

Snug Harbor Resiliency Plan

**Joint Meeting of the Board of Selectmen and Planning Board
January 13, 2020.**



Snug Harbor Resiliency Plan

Photo: marinas.com

Snug Harbor Resiliency Plan

Agenda

- **Overview of the Project**
- **Defining the Problem**
- **Defining Potential Solutions**
- **Summary of Public Engagement Response**
- **Snug Harbor Resiliency Plan**



Introductions





MAPC Staff



Darci Schofield

Senior Environmental Planner



Josh Fiala AICP AIA LEED AP

Principal Planner



Christian Brandt

Community Engagement Coordinator

Town of Duxbury Staff



Valerie Massard

Director of Planning

Task Force Members

Valerie Massard

Rob Fawcett

JR Kent

Chuck Weilbrenner

Ned Lawson

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Chris Sherman

Peter Buttkus

Peter Mackin

Joe Grady

Erin McGough

René Read

Shawn Dahlen

Scott Lambiase

Cris Luttazi

Duxbury Town Planner/ Project Manager

Sweetser

Bayside Marine

Winsor House Inn, Economic Advisory Committee

Duxbury Bay Maritime School

Duxbury Bay Maritime School

Island Creek Oysters

Public Works Director/Tree Warden

Water and Sewer Superintendent

Duxbury Conservation

Duxbury Historical Society

Duxbury Town Manager

Board of Selectmen

Building Commissioner/Director Municipal Services

Duxbury Beach Reservation, Inc.

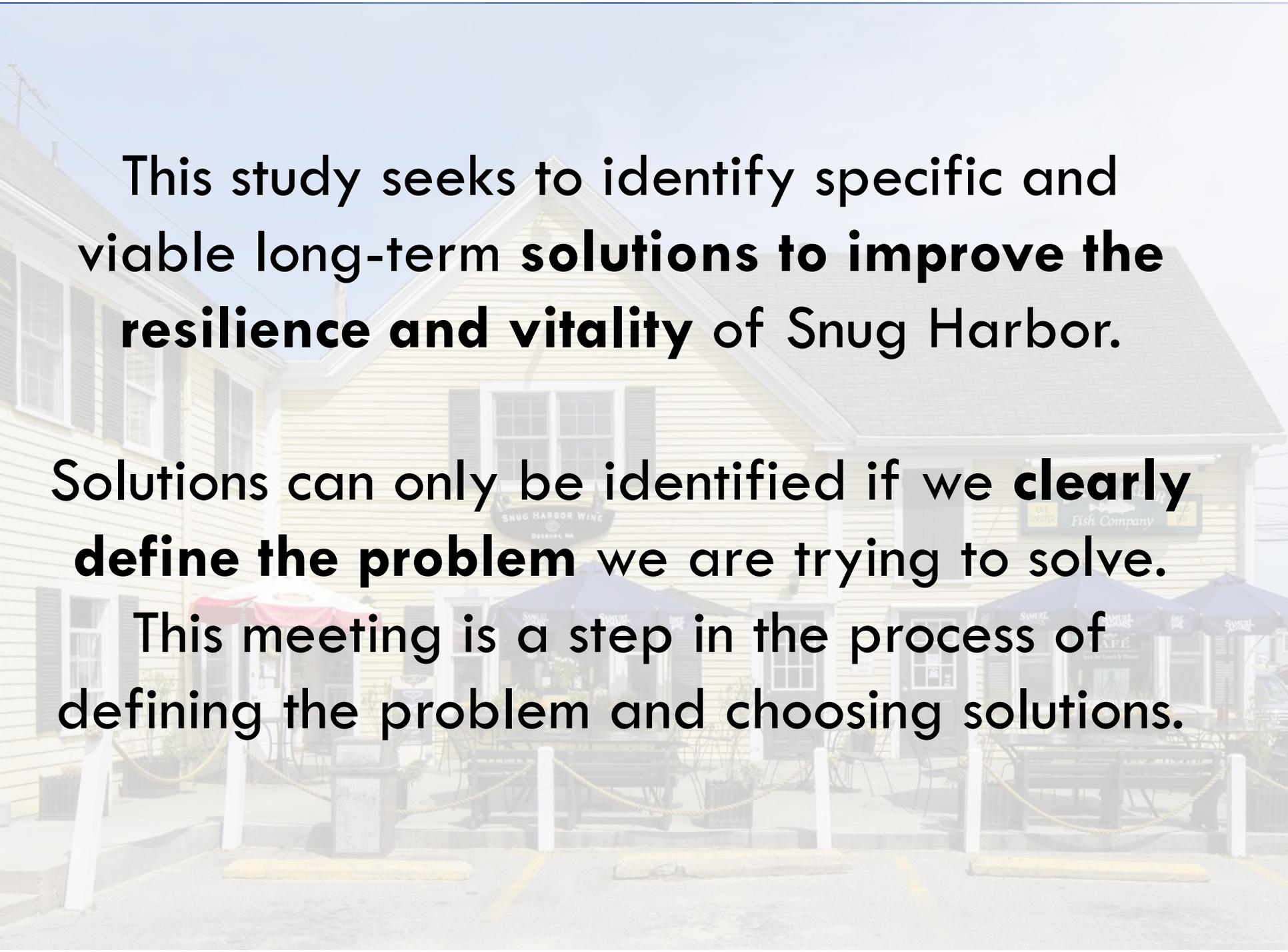
Study Introduction



Snug Harbor Resiliency Plan

Photo: Laurie Wenham, Herald News

November 2019

The background image shows a two-story yellow building with a gabled roof and a front porch. The porch has several tables and chairs, some under blue umbrellas. A sign above the porch reads "SNUG HARBOR WINE" and "DORCHESTER, MA". To the right, another sign says "Fish Company". The building has white trim around the windows and doors. The overall scene is bright and sunny.

This study seeks to identify specific and viable long-term **solutions to improve the resilience and vitality** of Snug Harbor.

Solutions can only be identified if we **clearly define the problem** we are trying to solve.

This meeting is a step in the process of defining the problem and choosing solutions.

Study Area



Schedule

Task	Year/Month							
	2019							
	05	06	07	08	09	10	11	12
Review of Relevant Plans and Existing Conditions	■							
Task Force Meetings		●				●		
Public Engagement				●	●	●	●	●
Public Survey				■				
Summary and Analysis of Outreach						■		
Conceptual Design, Recommendations, and Final Report							■	

- Community Meeting and Board/Committee Presentations
- Community Open House
- Focus Group Meetings



Methodolgy



Snug Harbor Resiliency Plan

Photo: Kelly Russo Facebook

September 2019

Community-Based Planning Approach

- Community Outreach and Engagement Plan
- Focus Group Contact List of over 100 individuals
- Outreach to EnVision Duxbury Contacts and Harbormaster Contacts for Public Engagement Opportunities
- Phone Calls, Emails, personal letters, personal communication, friends, networks
- Duxbury Clipper
- PAC TV Presentation of Forum



Snug Harbor Resiliency Master Plan

Snug Harbor Resiliency Plan

Dear Snug Harbor Business,

The Town of Duxbury is working with the Metropolitan Area Planning Council (MAPC) on a Resiliency Plan for Snug Harbor. The goal is to work directly with nearby residents, businesses, and stakeholders to envision Snug Harbor's future—one that is resilient to coastal flooding and sea level rise and preserves the community gathering, recreation, and business space in the Town of Duxbury.

We are hosting a focus group for businesses in Snug Harbor to identify your challenges, interests, and needs for the area and your business as it pertains to access, coastal flooding, and sea level rise. Your experience and knowledge is critically important in visioning and protecting Snug Harbor.

Please Join us!

Date: Thursday, September 12, 2019
Location: Duxbury Bay Maritime School
Time: 8:30 AM-10 AM

Refreshments will be served.
Please RSVP to Christian Brandt, cbrandt@mapc.org or 617-933-0796.
We hope you can join us for this important effort to preserve one of Duxbury's greatest assets!

Most Sincerely,

Dard Schofield
MAPC

Valerie Massard
Duxbury Planning Director



Duxbury – Snug Harbor Resiliency Study Community Engagement Plan Draft 2, June 20, 2019

The intention of this community engagement plan is to clearly delineate the purpose of engagement, identify project leads and supports, present a stakeholder analysis, identify resources and opportunities, delineate the scale of engagement, present a plan for materials, and finally form a timeline for implementation. This plan is a living document and will continue to be updated and refined as the study process progresses.

Purpose and Goals of Community Engagement

Purpose
The purpose of the Snug Harbor Resiliency Study is to identify and recommend zoning, incentives, and regulatory approaches for the Snug Harbor area to manage and improve climate resiliency as well as economic, tourist, and recreational vitality in the face of sea level rise and coastal storms.

The purpose of the community engagement for this Study is twofold:

- **Exchange** knowledge between the harbor's business owners, residents, land owners, and other stakeholders and MAPC and town planning staff regarding the nature of the relationship stakeholders have with the harbor.
- **Engage** stakeholders in crafting a vision with recommendations for the area's long term future by exploring common challenges, identifying shared values, and contending with potential trade-offs.

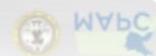
Develop a deep understanding of the harbor's current and future challenges so that provide meaningful feedback about what interventions/changes they want to

Develop a rich understanding of the current relationship stakeholders have with the

Develop a shared understanding of the Study and support the creation of that address the immediate need for improved resiliency in Snug Harbor while continues to be economically vibrant.

The Study, stakeholders should be informed of the ways they can provide an be involved in the process. There should be a focus on public communication engagement opportunities, lets the specific stakeholders know the Study's current vents, and access relevant information.

1



Summary of Outreach and Engagement



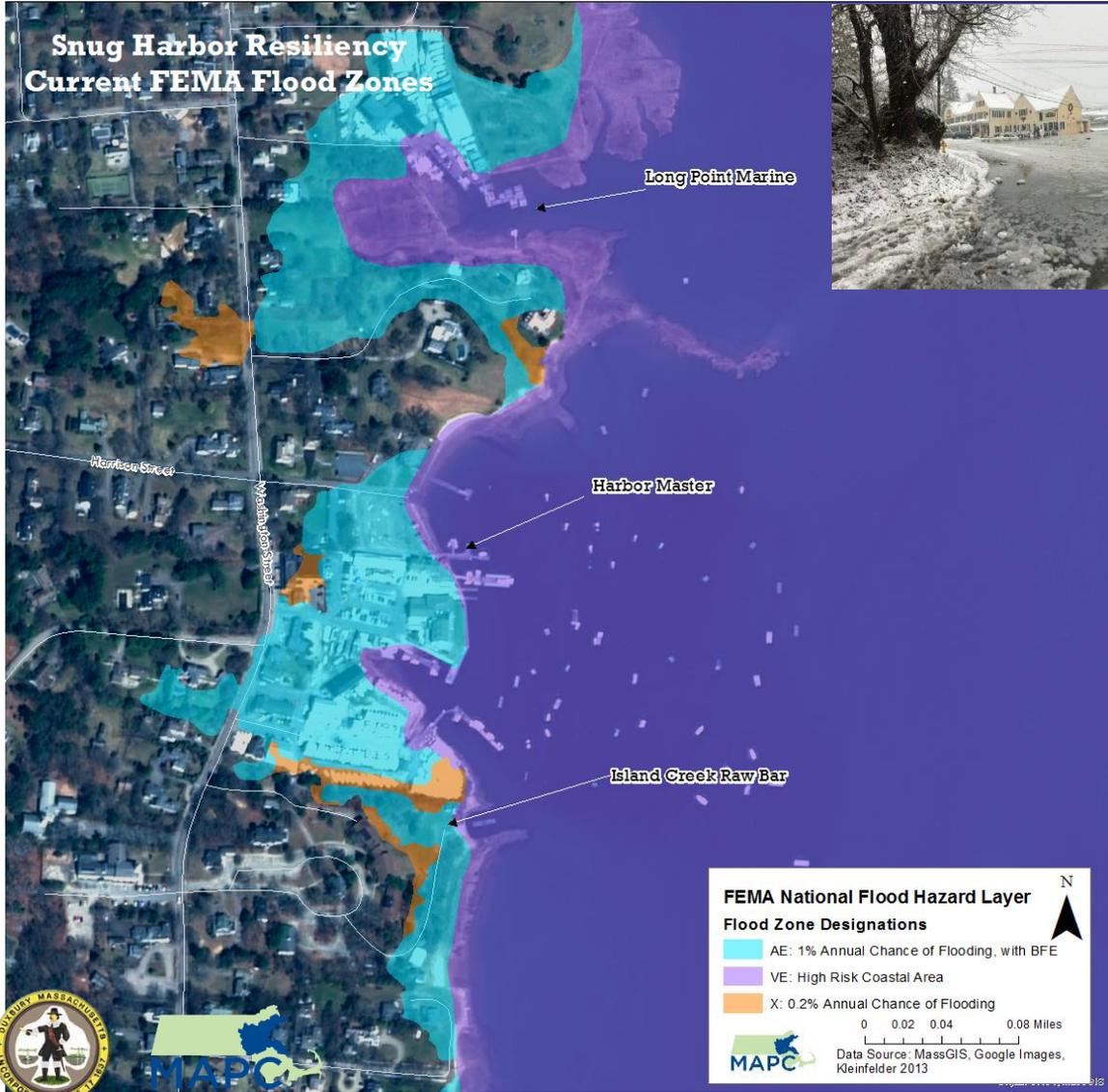
1. Focus Groups with Snug Harbor Stakeholders-27 participants
2. Public Forum on November 7, 2019 - 40 participants
3. Public Online Survey-282 responses, 142 Completed





Defining the Problem

Coastal Storm Flooding Today



Duxbury Harbormaster
@Dux_HM

Follow

Another big #storm in #duxbury Dangerous winds and surf flooding Mattakeesett Court at high tide. #stellablizzard

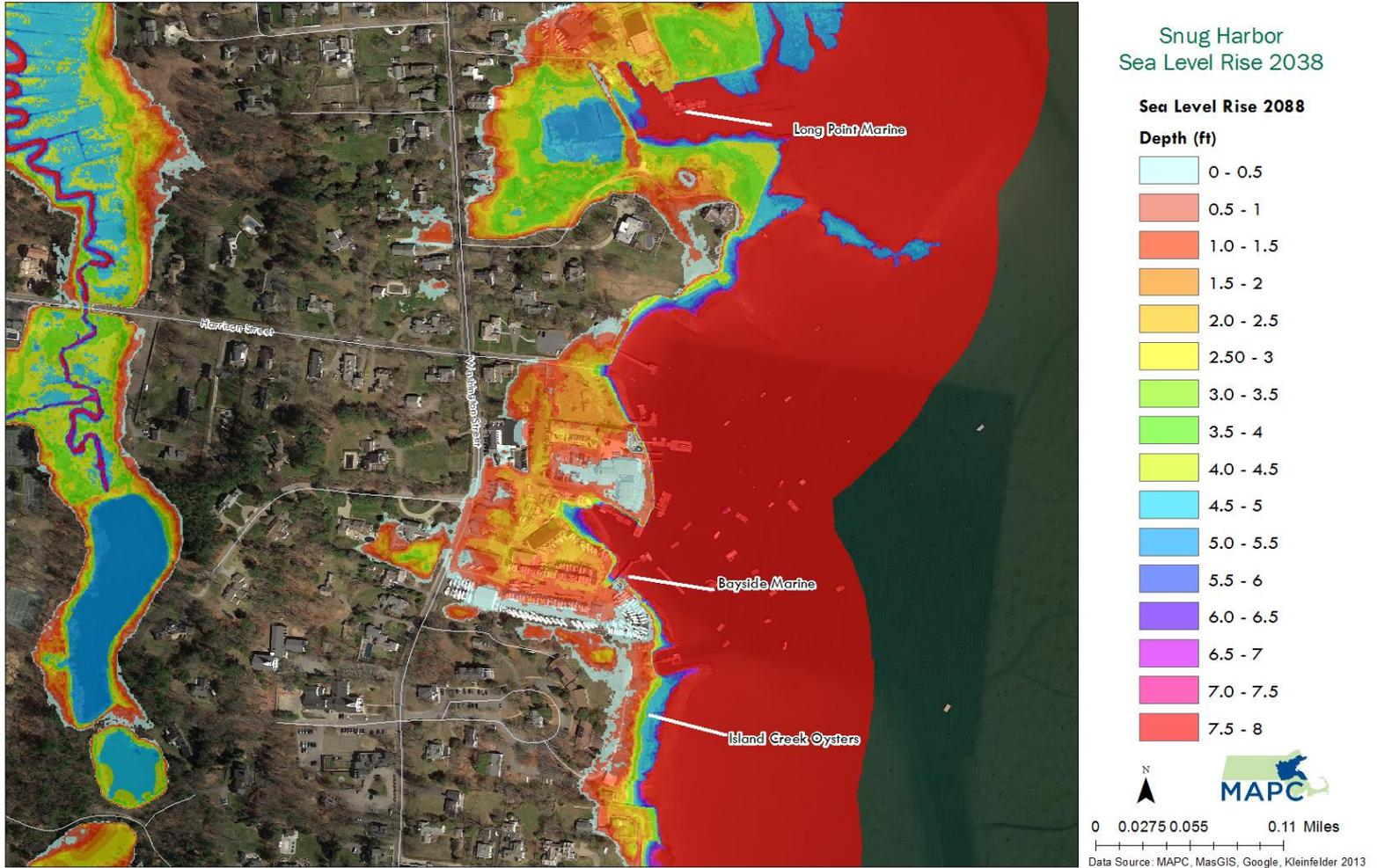


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Sea Level Rise Tomorrow



Sea Level Rise Tomorrow



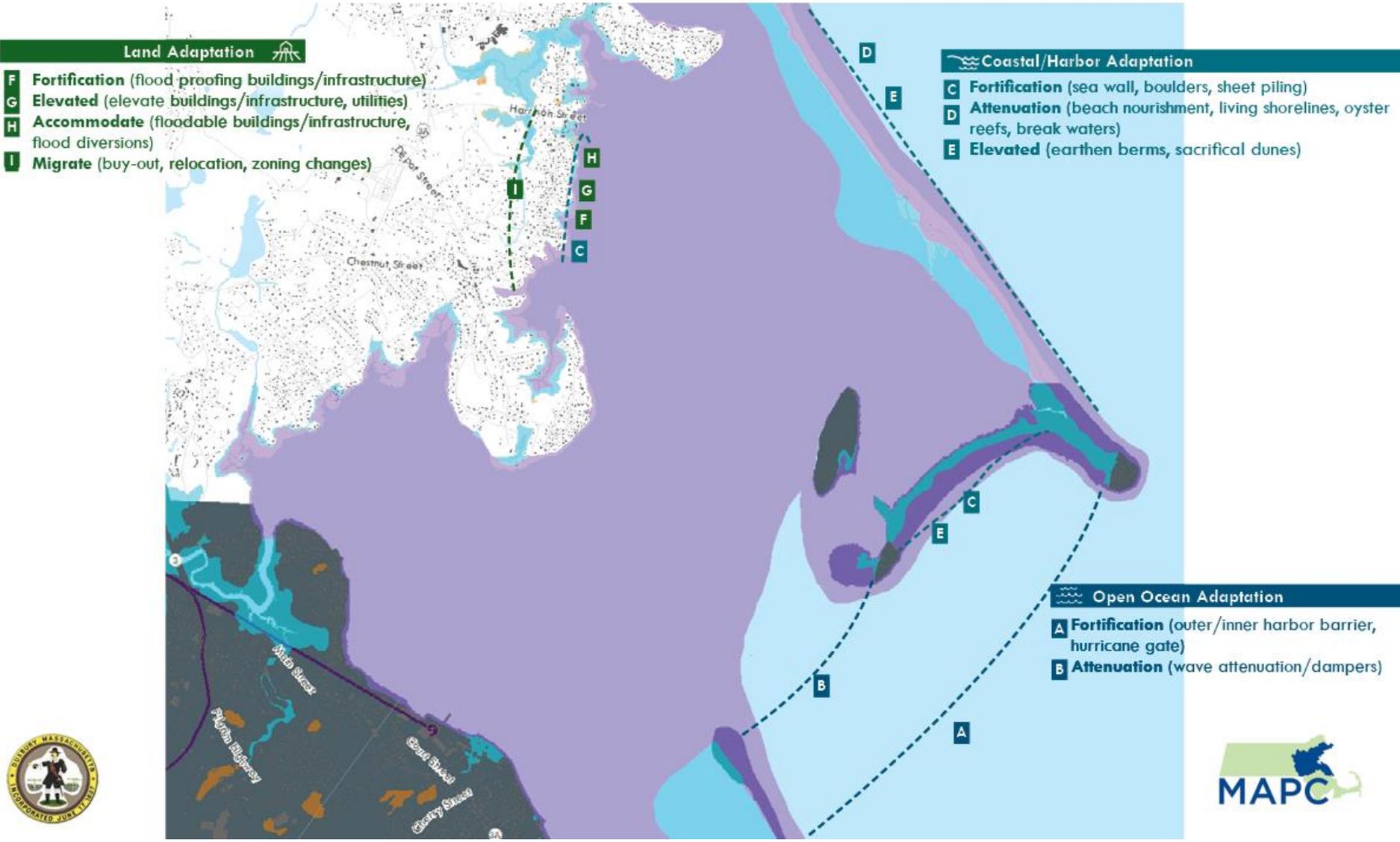
Data gathering approach

- 1. How urgent do you feel coastal flooding issues are? ****
- 2. What works well today in Snug Harbor?**
- 3. What is not working well today in Snug Harbor?**
- 4. What is most important for the future of Snug Harbor?**
- 5. What should be done collectively to protect Snug Harbor? ****
- 6. What would you do to protect Snug Harbor? ****

**** Multiple choice questions with a range from extremely low – moderate-high**

Potential solutions diagram:

Snug Harbor Resiliency Plan
Potential Solutions Inventory
 September 2019



Potential solutions approach

Snug Harbor Resiliency Plan

Help define appropriate resilience solutions for Snug Harbor

Follow the 3 steps to share your priorities:

Step

- 1 Review potential resilience strategies below and pick your top (3) strategies for improved resilience in Snug Harbor

Step

- 2 Pick the (3) pins that correspond to the color of your top (3) strategies

Potential Solutions Inventory

Category	Strategy	Description	Example	Pin Color
Open Ocean Adaptation				
A	Fortification Fortification structures in the open ocean at the outer edge of the harbor, mouth of the harbor, or inner harbor.	A major man-made structure that places a fortification or barrier of a location in the water that would reduce wave action and storm surge.		(red)
B	Attenuation Floating structures in the open ocean at the outer edge of the harbor, mouth of the harbor, or inner harbor.	A system of objects or structures that reduce or weaken wave action and storm surge by disrupting the wave energy.		(darker blue)
Coastal/Harbor Adaptation				
C	Fortification Fortification structures at the coastal edge between the harbor and the land.	A variety of coastal edge structures including rip-rap, boulders, armor stone walls, revetments, sea walls, steel piling that protect against rising sea levels and waves.		(orange)
D	Attenuation Artificial or natural systems at or near the shoreline.	A variety of man-made systems or support for natural systems that reduce or weaken wave action and storm surge by disrupting the wave energy.		(lighter blue)
E	Elevated Raising the elevation of the coastal edge, typically on the immediate land side of that edge.	A variety of approaches to raise the elevation where water enters the district that protect against rising sea levels and waves.		(green/cyan)
Land Adaptation				
F	Fortification Fortification structures on land within the district that provide a barrier to flood waters.	Permanent or temporary barriers of buildings, streets, walkways, or other potential pathways for floods that can protect against rising sea levels and waves.		(yellow)
G	Elevated Raising the elevation of the building to increase the height of occupied space above projected flood levels.	Increasing the height of the building with piles or columns to allow water to flow beneath the building during a flood event.		(pink)
H	Accommodate Design parks, streets, buildings and other infrastructure to flood without extensive damage.	Make permanent changes to locations and design of infrastructure, utilities, and equipment to allow flood waters to enter or divert flooding to specific locations.		(purple)
I	Migrate The strategic and managed relocation of high risk or high sensitivity functions away from flood risk.	Defining where uses could be intentionally relocated and creating opportunities for long term migration of those uses.		(black)

Looking for something else?

If nothing fits with what your thinking, put a white pin at the location with a note about your idea.



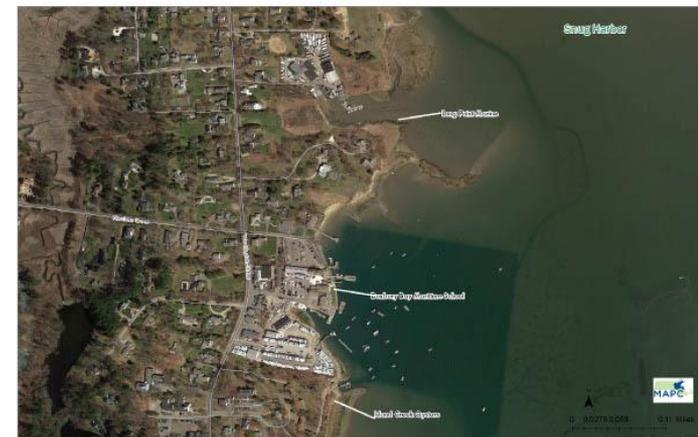
Snug Harbor Resiliency Plan

Prioritize the most important locations for your top (3) strategies

Follow the 3 steps to share your priorities:

Step

- 3 Place the (3) pins you selected in "Step 2" in the highest priority locations where the strategies would be appropriate in Snug Harbor



Results



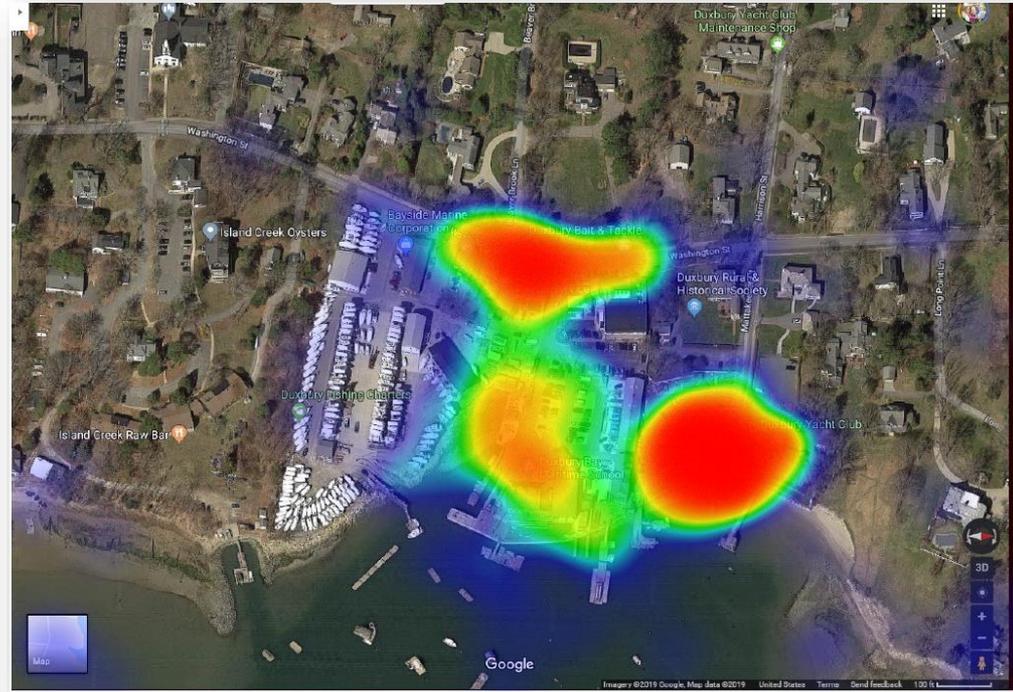
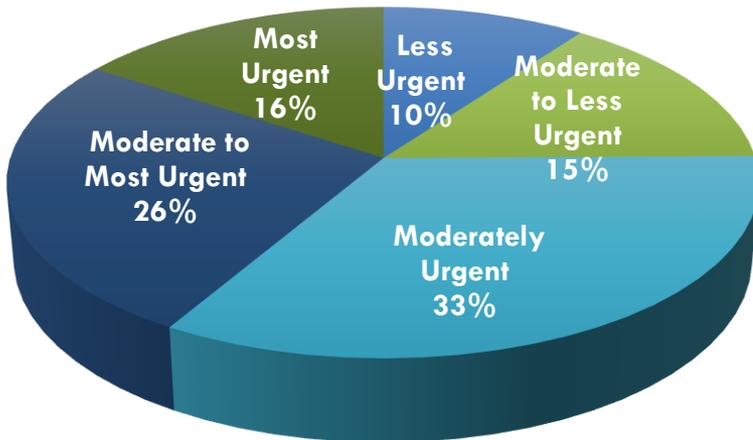
Snug Harbor Resiliency Plan

Photo: Duxbury Bay Maritime School

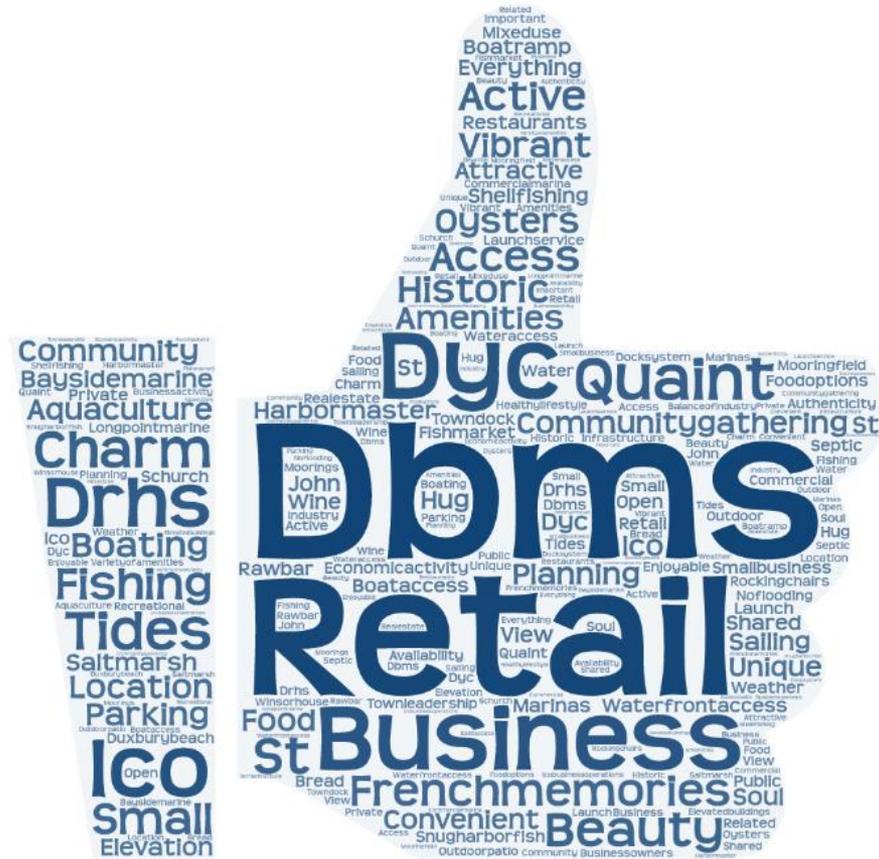
January 2020

Response: Urgency to Flooding

Urgency of Flooding in Snug Harbor



Response: Snug Harbor Strengths and Challenges



Response: Snug Harbor Solution Preferences

Coastal Attenuation

54%



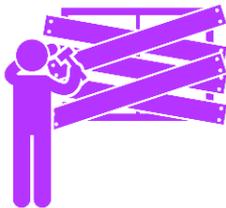
Land Elevation

38%



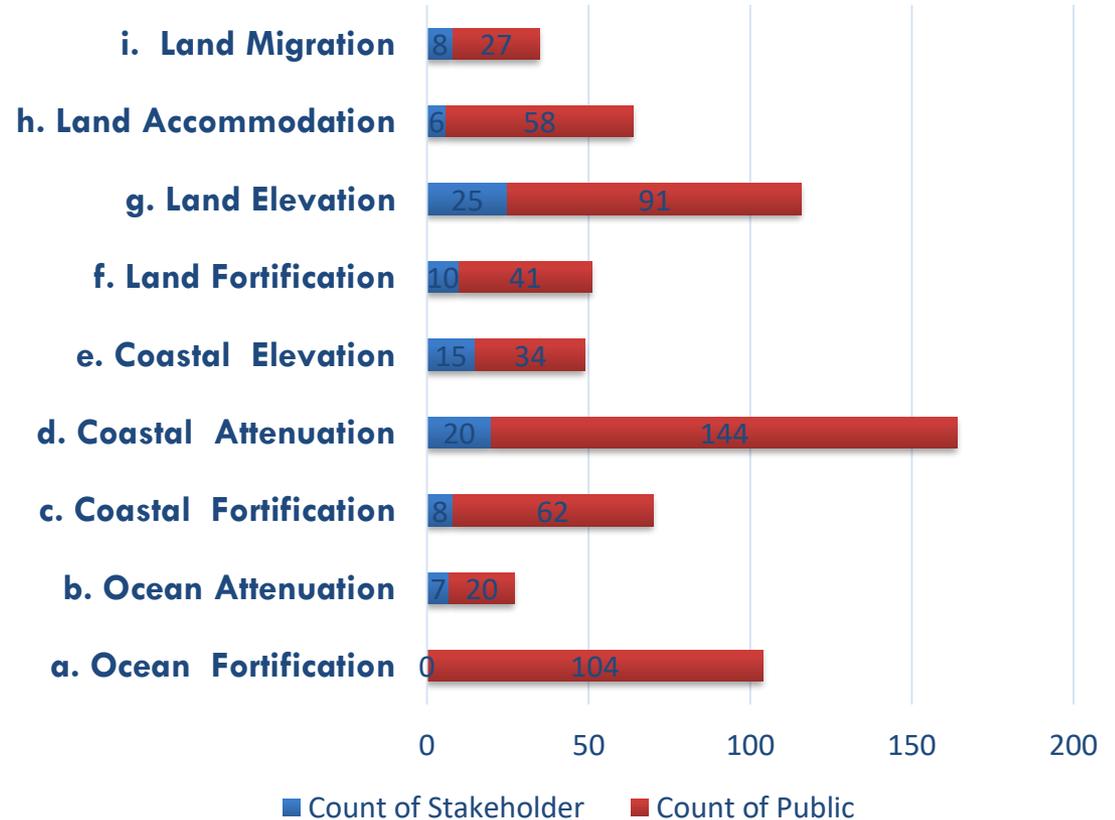
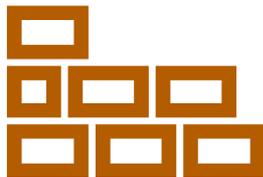
Ocean Fortification

34%



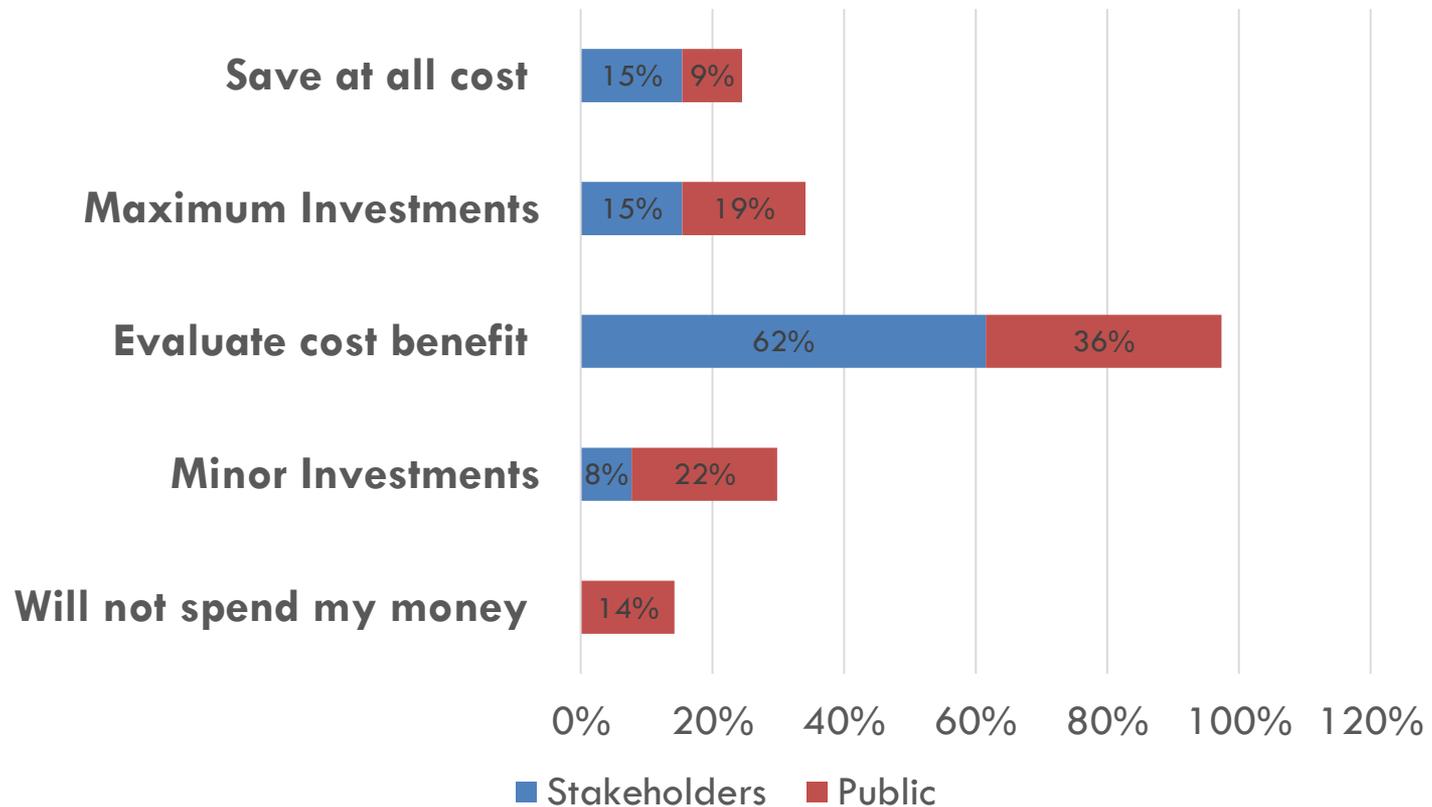
Land Fortification

23%



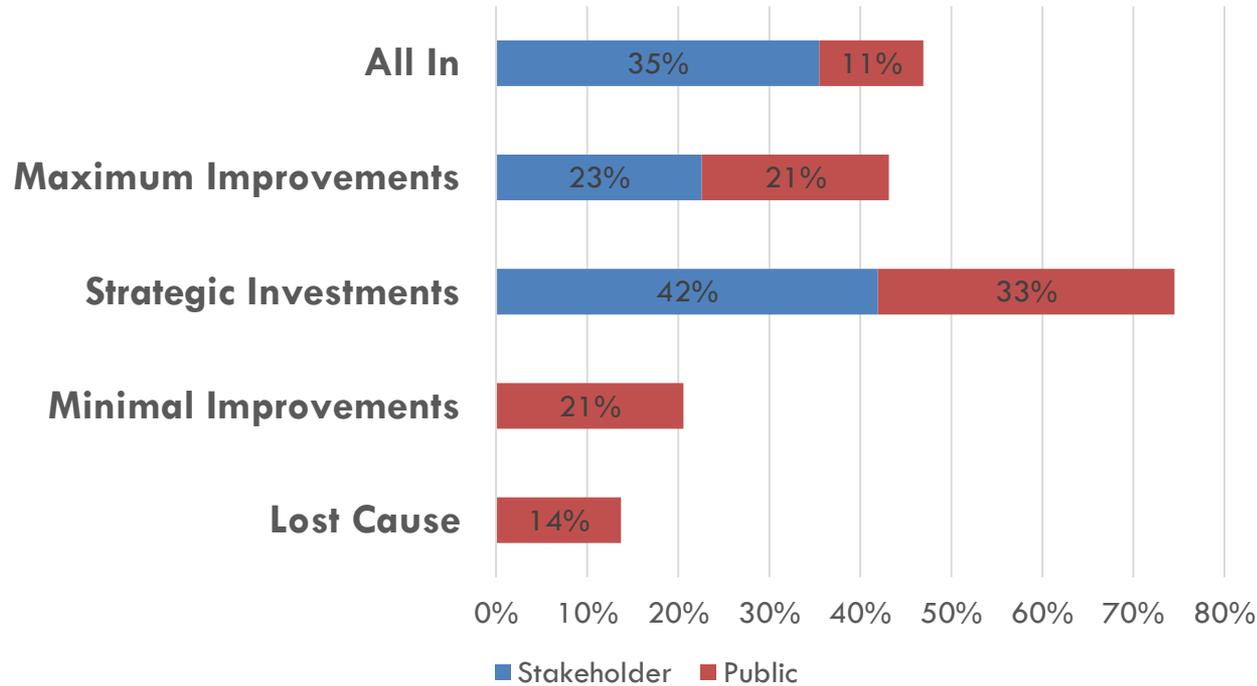
Response: Willingness to pay

Individual Investments

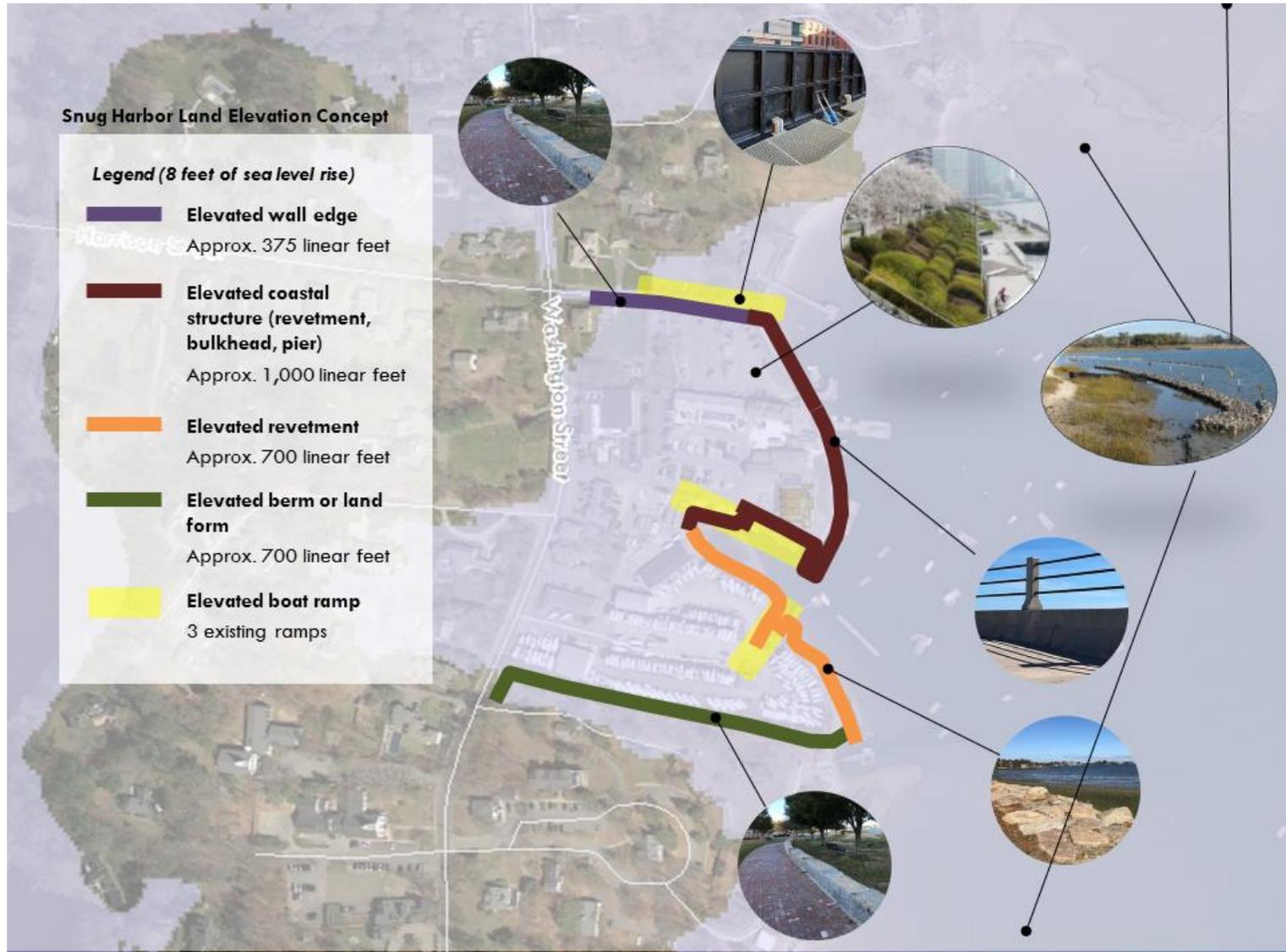


Response: Willingness to pay

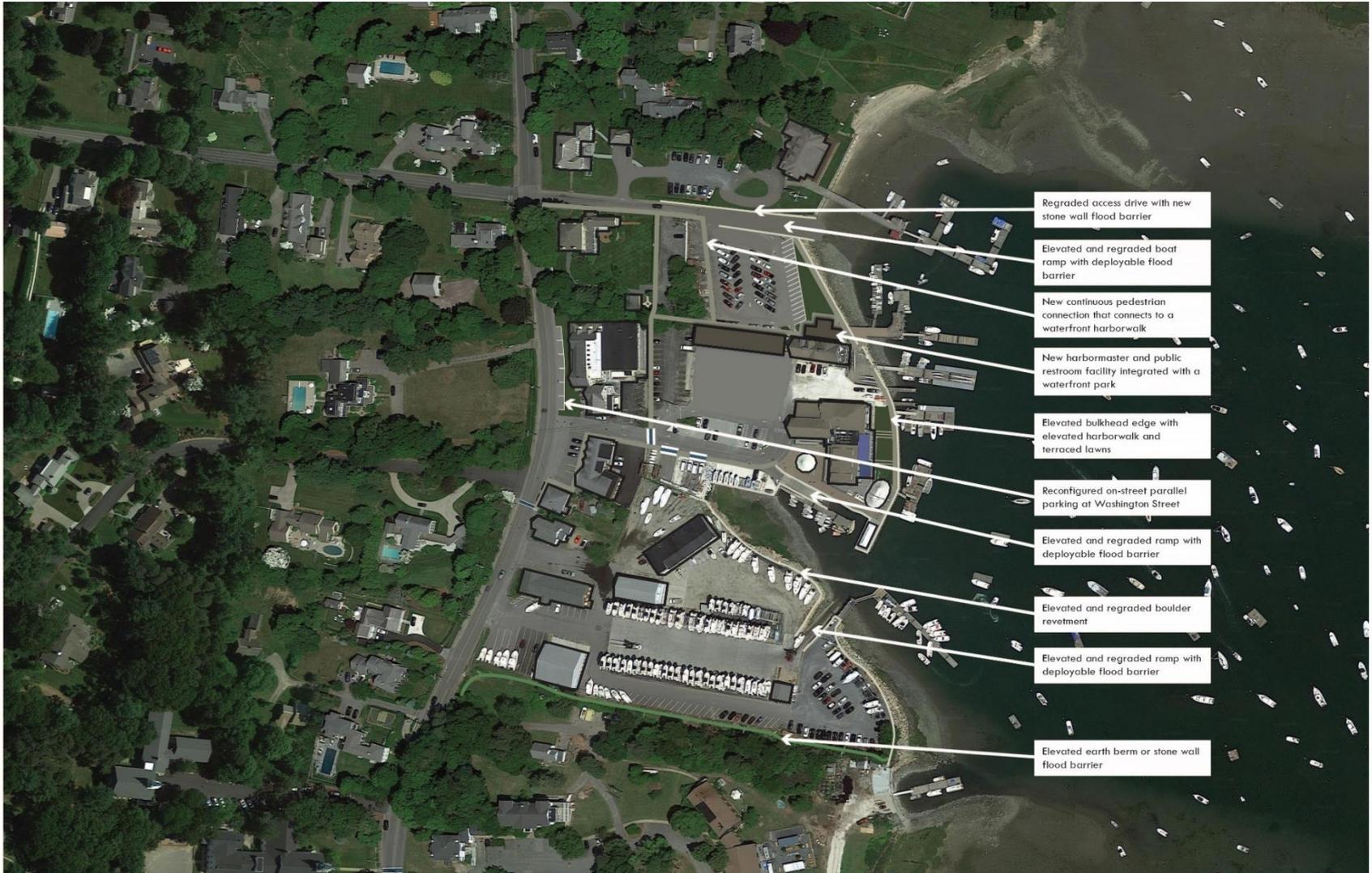
Collective Investments



Snug Harbor Resilient Vision



Snug Harbor Resilient Vision



Snug Harbor Resilient Vision

Potential Implementation Approach

For all infrastructure recommendations along the coast and particularly over tidal land and water, the permitting and regulatory context becomes increasingly complex. Compliance with all federal, state, and local laws regulations and permits for proposed activities must be ensured prior to implementation.

Action	Timeframe	Order of Magnitude Construction Cost	Potential Funding/Partners
<i>Policy/Program Recommendations</i>			
Oyster reef breakwater program	Long term Note: timing would be connected to barrier beach protection. If that protection were compromised in the future, the natural breakwater concept may become more necessary and urgent.	\$1,000 to \$5,000 per linear foot of living shoreline with \$100 per linear foot annual maintenance costs (Source: National Oceanic and Atmospheric Administration (NOAA) Fisheries)	U.S. Army Corps of Engineers, The Nature Conservancy, Coastal Zone Management, Municipal Vulnerability Preparedness Action Grant
Resilient zoning recommendations	Near term	\$15,000 technical assistance to define specific language associated with improved resilience requirements in the district or an effort supported by staff time	MA Downtown Initiative, MVP Program, MAPC Technical Assistance, town funding, MA EEA Planning Grant.
Commercial boat launch	Near term	Staff time to open dialogue, identify partners, and institute fees.	Town funding, private funding
Remote parking with valet service	Near term	Staff time to define program, identify partners, and establish agreements	Staff Time to work with businesses to implement, private funding.
<i>Infrastructure Recommendations</i>			

Snug Harbor Resiliency Plan

Next Steps:

1. Complete WHG Study.
2. Understand highest and most immediate priorities for resiliency.
3. MAPC assist town with implementation

Question, comments? Contact:

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Josh Fiala, MAPC, jfiala@mapc.org

