Barrington

Municipal Resilience Program
Community Resilience Building Workshop
Summary of Findings
October 2019

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Town of Barrington
Community Resilience Building Workshop
Summary of Findings

Overview
The need for municipalities, regional planning organizations, states, and federal agencies to increase resilience and adapt to extreme weather events and a changing climate is strikingly evident amongst the communities of the state of Rhode Island. Recent events such as Tropical Storm Irene and Sandy have reinforced this urgency and compelled leading communities like the Town of Barrington to proactively collaborate on planning and mitigating risks. Ultimately, this type of leadership is to be commended because it will reduce the vulnerability and reinforce the strengths of people, infrastructure, and ecosystems, and serve as a model for other communities across Rhode Island, New England, and the Nation.

In the spring of 2019, the Town of Barrington embarked on certification within the newly established State of Rhode Island’s Municipal Resilience Program. As an important step towards certification, Rhode Island Infrastructure Bank (RIIB) and the Nature Conservancy (TNC) provided the Town with a community-focused process to assess current hazard and climate change impacts and to surface projects, plans, and policies for improved resilience. In September 2019, a Barrington core team organized a Community Resilience Building Workshop lead by TNC in partnership with RIIB. The Workshop was conducted jointly with the Town of Warren. The core directive of this effort was the engagement with and among community stakeholders, to facilitate the assessment of climate vulnerabilities, and the education, planning, and ultimately implementation of priority resilience actions for Barrington.

The Barrington Community Resilience Building Workshop’s central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify local and regional existing and future vulnerabilities and strengths;
- Develop prioritized actions for the Town of Barrington; and
- Identify opportunities to collaboratively advance actions to increase resilience.
The Town of Barrington employed a unique “anywhere at any scale”, community-driven process known as Community Resilience Building (CRB) (www.CommunityResilienceBuilding.org). The CRB’s Risk Matrix and various reports, data, and maps were integrated into the workshop process to provide both decision-support and visualization around shared values and priorities across Barrington. The Barrington Hazard Mitigation Plan (2017) and Chapter 1 of Resilient Rhody - An Actionable Vision for Addressing the Impacts of Climate Change in Rhode Island (2018) where particularly instructive. Using the CRB process, rich with information, experience and dialogue, the participants produced the findings presented in this summary report including an overview of the top hazards, current concerns and challenges, existing strengths, and proposed actions to improve Barrington’s resilience to hazards and climate change today, and in the future.

The summary of findings transcribed in this report, like any that concern the evolving nature of risk assessment and associated action, are proffered for comments, corrections, and updates from workshop attendees and other stakeholders alike. The leadership displayed by the Town of Barrington on community resilience building will benefit from the continuous and expanding participation of all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

During the CRB Workshop, participants confirmed top hazards for the Town of Barrington. The natural hazard of greatest concern was major storms including hurricanes, Nor’easters, and winter storms. The other hazards discussed included coastal flooding and storm surge along with sea level rise. The implications of extreme temperatures such as cold snaps and heatwaves were also raised. These hazards have direct and increasing impacts on residents and resources such as its neighborhoods, natural areas (wetlands, watersheds, parks), roads, bridges, salt marshes, places of employment, town facilities, drinking and wastewater systems, health care facilitates, social support services for disproportionately disadvantaged populations, and other critical infrastructure and community assets.
Top Hazards and Areas of Concern for the Community

Top Hazards

- Major Storms - Hurricanes, Nor’easters, Winter Snow Storms
- Coastal Flooding and Storm Surge
- Sea Level Rise
- Extreme and Extended Temperatures (Heatwaves)

Areas of Concern in Barrington* - Several categories and locations were identified as being particularly vulnerable by workshop participants including:

Infrastructure: Seawalls (associated with roads (e.g. Matthewson)), Stormwater System, Town Beach, Various Bridges, Wastewater Pump Stations (15 in total), Culverts (e.g. Bayspring), Evacuation Route (pinch points), Power Substation, Marinas, Schools (e.g. Barrington High School), Washington Road Tide Gate, Assisted Living Facilities, Group Homes, Elderly Apartments.

Ecosystems: Town Beach, Latham Park, Freshwater Ponds (siltation and invasive species - Echo Lake, Brickyard Pond, Volpe Pond, Princess Pond), Retention Ponds and Drainage Ditches, Trees (live, dead and standing) near Powerlines, Salt Marshes (current and future advancement zones), Beaches (e.g. Barrington Beach, RISD, Massachusetts, Western Shore), Nockum Hill, Hundred Acre Cove, Barrington River, Walker Farm, Haines Park, Street Trees.

Roads, Bridges, and Road Network: Alan’s Cove Byway Road, Narragansett Avenue (southern tip), Low-lying Dead End Roads, Mathewson Road, New Meadow Road, Sowams Road, Lincoln Avenue, Route 114 (Wampanoag Trail, County Road), Warren River Bridge, Barrington River Bridge, Massasoit Bridge.

Neighborhoods & Housing: Atria Bay Springs Village, Barrington Cove Apartments, Hampton Meadows, Brickyard Pond Area, Matthewson Road Area.


*Information from workshop participants augmented with the Barrington HMP (2017). See Appendix for full list of vulnerable assets and associated mitigation actions from the Barrington HMP (i.e. Table 7.1 - 7.4).
Current Concerns and Challenges Presented by Hazards

The Town of Barrington has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Barrington has experienced a series of highly disruptive and damaging weather events including Tropical Storm Irene (August 2011), Tropical Storm Sandy, (October 2012), winter Nor’easter Nemo (February 2013), and other less impactful but more frequent events. Impacts from Irene included heavy, rain-induced, inland flooding and wind damage. Sandy caused extended coastal erosion and power outages across portions of Barrington. The winter storm Nemo dropped 19-20” of snow on the Town knocking out power and isolating residents and neighborhoods due to extended road closures. The magnitude and intensity of these events and others across Rhode Island has increased awareness of natural hazards and climatic change, while motivating communities like Barrington to proactively and comprehensively improve resilience.

This series of extreme weather events highlights that for Barrington the impacts from hazards are diverse; ranging from coastal flooding of roads and low-lying areas near tidal rivers during intense storms and heavy precipitation events to property damage from trees, wind, snow, and ice. Longer periods of elevated heat, particularly in July and August, have raised concerns about vulnerable segments of the population including the elderly and disabled. The combination of these issues presents a challenge to preparedness, response, and mitigation priorities and requires comprehensive yet tailored actions for particular locations and/or areas across Barrington.

The Workshop participants were generally in agreement that Barrington is experiencing more intense and frequent storm events and heat waves. Additionally, there was a general concern about the challenges of being prepared with contingency plans for worst case scenarios during different times of the year (i.e. major disasters, storms, major hurricanes (Cat-3 or above)) particularly in the fall/winter months due to more intense storms.

(Credit: en.wikipedia.org) (Credit: commons.wikimedia.org) (Credit: firenews.org)
Specific Categories of Concerns and Challenges

As in any community, Barrington is not uniformly vulnerable to hazards and climate change, and certain locations, resources, and populations have and will be affected to a greater degree than others. Workshop participants identified the following items as their community’s key areas of concerns and challenges across three categories - Infrastructure, Societal, and Environmental.

Infrastructure Concerns and Challenges

Roads, Road Networks, Bridges:

- Low-lying coastal roads and roads in close proximity to rivers subjected to erosion and routine flooding from storm surge and stormwater runoff.
- Evacuation/escape options via bridges.

Septic Systems:

- Privately owned and maintained on-site wastewater treatment systems subject to flooding in high flood and seasonally high groundwater areas in the northeastern portion of Barrington (George Street Area).

Emergency Management and Preparedness:

- Communications effectively reaching the majority of residents - particularly those with special needs, elderly, and/or mobility issues.

Housing:

- Direct impacts to structures from storms - flooding and wind.
- Isolation of homes when road network is compromised for extended periods.
- Education about potential for current and future impacts to structures.
- Need for longer-term relocation and affordable housing options.
Specific Categories of Concerns and Challenges (cont’d)

Societal Concerns and Challenges

Vulnerable Populations:

- Implications to local residents and visitors in neighborhoods susceptible to flooding and isolation due to compromised/limited access and egress.
- Implications on disproportionately disadvantaged populations (i.e. elderly, working poor, etc.) due to flooding, winter storms, and heat waves.
- Need for more business continuity and recovery planning for major events.

Power:

- Power outages to residential homes and business particularly during the winter months increasing isolation.

Environmental Concerns and Challenges

Beaches and Dunes:

- Ongoing routine and episodic erosion and loss of beaches and dunes and potential impacts on attraction for residents and visitors.

Trees and Forests:

- Increasing impacts to tree health from pests and pathogens resulting in a large population of dead and damaged trees posing risks to power lines and blocking of roads during emergencies.

Salt Marsh and Freshwater Ponds:

- Loss of critical natural infrastructure that protects people and property.
- Concerns about availability of space for salt marsh to advance into given existing built environment and sea level rise projections.
- Decline in ecological viability of freshwater resources due to water quality declines and invasive species.
Current Strengths and Assets

Just as certain locations, resources, and populations in Barrington stand out as particularly vulnerable to the effects of hazards and climate change, other features are notable as assets to Barrington’s resilience efforts. Workshop participants identified the following items as their community’s key strengths, and expressed interest in using them as the core of future resilience building interventions.

• Clearly, the responsive and committed leadership exhibited by officials and staff is an appreciated strength within Barrington. Ongoing collaboration between the Town, business community, faith-based organizations, NGOs, adjoining municipalities, and County and State-level organizations, among others, on priorities identified will help advance comprehensive, cost-effective, community resilience building actions.

• The Town has highly experienced staff with access to adequate resources for most emergency situations. The coordination amongst various departments including leadership, Police, Fire, and EMS was cited as a highly valued community strength despite the ongoing need to maintain volunteers over time.

• Open space and natural resources coupled with freshwater wetlands and riparian corridors as well as coastal salt marsh which provide protection from storm surge, flood water storage, freshwater resources, enhanced public amenities for recreation and gathering, and increase ecological function and biodiversity.

• Examples of local resilience via recent efforts such as the Byway Road and Barrington Beach Town projects.

• Strong social support network and civic groups via active engagement and participation in municipality from faith-based organizations, community-action NGOs, a land trust, and neighborhood groups, among others (i.e. Barrington Community Support Coalition).

• Willingness of local employers and retail businesses to contribute to the common good in times of disaster and major need.

• Standing groups that are integrating resilience needs and activities including Resilience and Energy Committee and Program for Public Information Committee.

• Strong sense of self-reliance coupled with heightened awareness of the value of partnerships with adjoining municipalities (i.e. Warren in particular) in the context of enhancing resilience to extreme weather and climate change.
Recommendations to Improve Resilience

A common thread throughout the workshop discussions was the recognition that Barrington needs to be better prepared through longer term, community-based, contingency planning across all areas of concern. This need and additional highlights surfaced and prioritized by the workshop participants are provided below across several sub-categories including capacity building, projects, plans/preparedness/studies/outreach, and policy. Mitigation actions from Barrington’s HMP (2017) are provided in the Appendix.

The workshop participants collectively identified several key priority areas stated here and reflected in the lists of potential actions below:

- Infrastructure improvements to wastewater system (pumping stations), stormwater management systems, and the network of roads and bridges.
- Natural resource conservation and water quality improvements for drinking and ecosystem health.
- Emergency preparedness, communications systems, and continuation of services.

Higher Priority

Capacity Building:

- Continue to strengthen the integration of resilience via the Resilience and Energy Committee.
- Seek to further integrate resilience into planning and action by the Barrington Community Support Coalition.

Projects:

- Advance project to reduce erosion at Latham Park (south of revetment at Narragansett Avenue) using nature-based solutions.
- Explore and prioritize additional shoreline adaptation projects for low-lying, dead-end roads at the shore across municipality which may include pavement removal and green infrastructure to manage runoff and erosion.
- Complete GIS stormwater system mapping effort.
Community Resilience Building Workshop Recommendations

Higher Priority (cont’d)

- Secure additional portable generators to ensure all sewer pump stations have adequate power throughout major storm events.
- Clean out waterways and drainage areas associated with culverts to help increase conveyance and minimize localized flooding from stormwater runoff.
- Identify best management practices for stormwater management at Town Beach and install proper green stormwater infrastructure projects to minimize localized flooding and erosion.
- Continue to conduct tree maintenance operations in partnership with municipality and RIDOT on high priority power corridors.
- Conduct additional community outreach to increase participation in Code Red System with sign-ups at municipal functions and via direct mailer.
- Continue to engage RIDOT on needed repairs and upgrades for the Barrington River Bridge.
- Investigate and make improvements to culverts along New Meadow Road.
- Seek to identify and install remediation projects for the neighborhoods and approaches to the White Church Bridge.
- Strengthen evacuation route awareness and way finding via more robust and prominent signage installation.
- Accelerate existing and proposed salt marsh restoration projects that improve ecological health, reduce risk, and enhance a public amenity (i.e. “resilient triple bottom line”).
- Identify appropriate location and install living shoreline projects and other shoreline stabilization efforts in Hundred Acre Cove.
- Work to reduce identified issues at Walker Farm including allowing for the potential of salt marsh advancement, curtailing mowing in identified areas, and addressing use conflicts involving access for boaters.
Community Resilience Building Workshop Recommendations

Higher Priority (cont’d)

- Continue to ensure that freshwater wetlands such as Echo Lake remain largely invasives free and can continue to accommodate flood storage.
- Seek ways to ensure private facilities (e.g. Atria Bay Springs Village, Barrington Cove Apartments) have generators installed to provide heat for residents which may require passing legislation.
- Consider flood control project for low-lying sections of Sowams Road.

Plans/Preparedness/Studies/Outreach:

- Conduct a travel model for full town evacuation to identify pinch points and critical locations for signage.
- Explore benefits of establishing a special needs registry within municipality as well as setting up and running an Adopt a Neighbor Program.
- Bolster outreach and education on hazards and risk to elderly population via Senior Center, Fire Department, and Department of Health efforts.
- Explore the benefits of removing causeway on bike path bridge to allowing more water to move with less restriction (lower velocity, reduce scour) along the Barrington River.
- Comprehensively assess existing and future vulnerabilities and options to reduce risk for Route 114 including rerouting and raising, amongst others.
- Conduct outreach and education to residential property owners located in flood zone with focus on flood insurance.
- Maintain and update Flood Preparedness Website as well as continue community outreach to help inform consideration of flooding risk to residents and their properties.
- Conduct municipal-wide stormwater infrastructure assessment to determine priority needs for upgrades, retrofits, and/or replacement to accommodate current and future storms and ground water table.
- Look at potential of conducting adaptation actions via a long-term planning effort at Walker Farm.
Community Resilience Building Workshop Recommendations

Moderate Priority

Projects:

- Elevate the importance of forests and trees across municipality via local municipal nursery establishment to supply native trees and shrubs that are more resilient to changes in climate and increased community-based planting opportunities.
- At Nockum Hill, continue to protect Diamond Back Terrapin as well as increase communications regarding the use of pesticides and advance natural resource conservation and restoration.
- Seek to reduce stormwater runoff into wetlands and waterways via the use of green stormwater infrastructure (i.e. rain gardens, bioswales) across municipality.
- Continue to support Save the Bay and Barrington Conservation Land Trust in work to enhance Mussachuck Beach and Marsh system with further consideration of living shoreline projects to reduce erosion and improve shoreline stabilization.
- Work with utility to secure long-term underground installation of power lines.
- Protect Western Shore beaches with natural and hybrid infrastructure projects.
- Inspect and design alternative approach to maintaining Bay Spring area culverts.
- Maintain Matthewson Seawall.

Plans/Preparedness/Studies/Outreach:

- Initiate a longer-term planning effort to assess impacts to quality of life for residents dependent on access via Matthewson Road.
- Increase education and awareness amongst coastal residents in areas with routinely flooding roads as well as install signage to alert residents of flooding issues.
- Assess the longer-term impacts from flooding to new Public Safety Building located in the floodplain.
- Explore contingency plan for low-lying power substation.
Community Resilience Building Workshop Recommendations

Moderate Priority (cont’d)

• Initiate dialogue with RIDOT regarding management options during major events for the tide gate at Washington Road.

• Engage with marina owners and operators to ensure the best available information about extreme weather and climate change are provided in hopes of more informed decisions about operations and investments longer term.

• Examine current conserved open space and consider how lands could be managed to increase the overall resiliency of the municipality and its ecosystems.

• Establish a master planning effort for the Hundred Acre Cove area that takes into account the ecological viability, existing uses, and longer-term implications of continued growth, extreme weather, and climate change.

• Increase awareness amongst residents about the benefits of parks that can absorb and store flood waters.

• Conduct an assessment of local alternate routes for evacuation across and out of municipality during major events.

• Explore intersection of residential homes in existing (i.e. 2014 FEMA FIRMs) and future flood zones to proactively educate on potential future home elevation, voluntary buyouts, and/or relocation.

• Increase outreach to business community to ensure continuity and recovery plans are in place.

• Examine the feasibility of securing and installing microgrids in select areas of municipality.

• Work with Fire Department and management to ensure assisted living facilities, group homes, and elderly apartments have disaster and resilience plans in place.

• Conduct education on proper residential yard management and ordinances that include no cut zones and lower fertilizer application to minimize impacts to water quality in Brickyard Pond, Price’s Pond, Volpe Pond, and Echo Lake.

• Seek to reduce impacts from residential septic systems on adjoining waterbodies and uses such as aquaculture operations.
Community Resilience Building Workshop Recommendations

Lower Priority

Projects:
- Install flood resilience projects including nature-based solutions and green infrastructure at Barrington High School as well as relocate facility utilities in second floor or on roof.

Plans/Preparedness/Studies/Outreach:
- Secure adequate quantity and quality drinking water for current and future population size in municipality through back-up water supply connection from BCWA.
- Examine the existing boat wake limits and consider modification to reduce erosion of shoreline natural resources at Hundred Acre Cove.
- Conduct water quality study (sources, amounts, options) for Hundred Acre Cove.
- Explore longer-term options for dependable beach replenishment for public amenities.
- Identify and plan for municipal-wide land acquisition to accommodate future salt marsh advancement zones.
- Conduct assessment of vulnerability of cemeteries across municipality.
CRB Workshop Participants: Department/Organization
Town of Barrington - Town Manager
Town of Barrington - Planning Department
Town of Barrington - Fire Department/Emergency Management
Town of Barrington - Resilience Planning
Town of Barrington - Public Works
Town of Barrington - Police Department
Town of Barrington - Building and Zoning
Town of Barrington - School District
Town of Barrington - Harbor Master
Town of Barrington - Planning Board
Town of Barrington - Business Association/Economic Development Committee
Town of Barrington - Technical Review Committee
Town of Barrington - Conservation Commission
Town of Barrington - Cemetery Commission
Town of Barrington - Resilience & Energy Committee
Town of Barrington - Residents
Town of Barrington - High School Student
State Representative for Town of Barrington
Congressional Representation - (Senator Whitehouse - Project Director)
Save The Bay
Brown University
Rhode Island Department of Transportation

(Credit: Kim Jacobs/Town of Barrington)
**Barrington Core Team**
Phil Hervey - Town Planner, Town of Barrington  
Kim Jacobs - Town of Barrington Resiliency Planner  
Bob Rulli - Director of Planning and Community Development, Town of Warren

**Workshop Facilitation Team**
Rhode Island Infrastructure Bank - Shaun O'Rourke (Lead Coordinator)  
The Nature Conservancy - Adam Whelchel (Lead Facilitator)  
Coastal Resource Management Council - Caitlin Chaffee (Facilitator)  
The Nature Conservancy - Sheila Dormody (Facilitator)  
Audubon Society of Rhode Island - Meg Kerr (Facilitator)  
The Nature Conservancy - Sara Burns (Facilitator)  
Scribes - Sydney Usatine (RIIB), Denise Kinney (Town of Warren), Maya Gamon (Town of Warren), Kathy Rezendes (Town of Warren)

**Recommended Citation**

**Acknowledgements**
Special thanks to the Town’s leadership, staff, community members, and regional/state representatives for their willingness to embrace the process in hopes of a more resilient future for Barrington. Thank you to the Town of Warren for providing a space for this joint municipal workshop. Thank you to Rhode Island Infrastructure Bank for providing refreshments and food. Finally, thank you to the scribes that recorded the workshop dialogue.

This workshop was made possible in part through the generous contribution of the facilitation team members who skillfully conducted the Barrington Community Resilience Building Workshop in close partnership with the Town’s Core Project Team.
Appendix

Base Map
Appendix

Barrington Hazard Mitigation Plan (2017)
Mitigation Action
Implementation Schedule Table
(Table 7.1 - 7.4)
### IMPLEMENTATION AND MAINTENANCE

**Table 7.1: Implementation Schedule: Initiate the Following Actions in FY 2017-2018**

<table>
<thead>
<tr>
<th>Lead</th>
<th>Action Number and Description</th>
<th>Priority/CRS</th>
<th>Cost</th>
<th>Timeframe</th>
<th>Action Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Board</td>
<td>1.C—Revise regulations to reduce future risk of natural hazards. Revise the Town’s Zoning Ordinance and Land Development and Subdivision Regulations to lessen encroachment of development into the existing or projected floodplain, to limit future development in the floodplain, and to reduce vulnerability of new construction to coastal flooding and storm surge due to rising sea levels. Potential revisions including allowing flexible lot sizes, such as through a cluster subdivision design, and establishing setbacks or buffers to account for sea level rise.</td>
<td>High</td>
<td>Negligible Cost</td>
<td>Short-term</td>
<td>Regulation</td>
</tr>
<tr>
<td>Planning Board, Town Planner</td>
<td>1.E—Adopt LID standards to reduce amount of impervious surfaces within new subdivisions and other private development projects. Adopt low-impact development standards to reduce the amount of impervious coverage, such as reduced street widths and a maximum impervious footprint coverage percentage. This action would require revisions to the Town’s Land Development &amp; Subdivision Regulations.</td>
<td>High</td>
<td>Negligible Cost</td>
<td>Short-term</td>
<td>Regulation</td>
</tr>
<tr>
<td>Public Works</td>
<td>1.G—Improve GIS capabilities, including enhancements to the Town’s web-based mapping program, to help users identify flood risk throughout town, improve Geographic Information Systems (GIS) capabilities to support property tax revaluations, planning, Department of Public Works activities (including drainage system maintenance plan), and floodplain mapping and flood data for impacted properties.</td>
<td>High</td>
<td>$</td>
<td>Short-to Long-term</td>
<td>Program</td>
</tr>
<tr>
<td>Town Planner</td>
<td>3.A - Complete steps to enroll in Community Rating System. Complete steps required to enroll in the CRS, with an initial target rating of 8. Complete actions as necessary to improve the CRS score and improve the Town’s floodplain programs.</td>
<td>High</td>
<td>$</td>
<td>Short-to Long-term</td>
<td>Program</td>
</tr>
<tr>
<td>Town Manager</td>
<td>3.C—Develop and enact tracking system to monitor HMP implementation progress, with updates on a semi-annual basis. Develop a tracking system to monitor progress implementing the Hazard Mitigation Strategy, updated by lead department/agency/organization team to include budget status, staffing assignments and other relevant information. This update will include status reports on activities resulting in CRS credit including floodplain management planning.</td>
<td>High</td>
<td>No Cost</td>
<td>Short-term</td>
<td>Policy</td>
</tr>
<tr>
<td>Town Planner</td>
<td>3.D—Work with property owners to mitigate properties in areas at risk of flooding, including acquisition and elevation projects. The Town will provide the staffing resources needed to identify and apply for outside funding sources, such as the Hazard Mitigation Grant, to elevate or relocate structures out of the floodplain, and acquire property within the floodplain. This effort also will include pursuing opportunities to acquire upland areas to relocate residents if the option of retreat is selected. The Town will consider putting in place mechanisms such as tax incentives to encourage property owners to adopt resilience measures (elevation, retreat, landward, etc.).</td>
<td>High</td>
<td>No Cost</td>
<td>Short-to Long-term</td>
<td>Policy</td>
</tr>
<tr>
<td>Public Works</td>
<td>4.B—Conduct community outreach to increase awareness and improve preparedness for impacts of natural hazards. Conduct community outreach, including public forums, publication/posting of information at Town facilities and the website, and mailings, on natural hazard mitigation initiatives, preparedness and response.</td>
<td>High</td>
<td>Negligible Cost</td>
<td>Short-to Long-term</td>
<td>Policy</td>
</tr>
<tr>
<td>Town Planner</td>
<td>Action 4.D—Conduct community outreach to increase awareness about risk and potential opportunities to mitigate risk. Make FIRM information available to residents and provide support for property owners to help take advantage of funding opportunities—such as FEMA Hazard Mitigation Grants and Emergency Management Performance and Homeland Security Grants—that assist with covering the cost of mitigating risk such as elevating properties out of flood zones.</td>
<td>High</td>
<td>None</td>
<td>Mid-term</td>
<td>Policy</td>
</tr>
</tbody>
</table>

**2017 BARRINGTON HAZARD MITIGATION PLAN**

69
<table>
<thead>
<tr>
<th>Lead</th>
<th>Action Number</th>
<th>Priority/CRS</th>
<th>Cost</th>
<th>Timeframe</th>
<th>Action Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Works, Town Planner</td>
<td>1.A—Complete community-wide storm surge and sea level rise impact assessment. Complete an assessment of potential impacts, including physical and economic, of projected sea-level rise on publicly and privately owned buildings and sites, roads, storm-water systems, sewer systems, and other utilities. The scope would involve mapping vulnerable areas, generating cost estimates and establishing project priorities.</td>
<td>High</td>
<td>$$</td>
<td>Short-term</td>
<td>Program</td>
</tr>
<tr>
<td>Public Works, Town Planner, Planning Board</td>
<td>1.E—Improve stormwater facilities at public facilities. Provide measures to improve stormwater retention in the planning and design of park improvements and construction of schools and other new public buildings. An example is Phase 1 improvements at Latham Park, where a rain garden was installed in a parking lot after pavement was removed (Figure 6.4). Retrofit existing facilities to include improved stormwater facilities when lots need to be repaved or rebuilt. Priority sites include Latham Park (southern portion of site), where coastal flooding and erosion will worsen over time; and flood zone areas on the grounds of the High School.</td>
<td>High</td>
<td>$$</td>
<td>Short-term to Long-term</td>
<td>Capital</td>
</tr>
<tr>
<td>Town Council, Town Manager</td>
<td>2.E—Protect vulnerable areas from development through acquisition, easements and other mechanisms. Work with the local Land Trust and other stakeholders to identify and protect from development low-lying land vulnerable to impacts from flooding and sea level rise, and areas adjacent to coastal wetlands susceptible to increased inundation due to sea level rise. This Action also will encourage landward migration of other coastal habitats, such as estuaries and beaches and dunes, as these features must be allowed to migrate in response to sea-level rise in order to continue to provide some level of natural storm protection.</td>
<td>High</td>
<td>$$ to $$ $$</td>
<td>Short-term to Long-term</td>
<td>Policy</td>
</tr>
<tr>
<td>Town Planner, Building Official</td>
<td>3.B—Engage/provide training for Certified Flood Manager. Engage a consultant or provide staff training for a certified floodplain manager to coordinate implementation of Community Rating System activities and implementation of the Town’s Hazard Mitigation Plan.</td>
<td>High</td>
<td>$$</td>
<td>Short-term</td>
<td>Policy</td>
</tr>
<tr>
<td>Town Manager</td>
<td>4.C—Establish process to inform vulnerable populations about procedures in place before and after a natural hazard event. The Town will establish a process to expeditiously contact special populations, focusing on those who are particularly vulnerable, due to location or age or infirmity, to ensure their understanding of procedures immediately before and after an event.</td>
<td>High</td>
<td>No Cost</td>
<td>Short-term to Long-term</td>
<td>Policy</td>
</tr>
</tbody>
</table>
Table 7.3: Implementation Schedule: Initiate the Following Actions in FY 2019-20

<table>
<thead>
<tr>
<th>Lead</th>
<th>Action Number</th>
<th>Priority/CRS</th>
<th>Cost</th>
<th>Time-frame</th>
<th>Action Type</th>
</tr>
</thead>
</table>
| Planning Board, Town Planner | 1.B—Complete infrastructure projects in order to protect critical assets. Include in the six-year capital improvement program and work with the State to include in the Transportation Improvement Program critical short-term and long-term projects required to mitigate threats to infrastructure and properties. Priority projects to be identified in the SLR assessment (Action 1.A). Potential projects include the following, as well as those presented by Save the Bay and included in Appendix 7:  
  - Inspect and secure seawalls / revetments on public property in order to protect infrastructure. Priority areas include Matthewson Road, Shore Drive/Latham Park and Police Cove Park.  
  - Enhanced protection of pump stations in vulnerable areas (shut off, flood-proofing, emergency pumping).  
  - Improvements to State roads threatened by SLR—Including Wampum Trail and Sowams Road (in the vicinity of the Bike Path bridge)—to the roadway and/or drainage, in response to long-term threat of sea level rise inundating the roadway at high tide.  
  - Installation of larger culverts to accommodate larger tidal flows, such as under County Road at Prince’s Pond. | High          | $ to  | Short, Mid, and Long-term | Capital     |
| Town Planner            | 1.D—Publish design, site guidelines for elevation projects. Publish illustrated design guidelines to provide recommendations for designing building elevations that are compatible with the surrounding neighborhood while complying with flood elevation requirements. Include best practices to mitigate impacts of elevations that require relief from the height limit. | High          | $    | Mid-term     | Program     |
| Public Works            | 4.A—Initiate program such as “High Water Mark” initiative to increase public awareness of flooding risk and potential future high tide levels from sea level rise. Develop and implement an outreach program consistent with the National Flood Insurance Program’s High Water Mark Initiative to include creating and posting informational signs and markers at public properties (such as Latham Park, Police Cove Park, and the Bay Spring Community Center) showing images of flood damage and high water marks based on historic flood levels. The initial focus will be the hurricanes of 1938 and 1954. Provide markers showing elevations based on projected increases in sea level. Commission and install public art in public spaces near coastal waters that illustrate those high water marks. Work with RIDOT to mark projected sea level rise on bridges. | Medium        | $    | Mid-term     | Capital     |
### Table 7.4: Implementation Schedule: Initiate the Following Actions in FY 2020-21

<table>
<thead>
<tr>
<th>Lead</th>
<th>Action Number</th>
<th>Priority/CRS</th>
<th>Cost</th>
<th>Time-frame</th>
<th>Action Type</th>
</tr>
</thead>
</table>
| Public Works, Town Planner | 2.A—Prioritize and complete Coastal adaptation projects. Prioritize and implement coastal adaptation projects, working with Save the Bay, the State, and other stakeholders, to reduce flood risk and the potential damage to vulnerable infrastructure and allow the expansion of wetlands. Implement slope stabilization efforts, such as planting brigades in spring, where appropriate. Save the Bay’s presentation on potential projects (Appendix 7) identifies potential projects, including:  
- Retrofit municipal and school paved parking areas and ends of streets (such as Belvedere Avenue) in low-lying areas that have excessive pavement (to include drainage, reduce pavement, etc.).  
- Allow for salt marsh to become re-established north of the Walker Farm boat ramp.  
- Cut back pavement at end of Woodbine Avenue; consider relocating drainage outfall.  
- Provide for stormwater infiltration at edge of Bourne Lane.  
- Develop plan to allow for marsh migration within low-lying areas at Latham Park. | High | $ to $$$ | Short to Long Term | Capital Program |
| Public Works, Town Planner | 2.G—Complete hydrology studies. Complete hydrology study that includes: inventory of ponds on private and public property; assessment of streams, and condition of and impacts of dams; and prioritization of projects needed to maintain/improve water flow. | High | $ | Short-term | Program |

### Table 7.5: Implementation Schedule: Initiate the Following Actions in FY 2021-22

<table>
<thead>
<tr>
<th>Lead</th>
<th>Action Number</th>
<th>Priority/CRS</th>
<th>Cost</th>
<th>Time-frame</th>
<th>Action Type</th>
</tr>
</thead>
</table>
| Public Works | 2.B—Implement tree management program. Implement a tree management program to reduce risk to property due to winds, heavy snow/ice, or other natural hazard impacts, to include:  
- Identification of tree species that will be most resilient to climate change and use these species in public projects.  
- Requiring resilient tree species in new subdivisions and land development projects. | Medium | $ | Mid-term | Policy |
| Public Works, Conservation Comm. | 2.D—Develop and complete projects identified in Walker Farm salt-marsh restoration plan. Develop plan to allow restoration of natural areas at Walker Farm (Figure 6.6), identify potential new locations for yard waste storage area to clear area for marsh migration and prepare for potential inundation from sea level rise. | Medium | $ | Mid-term | Program |
Appendix

Resources and Maps

Used During

Workshop
MAP 2

Structures in Areas Susceptible to Storm Surge

Legend
Storm Surge

Hurricane Category
1 - 74-95 mph winds
2 - 96-110 mph winds
3 - 111-129 mph winds
4 - 130-156 mph winds

Buildings

Red Cross-Certified Hurricane Shelter
(Primrose Hill School)

2017 Hazard Mitigation Plan - Town of Barrington, RI
Map Prepared by Town of Barrington - February 2017
Sources: RIGIS, Town GIS
SLR Inundation Areas: Wampanoag Trail

Legend

Inundation
- Mean High Water
- 1 Foot Sea Level Rise
- 3 Feet Sea Level Rise
- 5 Feet Sea Level Rise

2017 Hazard Mitigation Plan
Town of Barrington, RI
Map Prepared by Town of Barrington - February 2017
SLR Inundation Areas: Palmer River

Legend

Inundation
- Mean High Water
- 1 Foot Sea Level Rise
- 3 Feet Sea Level Rise
- 5 Feet Sea Level Rise

2017 Hazard Mitigation Plan
Town of Barrington, RI
Map Prepared by Town of Barrington - February 2017
Sources: RIGIS, Town GIS
6. Walker Farm – Allow salt marsh to become established north of boat ramp; stop mowing marsh; relocate benches inland to allow for erosion.
2: Latham Park: allow natural shoreline to erode and low lying area to become salt marsh over time; enhance buffer; opportunity to move parking lot inland and create a filter strip to infiltrate runoff; repair existing walls to protect infrastructure.