

SECTION 3

COMMUNITY SETTING



Chatham Break from Chatham Lighthouse Overlook Parking Lot

Photo by Jeff Thibodeau, Helios Land Design

PUBLIC REVIEW DRAFT

A. Regional Context

Chatham covers an area of approximately 16 square miles and has more than 66 miles of coastal shoreline. It is bordered by Pleasant Bay and the Towns of Harwich and Orleans on the north, Chatham Harbor and the Atlantic Ocean on the east, Nantucket Sound on the south and the Town of Harwich on the west. It operates under the open town meeting form of government and its Executive Officers consist of a full-time Board of five Selectmen. All funds spent by the Town must first be approved by the voters at Town Meeting.

Chatham is fortunate in its location on the Cape with an abundance of natural resources -- surrounded on three sides by salt water; miles of coastal and inland shoreline; many fresh water ponds -- which make Chatham an attractive place to live. While the town possesses an abundant groundwater supply, the nature of its sandy soils presents challenges to minimizing the potential for groundwater degradation. Year-round and seasonal population change places increasing pressure on critical and fragile natural resources.

1. Evolution of the Landscape

Chatham's glacial geological history provided the canvas that is constantly reworked by the effects of water and wind to shape the mutable edges of this ever-changing place. The post-glacial landscape of Chatham evolved as all ecosystems do, through the process of natural succession. First, pioneer plant species took hold and helped to stabilize the shifting sands, marshlands and tidal creeks. As the soil became enriched and new habitats were created in the shady understory of these early plant communities, secondary successional species began to infiltrate and then to dominate. Finally, the ecosystem developed into more complex climax plant communities including hardwood species such as beech, oak, birch, ash, sweet gum, and others. The result was a richly diverse ecosystem composed of various species and plant communities inhabited by an array of wildlife.

2. Modern History

Judging from the earliest descriptions of Chatham --- Champlain's notes of his voyage here in the early 1600s and Nickerson's accounts later in that century --- it is clear that humans had already made significant changes in the natural environment. The Monomoyicks had cleared land for growing crops and probably managed naturally occurring food sources such as nut trees, berry fields and shad and herring runs. Fishing weirs were established, notably on the Monomoy River north of the present Old Queen Anne Rd.

When European settlers arrived in the late 1600s, large stands of trees still remained. Within only a few years, the landscape was denuded. The settlers cleared more land for farms and firewood and transformed impenetrable swamps into cranberry bogs. Cattle were grazed in salt marshes on the bay sides of barrier beaches and hunting and fishing villages were established on Monomoy and North Beach to take advantage of their abundant resources. Wharves were built, first at Stage Harbor, then in North Chatham at Old Wharf Road. Whales were hunted off the east coast, and Chatham fishermen fished George's Bank and as far off as the Grand Banks.

The Atlantic Ocean is constantly altering the town's shoreline and the bars off our coast. At one time there were a number of islands in the waters surrounding Chatham, including "Webb's Island" south of Stage Harbor, the "Seale Isles" east of the town, and an island just east of the Cowyard town landing. All have been obliterated. When the "Great Beach" (Nauset) breached in the mid-1800s, leaving the shoreline exposed to the Atlantic, houses were moved back from the eroding bluffs, and the bluff was reinforced with rock to protect the lights at James Head (Lighthouse Overlook). The 1987 breach in North Beach had devastating results for coastal development: nine houses were destroyed in the years following the breach, and some 30 revetments were built along the eastern shoreline to protect private property. Chatham Harbor was dramatically altered. Where before the breach, the harbor was lined with bluffs, there is now an "armored" shoreline, and where there were sandy, sheltered beaches on quiet waters, there are the Atlantic's breakers and a constantly shifting, swiftly moving channel. Very recently, the April 2007 Patriots' Day northeaster blasted through the barrier beach north of the Chatham Fish Pier, creating a new channel into Pleasant Bay. In addition, continued erosion is pushing the barrier beach that forms the eastern side of Chatham Harbor westward toward land, threatening the fish pier while sedimentation and sandbar development in the shallow channel threatens harbor access¹. The management of the town's coastal resources is

¹ Cape Cod Times, reported by Doug Fraser, July 6, 2007

therefore constantly evolving, as it must. The use of coastal resources has also changed over the years. Only in the last century have people seen the seashore as a source of enjoyment, a place to vacation, not just as an economic resource.

In the late 1800s, as Chatham emerged as a resort, its coastal resources took on new value as a playground for summer visitors. Over the years, large summer homes were built, and cottage colonies proliferated along Nantucket Sound. A railroad was laid through the common farmlands of the previous century and hotels were built overlooking Chatham Harbor and Pleasant Bay. Fox hunts were common in the area now known as Riverbay. Pedestrian bridges were built to span the lagoon in Chatham Harbor, and the first attempts at controlling the migration of the beaches were made with a jetty at Little Beach.

During the early years of settlement, forests in the western area of town were cleared. Much of the land is open and treeless in photos taken as late as the early 1900s. The pine forests which now predominate were planted in the 1930s by the Works Progress Administration.

Housing construction after World War II began consuming land at an unprecedented rate. In the 50s, the dike between Tom's Neck and Morris Island was built, opening the way for later development of the island, which had long been a summer gathering place and berrying area for townspeople. Growth began to have a negative effect on resources. For the first time, the purity of the town's water resources was threatened: by ever increasing amounts of human waste disposed of in cesspools and septic systems, nutrient rich discharges from washing machines, bacteria laden stormwater from the expanding roadway system and reduced circulation in estuaries from culverting. Seasonal shellfish closures in salt ponds, eutrophication in some freshwater ponds, reduction in the biological productivity of estuaries are the result. Formerly productive estuaries are now closed year-round for shellfishing: the Monomoy River, Frostfish Creek, the Red River and the eastern end of the Oyster Pond.

Poor well water quality in the coastal area prompted the formation in 1909 of the town's first water company, a private system at Chatham Bars Inn. By the 1930s, about one third of the town was served by a private water company, eventually bought by the town and expanded to serve areas where high nitrate concentrations (from septic systems) were found in private wells in the early 1980s. Septic system problems in the downtown area in the 1960s required the construction of a sewer system and wastewater treatment plant, which went on line in 1974. Nitrogen accumulating and migrating in groundwater, primarily from septic systems, is now considered a serious environmental threat to surface waters, particularly estuaries and salt ponds, whose ecosystems are very nitrogen sensitive.

Continued construction in coastal areas has gradually reduced the public's access to resources and has led to an increasing need to try to control those resources. The filling of wetlands, construction in dunes and on bluffs, construction of docks, paving of back dunes for roads and parking, and the addition of groins, jetties and revetments to manage coastal processes, have incrementally altered the coastline and reduced public access in favor of private ownership.

Filling, development, and rising sea levels over the centuries during which Chatham has been inhabited have greatly reduced the acreage of wetlands, a rich habitat and nursery for numerous species. Wildlife has also been squeezed out by the destruction and fragmentation of upland habitat.

Human alteration of natural systems has had a profound effect on the town's environment. Virtually all of the natural systems within our boundaries have been changed and shaped by human intervention. Forests have been removed and replanted, wetlands, filled or recreated as cranberry bogs and then left to forest succession. Revetments and groins have intercepted the migration of beaches; shoreline development has created a barrier to landward migration of wetlands as sea level rises. Natural drainage patterns have been altered by roadways. Today, "build-out" or development of all parcels of land in town (except for legally protected and conservation lands) is in the foreseeable future.

Despite the tremendous impact humans have had, Chatham's natural systems are largely healthy and have successfully adapted and re-adapted to changing conditions. Given their own resilience and some positive intervention, our resources are doing well. Chatham has abundant and healthy shellfish habitat; our potable water resources are projected to remain within nitrate guidelines except under extreme growth scenarios; reductions in phosphates in detergents have significantly reduced the introduction of the nutrient into freshwater systems;

dwindling species, such as the piping plover, are showing a comeback with cooperative habitat management. The examples of successful protection and restoration of natural systems abound.

As pressures continue on our natural environment, it is more important than ever to protect our natural resources from negative and unnecessary alteration and to identify measures that can be taken to counter and undo damage where we can. Maintaining the high quality of Chatham's natural resources is vital to the character and economic future of the town.

Major Modern History Highlights

- Champlain lands at Stage Harbor
- Nickerson settles at Ryders Cove
- First meetinghouse built
- Chatham is incorporated
- 1700s-1865 Maritime industries thrive
- First hotel built
- Lighthouses lost to erosion
- Chatham Branch Railroad opens
- Eldredge Public Library built
- Eldredge Garage opens
- Morris Island Dike and Inlet to Stage Harbor created
- Marconi Wireless Station built
- Chatham Bars Inn opens
- Chatham Airport established
- Full-time residents exceed 5,000
- Fishing industry faces challenges but remains strong
- Chatham receives national recognition for its historic resources

3. Coastline

All of the Cape towns share a dynamic coastline with access either to Cape Cod Bay, Nantucket Sound or the Atlantic Ocean. The nearby Stellwagen Bank and its overlying waters are a designated federal Marine Sanctuary shared not only by the towns of Cape Cod but by the nation and the world. The dynamics of littoral drift, in response to the net effects of longshore currents, alter the sands, building new land in some cases and taking it away in others. Chatham also shares some of its marine water resources with neighboring towns, most notably Pleasant Bay with Brewster, Orleans and Harwich.

4. Regionally Shared Cultural Resources & Problems:

As a 250 square mile peninsula, all Cape Cod towns share in its regional cultural assets and liabilities. Construction and tourism, the major sources of employment, are also the major impacts on the economy and land use of the Cape and Chatham. Recreational areas, such as beaches, trails and lodging facilities, are regionally shared. Most tourists visit several towns, creating Cape-wide problems in traffic circulation.

As the Cape has grown in popularity as a vacation and retirement area, permanent population growth has impacted all of the Cape's towns and their natural resources. Rapid development has changed the character of the Cape. The demand for clean drinking water may someday surpass supply. Disposal of waste outweighs the land's ability to absorb the impact and cleanse itself and most towns on Cape currently ship their trash off-Cape, having closed their landfills.

Historic structures have been demolished or "modernized" at a rapid rate, country roads have been widened and strip commercial development has proliferated throughout the Cape. Chatham has escaped the worst of this change through thoughtful development design and cultural resource protection.

B. History of the Community

1. History of Settlement²

The French explorer Samuel de Champlain guided his vessel past Harding's Beach and into Stage Harbor in October of 1606. The Native Americans here, who had been here for at least 10,000 years, paddled out in their canoes and greeted Champlain hospitably. Nevertheless, two weeks of increasingly uneasy contact erupted into a fatal skirmish under circumstances that are still unclear. Three of the Frenchmen were killed and one fatally wounded. Many more Monomoyick were killed by French musket shot. After a retaliation that included an unsuccessful attempt to capture slaves, Champlain weighed anchor, giving up any ideas of making Chatham a French foundation of state, and leaving the way clear for the English.

It wasn't until 50 years later in 1656, when the first English settler ran a cart down the ancient Indian pathway with an eye on living here. Englishman William Nickerson struck a deal for four square miles of land with the Monomoyick sachem, Mattaquason. For this he paid a shallop (a boat), ten coats, six kettles, twelve axes, twelve hoes, twelve knives, forty shillings in wampum, a hat and twelve shillings in coins. This transaction took place, however, without the approval of authorities in the Plymouth Colony, and so, for sixteen years his purchase would be disputed until he settled with the courts by paying a fine of 90 pounds and obtaining written deeds from Mattaquason and his son John. This place was then called "Monomoit", as the Indians called it, and Nickerson immediately appealed to the court for incorporation of Monomoit as a town, but was refused on the grounds that there was no resident minister. Until the time when there was a population sufficient to support a church Monomoit would be known not as a town but as a constablewick. Nickerson gave land to each of his 5 sons and 3 daughters and built his house on Ryder's Cove on a spot now marked by the Nickerson Family Genealogical Research Center.

Early Chatham History

A handful of settlers soon trickled in to join the Nickerson family here. The early houses were not much different from the infamous Cape Cod-style houses of today. They were built with low roofs to withstand nor'easters and hurricanes, and were often situated in protective hollows facing southerly for maximum exposure to the sun. Seaweed, washed and dried over the summer, often was often heaped around the foundation to provide insulation. The small farming village consisted of twenty or so families when Reverend Hugh Adams became the resident minister in 1711. The town wasted no time and the next year a second petition for incorporation was then drawn up and subsequently approved in Boston with the condition that the constablewick give up its Indian-derived name of Monomoit in favor of something a little more English. On June 11, 1712 the constablewick of Monomoit was incorporated under the name of Chatham, taken from a seaport town in England.

But most of the residents were farmers, rather than fishermen. Early Chatham settlers cultivated such crops as corn, rye, wheat, and tobacco on farms of thirty acres or more. The typical family owned a horse or two for transportation, several oxen for work on the farm, and raised sheep to provide wool for New England textile mills. Corn, introduced by the Monomoyick natives centuries before, already grew readily here, and soon became the town's principle crop. In fact, the cultivation of corn was so important in Chatham, that a law was passed in 1696 which stated that all householders were required to kill 12 blackbirds or 3 crows each year, delivering the heads to the selectman or forfeit a tax of 6 shillings. Farming remained an important part of the Chatham economy well into this century. As late as 1921 there were still 125 cows resident in town, ten active farms, and votes were still being cast to pay a bounty of twenty-five cents for each crow. The Godfrey Mill, built in 1797, ground corn until 1929. You can now see it at the head of Chase Park, one of the last visible reminders of the importance of farming to the first people of Chatham.

Chatham and the Sea

By the late 1700's Chatham's population had grown far beyond the tight, self-possessed group of Nickersons who had maintained common lands for the grazing of their cattle. Corn was no longer sufficient currency as the community diversified and the once fertile soil yielded less and less each year. It was natural then, that the Chatham men were turning to more fertile pastures, those of the sea. By the Revolutionary War seafaring, rather than farming, was the prevalent occupation in town. Chatham, along with Harwich and Barnstable, dominated the Cape fishing industry with hauls of cod, mackerel, and halibut from the waters of the Grand Banks 1,000 miles to the north. Over 200 men and boys made these dangerous but profitable runs, working to save enough money to buy

² History of Settlement Section was reprinted here with the permission of the Author, Christopher Seufert, President of Mooncusser Films, LLC and local archaeological historian.

their own vessel and skipper it, often before the age of twenty-one. Fast, seaworthy vessels were built in town to haul salt cod down the colonial coast and into the West Indies. Stage Harbor was a bustling port to three-masted schooners loaded with cod. In fact, it was given its name from the number of racks there in operation drying fish.

The Revolutionary and Civil Wars in Chatham

Just as the townspeople were throwing themselves wholeheartedly into their new occupation the Revolutionary War erupted. Chatham's orientation as the easternmost land in the United States made her waters particularly appetizing to British raids and harassment. Thus, the economy of Chatham came to a virtual standstill. Her ships lay rotting in the harbor for most of the war, as the British had a standing blockade on Cape ports and the towns were often raided for food to feed the British forces. And so Chatham men were pulled reluctantly from baiting their fish lines. Campaigning in Rhode Island when their boats and families lay exposed on the elbow of Cape Cod was not exceedingly popular. Nevertheless, all males of military age were in the town militia, which provided each man with "a good firelock, bullet pouch, and powder horn or cartridge box, bayonet, cutlass or hatchet, twenty bullets, a knapsack, and blanket." Most of them served on privateers, raiding British commerce, but Chatham itself did see firsthand involvement when a British privateer sailed into its harbor one night to capture a brigantine anchored there. As the British were raising their flag Capt. Benjamin Godfrey's arriving militia fired on her, captured the ship, and sent the British back into the Atlantic. The War of 1812 brought Chatham men again into service, with most of them using their navigation and sailing skills in the Navy or on privateers running the British fleet that harassed the New England Coast. And during the Civil War the little town of Chatham sent 292 men, more than its quota for a town of 2,600.

Mooncussers and Shipwrecks

By the nineteenth century the waters off Cape Cod were the second busiest shipping routes in the world behind the English Channel. Chatham is also famous for mooncussers. The mooncussers were wreckers who, as legend says, aggressively disoriented and grounded ships by waving a lantern in the dunes, on sandbars, or on the neck of a horse that they walked up a beach. They "cussed" the moon on moonlit nights because they could only operate effectively in the dead of night. Sailors were rescued but so were the goods. And there were times when the wreckers saved those in need when the lifesavers could not. It is said that one half of the known wrecks on the entire Atlantic and Gulf of Mexico coasts have occurred off this outer beach. And so, on October 7, 1808 President Thomas Jefferson appointed Samuel Nye as keeper of the two wooden lard-burning lighthouses to guide ships safely past Chatham. In those days lighthouses were identified by the number of beacons rather than the timing of their blinks. Ships rounding the Cape to Boston would see one light on the tip of Monomoy, two on the bluff in Chatham, and three up at Nauset. In 1923 one of them was dismantled and brought up to Eastham to become Nauset Light. The other one remains today on the original site at the end of Main Street in the "Old Village". Though radar and satellite technology provide a safer navigational aid the beacon of Chatham Light continues its service and will continue to turn, if nothing else, as reminder of Chatham's unique maritime history here on the elbow of Cape Cod.

Monomoy

Despite its remoteness Monomoy Island was inhabited as early as 1710. A tavern for sailors was opened up in the location of today's Hospital Pond, known then as Wreck Cove. During the early 1800's a deep natural harbor at Monomoy's inner shore, known as the Powder Hole, attracted a sizeable fishing settlement. In its prime Whitewash Village housed about 200 residents, a tavern inn called Monomoit House, and Public School #13, which at one time boasted 16 students. Cod and mackerel brought in to the Monomoy port were dried and packed for markets in Boston and New York. Lobsters were also plentiful, providing both food and income for the villagers, who peddled them to mainlanders at about two cents apiece. The village was abandoned after its harbor was washed away by a hurricane around 1860. Since a storm in 1958 Monomoy is only accessible by boat and was designated as a National Wildlife Refuge, serving as an important stop on the migratory routes of 285 species of birds. Monomoy has no human residents, no electricity, and no paved roads. Today the only reminder of Monomoy's habitation is the Monomoy Point Light, which guided from 1828 to 1923. The wooden lightkeeper's quarters, the cast iron light tower, and the brick generator house are alone on the desolate point of the South Island.

Tourism in Chatham

On November 22, 1887 the railroad in Chatham made its first run. Before the railroads, travel to the Cape was only possible by boat or by cart or stagecoach. With travel now comfortable and convenient, the richest families in Boston and New York began spending their summers here, and even began purchasing their own summer houses. By the 1880's Chatham was maturing into a resort town with hotels and businesses that catered to vacationers. Monomoy offered its bounty of wildlife to the hunters and fishermen. The warm waters and shallow pools of Nantucket Sound attracted families who feared the angry, rough-and-tumble breakers of the Atlantic. In 1937 the coming of the bus lines closed the railroad. The main station sat abandoned until 1951 when it was donated to the town to be maintained as a museum for the public. The widespread purchase of automobiles by middle class Bostonians and the installation of hard roadways combined to increase the flow of tourists from a trickle to a torrent. In 1936 the Cape Cod Chamber of Commerce reported that 175,000 tourists visited the Cape in that summer alone, and that 55,000 motorcars passed over one of the bridges in one 24-hour period, just about the same as today.

Chatham Today

The railroad, saltworks, and the maritime trade have all disappeared. Though the day-boats have replaced the Grand Bank schooners, Chatham's commercial fishermen maintain her vital connection to the sea. Off-season events like May's Spring Fling, Chatham Maritime Festival, the madly popular First Night, and Christmas-by-the-Sea have made Chatham a year-round place and not just a summer tourist spot with its beaches and fried clams.

C. Population Characteristics

1. Regional Context

Regional population has been steadily increasing over the last several decades. Table 2, *Cape Growth Rate 1920-2001*, shows that population growth in the region has always been high, ranking in the top three regions across the state. Specifically, between 1980 and 1990, there was a 26.1% increase in Barnstable County's population (2.61 percent avg. per year). Table 3, *Chatham Growth Rate 1920-2000* and Table 4, *Chatham and Cape Cod Population Change 1980-2000*, show that Chatham's growth rate since 1920 has been increasing at a slower rate than the region's except between 1950 and 1960. Between 1960 and 1970 Chatham's population grew significantly by 39.1 % (1985 Open Space and Recreation Plan), though a substantial portion of the population increase of Chatham during that period was a result of in-migration (residents moving into Town) as recorded deaths outpaced births. The most notable recent difference is the dramatically lesser growth rate in Chatham between 1980 and 2000, far below projections made in 1980. The town grew by only 508 people between 1980 and 1990, 8.4%. Between 1990 and 2000, it grew by only 46 people, less than 1 percent growth. According to the Cape Cod Times, this ranked 21st out of 23 Cape and Islands municipalities (capecodonline.com).

Table 2 Cape Growth Rate 1920-2001

Years	Rank	Growth (%)	Population (in latter year)	Gain in Decade (year)*
1920–1930	3	21.10	32,305	5,635
1930–1940	1	15.40	37,295	4,990
1940–1950	1	25.5	46,805	9,510
1950–1960	1	50.2	70,286	23,481
1960–1970	1	37.5	96,656	26,370
1970–1980	1	53.0	147,925	51,269
1980–1990	2	26.1	186,605	38,680
1990–2000	3	19.1	222,230	35,625
2000–2001	3	2.1	226,809	4,579 (year)*

Source: Cape Cod Commission Web site
(<http://www.capecodcommission.org/data/CapeTrends-Population080102.pdf>)

Table 3: Chatham Growth Rate, 1920-200

Years	Growth (%)	Population (in latter year)	Gain in Decade (year)*
1920–1930	11.2	1,931	194
1930–1940	10.6	2,136	205
1940–1950	15.0	2,457	321
1950–1960	33.2	3,273	816
1960–1970	39.1	4,554	1,281
1970–1980	33.3	6,071	1,517
1980-1990	8.4	6,579	508
1990-2000	0.7	6,625	46

Source: Town of Chatham 1985 Open Space and Recreation Plan

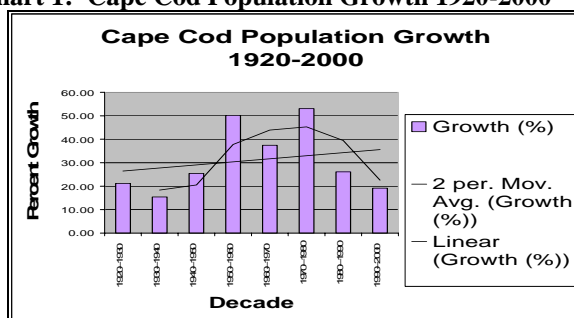
Table 4: Chatham and Cape Cod Population Change 1980-2000

Population Change 1980-2000							
Location	1980	1990	2000	1980-1990		1990-2000	
				Net Change	Percent Change	Net Change	Percent Change
Cape and Islands Region	161,954	204,256	246,737	42,302	26.10%	42,481	20.80%
Chatham	6,071	6,579	6,625	508	8.4%	46	0.7%

Source: Massachusetts Department of Employment and Training (DET) Web site (http://www.detma.org/pdf/WIA_Pop.pdf) and Woods Hole Research Center Website @ (http://www.whrc.org/capecod/land_cover_population/population_changes.htm)

It is unclear why there has been such a dramatic drop in the town's population growth rate since 1980. Growth rates are affected by many factors including economic trends, employment rates, real estate costs, and the availability of buildable land. Possible reasons include the large percentage of residents above typical child rearing age, the approach towards buildout and the shortage of affordable housing suitable for younger families with typically lower incomes.

Chart 1: Cape Cod Population Growth 1920-2000



Created by Jeff Thibodeau, Helios Land Design

2. Recent Growth Rates

According to *Cape Trends*, published regularly by the Cape Cod Commission, Cape population reached 229,545 in 2003, growth levels in five Cape towns during this period ranked in the state's top 35 of its 351 cities and towns. However, the Cape's population actually declined between 2003 and 2004 by 382, or 0.2 percent, consistent with a state-wide decline during the same period³.

From 2002 to 2003, Chatham increased its population by 63 people, ranking 127th in the state with a relatively low population growth rate of only 0.9 percent, ranking 115th in the state. Table 5, *Chatham Population Estimates 2000-2003*, indicates that Chatham reached an estimated 6,849 people in 2003, up 224 or 3.4 percent from the U.S. Census count of 6,625 in April 2000. This amounted to about a one percent increase each year during that three-year period. The 2005 Chatham population was 6,832 according to the Census estimates.

Table 5: Chatham Population Estimates 2000-2003

U.S. Census Bureau – Resident Population Estimates					
Town	July 2003	July 2002	July 2001	July 2000	U.S. Census Count April 2000
Chatham	6,849 (0.9%)	6,786 (0.8%)	6,732 (1.1%)	6,657	6,625

Source: Cape Cod Commission website: (<http://www.capecodcommission.org/data/CapeTrends-Population080504.pdf>)

3. Age Profile⁴

U.S. Census 2000 found the Northeast had the highest median age in the nation at 36.8 years and since 1980 the median age of Barnstable County residents has been the highest of the 14 Massachusetts counties. Since 1990, the Cape's median age increased 5.1 years, from 39.5 to 44.6 in 2000. The statewide median age increased from 33.6 in 1990 to 36.5 in 2000. Eleven of the Cape's 15 towns comprised more than half the state's top 20 communities in median age. Seven of these are on the lower Cape (Orleans, Chatham, Harwich, Eastham, Wellfleet, Brewster, and Provincetown). U.S. Census 2000 documented the 35–44 and 45–54 age groups as the Cape's largest with 33,982 and 32,802 residents, respectively, or 15 percent of the Cape's 222,230 residents. Based on *Cape Trends* data, Chatham residents rank 2nd out of 351 towns in the state (ranked by increasing age) with a median age of 53.9 years old. This is second only to Orleans at 55.5 years old.

The Cape's 45–54 age group registered the highest growth —both numerical and percentage —nearly doubling from 17,573 in 1990 to 32,802 in 2000, a gain of 15,229 or 87 percent. The over 65 age group has consistently led

³ Cape Cod Commission website @ <http://www.capecodcommission.org/data/CapeTrends-Population080504.pdf>

⁴ Information obtained from Cape Trends on Cape Cod Commission Website, town records and U.S. Census.

the state in Barnstable County and between 1950 and 2000 it nearly doubled from 12.1% to 23.1%. At 23.1 %, Barnstable County ranks 126th out of 3,141 U.S. counties. Over half of the Cape's residents were aged 65 and over in 2000. Of these, 11.9% were aged 65 to 74, 8.3% were aged 75 to 84 and 2.9% were 85 and over. Chatham ranked second in the state, behind Orleans (36%), with 34.3% of its resident aged 65 and over.

The demand for recreational activities relates directly to the age structure of the population. Children require structured play areas for tot-lots, playgrounds, and playfields located close by their homes. Teenagers and adults want facilities for active recreation such as ball fields, tennis courts, swimming areas, and paved trails. All segments of the population appreciate opportunities for passive recreation.

Population data indicates that 45-60 year olds are the fastest growing age groups in Chatham followed closely by those age 85 and over. Age groups under 15 years old declined between 1990 and 2000. The largest decline occurred in the 25-34 year old category, possibly due to the dearth of affordable housing in town and across the region. There has however been growth in the 20-24 year old age group. These numbers suggest the need for increased passive open space and recreational resources to accommodate the older age groups as well as the need for increased affordable housing opportunities for young adults.

Table 6: Chatham Age Profile (U.S. Census 1990 and 2000)

Age Group	1990	2000	% of 2000 Total	% Change since 1990
Under 5	237	193	2.9	-18.6
5-9 years	290	220	3.3	-24.1
10-14 years	291	266	4.0	-8.6
15-19 years	258	284	4.3	10.1
20-24 years	269	207	3.1	23.0
25-34 years	728	491	7.4	-32.6
35-44 years	808	820	12.4	1.5
45-54 years	592	933	14.1	57.6
55-59 years	348	459	6.9	31.9
60-64 years	517	479	7.2	7.4
65-74 years	1,151	1,062	16.0	-7.8
75-84 years	807	851	12.8	5.5
85 and over	283	360	6.4	27.2
TOTALS	6,579	6,625		
Median Age		53.9		

Source: Massachusetts Department of Housing and Community Development (DHCD) Web site – Town Profile and U.S. Census American Fact Finder

4. Income ⁵

According to the Cape Cod Commission's Cape Trends data, between 1989 and 1999 Barnstable County led the 14 Massachusetts counties both in the rate of median household income growth and in the decline in percent of families with income below poverty level. Cape Cod median household income increased 44.6 percent (from \$31,766 in 1989 to \$45,933 in 1999), compared with statewide growth of 36.7 percent (from \$36,952 in 1989 to \$50,502 in 1999). Income growth over the 1989–1999 decade was 45.4 percent in the Town of Chatham. This income growth rate is significantly higher than the statewide average of 36.7 percent, and only slightly higher than the Cape average of 44.6 percent. The 1999 median household income in Chatham was \$45,519 with the per capita income \$28,594 (U.S. Census 2000). Table 7, *Median Household Income in Chatham*, shows decennial census figures for the years 1979, 1989 and 1999.

Table 7: Median Household Income in Chatham

Median Household Income in Chatham							
	1979		1989		1999		
Town	Income	County Rank	Income	County Rank	Income	County Rank	Change
Chatham	\$15,441	8	\$31,315	8	\$45,519	6	+45.4%

Source: Cape Cod Commission Web site: (<http://www.capecodcommission.org/data/>)

Chatham ranks a relatively low 272 out of 351 Massachusetts towns in 2000 median household income, but it ranks a relatively high 6th amongst Cape Cod towns, behind Sandwich, Mashpee, Brewster, Falmouth and Barnstable. (Cape Cod Commission website).

5. Labor Force, Employment and Unemployment

Cape Cod

U.S. Census data indicates that over the past decade, the resident labor force (employed and unemployed) in Barnstable County increased by 17,329 or 19.3 percent, from 89,855 in 1990 to 107,184 in 2000. Resident workers age 16 and up increased by 17,413 or 21.3 percent, from 81,784 in 1990 to 99,197 in 2000. Self-employed residents increased by 2,807 or 28.7 percent, from 9,766 in 1990 to 12,573 in 2000, while Cape residents who worked at home increased by 1,752 or 51.7 percent over the decade, from 3,392 in 1990 to 5,144 in 2000. Official data of the Massachusetts Division of Employment and Training (DET) derived from employers' reports indicate job growth of 25.9 percent over the decade in Barnstable County, a gain of 18,250 jobs from an annual average of 70,333 in 1990 to 88,583 in 2000. All of this data illustrates the healthy economic growth in Barnstable County during the last decade with a notable trend towards greater worker autonomy as there was a 50 percent increase in the number of people working at home.

Chatham

Table 8, *Chatham and State Labor force, Employment and Unemployment Figures 1990-2005* and Chart 2 *Chatham and State Unemployment Comparisons 1990-2003* show Chatham and Massachusetts labor force, employment and unemployment figures for the years 1990-2005. They indicate that town and state unemployment rates followed the same trends for the years 1990-1992 with Chatham's unemployment rate significantly lower than the state's in every year. Beginning in 1993 and continuing until 2000, Chatham's unemployment rate was higher than the state average. From 2001 to 2003 there was a steady increase in unemployment, likely associated with the general economic downturn but not as marked in Chatham as it was in the state. The unemployment rate in Chatham has been holding fairly steady during the last few years at 4.3%. A glance at the trend lines on Chart 2 show that Chatham's unemployment rate has been steadier than the state's, which showed more variation.

⁵ Definitions:

1. Per Capita income is determined by dividing aggregate income of a geographic area by the total number of its residents.
2. Median Income represents the middle value in the income distribution, above and below which lie an equal number of values.

Table 8: Chatham and State Laborforce, Employment and Unemployment Figures 1990-2005

Year	Labor Force	Employed	Unemployed	Town Unemployment Rate	State Unemployment Rate
2005	3,386	3,240	146	4.3	4.8
2004	3,400	3,254	146	4.3	5.2
2003	3,358	3,217	141	4.2	5.8
2002	3,279	3,150	129	3.9	5.3
2001	3,208	3,096	112	3.5	3.7
2000	3,153	3,056	97	3.1	2.6
1999	3,225	3,108	117	3.6	3.2
1998	3,113	2,994	119	3.8	3.3
1997	3,078	2,940	138	4.5	4.0
1996	3,061	2,909	152	5.0	4.3
1995	3,027	2,848	179	5.9	5.4
1994	2,744	2,550	194	7.1	6.0
1993	2,764	2,565	199	7.2	6.9
1992	2,748	2,521	227	8.3	8.6
1991	2,840	2,616	224	7.9	9.1
1990	2,885	2,771	114	4.0	6.0

Source: Mass DET Web site: (<http://www.detma.org/LMILMI.htm>)

Chart 2 Chatham and State Unemployment Comparison 1990-2003

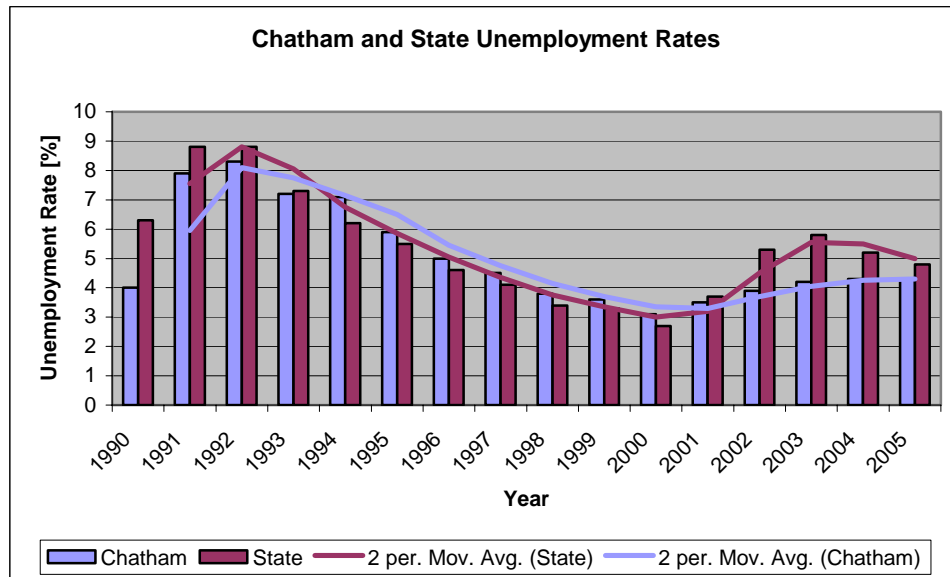


Chart Prepared by Jeff Thibodeau, Helios Land Design

Table 9, *Employment and Wages by Industry in Chatham 2001-2005* shows that both employment and wages have remained fairly constant between 2001 and 2005. According to figures released by the Commonwealth, in 2005 there were 407 business establishments in Chatham (those subject to unemployment compensation laws) employing an annual average of 3,125 persons. Employment has hovered between a low of 3,020 in 2001 and a high of 3,061 in 2002, a change of only 1.4%. The average weekly wage in Chatham has also shown only modest gains from a low of \$548 in 2001 to a high of \$616 in 2005, amounting to only a 12.4% increase in five years [2.5% per year]. This approximates the annual average inflation rate. Industries with the highest wages in Chatham are consistently in the following sectors:

- Professional and Technical Services
- Construction
- Finance and Insurance
- Wholesale trade
- Information
- Arts, Entertainment and Recreation
- Real Estate and Rental and Leasing

Though not providing the highest wages, the largest employment sectors in every year are Accommodation and Food Services followed by Retail Trade. In 2005, Accommodation and Food Services accounted for 781 jobs or 25% of the total. Retail Trade accounted for 489 jobs or almost 16% of the total. These figures illustrate the town's thriving and diverse economy employing both professional and blue collar workers as well as its dependence on tourism.

Table 9: Employment and Wages by Industry in Chatham 2001-2005

Employment and Wages by Industry in Chatham

Year	Industry	Establishments	Total Wages	Average Employment	Average Weekly Wage	
2005	Total, All Industries--All Ownership	407	\$100,037,589	3,125	\$616	
	Total, All Industries--Private Ownership	389	\$83,118,893	2,691	\$594	
	Construction	42	\$12,572,461	238	\$1,016	
	Manufacturing	15	\$1,601,464	66	\$467	
	Wholesale Trade	10	\$1,804,520	32	\$1,084	
	Retail Trade	83	\$12,302,909	489	\$484	
	Transportation and Warehousing	5	\$118,361	6	\$379	
	Information	6	\$1,142,077	36	\$610	
	Finance and Insurance	9	\$2,622,163	68	\$742	
	Real Estate and Rental and Leasing	13	\$2,657,959	72	\$710	
	Professional and Technical Services	35	\$6,528,178	133	\$944	
	Administrative and Waste Services	30	\$3,128,257	124	\$485	
	Health Care and Social Assistance	21	\$8,666,567	254	\$656	
	Arts, Entertainment, and Recreation	15	\$4,247,322	122	\$670	
	Accommodation and Food Services	61	\$18,265,924	781	\$450	
	Other Services, Ex. Public Admin	32	\$2,547,217	111	\$441	
	2004	Total, All Industries--All Ownership	419	\$96,632,453	3,040	\$611
		Total, All Industries--Private Ownership	401	\$80,305,519	2,637	\$586
		Construction	40	\$10,746,323	217	\$953
		Manufacturing	17	\$1,647,893	64	\$492
Wholesale Trade		7	\$1,507,072	19	\$1,532	
Retail Trade		86	\$12,260,743	462	\$511	
Transportation and Warehousing		5	\$131,960	8	\$324	
Information		6	\$1,320,228	38	\$668	
Finance and Insurance		11	\$3,492,096	85	\$791	
Real Estate and Rental and		16	\$2,349,584	66	\$686	

Year	Industry	Establishments	Total Wages	Average Employment	Average Weekly Wage
2003	Leasing				
	Professional and Technical Services	33	\$6,437,425	132	\$935
	Administrative and Waste Services	32	\$2,843,357	121	\$453
	Health Care and Social Assistance	21	\$7,364,161	225	\$628
	Arts, Entertainment, and Recreation	15	\$4,003,332	123	\$624
	Accommodation and Food Services	63	\$18,657,475	801	\$448
	Other Services, Ex. Public Admin	37	\$2,516,094	112	\$431
	Total, All Industries--All Ownership	415	\$91,477,661	3,042	\$578
	Total, All Industries--Private Ownership	397	\$76,865,790	2,659	\$556
	Construction	39	\$9,847,896	214	\$886
	Manufacturing	17	\$1,861,169	73	\$488
	Wholesale Trade	9	\$1,323,458	25	\$1,025
	Retail Trade	84	\$12,892,818	511	\$486
	Transportation and Warehousing	5	\$125,279	8	\$289
	Information	6	\$1,204,127	39	\$594
	Finance and Insurance	12	\$3,101,232	81	\$738
	2002	Real Estate and Rental and Leasing	14	\$1,691,950	58
Professional and Technical Services		34	\$6,526,088	131	\$961
Administrative and Waste Services		33	\$2,568,692	109	\$455
Health Care and Social Assistance		19	\$6,604,074	221	\$574
Arts, Entertainment, and Recreation		14	\$3,563,278	115	\$595
Accommodation and Food Services		64	\$17,801,832	779	\$439
Other Services, Ex. Public Admin		38	\$2,658,989	126	\$407
Total, All Industries--All Ownership		400	\$90,307,328	3,061	\$567
Total, All Industries--Private Ownership		382	\$76,449,576	2,696	\$545
Construction		37	\$8,565,064	203	\$812
Manufacturing		15	\$1,583,777	70	\$435
Wholesale Trade		9	\$1,373,921	33	\$793
Retail Trade		90	\$13,801,628	508	\$522
Transportation and Warehousing		4	\$163,392	10	\$302
Information		6	\$960,888	28	\$672
Finance and Insurance		11	\$2,884,533	82	\$681
Real Estate and Rental and Leasing		14	\$1,568,213	53	\$565
Professional and Technical Services	32	\$5,091,806	105	\$935	
Administrative and Waste Services	28	\$2,459,778	111	\$426	
Health Care and Social Assistance	20	\$6,527,334	217	\$579	
Arts, Entertainment, and	15	\$3,559,861	120	\$572	

Year	Industry	Establishments	Total Wages	Average Employment	Average Weekly Wage
2001	Recreation				
	Accommodation and Food Services	61	\$21,715,746	882	\$474
	Other Services, Ex. Public Admin	33	\$2,327,354	115	\$390
	Total, All Industries--All Ownership	393	\$86,006,087	3,020	\$548
	Total, All Industries--Private Ownership	375	\$73,060,609	2,662	\$528
	Construction	36	\$8,396,040	202	\$798
	Manufacturing	18	\$1,661,188	82	\$390
	Wholesale Trade	7	\$1,332,676	40	\$642
	Retail Trade	92	\$13,722,272	503	\$524
	Transportation and Warehousing	4	\$256,289	13	\$370
	Information	5	\$879,963	24	\$713
	Finance and Insurance	11	\$2,583,888	79	\$632
	Real Estate and Rental and Leasing	16	\$1,243,050	55	\$434
	Professional and Technical Services	28	\$5,015,089	103	\$938
	Administrative and Waste Services	27	\$2,274,467	101	\$434
	Health Care and Social Assistance	19	\$6,398,346	221	\$558
	Arts, Entertainment, and Recreation	14	\$3,232,798	110	\$564
	Accommodation and Food Services	56	\$20,665,635	873	\$455
	Other Services, Ex. Public Admin	36	\$2,101,861	114	\$354

Source: Massachusetts DET

One of the town's most productive sectors is anchored by its world renowned fishing industry. The town is the Cape's largest fishing port in terms of pounds landed. During the 1980s and 90s, the finfish catch figures for Chatham and Provincetown, which are combined by National Marine Fisheries for confidentiality, represented an average of 73% of the Cape's total catch in pounds. It has been estimated by Chatham's Wharfinger that 75% of the Chatham/Provincetown catch (in pounds) is brought in at Chatham; therefore, it is estimated that about 54% of the Cape's total catch is brought in here. Since Chatham's catch is fresh daily, it is more valuable than that of draggers in other ports, so may represent more than 54% of the value of the Cape's catch.

The poundage and value of the Provincetown-Chatham finfish catch varies from year to year. During the past 15 years, the poundage has varied between 14.0 million and 26.0 million pounds, and the value between \$10.5 to \$16.3 million. In 2000 Provincetown-Chatham's catch was 17.5 million pounds (40th nationally) with a total value of \$13.6 million (50th nationally). Generally, there has been a decline in overall poundage landed in the past decade because of failing stocks and tighter restrictions.

Table 10: Chatham/Provincetown Finfish Catch

Chatham/Provincetown Finfish Catch Pounds and Value Selected Years		
Source: National Marine Fisheries		
Year	Total Pounds in millions	Total Value in millions
1990	26.6	\$ 16.3
1992	15.2	13.8
1998	17.8	10.2
1999	20.0	12.9

2000	17.5	13.6
2001	17.1	18.0
2002	15.4	15.2
2003	15.2	13.5

Source: NOAA National Marine Fisheries website:

<http://www.nmfs.noaa.gov/ocs/tradecommercial/documents/Fisheries2000.pdf>

The steady decline in total landings is notable and well documented as fish stocks and greater competition have contributed to industry struggles. In the mid 1990s, Chatham's fleet was sustained by the spiny dogfish. In 1995, dogfish dominated the catch, with 9.9 million pounds landed in Chatham/Provincetown at a value of almost \$1.0 million. In contrast, 3.7 million pounds of cod were landed, valued at \$4.4 million (more than four times the dogfish value) and representing 40.5% of the total catch value to dogfish's 18%. Over 50 other species made up the remaining 48% of the catch, with the only notable species being bluefin tuna (12%), yellowfin flounder (5%) and angler and winter flounder (4% each). In the last few years, restrictions on dogfish have prompted a switch back to traditional species.

In commercial shellfishing, Chatham ranks very high, consistently being one of the top three shellfish producers in the state. Wellfleet is the only other Cape Town in this category. While the wholesale commercial value of the shellfish catch in most other towns is under a million dollars annually, Chatham's runs between \$3 and 5 million.

From 1996-1999, the commercial wholesale value of Chatham's shellfish catch remained fairly steady, at just above \$3 million, until 2000, when it jumped to over \$5 million. There was also an exceptional high of \$5 million in 1995. In 2005, the wholesale catch was down due to red tide, valuing only \$3,335,000. As in finfish, species caught and values fluctuate from year to year. Highest values are shown in good clam years. The recreational catch wholesale value fluctuated between \$118,000 and \$134,000 during this same period. In 2005 the recreation shellfish catch was estimated at 2800 bushels of mixed shellfish with an estimated wholesale value of \$230,000 (2005 Town of Chatham Annual Reports). Shellfish permits yield around \$150,000 annually to the town.

The shellfish industry was dealt a challenging blow in 2005 due to the regional Red Tide outbreak, the largest ever recorded in the Northeast (2005 Annual Town Report; p.107 and personal communication with Stuart Moore, Chatham Shellfish Constable). This resulted in a severe decline for many commercial shellfishermen during 2005 and into 2006. Numbers for 2006 have not been tallied as of the writing of this report.

Table 11: Commercial Shellfish Catch Value 1995-2006

**COMMERCIAL SHELLFISH CATCH VALUE
CHATHAM 1995-2005**

Source: Chatham Shellfish Constable

Year	Wholesale Value of Commercial Shellfish Catch
1995	\$ 5,012,000
1996	\$ 3,019,900
1997	\$ 3,049,100
1998	\$ 3,314,600
1999	\$ 3,141,150
2000	\$ 5,023,590
2001	\$ 5,640,000
2002	\$ 5,800,000
2003	\$ 5,104,000
2004	\$ 3,763,800
2005	\$ 3,335,000
2006	\$ 3,450,000

Source: Town of Chatham Shellfish Constable

These estimates are based on catch reports submitted by fishermen to the town. The apparent decline in 2005 is largely due to a lack of fishing effort cause by red tide closures (2005 Town of Chatham Annual Reports).

6. Commuting Trends and Traffic

Access to the Cape from Metropolitan Boston and areas north and west of Boston is provided by I-93, I-95, I-495 and Route 3. Access from Providence R.I., New York and points south is provided by I-95, I-195 and Route 6. The principal highway serving the Cape is U.S. Route 6 (the Mid-Cape Highway). Chatham does not have direct access to the Mid-Cape Highway, the principal roads serving the town being State Routes #28 and #137. Average annual daily traffic volume at the 37 sites monitored by the Cape Cod Commission can be found on the transportation section of the Cape Cod Commission's website at http://www.gocapecod.org/counts/pdf_count/chacount.pdf.

There is limited public transportation in the Town of Chatham. Bus service, the "Breeze", from Hyannis to Chatham is provided by the Barnstable County Regional Transit Authority as is the "B-Bus Dial-a-Ride", which services mainly the elderly and handicapped. Air service is provided to the Cape at Barnstable Municipal Airport in Hyannis, and at Chatham Municipal Airport (general aviation).

On-Cape Commuters⁶

Off-Cape residents commuting into Barnstable County numbered 7,845 in 2000. Eighty percent (5,761) of off-Cape commuters working in Barnstable County came from neighboring Plymouth and Bristol counties: 61 percent (4,371) from Plymouth County, and 19 percent (1,390) from Bristol. Another 13 percent of off-Cape residents working on Cape hailed from the three-county Boston area: 355 or 5 percent from Norfolk County, 325 or 4.5 percent from Middlesex County, and 237 or 3 percent from Suffolk County.

⁶ Most of the information contained in this section is taken verbatim and/or adapted from Cape Trends, published by the Cape Cod Commission and found on their Web site at: <http://www.capecodcommission.org/data/CapeTrends-Population080504.pdf>

Off-Cape Commuters

Until 1980, off-Cape residents commuting onto the Cape outnumbered Cape residents commuting off Cape, but by 2000 outbound Cape commuters were nearly twice their incoming counterparts. In April 2000, 14,493 of Barnstable County's 99,197 working residents commuted off Cape to work, almost half again the 10,477 who commuted in 1990. Over the past 40 years, Barnstable County population more than tripled from 70,286, while off-Cape commuting increased 1,440 percent.

Nine out of ten Cape commuters went to five adjacent counties. Nearly half (48 percent) of Cape commuters traveled to the three-county Boston area, and another 41 percent traveled to neighboring Plymouth and Bristol counties. With only county data available so far, the single top destination for Cape residents commuting off Cape in 2000 was Plymouth County, attracting 4,152 or 31 percent of Cape commuters. Another 1,264 or 9.5 percent of Cape commuters traveled to Bristol County. Boston-bound commuters included 2,767 or 21 percent of Cape commuters headed to Suffolk County, another 1,888 or 14 percent to Norfolk County, and 1,768 or 13 percent to Middlesex County.

Off-Cape Commuting and Cape Population Growth Rates

The rate of growth in off-Cape commuting peaked in the 1970s when Cape commuters nearly tripled from 2,095 in 1970 to 6,239 in 1980, after doubling from 941 in 1960. Although the percentage of commuters has continued to increase in the past two decades, growth rates have slowed to double-digit from the triple-digit rates of the prior two decades. The 1980–1990 rate of growth in off-Cape commuting was 67.9 percent, falling by nearly half in the most recent decade to 38.3 percent. In numbers, the 1980s saw the greatest 10-year gain in off-Cape commuters of the past four decades, up 4,238 from 1980 to 1990, ahead of the 4,144 added from 1970 to 1980 and the gain of 4,016 in the most recent decade. Overall Cape population growth peaked in the 1970s with the addition of 52,269 residents, followed by another 38,680 in the 1980s, and 35,625 in the 1990s. Over the past 40 years, off-Cape commuters as a share of all Cape residents grew fivefold, from 1.3 percent of all residents in 1960 to 6.5 percent in 2000.

D. Growth and Development Patterns

1. Patterns and Trends

Given that so much of Chatham is already developed, it is anticipated that the main development pressures in future years will be expansion, conversion and re-development. In commercial areas, redevelopment provides opportunities to improve deteriorated areas and strip commercial development, provided the town implements mechanisms that protect historic resources and community character. This is necessary to ensure high quality building and site design in all commercial areas. It is essential to ensure high quality design in the town and village centers which are so important to the historical image and character of the town. Future growth potential exists primarily in the areas of multi-family housing, affordable housing (Chapter 40B) and in the commercial/industrial sector due to current zoning and growth initiatives that encourage increased densities in these areas. In the past, residential development has continued unabated and the minimum lot size in residentially zoned areas has changed in response to wastewater and water protection concerns, among others.

In the coming years as complete buildout is approached, patterns and trends in both development and open space protection will become more creative by necessity. To keep pace with the increasing development pressures and impacts, open space planners will need to focus on new and better ways of protecting land including:

- Continued open space acquisition for natural resource protection and for active recreation, including acquisition of pond front and ocean access lands;
- Development of pocket parks and green spaces in and around dense residential and commercial areas;
- Undevelopment of existing developed parcels;
- Water supply development and protection;
- Historic preservation including scenic easements and protection of cultural landmarks and landscapes; and,
- Continued wastewater planning throughout town.

2. Infrastructure

Transportation

Rte. 28 is the only state highway which extends into Chatham. There are approximately 125 miles of roadway in town, approximately 9 miles of which are state highway and 40 miles of which are private. The town maintains 70 miles of public roadway, and approximately 11 miles of sidewalk. The vast majority of town roads are paved. The majority of private roads and most of the sidewalks are plowed by the town. The state maintains Rte. 28, and currently MHD is responsible for maintaining sidewalks on Route 28, however the town is in the process of negotiating this with MHD. Chatham's first and only bicycle path connects downtown Chatham with the Cape Cod Rail Trail via a spur from Harwich center.

The town has identified several issues/needs in the Comprehensive Plan regarding traffic:

1. Intersection Safety Problems.
2. Access control.
3. Downtown congestion.
4. Additional Sidewalks.
5. Additional Bicycle Trails and Facilities.
6. Street lighting.
7. Parking.

Water Supply

The Chatham Water Department began as a privately owned water company in the late 1920s and early 1930s. The system serviced areas along and south of Rte. 28, Main St., the downtown area and along Orleans Rd. The town purchased the water company from Avery Dewing Management, Inc. in 1984 so that the Town with its financial capabilities could expand the water system into areas of Town that have or may have drinking water problems.

Chatham's current water distribution system extends to approximately 98% of the town's land area. Around 85% of residences are on town water, the remainder being supplied by private wells. The water distribution system has over 100 miles of water mains and over almost 1,000 fire hydrants. There are two standpipes with a total storage capacity of 2.1 million gallons.

Residential customers are the biggest users of town water. Some water is always unaccounted for in a municipal system. Since 1991, Chatham has reduced its percentage of unaccounted-for water from an atypically high 17.5% to 10.1% in 2005 (2005 Town of Chatham Annual Reports). Leaking pipes in older parts of the system probably is the cause of most of the loss. With the replacement of services and pipes throughout town, the percentage should be further reduced.

Chatham's public water is supplied by eight active wells:

- South Chatham wells No. 1,2, and 3, located in the Town Forest, with a maximum combined yield of 1400 gallons per minute;
- Indian Hill Well No. 4 did not supply any water to the system in 2005, but has a capacity of 800 GPM;
- Training Field wells Number 5 and 8 with a combined yield of 1000 GPM;
- Tirrell's Way Well No. 6 with a maximum yield of 700 GPM;
- Eben's Way Well No. 7 with a maximum yield of 700 GPM; and,
- Town Forest Well #9, located north of the south Chatham wells.

These nine wells have a total combined capacity of approximately 5,250 GPM or 7.55 MGD (personal communication 3-28-07 with William Redfield, Water and Sewer Department Director). Map 5, *Water Resources*, shows the location of these wells. There is also a new well currently being developed, Mill Pond Well #10, south of Mill Pond near the Harwich-Chatham town line that is expected to have a capacity of 1 MGD.

The Indian Hill Well, which can produce about 1 million gallons per day) has been off-line since 1991 because of contamination by PCE (tetrachloroethylene) from an unknown source. The Draft 2001 LCP recommends that the town explore the possibility of putting the Indian Hill well back into operation if the source of contamination can be identified and remediated. It is currently available for emergency use only (personal communication on 3-29-07 with William Redfield, Water and Sewer Department).

In 2005, water demand averaged about 1.3 MGD (2005 Town of Chatham Annual Reports), but in peak season (summer), the demand can double or triple. Still, supply seems to far outweigh demand even during the highest use periods and steady development of new water sources has kept the town ahead of the curve. Projections of future demand are being updated in the town's Wastewater Management Plan, currently underway and past projections seem to have been met by new well development. The wells therefore theoretically meet current demands. Nonetheless, another well has been proposed on town-owned conservation property adjacent to the Goose Pond to ensure meeting future demand.

The main groundwater resource region, bounded in general by the water table contour line 10 feet above sea level, lies in the northwestern and central part of the Town, and covers about one quarter of the total mainland area. Most of the town well sites are located within this area. These well sites and their surrounding Zones of Contribution (ZOCs) or watersheds are protected by the *Water Resource Protection District* bylaw, enacted by the town in 1996. The Zone II Wellhead Protection Area delineated for these wells extends into the neighboring town of Harwich and encompasses several of their wells as well, making water protection in this area a cooperative inter-town effort.

Wastewater System

Chatham is one of few towns on the Cape operating a municipal sewage disposal system. All treated sewage is disposed into the land, within the town, either at the municipal wastewater treatment plant -- which serves principally the central business district and some adjacent residential areas -- or else at individual residences and businesses having private in-ground septic systems.

The sewage treatment plant and the contiguous sanitary landfill area together comprise about 100 acres of land. They are located in the western center of the town's land area, surrounded by developed or developable land zoned for residence, business or light industry. The sewage treatment plant provides secondary treatment for effluent from the sanitary sewer system. It also receives septage, delivered by tank truck, pumped from various residential and business septic systems. Septage delivered to the plant is pre-aerated before introduction into the main treatment system. Secondary treated effluent is discharged into extensive filter beds, leaching into the underlying sandy soil.

Current regulations of the Board of Health require septic systems to consist of septic tanks and leaching pits or fields, all underground, discharging fluids only into the subsurface soil. Some cesspools exist in the older parts of town. The Chatham Board of Health also has a number of regulations stricter than the state Title 5 code for the subsurface disposal of sanitary sewage.

3. Long-term Development Patterns

For many of the most important growth planning issues facing the town, the state can act as a planning partner by providing technical assistance as well as incentive and funding programs. One of the most important programs recently instituted is the Community Preservation Act which, through its enactment, recognizes the importance for working now to shape a community's long term development patterns and character.

The Community Preservation Act⁷

⁷ Much of the following information was taken verbatim from the Massachusetts Executive Office of Environmental Affairs (EOEA) Web site at <http://commpres.env.state.ma.us/content/cpa.asp>.

The Community Preservation Act (CPA) was signed into law by former Governor Paul Cellucci and Lt. Governor Jane Swift on September 14, 2000. The CPA allows communities to create a local Community Preservation Fund in the municipality to be used through a surcharge of up to 3 percent of the real estate tax levy to be spent on real property for open space, historic preservation and low and moderate income housing. The act also creates a significant state matching fund of more than \$25 million annually, which will serve as an incentive to communities to take advantage of the provisions of this legislation. As noted in Table 12, *Community Preservation Act Details*, the town passed the CPA in 2002 by popular referendum. Total revenues from the CPA for Chatham in 2006 were \$539,516.00. Revenues for 2005 were \$503,006.00. Revenues for 2007 were \$563,617. (<http://www.mass.gov/Ador/docs/dls/mdmstuf/CPA/FY06CPAPayment.xls>).

The CPA is an innovative tool for communities to address important community needs. Once adopted locally, the Act requires at least 10 percent of the monies raised to be distributed to each of three categories: historic preservation, open space protection and low and moderate income housing, allowing the community flexibility in distributing the majority of the money for any of the three categories as determined by the community. Each of the three areas highlighted by the fund is an important focus for Chatham's open space and recreation planning.

Table 12: Community Preservation Act Details

Chatham Community Preservation Act Details	
Details	
Date of passage:	5/16/02
Vote count of passage:	Passed election 213 yes (56%), 167 no (44%)
Percentage:	3%
Exemptions:	Low, first \$100K

Source: EOEa Website (http://commpres.env.state.ma.us/community/cmt_main.asp?communityID=20#Absolute)

Buildout Analyses

To assist in identifying the town's future needs, the state Executive Office of Environmental Affairs (EOEA) sponsored the creation of a set of buildout maps and analyses for all 351 cities and towns within the Commonwealth of Massachusetts. Chatham's EOEA buildout analysis is discussed below along with two other buildouts, one prepared as part of the Monomoy Capacity Study and the other as part of the Comprehensive Wastewater Management Plan. Each of these has its merits and its liabilities and both are discussed briefly below. Taken together, they may provide a more holistic and balanced vision of what Chatham may look like when completely developed.

EOEA Buildout Analyses⁸

The summary data below is for the Town of Chatham. This data profile includes summary statistics that are a component of a buildout map and analysis series. The analysis starts with available land in each zoning district and makes projections of additional housing units and commercial/industrial space according to each district's minimum lot size and other zoning regulations. The projections only account for as of right development and do not include development by special or comprehensive permit that may increase the amount of development. These buildout projections were combined with U.S. Census 2000 and other data to create a profile of each community at buildout according to its current zoning.

⁸ Most of the information contained in this section is taken verbatim and/or adapted from the EOEA Web site.

**Table 13: Town of Chatham EOE A Buildout Analysis Summary
[Completed in 2000]**

Category	Buildout Projection
Developable Land Area (sq. ft.)	52,869,513
Developable Land Area (acres)	1213.717
Total Residential Lots	1126
Total Residential Dwellings	1198
Comm./Ind. Buildable Floor Area (sq. ft.)	738,144
Comm./Ind. Buildable Floor Area (acres)	16.95
Residential Water Use (GPD)	88,368
Comm./Ind. Water Use (GPD)	55,361
Municipal Solid Waste (tons)	604.44
Non-Recycled Solid Waste (tons)	430.06
New Students	119 ⁹
New Roads (miles)	16.59

Source: EOE A Web site

(http://commpres.env.state.ma.us/print/pcnty_profile.asp?communityID=20&communityName=Barnstable&communityCode=barn&communityType=TownWithCityGvt&displayType=®ionID=CPIS®ionName=Cape+Cod+and+Islands)

Table 14: Buildout Changes in Population, Students, Households and Water Use¹⁰

	1990	1998	Additional @ Buildout	Total @ Buildout
Population	6,579	7,098	1,178 (16.6% increase)	8,276
Students	648	707	119 (16.9% increase)	826
Households	3,023	3,224	575 (17.9% increase)	3,799
Water Use (gal./day)		1,198,389	149,380 (12.5% increase)	1,347,769

Source: EOE A Web site

The buildout scenario, by definition, attempts to illustrate what the town will look like when completely developed based on zoning at the time of the study (completed 2000). Thus, all trends and impacts are upwards and usually dramatic. Based on the numbers provided by the EOE A, demographic projections indicate increases from 1998 figures to buildout of between 12 and 17 percent in all categories: Population (16.6 percent), Students (16.9 percent), Households (17.9 percent), and Water Use (12.5 percent)¹¹. This is likely to mean that impacts upon town services will be high. Increased traffic is likely to overburden some major roads, particularly Route 28 in the downtown core. Issues with water and wastewater are likely to intensify. The number and availability of open space and recreation facilities will need to keep pace with the needs of a growing population. The Town of Chatham should strive to increase the number of open space and recreation facilities by a minimum of 15 percent in each category in order to ensure that the ratio between current facilities and buildout projections is maintained and possibly increased. An estimated 1,214 acres were found to be developable by the study.

⁹ This number was changed from 50 to 119 to account for discrepancies in data provided by EOE A. In discussions with Jane Pfister of EOE A on 1/10/07, she noted that there are multiple discrepancies in the buildout data produced by the State due to lack of zoning information and to inaccurate formulas. The numbers used in this section are approximate only but deemed sufficient for general planning purposes.

¹⁰ As noted above, there are some discrepancies in the information contained in Table xx and xx due to inaccurate assumptions and calculations performed by the State. However, these tables are intended to provide ballpark estimates suitable for planning purposes.

¹¹ Percentage calculation conducted by Helios Land Design based on EOE A figures.

Monomoy Capacity Buildout Study

“Build-out” analyses, projecting maximized land use under current zoning bylaws, were also completed as part of the regional *Monomoy Capacity Study* in 1996 and in 2000 by the state’s Department of Housing and Community Development. Under the town’s Wastewater Management Study, currently being developed, projections were made taking into account the zoning changes proposed in the draft comprehensive plan. An analysis of vacant residential land was undertaken by the town’s Department of Community Development in 2000 to determine residential build-out.

The “build-out” projections were that the number of housing units could increase by 1,953 units or 30%, bringing the number of dwelling units to 8,047. Assuming the ratio of year-round to seasonal dwelling units (48%-52%) and the average occupancy (2.1) remain fairly constant, a build-out population of about 8,200 was calculated; this number approximates that in the EOEА buildout.

Chatham Comprehensive Wastewater Management Plan

As part of the town’s on-going wastewater management study, the Monomoy Capacity Study’s build-out analysis was updated in 1999 (Stearns & Wheeler, LLC). While the Monomoy Capacity Study was based on current zoning designations, the analysis used concepts of the proposed comprehensive plan, notably the village center concept. In terms of land use, the village center concept reduces non-residential acreage and increases the number of potential dwelling units by allowing mixed use buildings (commercial and residential) and apartments in the village centers and some increase in density along Main St. between the village centers. The projections also took into account purchase of land by the Land Bank.

The projections for build-out show 7,758 residential properties and 1,379 non-residential properties. The projection for total year-round population at build-out (around 2020) is 7,900. This is approximately 5% below the Monomoy buildout projection and 4% below the EOEА projection.

Projections were developed to quantify the number of bedrooms at build-out for the purpose of projecting future water usage and wastewater generation. The projections are that the present 18,212 bedrooms will increase to 26,674 at build-out, and increase of 8,462 bedrooms, a 46% increase. This figure includes the expansion of all existing one and two-bedroom dwelling units to three bedrooms.

The study also projected future commercial and industrial use. However, the analysis was done on a parcel basis, so is not directly comparable to figures projected by the Monomoy Capacity Study and the state. An addition of 63 commercial properties and 70 industrial properties were projected.

Affordable Housing and Open Space

The Commonwealth of Massachusetts encourages the creation of more affordable housing for its citizens through the establishment and enforcement of M.G.L. Ch. 40B, The Massachusetts Comprehensive Permit Law, whose purpose is to increase the supply and improve the regional distribution of low and moderate income housing by allowing a limited suspension of existing local regulations which are inconsistent with construction of such housing (Mass DHCD Web site: <http://www.mass.gov/dhcd/Toolkit/ch40Bgl.htm>).

Prior to applying for a comprehensive permit, a proposal to build affordable housing must receive preliminary approval (normally a Project Eligibility or Site Approval letter) under a state or federal subsidy program. The application, containing the eligibility letter and preliminary development plans, is then filed with the local zoning board of appeals. The board then notifies and seeks recommendations from other local boards. The zoning board of appeals holds a public hearing to ensure that local concerns are properly addressed. Local concerns include health, safety, environmental, design, open space and other concerns raised by town officials or residents. In making its decision, the board acts on behalf of all other town boards and officials, but only with regard to matters where local restrictions are more stringent than state requirements. The board can issue a single comprehensive permit, which subsumes all local permits and approvals normally issued by local boards. It can also issue a comprehensive permit with conditions or deny the permit. If a comprehensive permit is granted, the applicant, prior to construction, must normally present final, detailed construction plans to the building inspector or similar officials to ensure that the plans are consistent with the comprehensive permit and state requirements.

The general principle governing hearings before the local board and the Housing Appeals Committee is that all local restrictions, as applied to the proposed affordable housing, are "consistent with local needs." General Laws c. 40B, § 20 defines consistency with local needs as being reasonable in view of the need for low and moderate income housing balanced against health, safety, environmental, design, open space and other local concerns. If less than 10 percent of municipality's total housing units are subsidized low and moderate income housing units, there is a presumption that there is a substantial housing need which outweighs local concerns. See 760 CMR 31.07(1)(e); Board of Appeals of Hanover v. H.A.C., 363 Mass. 339, 367, 294 N.E.2d 393, 413 (1973). In 2008, Chatham's percentage is 4.87% (175 affordable units out of 3,596 year round units).

In Chatham there is an active push to create more affordable housing spearheaded by the Board of Selectmen, Affordable Housing Committee and Chatham Housing Authority in order to be consistent with the state's requirements. In 2001 the Affordable Housing Committee was formed to assist in these efforts and in 2004 a Non-Profit Committee, Friends of Chatham Affordable Housing, was formed to raise project seed money. Working with Habitat for Humanity, these three Committees have made significant progress. As a result, the 2005 Annual Town Report estimated that by the end of 2006, the town's percentage of affordable units will have risen to approximately 5%. The most recent project, creation 47 affordable rental units on Lake Street, was sponsored by The Community Builders (in partnership with the Chatham Housing Authority) with the additional support of CPA funds.

However, the creation of more affordable housing can often present a challenge to open space and recreation planning efforts when developments are proposed on land that may be valuable for open space and recreational purposes. Even though the state's description of the CPA states "there is a presumption that there is a substantial housing need which outweighs local concerns", not all would agree with this, particularly when important natural resource values are overlooked.