Town of Nahant

Municipal Vulnerability Preparedness Program

Community Resilience Building Workshop

02/09/19

Clarendon Hill Consulting

Agenda

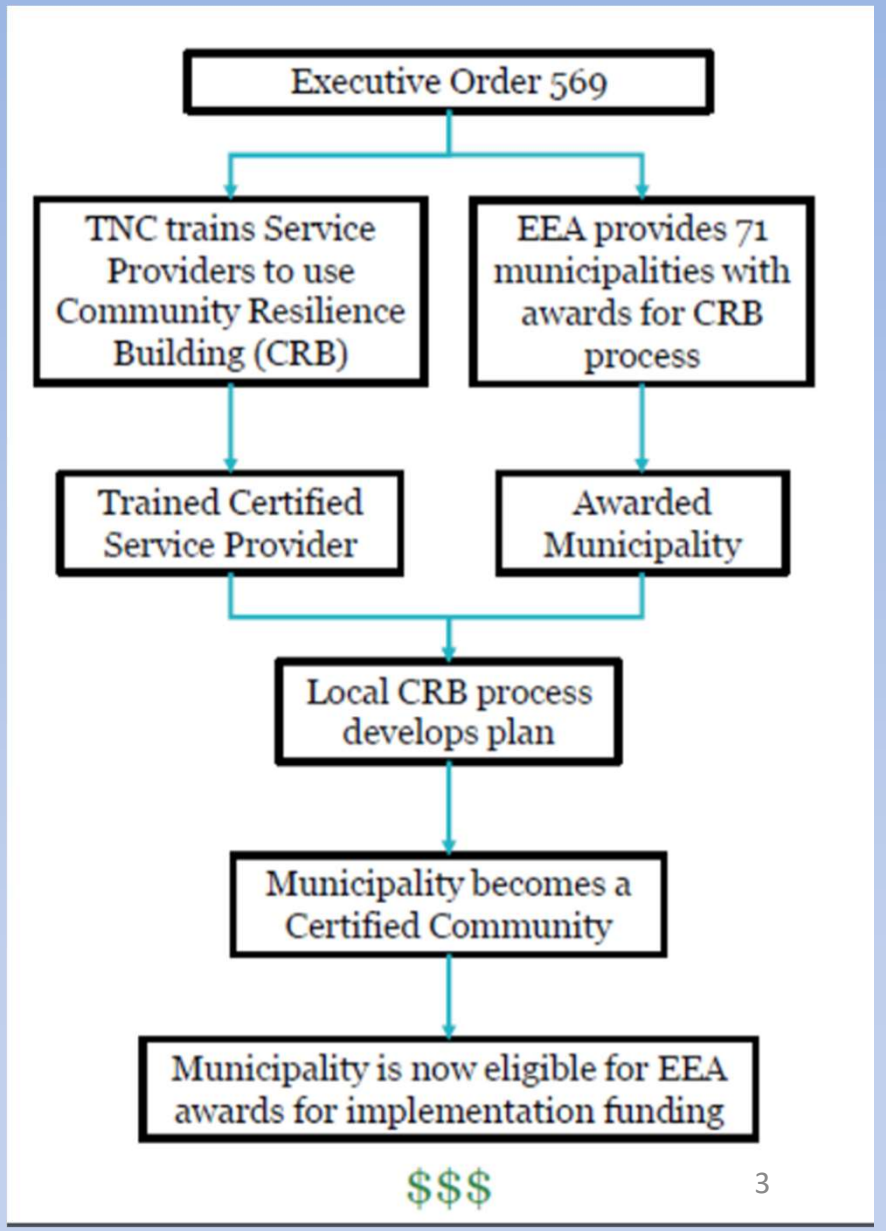
- Team
- MVP Process
- Today's goals & Workshop Process
- Top Hazards & Climate Change Projections
- Small Table Discussions
  - Vulnerabilities & strength
  - Prioritize responses
- Report out & overall priorities & actions
- Next steps & Conclusion

MVP Program

What is the MVP Program?

Financial assistance to communities for climate change resiliency planning and implementing priority projects:

- Community-led process
- Leverages existing efforts
- Coordinates state-wide efforts.



MVP Program Process

This **MVP Planning Grant**:
Grant for Climate Change Vulnerability Assessments & Resiliency Planning.

Approach follows the **Community Resilience Building (CRB)** Workshop Guide:

- Defined scope and process
- Use of statewide data sets for workshop
- MVP certified provider
  - facilitates CRB workshop with key stakeholders,
  - provides report and recommendations for next steps,
  - assists with town-wide listening session.

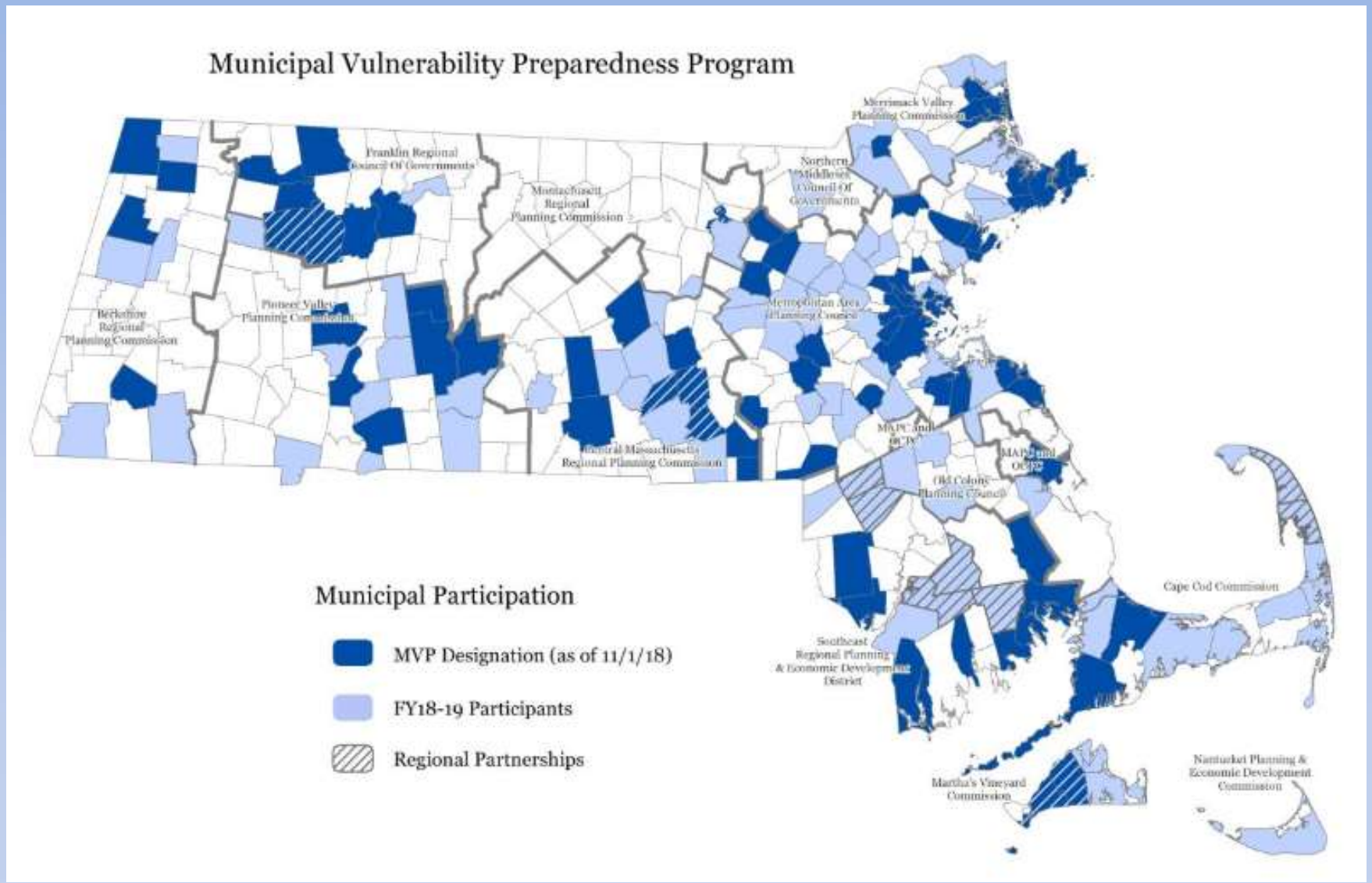
- **Designation** as Municipal Vulnerability Preparedness (**MVP) Community**
  => Better standing to obtain MVP Action Grants and CZM grants.

MVP Program

MVP program helps municipalities:

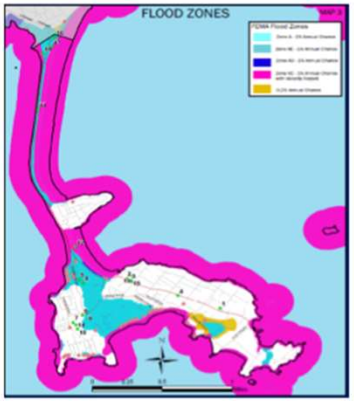
- Define extreme weather hazards & climate change impacts
- Identify impacted key features
- Determine vulnerabilities & strengths
- Develop & prioritize actions
- Implement key actions.

MVP Program


Municipal Vulnerability Preparedness Program
Merrimack Valley Planning Commission
Franklin Regional Council Of Governments
Montachusett Regional Planning Commission
Northern Middlesex Council Of Governments
Berkshire Regional Planning Commission
Pioneer Valley Planning Commission
Metropolitan Area Planning Council
Central Massachusetts Regional Planning Commission
MAPC and OCPC
Old Colony Planning Council
Cape Cod Commission
Southeast Regional Planning & Economic Development District
Martha's Vineyard Commission
Nantucket Planning & Economic Development Commission
Municipal Participation
MVP Designation (as of 11/1/18)
FY18-19 Participants
Regional Partnerships

Existing Planning Efforts

TOWN OF NAHANT
HAZARD MITIGATION PLAN
2014 UPDATE



Final Plan
FEMA Approved Pending Adoption
June 3, 2015

MAPC

WOODS HOLE GROUP

Evaluation of July 16, 2014 Federal Emergency Management Agency Flood Insurance Study for Town of Nahant, Essex, Co, MA

Prepared For:
Town of Nahant
334 Nahant Road
Nahant, MA 01908

Prepared By:
Woods Hole Group, Inc.
81 Technology Park Drive
East Falmouth, MA 02536

April 22, 2016

Coastal Damage Evaluation – Nahant, MA

40 Steps Beach

- Toe of slope from beneath stairs to southern corner in concrete barrier wall has eroded 5-15' back from concrete barrier (~12' typical) along a length of almost 560 feet, with 5-8 vertical feet of exposed and unstable soil along its length (5' typical). The coastal bank erosion is progressing with each storm event resulting in the further instability of the slope which is already at a critical 1.5 H to 1.0 V slope.
- An erosion channel is forming along the slope at the corner of the concrete barrier wall from water running down it at this location.
- The stairs to the beach area have been destroyed by wave action.

OPEN SPACE & RECREATION MASTER PLAN
NOVEMBER 2016

PREPARED FOR
Open Space & Recreation Master Plan Committee
Town of Nahant

PREPARED BY
VM Consulting Engineers, LLC
Victoria Masone, Pete Kane, Kurt Massey

STORMWATER MANAGEMENT PLAN

Town of Nahant,
Massachusetts

FINAL

November 2003

FAY, SPOFFORD & THORNDIKE
Engineers • Scientists • Planners • Landscape Architects • Surveyors

Natural Disasters in the US in 2018

5 natural disasters that devastated the US in 2018

Wildfires ravaged the West, and hurricanes pounded the East.

WATCH | 5 natural disasters that devastated the US in 2018

Above: Flooding in Maryland, May 2018;
Right: Drowned cars after Hurricane Michael hit Florida, October 2018

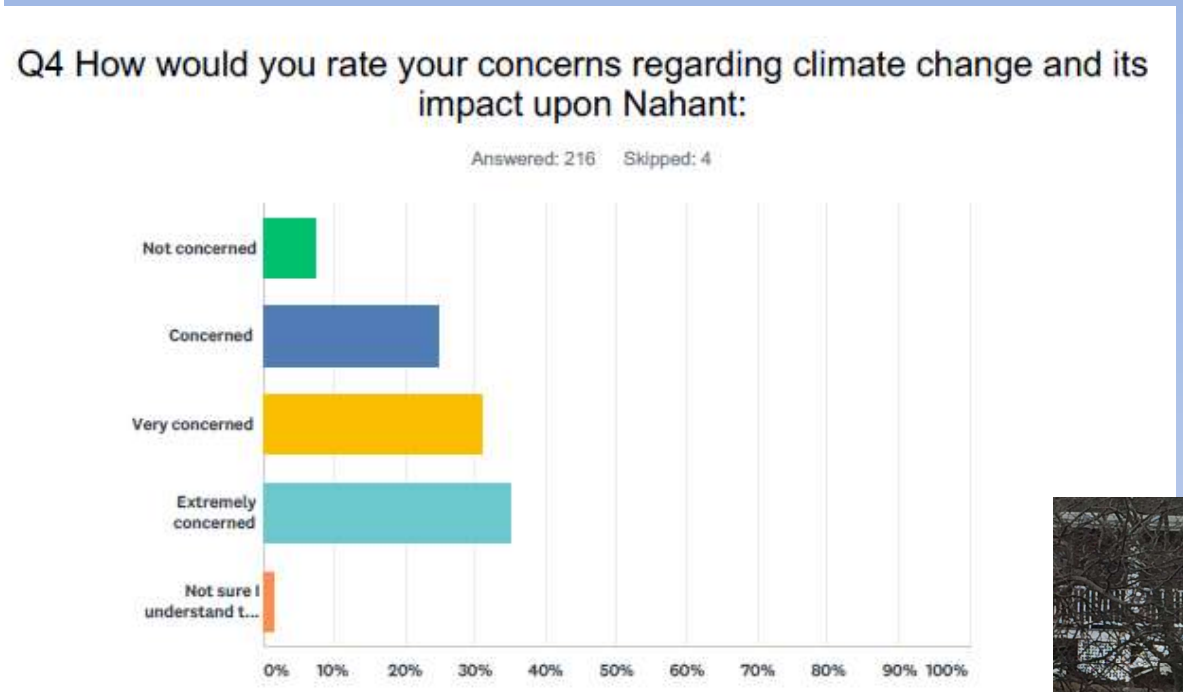
Sources: ABC News, December 2018

2018 Major Storm Impacts on New England

NOAA satellite image of ocean storm, or "bomb cyclone," Jan. 4. (NOAA)

Source: NOAA

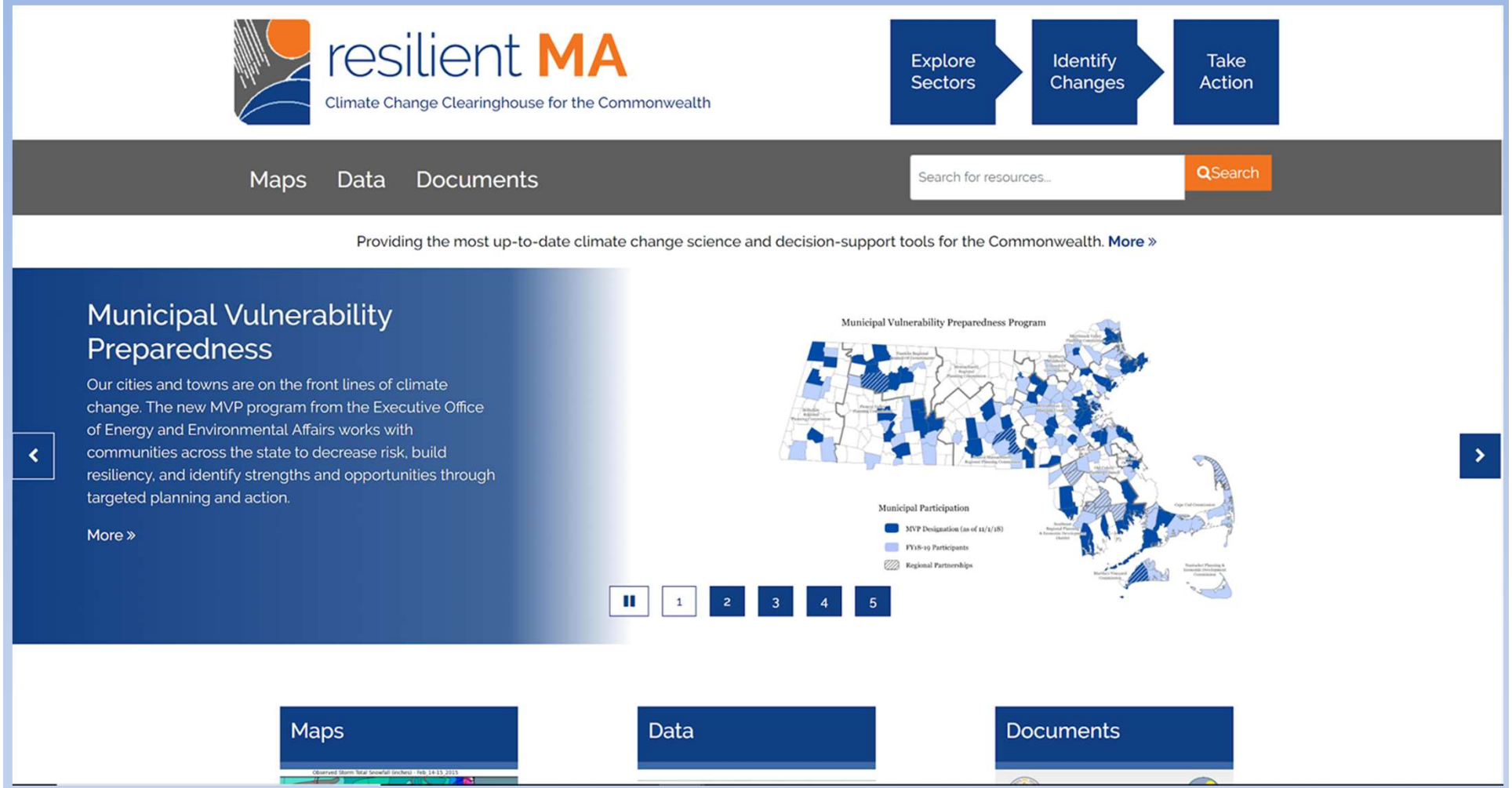
Regional Picture: Public Opinion



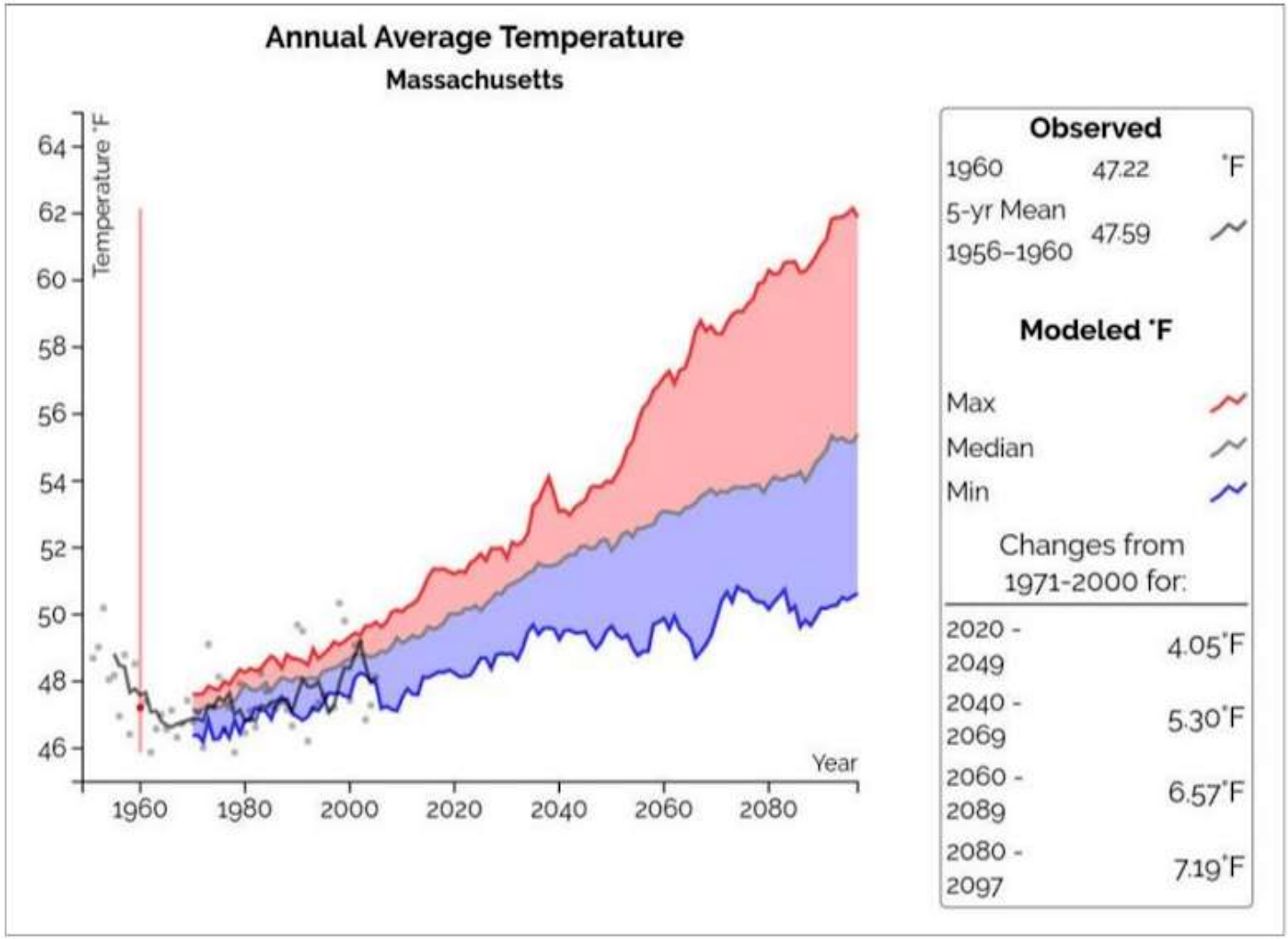
Photos: Castle Road, Nahant during March 2018 Nor'easter (Photo Credit: MVP Committee)

MVP Community Survey shows high concern about impacts from climate change upon Nahant

State-wide climate change projections



Impacts from CC: Temperature



Source: resilient MA, 2018

Source: Projected Annual Average Temperature (Resilient MA, State HMP 2018)

Impacts from CC: Temperature

Temperature Change Projections for North Coastal Basin

North Coastal Basin		Observed Baseline 1971-2000 (F)	Projected Change in 2030s (F)	**Mid-Century** Projected Change in 2050s (F)	Projected Change in 2070s (F)	**End of Century** Projected Change in 2090s (F)
Average Temperature	Annual	49.7	+2.1 to +4.2	+2.7 to +6.2	+3.2 to +8.9	+3.5 to +10.8
	Winter	29.5	+2.8 to +4.7	+2.8 to +7.0	+3.5 to +8.9	+3.9 to +10.4
	Spring	47	+2.0 to +3.8	+2.7 to +5.7	+2.8 to +8.1	+3.4 to +9.9
	Summer	69.9	+1.9 to +4.1	+2.5 to +6.A1	+2.9 to +9.5	+3.5 to +12.1
	Fall	52.3	+2.0 to +4.6	+3.3 to +6.5	+3.0 to +9.2	+3.5 to +11.6
Maximum Temperature	Annual	59.2	+2.0 to +4.0	+2.5 to +6.0	+3.0 to +8.9	+3.2 to +10.7
	Winter	38.1	+1.8 to +4.3	+2.4 to +6.6	+3.1 to +8.3	+3.4 to +9.5
	Spring	56.8	+1.9 to +3.7	+2.4 to +5.7	+2.8 to +8.3	+3.3 to +9.8
	Summer	79.6	+1.8 to +4.2	+2.4 to +6.3	+2.8 to +9.6	+3.3 to +12.2
	Fall	61.7	+2.0 to +4.4	+3.0 to +6.6	+2.9 to +9.5	+3.4 to +11.9
Minimum Temperature	Annual	40.2	+2.2 to +4.5	+2.9 to +6.4	+3.5 to +9.0	+3.8 to +10.9
	Winter	20.9	+2.4 to +5.1	+3.1 to +7.4	+4.0 to +9.5	+4.3 to +10.9
	Spring	37.3	+2.1 to +4.0	+2.9 to +5.9	+3.0 to +7.9	+3.5 to +9.8
	Summer	59.5	+2.0 to +4.1	+2.6 to +6.7	+3.0 to +9.3	+3.7 to +12.0
	Fall	42.9	+1.9 to +4.7	+3.3 to +6.3	+3.1 to +9.2	+3.7 to +11.4

MUNICIPALITIES WITHIN NORTH COASTAL BASIN:

Beverly, Danvers, Essex, Everett, Gloucester, Hamilton, Ipswich, Lynn, Lynnfield, Malden, Manchester, Marblehead, Melrose, Nahant, Peabody, Reading, Revere, Rockport, Salem, Salisbury, Saugus, Stoneham, Swampscott, Wakefield, and Wenham

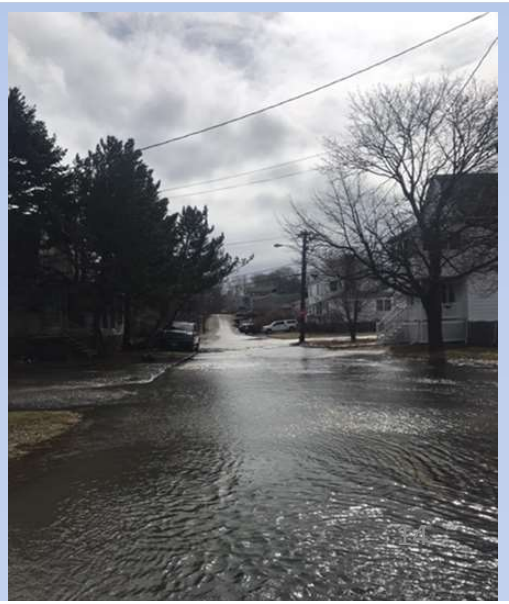
Source: Northeast Climate Science Center, Climate Change Projections for the North Coastal Basin, 2018

Impacts from CC: Increased precipitation/ flooding

Projections for North Coastal Basin:
Increased precipitation

North Coastal Basin		Observed Baseline 1971-2000 (Days)	Projected Change in 2030s (Days)	Mid-Century Projected Change in 2050s (Days)	Projected Change in 2070s (Days)	End of Century Projected Change in 2090s (Days)
Days with Precipitation over 1"	Annual	8	+<1 to +2	+<1 to +3	+1 to +3	+1 to +4
	Winter	2	+<1 to +1	+<1 to +1	+<1 to +2	+<1 to +2
	Spring	2	0 to +1	0 to +1	+<1 to +1	+<1 to +1
	Summer	2	0 to +1	0 to +1	0 to +1	0 to +1
	Fall	2	-0.29 to +1	0 to +1	0 to +1	0 to +1
Days with Precipitation over 2"	Annual	1	+<1 to +1	0 to +1	<1 to +1	<1 to +1
	Winter	<1	0 to +<1	<1 to +<1	0 to +<1	<1 to +<1
	Spring	<1	0 to +<1	0 to +<1	0 to +<1	0 to +<1
	Summer	<1	0 to +<1	0 to +<1	0 to +<1	0 to +<1
	Fall	<1	0 to +<1	0 to +<1	0 to +<1	0 to +<1
Days with Precipitation over 4"	Annual	<1	0 to +<1	0 to +<1	0 to +<1	0 to +<1
	Winter	0	0 to +0	0 to +0	0 to +<1	0 to +<1
	Spring	0	0 to +<1	0 to +<1	0 to +<1	0 to +<1
	Summer	<1	0 to +<1	0 to +<1	0 to +<1	0 to +<1
	Fall	<1	0 to +<1	0 to +<1	0 to +<1	0 to +<1

MUNICIPALITIES WITHIN NORTH COASTAL BASIN:
Beverly, Danvers, Essex, Everett, Gloucester, Hamilton, Ipswich, Lynn, Lynnfield, Malden, Manchester, Marblehead, Melrose, Nahant, Peabody, Reading, Revere, Rockport, Salem, Salisbury, Saugus, Stoneham, Swampscott, Wakefield, and Wenham



Impacts from CC: Total precipitation

Projections for North Coastal Basin:
Total precipitation

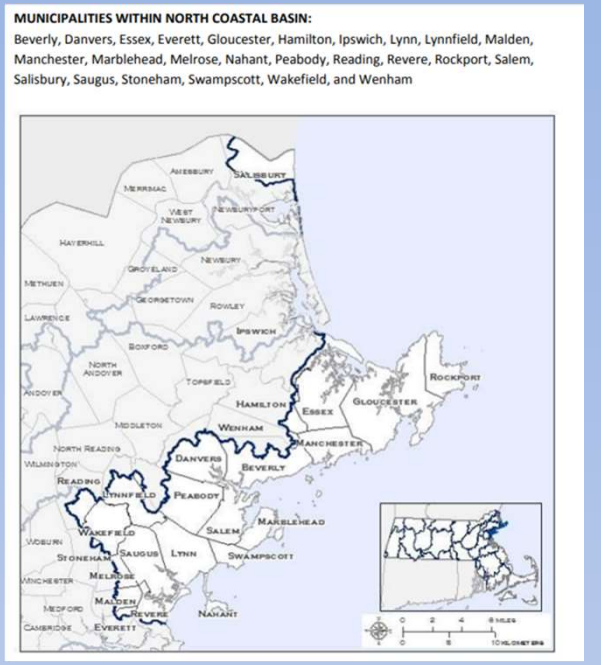
MUNICIPALITIES WITHIN NORTH COASTAL BASIN:
Beverly, Danvers, Essex, Everett, Gloucester, Hamilton, Ipswich, Lynn, Lynnfield, Malden, Manchester, Marblehead, Melrose, Nahant, Peabody, Reading, Revere, Rockport, Salem, Salisbury, Saugus, Stoneham, Swampscott, Wakefield, and Wenham

North Coastal Basin		Observed Baseline 1971-2000 (Inches)	Projected Change in 2030s (Inches)	Mid-Century Projected Change in 2050s (Inches)	Projected Change in 2070s (Inches)	End of Century Projected Change in 2090s (Inches)
Total Precipitation	Annual	45.3	+0.0 to +4.4	+0.0 to +5.5	+0.7 to +6.7	+0.8 to +7.2
	Winter	11.7	-0.3 to +1.8	+0.2 to +2.4	+0.3 to +3.1	+0.5 to +4.1
	Spring	11.5	-0.2 to +2.2	0.1 to +2.1	+0.1 to +2.6	+0.1 to +2.7
	Summer	10.1	-0.3 to +1.4	0.6 to +1.9	-1.0 to +2.1	-1.7 to +1.8
	Fall	12.1	-1.1 to +0.9	-1.1 to +1.4	-1.9 to +1.5	-1.8 to +1.2

Impacts from CC: Dry days

Projections for North Coastal Basin:

Dry days



North Coastal Basin		Observed Baseline 1971-2000 (Days)	Projected Change in 2030s (Days)	**Mid-Century** Projected Change in 2050s (Days)	Projected Change in 2070s (Days)	**End of Century** Projected Change in 2090s (Days)
Consecutive Dry Days	Annual	17	-0 to +2	-0 to +3	-1 to +3	-0 to +3
	Winter	11	-1 to +1	-1 to +1	-1 to +2	-1 to +2
	Spring	11	-1 to +1	-1 to +1	-1 to +1	-1 to +1
	Summer	13	-1 to +1	-1 to +2	-1 to +3	-1 to +3
	Fall	12	-0 to +2	-0 to +3	-0 to +4	-0 to +3

Sea level rise - past

Long term mean sea level rise data for NOAA Boston tide gauge station

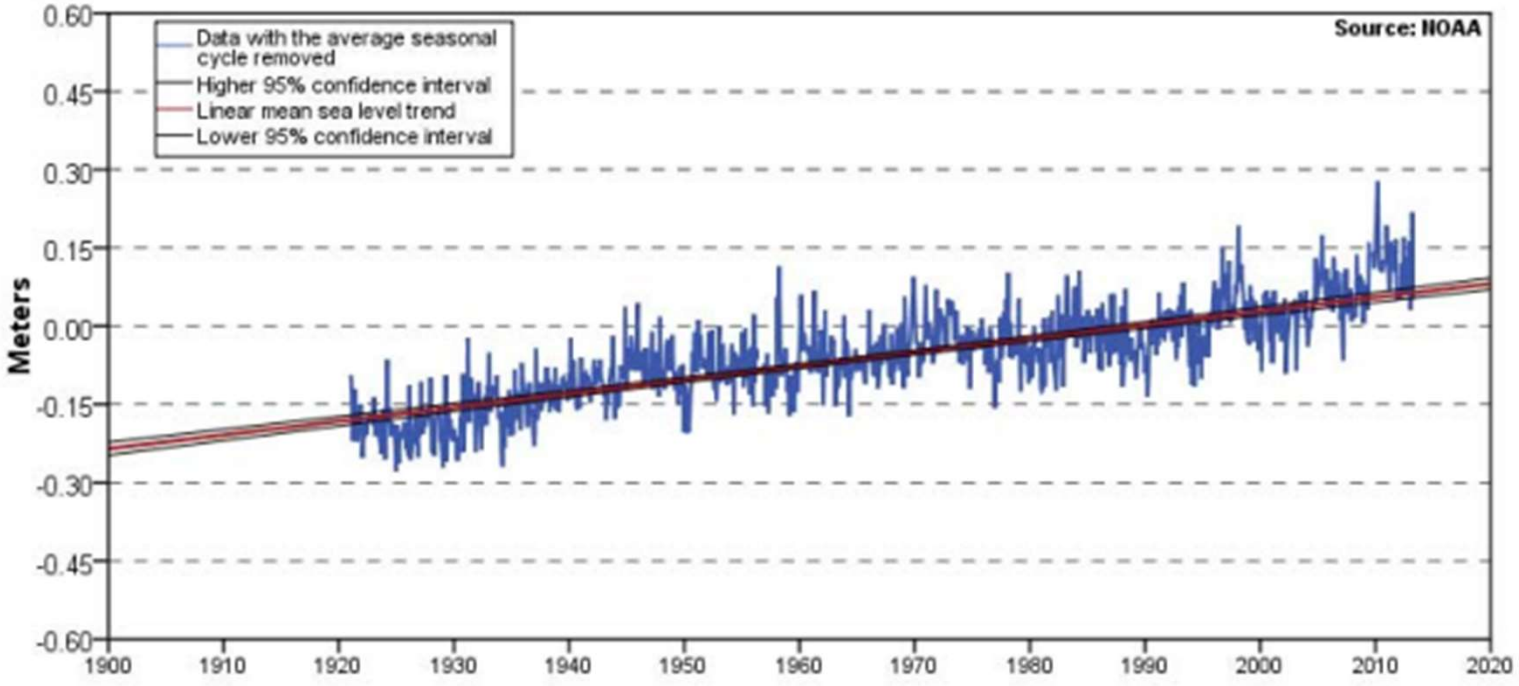


Figure 1. Long-term mean sea level data for NOAA Boston tide gauge station with linear trend and confidence interval.

Source: CZM (2013). Sea Level Rise. Understanding and Applying Trends and Future Scenarios for Analysis and Planning.

Sea level rise - future projection

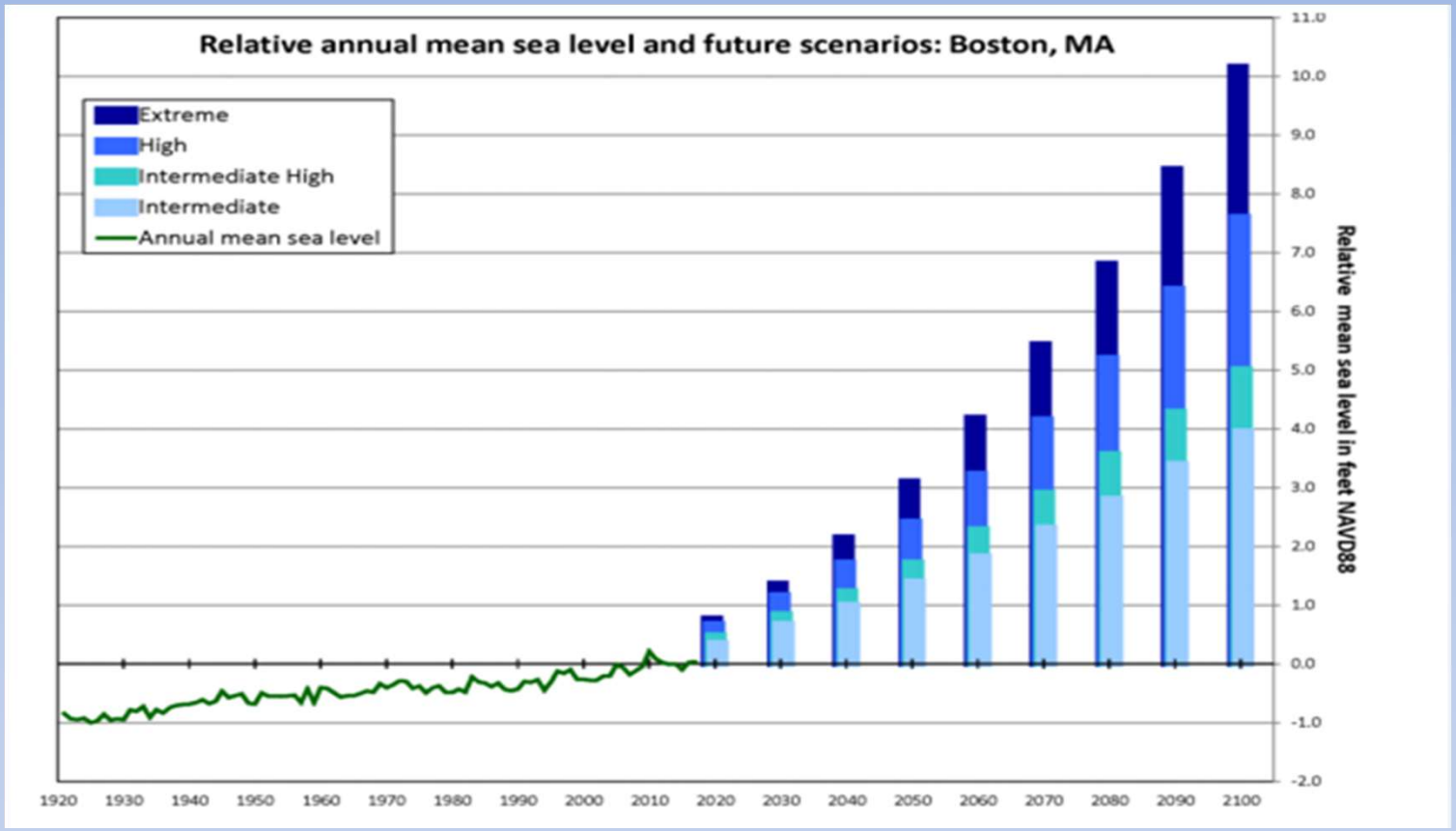
Boston relative mean sea level (feet NAVD88) rise projection based on emission scenarios

Scenario	Probabilistic projections	2030	2050	2070	2100
Intermediate	Unlikely to exceed (83% probability) given a high emissions pathway	0.7	1.4	2.3	4
Intermediate-High	Extremely unlikely to exceed (95% probability) given a high emissions	0.8	1.7	2.9	5
High	Extemely unlikely to exceed (99.5% probability) given a high emissions	1.2	2.4	4.2	7.6
Extreme (Maximum physically plausible)	Extemely unlikely to exceed (99.9% probability) given a high emissions	1.4	3.1	5.4	10.2

Source: UMass Amherst Statewide projections (March 2018, retrievable from: https://nescaum-dataservices-assets.s3.amazonaws.com)

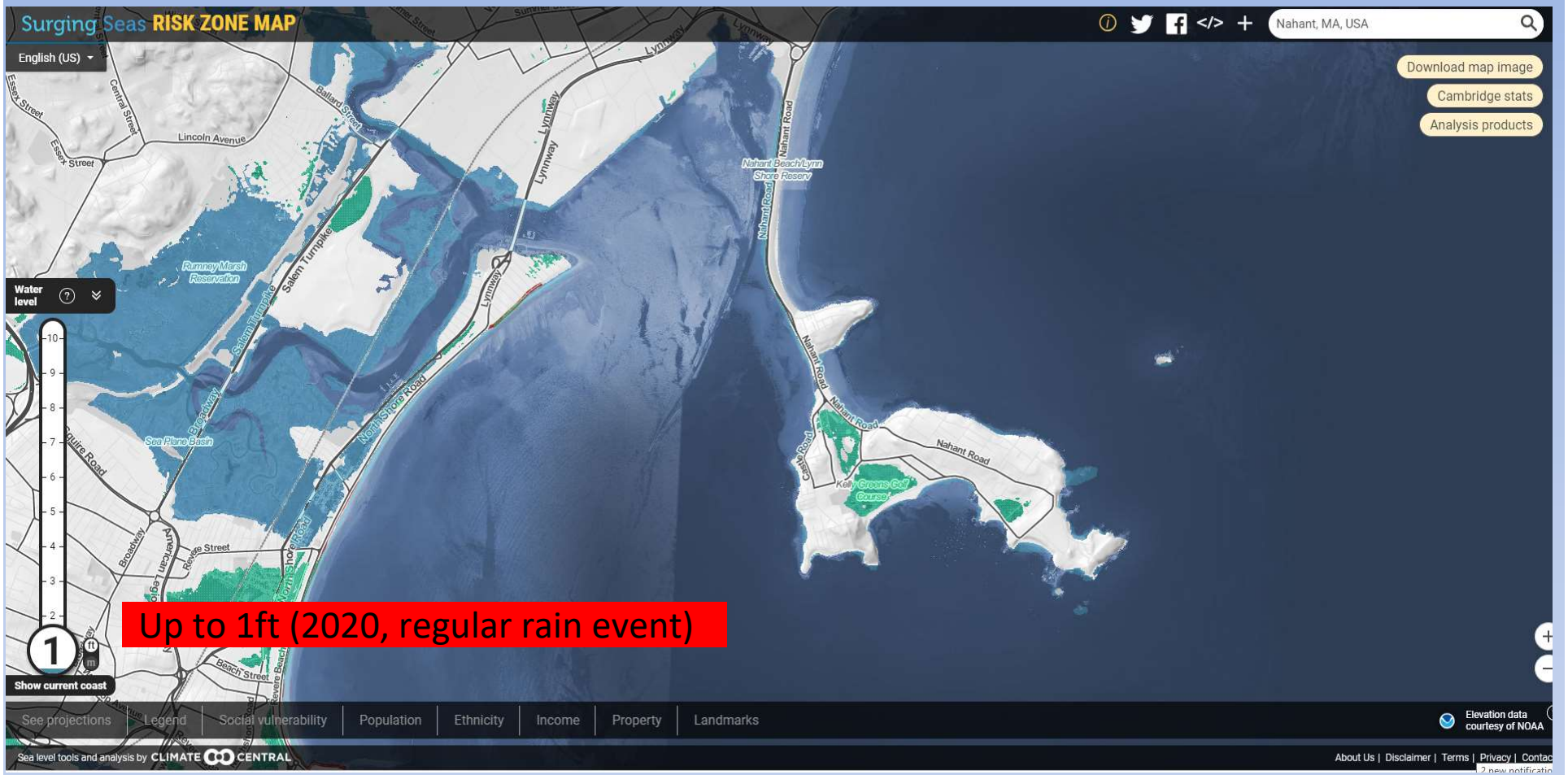
Sea level rise projection

Four sea level rise projection scenarios for Boston
(UMass Amherst Statewide projections, March 2018)



Source: https://nescaum-dataservices-assets.s3.amazonaws.com

Sea level rise projection - Nahant



Surging Seas Risk Zone Map: (Source: https://ss2.climatecentral.org/) Today, regular precipitation event)

Tides during March 2018 Nor'Easter

Boston Harbor tide station reported a 4-feet elevated tide during the March 2018 Nor'Easter:

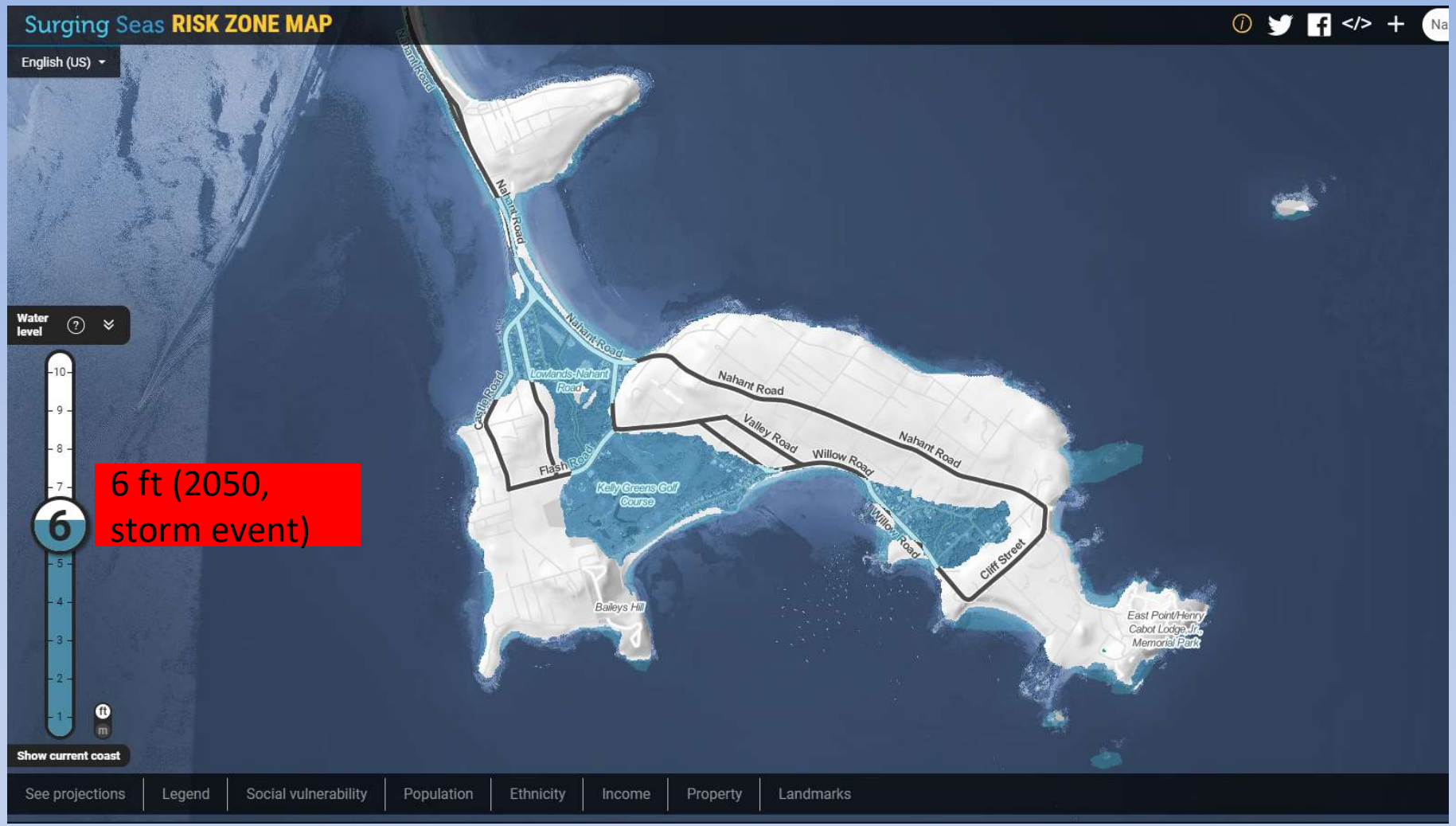
4 feet

Source: NOAA.gov

Sea level rise projection - Nahant

Surging Seas Risk Zone Map: (Source: https://ss2.climatecentral.org/) 4 ft (2020, storm event)

Sea level rise projection - Nahant

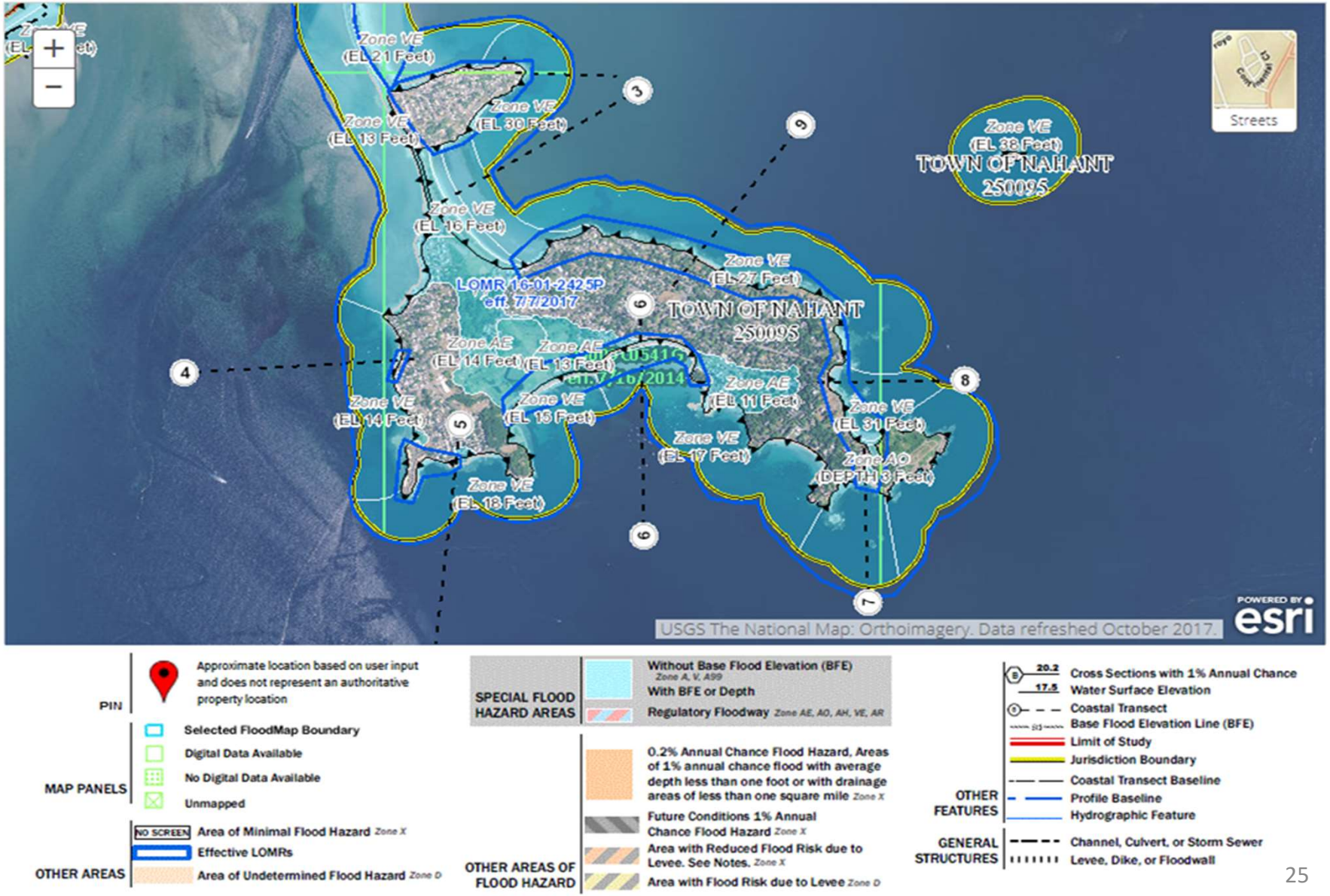


Surging Seas Risk Zone Map: (Source: https://ss2.climatecentral.org/) 6 ft (2050, storm event)

Sea level rise projection - Nahant

Source: Surging Seas Risk Zone Map: (Source: https://ss2.climatecentral.org/) 8 ft (2070, storm event)

Flood Insurance Rate Map (FIRM)



PIN
- Approximate location based on user input and does not represent an authoritative property location

MAP PANELS
- Selected FloodMap Boundary
- Digital Data Available
- No Digital Data Available
- Unmapped

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

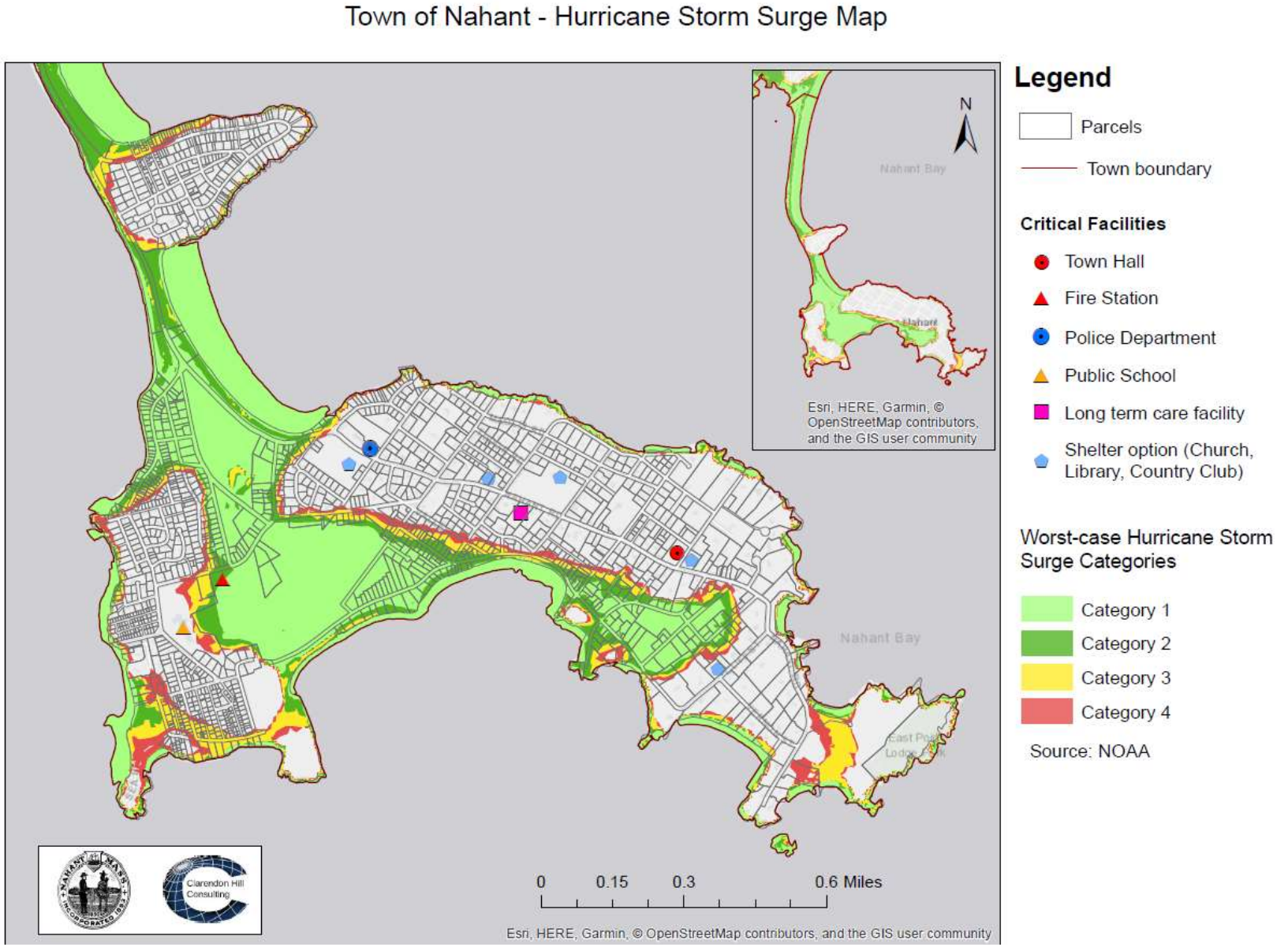
SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth
- Regulatory Floodway Zone AE, AO, AH, VE, AR

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

Hurricane Storm Surge Zones



Major hazards in Nahant

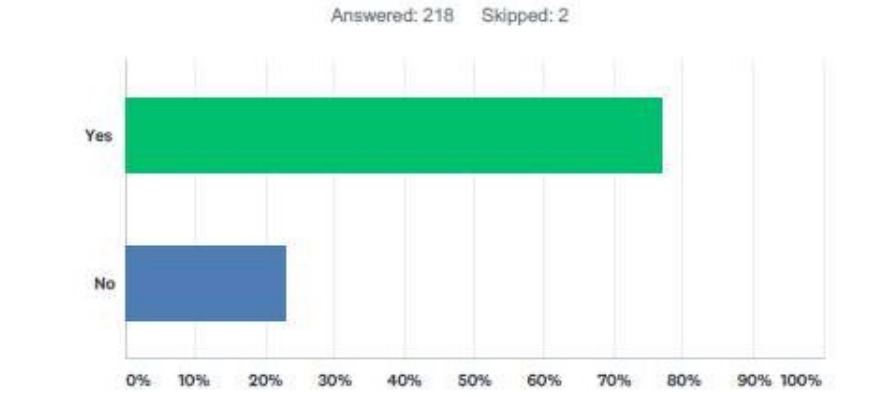
Nahant's Local Hazard Mitigation Plan & statewide projections for the North Coastal Basin & Community Survey:

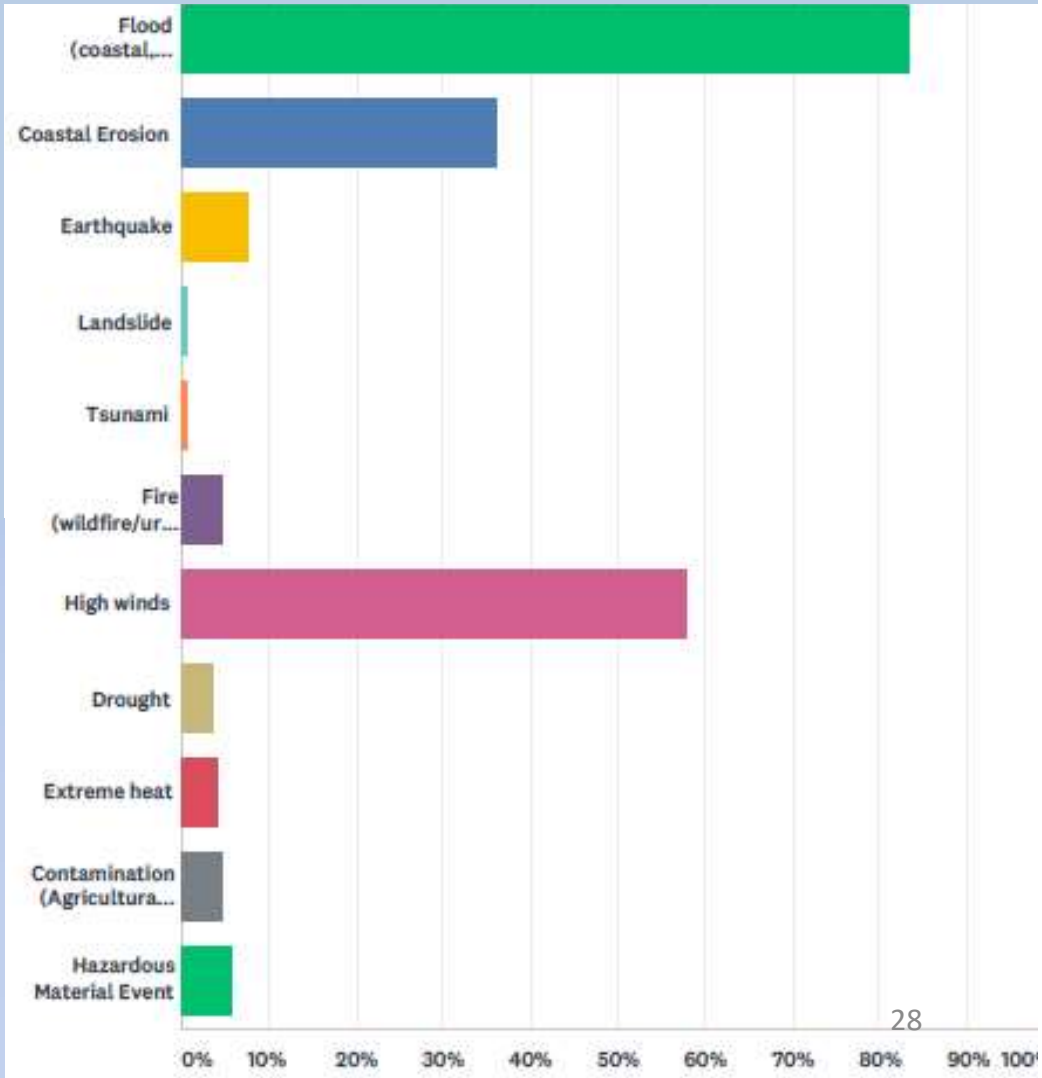
- **Inland Flooding (Increased precipitation events)**
- **Coastal Flooding and Sea Level Rise**
- **High wind events**
- **More Extreme Weather Events (storms)**
  - Severe winter storms/Nor'easters
  - Hurricanes/Tropical storms

Major hazards in Nahant (MVP Community Survey)

Q2 If yes, which of these hazards have you experienced or been impacted by?

Q1 Have you ever been impacted by a natural hazard?





Characterize Hazards (Large Group)

1) Identify past, current and future impacts

2) Determine highest priority hazards & Climate Change Hazards

- *Extreme Precipitation Events*
- *Sea level rise*
- *Coastal Flooding*
- *Urban Flooding*
- *Snow/Ice*
- *Heat Waves*
- *Drought*
- *Wildfire*
- *Tornadoes*
- *Hurricanes*
- *Nor'easters*
- *High wind events*
- *Other*

Parking lot and flooded ball field, Lowlands Park, March 2018 (Photo Credit: MVP Committee)

Stormwater outfall on Willow Road, Nahant

What is the risk to Nahant's population?

Infrastructure Risk

Societal Risk

Environmental Risk

Figure: Community Resilience Building Institute

Small Table Discussions

Activity 1a: Determine top priority hazards on Risk Matrix & map

Community Resilience Building Workshop Risk Matrix

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Features	Location	Ownership	V or S	Top 4 Hazards (tornado, floods, wildfire, hurricanes, snow/ice, drought, sea level rise, heat wave, etc.) Coastal Flooding	Extreme Precipitation Events	Heat Waves	Wind	Priority H - M - L	Time Short Long Ongoing
Infrastructural									
Societal									
Environmental									

In this example of a **Risk Matrix**, the small team decided that coastal flooding, extreme precipitation events, heat waves, and wind were the **Top 4 Hazards**. The small team then focused on the vulnerability and strengths of features and actions to address these Top 4 Hazards in their community.

Small Table Discussions

Activity 1b: Identify Nahant's **vulnerabilities** and **strengths**:

1) Identify infrastructural, societal, environmental features
2) Identify their vulnerability or strength

Community Resilience Building Workshop Risk Matrix

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Features	Location	Ownership	V or S
Infrastructural			
Societal			
Environmental			

Infrastructural features

Infrastructural features examples:

- Evacuation routes / Causeway
- Shoreline protection (seawalls)
- Schools
- Roads, dams
- Utilities (electric, gas)
- Water and wastewater
- Businesses
- Town wharf
- Critical infrastructure
- Housing

Willow Road revetment (near Golf Club)

Pumpout during March 2018 Nor'Easter in Nahant (Photo Credit: MVP Committee)

Coastal Erosion at Causeway (view from Wilson Rd / Little Nahant towards Lynn)

Societal features

Societal features examples:

- Emergency shelters
- Response personnel
- Evacuation plans
- Vulnerable populations, elderly, disabled, low income, etc.
- Availability of services
- Animal shelters
- Grocery stores
- Utilities: electric, gas
- Community networks (social isolation?)
- Other

Nahant Golf Course


Flooding near Bear Pond
(Photo Credit: MVP Committee)

Environmental features

Environmental feature examples:

- Drinking water supply
- Dunes
- Wetlands
- Open space
- Ponds
- Rivers and streams
- Salt marshes
- Storm water management
- Natural habitat & wild life
- Invasive species
- Conservation areas
- Flood plains
- (Urban gardening / agriculture)

"Kelly's Green" Golf Course (Conservation Land)

Compost area drainage ditch and bordering wetlands (Photo Credit: MVP Committee

Small Table Discussions

5-minute BREAK

Small Table Discussions

Activity 2: Identify ***community actions***

to address vulnerabilities (V) or protect strengths (S)

for three features:

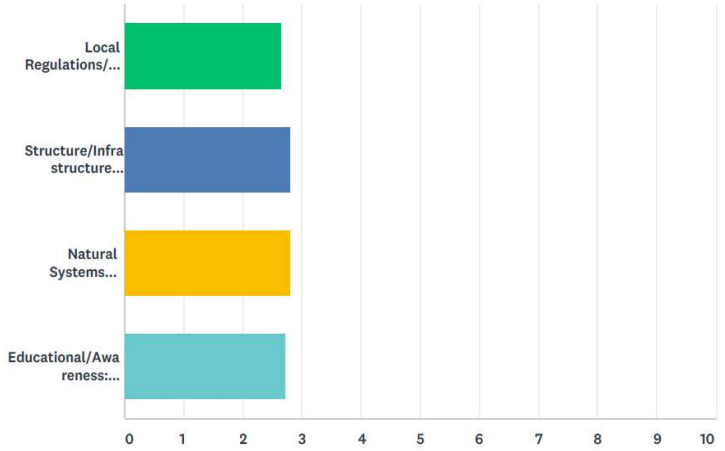
- Infrastructural features
- Societal features
- Environmental features

Small Table Discussions

Survey Responses on action measures

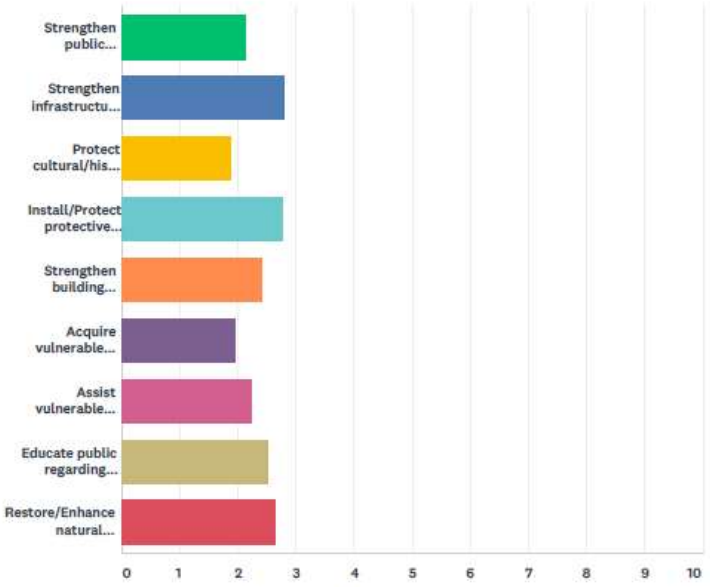
Q16 Mitigation activities fall into four categories, please tell us how important you think each one is for your community to pursue.

Answered: 184 Skipped: 36



Q17 Please rank the following actions that should be taken to reduce damage and disruption form hazard events in the Town of Nahant.

Answered: 185 Skipped: 35

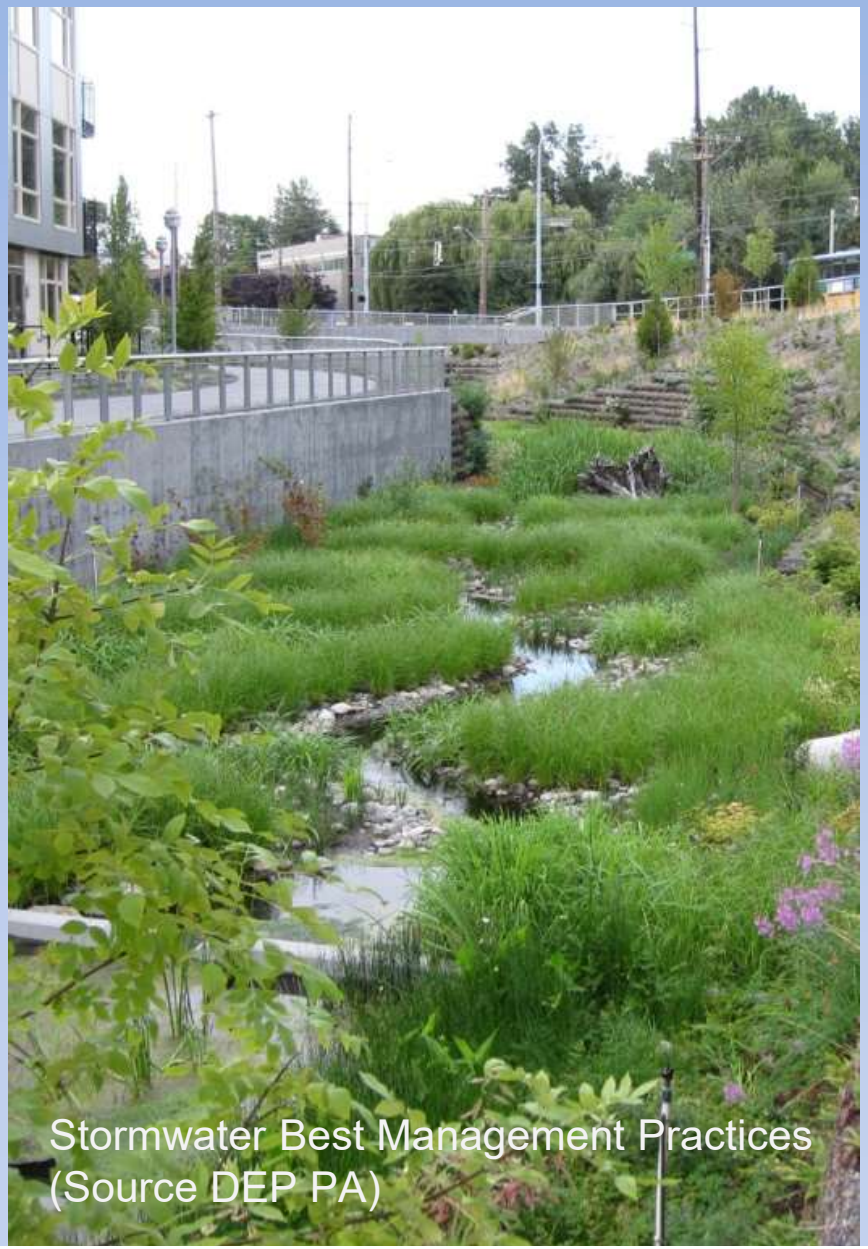


	HIGH PRIORITY	MEDIUM PRIORITY	LOW PRIORITY	TOTAL	WEIGHTED AVERAGE
Strengthen public facilities: police, fire, schools	29.83% 54	53.04% 96	17.13% 31	181	2.13
Strengthen infrastructure: roads, electric, gas, water utilities	81.52% 150	16.85% 31	1.63% 3	184	2.80
Protect cultural/historic resources	18.13% 33	52.75% 96	29.12% 53	182	1.89
Install/Protect protective structures: sea walls, natural protective measures	83.61% 153	12.02% 22	4.37% 8	183	2.79
Strengthen building codes/regulations for flood/hazard areas	56.52% 104	28.80% 53	14.67% 27	184	2.42
Acquire vulnerable properties from willing owners to relocate and maintain as open space.	31.32% 57	31.32% 57	37.36% 68	182	1.94
Assist vulnerable property owners with securing funding for mitigation projects	43.96% 80	34.62% 63	21.43% 39	182	2.23
Educate public regarding hazard risks and mitigation measures	58.70% 108	33.70% 62	7.61% 14	184	2.51

Nature based solution examples

Alewife Stormwater Management, Cambridge, MA; Picture: Trust for Public Land

Examples: Smart water management solutions



Stormwater Best Management Practices
(Source DEP PA)

Green Infrastructure manages water
Source: Green Planet Ethics..

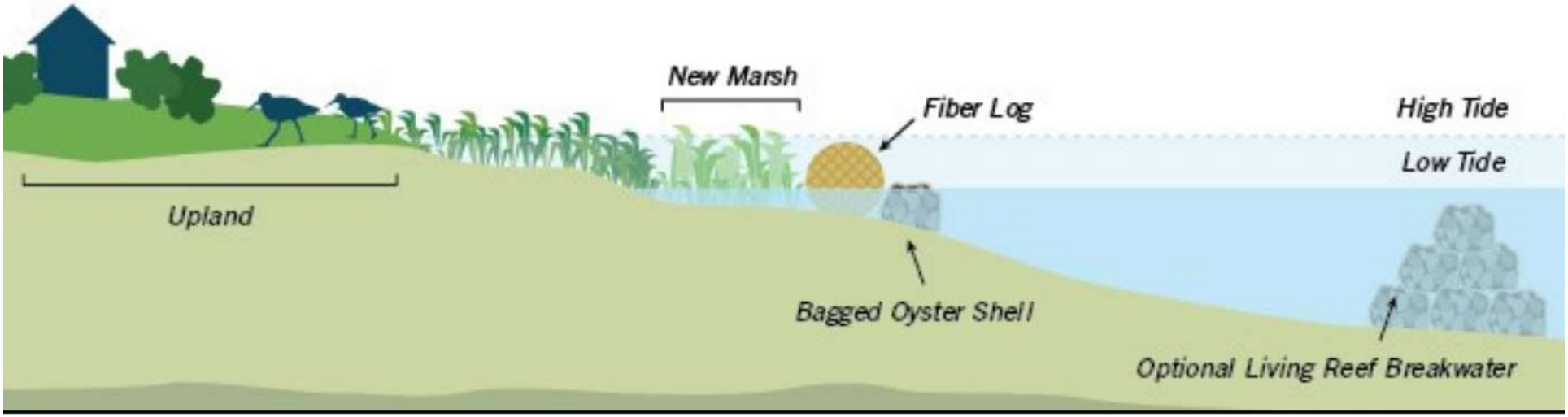
Figure: Materials can make all the difference: Comparison of standard and porous concrete.

Nature based solution examples

Natural coastal Protection solutions

Nature-Based Living Shoreline

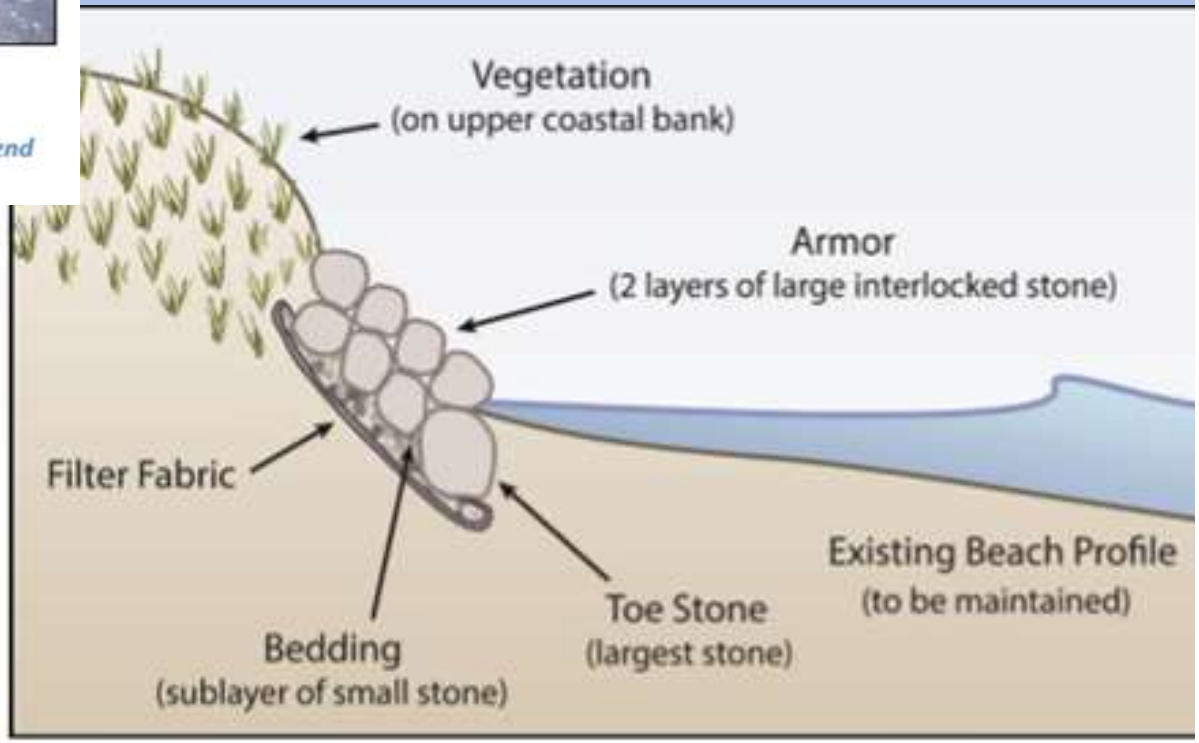
Nature-based living shorelines are best in low-energy areas. "Biological enhancements," like biodegradable fiber logs (which also provide habitat for ribbed mussels) or Christmas trees, are placed along the tidal marsh edge to provide a contained area for sediment to accumulate and marsh vegetation to grow. In more moderate energy areas, it might be possible to use a hybrid approach that pairs nature-based living shorelines with living reef breakwaters.



Sources: conservationgateway.org

Coastal protection examples

The vertical seawall at this site has been undermined and is failing. In this case, there is room on the site to replace the vertical wall with a sloping rock revetment that does not extend farther seaward onto the beach. (Photo: CZM)



Schematic of a typical revetment on a coastal bank.

Source: CZM

Risk Matrix: Infrastructural

Identify and prioritize infrastructural actions.

Example of a **Risk Matrix** filled in with infrastructural actions, priorities, and level of urgency.

Community Resilience Building Workshop Risk Matrix

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Features	Location	Ownership	V or S	Top 4 Hazards (tornado, floods, wildfire, hurricanes, snow/ice, drought, sea level rise, heat wave, etc.)				Priority	Time
				Coastal Flooding SLR/Storm Surge	Inland Flooding and Rain Events	Ice and Snow	Wind	H - M - L	Short Long Ongoing
Infrastructural									
Town Campus	Specific	Town	V	Verify risk from flooding events; Identify alternative locations during peak flooding; Verify maintenance plan annually				H	S
Evacuation Routes - Roads	Town-wide	Town/State	V	Install highly visible signage for evacuation routes; Develop and implement communication program				H	S
Electrical Distribution System	Multiple	CL&P/Town	V	Within floodplain area, establish plan to address protection and long-term relocation of equipment		Upgrade transformers; Maintain power line protection zone (tree trimming)		H	O-L
Dams (inland and coastal)	Multiple	Private	V	Prevent possibility of catastrophic dam failure; Identify and remove dams to minimize downstream flooding due to failure				H	L
Railway and State Bridges	Multiple	Amtrak/State	V	Improve communications between parties; Expand green/gray infrastructure and improve bridge structures; Assess vulnerability and prioritize infrastructure improvement list				M	S
State Roads/Intersections	Town-wide	State/Town	V	Coordinate with DOT, volunteers, public works to improve response; Need signage to warn of flooding risk in critical intersections				M	L
Wharves and Shore Infrastructure	Shore	Town-State-Private	V	Pursue comprehensive shoreline management plan; Establish community dialogue on retaining/relocating infrastructure				L	S
Waste Water Treatment Facility	Specific	Town	V	Conduct alternative siting feasibility study; Relocate to low risk area within next 25 years.				L	L
New Ambulance Center	Specific	Town	S	Continue to support services in budget; Add additional staff and vehicle in next annual cycle					Ongoing
Zoning Regulations (maintain large lot size)	Multiple	Town	S	Current building codes control development in risky areas; Consider additional zoning incentives (TDRs) to reduce risk to residential units					Ongoing

More examples of actions:

- Improved access in high-risk locations
- Reduce housing stock in vulnerable areas
- Prioritize development in low-risk areas
- Integrate future risks in capital improvement plans
- Flood-proof manhole covers
- Secure new generators for critical facilities

When prioritizing, consider factors such as:

- Funding availability and terms
- Agreement on outstanding impacts from recent hazard events
- Necessity for advancing longer-term outcomes
- Contribution towards meeting existing local and regional planning objectives

Examples of urgency:

- Current project to install hurricane-proof roof on school is an ongoing **(O)** action.
- Ensuring evacuation procedures are updated annually is considered a short-term **(S)** action.
- Reducing housing stock in high-risk areas, elevating a road, or replacing a bridge are long-term **(L)** actions.

Group Discussions

LUNCH

Group Discussions

Report Out from table groups:

- Top Hazards, Vulnerabilities and Strengths
- Present priority actions

Group Discussions

Large Group discussion

- Identify and prioritize municipal actions

Group Discussions

Available grants upon MVP Designation:

- MVP Action Grant
- FEMA grants
- CZM grants – examples:

1. Detailed Vulnerability and Risk Assessment;
2. Public Education and Communication;
3. Local Bylaws, Adaptation Plans, Other Management Measures;
4. Redesigns and Retrofits;
5. Natural (coastal green infrastructure) storm-damage protection

MVP Program - Next steps

- February / March:

CRB workshop findings & MVP report

- Spring 2018:

MVP listening session - public comment on priorities

Questions?

Isabel Kaubisch, Clarendon Hill Consulting
+1 617-863-6593, isabel@chillcons.com