

3.2. NEW HAMPSHIRE

3.2.1. PORTSMOUTH, NH

Population Density	1340 / sq. mi.
Form of Government	City
Category	Riverfront Urban
CRS Rating	Not Participating

Median Household Income	Median Per Capita Income	% Owner Occ	Population	2000-2010 Pop Growth Rate	% White	% Hispanic	% Minority	% Seasonal Housing
52831	35386	47.0	20779	0	91.5	3%	10.2%	1.3

Adaptations	Status	Incorp orates CC	Type	Impact	Standard Costs	Funding Source
Coastal Resiliency Initiative	In Progress	Yes	Procedural	Recommendation	Unique Low (< \$10,000)	Other
Tidal Wetlands Buffer Protection - 100 Feet	Implemented	No	Protection	Mandatory	Unique Low (< \$10,000)	None

CONTACTS

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POPULATION AND GEOGRAPHY

Historic Portsmouth, settled in 1623 and incorporated in 1848, is the largest city on the New Hampshire coast, with a population of 20,779. The city was once one of the busiest ports in the United States, and it continues that role today as an industrial and business center. Portsmouth is also a major tourist destination. Its historic downtown and its numerous cafes and restaurants attract many summer visitors, although the seasonal population of less than 2% of housing stock.



Figure 3.2.1:1 - Historic Downtown Portsmouth

Portsmouth's population is 91% white, and has a median per capita income of \$35,380.

The city does not have a seacoast, but rather borders the tidal Piscataqua River, which separates it from the State of Maine. The towns of Rye and New Castle are to its east, and it borders the towns of Greenland and Newington on the west. Interstate 95 and US 1 cross the city and provide direct access. It has a land area of 15.6 square miles.

COASTAL ISSUES

The city's hazard mitigation plan identifies Portsmouth as vulnerable to a number of coastal hazards, including flooding, hurricanes, and coastal storms. Portsmouth has a low average elevation and its building stock is vulnerable due to its significant age. 33% of the land mass of Portsmouth is classified as wetlands, including the major wetland areas of Great Bog, Berry Brook, Sagamore Creek, and Packer Bog. (Portsmouth, N.H. Master Plan, 2005)

Total damage estimates for a 1-, 2-, and 4-foot flood were calculated for five potential flood hazard areas. The State and Middle flood hazard area was calculated at risk for the most widespread damage, with estimates of total structural and contents damage of \$11 million, \$15 million, and \$21 million in a 1-, 2-, and 4-foot flood, respectively. The Sewall and Thaxer area was estimated to have up to \$4.5 million in damages in a 4-foot flood, while the North Mill Pond area could experience \$2.5 million in losses. Total damages for the Sagamore Creek area in a 4-foot flood were estimated at \$928,000.

The total area subject to a 10-year flood is 70 acres; the area subject to a 100-year flood is 102 acres. In one sea level rise scenario calculated for the New Hampshire coast, the area in each

category in Portsmouth would double by 2100. Portsmouth's recently issued RFP for a coastal resiliency project also detailed a number of the risks of climate change. In particular, it stated, "Increased intensity and frequency of coastal storms and sea level rise has the potential to result in extensive property damage and costly repairs..." (Portsmouth, N.H. Coastal Resilience Initiative Request for Proposals "RFP" 2012) The RFP also highlights the concern about property losses in its historic district.

The RFP in particular highlighted the following key issues facing Portsmouth:

- Locational vulnerabilities of existing densely built neighborhoods and commercial areas
- Age and potential instability of existing buildings and infrastructure
- Economic hardship to prepare for and recover from storm damage
- Impacts on water quality
- Impacts on significant ecosystems
- Costs of hazard preparedness

ADAPTATIONS

Coastal Resilience Initiative

The City of Portsmouth received an NROC & GOMA Coastal Resilience Grant through the New England Municipal Coastal Resilience Grants Program. The funds will be used to assess and increase the city's resiliency to climate change and extreme weather events. The city posted a request for proposals for its coastal resilience initiative in April 2012. The consultant team is to "analyze the potential future impacts of climate change on the city of Portsmouth in order to integrate adaptation planning into the City's local planning and regulatory framework." (RFP, p. 1)

The scope of work includes a vulnerability assessment, development of risk scenarios and a risk management plan, and a public outreach component. The project will include the identification of climate change scenarios based on projections for the rate of sea level rise, change in storm frequency and intensity, potential change in storm surge, and temperature changes.

Three to six scenarios are to be developed to evaluate vulnerability and resilience. GIS mapping will be used to identify geographic areas of the city vulnerable to different climate



Figure 3.2.1:2 - The Portsmouth High School is located close to the downtown on this tidal pond. It is subject to flooding, but is an essential part of the historic and scenic character of the community, illustrating the place-based challenges of adaptation.

change impacts, including a list of impacts to city facilities, infrastructure, private homes, and businesses, as well as impacts to natural resources such as wetlands, saltmarsh, and other natural communities.

The risk management plan will use a set of potential strategies to address different climate change risks, including high- and low-cost and short- and long-term options.

The consultant is also expected to identify adaptation implementation strategies, including a report on additions and changes to the master plan and recommendations for incorporating best practices into the zoning and building ordinances, and is also expected to provide content for the StormSmart Coasts website, including a discussion of how the projects' outcomes can be shared and used by other coastal communities.

Tidal Wetlands Buffer Law - 100 Feet

Portsmouth requires a wetland buffer for any wetland or water body of 100 feet. (Portsmouth, N.H. Town Code, Sec. 10.1014.22). The buffer requirements apply to the tidal wetlands of Sagamore Creek, Little Harbour, North Mill Pond, and South Mill Pond; all vernal pools; and inland wetlands of great than 10,000 sq ft. (Sec. 10.1013)

The ordinance prohibits construction of buildings or any impervious surfaces as well as filling or dredging in the wetland or wetland buffer. Examples of permitted uses include forestry and tree farming, wildlife refuges, parks and recreational uses, conservation and nature trails, and open spaces. (Sec. 10.1016.10) The use of motor vehicle is also expressly prohibited.

There is an exception for the construction of an addition or extension to a house that existed prior to the effective date of the ordinance or was constructed subject to a conditional use permit, with specific limitations on the size of such addition.