

Coastal
Resilience
Advisory
Committee
(CRAC)

3rd QUARTER
REPORT TO
SELECT BOARD
FOR JULY-
SEPTEMBER 2024

**COASTAL
RESILIENCE
ADVISORY
COMMITTEE**

Francis St. Beach Improvement Project

FRANCIS STREET BEACH
IMPROVEMENT PROJECT

TOWN OR LAND BANK
OWNED PROPERTY

ABUTTER
PROPERTY

- Finishing the pre-design phase
 - Soil borings
 - Percolation tests
 - Stormwater investigation
- Starting schematic design phase (November - March)
- Over the summer held abutter and community engagement events
- Virtual community open house after the holidays to refine design alternatives
- Washington St. Collaborative Workgroup meets 2nd & 4th Fridays at 11am

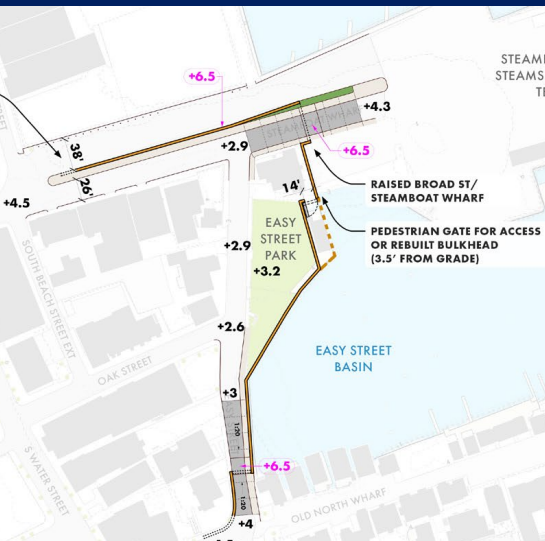


Presentation on Easy St. Flood Mitigation Project by Arcadis staff

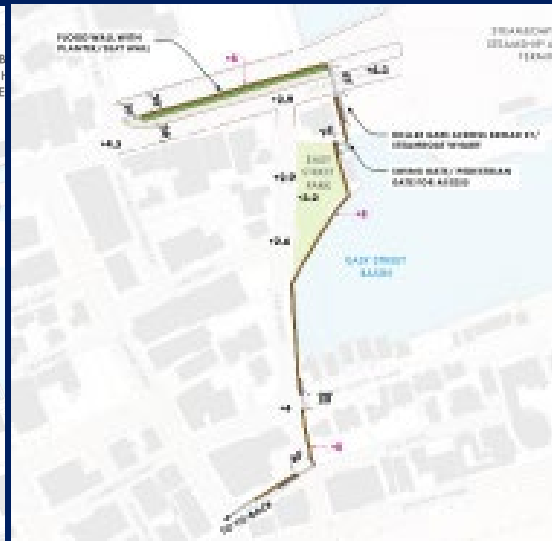


- Reviewed risk assessment findings
- Arcadis developed 5 concept design alternatives to reduce flooding on Easy St. that consider design flood elevation (level of protection), access, feasibility, permitting requirements, cost, adaptability, integration, fit for funding, and co-benefits
- Through Town departments, community and stakeholder engagement these are being refined
- Second open house this winter- virtual

Alternative 1



Alternative 2



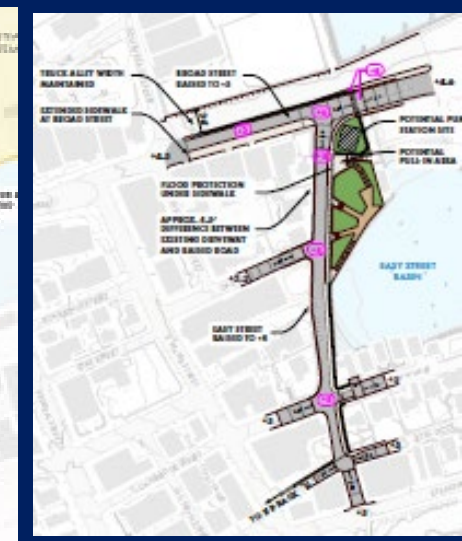
Alternative 3



Alternative 4



Alternative 5



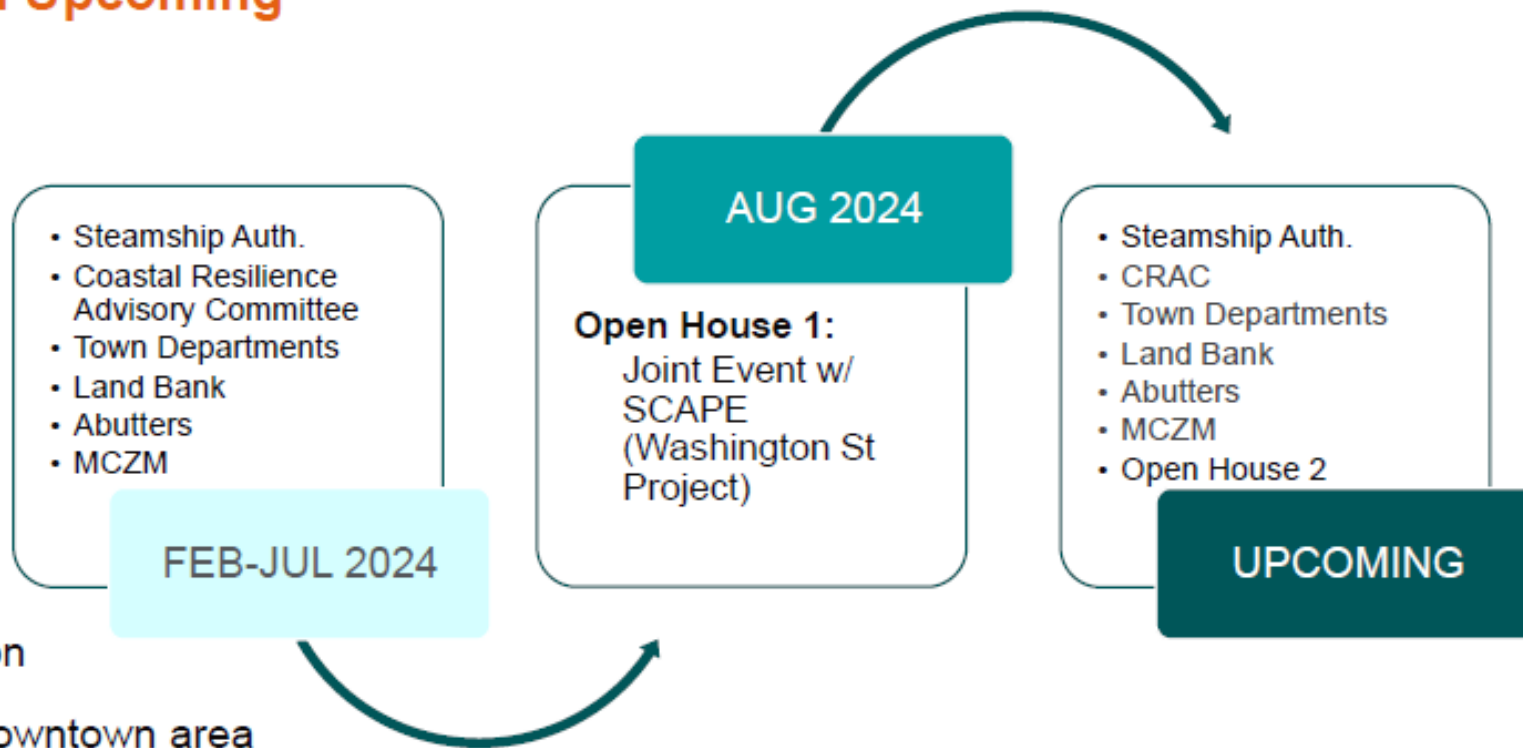


Engagement Previous and Upcoming



What we heard...

- Water quality and ecological restoration
- Historical aspects and aesthetics in Downtown area
- Role of the “working waterfront”
- Co-benefits beyond flood mitigation
- Seek win-wins that align with Land Bank, Steamship Authority, and Town objectives



Downtown Resilience Planning Community Open House

Open House 1

AUG 7, 2024

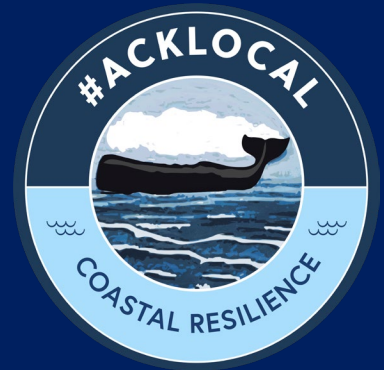
- Whaling Museum- thank you NHA!!
- 2 Drop in sessions
- Spanish interpreters
- Free food and drinks
- Approx 115 attendees



Source: (all 3 photos) Town of Nantucket

HIGHLIGHTS FROM THE QUARTER

- Chair: Peter Brace, Vice-Chair: Dr. Sarah Bois, Co-Secretaries: Tim Braine & Rachael Freeman (now Doug Rose)
- Approved September as Climate Change Awareness Month
- Article in Yesterday's Island
- Multiple presentations
- Discussions revolving around updating the Town's zoning bylaw on how to incorporate coastal resiliency



Presentation on “New Tools for Visualizing, Communicating, and Assessing Sea Level Rise and Coastal Flooding” by Climate Central

- Climate central is policy neutral nonprofit made up of scientists and communicators who research and report facts about the changing climate and how it affects people’s lives.
- Edge of America Tour: Maine to Texas
- Flood Vision vehicle came to the island this summer to collect video, laser and elevation data
Photorealistic flood and sea level rise photos are generated to
 - enhance risk communication,
 - identify threats to evacuation routes and critical facilities,
 - integrate science-based data into municipal plans
 - help the media show compelling visuals to communicate risk during an approaching storm among other examples





Modeled Visualization

MC-FRM 2050 Flood Depths for 1%
chance storm (i.e. 100 yr storm)

Water height 5ft above high tide line=
1ft 4 inches above road



NANTUCKET COASTAL RESILIENCE

FINAL REPORT

NOVEMBER 2021

Status Update on CRP Recommendations

In development = 6

Underway = 7

Complete/ongoing = 7

**Since 2022 half of the
recommendations are
in development,
underway or
complete/ongoing**



COASTAL
RESILIENCE
ADVISORY
COMMITTEE



one architect

 In development

 Underway

 Complete/
Ongoing

ISLAND-WIDE (section 06)

Project Priority

01

02

03

Strategy ID	Strategy or Project Title	Near-Term Strategy Project Description	Type	Estimated Cost	Estimated Benefits	Target Implementation Date
 1-1	Community Outreach on Property Owner Resilience Best Practices	Comprehensive outreach program to at risk home and business owners to raise risk awareness and provide guidance on best practices for reducing coastal risks for private properties.	Non-structural	Staff and Volunteer Time	N/A	2023, Ongoing
 1-2	Updates to Zoning By-Law	Updates to the zoning by-law to encourage resilient design and limit investment in areas of high coastal risk.	Non-structural	Staff and Volunteer Time	N/A	2025
 1-3	Updates to Wetland Ordinance and Regulations	Updates to the Nantucket wetlands by-law and regulations to encourage resilient and low impact design in resource adjacent areas while limiting impacts on resource areas.	Non-structural	Staff and Volunteer Time	N/A	2025
 1-4	Strategic Retreat and Relocation Program	Develop and administer island-wide approach for pursuing strategic retreat and relocation in areas of priority coastal risks with an ongoing focus on risk communication and property owner outreach and education.	Non-structural	Staff and Volunteer Time	N/A	2024, Ongoing
 1-5	Coastal Resilience & Sustainability Interdepartmental Working Group	Governance approach to encourage inter-departmental collaboration and coordination on issues related to coastal resilience and sustainability.	Non-structural	Staff and Volunteer Time	N/A	2022, Ongoing
 1-6	Joint Staff Review of Development Proposals	Governance approach to maximize opportunities for coordinated decision-making and consistent customer communication by Town staff, particularly for projects located in or impacting coastal areas.	Non-structural	Staff and Volunteer Time	N/A	2022, Ongoing
 1-7	Coastal Resilience and Sustainability Program	Governance approach to establish a formal program with necessary resources for managing coastal resilience and sustainability projects and programs across the island.	Non-structural	Staff and Volunteer Time	N/A	2023, Ongoing
 1-8	Shoreline Change Monitoring Program	Employ mobile technology and other tools to engage community members in the process of monitoring shoreline change at pilot projects and across the island.	Non-structural	Staff and Volunteer Time	N/A	2024, Ongoing
 1-9	Sediment Sourcing and Transport Study	Island-wide data collection and planning approach to identify sediment sources and define sediment movement across the island at various spatial and temporal scales in order to inform the design and planning of future sediment management projects.	Non-structural	High: \$1M Low: \$800K O&M: NA	N/A	2024
 1-10	Stormwater Management Plan	Planning step to evaluate stormwater management issues across the island and identify recommendations for reducing stormwater flooding and improving water quality.	Non-structural	High: \$650K Low: \$400K O&M: NA	N/A	2025
 1-11	Sediment Budget	Planning step to develop an operational sand budget for recommended shoreline projects.	Non-structural	High: \$250K Low: \$100K O&M: NA	N/A	2024
 1-12	Stormwater By-Laws Assessment	Planning step to conduct an assessment of existing by-laws for opportunities to encourage stormwater management best management practices (BMPs).	Non-structural	High: \$50K Low: \$20K O&M: NA	N/A	2025
 1-13	Stormwater By-Law and Regulations Update	Updates to stormwater management by-law and regulations to encourage best management practices (BMPs) that address water quality and quantity issues.	Non-structural	Staff and Volunteer Time	N/A	2025
 1-14	Update locally-adopted sea level rise scenarios and Best Available Flood Hazard Data	Adopt sea level rise scenarios provide by the Commonwealth of Massachusetts and Massachusetts Coastal Flood Risk Model as the best available local flood hazard data.	Non-structural	Staff and Volunteer Time	N/A	2022



In development



Underway



Complete

DOWNTOWN

(section 07)

Project Priority

Strategy ID	Strategy or Project Title	Near-Term Strategy Project Description	Type	Estimated Cost	Estimated Benefits	Target Implementation Date
 2-1	Steamboat Wharf Resilience	Work with the Steamship Authority to develop adaptation plan for Steamboat Wharf with the preferred option of elevating the pier above future mean monthly high water. Building scale measures can be implemented on the wharf over time to reduce risk from coastal storms. The strategy should be integrated with the design of the Downtown Coastal Flood Barrier System (Strategy 2-2) to maintain access from Broad Street onto the Wharf. Final approach will need to be planned and design by the Steamship Authority but close coordination with Town resilience planning will be critical to a successful resilience strategy.	Structural	High: \$120M Low: \$110M O&M: \$1.3M	\$19,000,000	2030
2-2	Downtown Neighborhood Flood Barrier - Later Project Phases	The barrier system, which includes the first phase project described as Strategy 2-6, includes a number of elements to be implemented over time to provide comprehensive effective flood risk reduction against future mean monthly high water. The elements include raised roadways, raised bulkheads, reinforced dunes, and flood walls. The overall approach recommends passive measures that are integrated with the existing built environment, while maintaining access to key waterside facilities such as the Children's Beach Boat Ramp, Steamboat Wharf, Straight Wharf, and the Town Pier. Implementation of the approach can be phased over a period of 10 to 15 years, focusing on the lowest lying areas first, such as Easy Street (Strategy 2-6). As the project is implemented, stormwater management needs will need to be studied and addressed via new drainage infrastructure.	Structural	High: \$170M Low: \$150M O&M: \$1.9M Note that these cost estimates include costs for the Phase 1 project (Project 2-6)	\$320,000,000	2050
2-3	Easton Street and Hulbert Avenue Road Raising	Road raising project to prolong service life of Easton Street and Hulbert Avenue for emergency and everyday access in Brant Point	Structural	High: \$140M Low: \$130M O&M: \$1.6M	Not quantified; qualitative benefits include prolonging emergency and everyday access for Brant Point	2050
2-4	Washington Street Extension and Consue Springs Walkway Raising	Road raising to prolong service life of Washington Street Extension and public access in Consue Springs	Structural	High: \$65M Low: \$58M O&M: \$720K	Not quantified; qualitative benefits include prolonging public access to Consue Springs natural area	2050
2-5	Building Scale Resilience at 37 Washington Street	Pilot project to showcase building-scale resilience best practices on a Town-owned facility, including potentially elevation of critical systems, protection of sensitive equipment and documents, and deployable flood risk reduction measures. The first step in this recommendation is a site-specific study to determine the appropriate risk mitigation approaches for this structure.	Structuvral	High: \$150K Low: \$50K O&M: NA	Not quantified; benefits are dependent on risk mitigation strategy developed through recommended site-specific study.	2024
 2-6	Downtown Neighborhood Flood Barrier - Phase 1 Project	Phase 1 project to advance through feasibility and design a near-term project focused on the most vulnerable location along the planned extent of the Downtown Neighborhood Flood Barrier. The Phase 1 project should focus on the coastal segment located along Easy Street from Straight Wharf to Steamboat Wharf and may include raised bulkheads, sidewalks,	Structural	High: \$13M Low: \$12M O&M: \$150K Note that these cost estimates	\$120,000,000	2025

Up to date as of 9-10-24

In development

Underway

Complete

MADAKET

(section 07)

Project Priority

01

02

03

Strategy ID	Strategy or Project Title	Near-Term Strategy Project Description	Type	Estimated Cost	Estimated Benefits	Target Implementation Date
3-1	Madaket Road Raising and Bridge Conversion	Road raising project with conversion of existing culverts with bridges, with goal of prolonging service life of Madaket Road to provide access to and from Madaket, while advancing ecological restoration objectives for Long Pond.	Structural	High: \$40M Low: \$36M O&M: \$440K	\$6,200,000 – \$17,600,000	2030
3-2	Ames Avenue Bridge Resilience	Maintain bridge for access to Smith's Point while protecting it from coastal erosion and flooding through dune restoration (see project 3-4). Continue maintenance and monitoring of existing Ames Avenue Bridge, with future elevation or relocation if necessary based on service population.	Nature-Based	See strategy 3-4	See strategy 3-4	2025
3-3	F Street Boat Ramp	Prolong service life of public boat ramp by elevating the top of the boat ramp, surrounding infrastructure, and access from F Street. Consolidate Madaket boat ramps in this location once loss of service is experienced at Jackson Point boat ramp.	Structural	High: \$5.1M Low: \$4.5M O&M: \$57K	Not quantified; qualitative benefits include prolonging public boating access to Hither Creek and Madaket Harbor	2050
3-4	Madaket Erosion Management Pilot and Ames Avenue Bridge Protection	Dune restoration along shoreline from Madaket Road / Ames Avenue intersection to Esther's Island. Project involves natural dune construction techniques of sand and vegetation with fencing as needed. Project includes need for ongoing nourishment and maintenance of the dune at an interval determined through the design process.	Nature-Based	High: \$96M Low: \$86M O&M: \$1.1M	\$51,000,000	2025
3-5	Department of Public Works Facility and Landfill Resilience	Building scale resilience and operational resilience planning to reduce risk of damage and limit disruption to core operations at the facilities. The first step in this recommendation is a site-specific study to determine the appropriate risk mitigation approaches for the facility.	Structural	High: \$300K Low: \$150K O&M: NA	Not quantified; benefits are dependent on risk mitigation strategy developed through recommended site-specific study.	2024

-  In development
-  Underway
-  Complete

NANTUCKET

HARBOR & COATUE

(section 07)

Project Priority

- 01
- 02
- 03

Strategy ID	Strategy or Project Title	Near-Term Strategy Project Description	Type	Estimated Cost	Estimated Benefits	Target Implementation Date
4-1	Polpis Road Raising and Bridge Conversion at Folger's Marsh	Road raising project with conversion of existing culverts with bridges, with goal of prolonging service life of Polpis Road, while advancing ecological restoration objectives for Folger's Marsh.	Structural	High: \$21M Low: \$18M O&M: \$230K	\$5,800,000 – \$14,250,000	2035
 4-2	Polpis Road Raising, Culvert Expansion, and Wave Attenuation at Sesachacha Pond	Road raising, expansion of culverts or replacement with bridge, and installation of living breakwaters to reduce wave exposure, with goal of prolonging service life and maintaining emergency roadway access along Polpis Road, while advancing ecological restoration objectives for Sesachacha Pond.	Structural, Nature-Based	High: \$45M Low: \$40M O&M: \$500K	\$3,000,000 – \$11,000,000	2035
 4-3	Coatue Erosion Management and Dune Resilience	Dune restoration and wetland creation/enhancement to reinforce narrow low-lying sections of barrier island, between Five Fingered Point and Bass Point and between First Point and Second Point, to prevent washover and/or breaching into the harbor. Monitor performance of approach to assess need for ongoing nourishment and/or adaptation to higher design elevations.	Nature-Based	High: \$41M Low: \$36M O&M: \$450K	Not quantified; qualitative benefits include ecological restoration and potential for reduced long-term flooding impacts in the Harbor as well as reduced impacts to fisheries, habitat, and navigation.	2025
4-4	Numerical Modeling Study of Coatue Breaching	Numerical modeling study to evaluate the likelihood and consequences of Coatue breaching for the Harbor and surrounding communities, including impacts to habitat and navigation, in order to inform decisions about future adaption measures on Coatue.	Non-structural	High: \$250K Low: \$100K O&M: NA	NA	2026

-  In development
-  Underway
-  Complete

SCONSET (section 07)	Strategy ID	Strategy or Project Title	Near-Term Strategy Project Description	Type	Estimated Cost	Estimated Benefits	Target Implementation Date
	5-1	Sconset Bluff Dune Restoration	Dune restoration and construction to mitigate bluff erosion and increase resiliency. Natural dunes with vegetation are appropriate. Project includes need for ongoing nourishment and maintenance of the dune at an interval determined through the design process.	Nature-Based	High: \$16M Low: \$14M O&M: \$180K	Not quantified; qualitative benefits include reduced long-term risk of erosion impacts to private residences and public infrastructure in Sconset.	2030
	5-2	Codfish Park Dune Restoration	Dune restoration and construction to manage and slow bluff erosion. Natural dunes with vegetation are appropriate. Project includes need for ongoing nourishment and maintenance of the dune at an interval determined through the design process.	Nature-Based	High: \$21M Low: \$19M O&M: \$240K	\$7,000,000	2030
	 5-3	Baxter Road Relocation Planning	Planning for and implementation of road relocation, including acquisition of easements, access and maintenance agreements, finalization of road alignment, and development of final designs for construction.	Structural	High: \$30M Low: \$25M O&M: \$600K	N/A	2030
	5-4	Sconset Bluff Nearshore Breakwaters Feasibility Study	Conduct detailed feasibility study to assess technical constraints, potential impacts, and benefits and costs of nearshore breakwaters along the Sconset Bluff. [No Title]	Non-Structural	High: \$800K Low: \$600K O&M: NA	N/A	2025

Project Priority

01

02

03

-  In development
-  Underway
-  Complete

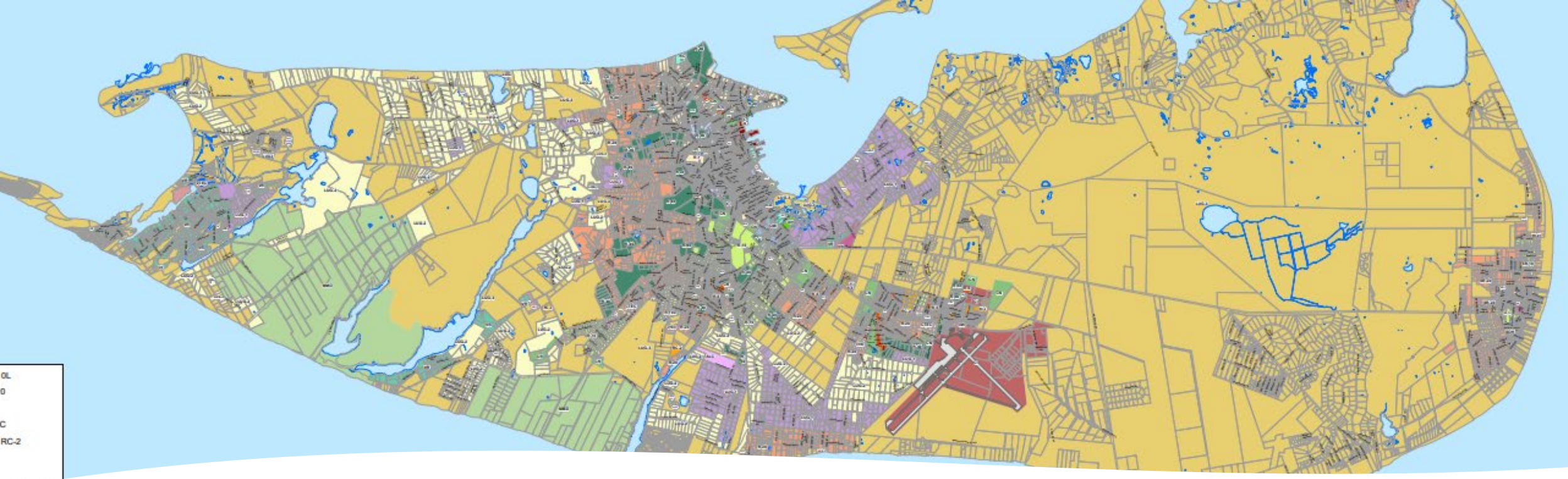
NORTH SHORE
(section 07)

Project Priority

- 01
- 02
- 03

Strategy ID	Strategy or Project Title	Near-Term Strategy Project Description	Type	Estimated Cost	Estimated Benefits	Target Implementation Date
7-1	North Shore Dune Restoration and Nourishment	Targeted dune restoration and construction to reduce risk of erosion along the North Shore, building on dune restoration strategies adopted by existing private property owners in area. Project includes need for ongoing nourishment or installation of near-shore underwater sand berm at key locations.	Nature-Based	High: \$38M Low: \$34M O&M: \$420K	\$16,000,000	2035
7-2	Sand Pumping Feasibility Study	Study the feasibility and impacts of a sand pumping and by-pass systems to connect sand sources from inlet to the North Shore.	Non-structural	High: \$250K Low: \$100K O&M: NA	N/A	2027

[No Title]

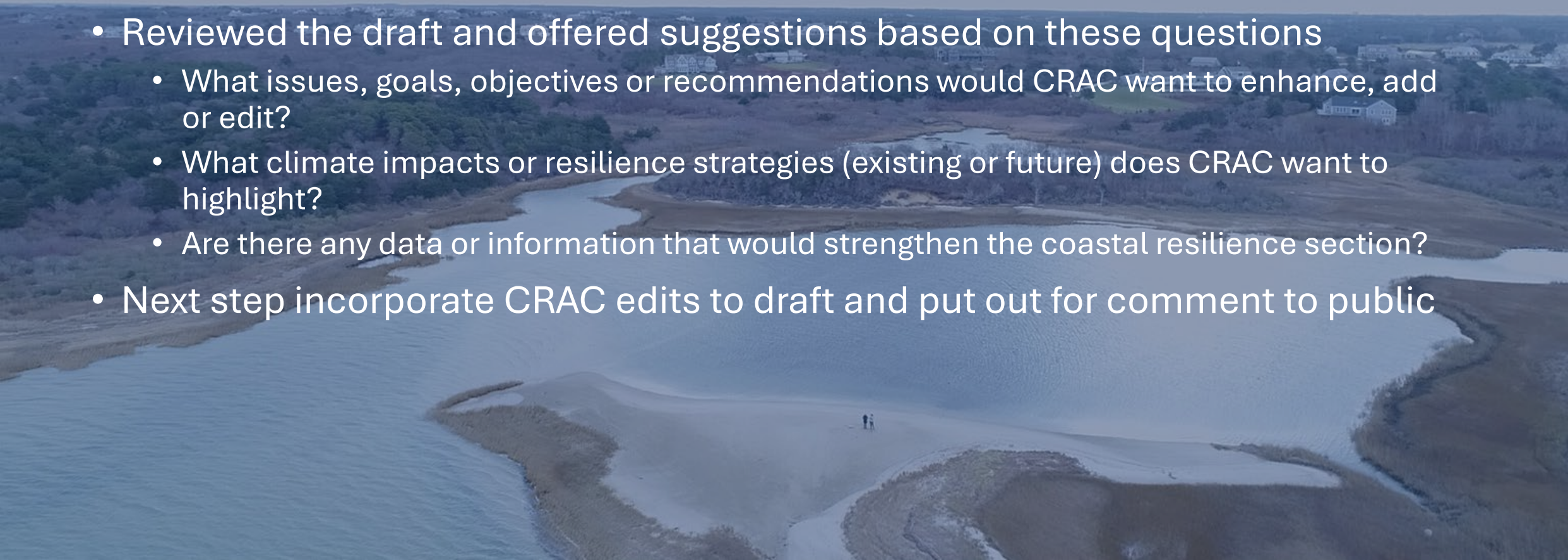


Discussion on Planning Board and Town Regulations with Coastal Resilience in Mind

- High priority CRP recommendation is to update the zoning-bylaw to encourage resilient design and limit investment in areas of high coastal risk
- Leslie Snell and Paul Murphy explained the zoning by-law and MA building code
- CRAC has spent many meetings discussing suggestions on how and what to include
- Next steps: refine list of suggestions
- Coastal resiliency will be added to the updated Town's master plan and discussions with CRAC will be included in the plan development

Input to the Nantucket Harbors Action Plan Update

- CRAC helped develop the coastal resilience section which includes background info, objectives, and recommendations
- Reviewed the draft and offered suggestions based on these questions
 - What issues, goals, objectives or recommendations would CRAC want to enhance, add or edit?
 - What climate impacts or resilience strategies (existing or future) does CRAC want to highlight?
 - Are there any data or information that would strengthen the coastal resilience section?
- Next step incorporate CRAC edits to draft and put out for comment to public



An aerial photograph of Nantucket Harbor, showing the town's buildings, green spaces, and the harbor with several boats. The image is used as a background for the title text.

- Town of Nantucket
- Nantucket Harbors Sediment Transport and Dredge Plan

- September 2024

Committee Briefing

Discussion on Funding Mechanisms for CRP projects

- Select Board Strategic Plan objective “Incorporate the recommendations of the CRP in conjunction with other capital planning”
- Ideas generated by CRAC:
 - Needs to be a constant sustainable fee like the Land Bank fee
 - Component of a stabilization fund
 - Increase beach sticker price and a % goes into a coastal resilience fund
 - Need to put numbers to the list to see what is worth pursuing
 - Grants
 - Betterments
 - Create a resilience fund with the Community Foundation
 - Leverage private-public partnerships and make it easier/streamlined
 - Work with consultants/professionals to develop funding recommendations



Public Outreach

- Coastal resiliency posts every Thursday on NRD's social media
- Yesterday's Island article about CRAC and coastal resiliency
- Multiple discussions with ACKclimate regarding helping with CRAC's social media campaign
 - They received funding to create short videos about CRAC and coastal resiliency
 - Need to explore how that will fit within the Town's developing Communications Plan



REQUESTS AND RECOMMENDATIONS

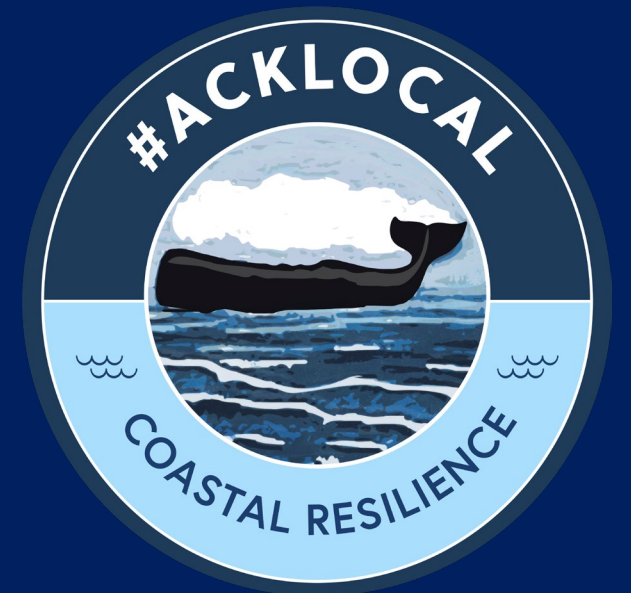
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Are there current or upcoming issues for which the Select Board would like the CRAC's advice?

The Coastal Resilience Advisory Committee generally meets on the **second** and **fourth Tuesday** of each month at 10 am via Zoom. Meeting notices and agendas are posted on the Town's website at:

<https://nantucket-ma.gov/1391/Coastal-Resiliency-Advisory-Committee>

Contact Leah Hill, Coastal Resilience Coordinator,
lhill@nantucket-ma.gov



List of CRAC's Suggestions for Updating Nantucket's Zoning and Land Use Regulations

From the CRP:

1. Adopt the provisions included in the Massachusetts 2020 model floodplain by-law in order to continue participation in the National Flood Insurance Program (NFIP)
2. Update Flood Hazard Overlay District to consider predicted climate changes such as sea level rise and more frequent and intense storm events
 - a. Expand the Nantucket Flood Hazard Overlay District to an inland geography that incorporates the future floodplain including sea level rise.
3. Incorporate a requirement that project proponents subject to Town approvals must demonstrate how their building and site plan will manage a 1% annual chance flood elevation including wave action with sea level rise expected as soon as 2070 or 2100 depending on the type and anticipated life of the structure
4. Excluding necessary flood protection elements, required access to elevated buildings, structures for elevated mechanicals, and other resilience measures, from gross floor area and lot coverage calculations
5. Changing the definition of building height to exclude uninhabited space used for flood risk mitigation, such as wet floodproofing
6. Disallowing or imposing Special Permit restrictions on essential/critical Facilities and high-risk structures, such as hospitals, schools, assisted living facilities, and Town administrative offices in areas subject to the 1% annual chance flood with sea level rise expected as soon as 2070 or 2100 depending on the type and anticipated life of the structure
7. Establish recommended Design Flood Elevations (DFE) based on a selected sea level rise increment above the minimum elevations required by Massachusetts Building Code. The DFE would represent the new minimum for lowest occupiable floor and critical systems for residential uses or flood proofing for non-residential structures
8. Where development review or approval is required, establish protocol for Planning staff and Planning Board review of development proposals within Priority Action and High Coastal Risk Areas for consistency with long-term planning goals of reduced density and development
9. In Priority Action and High Coastal Risk Areas
 - a. make all structures obtain special permit,
 - b. Increasing minimum lot size to encourage aggregation of lots and reduce overall residential density within an area,
 - c. in coordination with local wetland regulations, require maximum practical setbacks from mean high water,
 - d. impose reporting requirements that the property is located in an area of high coastal risk and that residential retreat is likely in the future
 - e. Limiting lot coverage for overall development to the greatest extent practical, ideally below 20%.
 - f. Prohibiting accessory uses that increase impervious cover including pools and

other outbuildings

10. Create a Special Coastal Risk Overlay District that incorporates Priority Action and High Coastal Risk areas
11. Explore the designation of Districts of Critical Planning Concern. This tool has been used on Cape Cod and Martha's Vineyard to pause certain types of development in specified areas. Nantucket could use this tool to temporarily limit development in areas of high coastal risk and allow time for further land use planning.
12. Join the Community Rating System

Other Suggestions:

1. Hold Harmless Agreement- Shift liability to property owners for developing in at-risk areas ("buyer/builder beware")
2. Create a zoning overlay district to help give the zoning board guidance, that takes coastal resilience concerns into account while interpreting the zoning bylaw
3. Create incentives for implementing resiliency strategies on properties like design and engineering strategies that are adaptable to the need for future height changes or
4. Update definitions section in zoning by-law
 - a. Flood Hazard Overlay District (FHOD) definition can be expanded in any way that enables it to include the insurances rates as well as considering metrics such as depth to groundwater, land subject to coastal storm flowage designation and any other aspects that would facilitate limiting further building in areas where the Town will be challenged by the requirement to improve and maintain access
5. Explore road discontinuous and other options
6. Adopt the Model Floodplain Overlay District Zoning Bylaw- Optional Higher Standards produced in June 2024

CRAC Homework for Updating Zoning By-law with Coastal Resiliency 9/10/24 CRAC Meeting

Gary:

Regarding the homework assignment, I gave you my suggestions at the last meeting when we discussed this topic. We have a CRP, it contains brilliant thinking by experts on what changes should be made to our Zoning laws, and the planning board hasn't even considered them, as Leslie indicated. That's my roadmap!

Matt:

Adopt CRP recommendations.

Require homeowners in at risk areas sign liability waivers whenever possible.

Focus on coastal resilience risk areas that have largest potential for increased development (buildings, pools, cellars, or other structures that impede resiliency) first before situation worsens.

Rachael:

1. After reviewing the zoning code, I think the simplest recommendation is to include coastal resiliency language in the definitions and then seek opportunities to integrate the language into the regulations.
2. Far more complicated is exploring whether the definition of the Flood Hazard Overlay District (FHOD) can be expanded in any way that enables it to include the insurances rates as well as considering metrics such as depth to groundwater, land subject to coastal storm flowage designation and any other aspects that would facilitate limiting further building in areas where the Town will be challenged by the requirement to improve and maintain access. The Middle Moors Management District (MMD) is an interesting example of a zoning district that seems to have been created to maintain an environmental resource. Is it worth considering the MMD as a framework for an environmentally driven adaptation to the FHOD.

Tim:

Will bring questions to the meeting.

Doug:

Excerpts from CRP Section 06 Regarding Zoning & Land Use Regulations

Zoning and Land Use Regulations

Nantucket's zoning by-law (Chapter 139) controls the location, size, and use of buildings and other structures by organizing the island into districts outlining specific regulations and design standards within those districts. Nantucket's current zoning maintains the island's low-density residential character along much of its coastline. Existing zoning regulations ensure that future development is consistent with this low-density character by limiting most uses to residential (including primary, secondary, accessory, and tertiary dwellings) across much of the island, with the exception of Downtown and Mid-Island where higher density residential, commercial, and

mixed-use structures are permitted. Much of the island is conserved as permanently protected open space, which can never be developed regardless of the applicable zoning district. Local wetland regulations further limit the potential for development along the coastline, as discussed in more detail later in this section. Design review processes and Historic District Commission requirements also shape the appearance and location of development across the island.

To help advance long-term coastal resilience on Nantucket, additional provisions can be considered for incorporation into the zoning by-law. The goals of these changes are to 1) shape land-use and development regulations that reduce barriers for home- and business-owners implementing resilience measures on private properties in coastal hazard areas and 2) limit the potential for future densification in areas that are at extreme coastal risk, unsafe for human occupation, or not suited for future infrastructure investment. The changes are presented separately here based on the coastal risk zones to which they apply. The coastal risk areas are defined in Section 5 as part of the Island-Wide Resilience Framework.

Current Regulations and Opportunities

The Flood Hazard Overlay District (FHOD) of the Town's zoning by-law embodies the National Flood Insurance Program (NFIP) flood damage prevention standards. The FHOD applies to all areas that correspond to FEMA's Special Flood Hazard Areas delineated on Nantucket County's Flood Insurance Rate Maps. The Special Flood Hazard Areas are identified using historic flood information and modeling, and do not consider predicted climate changes such as sea level rise and more frequent and intense storm events. The Flood Resistant Design and Construction provisions of the Massachusetts Building Code also reference FEMA's Special Flood Hazard Areas.

Until higher standards and dynamic flood risk are incorporated into the Massachusetts Building Code, Nantucket can enforce more stringent floodplain management regulations and standards through the land use and dimensional requirements in the zoning code, through conditional use requirements for development in the floodplain, and through the Planning Department and Planning Board's review processes. With the release of FEMA's Risk Rating 2.0 in late 2021, NFIP premium rates will be revised to more accurately reflect risk and buildings erected to higher standards are likely to qualify for lower rates under this structure. While the process of implementing changes to local by-laws and regulations can be politically complex, policy changes have overall lower costs and greater resilience benefits over time compared to most structural solutions. The actions in this section are listed in terms of complexity of implementation from technical, administrative, and political perspectives.

All changes are recommended approaches for advancing coastal resilience on Nantucket, but each will need to be discussed as part of a public process through the Nantucket Planning Board and Planning & Economic Development Commission prior to the development and adoption of by-law revisions.

Zoning Recommendations For Areas of Moderate Coastal Hazard

Moderate Coastal Risk Areas may be exposed to coastal hazards by 2070. In these areas, approaches to adapt or protect against flooding are appropriate. Changes in coastal risk should be monitored and decisions made accordingly. Section 5 includes more information on considerations related to Moderate Coastal Risk Areas.

Minimum Changes

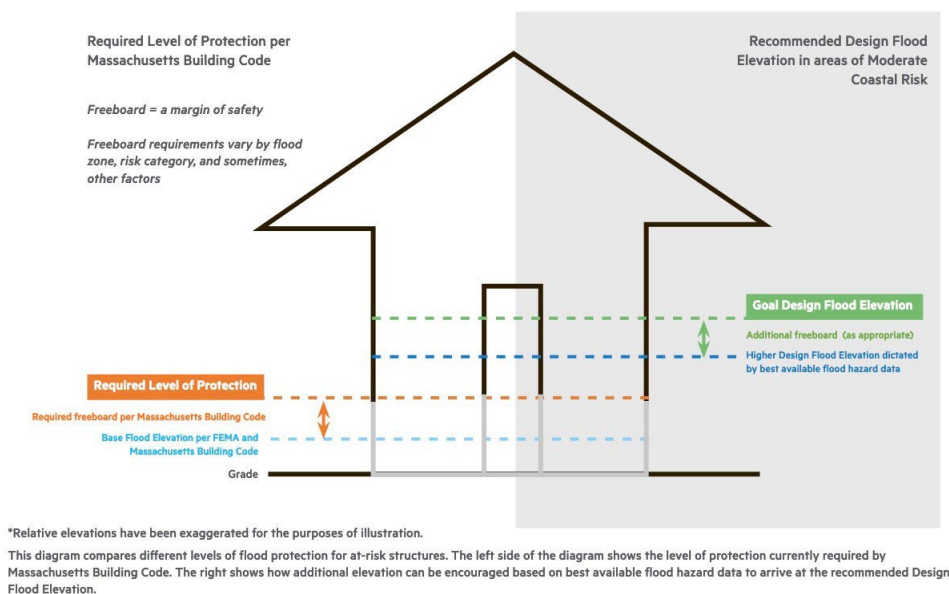
- Nantucket should adopt the provisions included in the Massachusetts 2020 model floodplain by-law in order to continue participation in the National Flood Insurance Program (NFIP). This model by-law includes mandatory updates to the current Flood Hazard Overlay District (FHOD) in Nantucket's zoning by-law.
 - The Commonwealth has issued guidance and FAQs on the model floodplain by-law and State staff are available to help support local communities in the process of updating their by-law. For more information, visit mass.gov/guides/floodplain-management
- Incorporate a requirement that project proponents subject to Town approvals must demonstrate how their building and site plan will manage a 1% annual chance flood elevation including wave action with 4.3 feet of sea level rise (expected by 2070) or 7.9 feet of sea level rise (expected by 2100) depending on the type and anticipated life of the structure. This approach has been used successfully in other communities to encourage private developers to build to higher standards when not required to under Building Code. This strategy can be paired with incentives for building to a higher standard of resilience, such as reduced permitting fees, expedited permit reviews, and relaxed height restrictions. For historic properties, special exceptions may be necessary due to limitations on the degree to which properties in local historic districts may be elevated. Designs for historic properties should comply with the guidance provided in Resilient Nantucket: Flooding Adaptation & Building Elevation Design Guidelines.
 - The Commonwealth's Resilient MA Action Team has developed a digital Climate Resilience Design Standards Tool that includes a methodology for screening proposed projects for climate risks and recommended climate resilience design standards. The Town of Nantucket may consider requiring that new development utilize this screening tool to inform climate resilient design decisions. For more information, visit resilientma.org/rmat_home/designstandards/

Additional Changes

- Excluding necessary flood protection elements, required access to elevated buildings, structures for elevated mechanicals, and other resilience measures, from gross floor area and lot coverage calculations.
- Changing the definition of building height to exclude uninhabited space used for flood risk mitigation, such as wet floodproofing.
- Disallowing or imposing Special Permit restrictions on essential/critical Facilities and high-risk structures, such as hospitals, schools, assisted living facilities, and Town administrative offices in areas subject to the 1% annual chance flood with 4.3 feet of sea level rise (expected by 2070) or 7.9 feet of sea level rise (expected by 2100) depending on the type and anticipated life of the structure.

More Complex Changes for Moderate Coastal Risk Areas

- Establish recommended Design Flood Elevations (DFE) based on a selected sea level rise increment, such as 4.3 feet (expected by 2070) or 7.9 feet of sea level rise (expected by 2100), above the minimum elevations required by Massachusetts Building Code. The DFE would represent the new minimum for lowest occupiable floor and critical systems for residential uses or flood proofing for non-residential structures. The DFE should be based on the higher elevation dictated by FEMA, Massachusetts Building Code, or MC-FRM. Additional freeboard, as described in Section 4, should be added to the selected DFE based on the criticality of the proposed structure. For historic properties, special exceptions may be necessary due to limitation on the degree to which properties in local historic districts may be elevated. Designs for historic properties should comply with the guidance provided in Resilient Nantucket: Flooding Adaptation & Building Elevation Design Guidelines.



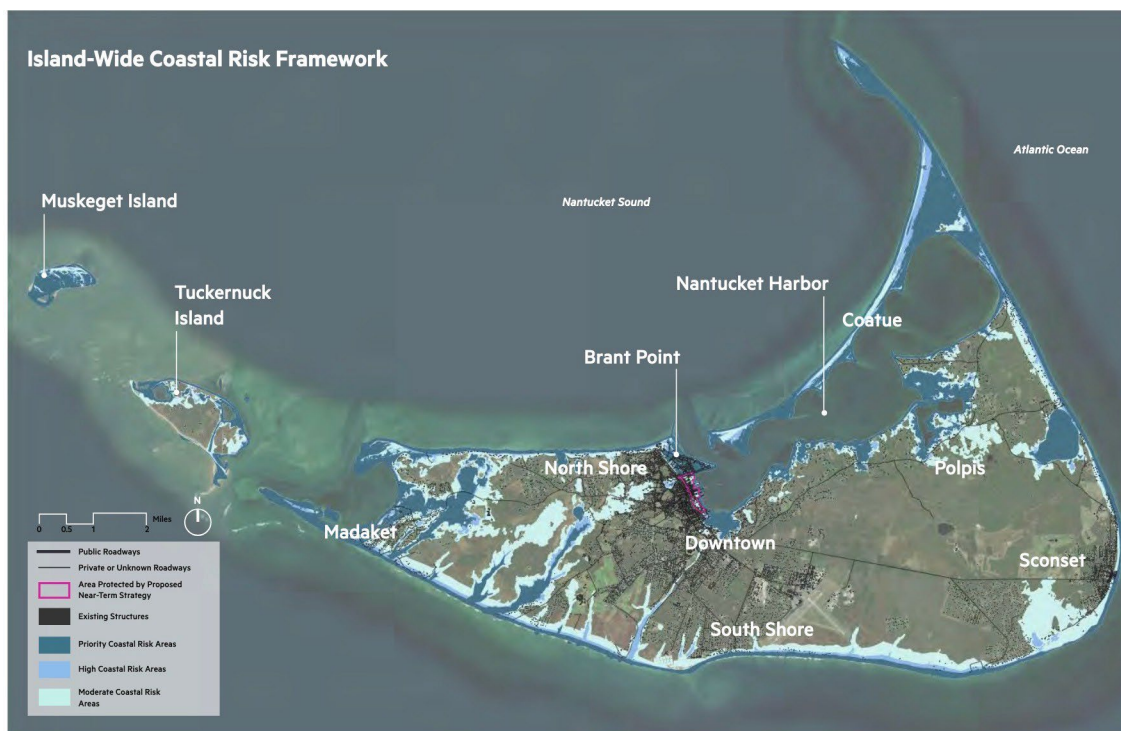
- Expand the Nantucket Flood Hazard Overlay District to an inland geography that incorporates the future floodplain including sea level rise. All changes recommended for moderate coastal risk areas would apply in this expanded district geography. The extent of the future-looking Flood Hazard Overlay District can be defined in one of two ways:
 - Adoption of local “Best Available Flood Hazard Data” that includes mapping of future floodplains and flood elevations based on sea level rise projections. These data can be provided by the MC-FRM but would need to be formally adopted by Town policy and be made publicly accessible to project proponents. Town staff may need training and other resources to administer and enforce these new requirements.
 - Another option that may be easier to administer within existing Town capacity is to reference the 0.2% annual chance (500-year) floodplain on the adopted FIRMs as a proxy for future flood risk. The 0.2% annual chance floodplain extends beyond the 1% annual chance floodplain where the Flood Hazard Overlay District currently applies and would capture an area that is likely to be subject to future coastal flooding. BFEs are not provided for the 0.2% annual chance floodplain but a target elevation above grade or datum can be established as a DFE for this area.

Zoning Recommendations For Priority Action and High Coastal Risk Areas

Priority Action and High Coastal Risk Areas face extreme coastal risks today or within the next three decades. Density should be proactively reduced and action should be taken to manage future investment in these areas to reduce the immediate and longer-term threat to people, property, and livelihoods. Section 5 includes more information on considerations related to Priority Action and High Coastal Risk Areas.

Minimum Changes

- Where development review or approval is required, establish protocol for Planning staff and Planning Board review of development proposals within Priority Action and High Coastal Risk Areas for consistency with long-term planning goals of reduced density and development. This protocol should include sharing information with the project proponent regarding coastal risks to which they may be exposed, any applicable changes to long-term capital planning in their area, and project review that requires project proponents to demonstrate that all feasible steps have been taken to minimize risk to life and property. For new developments and substantial improvement projects in these coastal risk areas, the Planning Board should receive formal sign off and input on proposed plans from PLUS, the Town Engineer, DPW, Sewer Department, building inspector, coastal resilience coordinator, historic preservation staff, conservation agent, and other critical departments.



This map shows the coastal risk areas identified in the Island-Wide Coastal Risk Framework, including Priority Action and High Coastal Risk Areas. Additional information on these areas is provided in Section 05.

More Complex Changes for Priority Action and High Coastal Risk Areas

Additional changes can be made to the Nantucket zoning by-law to manage growth and reduce future density in areas subject to extreme and high coastal hazard. The goal of these measures is reducing the number of dwellings and people residing in areas that may be unsafe for long-term occupation and where the Town will face challenges in delivering infrastructure and services due to coastal risks.

Options for recommended changes are included in the bullet points below:

Recommendations

- Limiting new residential uses to single-family detached dwellings, with no permitted secondary, tertiary, or accessory dwelling units.
- Make all structures subject to Special Permit.
- Limiting lot coverage for overall development to the greatest extent practical, ideally below 20%.
- Prohibiting accessory uses that increase impervious cover including pools and other outbuildings.
- Increasing minimum lot size to encourage aggregation of lots and reduce overall residential density within an area.
- In coordination with local wetland regulations, require maximum practical setbacks from mean high water.
- Impose reporting requirements that the property is located in an area of high coastal risk and that residential retreat is likely in the future.

There are multiple ways these limits could be implemented through the zoning by-law, including through the creation of a Special Coastal Risk Overlay District, by rezoning Priority Action and High Coastal Risk Areas to a lower-density district within the zoning by-law, by adopting new special permit requirements in these areas, or by extending the existing island perimeter restrictions inland based on a defined, rolling distance from mean high water.

The Town can also explore the designation of Districts of Critical Planning Concern. This tool has been used on Cape Cod and Martha's Vineyard to pause certain types of development in specified areas. Nantucket could use this tool to temporarily limit development in areas of high coastal risk and allow time for further land use planning.

Additional Resources

The Metropolitan Area Planning Council provides detailed guidance and examples for Massachusetts communities interested in advancing climate resilience through land use strategies. The resource highlights regulatory language and policy examples from MAPC's 101 communities and beyond.

Additional Considerations

Creating a new Overlay District or adopting additional provisions within the existing Flood Hazard Districts Overlay District may cause confusion for some project proponents. The Flood Hazard Districts Overlay District would remain the regulatory tool for administering NFIP requirements. If the Town pursued entrance into the Community Rating System (CRS), adopting these provisions would allow the Town to administer the NFIP floodplain management program within future flood zones and obtain CRS credits for instituting higher standards. This approach requires the justification of the sea level rise projections and future flood inundation areas as the Best Available Flood Hazard Data. It is important to note that flood insurance requirements would still be based on the FEMA Special Flood Hazard Area to prevent property owners from overpaying premiums for future flood risk. Further, all recommended changes will require additional outreach to communities potentially impacted by the changes to generate awareness, refine recommendations based on community and developer perspectives, and build support for changes that can be adopted by Nantucket Town Meeting.

Massachusetts Building Code

Current Regulations & Opportunities

The Massachusetts Building Code (780 CMR), administered by the Board of Building Regulations and Standards (BBRS) and enforced locally through Planning and Land Use Services, provides minimum standards for flood-resistant buildings within FEMA's flood zones. The 9th edition of the Building Code came into effect in 2018, which includes provisions of ASCE 24-14, Flood Resistant Design and Construction. The Building Code does not include key standards that could increase the resilience of new building such as increased freeboard requirements and does not consider future flood projections based on sea level rise. **The Town is limited in its ability to impose new, more stringent requirements through the building code.** The Town may join other municipalities and not-for-profit organizations in advocating at the state level for more stringent building codes that include requirements intended to mitigate risk to buildings from future flood risks.

Ideas from CRAC Discussions with Chairs of Planning Board, ZBA, HDC, ConCom and BoH, 4/23/24 & 5/14/24

- **Shift liability to property owners for developing in at-risk areas ("buyer/builder beware")**
 - Require property owners to release the Town of responsibility as a condition for development in areas that meet certain risk criteria. – M. Fee, Select Board
 - Town/County should further explore road discontinuances. - S. Engelbourg, ConCom
- **Is there an opportunity to help reconcile the various competing/conflicting interests within Nantucket's regulatory framework?**
 - 1) ConCom in increasing setbacks in wetland resource areas, 2) HDC in limiting ridge heights and second floor massing, and 3) FEMA regulations which require minimum first floor elevations in flood-prone areas? Together these three competing interests are creating an increasingly challenging regulatory environment for Nantucket. – R. Pohl, HDC
 - There are a number of current maps that to some degree are competing. If there was a way to create a more holistic zoning map that takes into consideration coastal resilience along with HDC, ConCom and Planning perspectives, that would be a helpful new tool. – B. Rector, Planning Board
 - Waivers for historic structures can create additional challenges for home insurance. – H. Backus
 - "If there was a zoning district, an overlay district, or whatever you want to call it, to help give the zoning board guidance, that takes coastal resilience concerns into account while interpreting the zoning bylaw, that would be tremendously helpful." J. Brescher, ZBA
- **Introduce positive incentives into our regulatory framework, as a way to augment the restrictions and penalties**
 - Pohl encouraged the Town to consider adding positive incentives (carrots) to help balance restrictions (sticks). R.Pohl, HDC
 - Fee spoke to the possibility of offering incentives for architects/builders to employ design and engineering strategies that are adaptable to the need for future height changes.
 - This is consistent with the idea of an incentive program to encourage relocation from at-risk areas.

List of CRAC's Suggestions for Updating Nantucket's Zoning and Land Use Regulations incorporating Shannon Hulst's comments

From the CRP:

1. Adopt the provisions included in the Massachusetts 2020 model floodplain by-law in order to continue participation in the National Flood Insurance Program (NFIP)
2. Adopt Model Floodplain Overlay District Zoning Bylaw-Optional Higher Standards (June 2024) to:
 - A. Update Flood Hazard Overlay District to consider predicted climate changes such as sea level rise and more frequent and intense storm events
 - B. Expand the Nantucket Flood Hazard Overlay District to an inland geography that incorporates the future floodplain including sea level rise.
 - C. Incorporate a requirement that project proponents subject to Town approvals must demonstrate how their building and site plan will manage a 1% annual chance flood elevation including wave action with sea level rise expected as soon as 2070 or 2100 depending on the type and anticipated life of the structure
 - D. Establish recommended Design Flood Elevations (DFE) based on a selected sea level rise increment above the minimum elevations required by Massachusetts Building Code. The DFE would represent the new minimum for lowest occupiable floor and critical systems for residential uses or flood proofing for non-residential structures
4. Excluding necessary flood protection elements, required access to elevated buildings, structures for elevated mechanicals, setbacks, and other resilience measures, from gross floor area and lot coverage calculations
5. Changing the definition of building height to exclude uninhabited space used for flood risk mitigation, such as wet floodproofing or measure height from Design Flood Elevation instead of Base Flood Elevation
6. Disallowing or imposing Special Permit restrictions on essential/critical Facilities and high-risk structures, such as hospitals, schools, assisted living facilities, and Town administrative offices in areas subject to the 1% annual chance flood with sea level rise expected as soon as 2070 or 2100 depending on the type and anticipated life of the structure
 - a. Use Design Flood Elevation from adjacent 0.2% chance flood zone or the Maximum Wave Crest from the Massachusetts Coast Flood Risk Model or other best available flood models
7. Where development review or approval is required, establish protocol for Planning staff and Planning Board review of development proposals within Priority Action and High Coastal Risk Areas for consistency with long-term planning goals of reduced density and development
8. In Priority Action and High Coastal Risk Areas
 - a. make all structures obtain special permit,
 - b. Increasing minimum lot size to encourage aggregation of lots and reduce overall residential density

- within an area,
 - c. in coordination with local wetland regulations, require maximum practical setbacks from mean high water,
 - d. impose reporting requirements that the property is located in an area of high coastal risk and that residential retreat is likely in the future
 - e. Limiting lot coverage for overall development to the greatest extent practical, ideally below 20%.
 - f. Prohibiting accessory uses that increase impervious cover including pools and other outbuildings
- 9. Create a Special Coastal Risk Overlay District that incorporates Priority Action and High Coastal Risk areas
- 10. Explore the designation of Districts of Critical Planning Concern. This tool has been used on Cape Cod and Martha's Vineyard to pause certain types of development in specified areas. Nantucket could use this tool to temporarily limit development in areas of high coastal risk and allow time for further land use planning.
 - a. May be accomplished if adopt Model Bylaw- Higher Standards
- 11. Join the Community Rating System

Other Suggestions:

- 1. Included in scope for retreat and relocation plan Create a zoning overlay district to help give the zoning board guidance, that takes coastal resilience concerns into account while interpreting the zoning bylaw and maintenance and continuation of utilities is not guaranteed
- 2. Create incentives for implementing resiliency strategies on properties like design and engineering strategies that are adaptable to the need for future height changes or
- 3. Update definitions section in zoning by-law
 - a. Flood Hazard Overlay District (FHOD) definition can be expanded in any way that enables it to include the insurances rates as well as considering metrics such as depth to groundwater, land subject to coastal storm flowage designation and any other aspects that would facilitate limiting further building in areas where the Town will be challenged by the requirement to improve and maintain access
- 4. Explore road discontinuous and other options
- 5. Adopt the Model Floodplain Overlay District Zoning Bylaw- Optional Higher Standards produced in June 2024

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- 4. Explore road discontinuous and other options
- 5. Adopt the Model Floodplain Overlay District Zoning Bylaw- Optional Higher Standards produced in June 2024

1. Stated local purpose for flood resistant standards

The purpose of the Floodplain Overlay District is to:

- 1) Ensure public safety through reducing the threats to life and personal injury
- 2) Eliminate new hazards to emergency response officials
- 3) Prevent the occurrence of public emergencies resulting from water quality, contamination, and pollution due to flooding
- 4) Avoid the loss of utility services which if damaged by flooding would disrupt or shut down the utility network and impact regions of the community beyond the site of flooding
- 5) Eliminate costs associated with the response and cleanup of flooding conditions
- 6) Reduce damage to public and private property resulting from flooding waters

139-12.H.1

2. Use of FEMA maps and supporting studies

The Floodplain District is herein established as an overlay district. The District includes all special flood hazard areas within [Community Name] designated as Zone A, AE, AH, AO, A99, V, or VE on the [County Name] Flood Insurance Rate Map (FIRM) dated [FIRM date] issued by the Federal Emergency Management Agency (FEMA) for the administration of the National Flood Insurance Program. The exact boundaries of the District shall be defined by the 1%-chance base flood elevations shown on the FIRM and further defined by the [County Name] Flood Insurance Study (FIS) report dated [FIS date]. The FIRM and FIS report are incorporated herein by reference and are on file with the Town Clerk, Planning Board, Building Official, Conservation Commission and [other].

139-4, 139-12.H.2

Add AO zones, can remove listing of map panels. Update the second-to-last sentence to read: "The exact boundaries of the District shall be defined by the 1%-chance base flood elevations shown on the FIRM and further defined by the Nantucket County Flood Insurance Study (FIS) report dated June 9, 2014."

3. Abrogation and greater restriction section

The floodplain management regulations found in this Floodplain Overlay District section shall take precedence over any less restrictive conflicting local laws, ordinances or codes.

add unless covered elsewhere in Zoning

4. Disclaimer of liability

The degree of flood protection required by this bylaw [ordinance] is considered reasonable but does not imply total flood protection.

add unless covered elsewhere in Zoning

5. Severability section

If any section, provision or portion of this bylaw [ordinance] is deemed to be unconstitutional or invalid by a court, the remainder of the ordinance shall be effective.

add unless covered elsewhere in
Zoning

6. Designation of community Floodplain Administrator

The Town/City of _____ hereby designates the position of _____ to be the official floodplain administrator for the Town/City.

add

typically Building Commissioner
but can be any position

7. Requirement to submit new technical data

If the Town/City acquires data that changes the base flood elevation in the FEMA mapped Special Flood Hazard Areas, the Town/City will, within 6 months, notify FEMA of these changes by submitting the technical or scientific data that supports the change(s.)

Notification shall be submitted to:

FEMA Region I Risk Analysis Branch Chief
99 High St., 6th floor, Boston, MA 02110

And copy of notification to:

Massachusetts NFIP State Coordinator
MA Dept. of Conservation & Recreation, 251 Causeway Street,
Boston, MA 02114

add

8. Variances to building code floodplain standards

CHOOSE THE APPROPRIATE OPTION:

A. If the State issues variances to the flood-resistant standards as found in the state building code, the community will use this text for local adoption:

Variances to the flood-resistant standards as found in the MA State Building Code may only be issued by the MA State Building Code Appeals Board.

Upon learning that an applicant intends to file for a variance from the State Building Code Appeals Board, the Town/City shall also issue a letter to the property owner regarding potential impacts to the annual premiums for the flood insurance policy covering that property, in writing over the signature of a community official that (i) the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage and (ii) such construction below the base flood level increases risks to life and property.

Such notification shall be maintained with the record of all variance actions for the referenced development in the floodplain overlay district.

The Town/City will request from the State Building Code Appeals Board a written and/or audible copy of the portion of the hearing related to the variance, and will maintain this record in the

add

9. Variances to local Zoning Bylaws related to community compliance with the National Flood Insurance Program (NFIP)

A variance from these floodplain bylaws must meet the requirements set out by State law, and may only be granted if: 1) Good and sufficient cause and exceptional non-financial hardship exist; 2) the variance will not result in additional threats to public safety, extraordinary public expense, or fraud or victimization of the public; and 3) the variance is the minimum action necessary to afford relief.

add

10. Permits are required for all proposed development in the Floodplain Overlay District

The Town/City of _____ requires a permit for all proposed construction or other development in the floodplain overlay district, including new construction or changes to existing buildings, placement of manufactured homes, placement of agricultural facilities, fences, sheds, storage facilities or drilling, mining, paving and any other development that might increase flooding or adversely impact flood risks to other properties.

add

Building code referenced in 139-12.H.2 and 139-12.H.3

11. Assure that all necessary permits are obtained

(Town/City)_____’s permit review process requires the applicant to obtain and submit documentation of all local, state and federal permits that will be necessary in order to carry out the proposed development in the floodplain overlay district.

update

139-12.H.3 gets at this but should be reworded to indicate that permits are required

12. Subdivision proposals

All subdivision proposals and development proposals in the floodplain overlay district shall be reviewed to assure that:

- (a) Such proposals minimize flood damage.
- (b) Public utilities and facilities are located & constructed so as to minimize flood damage.
- (c) Adequate drainage is provided.

139-12.H.2.e

13. Base flood elevation data for subdivision proposals

When proposing subdivisions or other developments greater than 50 lots or 5 acres (whichever is less), the proponent must provide technical data to determine base flood elevations for each developable parcel shown on the design plans.

139-12.H.2.c

Update to read as written here

14. Unnumbered A Zones

In A Zones, in the absence of FEMA BFE data and floodway data, the building department will obtain, review and reasonably utilize base flood elevation and floodway data available from a Federal, State, or other source as criteria for requiring new construction, substantial improvements, or other development in Zone A as the basis for elevating residential structures to or above base flood level, for floodproofing or elevating nonresidential structures to or above base flood level, and for prohibiting encroachments in floodways.

add

15. Floodway encroachment

In Zones A, A1-30, and AE, along watercourses that have not had a regulatory floodway designated, the best available Federal, State, local, or other floodway data shall be used to prohibit encroachments in floodways which would result in any increase in flood levels within the community during the occurrence of the base flood discharge.

In Zones A1-30 and AE, along watercourses that have a regulatory floodway designated on the Town's/City's FIRM or Flood Boundary & Floodway Map (choose map which delineates floodways for your community) encroachments are prohibited in the regulatory floodway which would result in any increase in flood levels within the community during the occurrence of the base flood discharge.

139-12.H.2.b

the second half is not necessary
because there are no floodways on
Nantucket

16. Watercourse alterations or relocations in riverine areas

In a riverine situation, the _____ (appropriate official in community) shall notify the following of any alteration or relocation of a watercourse:

- Adjacent Communities, especially upstream and downstream
- Bordering States, if affected
- NFIP State Coordinator

Massachusetts Department of Conservation and Recreation

- NFIP Program Specialist

Federal Emergency Management Agency, Region I

139-12.H.2.d

Update to remove addresses
because they change too often

17. AO and AH zones drainage requirements

Within Zones AO and AH on the FIRM, adequate drainage paths must be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

add

18. Recreational vehicles

In A1-30, AH, AE Zones, V1-30, VE, and V Zones, all recreational vehicles to be placed on a site must be elevated and anchored in accordance with the zone's regulations for foundation and elevation requirements or be on the site for less than 180 consecutive days or be fully licensed and highway ready.

add

20. Local Enforcement - see Section 4 of the model bylaw text.
Suggested language: Violations of any section or provision of this Bylaw may be enforced by the institution of enforcement actions, either criminal or civil, either legal or equitable or both, or by fines of not more than three hundred (300) dollars for each offense. Each day that such offense continues shall constitute a separate offense.

add (can be discussion)

Section 3. Definitions not found in the State Building Code

DEVELOPMENT means any man-made change to improved or unimproved real estate, including but not limited to building or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials. [US Code of Federal Regulations, Title 44, Part 59]

add

FLOODWAY. The channel of the river, creek or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. [Base Code, Chapter 2, Section 202]

add

FUNCTIONALLY DEPENDENT USE means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities. [US Code of Federal Regulations, Title 44, Part 59] Also [Referenced Standard ASCE 24-14]

add

HIGHEST ADJACENT GRADE means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure. [US Code of Federal Regulations, Title 44, Part 59]

add

HISTORIC STRUCTURE means any structure that is:

- (a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- (b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- (c) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
- (d) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
 - (1) By an approved state program as determined by the Secretary of the Interior or
 - (2) Directly by the Secretary of the Interior in states without approved programs.

[US Code of Federal Regulations, Title 44, Part 59]

add

NEW CONSTRUCTION. Structures for which the start of construction commenced on or after the effective date of the first floodplain management code, regulation, ordinance, or standard adopted by the authority having jurisdiction, including any subsequent improvements to such structures. New construction includes work determined to be substantial improvement.

[Referenced Standard ASCE 24-14]

add

RECREATIONAL VEHICLE means a vehicle which is:

- (a) Built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projection;
- (c) Designed to be self-propelled or permanently towable by a light duty truck; and
- (d) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

[US Code of Federal Regulations, Title 44, Part 59]

add

REGULATORY FLOODWAY - see FLOODWAY.

SPECIAL FLOOD HAZARD AREA. The land area subject to flood hazards and shown on a Flood Insurance Rate Map or other flood hazard map as Zone A, AE, AO, AH, V, VO, VE. [Base Code, Chapter 2, Section 202]

add

START OF CONSTRUCTION. The date of issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within 180 days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns. add

Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual “start of construction” means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building. [Base Code, Chapter 2, Section 202]

STRUCTURE means, for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home. [US Code of Federal Regulations, Title 44, Part 59] add

SUBSTANTIAL REPAIR OF A FOUNDATION. When work to repair or replace a foundation results in the repair or replacement of a portion of the foundation with a perimeter along the base of the foundation that equals or exceeds 50% of the perimeter of the base of the foundation measured in linear feet, or repair or replacement of 50% of the piles, columns or piers of a pile, column or pier supported foundation, the building official shall determine it to be substantial repair of a foundation. Applications determined by the building official to constitute substantial repair of a foundation shall require all existing portions of the entire building or structure to meet the requirements of 780 CMR. [As amended by MA in 9th Edition BC]

add

VARIANCE means a grant of relief by a community from the terms of a flood plain management regulation. [US Code of Federal Regulations, Title 44, Part 59]

add

VIOLATION means the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in §60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided. [US Code of Federal Regulations, Title 44, Part 59]

add

Include relevant flood zones:

ZONE A means an area of special flood hazard without water surface elevations determined

add

ZONE AE means area of special flood hazard with water surface elevations determined

add

ZONE AH means areas of special flood hazards having shallow water depths and/or unpredictable flow paths between (1) and (3) feet, and with water surface elevations determined

ZONE AO means area of special flood hazards having shallow water depths and/or unpredictable flow paths between (1) and (3) ft. (Velocity flow may be evident; such flooding is characterized by ponding or sheet flow.)

add

ZONE A99 means area of special flood hazard where enough progress has been made on a protective system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. (Flood elevations may not be determined.)

ZONES X means an area of minimal or moderate flood hazards or areas of future-conditions flood hazard.

add

ZONE V means area of special flood hazards without water surface elevations determined, and with velocity, that is inundated by tidal floods (coastal high hazard area)

ZONE VE (for new and revised maps) means area of special flood hazards, with water surface elevations determined and with velocity, that is inundated by tidal floods (coastal high hazard area) add