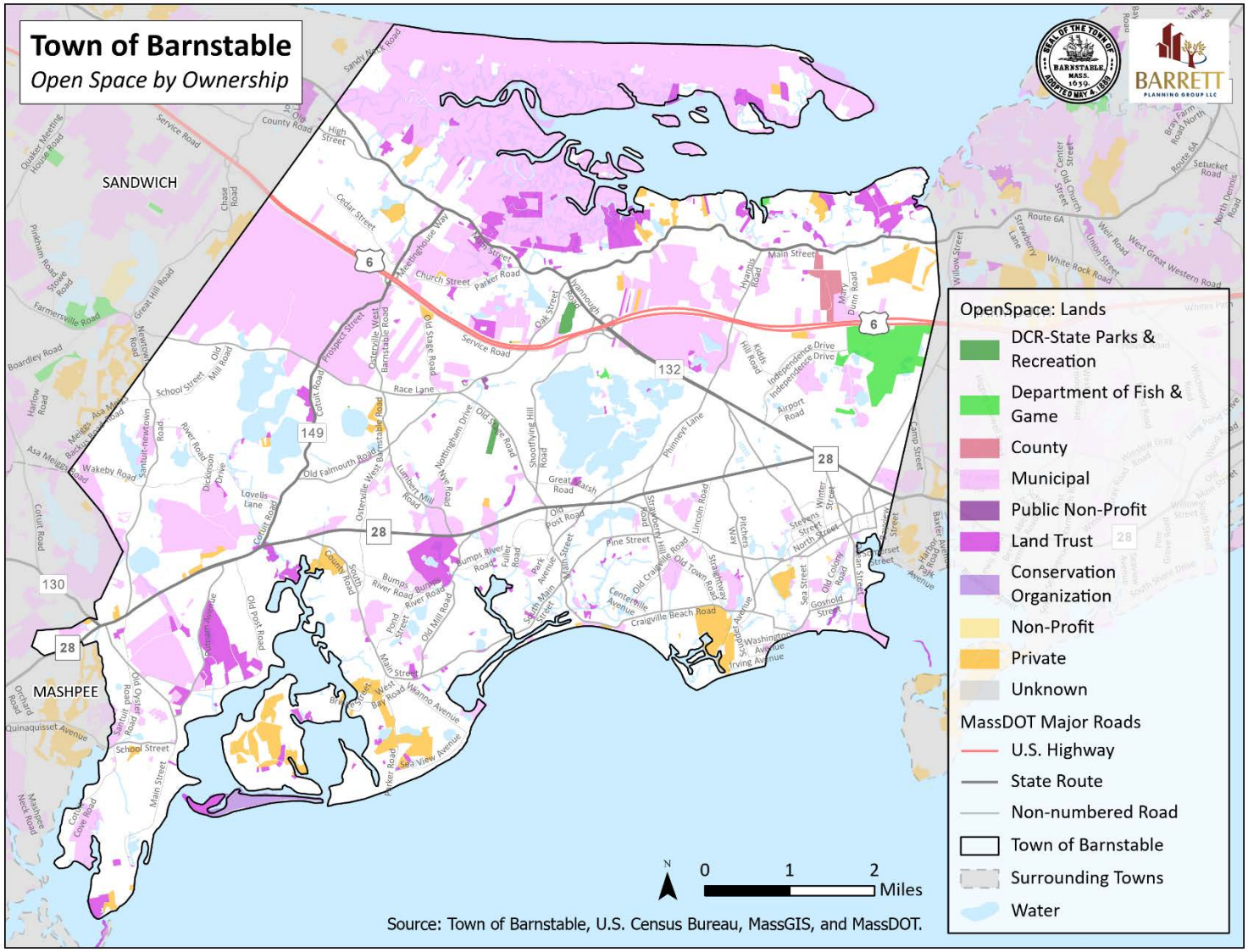
Map 3.4. Wetlands



Map 3.5. Open Space by Level of Protection



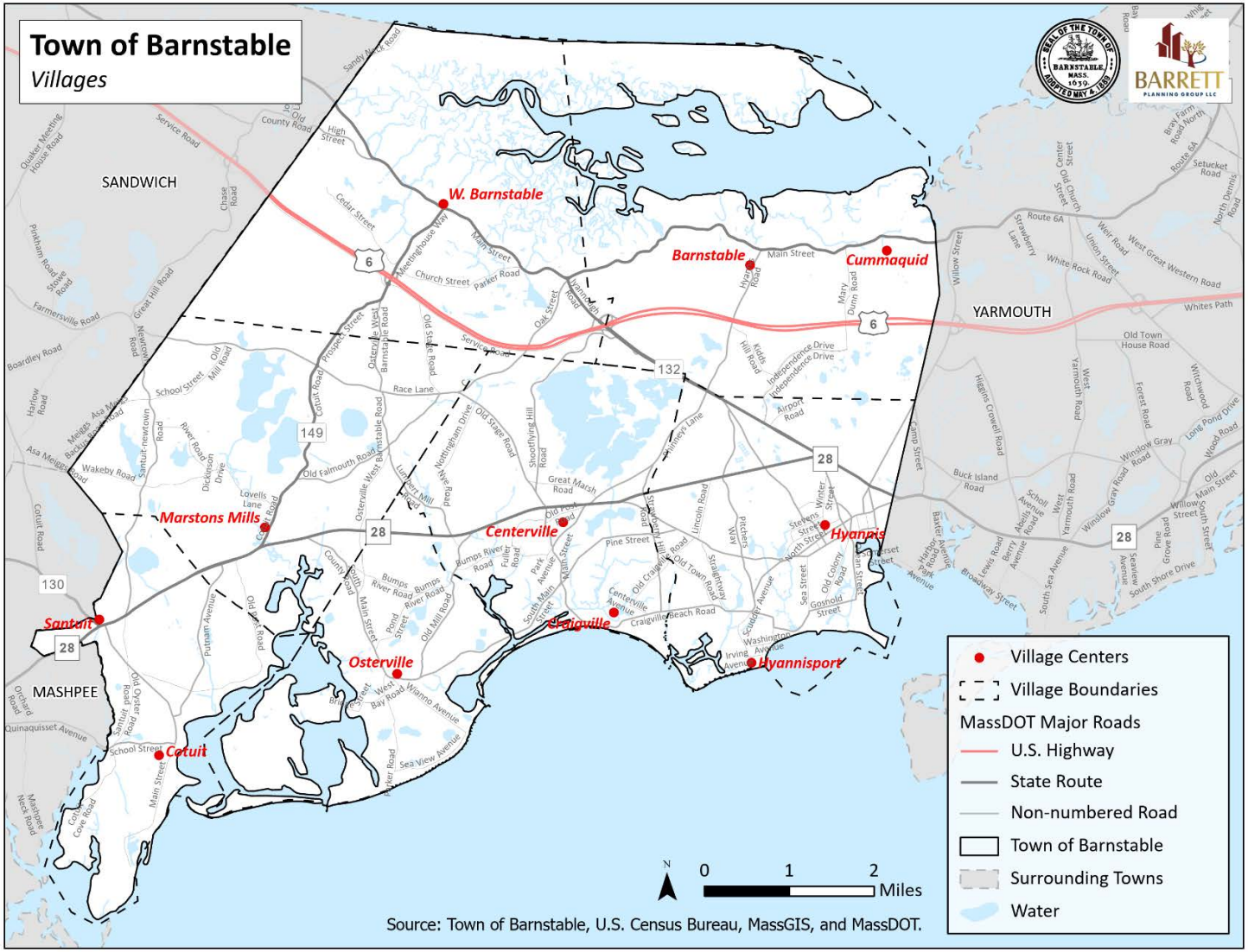
Map 3.6. Open Space by Ownership



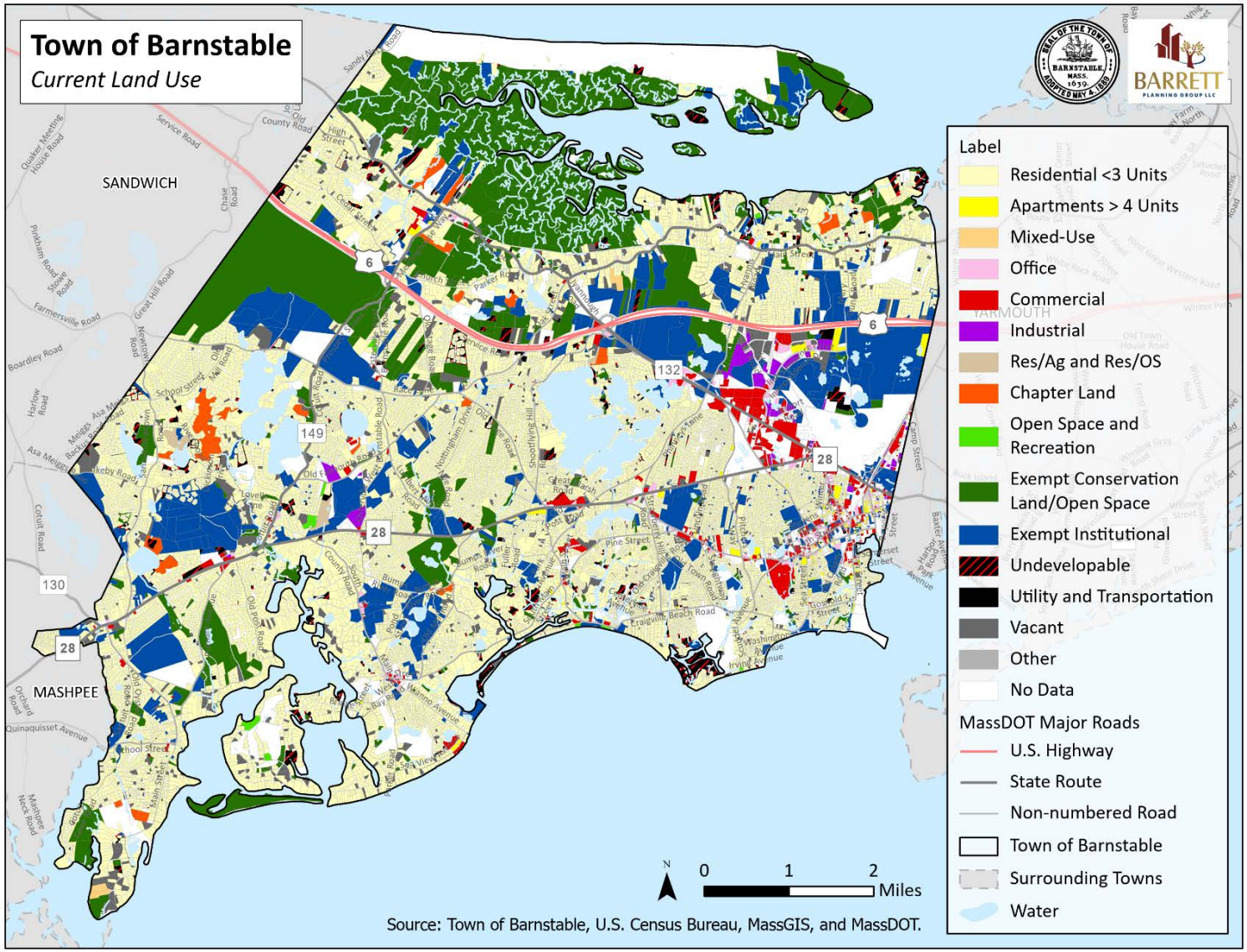
APPENDIX B

Built Systems Maps

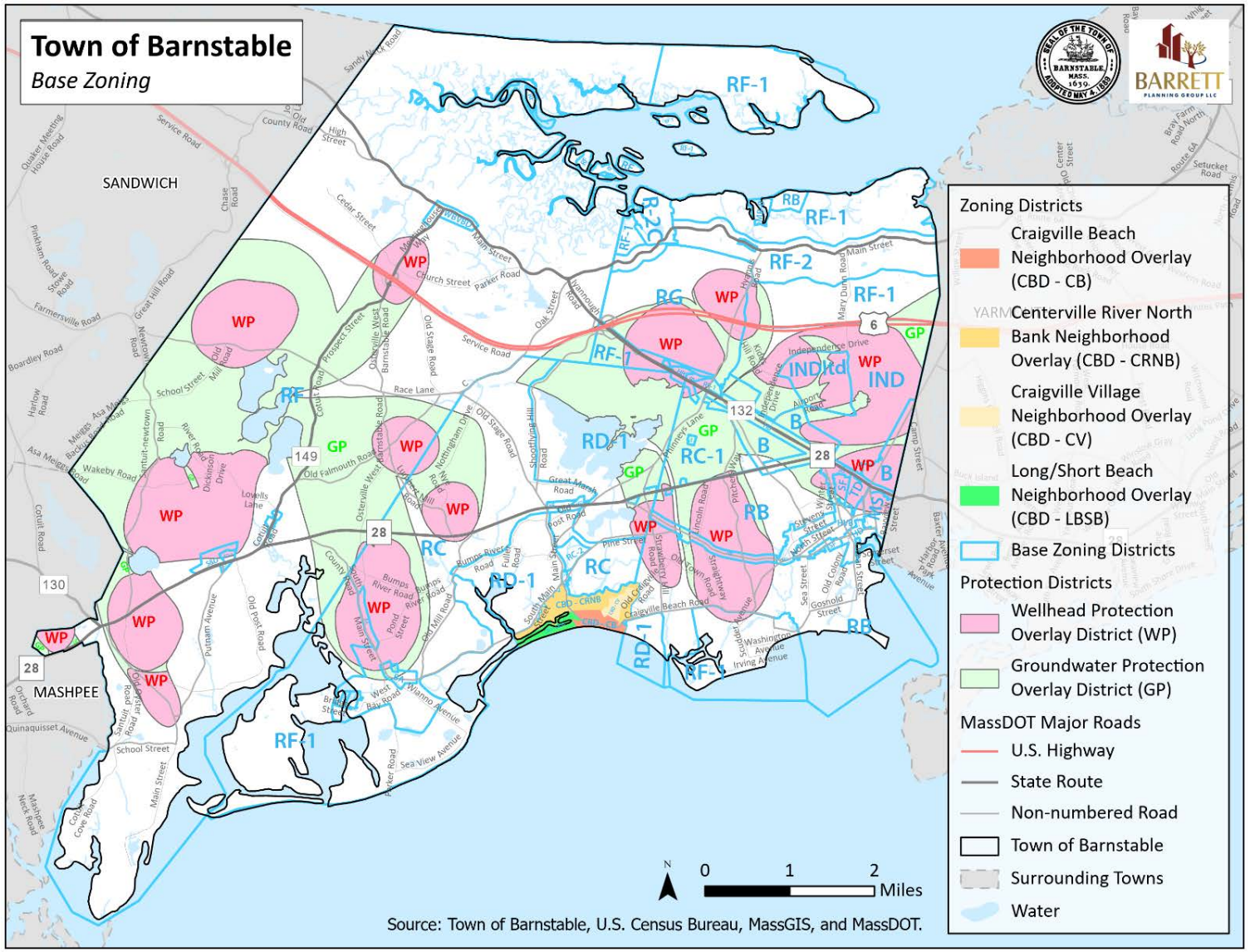
Map 4.1. Town of Barnstable Villages and Village Centers



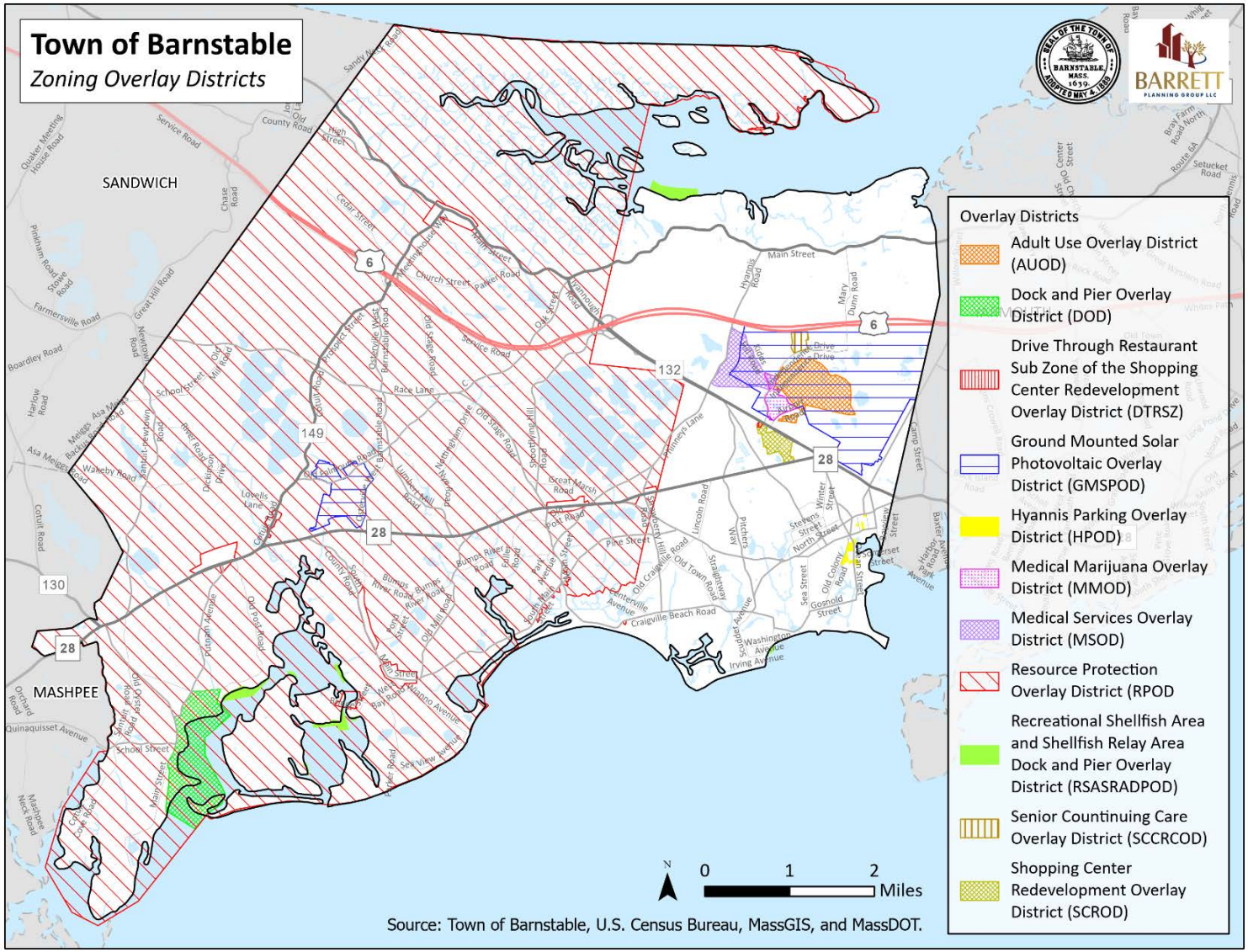
Map 4.2. Current Land Use



Map 4.3. Base Zoning



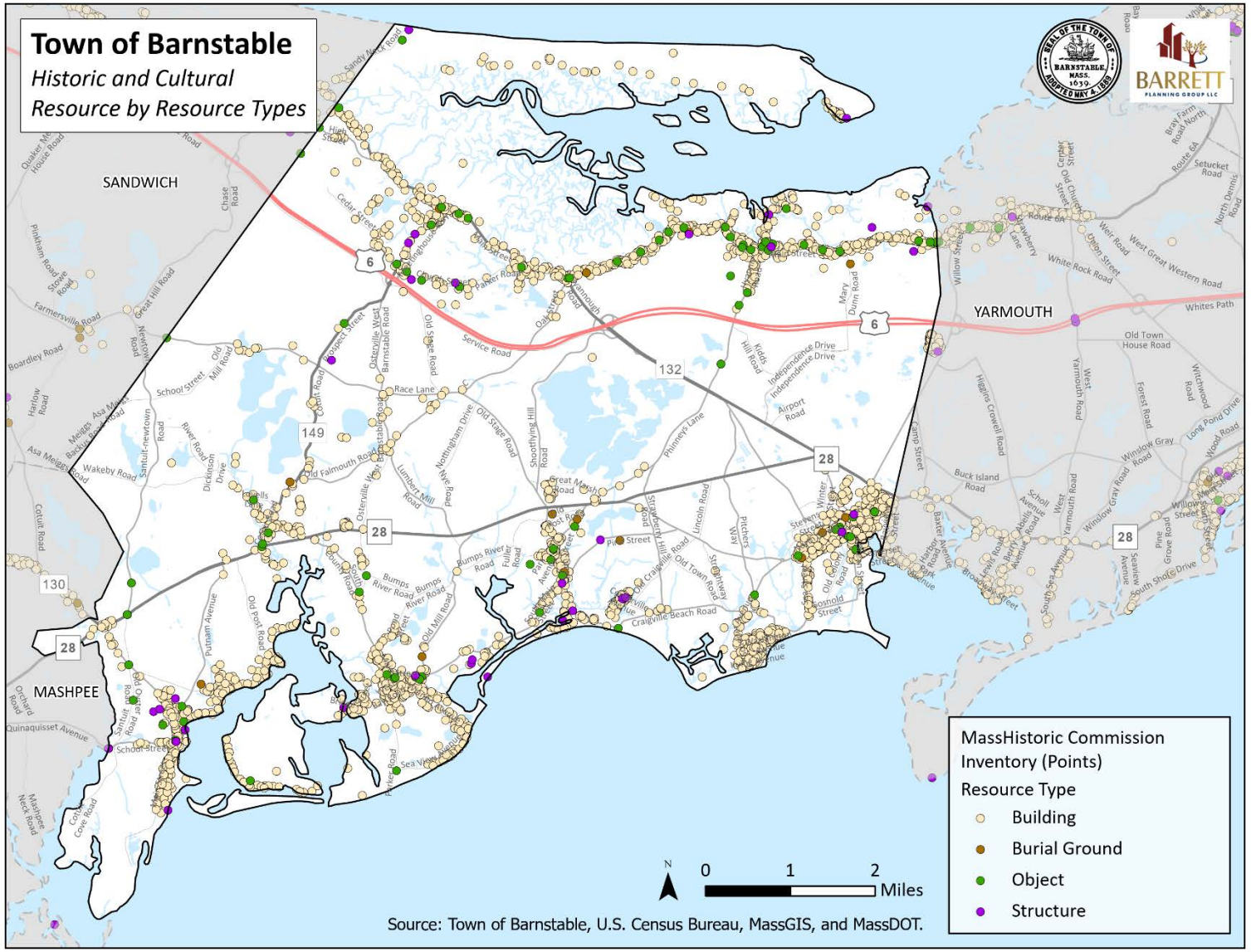
Map 4.4. Zoning Overlay Districts



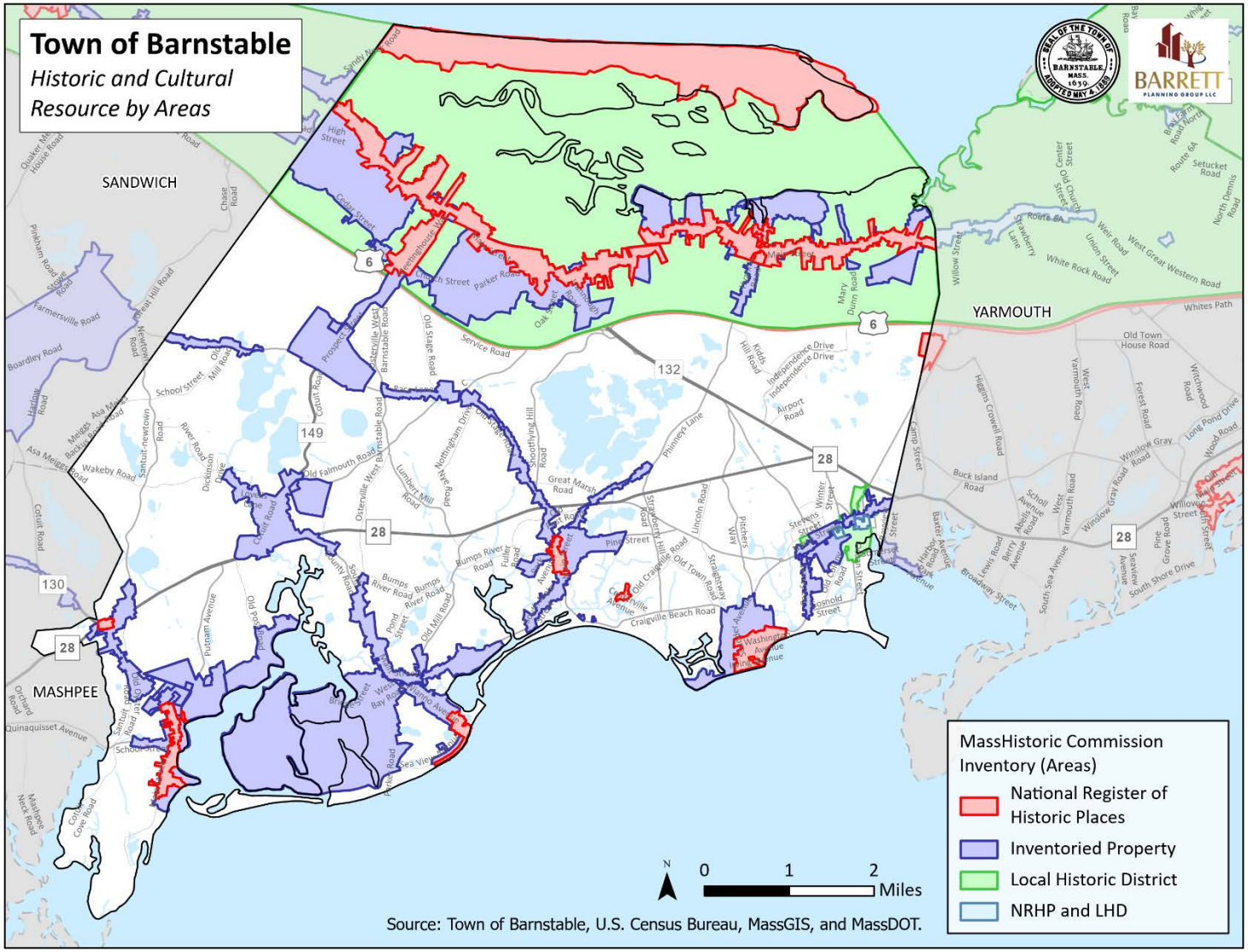
APPENDIX C

Community Systems Maps

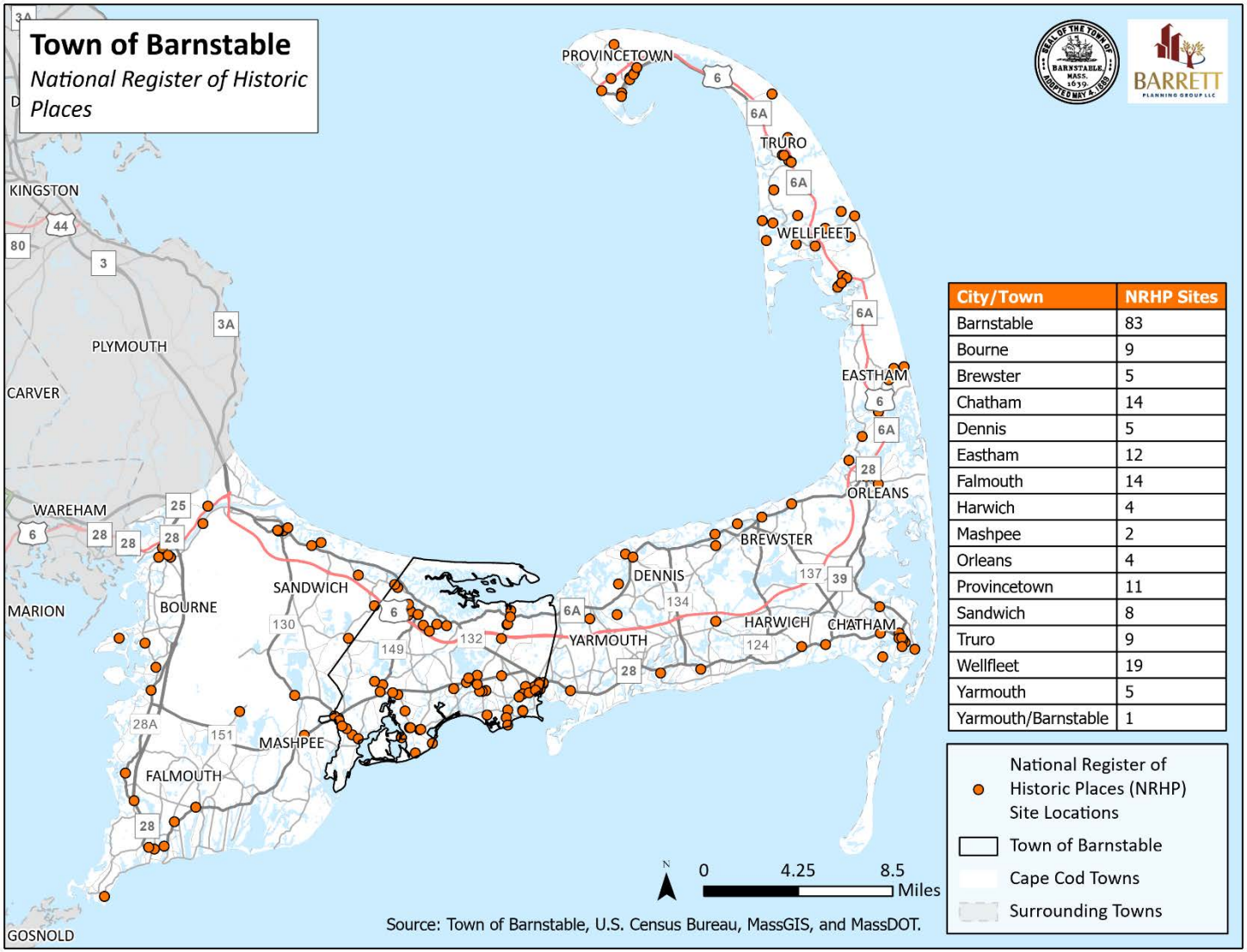
Map 5.1. Historic and Cultural Resources by Resource Type



Map 5.2. Historic and Cultural Resources by Areas

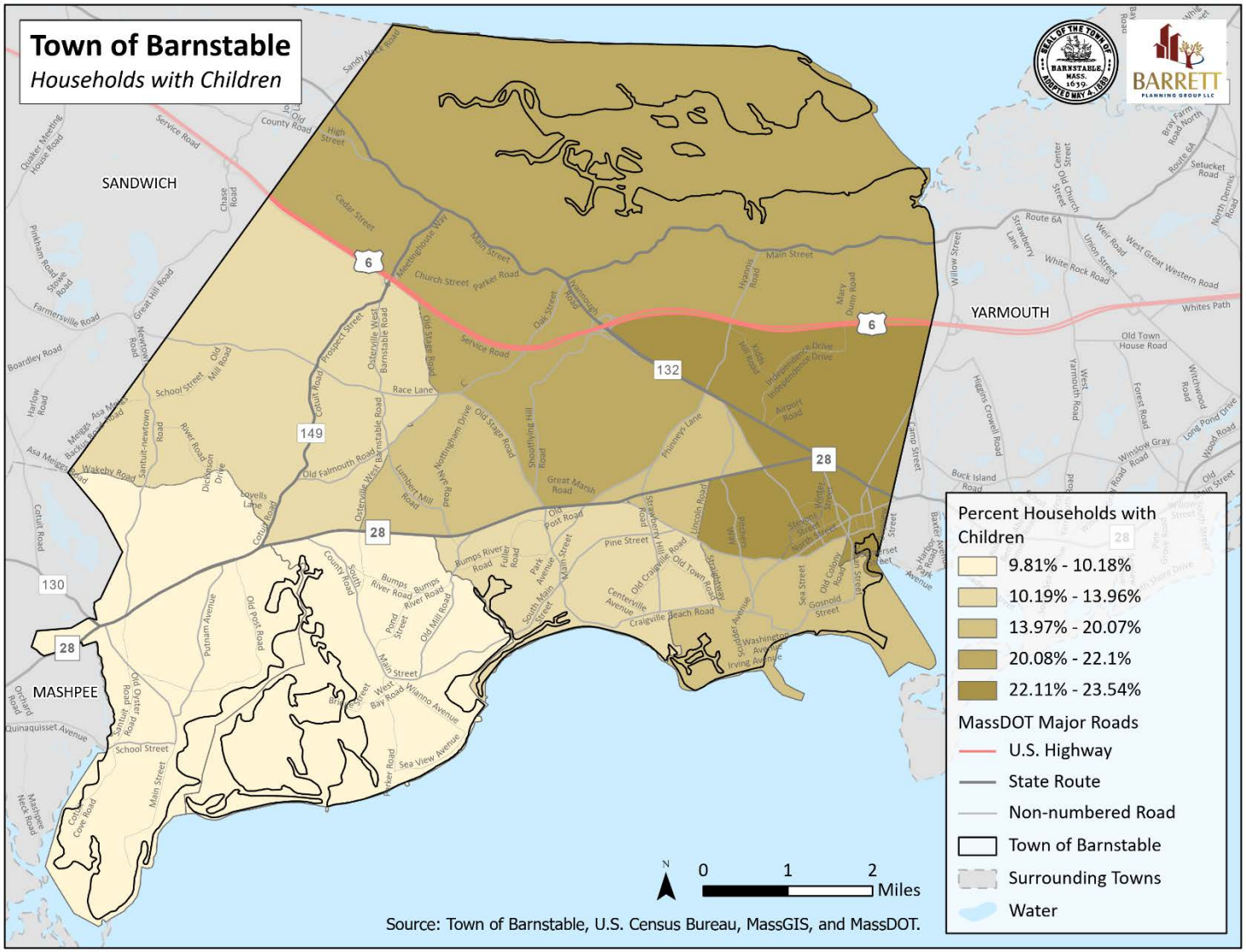


Map 5.3. National Registrar of Historic Places

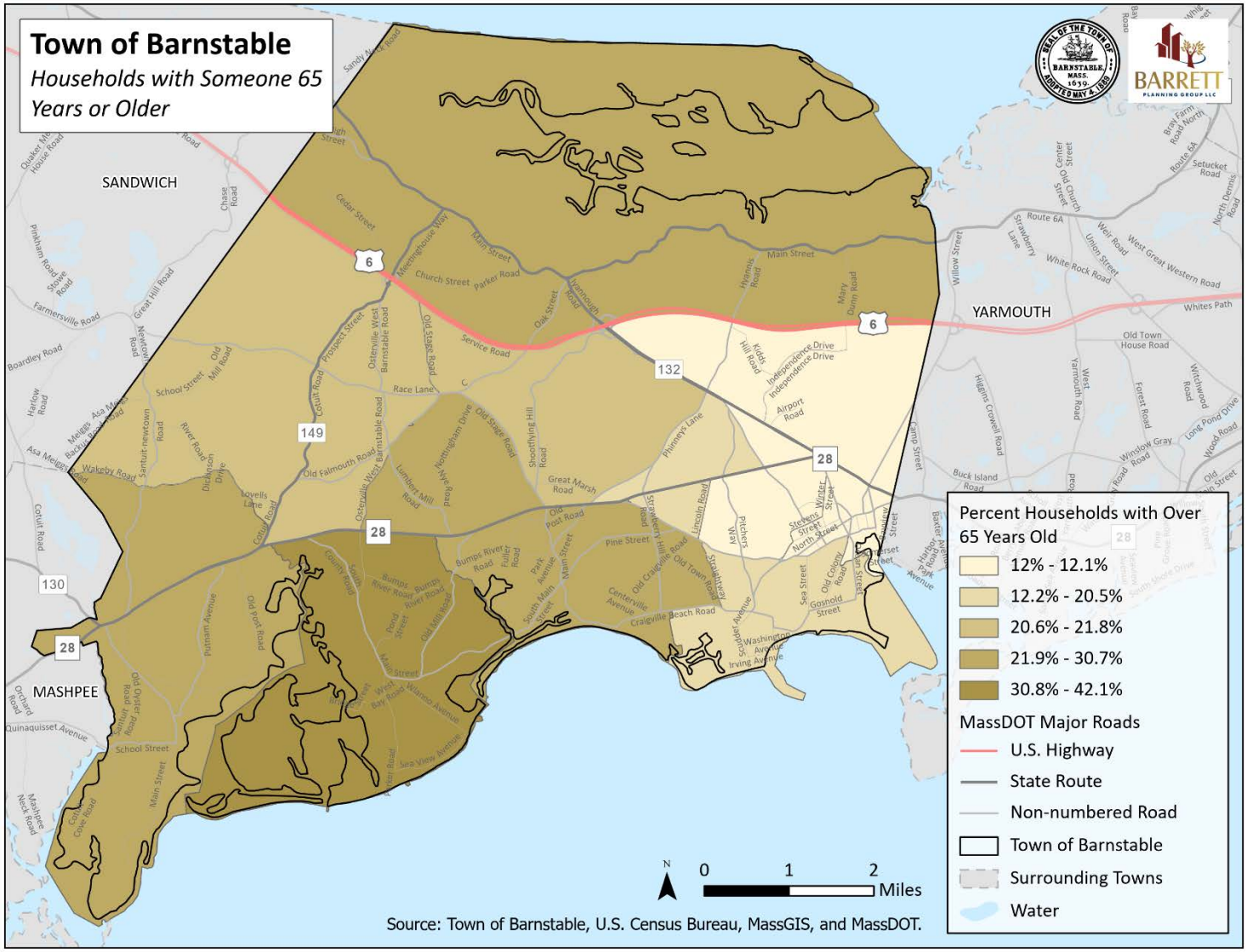


City/Town	NRHP Sites
Barnstable	83
Bourne	9
Brewster	5
Chatham	14
Dennis	5
Eastham	12
Falmouth	14
Harwich	4
Mashpee	2
Orleans	4
Provincetown	11
Sandwich	8
Truro	9
Wellfleet	19
Yarmouth	5
Yarmouth/Barnstable	1

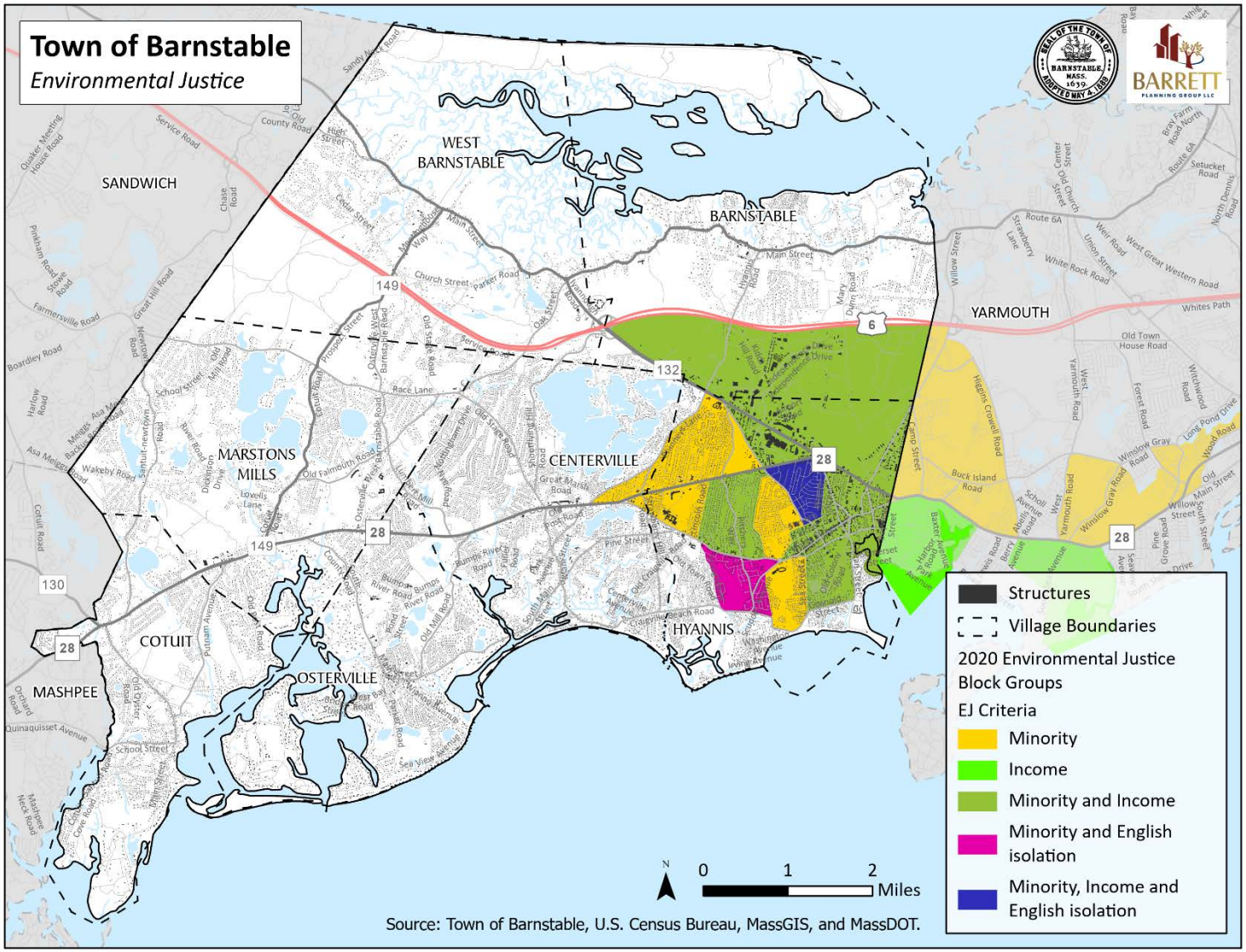
Map 5.4. Households with Children



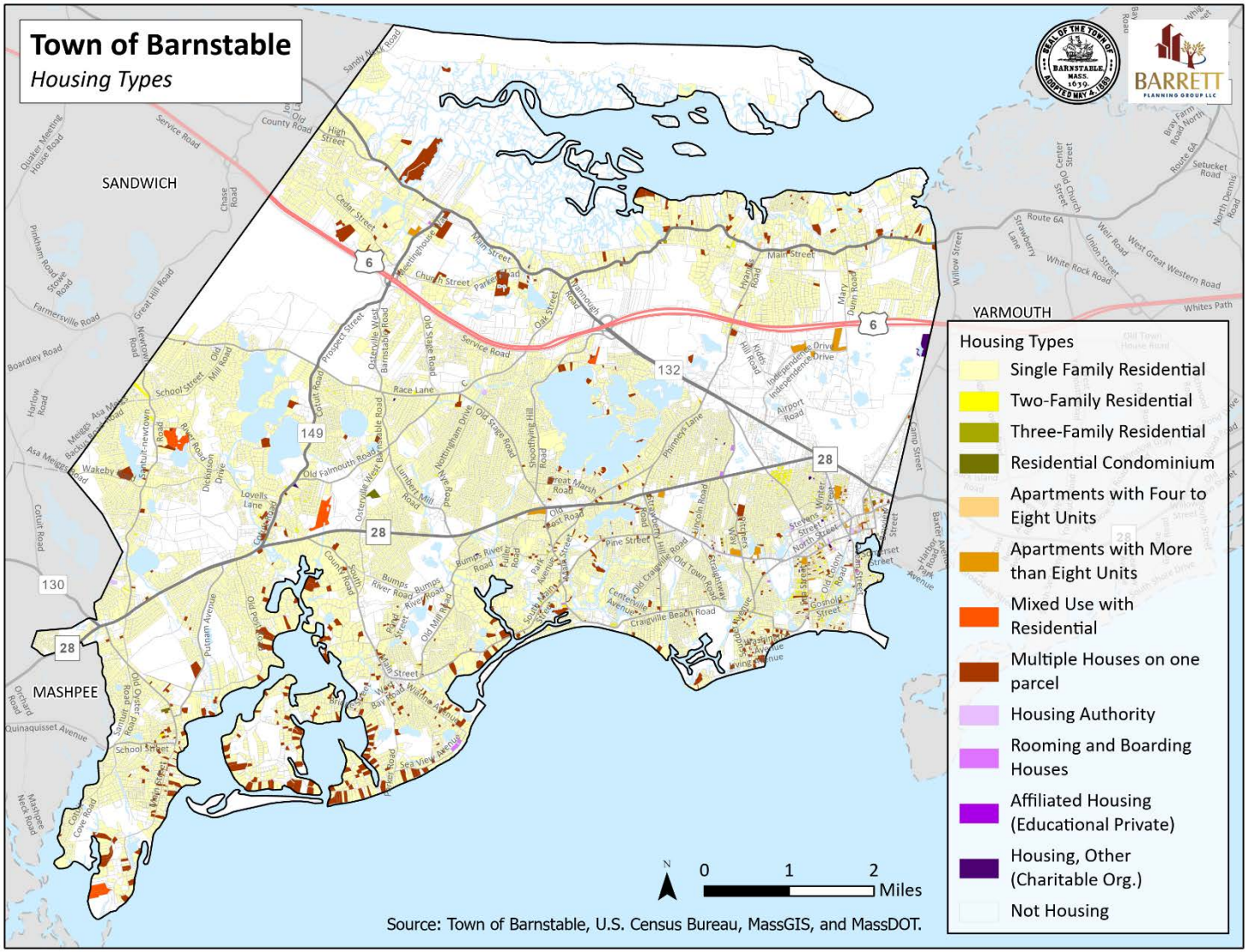
Map 5.5. Households with Someone 65 Years or Older



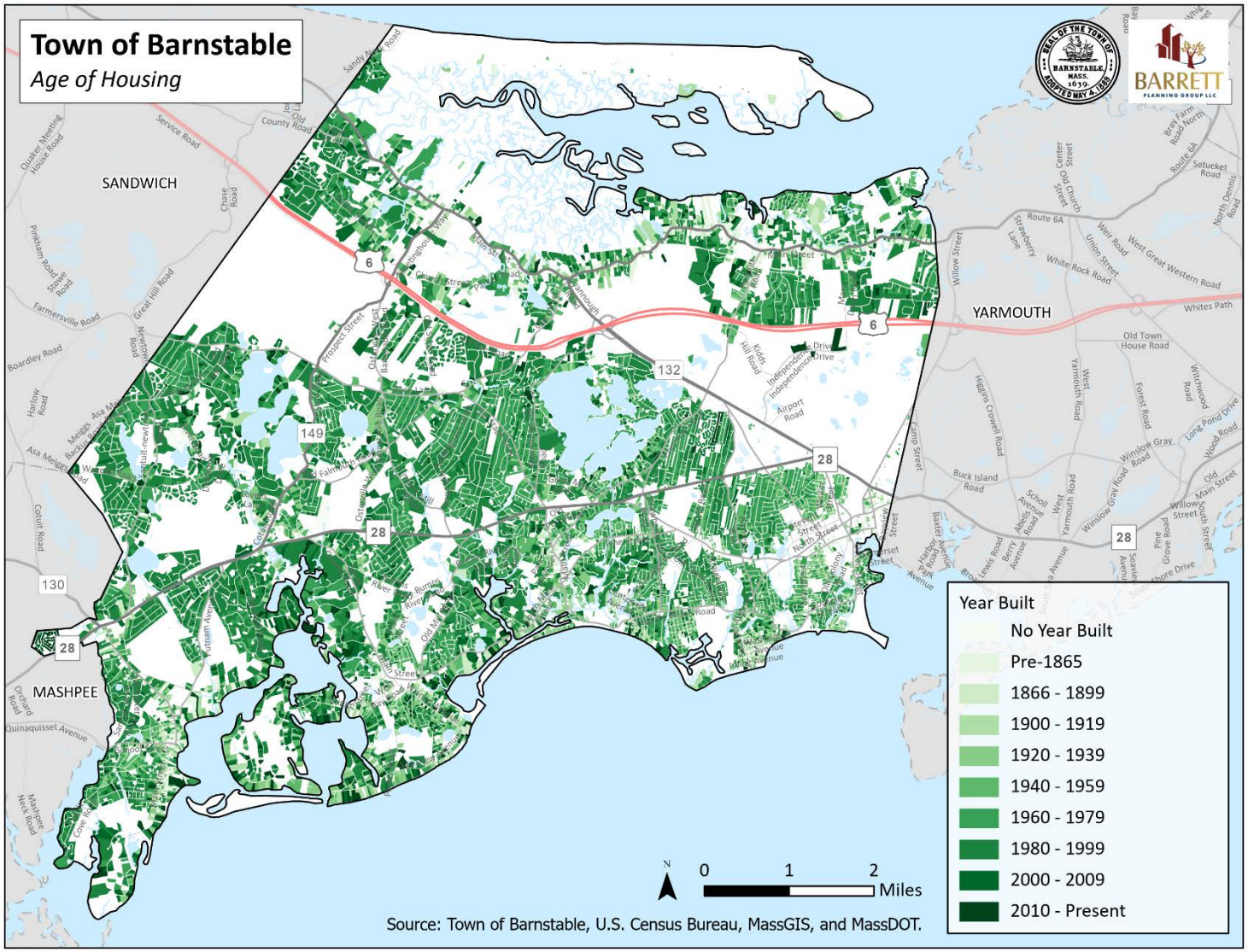
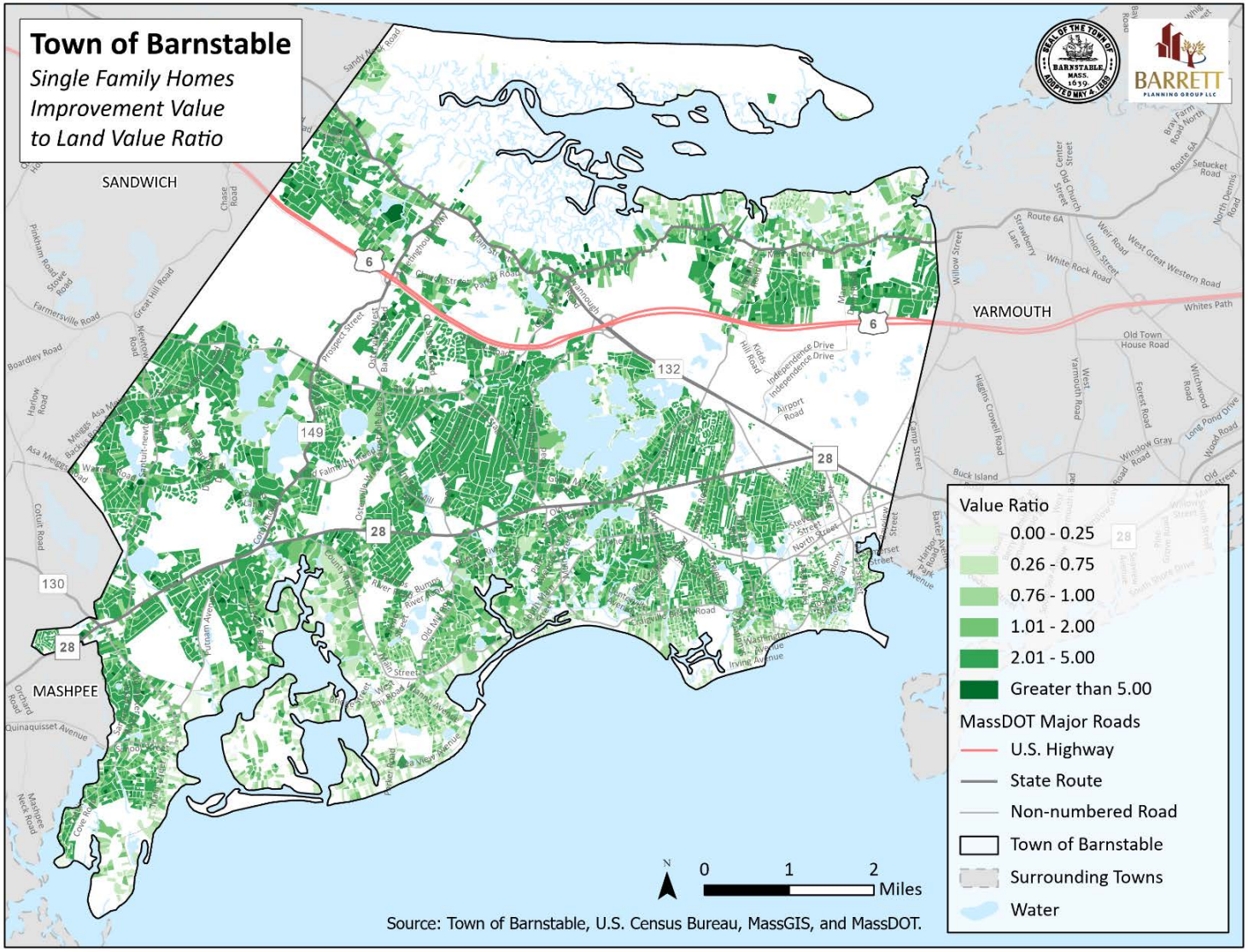
Map 5.6. Environmental Justice Populations



Map 5.7. Housing Types



Map 5.8. Age of Housing



Map 5.9. Single Family Homes Improvement Value to Land Value Ratio