

3.3.3. HULL, MA

Population Density	3676/ sq. mi.
Form of Government	Town
Category	Bayfront Suburban
CRS Rating	8
Land Area In Municipality	2.8 sq. mi.

Median Household Income	Median Per Capita Income	% Owner Occ	Population	2000-2010 Pop Growth Rate	% White	% Hispanic	% Minority	% Seasonal Housing
60742	34892	55.3	10293	-0.71	95.2	2%	5.7%	13.8

Adaptations	Status	Incorp orates CC	Type	Impact	Standard Costs		Funding Source
Beach Management Plan Incorporates Climate Change	Completed	Yes	Plan	Procedural	Planning	Recommendation	Unique
Capital Investment in Culverts and Tidegates	Implemented	No	Capital Investment	Protection	Infrastructure (Gray)	NA	Unique
Hazard Mitigation Plan Incorporates Climate Change	Completed	Yes	Plan	Procedural	Planning	Recommendation	Unique
Freeboard Incentive Program	Implemented	No	Administrative	Accommodation	Building	Incentive	Unique
Zoning Law Explicitly Incorporates CC and SLR	Implemented	Yes	Law	Accommodation	Planning	Mandatory	Unique
Height Limit Waivers for Freeboard	Implemented	Yes	Law	Accommodation	Building	Incentive	Unique
Code Requires Planning Board to Consider Flooding and SLR in Decisions on Applications	Implemented	Yes	Law	Prevention	Planning	Mandatory	Unique

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POPULATION AND GEOGRAPHY

The town of Hull is located entirely on the narrow Nantasket peninsula that sits at the entrance of the Massachusetts Bay, across from Boston. At 2.8 square miles, the town is the fourth smallest in land area in the Commonwealth of Massachusetts. Its population is quite dense, however, with 10,293 people, giving it a population density of 3,676 per square mile. Hull has 33 miles of densely developed shoreline, and is surrounded by water on its north, east, and west. It is connected by land to the town of Cohasset and by two bridges to Hingham on the south. The town's diverse shoreline environment includes bays, estuaries, rocky promontories, beaches, and bluffs and the bayside is comprised of sandy coves, inlets, marshes, and a tidal pond. Its southern border is flanked by the Protected Weir River estuary, which contains 600 acres of undeveloped land. Hull's jurisdiction also contains some of the islands in the Boston Harbor Islands State Park.

The town has a long history of attracting seaside tourism as an economic engine, but in recent decades has morphed into more of a bedroom community. As described in the Hazard Mitigation Plan ("HMP") Update (Hull, Mass. 2012, p.9):

In 1825, a new industry was launched in Hull when Paul Warrick built the Sportsman Hotel on Nantasket Avenue, the very first hotel in the town. The magnificent beaches of the town, easy access to Boston, and sea air brought hordes of visitors and by 1840 steamers were making three trips a day between Boston and Hull. Boardinghouses and elaborate hotels catered to visitors while Hull fishermen and farmers still pulled nets and farmed in its rural acreage. When the amusement park closed in 1985, an era ended for the town and the millions of visitors. But another era began as Hull acquired a suburban character with a growing number of professionals moving into town, and today there are over 11,050 year round residents.

This new reality is reflected in its current demographic and housing profile. Seasonal housing currently only represents 13.8% of the residential stock, and the minority population is under 6%. The 2010 Census recorded the median per-capita income as \$34,892 and the median household income as \$60,742.

COASTAL ISSUES

The Town of Hull is located in an extremely vulnerable location. According to the Hull Hazard Mitigation Plan, coastal flooding caused by hurricanes, nor'easters, and other oceanic storms poses the most significant threat to the community. (Hull, Mass. 2012 Hazard Mitigation Plan Update) The plan highlights sea level rise associated with global warming as a threat and addresses how it impacts other hazards in the town.

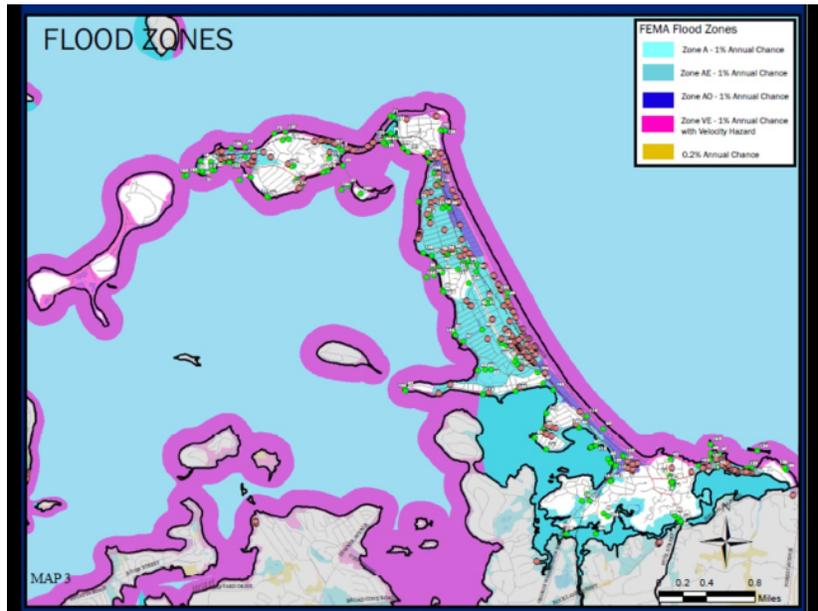


Figure 3.3.3:1 - Hull Flood Zone Maps

Low-lying parts of town directly on the shore are particularly vulnerable, since

storm-driven waves can top the sea wall and dunes. The Hazard Mitigation Planning Committee identified 931 buildings in the town in that high-risk zone. The town has experienced a number of significant historical flood events, including March 1968, the blizzard of 1978, January 1979, April 1987, October 1991 (“The Perfect Storm”), October 1996, June 1998, March 2001, April 2004, May 2006, April 2007, March 2010, and December 2010.

In Hull, flooding occurs most frequently along the open ocean shoreline, which is subject to wind-driven waves, and "where even a relatively small storm can lead to very high tides and overwash of seawalls and dunes, and in a number of low-lying neighborhoods throughout the town" (Hull, Mass. 2012 Hazard Mitigation Plan Update, p. 21). A significant majority of the town is in a FEMA-designated floodplain. There are 235 repetitive loss structures in Hull and 2,102 NFIP policies in force.

ADAPTATIONS

Beach Management Plan Incorporates Climate Change

The North Nantasket Beach is comprises the northernmost two miles of the 3.5-mile barrier beach. The plan provides best management practices to enhance natural resource functions and values and stewardship of the beach. The plan includes mention of sea level rise in the following manner:

Sea level rise and an increasing frequency and intensity of coastal storms are among the projected impacts of a warming global climate. In the Boston area, seas are currently rising at the rate of nearly one foot per century. While future rates of sea level rise are uncertain, projections are in the range of 2 to 4 feet, or higher, by the end of the century. The dunes serve as critical protection

against flooding and storm damage during winter northeasters. The impacts of climate change will make it more challenging to maintain and protect our dune system – and all the more critical that we do so in order to protect lives, property, and town infrastructure. (Hull, Mass., North Nantasket Beach Management Plan, p. 6)

Intriguingly, and unique among our sample communities, the Beach Management Plan has the force of law. The plan contains legal language explaining its enforcement and provides criminal and civil penalties for violation:

Whoever violates any of the provisions of this Plan shall be deemed to have violated the provisions of the Code of the Town of Hull authorizing this Plan. Violators shall be subject to a fine of up to \$300.00, or such maximum fines as may be otherwise provided by law, whichever is greater. A violation of this Plan may also be penalized by a non-criminal disposition as provided for in M.G.L. C. 40, section 21 D and as provided for under Chapter 1 of the Code of the Town of Hull. Each day's violations shall constitute a separate violation.

If any person or entity violates the provisions of this Plan, or causes damage to the dune or beach, including but not limited to physically damaging or destroying the access control structures, signs, and beach grass, or lowering the elevation of the dune, the Town may initiate civil action against such person or entity to protect the dune and beach system, and to restore the same. Nothing contained herein shall however, operate to limit civil actions or criminal prosecutions which the Town may take under this Plan, or any other applicable law, rule, regulation or right. (Sec. 7.14; p. 22).

The plan's regulations include:

- Prohibition on trespassing on the primary dunes (7.3)
- Removing natural vegetation except for construction or maintenance (7.5)
- Removing sand from the beach or dune (7.6)
- Requiring sand transported by wind, tides, or storms to be restored to the beach (7.7)

Hazard Mitigation Plan Incorporates Climate Change

Hull incorporated climate change into its Hazard Mitigation Plan. It states:

Global climate change, erosion of beaches, and a variety of other factors impact the Town's vulnerability, and local officials will need to work together across municipal lines and with state and federal agencies in order to understand and address these changes. (HMP, p. 2)

The following goals of the HMP reference climate change:

- Encourage future development that addresses hazard mitigation including measures that reflect mitigation and adaptation to climate change and the risk of sea level rise
- Educate the public about natural hazards and mitigation measures including the potential impacts of climate change

Hull's HMP evidences its efforts to seriously implement many of the mitigation measures suggested. Successfully implemented projects since the previous iteration of the HMP include:

- 1) Public education for residents in flood hazard zones
- 2) Repairing and protecting dunes along Nantasket Beach
- 3) Repairing the Nantasket sea wall
- 4) Upgrading the Straits Pond at Nantasket Avenue Culvert
- 5) Atlantic Avenue bridge and tidegate repairs
- 6) Reinforcing and protecting electric transmission lines from weather and tree damage
- 7) Examining the need to elevate generator and mechanical systems at the Memorial School, which serves as the Town's emergency shelter
- 8) Structure elevation incentive program

Freeboard Incentive Program

In 2009, Hull began an incentive program enabling the Buildings Department to offer a \$500 credit toward building permit fees for builders and owners of existing and new residential and commercial structures that are built two feet above the highest state flood zone minimum height elevation requirement. For residential and commercial building elevation, or new construction projects, building department permit fees are reduced by \$500 if an elevation certificate is provided to verify the building is elevated a minimum of 2 feet above the highest federal or state requirement for the flood zone.

Since the program began in 2009, 20 of 24 building permits issued for construction have incorporated more than two feet of freeboard – an 83% participation rate. Of the total number of permits issued, 17 were for new construction and 7 for elevation of an existing structure. Costs of constructing with freeboard include a 0.25% to 1.5% increase of total construction costs, which over time may be outweighed by savings from reduced flood insurance premiums, sometimes at more than 50% annually (Mass. CZM, n.d.).

Explicit Incorporation of Climate Change and Sea Level Rise into Zoning Bylaw

The town passed the Nantasket Beach Overlay District zoning on May 7, 2013. (Hull Town Code, Art. X)

The stated purpose of the district “is to stimulate mixed use redevelopment...appropriate for an historic beachfront community...to revitalize the economy...while protecting people, property and resources.” The purpose section includes climate mitigation objectives - to encourage mixed uses and a pedestrian and bicycle-friendly community, less sprawl explicitly stated to reduce GHG emissions; and 1.6) to protect barrier beaches and dunes in providing storm and flood protection and wildlife habitat, and 1.7) to incentivize development that can withstand increased flooding “and frequency and intensity of storms caused by climate change, and thereby; protect persons and property from the hazards that may result from unsuitable development in areas subject to flooding, extreme high tides, and rising sea level” (1.7).

The zoning provides for section entitled S. 12. *Adaptive and Resilient Building and Open Space*. Town Planner Robert Fultz indicated that the NBOD district will guide large projects to clusters with usable open space. The stated purpose of the section is “to encourage construction that will

withstand increased flood elevations and frequency and intensity of storm events for new (and substantially improved) buildings.” (S. 12)

Section 12.2. lays out the incentives the town provides to encourage resilient buildings, including including the \$500 freeboard rebate (12.2.1), and the savings on insurance from NFIP (12.2.2); and provides that the planning board may allow building heights up to 40 feet above a non-habitable lowest floor; provided the space be a “market hall.” The section allows up to 6 feet of freeboard. (12.2.3)

In order to receive the incentives, the projects must meet certain requirements, including that they not allow any habitable space on the ground floor. Instead, it requires a “market hall,” which is defined as a traditional-open market, for temporary commercial uses, that contribute to the economic and social activity of the district. (12.3.2.) Suggested uses include farmers markets, art exhibition or performance spaces and outdoor cafes. Parking is allowed provided it does not occupy more than 50 percent of the space.

The section also prohibits mechanical, HVAC equipment, and generators on the lowest floor and requires them be elevated on the roof or upper stories.

The code also provides the following unique requirements:

12.3.6. Requires underground utility lines and submersible HVAC equipment

12.3.8. Requires incorporation of green building standards (to the greatest extent possible)

12.3.9. Requires incorporation of landscape features to provide storm and flood protection (to the greatest extent possible)

The new zoning was developed through an extensive public participation process with over 23 meetings. As a result of the extensive public involvement process, the town was able to balance community values, market viability and concern about climate change and sea level rise.

Section 43 of the code also has a cluster provision which provides for a density bonus of 25% for subdivisions of a minimum of ten acres and potentially could be used to prevent development of floodplains and wetlands. Hull has few parcels of this size, however, so the provisions have not been yet utilized.

Zoning Bylaw Allows Height Limit Waivers for Freeboard

The Town of Hull has furthered its goal of encouraging voluntary freeboard, by taking the additional step of amending its code to allow property owners to request a special permit to exceed the permissible height limit. The language allows owners to exceed the height limit by the amount of freeboard incorporated into the design of the structure, up to a maximum possible four feet. Rooftop mechanicals must be below the total allowed height, however. (Hull Town Code, 7.2.2)

Amended Code to Require Planning Board to Consider Sea Level Rise in Applications

Hull also amended its code (Hull Town Code, Art IV., Sec. 40) to require the planning board to consider Sea Level Rise in its site plan reviews. Site plan review applies to subdivisions three lots or greater, multi family buildings of three units or more, and changes to buildings larger than 5000 square feet. According to the town, the purpose of these amendments was to ensure that

applicants provide information about flood zones and consider the current and future potential for flooding, and have the Planning Board review the adequacy of plans to prevent flood damage.

The town added a new flooding provision to Section 40-4 A of the code, which provides for considerations the Planning Board should use when rendering a decision on an application, including:

1. Preservation of Landscape
2. Community Impacts
3. Relation of Proposed Buildings and Structures to Environment
4. Drives, Parking and Circulation
5. Surface Water Drainage
6. Utility Service
7. Advertising Features
8. Special Features
9. Other Environmental Impacts
10. Outdoor Lighting
11. Vistas and View Corridors
12. Flooding: Special attention shall be given to maintaining the natural capacity of the land to prevent or reduce flooding. Structures, including fill, shall be designed with special attention to minimizing the potential for property damage from flooding and the re direction of flood waters to other locations.

The code also requires applicants provide a narrative description of the proposed project. The amendment added flooding and the impact of sea level rise to a list of items required including "site planning, architectural, landscaping and engineering solutions...to handle the problems of traffic, parking, internal pedestrian circulation, provision of utilities, drainage, wastewater and solid waste disposal, lighting and signage, environmental protection and aesthetic considerations such as views and design compatibility with surrounding development." (Hull Town Code, Art IV., Sec. 40).

In addition, the town added "Protection against flood damage on site and protection against flood impacts to adjoining properties, taking into consideration current conditions and the potential for future sea level rise" (Sec. 40-4) to the code, which sets out the design guidelines the Planning Board may consider in making its decision.