

10th Annual State of the Harbor Forum

presented by the

Nantucket Land & Water Council

A Community Conversation on Coastal Resilience



10 YEARS of Community Dialogue on Harbor Health

2017: The State of the Harbor - *Health & Ecology of Nantucket Harbor*

2018: Sewer Force Main Failure - *The Morning After*

2019: Research & Restoration in Nantucket Harbor

2020: Impacts & Implications of a Changing Climate

2021: Green Boating for a Healthy Harbor

2022: Planning for a More Sustainable Future

2023: The Health of Nantucket's Eelgrass

2024: Stormwater Infrastructure - *Investigations & Improvements*

2025: Our Harbor, Our Responsibility - *Preserving Eelgrass on Nantucket*

2026: A Community Conversation on Coastal Resilience

THANK YOU TO OUR EVENT SPONSORS



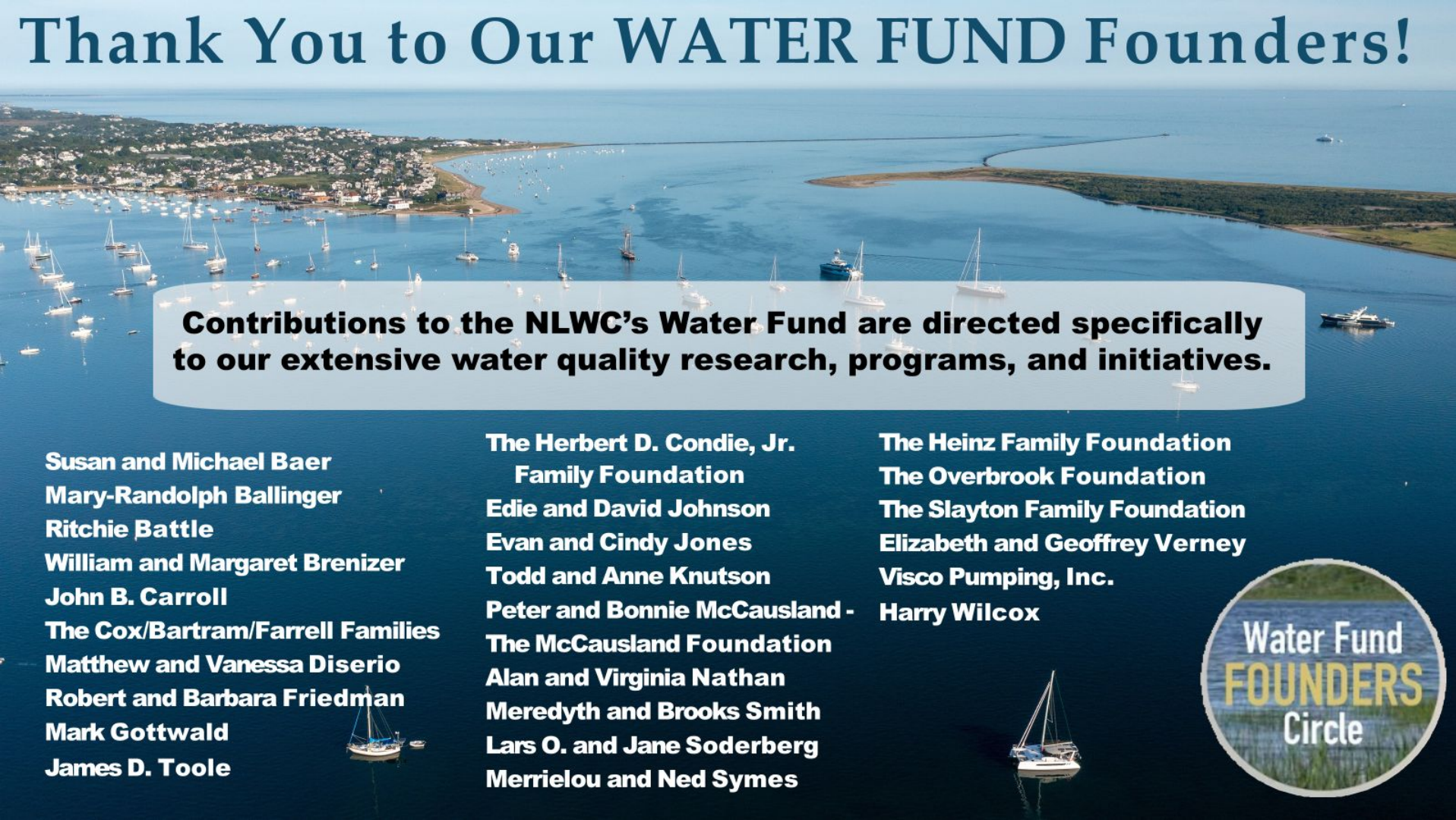
THANK YOU TO OUR COMMUNITY EDUCATION AND ANNUAL BUSINESS SPONSORS



SILVERCREST
ASSET MANAGEMENT GROUP

september
PRODUCTIONS





Thank You to Our WATER FUND Founders!

Contributions to the NLWC's Water Fund are directed specifically to our extensive water quality research, programs, and initiatives.

**Susan and Michael Baer
Mary-Randolph Ballinger
Ritchie Battle
William and Margaret Brenizer
John B. Carroll
The Cox/Bartram/Farrell Families
Matthew and Vanessa Diserio
Robert and Barbara Friedman
Mark Gottwald
James D. Toole**

**The Herbert D. Condie, Jr.
Family Foundation
Edie and David Johnson
Evan and Cindy Jones
Todd and Anne Knutson
Peter and Bonnie McCausland -
The McCausland Foundation
Alan and Virginia Nathan
Meredyth and Brooks Smith
Lars O. and Jane Soderberg
Merriellou and Ned Symes**

**The Heinz Family Foundation
The Overbrook Foundation
The Slayton Family Foundation
Elizabeth and Geoffrey Verney
Visco Pumping, Inc.
Harry Wilcox**



Support our 2026 Water Fund Challenge Grant!

In 2026, some dedicated members of the NLWC board have, once again, come together to offer a generous **Water Fund Challenge Grant** to the organization.

Any gift to our Water Fund will be matched on a 1:1 Basis up to \$75,000.

Thank You to our 2026 Water Fund Challenge Grant Donors!

Susan and Michael Baer
Mary-Randolph Ballinger
Cox Family Foundation
Lucy Dillon
Robert and Barbara Friedman
Alan and Virginia Nathan
Charlie Platt and Maureen McAllister



A Community Conversation on Coastal Resilience

Vince Murphy

Sustainability Programs Manager, Town of Nantucket

An Introduction to Nantucket's Coastal Resilience Plan

Shannon Hulst

Floodplain Specialist & Community Rating System Coordinator

Dialogue About Coastal Resilience Policy

Laura Marrett

Principal, SCAPE Landscape Architects

Nantucket's New Retreat & Relocation Program

Question & Answer Panel

Vince Murphy, Shannon Hulst, Laura Marrett & RJ Turcotte

RJ Turcotte, Nantucket Waterkeeper, Nantucket Land & Water Council

**Please complete the COASTAL RESILIENCE SURVEY
and FIND YOUR FLOOD ZONE**





COASTAL
RESILIENCE
ADVISORY
COMMITTEE



Town of Nantucket's Coastal Resilience Plan

State of the Harbor Forum

Tuesday, July 14, 2026

Vince Murphy, Sustainable Programs Manager

Leah Hill, Coastal Resilience Coordinator

Town of Nantucket

Natural Resources Department

Lhill@nantucket-ma.gov

508-228-7200 ext. 7603

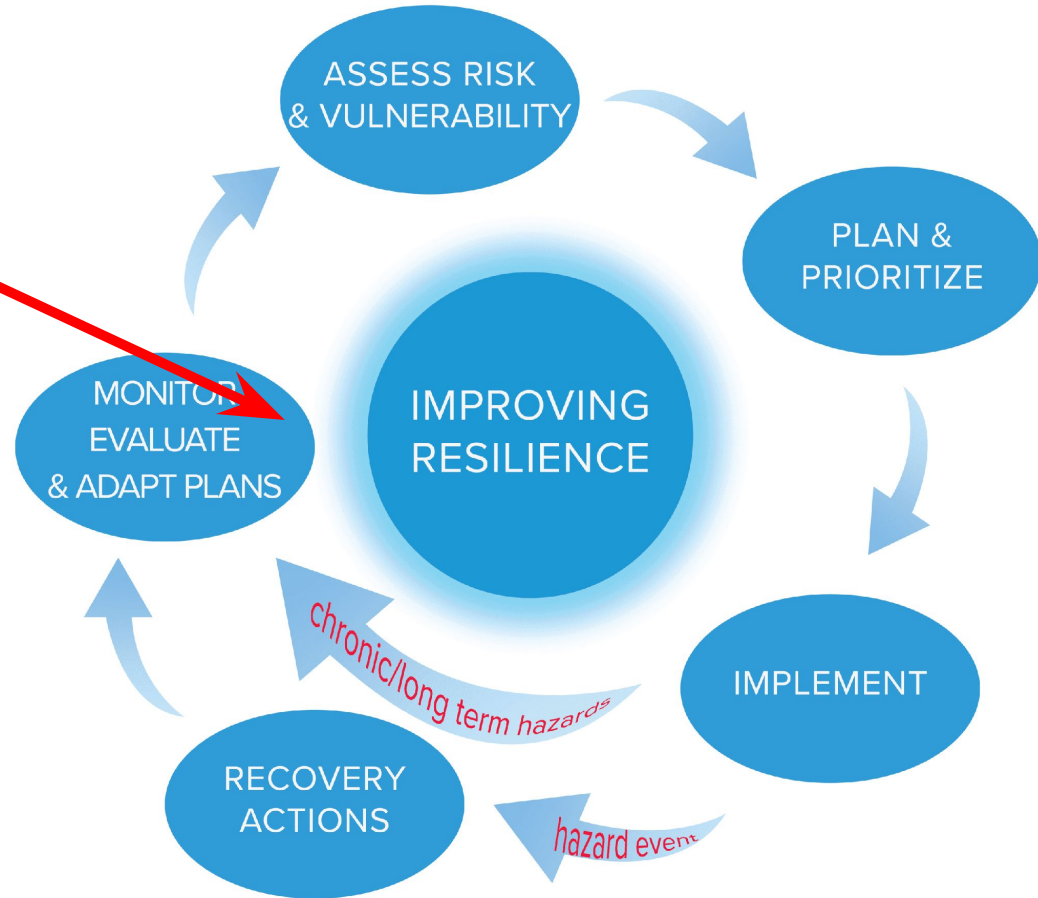
What is Coastal Resiliency?

- The capacity of individuals, communities, businesses, institutions, and governments to **adapt** to changing conditions and **prepare** for, **withstand**, and **rapidly recover** from disruptions to everyday life, such as hazard events.
- I.E. “Bounce back” from hurricanes, coastal storms, and flooding rather than simply reacting to impacts



Resilience is a process... *The Resilience Cycle*

**Always
planning to
improve
resilience**



HOW WE GOT TO WHERE WE ARE TODAY

Prior to 2019

- Documentation of stormwater flooding
- Coastal Management Plan (2014)

SPRING 2019

SPRING 2019

- HMP recommends coastal resilience plan (CRP)
- Town allocates funding for CRP
- Coastal Resiliency Advisory Committee (CRAC)

9 March 2019 Established

JULY 2019

Coastal Resilience Coordinator hired

JANUARY 2020

Coastal Risk Assessment and Resiliency Strategies

SEPTEMBER 2020

CRP Planning process begins

JULY 2020

Town adopts NOAA high sea level rise projections

MAY 2021

Resilient Nantucket (historic preservation design guidelines)

NOVEMBER 2021

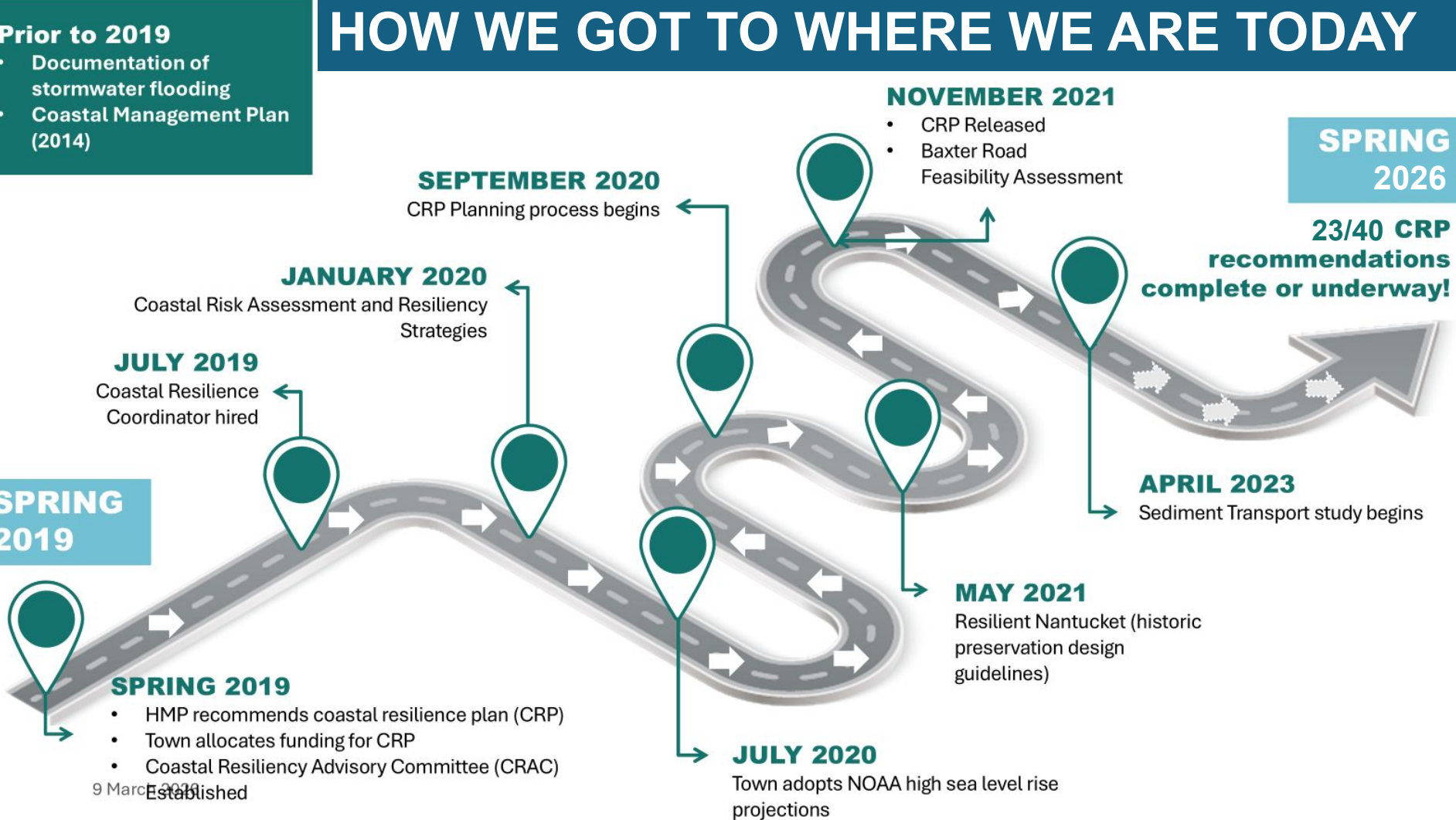
- CRP Released
- Baxter Road Feasibility Assessment

APRIL 2023

Sediment Transport study begins

SPRING 2026

23/40 CRP recommendations complete or underway!



COASTAL RISKS



EROSION

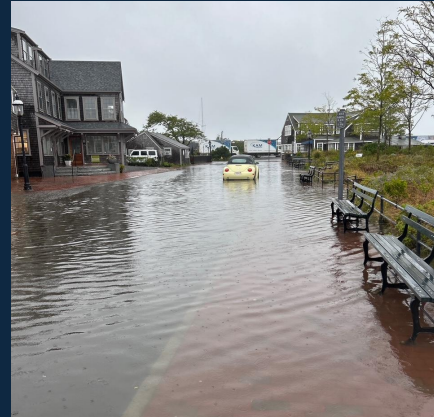


GROUNDWATER TABLE RISE



COASTAL FLOODING

- 2,373 structures at risk through 2070
- 84% of at-risk buildings are **residential**
- 9% of at-risk buildings are **commercial**
- 49% of at-risk buildings are **historic**
- 9% of at-risk buildings are **tourism-related**



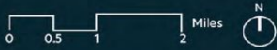
STORMWATER FLOODING



HIGH TIDE FLOODING

Island-Wide Coastal Flood Risk

All coastal flood extents based on the Massachusetts Coastal Flood Risk Model (MC-FRM). Data should be used for planning purposes only.



~~\$2.4~~ **BILLION** in calculated damages and losses to 2070

Total Coastal Flood and Erosion
Risk to Buildings

\$4.3 BILLION in 2026 dollars



\$180 Million in expected damages at 34 community facilities

\$227 Million in 2026 dollars

Muskeget Island

Tuckernuck Island

Nantucket Harbor

Brant Point

Coatue

Nantucket Harbor

Polpis

North Shore

Madaket

Downtown

South Shore

Sconset

Atlantic Ocean

LEGEND

1% Annual Chance Flood*

2030 1% annual chance coastal flood*

2050 1% annual chance coastal flood*

2070 1% annual chance coastal flood*

*The 1% annual chance event, or 100-year storm, is a benchmark used to plan for coastal flooding. Properties within the extent of the 1% annual chance event have a 1 in 4 chance of flooding over the course of a 30-year home mortgage.

Total Quantitative Risk

- < \$500k
- < \$1.0 Million
- < \$2.5 Million
- < \$5.0 Million
- < \$10 Million
- < \$50 Million

NANTUCKET COASTAL RESILIENCE PLAN

FINAL REPORT

NOVEMBER 2021

1. **Build coastal resilience and reduce coastal risks from flooding and erosion**
2. **Enhance safe access to, from, and across the island**
3. **Promote the health of natural ecosystems**
4. **Generate waterfront public space, connectivity, and safety**
5. **Develop implementable strategies that will result in reduction of flood and erosion risk**



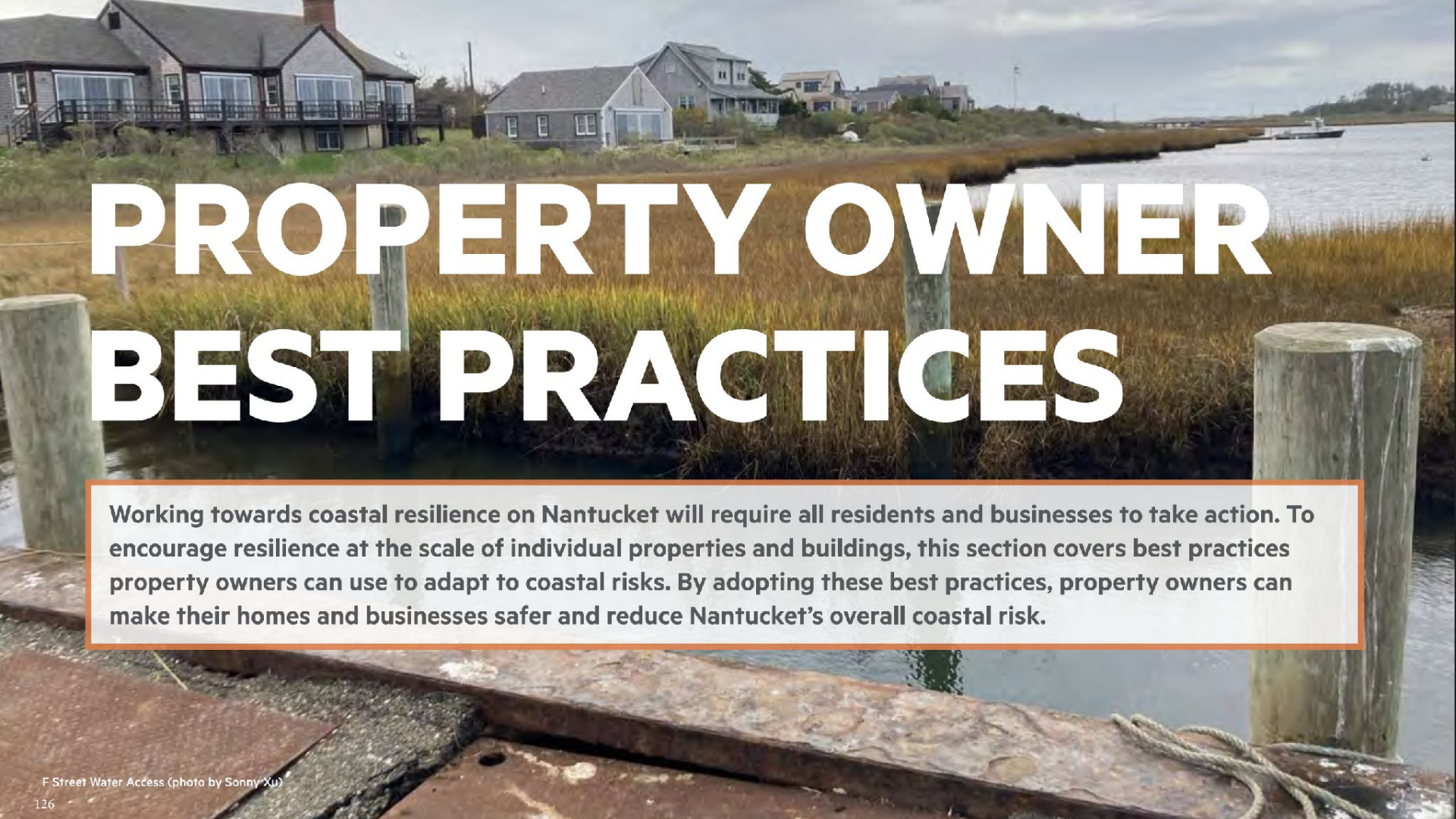
COASTAL
RESILIENCE
ADVISORY
COMMITTEE



●ne architecture

THECRAIGGROUP
Your path. Our passion. Planning and policy.

STOSS



PROPERTY OWNER BEST PRACTICES

Working towards coastal resilience on Nantucket will require all residents and businesses to take action. To encourage resilience at the scale of individual properties and buildings, this section covers best practices property owners can use to adapt to coastal risks. By adopting these best practices, property owners can make their homes and businesses safer and reduce Nantucket's overall coastal risk.



40 recommendations/resilience strategies to be implemented by 2050 with a majority in the next 10-15 years



Updates to Zoning By-Law

- Recently passed at town meeting the mandatory update to stay compliant with the NFIP
- High priority in CRP
 - Updates to encourage resilient design and limit investment in areas of high coastal risk
 - Recommendations that align with coastal resiliency bylaw and regulations (explained in next presentation)
- On CRAC's 2025 priority list to focus on
- The last 6 years with the CRP development as led us here today to have an initial discussion in this type of forum to gain early community feedback and answer questions



Questions

HISTORIC FLOOD EVENTS

Leah Hill
Coastal Resilience
Coordinator
Town of Nantucket
Lhill@nantucket-ma.gov
508-228-7200 ext. 7603

October 30, 1991

January 04, 2018

February 09, 2013
December 12, 1992

January 23, 2005

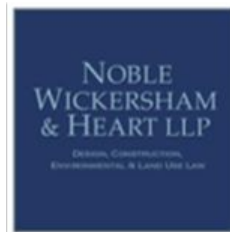
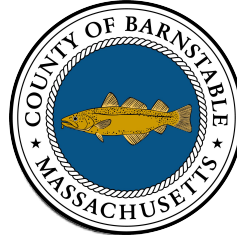


Regulatory Tools for Coastal Floodplain Resiliency

Shannon Hulst
STATE OF THE HARBOR FORUM

NANTUCKET | July 14, 2026

Project Partners

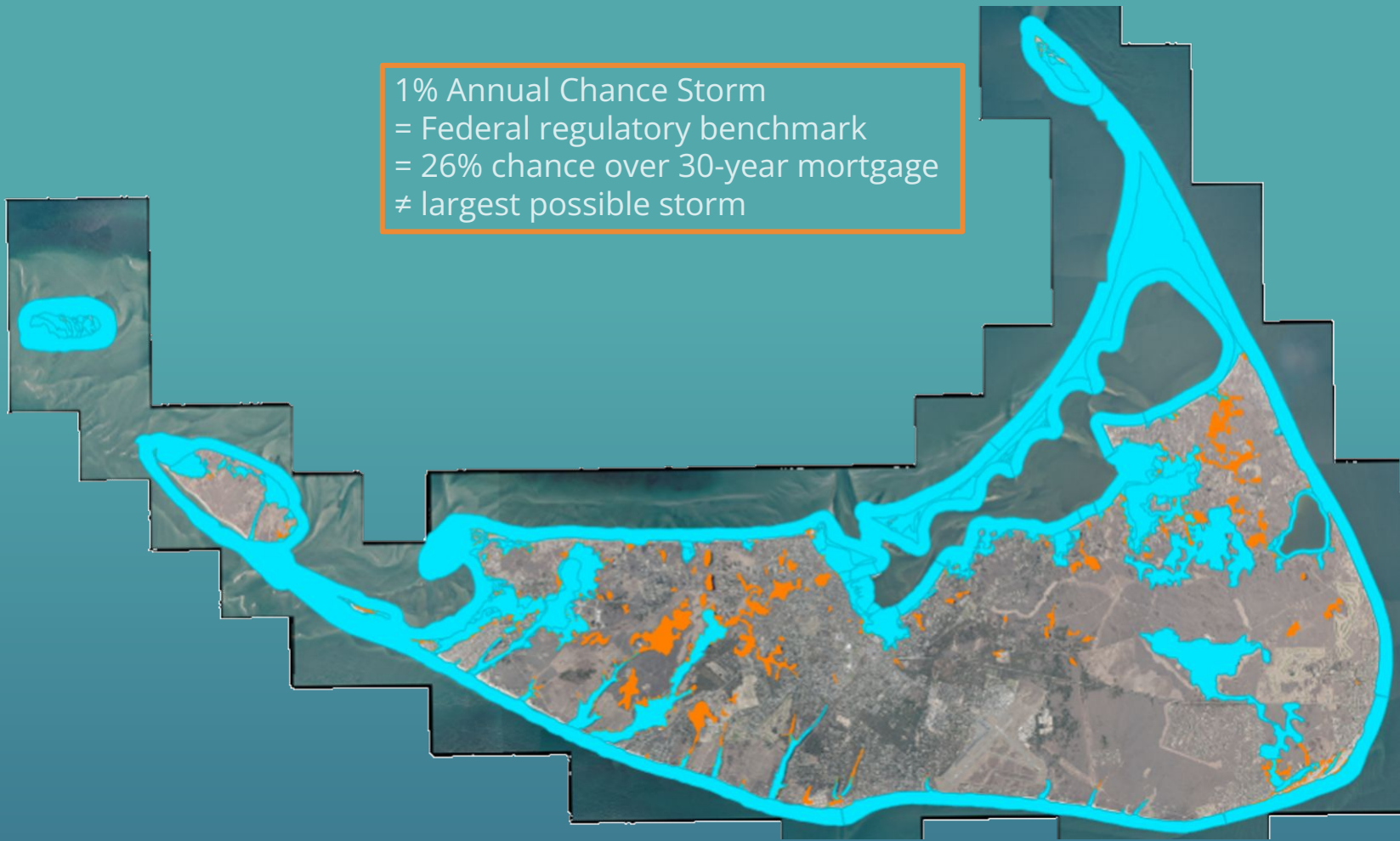




Flood Risk

Image: MyCoast

1% Annual Chance Storm
= Federal regulatory benchmark
= 26% chance over 30-year mortgage
≠ largest possible storm



Island-Wide Coastal Flood Risk

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Muskeget Island

Tuckernuck Island

Nantucket Sound

Atlantic Ocean

Nantucket Harbor

Brant Point

Coatue

Nantucket Harbor

Polpis

North Shore

Madaket

Downtown

Sconset

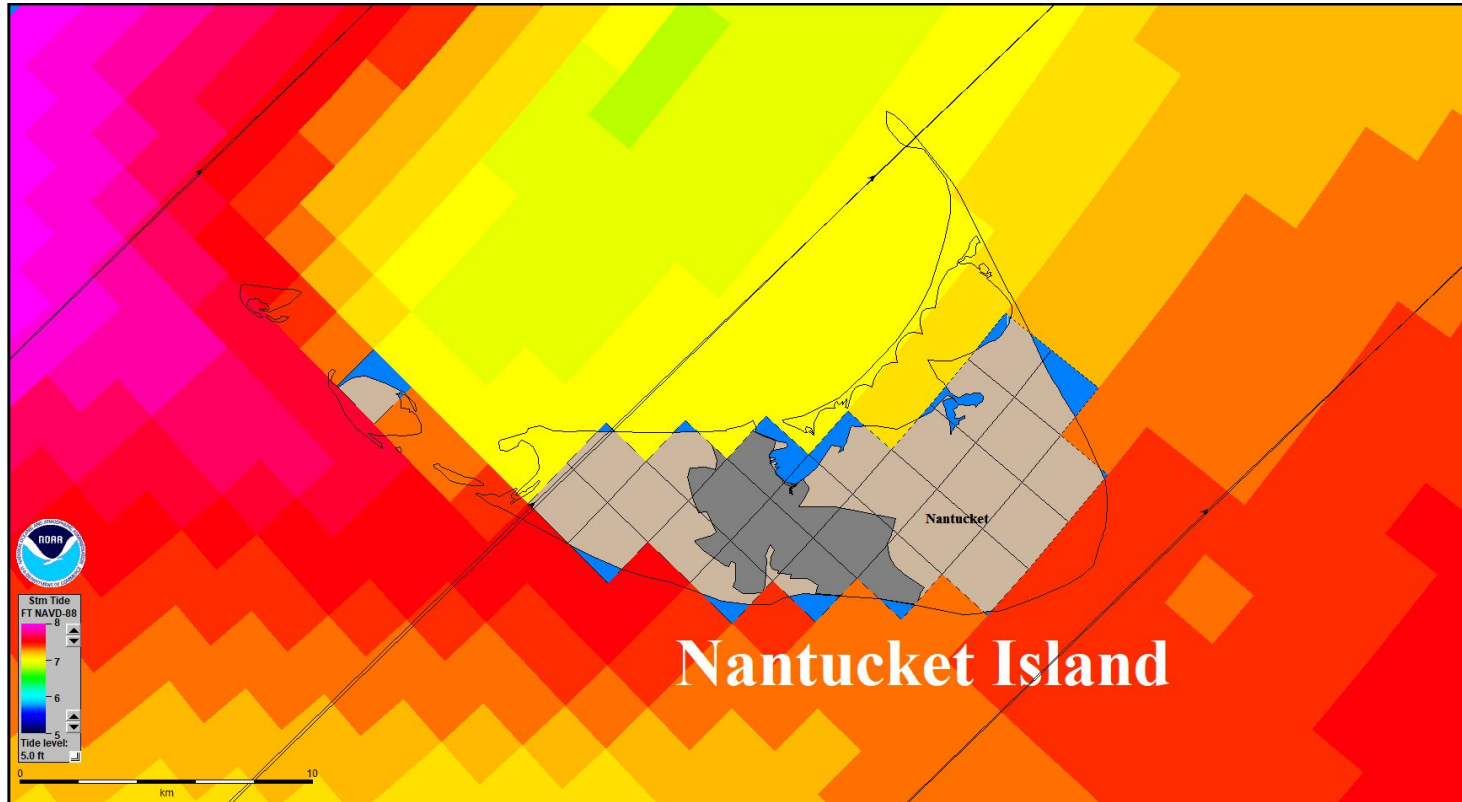
South Shore

LEGEND

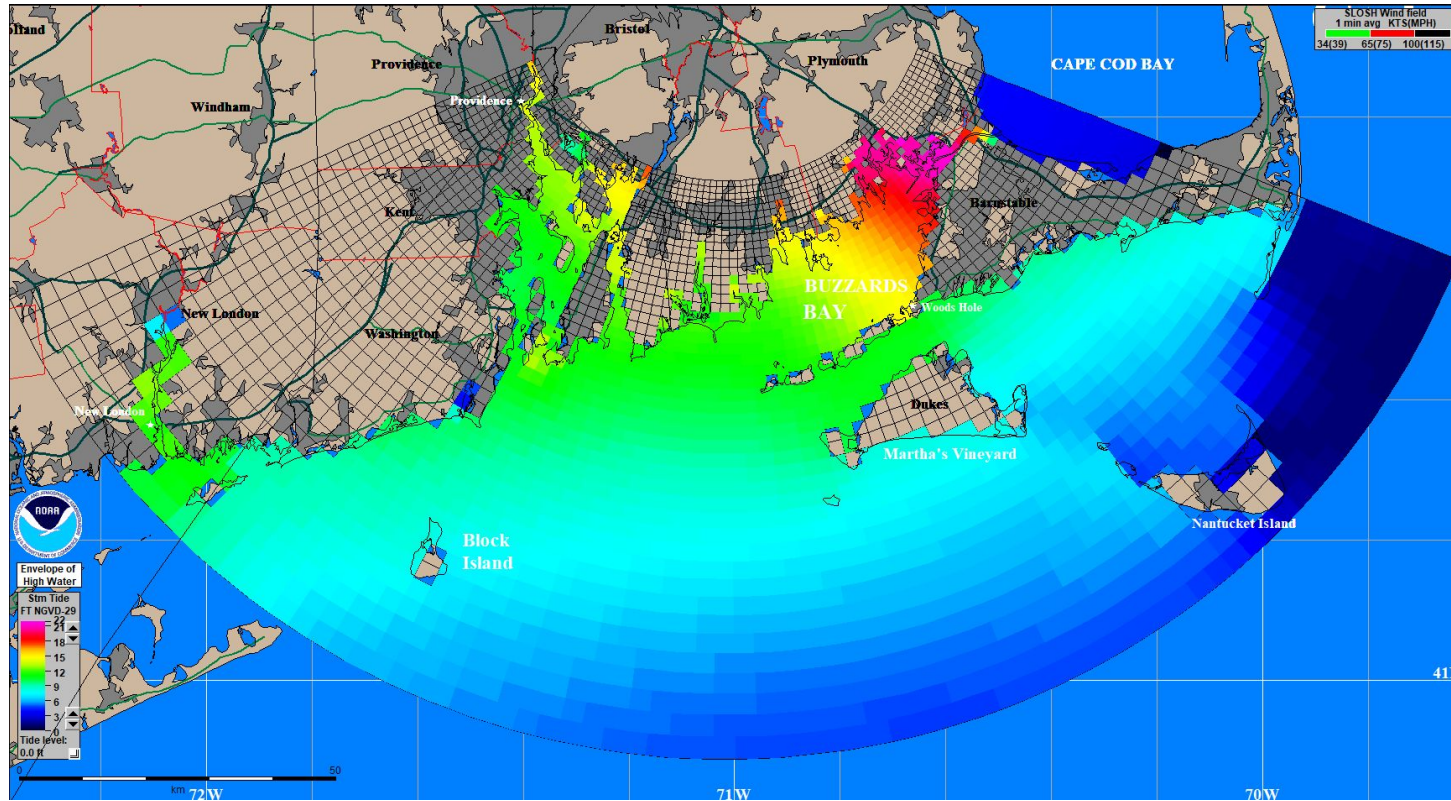
- 2030 1% annual chance coastal flood*
- 2050 1% annual chance coastal flood*
- 2070 1% annual chance coastal flood*

*The 1% annual chance event, or 100-year storm, is a benchmark used to plan for coastal flooding. Properties within the extent of the 1% annual chance event have a 1 in 4 chance of flooding over the course of a 30-year home mortgage.

Perfect Storm 1991 (very roughly)



Hurricane of 1635



Island-Wide Coastal Flood Risk

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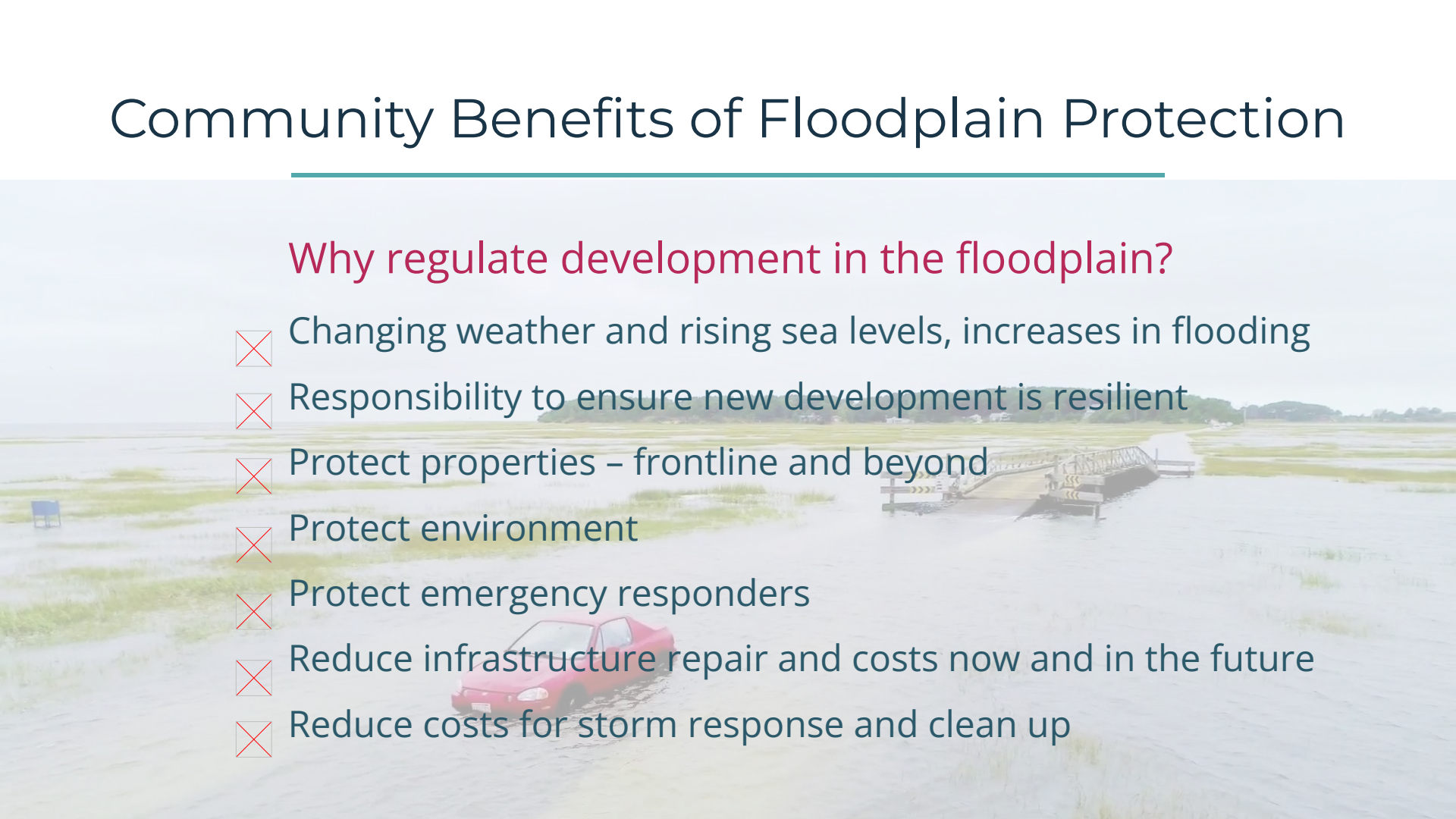


Regulating the Floodplain

Image: MyCoast

Community Benefits of Floodplain Protection

Why regulate development in the floodplain?

- ❌ Changing weather and rising sea levels, increases in flooding
 - ❌ Responsibility to ensure new development is resilient
 - ❌ Protect properties – frontline and beyond
 - ❌ Protect environment
 - ❌ Protect emergency responders
 - ❌ Reduce infrastructure repair and costs now and in the future
 - ❌ Reduce costs for storm response and clean up
- 
- A background image showing a flooded area. In the foreground, a red car is partially submerged in murky water. In the middle ground, a small bridge or overpass is visible, with water flowing underneath it. The background shows a flat, grassy landscape under a cloudy sky.

EXISTING FLOODPLAIN REGULATIONS

- **Based in required regulations from the National Flood Insurance Program (NFIP)**
 - All current floodplains based on backwards-looking **Federal Emergency Management Agency (FEMA)** NFIP flood maps
- MA Statewide **building code**: above and beyond minimums, but only regulates building methods and materials
- Most **zoning bylaws** include a Floodplain Overlay District, but only include minimum NFIP requirements (largely administrative)
- **Conservation Commissions** have jurisdiction to regulate FEMA floodplain through the **Wetlands Protection Act**, but no statewide or local regulations to enforce
 - State **Department of Environmental Protection** has released draft floodplain regs for Conservation Commissions that incorporate future sea level and storm risks, but has yet to promulgate a final version



Cape Cod Regulatory Tools

Image: MyCoast

STATUS: *Has anyone adopted these yet?*

- Chatham adopted regulations through Conservation Commission for existing floodplain on June 24
- In conversations with town staff and board members in 9 Cape Cod towns and 4 towns on Martha's Vineyard
- Working with Pleasant Bay Alliance and Chatham, Harwich, and Orleans
- Important to note: Chatham, Yarmouth, Mashpee, Provincetown

Today we are just introducing the idea and discussing potential options. No decisions will be made.

| FLOODPLAIN REGULATORY MODELS



COASTAL RESILIENCY BYLAW

Consistent with Wetlands Protection Act, protects natural resources from the impacts of development within the current floodplain, and allows for regulation of future floodplain to support natural resource function

COASTAL RESILIENCY REGULATIONS

Supports the Coastal Resiliency Bylaw, provides guidance and performance standards for development in the current floodplain and areas likely to be vulnerable in the future

ZONING FLOOD RESILIENCY BYLAW

Exceeds minimums of existing floodplain bylaw, addresses land use floodplain standards to protect public health/safety/welfare from current and future coastal flooding and to promote resiliency

MASSACHUSETTS COAST FLOOD RISK MODEL (MC-FRM)



OVERVIEW

Model Coastal Resiliency Bylaw and Regulations

General performance standards - **CRZ**

Standards for the **V Zone**

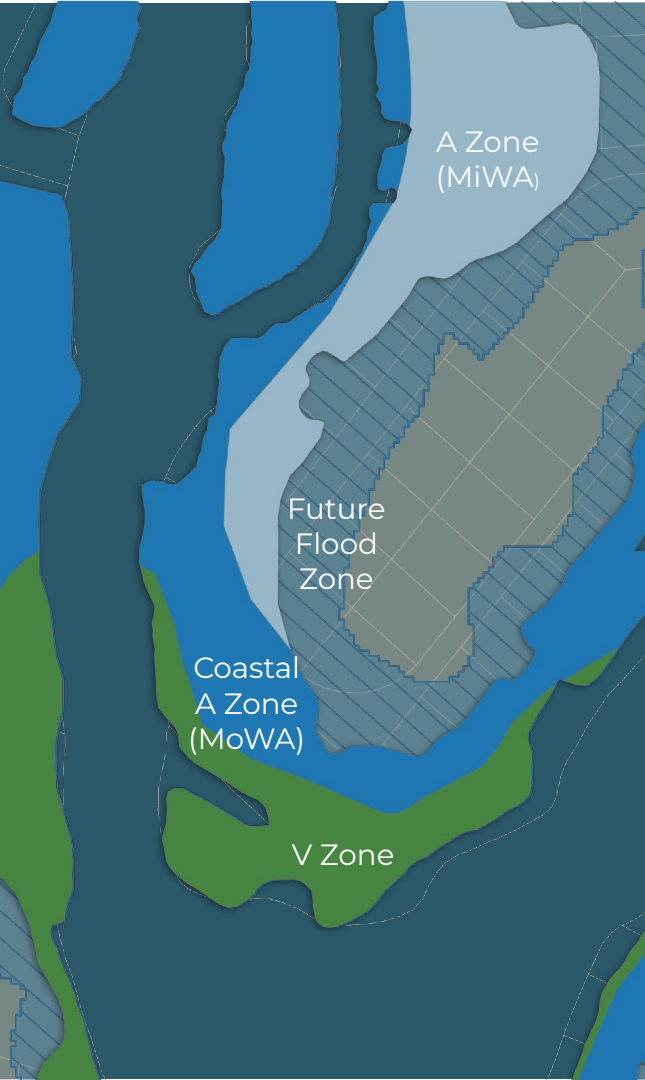
Standards for the **Coastal A Zone - MoWA**

Standards for the **A Zone - MiWA**

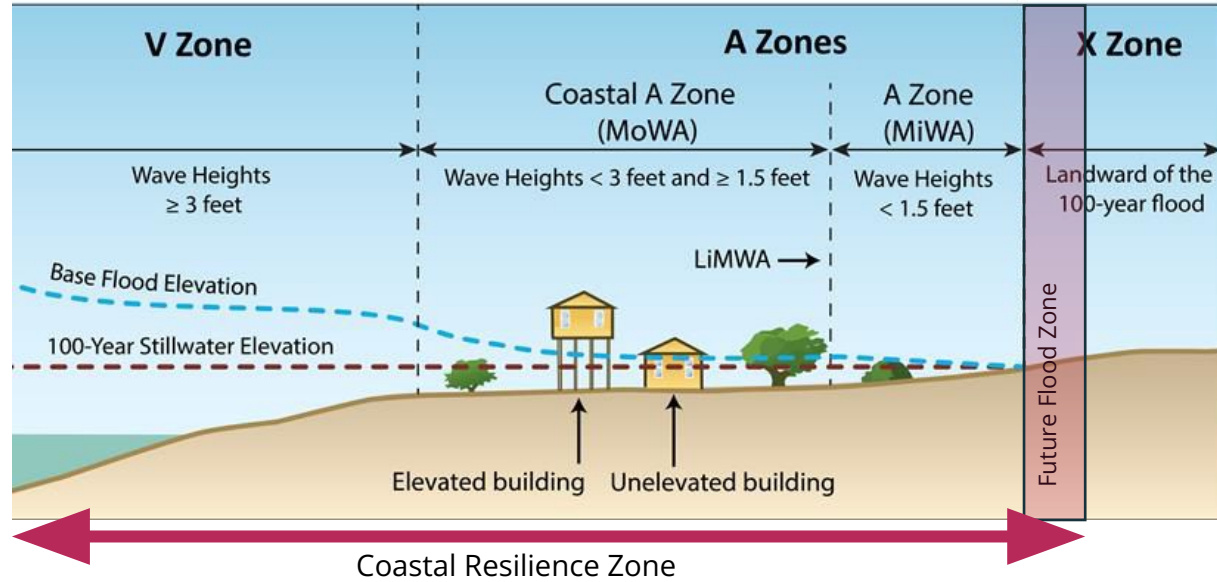
Standards for **Special Transition Areas**

Standards for **Redevelopment Sites**





Flood Zones



DISCUSSION SUMMARY OF STANDARDS

- **NOT APPLICABLE TO EXISTING STRUCTURES UNLESS MAJOR WORK IS DONE**
- Expansion of floodplain to include 1% chance flood with sea level rise (*based on proposed state regs*)
- New development, major renovations, and raze and replace projects must use best available flood/sea level rise elevation data (*based on proposed state regs*)
- Limitations/prohibitions on development in highest risk flood zones (*based on proposed state regs*)
 - No new development or structural expansion in V and Coastal A
 - No new impervious surface (e.g. pools, tennis courts) in V and Coastal A
- Prohibition on storage of hazardous materials
- If major damage was caused by two independent coastal storms, no rebuilding on that site

Discussion: Right now, regulations do not include future flood risk or incorporate sea level rise. What do you think of expanding geographically to future 1% floodplain projections?

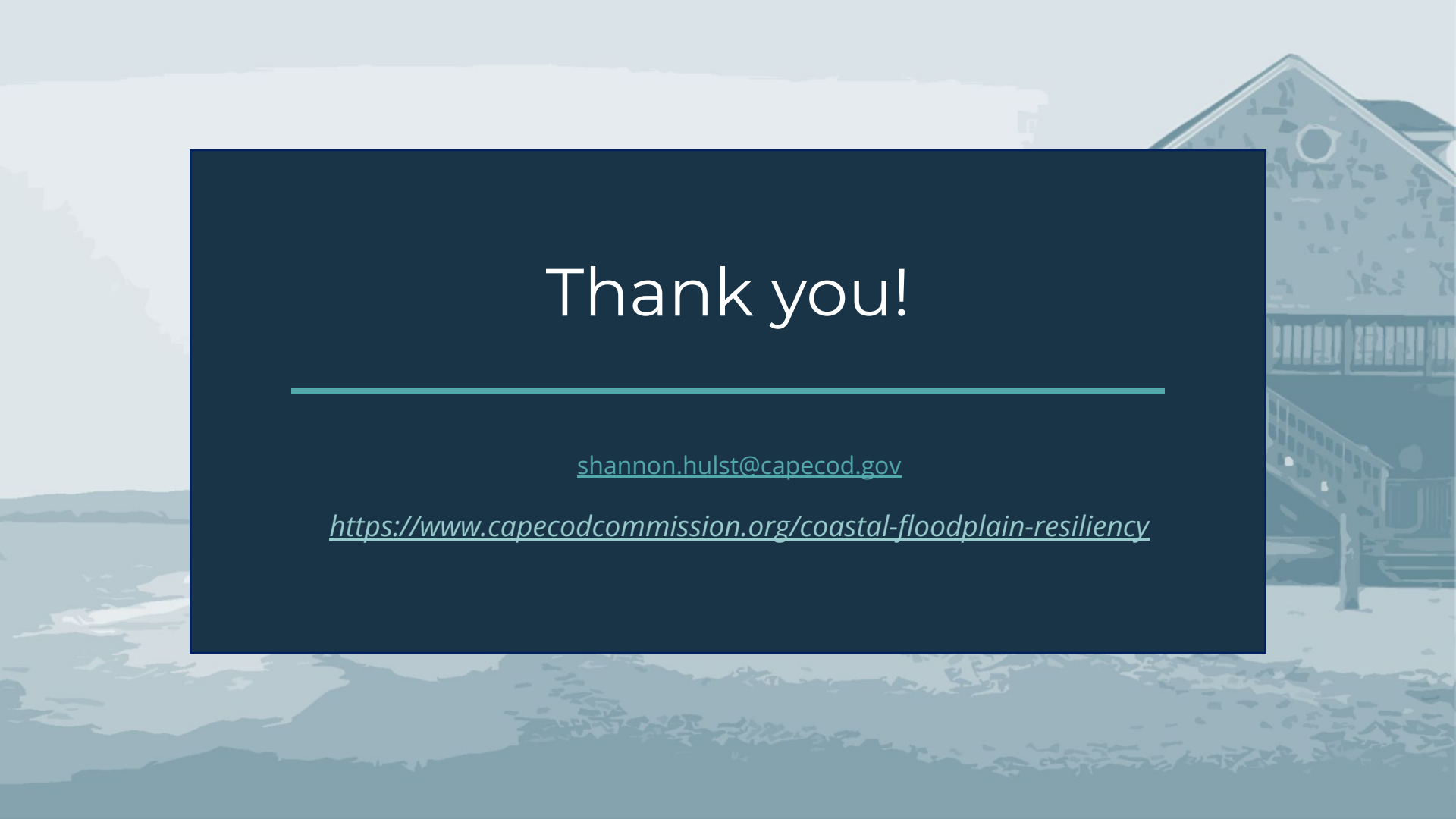


Discussion: Do you agree with limitations on new/expanded development on currently vacant land in the highest risk floodplain? If not, do you have other ideas for how we might address increasing flooding?



Discussion: If a structure experiences major storm damage twice, the model proposes not allowing it to be rebuilt in the same location. “Major” is defined by the building code as 50% or more of market value, but different definitions could be used. What do you think?



The background of the slide is a light blue, semi-transparent image of a coastal scene. On the right, a house with a gabled roof and a chimney is visible. In the foreground, there's a wooden deck or walkway leading towards the water. The overall tone is calm and professional.

Thank you!

shannon.hulst@capecod.gov

<https://www.capecodcommission.org/coastal-floodplain-resiliency>

NANTUCKET STRATEGIC RETREAT & RELOCATION PROGRAM

State of the Harbor Forum

July 14, 2026



Town & County of

NANTUCKET
Massachusetts

SCAPE



ARCADIS

HR&A

**NW
&H**

Noble,
Wickersham
& Heart LLP

TODAY

- Program Introduction & Context
- Understanding Coastal Risk in Nantucket
- Why is this a Priority?
- Next Steps

PROGRAM INTRODUCTION & CONTEXT

PURPOSE

The **Strategic Retreat and Relocation Program** will establish a proactive framework for addressing increasing coastal risk in Nantucket, where increasing erosion, sea level rise, and storm impacts are reshaping long-term conditions across the island.

While the Town has invested on resilience efforts to strengthen many areas, some places are approaching the limits of what traditional strategies can address over the long term. Actions here could include **moving structures, infrastructure or public facilities, adjusting land use, or guiding future development** away from high-risk areas.

The program supports a broader conversation about how to respond—building a shared understanding of risk and informing more proactive, long-term decisions.

WHAT DOES THE PROGRAM AIM TO DO?



Develop an island-wide Strategic Retreat and Relocation Program that identifies areas facing extreme coastal risk where structural, non-structural, and nature-based strategies may no longer be feasible or effective, and defines coordinated pathways for long-term adaptation.



Establish implementable, equitable, and legally viable actions that can be supported by community members, Town staff, elected officials, and partner agencies.



Honor Nantucket's historic, cultural, and environmental character by shaping retreat and relocation strategies that respect the island's conserved unique landscapes, built heritage, and sense of place while planning proactively for future climate conditions.

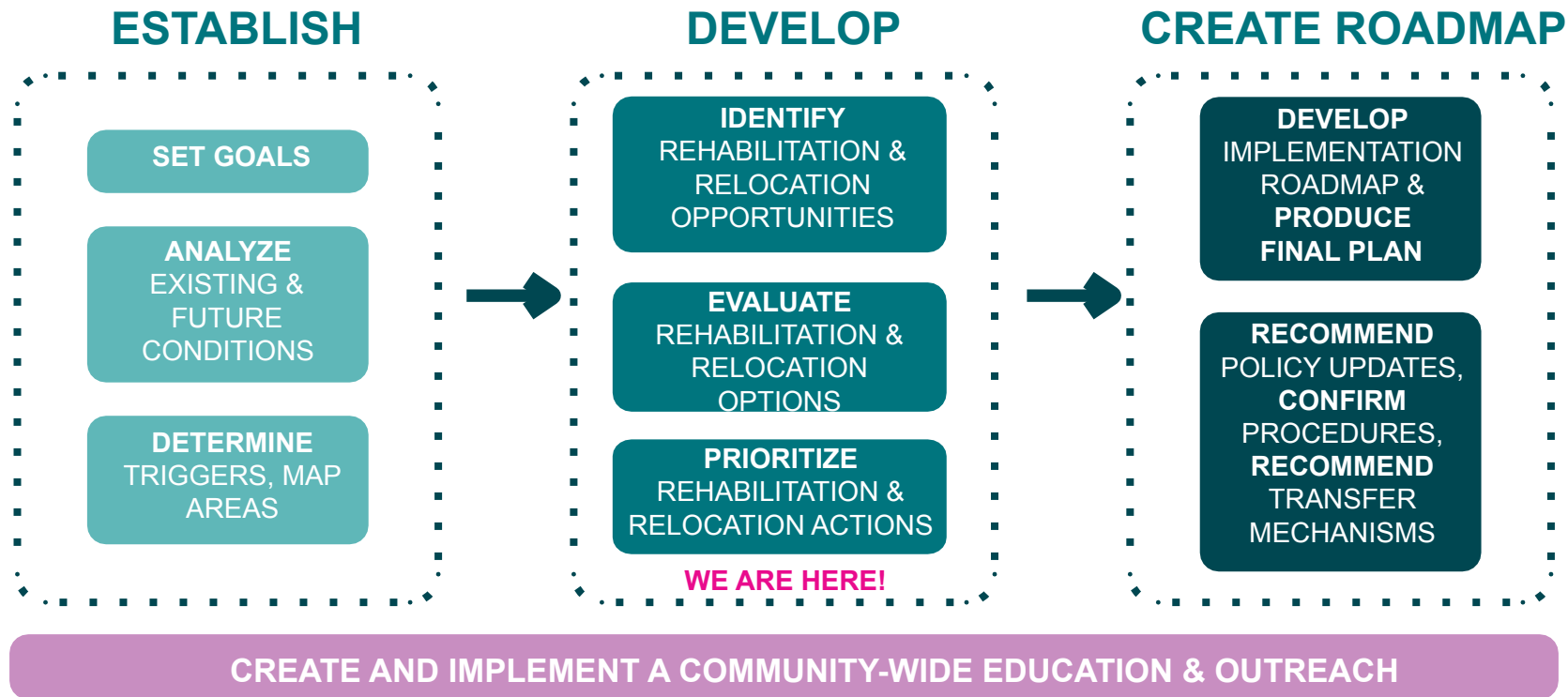


Build directly on the Coastal Resilience Plan (CRP) and align with its risk assessments, priorities, and recommended timelines, ensuring coherence across existing Town policies, initiatives, and regulatory frameworks.



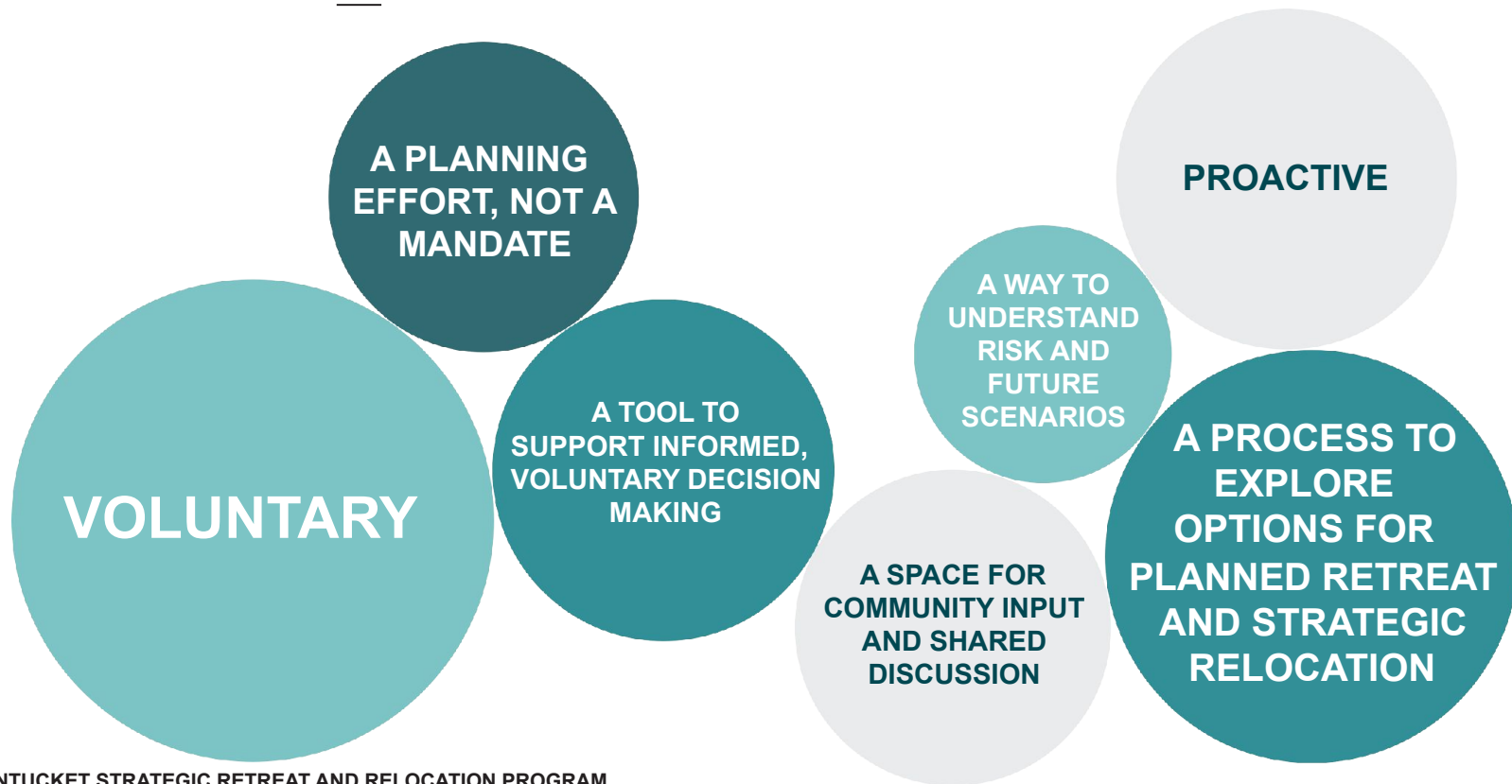
Develop a robust, transparent community engagement and education strategy that informs and engages year-round and seasonal residents, property owners, and other stakeholders throughout the planning process.

PROCESS /APPROACH



KEY CONCEPTS

THIS PROGRAM IS...



THIS PROGRAM IS...

**NOT
MANDATORY**

**NOT IGNORING
HISTORICAL
BUILDINGS**

**NOT
FORCING
PROPERTY
OWNERS TO
MOVE**

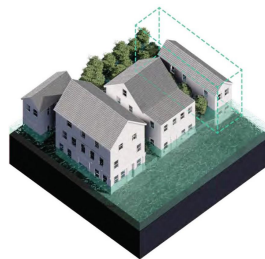
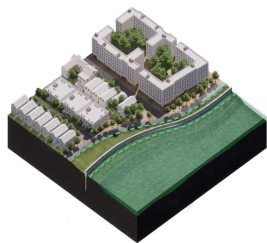
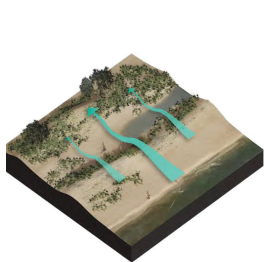
**NOT
IMMEDIATE
ACTIONS OR
IMPLEMENTATIO
N**

**NOT IGNORING
OTHER
RESILIENT
ADAPTATION
STRATEGIES**

**NOT
REACTIVE**

**NOT
REMOVING
PROPERTY
RIGHTS**

WHAT TOOLS DO WE HAVE IF WE LIVE IN COASTAL RISK AREAS?



LIVE WITH
WATER

ARMOR THE
EDGE

MOVE WITHIN
A PROPERTY

ELEVATE

MOVE
ELSEWHERE

THE FOCUS OF THIS
PROGRAM

Graphics source: Nantucket
CRP

NANTUCKET STRATEGIC RETREAT AND RELOCATION PROGRAM
July 2026

UNDERSTANDING COASTAL RISK IN NANTUCKET

TIDAL FLOODING



COASTAL STORM SURGE FLOODING

HISTORIC FLOOD EVENTS

October 30, 1991

January 04, 2018

February 09, 2013

December 12, 1992

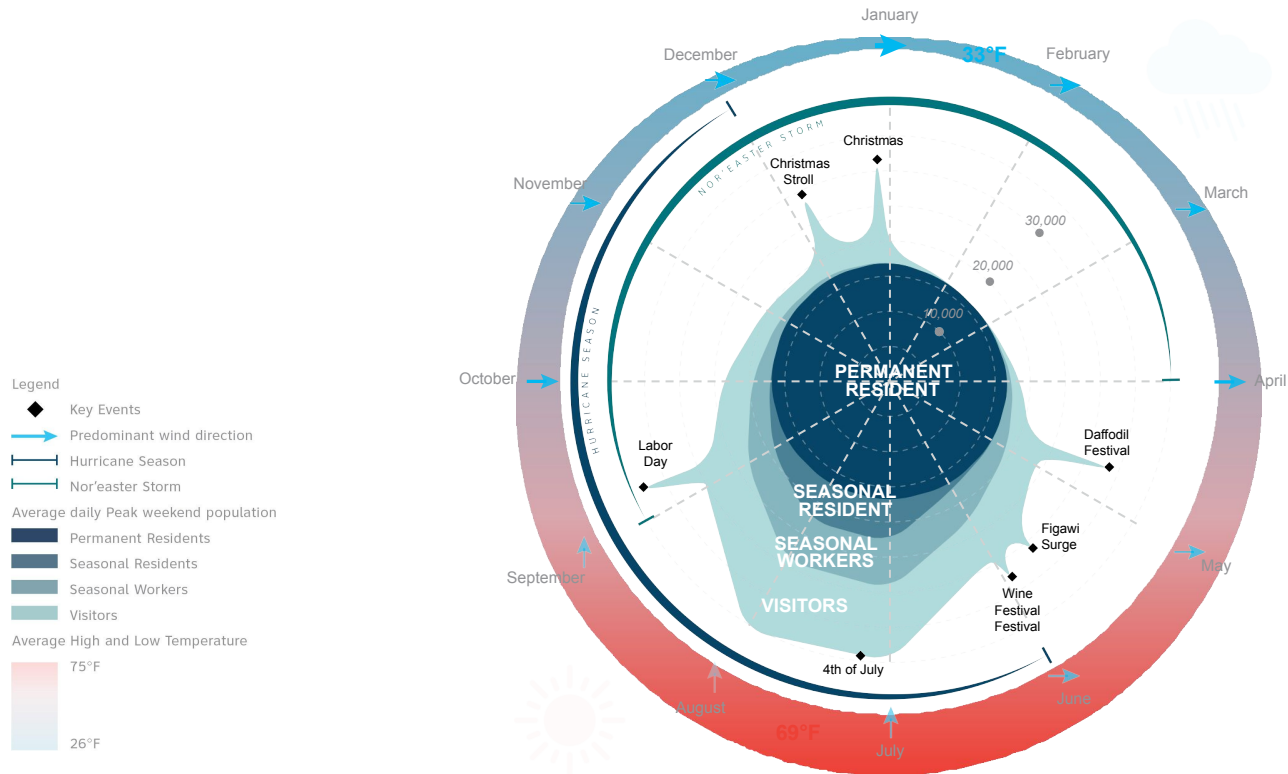
January 23, 2005

October 29, 2015

COASTAL EROSION



UNDERSTANDING SEASONAL CYCLES



WHY IS THIS A PRIORITY?

HISTORY OF RETREAT AND RELOCATION

In 1906, the Dreamland Theater was floated across the Harbor to its current Downtown location. The structure was built in 1832.



HISTORY OF RETREAT AND RELOCATION ON NANTUCKET

Sankaty Lighthouse was moved 400 feet in 2007 (\$4M). The original structure was built in 1850.



MOVE FINISH
October 9, 2007



MOVE START
October 1, 2007

NANTUCKET STRATEGIC RETREAT AND RELOCATION PROGRAM

July 2026

PRESENT DAY: HOUSES



HOUSE RELOCATION TO
ANOTHER PROPERTY

NANTUCKET STRATEGIC RETREAT AND RELOCATION PROGRAM
July 2026

ELEVATING STRUCTURES



HOUSE RELOCATION WITHIN
THE PROPERTY





PRESENT DAY: INFRASTRUCTURE

SHEEP POND ROAD
RELOCATION PROJECT



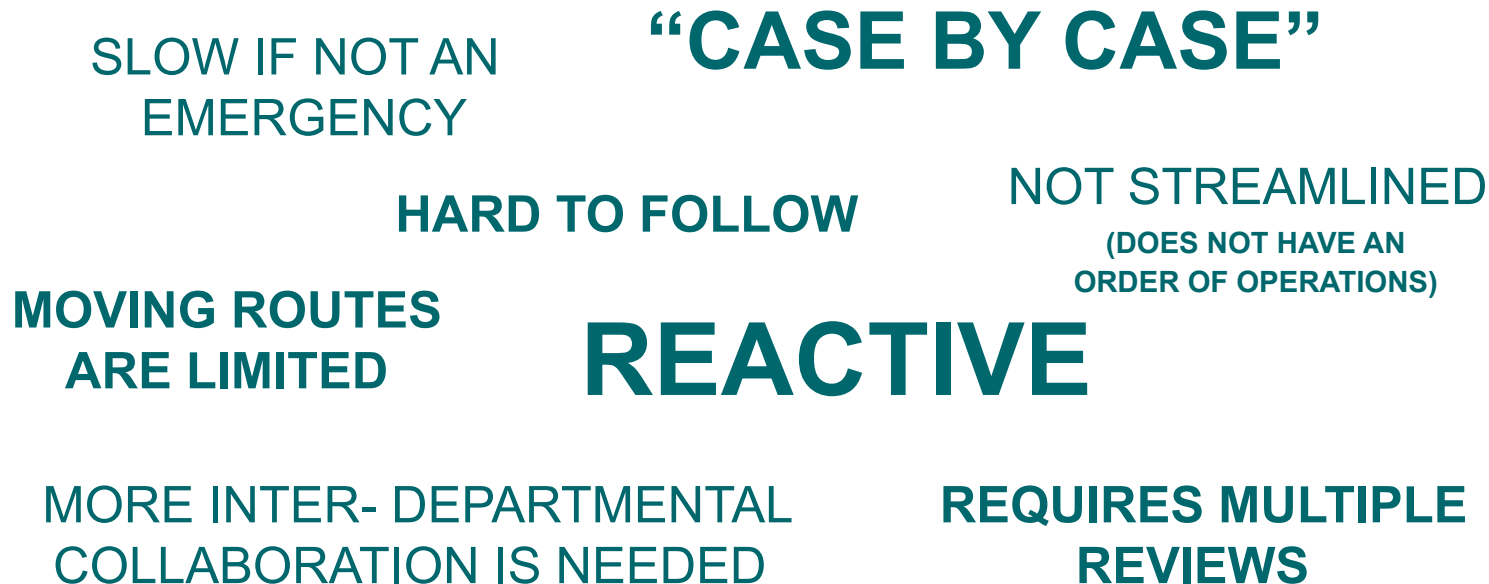
BAXTER ROAD ALTERNATIVE ACCESS
PLAN

NANTUCKET STRATEGIC RETREAT AND RELOCATION PROGRAM
July 2026



SURFSIDE WWTF DUNE AND
LONG-TERM RESILIENCE

PROCESS TODAY



RETREAT & RELOCATION GO HAND-IN-HAND

Retreat Planning

*Where should we retreat from? When?
And why? What should we do with the
land after? What Town infrastructure and
facilities need to relocate?*



Relocation Planning

*Where should we relocate to (& why, when)?
What do we need to do acquire, prepare, or
incentivize sites for relocation?*

NEXT STEPS



NANTUCKET STRATEGIC RETREAT & RELOCATION PROGRAM

IN-PERSON OPEN HOUSES!

Wednesday, August 12 | 8:30-10:00am | Millie's, 326 Madaket Rd.

Wednesday, August 12 | 5:30-7:00pm | Nantucket Whaling Museum, 13 Broad St.

Thursday, August 13 | 9:00-11:00am | The Hive, 5 Amelia Dr.

PLEASE JOIN US!

HOW TO STAY ENGAGED

To stay updated throughout the project and learn about future events please visit the website here:

www.nantucket-ma.gov/retreatprogram



**THANK
YOU!**

Laura Marett, ASLA
laura@scapestudio.com

Questions?



A Community Conversation on Coastal Resilience

Vince Murphy

Sustainability Programs Manager, Town of Nantucket

An Introduction to Nantucket's Coastal Resilience Plan

Shannon Hulst

Floodplain Specialist & Community Rating System Coordinator

Dialogue About Coastal Resilience Policy

Laura Marrett

Principal, SCAPE Landscape Architects

Nantucket's New Retreat & Relocation Program

Question & Answer Panel

Vince Murphy, Shannon Hulst, Laura Marrett & RJ Turcotte

RJ Turcotte, Nantucket Waterkeeper, Nantucket Land & Water Council