COASTAL FLOODING

HAMPTON

Jason Bachand, AICP, CFM Jennifer Hale, PE, CPESC Brianna O'Brien

Image: Becca Bassett



AGENDA

Setting the scene

Tools to Determine the Best Course of Action

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Make it relatable







Five Strategies for Coastal Resilience

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Visual Examples



mentimeter.com CODE: 5221 7124

Do you live or work in a flood prone community?

Mentimeter uses cookies

We do this to ensure that our website works well and provide you with relevant content and marketing campaigns. We also want to improve our features and research new ones.

Below you can accept all cookies or click 'Cookie Preferences' to choose which ones you want.

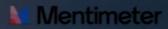
If you want to know precisely why we use cookies and other similar technologies or how you can withdraw consent, simply visit our Cookie Policy.

Accept All

Reject All

Cookie Preferences

- Yes, I live in a flood prone community
- Yes, I work in a flood prone community
- Yes, I live and work in a flood prone community
- No, I do not live or work in a flood prone community
- Hmm. I'm not sure





FLOODING WHERE?

Pink sky at night, sailor's delight.

Pink sky at morn, sailors be warned!





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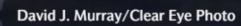
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Coastal Flooding

Map of Vulnerable Coastal Areas

Hampton, New Hampshire

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FIVE STRATEGIES FOR COASTAL RESILIENCE

NO ACTION

No changes made

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ACCOMMODATE

Live with the water

AVOID

Prioritize investment out

of the water's way

RELOCATE

Move assets or facilitate migration



Keep the water out

OUR TOWN, OUR FUTURE Town of Hampton Master Plan

Adopted February 15, 2023 Σ

VIBRANT

DIVERSE AND AFFORDABLE HOUSING OPTIONS A THRIVING DOWNTOWN ENVIRONMENT PARKS AND RECREATION OPPORTUNITIES A UNIQUE SENSE OF PLACE, IDENTITY, AND CULTURE AN EQUITABLE COMMUNITY

CONNECTED

A MULTI-MODAL TRANSPORTATION NETWORK OPEN SPACE AND NATURAL RESOURCE CONNECTIVITY

RESILIENT

COASTAL RESILIENCE ECONOMIC RESILIENCE SOCIAL RESILIENCE

INNOVATIVE

HIGH-QUALITY AND ENDURING MUNICIPAL FACILITIES, SERVICES, AND UTILITIES

BALANCED DEVELOPMENT, REDEVELOPMENT, AND LAND USE REGULATIONS

COLLABORATIVE

CLIMATE RESILIENCE AND REGIONAL COORDINATION REGIONAL TRANSPORTATION INITIATIVES REGIONAL HOUSING EFFORTS LOCAL COLLABORATION

HAMPTON IS

RESILIENT

COASTAL RESILIENCE ECONOMIC RESILIENCE SOCIAL RESILIENCE

Planning Priorities for a RESILIENT FUTURE

Retrofit at-risk development to be more protected from coastal hazards, and limit new development within existing and projected coastal hazard zones.



Invest in infrastructure and facility protective measures, and address drainage systems to increase resilience to hazards.

Focus development and investment in low-risk areas and facilitate relocation from higher risk areas.

Preserve and enhance **coastal habitats** through conservation and nature-based solutions.

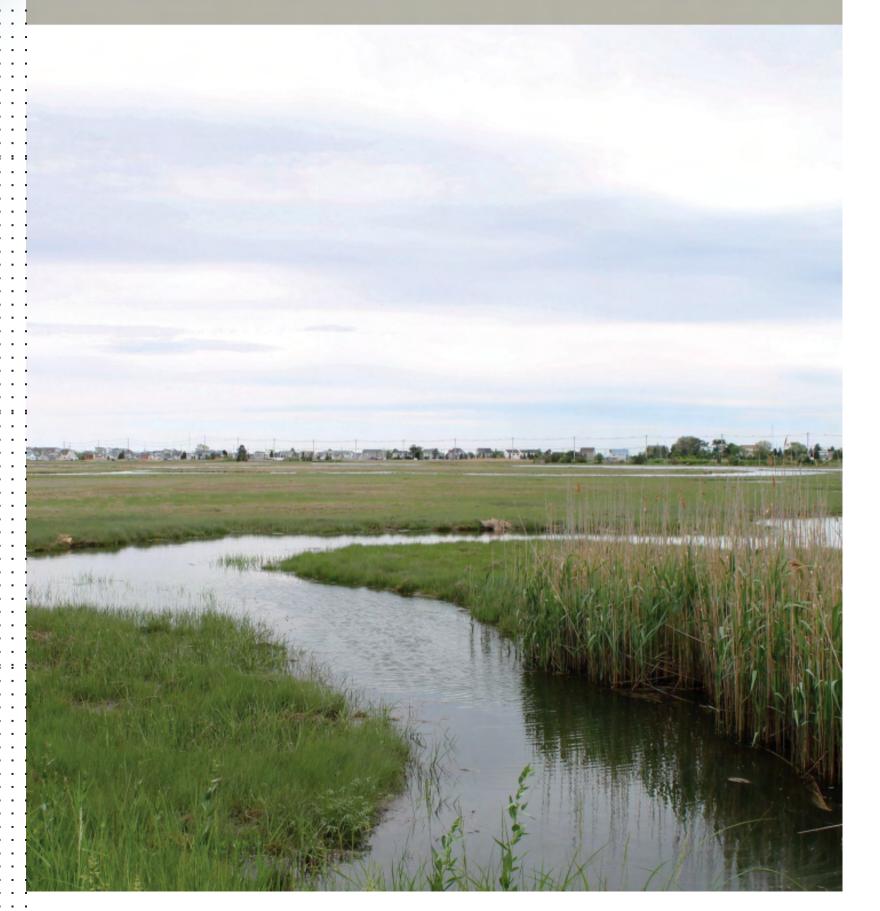
Support a robust economy and local business resiliency, encourage economic diversity, expand tax-based revenue, provide incentives and technical assistance, and attract a diverse workforce.

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Create social resilience by enhancing social capital and fostering strong community connections.

IMPLEMENTATION



While guite a few action items are included in the implementation table, the primary areas that Hampton will be focusing on over the next ten to fifteen years include:

- Plan

A comprehensive regulatory audit and completion of regulatory amendments and ordinance updates to ensure consistency with the vision outlined in the Master

A town-wide municipal facilities assessment and the effective utilization of the capital improvement process and other sources of funding to implement projects

A comprehensive assessment of municipal utilities and infrastructure including water, stormwater, and sewer system and the effective utilization of the capital improvement process and other sources of funding to implement projects

Implementing strategies to enhance coastal resilience, adapt to sea level rise, address vulnerability, and preserve Hampton's remaining open space areas

Planning for a transportation network that accommodates multiple modes of transportation and alleviates traffic congestion, including complete streets, linkages to the NH Seacoast Greenway, and other transportation design improvements priority, status of action, responsible party, and potential partners



4.13

Review the land use regulations, identify and make amendments using the Coastal Flood Risk Guidance.

Master Plan Implementation Committee

Priority Level: High



Timeframe: Year 1

Current FEMA Floodplain Hampton buildings Buildings within floodplain

Earl, HERE, Garmin, SafeGraph, GeoTachnologies, Inc. METL/NASA, USGS, EPA, NPS, USDA

The Town of Hampton: Ranks #1 in flood insurance claims in NH

Ranks #1 in repetitive loss claims in NH

Accounts for around 20% of NH flood insurance policies

Floodplain Management Ordinance Update Incorporating Higher Standards

Critical Facilities



Sea Level Rise Design Flood Elevation - Increased Freeboard



Elevation of Utilities

NEIGHBORHOOD FLOOD STUDIES

2018-2021

MEADOW POND

&

HAMPTON FLOOD MITIGATION ANALYSIS

Final Engineering Report

Prepared for:

Town of Hampton, NH

April 2021

SLR[©]



global environmental and advisory solutions

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HAMPTON HARBOR Evaluate Current & Future Flood Patterns Mitigation Alternatives Recommendations



Hampton Harbor Flooding Evaluation

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March 31, 2021

Hoyle, Tanner

RECOMMENDATIONS

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Expanded List of Flood Mitigation Alternatives for the Meadow Pond Area Hampton, New Hampshire

3/23/2021/2021

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			Objectives				Feasibility			T
Category	ID	Description	Reduce Flooding	Reduce Erosion	Increase Public Safety	Minimize Environmental Impacts	Permittability	Comparative Implementation Cost	Comparative Maintenance Cost	Recommend
Accommodate with Infrastructure	1	Increase culvert size at Winnacunnet Road	Poor	Fair	Poor	Fair	Fair	Fair	Fair	
	2	Increase culvert size at Winnacunnet Road and remove fill in narrow channel	Poor	Fair	Poor	Good	Good	Fair	Fair	
	10	Install berm behind Gentian Road along back edge of lawns	Good	Poor	Good	Fair	Fair	Fair	Fair	v
	6	Improve drainage on Green Street, Gentian Road, Meadow Pond Road, and Kings Highway.	Good	Fair	Good	Good	Good	Poor	Fair	v
	9	Tide gate improvements on stormwater outfalls	Poor	None	Fair	Poor	Good	Good	Fair	
Accommodate with Marsh Alterations	3	Phragmites removal, soil removal, and dredging at Meadow Pond	Good	Fair	Good	Poor	Poor	Poor	Poor	
	11	Phragmites and soil removal around Meadow Pond	Fair	Fair	Fair	Fair	Fair	Poor	Poor	
	4	Ditch / marsh remediation	None	Fair	Fair	Good	Good	Fair	Fair	v
Avoid with Building, Infrastructure, and Zoning Changes	5	Elevate floodprone roads such as Greene Street, Gentian Road, and Meadow Pond Road	Fair	Poor	Fair	Good	Good	Poor	Fair	
	7	Elevate floodprone houses	Good	Fair	Good	Good	Good	Fair	Good	v
	8	Voluntary and assisted retreat/relocation, removal of development and fill, floodplain restoration	Good	Good	Good	Good	Good	Good	Good	v

RECOMMENDATIONS and Ongoing Needs

Table 10 Harbor Flood Mitigation Alternatives

Category	Subcategory	Description			
	Permanent Barriers	Install walls at low areas of Glade Path			
		Install walls at low areas of Island Path			
		Install walls at low areas of Ashworth Avenue			
		Install walls at low areas of North of NH Route 101			
Resist with Infrastructure		Vegetated earthen berms			
	Temporary Barriers	Walls installed for duration of event and remove			
	Elevate Flood-prone Roads	Glade Path			
		Island Path			
		Ashworth Avenue			
	Existing Infrastructure	Elevate flood-prone houses/buildings			
Accommodate		Zoning & site plan regulation changes			
with Infrastructure		Improve drainage			
		Tide gate improvements on stormwater outfalls			
Retreat	Property Changes	Voluntary and assisted retreat/relocation			





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KINGS HIGHWAY DRAINAGE





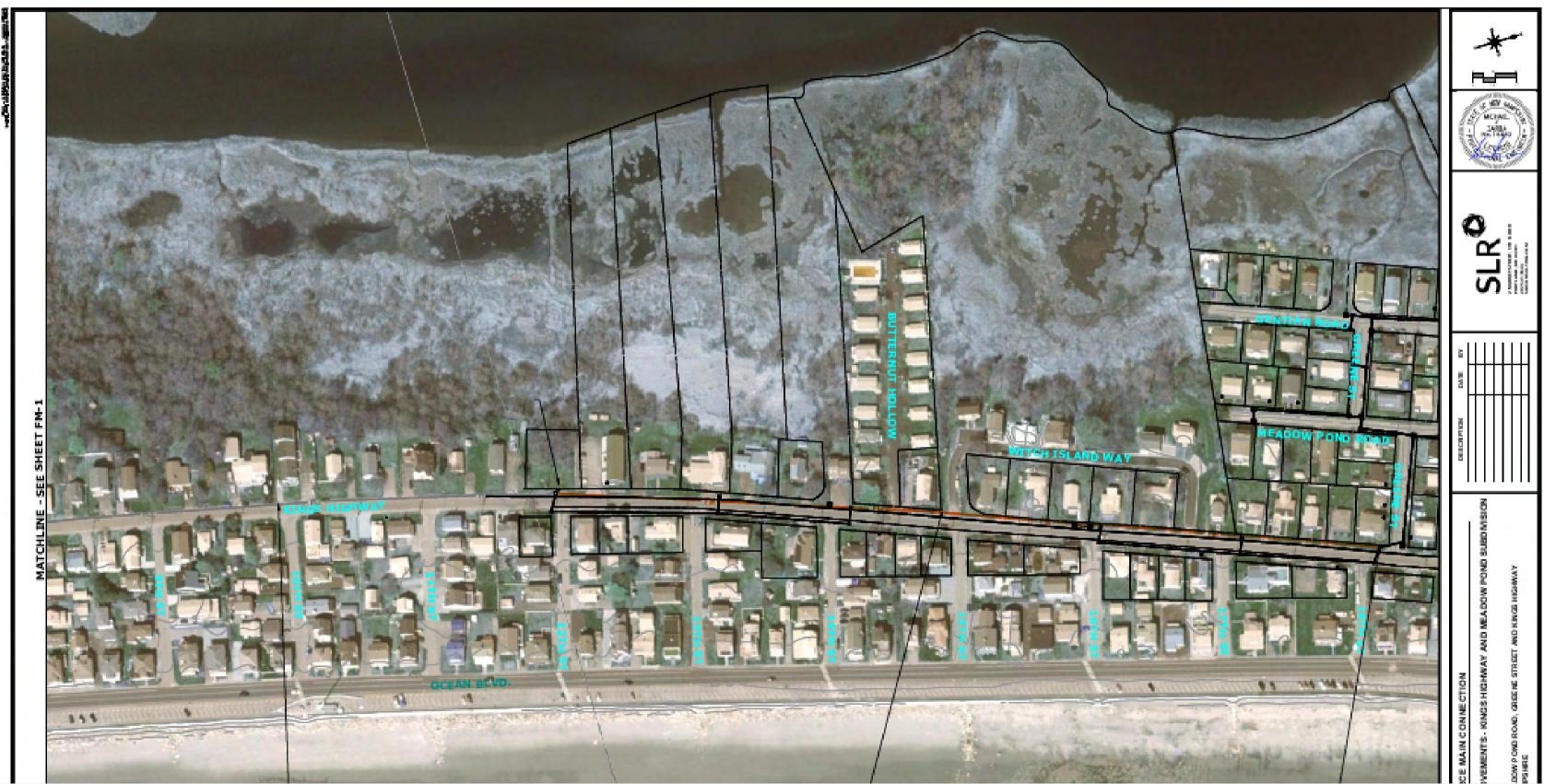
No where for the water to go!

KINGS HIGHWAY DRAINAGE

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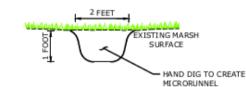
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KINGS HIGHWAY DRAINAGE





DITCH MITIGATION



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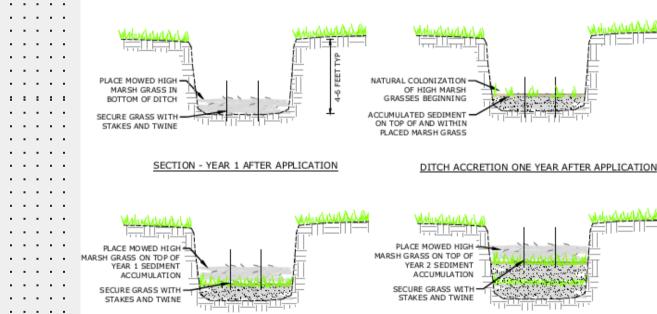
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MICRORUNNEL NOTES:

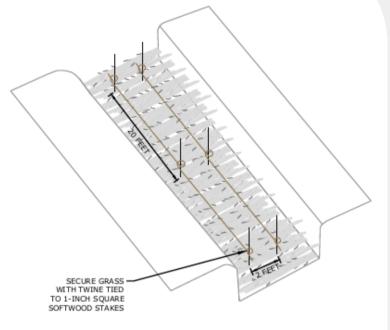
- PURPOSE IS TO GET EXTRA WATER OFF THE MARSH SURFACE IN AREAS WHERE THE DITCHES HAVE ALREADY FILLED IN.
- MICRORUNNELS TO BE DUG BY HAND ONLY.
 PEAT GENERATED BY DIGGING TO BE PLACED IN AREAS OF COLLAPSED MARSH OR PILED AS NESTING ISLANDS FOR SALT MARSH SPARROWS (8 TO 10 FEET IN DIAMETER, FLOODED BY THE TOP 5% OF TIDES).

DITCH REACTIVATION/MICRORUNNEL TYPICAL DETAIL



SECTION - YEAR 2 AFTER APPLICATION

SECTION - YEAR 3 AFTER APPLICATION



PLAN VIEW - YEAR 1 AFTER APPLICATION

DITCH REMEDIATION NOTES:

- 1. MOW NEARBY SPARTINA PATENS (SALTMEADOW CORDGRASS OR SALT HAY) AND
- DISTRIBUTE THROUGHOUT DITCH BOTTOM USING A LEAF BLOWER OR RAKE. 2. SECURE GRASS WITH BIODEGRADABLE SISAL BALER TWINE (59KG TENSILE STRENGTH) SOAKED IN VEGETABLE OIL TIED TO STAKES TO PREVENT GRASS FROM WASHING AWAY IN HIGH TIDE.
- ACTINITY AND A THE THROUGHOUT YEAR, FACILITATING MARSH ACCRETION AND ESTABLISHMENT OF VEGETATION WITHIN DITCH. EXPECTED ACTINUE ATON OF VEGETATION WITHIN DITCH. EXPECTED
- ACCUMULATION OF VEGETATION AND SEDMENT UP TO 8 INCHES PER YEAR. REPEAT DITCH GRASS ADDITION EACH YEAR UNTIL TARGETS ACHIEVED. ANTICIDATE APPLICATION EOD THERE TO FIVE YEARS LINTIL SEDIMENT
- ANTICIPATE APPLICATION FOR THREE TO FIVE YEARS UNTIL SEDIMENT ACCUMULATION AND PLANT GROWTH CONTINUE WITHOUT GRASS ADDITION.
- STOP DITCH REMEDIATION 6 TO 10 FEET FROM EDGE OF NATURAL CHANNEL AT END OF DITCH.

SALT MARSH DITCH REMEDIATION TYPICAL DETAILS

NOT TO SCALE



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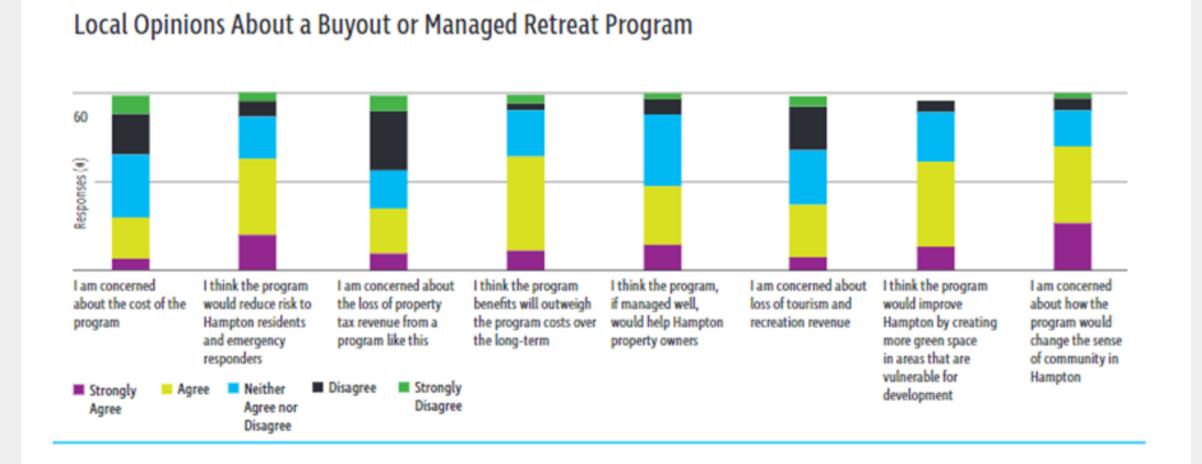
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VOLUNTARY HOME ELEVATION AND PROPERTY ACQUISITION PROJECT



Source: SHEA Hampton Flood Situation Assessment 2019, 69 respondents

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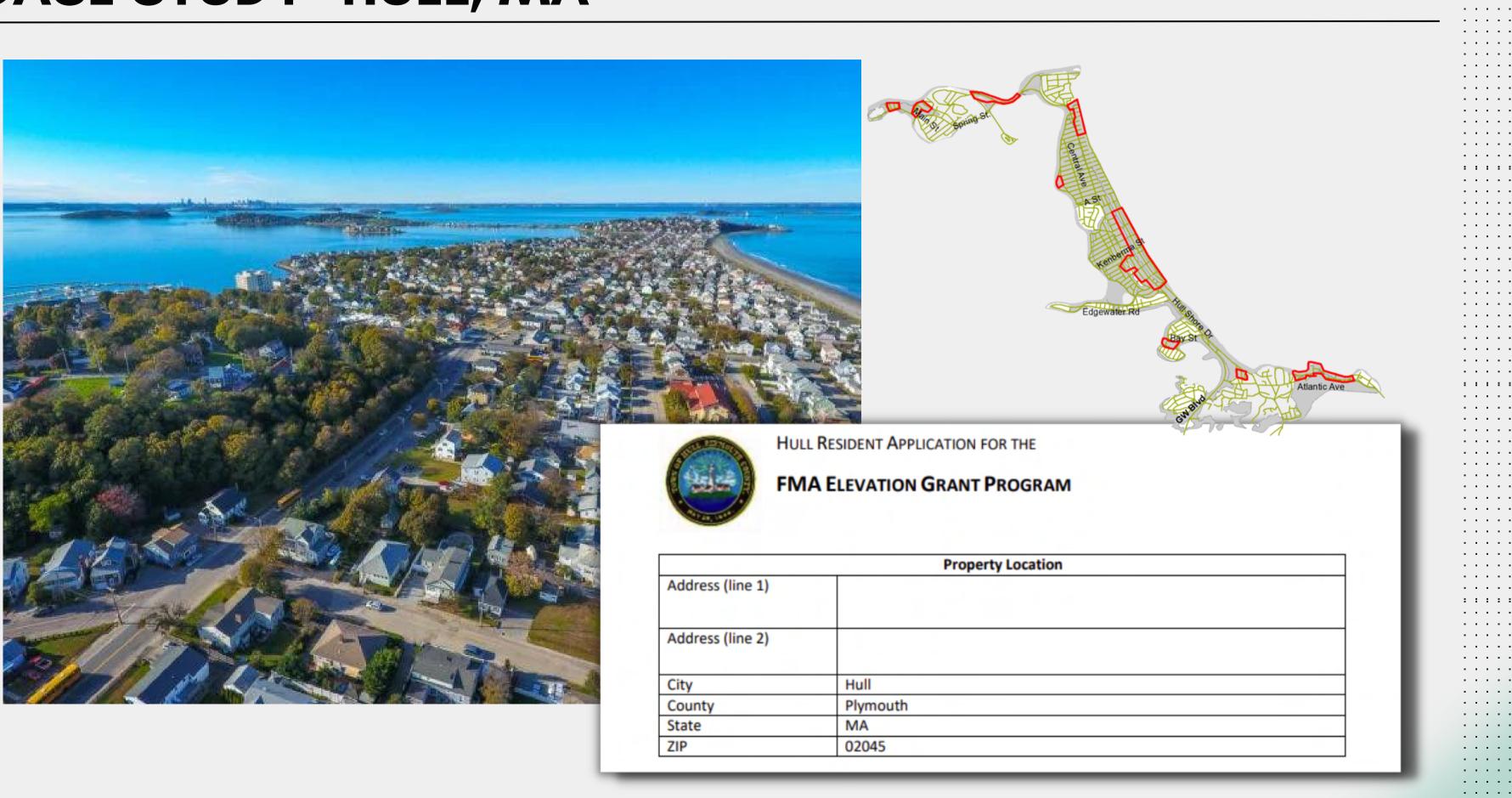
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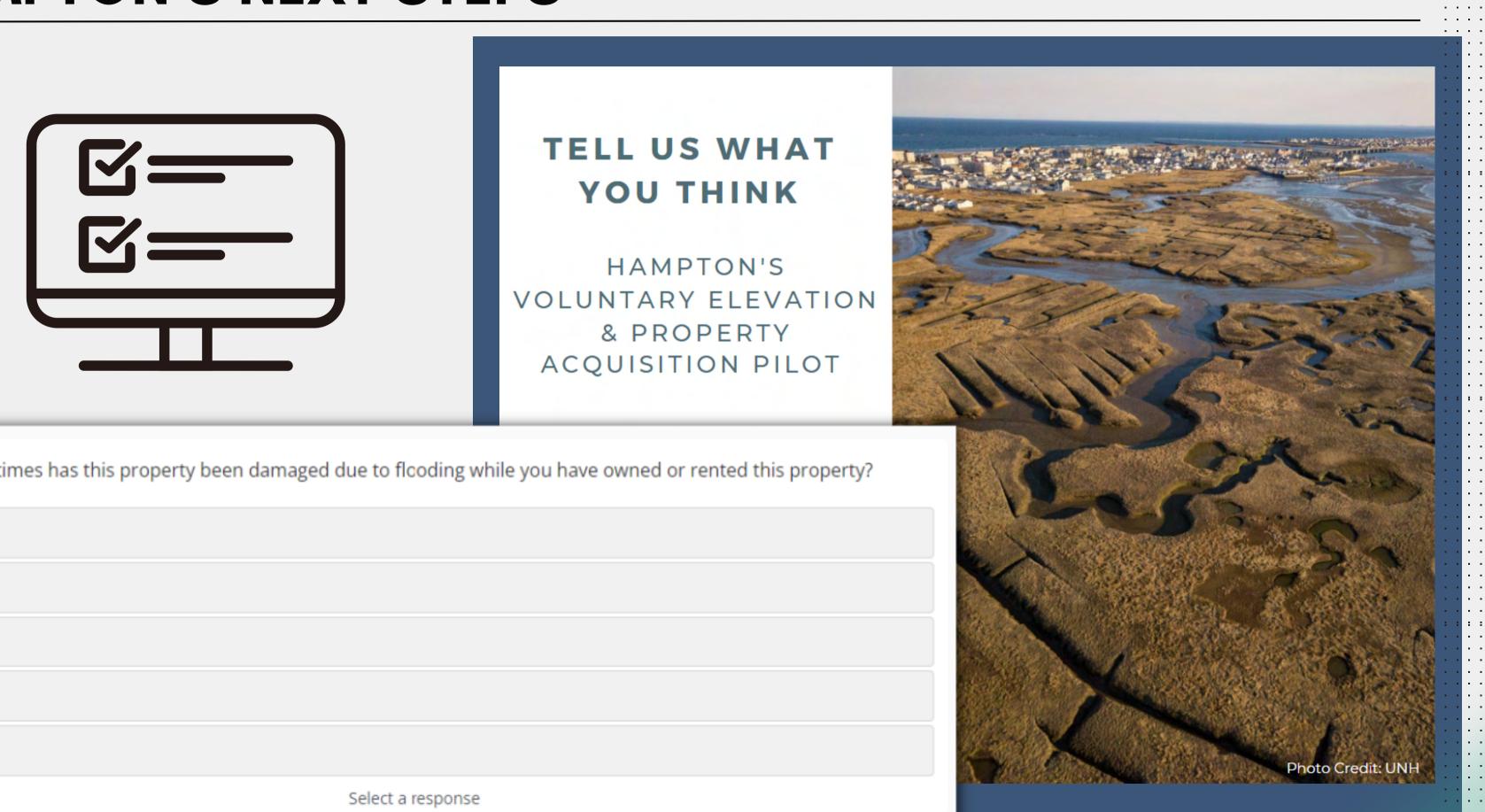
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HAMPTON'S NEXT STEPS



How many times has this property been damaged due to flooding while you have owned or rented this property?

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	Select a response

COASTAL HAZARDS ADAPTATION TEAM

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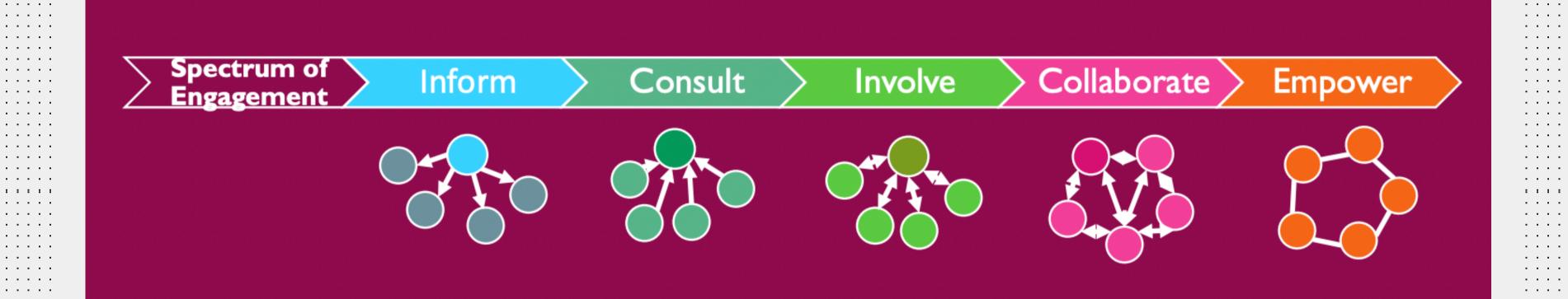
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This Engagement Strategy includes several steps to help CHAT move along the spectrum of engagement — from providing basic objective information to empowering to community to deciding the actions that are most appropriate for the town to pursue.

CHAT RECOMMENDATIONS

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Risk Disclosure

Advocate options to require flood risk disclosure, including, but not limited, to statewide legislation that requires that current and future flood risk is disclosed so that future owners are aware of the potential risk.

What it means:

A flood-risk disclosure should be required during real-estate transactions. Property disclosure statements outline any flaws that the home sellers (and their real estate agents) are aware of that could negatively affect the home's value.

HAMPTON



Recommendations to the Town of Hampton to Increase Resilience to Flooding and Coastal Hazards

Why does CHAT recommend this?

Disclosing flood risk information during real estate transactions is a timely and effective way to enable homeowners to make better risk-informed investment decisions. Currently, no federal statutes require property sellers to disclose information about flood risk or prior flood damage. However, states can take action to protect home buyers in their state by enacting laws and implementing practices that require disclosure of flood risk.

States often enact real estate disclosure laws that require written statements from a seller that disclose any facts about the property that are material to its value, such as prior flood damage and flood risk. New Hampshire does not have a requirement that property owners or realtors disclose information about current or future flood risk. Requiring this information to be shared with perspective buyers can help people make informed choices about risk. A disclosure could increase awareness of the potential for flood impacts or the need to floodproof or raise a property to reduce flood risk. Knowing the risk of flooding is the first step toward adequately protecting lives and property.

More information:

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Flood Risk Disclosure, Model State Requirements for Disclosing Flood Risk During Real Estate Transactions

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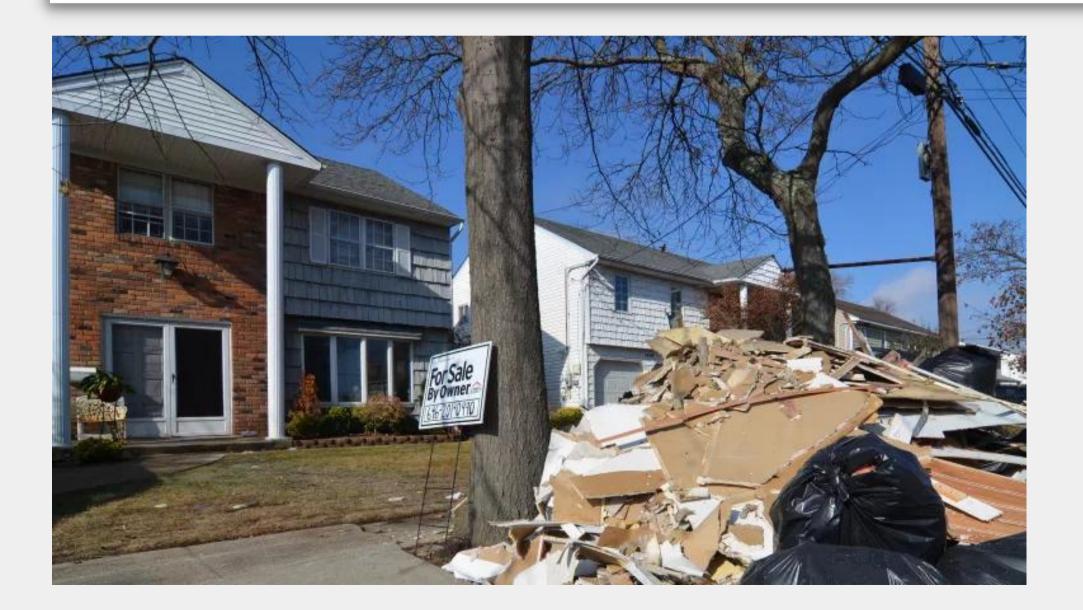
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FLOOD RISK DISCLOSURE

More States Are Requiring Flood Disclosure

New home buyers and renters should have a right to know a property's flood history before they commit to calling it home.

August 31, 2023



Debris piled up outside a home in the Queens, NY, neighborhood of Oceanside, damaged by flooding from Hurricane Sandy. Credit: Walt Jennings/FEMA

FIVE STRATEGIES FOR COASTAL RESILIENCE

NO ACTION

No changes made

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ACCOMMODATE

Live with the water

AVOID

Prioritize investment out

of the water's way

RELOCATE

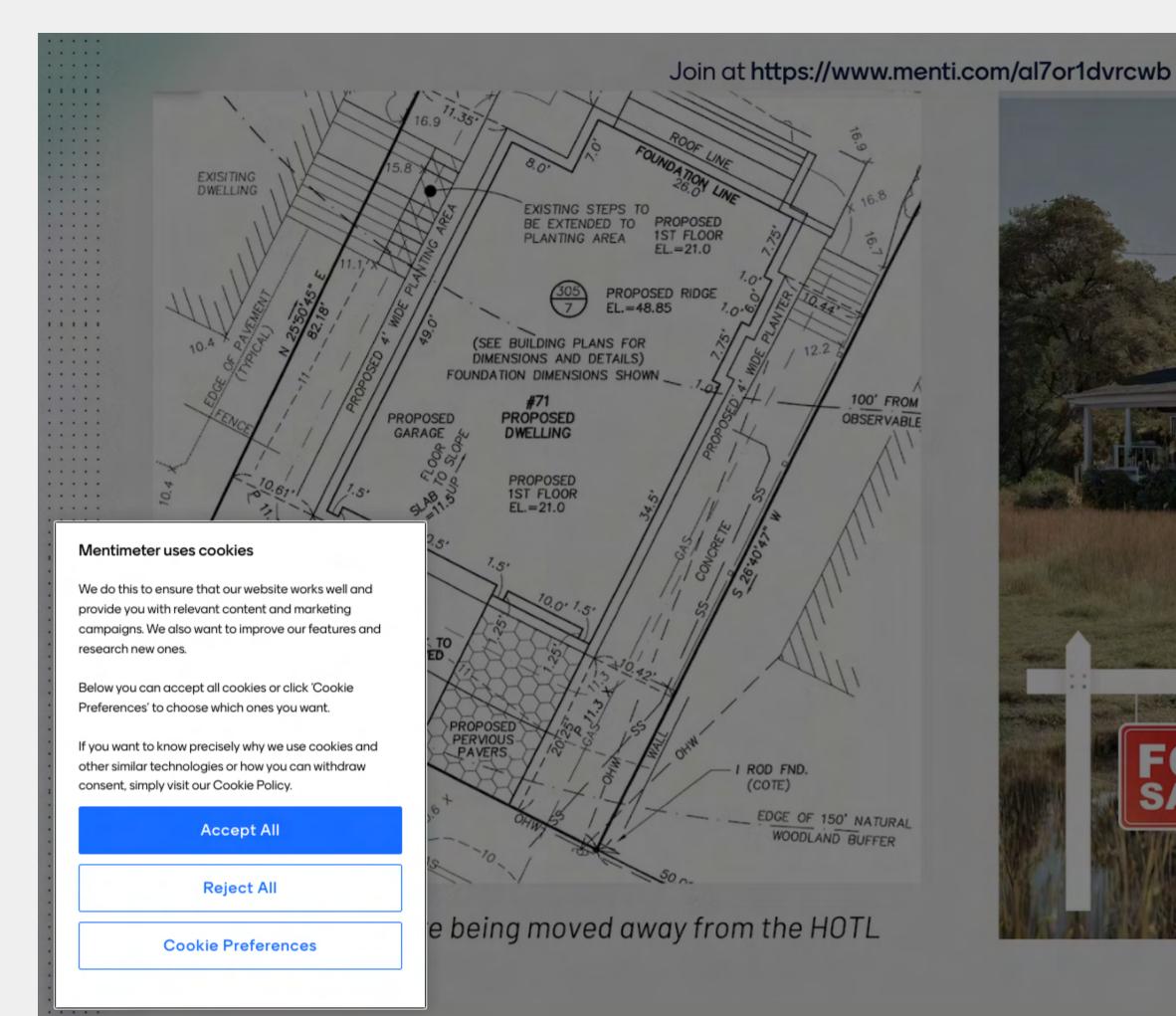
Move assets or facilitate migration

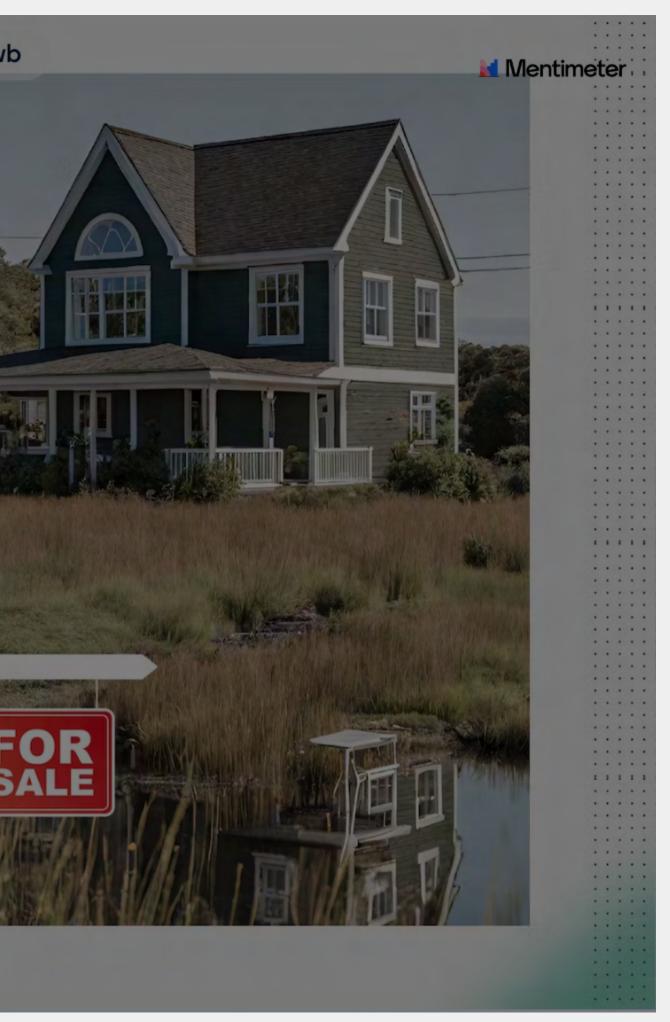


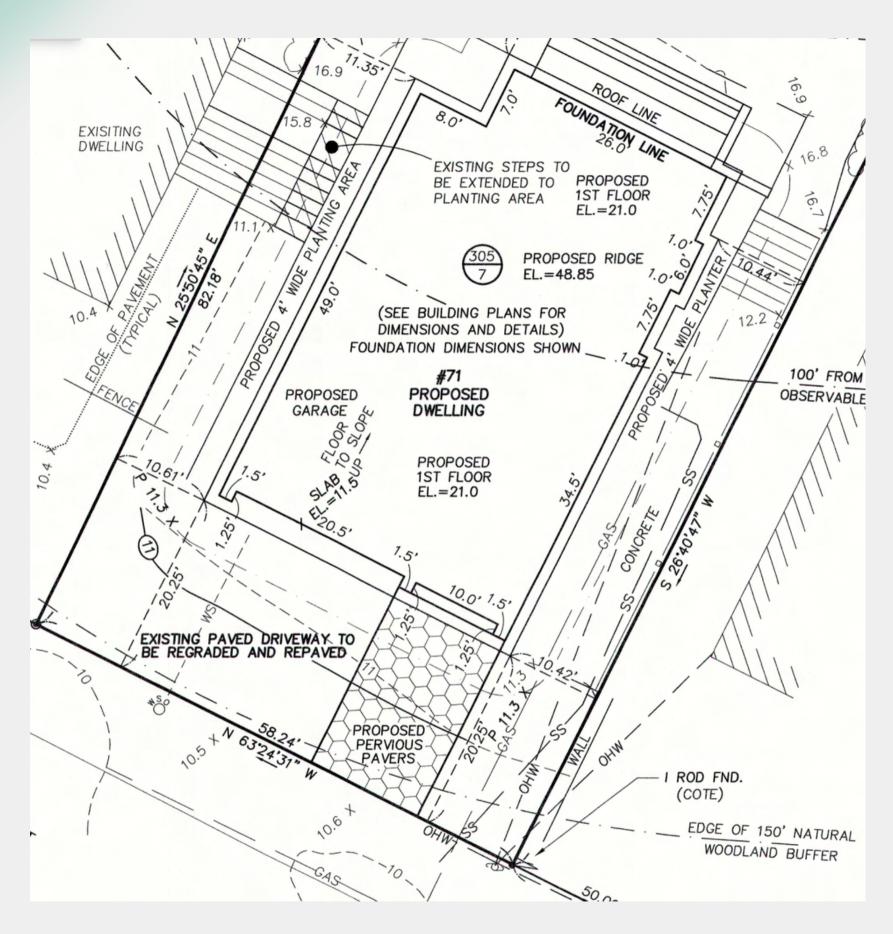
Keep the water out



mentimeter.com CODE: 4215 6103



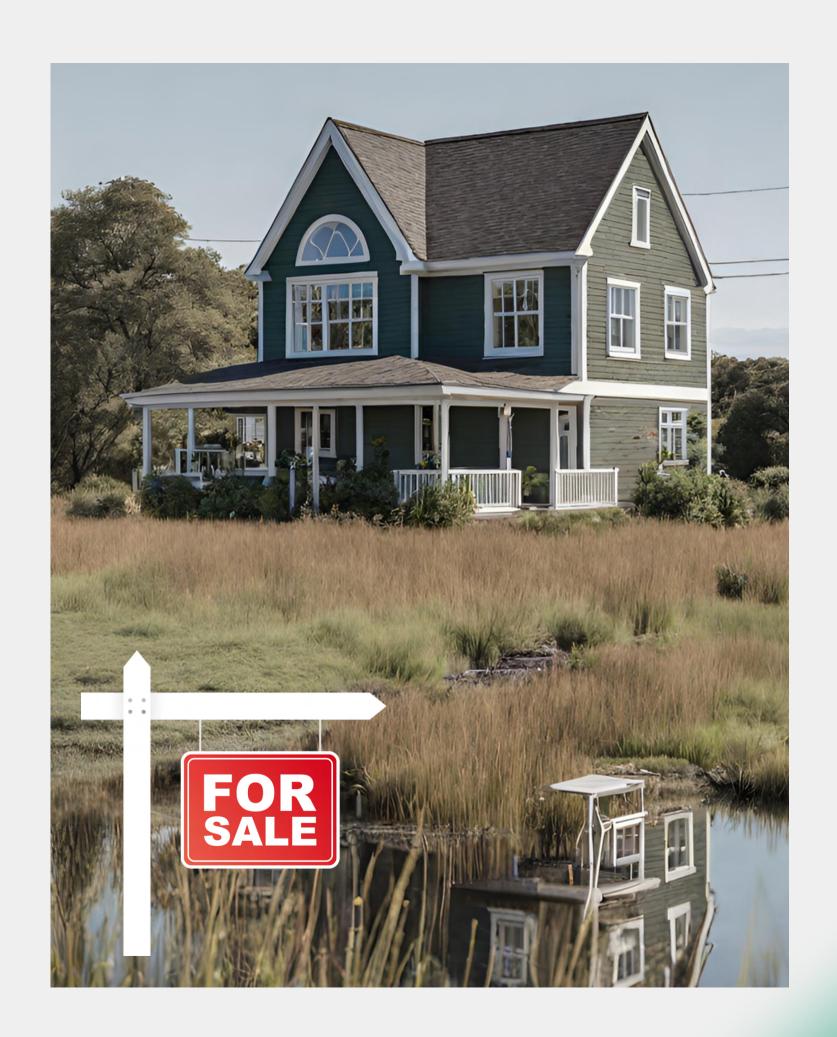




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Proposed structure being moved away from the HOTL





Proposed structure being moved away from the HOTL

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Home Elevation. Image: Carpentier Construction



Living Shorelines- Virginia Association of Soil and Water Conservation Districts

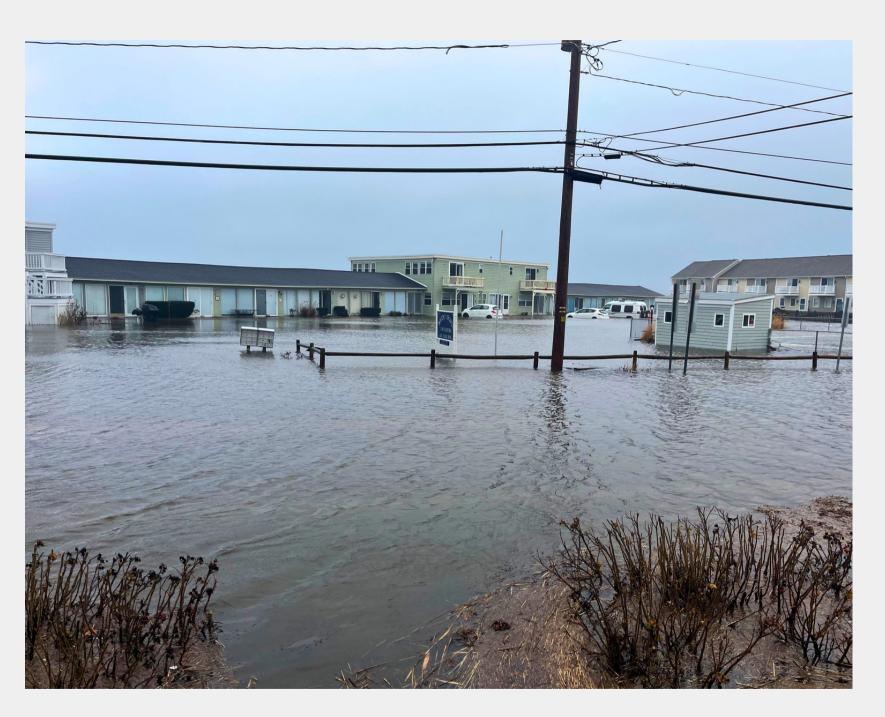


Home Elevation. Image: Carpentier Construction

ACCOMMODATE Live with the water

Living Shorelines- Virginia Association of Soil and Water Conservation Districts





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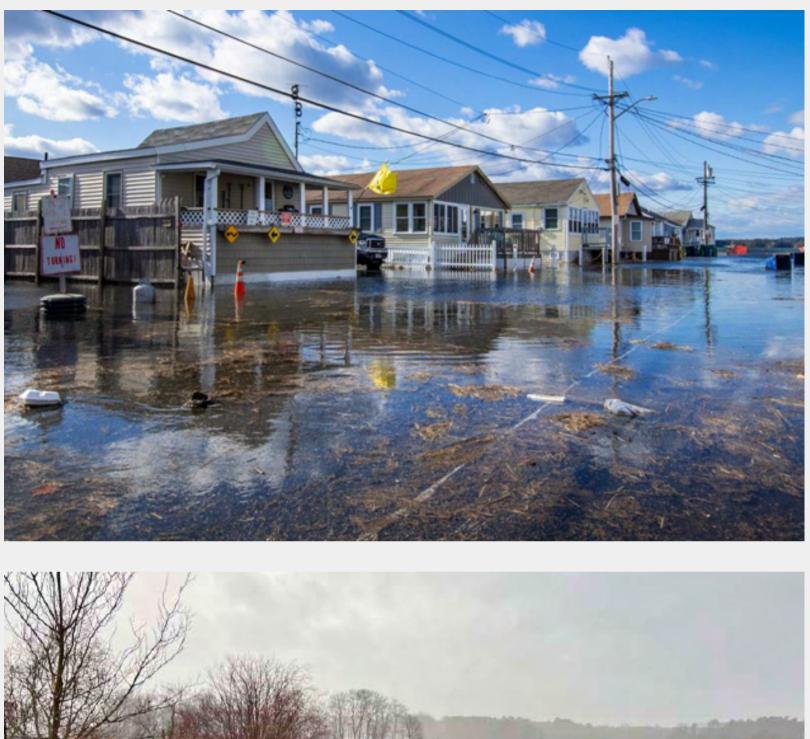
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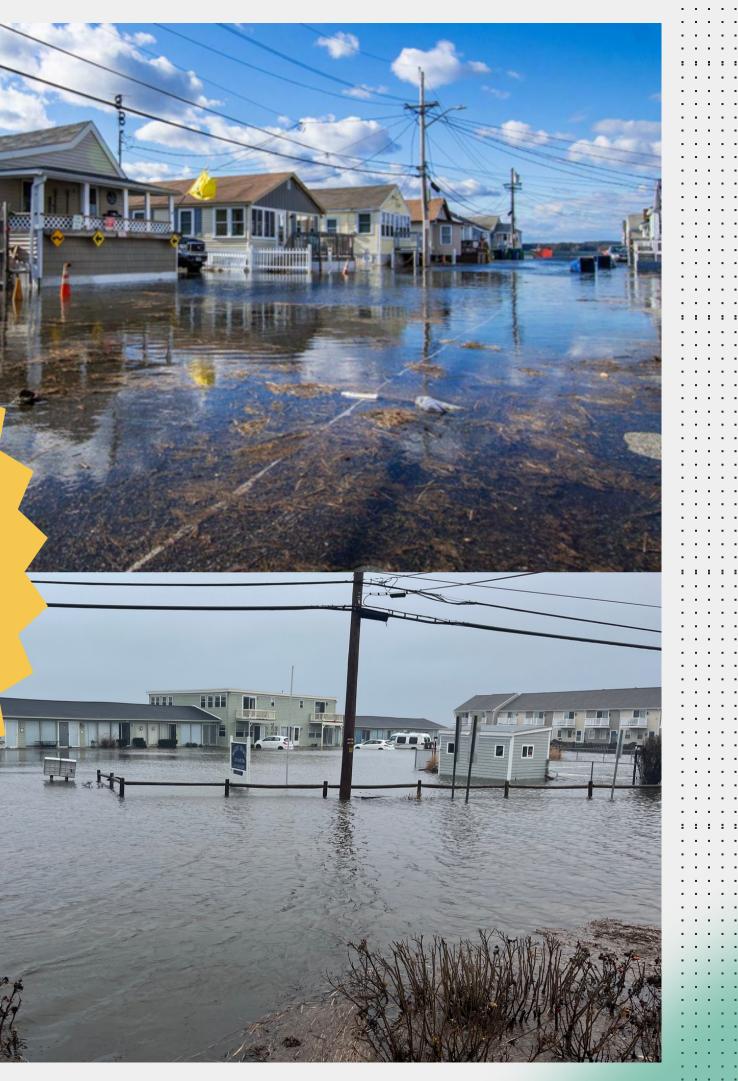
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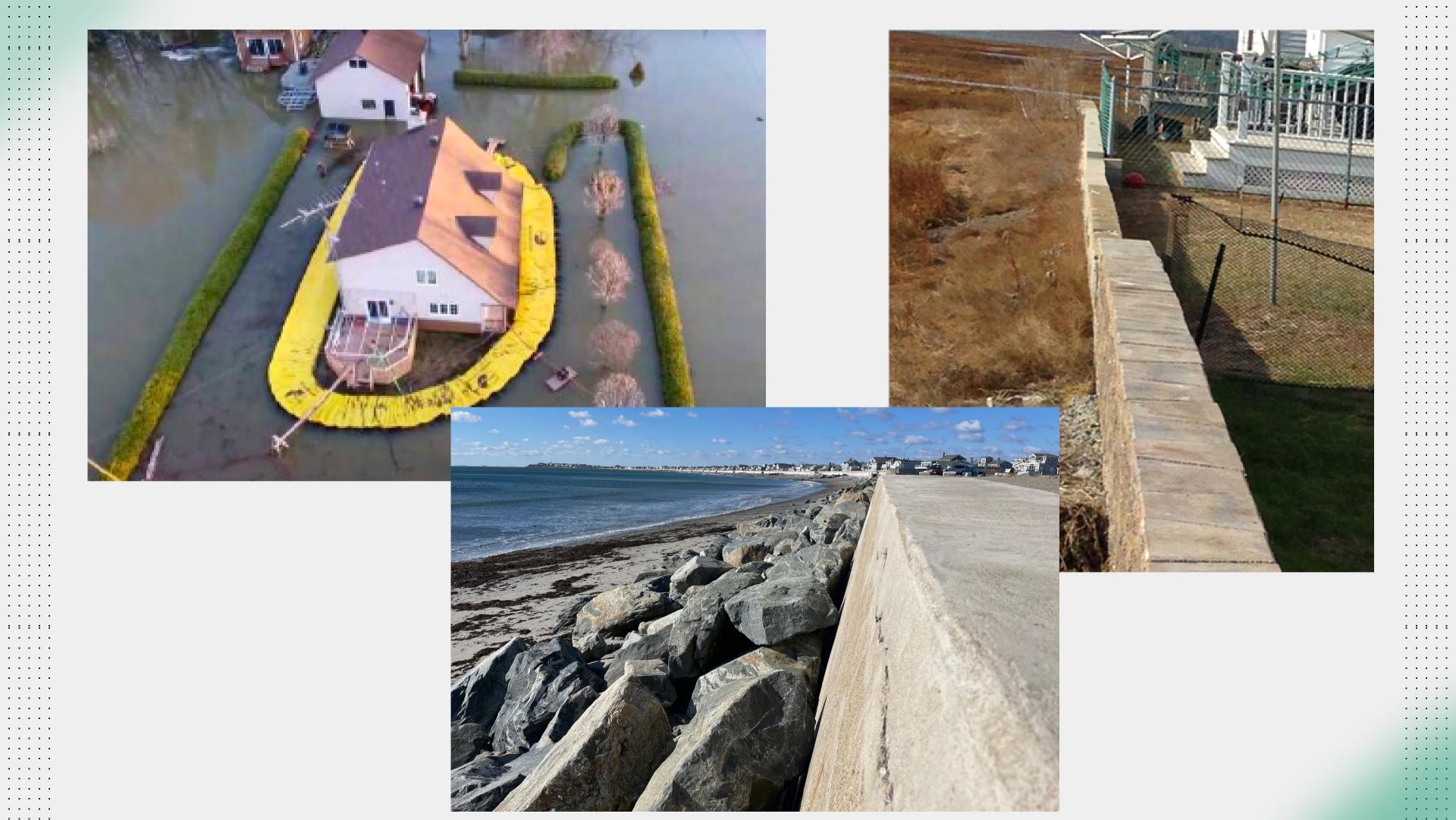
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NO Changes made

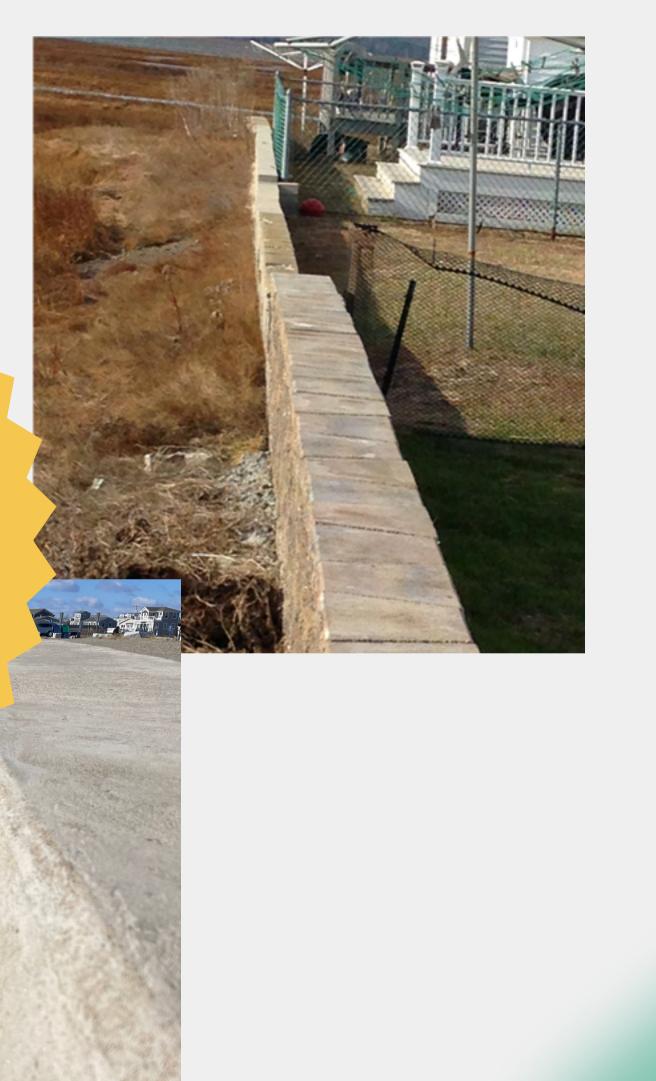
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RESIST Keep the water out

影響





Critical facilities located outside of the SFHA.

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AVOID **Prioritize investment** out of the water's way.

Critical facilities located outside of the SFHA.

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Incentivize development in dense, upland areas away from flood risks.

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nt Hill

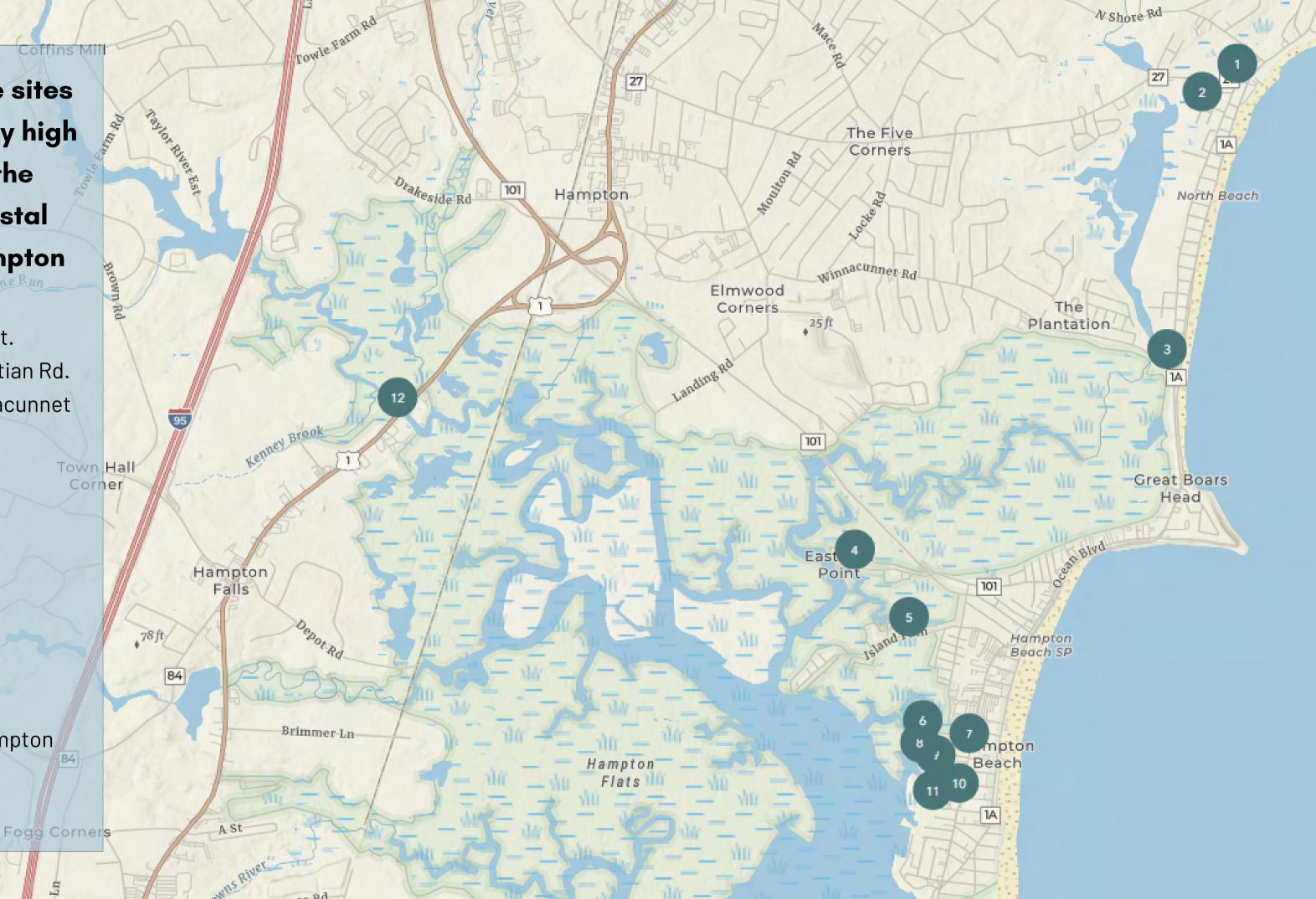
Check out these sites during especially high tides to see the impact of coastal flooding in Hampton

1. East end of High St.

- 2. Greene St. at Gentian Rd.
- 3. East end of Winnacunnet Rd.
- 4. Glade Path
- 5. Island Path
- 6. Hobson Ave.
- 7. Manchester St.
- 8. Mooring Dr.
- Great H 9. Auburn Ave.

84

- 10. Johnson Ave.
- 11. Riverview Terr. 84
- 12. Route 1 at the Hampton Falls Town border



November 15 |12:02 pm | 9.4'

November 16 | 12:45 pm | 9.4'

November 24 | 8:20 am | 9.4'

November 27 | 10:44 am | 9.9'



November 28 | 11:30 am | 9.8'

November 29 | 12:14 pm |9.5'

December 13 | 10:57 am |9.6'

December 14 |11:43 am | 9.7'

December 15 |12:31 pm | 9.8'

Upcoming Higher High Tides in Hampton