

VULNERABILITY ASSESSMENT

Quincy completed a vulnerability assessment (VA) to estimate the extent or magnitude of potential damages from natural hazards of varying types and intensities. The VA focuses on flood risk and the identified community assets to estimate the potential losses that Quincy could experience during a flood under existing and future conditions with climate change.

The VA included analysis for each geographic area in Quincy, and separate analysis for vulnerable community assets and future development.

Economic losses due to a flood include, but are not limited to damages to buildings (and their contents) and infrastructure, business interruption (including loss of wages), impacts on tourism, and tax base.



MITIGATION STRATEGY FOR HOUGHS NECK

The City has evaluated a number of projects to include in the 2019 HMP mitigation strategy that will directly benefit the residents and business in the Houghs Neck/Germantown Area. The projects related to coastal erosion and flooding are listed below. Additional projects addressing other natural hazards are listed in Table 7.3 of the HMP.

- Houghs Neck/Manet Seawalls Construction
- Germantown Seawalls Design, Permitting & Construction
- Broadmeadows School Flood Protection
- Houghs Neck Emergency Access along MWRA sewer easement
- Develop hydraulic model and update tide gates for Norton Road, Post Island Road and Bayswater Road

Houghs Neck/Germantown - Flooding Vulnerability

City-wide, about 20% (4,100) of all 19,603 developed parcels in Quincy are located in the FEMA 100-year flood plain. 13% (2630) are in coastal floodplain areas and the remaining 7% (1456) are in inland floodplain areas. Areas where both coastal and inland flooding occur are especially impacted when storm surge, high tides, and stream discharge coincide in the same storm.

Houghs Neck/Germantown is subject to both inland/riverine flooding and coastal flooding and is one of the areas at greatest risk of flooding in the City. Over 108 properties in this area have been seriously impacted by floods sustaining repetitive losses between 1979 and November 2017. 12% of developed parcels in the Houghs Neck/Germantown Planning Area are within inland or riverine flood areas and 29% are within coastal flood hazard areas.

Inland Flooding

Inland or Riverine Flooding occurs where the rate of precipitation from a severe storm like a Nor'easter or tropical storm causes a large amount of rain in a short period of time, overwhelming the capacity of natural or constructed drainage systems causing overflows.

The potential building values of parcels impacted by inland/riverine flooding in Hough/Neck/Germantown is over \$133 million dollars and includes: \$54 million for residential building, \$8 million for commercial an industrial building and \$71 million for government or other non-profit buildings.

Coastal Flooding

Currently, coastal storms present a threat to development along the 25 miles of Quincy's coastline due to storm surges that overtop coastal structures and natural shorelines, resulting in coastal flooding. Nor'easters pose the biggest threat to Quincy. Damage from nor'easters is exacerbated when combined with spring tides and when they extend across multiple high tides.

Houghs Neck is surrounded by 16,730 linear feet of coastal structures. Seawalls located around Houghs Neck including Sea Street, Post Island, Shellton and Tern Roads were rated among those in poorest condition and highest need of replacement. The 2012 assessment recommended repairs for all seawall sections within Hough's Neck.

The potential building values of parcels impacted by coastal flooding in Houghs Neck/Germantown is over \$438 million dollars and includes: \$306 million for residential building, \$32 million for commercial an industrial building and \$100 million for government or other non-profit buildings.

Future Flooding

Projected sea level rise and storm surge will intensify flooding concerns along the Quincy shoreline in the future. As water levels rise, coastal storm surge events will cause inundation of larger areas, and will occur more frequently.

Three important community assets in Houghs Neck/Germantown are located within the 100-year flood plain for inland flooding, including a school, special needs facility and a medical facility. The properties are listed in Table 5.8 of the HMP.

Thirteen (13) important community assets are located within the 100-year flood plain for coastal flooding including two schools, a fire department, two sewer pump stations and one MWRA substation, among others. The properties are listed in Table 5.10 of the HMP.

Four (4) community assets are located outside of the 100-year floodplain but within areas known to flood from other sources, such as undersized stormwater system, where extreme events may back up catch basins and flood streets and properties. These community assets include one school, one child care facility, one police station and one MWRA substation. The risk of increased flooding and future flooding at these locations should be considered during any proposed upgrades to the Houghs Neck/Germantown area. The risk should be compared against the ability of the asset to withstand additional flooding and the cost of potential adaptation strategies to mitigate future flooding.

HOUGHS NECK/ GERMANTOWN HAZARD VULNERABILITY SUMMARY



Draft: February 2019

Community Assets

Houghs Neck and Germantown are located, respectively, along the eastern and southern shorelines of one of the first residential peninsulas established South of Boston. Houghs Neck is bordered by Hingham Bay to the east, Rock Island Cove to the south and Quincy Bay to the west and Germantown is bordered by the Town River Bay. This area is surrounded by numerous salt marshes, including a large swath of salt marsh where the two areas meet. Houghs Neck is now densely developed but was once deemed the "Flounder capital of the world" as the area used to be a popular recreational fishing spot for flounder and other fish such as haddock, striped bass, bluefish, and cod. However, fish stocks have been heavily impacted by a variety of human activities, including a loss of salt marsh habitat that provides important nursery and spawning areas. Germantown was settled as the home to shipbuilders and their families who were primarily of German heritage. The area includes Quincy Center, the main retail center in Quincy, mixed-use development, several affordable housing complexes, with 900 units operated by the Quincy Housing Authority, in addition to numerous small-sized apartment buildings and single-family homes. Community assets in the area include two fire stations, the Adams Shore and Thomas Crane Libraries, seven medical facilities including community health centers and nursing and rehab facilities, 12 churches, 11 schools and 27 natural resource areas including parks, beaches and salt marsh. Notable features located in this neighborhood also include the Naval Reserve Center, Department of Public Works, City Hall and Nut Island Transfer Station. The Houghs Neck/Germantown Community Assets are shown on Map 4E and a detailed list is provided in Table 4.8 of the HMP. A summary of the types of Community Assets is included in the table below.

#	Name	ID	Name	ID	Name
1	Cold Storage - Emergency Mortuary	1	Employer	2	Child Care
2	Federal Office	1	Food	12	Church
2	Fire Station	1	Shelter	2	Community Center
6	Medical Facility	4	Special Needs Facility	1	Day Care
2	Mortuary	1	Insurance	1	Food Pantry
5	MWRA Facility	3	Marine Rescue	1	Historic
2	Police Station	1	Pharmacy	2	Library
1	Post Office	1	Assisted Living	10	School
3	Power Utilities	1	Cemetery	27	Natural Resources

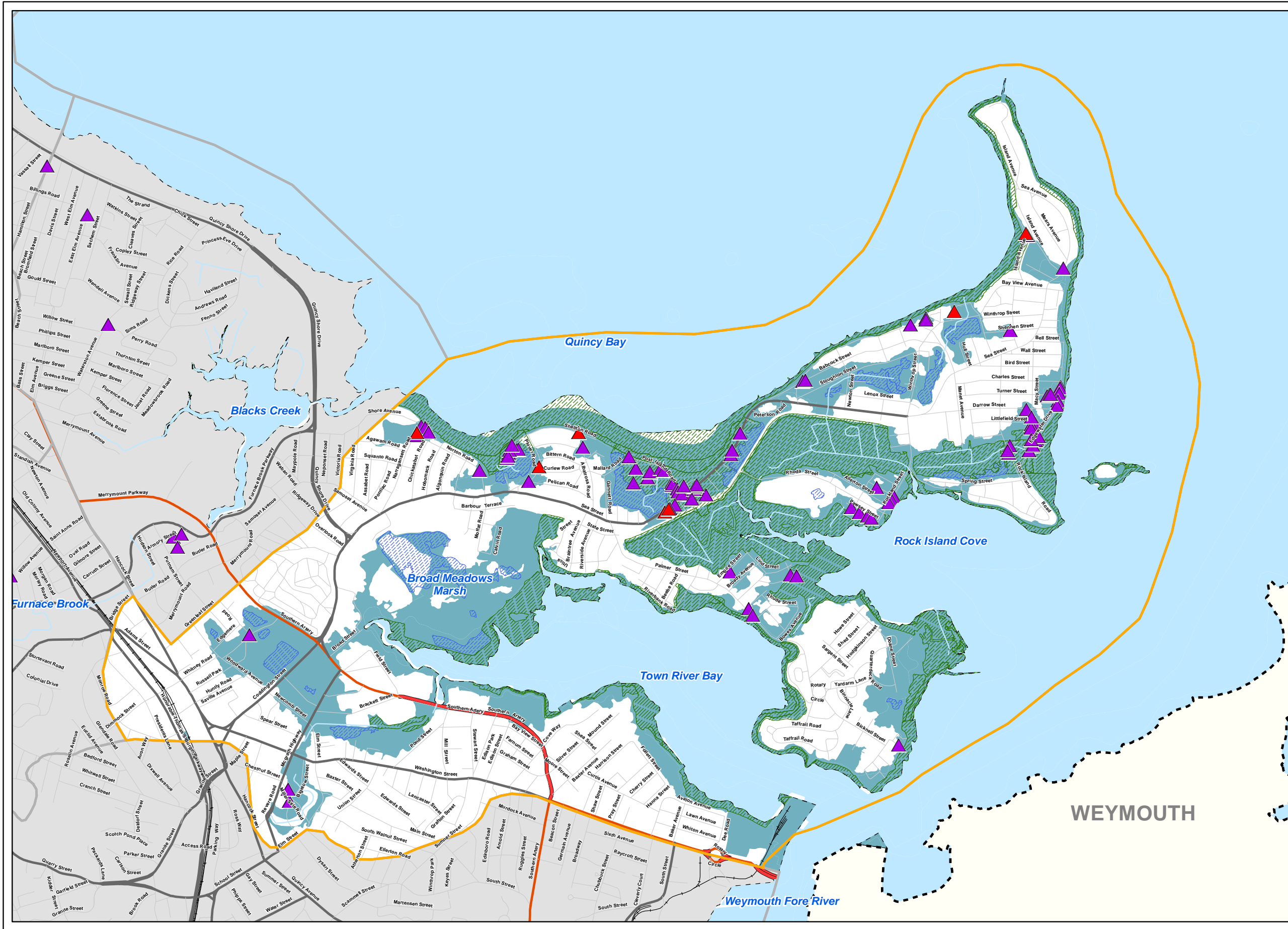
Town Brook

Town Brook originates in Braintree as a tributary to the Old Quincy Reservoir and flows through the City, finally discharging into the Town River estuary. The original brook system has been altered (channeled, moved, and culverted) over time, commencing in the late 1800's and continuing to the present day. The majority of Town Brook in Quincy is underground and mostly culverted, controlling stormflow via weirs at the Center Street junction box and a deep rock tunnel inlet constructed by Army Corps off of Burgin Parkway.

Given the highly urbanized nature of the Brook's historic catchment area (watershed) and its extensive alteration, it experiences "flashy" flows. In other words, the Brook rapidly collects flows that are channelized within the steep slopes of its primarily engineered banks, resulting in flood peaks soon after a precipitation event.

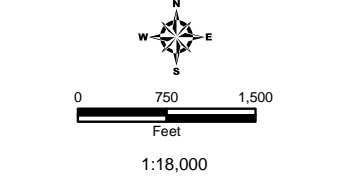
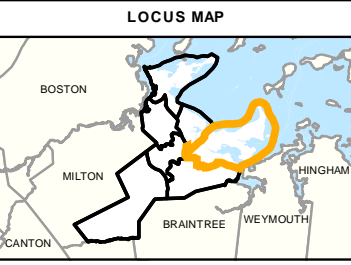
Aquatic life within the Brook was documented in the 2003 MassDEP Weir River Watershed Water Quality Report as impaired, evidenced by smelt egg mortality in 2008. The smelt that live and spawn in the brook are the primary food source of the Atlantic cod, a focal point of the New England fishing industry. The City of Quincy recently partnered with the MassDEP and the DMF, to monitor and preserve smelt habitat in the brook. The City values the ecological importance of the brook and has made efforts over the past decade to improve its functionality.

The Town Brook Enhancement project of 2013 daylighted portions of the brook via the removal of above-ground obstructions and uncovering culverted sections within the Quincy Center; and introduced low flow channel and vegetated wetland island environmental engineering elements.



Map 3.2E FEMA Flood Zones and Repetitive Loss Properties
Houghs Neck/ Germantown

- LEGEND**
- ▲ Severe Repetitive Loss
 - ▲ Repetitive Loss
 - Limited Access Highway
 - Multi-Lane Highway, NOT Limited Access
 - Other Numbered Highway
 - Major Road - Collector
 - Minor Street or Road
 - Inland Wetlands
 - Coastal Wetlands
 - 100 Year Flood Zone
 - Waterbodies
 - Planning Areas
 - Town Boundary



NOTES

Map Created for City of Quincy. Resource data provided by: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services Executive Office of Environmental Affairs, Federal Emergency Management Agency (FEMA) National Flood Hazard Layer, City of Quincy, Metropolitan Area Planning Council, and MassDOT

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2018 Multi-Hazard Mitigation Plan
Quincy, Massachusetts
September 2018

