



SCITUATE MASSACHUSETTS

Town of Scituate, MA Hazard Mitigation Plan Update Public Workshop

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Project Manager – Horsley Witten Group

Date: July 27, 2021 6:00 PM – 8:00 PM
Virtual



Virtual Platform



A Request of Participants

- **In the Chat area to Kyle Boyd:**
 - Your Full Name
 - Are you a resident, business owner, municipal employee?
 - Expectations you have for the workshop

Welcome...

WELCOME!



Horsley Witten Group
Sustainable Environmental Solutions

Town of Scituate

Local Hazard Mitigation Committee

- Kyle Boyd, Director of Planning and Development
- John Murphy, Fire Chief/Emergency Management Director
- Karen Joseph, Town Planner
- Sean McCarthy, Supervisor of Engineering/Public Works
- Amy Walkey, Conservation Agent/Natural Resources Officer
- Mark Thompson, Police Chief
- Dan Smith, Engineering
- Margaret Loughlin, Resident
- Ben Haskell, Environmental/NOAA
- James Canavan, Academia
- Sara Grady, North and South River Watershed
- Lynn Ferguson, Business Owner

Why Hazard Mitigation Planning?

Disaster Mitigation Act of 2000, Interim Final Rule, 44 CFR Parts 201 and 206 states, “All communities must have an approved Multiple Hazards Mitigation Plan in order to qualify for future federal disaster mitigation grants”.

Reduction or elimination of long-term risk to life, property, and the environment.

Mitigation Process

- **Assess Risks**
- Establish Goals
- Identify Projects/Actions
- Update/Maintain Plan



Assess Risks...

Risk and Vulnerability Assessment

Natural Hazard:

“Any event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, and agricultural loss, damage to the environment, interruption of business, or other types of harm and/or loss”.

Assess Risks...

Natural Hazards Affecting Scituate, MA

Flood-related hazards

- Riverine/Flash Flooding
- Inland/Urban Flooding
- Heavy Rain
- Climate Change
- Dam Failure
- Coastal Flooding
- Sea Level Rise
- Storm Surge
- Coastal Erosion/Shoreline Change

Winter-related hazards

- Blizzards/Heavy Snow
- Nor' easters
- Ice
- Extreme Cold

Geologic-related hazards

- Earthquakes
- Landslides



Assess Risks...

Natural Hazards Affecting Scituate, MA

Wind-related hazards

- Hurricanes
- Tornadoes
- High Winds
- Lightning/Thunderstorms
- Hail
- Tropical Storms
- Waterspouts

Drought-related hazards

- Drought
- Extreme Heat

Invasive Species-related hazards

- Invasive Species

Urban/Wildfire-related hazards

- Urban Fire/Wildfire

Assess Risks...

Natural Hazard Profiles

Flood-related hazards

- Riverine/Flash Flooding: Moderate
- Inland/Urban Flooding: High
- Heavy Rain: High
- Climate Change: Moderate
- Dam Failure: Moderate
- Coastal Flooding: High
- Sea Level Rise: Moderate
- Storm Surge: Moderate
- Coastal Erosion/Shoreline Change: High

Winter-related hazards

- Blizzards/Heavy Snow: High
- Nor' easters: High
- Ice: Low
- Extreme Cold: Moderate

Geologic-related hazards

- Earthquakes: Low
- Landslides: Low

Assess Risks...

Natural Hazard Profiles

Wind-related hazards

- Hurricanes: High
- Tornadoes: Moderate
- High Winds: High
- Lightning/Thunderstorms: Moderate
- Hail: Moderate
- Tropical Storms: Moderate
- Waterspouts: Low

Drought-related hazards

- Drought: Moderate
- Extreme Heat: Moderate

Invasive Species-related hazards

- Invasive Species: Moderate

Urban/Wildfire-related hazards

- Urban Fire/Wildfire: _____

Assess Risks...

Risk and Vulnerability Assessment - Assets

- **Economic Assets**
 - Businesses/employers
 - Tourist destinations

- **Social Assets**
 - Vulnerable populations
 - Cultural locations

Assess Risks...

Risk and Vulnerability Assessment - Assets

- **Natural Resources**
 - Lifeline and utility systems
 - Wetlands
 - Conservation and recreation lands

- **Essential Buildings and Critical Facilities**
 - Government buildings
 - Hazardous facilities
 - Roadways
 - GIS Mapping

Mitigation Process

- Assess Risks
- **Establish Goals**
- Identify Projects/Actions
- Update/Maintain Plan

Establish Goals...Mitigation Goals

Strategy:

The Scituate Hazard Mitigation Strategy advocates the concepts of disaster resilient and sustainable communities. Scituate is building a disaster resistant community and achieving sustainable development through the commitment of state and local government and its policymakers to mitigate hazard impacts before disaster strikes.

Goals in support of the strategy:

- Ensure that critical infrastructure sites are protected from natural hazards.
- Protect existing residential and business areas from flooding.
- Maintain existing mitigation infrastructure in good condition.
- Continue to enforce existing zoning and building regulations.

Establish Goals...Mitigation Goals

Goals in support of the strategy:

- Educate the public about zoning and building regulations, particularly with regard to changes in regulations that may affect tear-downs and new construction.
- Work with surrounding communities to ensure regional cooperation and solutions for hazards affecting multiple communities.
- Encourage future development in areas that are not prone to natural hazards.
- Educate the public about natural hazards and mitigation measures.
- Make efficient use of public funds for hazard mitigation.

Mitigation Process

- Assess Risks
- Establish Goals
- **Identify Projects/Actions**
- Update/Maintain Plan



Mitigation Measures...Categories

- Planning and Prevention
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services, and
- Public Education and Awareness

Identify Projects/Actions...

Identification of Mitigation Actions

Mitigation actions to be developed based on review of the Town's identified risks and vulnerabilities to natural hazards.

Each action incorporates a brief description of the intended action, who the responsible parties are, a proposed time frame for completion and potential funding sources.

Identify Projects/Actions...

Prioritization of Actions...STAPLEE Method

- **Social**...is the action socially acceptable?
- **Technical**...is the action technically feasible and provide appropriate level of protection?
- **Administrative**...does the Town have the capability to complete the action?
- **Political**...will the Town support or oppose the project?
- **Legal**...does the Town have the legal authority to complete the action?
- **Economic**...is the action cost-effective?
- **Environmental**...will the action affect the natural environment?

Identify Projects/Actions...

Implementation

- Town's Capability
- Plan Adoption/Incorporation into Existing Plans

Mitigation Process

- Assess Risks
- Establish Goals
- Identify Projects/Actions
- **Update/Maintain Plan**

Building a Resilient Scituate – Climate Vulnerability Assessment and Action Plan (March 2018)

Top Priority Actions

- 1. Address the vulnerability of coastal business districts.** Lead a climate vulnerability and resilience workshop with stakeholders, property owners, residents, businesses, and municipal staff and officials for participatory visioning the future with sea level rise and coastal flooding. Front Street is a priority for this action.
- 2. Address the vulnerability of Scituate’s municipal infrastructure.** A priority could be the Wastewater Treatment Plant, currently in a 1% Annual Chance Flood.
- 3. Initiate a public outreach and marketing campaign with a sense of urgency on climate change and resilience in Scituate.** The Town has demonstrated results in such an effort, when, during the 2016 drought where resident’s behavior shifted sufficiently to mitigate drinking water scarcity during that time.

Open Space and Recreation Plan (2018)

Goal 2: Protect Scituate's natural shoreline and coastal features and waters, which are a prime recreational and economic resource, and which give the Town its identity as a very appealing seaside community.

Actions include:

- Continue to develop bylaws and best practices that relate to preserving/enhancing the natural shoreline/coastal resources in the current status and with expected impacts of sea level rise.
- Continue to strongly enforce Town bylaws discouraging new construction in the floodplain.
- Implement recommendations from the Coastal Assessment Study and other recent and ongoing studies, as applicable to shoreline protection.

Open Space and Recreation Plan (2018)

- Implement recommendations from the Coastal Assessment Study and other recent and ongoing studies, as applicable to shoreline protection.
- Initiate public education on shoreline and coastal resources protection, as well as issues affecting public use of the beach.
- Work with surrounding communities on long-term planning to ensure regional cooperation on solutions to coastal hazards.

Goal 5: Enhance the natural beauty of the Town's landscape by protecting existing open space, while promoting appropriate use.

Actions include:

- Prepare management plans for Scituate's public beaches.

Comprehensive Wastewater Resilience Feasibility Study (June 2019)

Assessed the Town's wastewater facilities vulnerabilities to flooding/coastal flooding.

Recommendations include:

- Political Implementation
 - Communicate existing/future physical and financial risks/Build consensus/Establish a Planning Group/Integrate results into the day-to-day administration.
- Cost Recovery/Revenue Opportunities Implementation
 - Apply for state/federal grants/Establish a Wastewater Resilience Fund/Incrementally increase Sewer Connection Fee/Include near-term measures in the General Budget/Utilize system expansion bond funding to include mitigation improvements.
- Regulatory Implementation
 - Integrate recommendations into Master Plan Update/Prepare final engineering/design for near- and long-term measures.

Elevating Roadway Improvements and Dune/Beach Nourishment Along North Humarock for Improved Coastal Resiliency (March 2017)

Developed a conceptual plan for elevating a portion of Central Avenue along northern Humarock Beach and optimizing a dune/beach nourishment design for storm damage protection.

Recommendations include:

- Elevate Central Avenue
- Construct dunes along the Humarock North
- Nourish the beach along the entire Humarock North and South

Scituate Harbor Sustainability and Resilience Master Plan (August 2020)

Developed to guide future growth, conservation and infrastructure enhancements over the next 25 years, with a focus on reducing the pathways of ocean water into the Scituate Harbor business district.

Resilience recommendations include:

- An incremental elevation and adaptation of the coastal perimeter of the district that integrates with an elevated Harborwalk, new coastal amenities and open space features.
- This approach is combined with the protection and improvement of the natural systems that provide protection to the district and adjacent shoreline at the Kent Street marshes and the banks of the Satuit Brook.
- The addition of green infrastructure in the district to protect and improve water quality of the harbor.

Town of Scituate Coastal Community Assessment (September 2018)

To learn more about what residents, businesses and civic organizations, as well as town staff/leadership think about the risks/opportunities associated with being a coastal community.

Recommendations include:

- Through a robust community engagement process, develop and adopt a long-term coastal resilience vision and strategy.
- Review, summarize, and present in a simple format, the key actions that have been taken in recent years to improve coastal resilience in Scituate, and the relevant recommendations that have been made in previous studies and plans.
- Convene community conversations about managed retreat.
- Review, update, and document the emergency management protocols for coastal storms.

Town of Scituate, MA Annual Flood Mitigation Progress Report (2019)

Efforts to anticipate and mitigate activities along high hazard coastal areas and inland floodways over the years include:

- Foreshore protection
- Sea level rise and climate change
- FEMA Elevation Program
- Emergency Management
- Outreach and Education

Town of Scituate, MA Annual Flood Mitigation Progress Report (2019)

Coastal Grants 2015 – 2019:

Coastal Grant	Project	Funding	Status
Executive Office of Energy and Environmental Affairs & Coastal Zone Management Resiliency Grant	Engineer and study for beach nourishment on N. Scituate Beach	\$118,000	Completed
FEMA FMA 13-01 Elevation Grant	Elevation of 14 properties in the floodplain	\$2,100,000	Completed
Executive Office of Energy and Environmental Affairs & Coastal Zone Management Resiliency Grant	Engineer, design and permit for beach nourishment on N. Scituate Beach	\$241,163	Completed
Executive Office of Energy and Environmental Affairs Dam, Levee and Seawall Grant	Repairs to 760' of seawall along Oceanside Drive	\$4,000,000	Completed
Environmental Protection Agency Resiliency Grant	Technical Assistance for flood resiliency in a coastal community	\$50,000	Completed
Executive Office of Energy and Environmental Affairs & Coastal Zone Management Resiliency Grant	Assessing Coastal Erosion, Sediment Transport & Prioritization Management Strategy for Shoreline Protection	\$270,000	Completed

Town of Scituate, MA Annual Flood Mitigation Progress Report (2019)

Coastal Grants 2015 – 2019:

Environmental Protection Agency Resiliency Grant	Repair and replacement to 525' of seawall along Oceanside Drive on Town-owned property	\$3,000,000	Completed
MAPC Planning Assistance Grant	Scituate Municipal Vulnerability Plan	\$60,000	Completed
Executive Office of Energy and Environmental Affairs & Coastal Zone Management Resiliency Grant	Humarock Roadway elevation, beach and dune nourishment conceptual designs	\$140,000	Completed
Executive Office of Energy and Environmental Affairs Dam, Levee and Seawall Grant	Repairs to 640' of seawall along Oceanside Drive near 7th Avenue	\$2,500,000	Completed

Town of Scituate, MA Annual Flood Mitigation Progress Report (2019)

Coastal Grants 2015 – 2019:

MEMA HMGP Grant	Elevation of 5 properties in the floodplain	\$616,252	In-progress
FEMA FMA 15-01 Elevation Grant	Elevation of 2 properties in the floodplain	\$303,386	In-progress
FEMA Storm Reimbursement	Foreshore damages 3rd Cliff	\$1,680,000	Awarded
FEMA Storm Reimbursement	Foreshore damages	\$5,900,000	Obligated
Executive Office of Energy and Environmental Affairs & Coastal Zone Management Resiliency Grant	Humarock Roadway elevation, beach and dune nourishment conceptual designs	\$240,000	Completed
Executive Office of Energy and Environmental Affairs & MAPC	Downtown Harbor Resiliency Plan	\$62,500	In-progress
MAPC	Peggotty Beach Managed Retreat Feasibility Study	\$35,000	In-progress
FEMA FMA 19-01	Elevation of 1 property in the floodplain	\$170,380	In-progress
Coastal Zone Management	50 Year Coastal Vision	\$261,472	In-progress

Mapping Storm Tide Pathways in Scituate and Cohasset: Assessing Coastal Vulnerability to Storms and Sea Level Rise (2019)

Supplements LIDAR base maps with more accurate GPS survey data to map the routes through which 'storm tides' will pass, threatening vulnerable areas with inundation of varying depths.

299 pathways were identified for Scituate and provide critical information on the precise location of potential flooding to address each pathway and prevent future inundation.

Scituate 2040 Master Plan Update (June 2021)

Serves as a guide to the Town for future decision-making on actions that will have long-term impacts on the Town's economic, social, and physical resiliency.

Actions include:

- Climate Change and Sea Level Rise
 - Elevate structures within flood risk zones.
 - Enhance and raise seawalls and revetments.
 - Enhance and reinforce “hard-engineered” infrastructure such as breakwaters, jetties, and groins.
 - Provide beach nourishment to maintain ecological function.
 - Invest in “soft-engineered” infrastructure such as artificial dunes and berms.
 - Implement boulder dykes.
 - In low-lying areas susceptible to flooding, convert roads to bridges.
- Climate Change and Ecology
 - Expand wetland protections to include projected wetland migration areas.
 - Reduce clear-cutting.

Scituate 2040 Master Plan Update (June 2021)

- Land Use
 - Establish programs and policies for buy-outs, land swaps, relocations, and transfers of development rights to allow for relocation.
- Zoning
 - Consider reducing development on flood hazard areas.
- Community Services and Facilities
 - Evaluate existing community facilities for problems and as assets for impacts related to climate change.
- Transportation Infrastructure
 - Flood-proof key transportation routes.
 - Anticipate heat damage to roads.
- Water Infrastructure
 - Prepare for droughts and the effects of sea level rise on groundwater and saltwater intrusion.

2016 Plan Report Card

Action #1

Elevate Repetitive Loss Structures

Completed...remains ongoing. 22 new elevations completed since 2016.

Action #2

Protect Key Roads, Bridges and Intersections

Partially Completed, remains ongoing.

- DPW constructed approx. 200 ft. of new seawall along Edward Foster Road across from the new Marine Park.
- Lighthouse Road: concrete seawall is currently in preliminary study, design and permitting stage by the USACOE as part of a Sands Hill seawall replacement project.



2016 Plan Report Card

Action #3

Foreshore Protection

Partially Completed...remains ongoing.

- DPW constructed approx. 200 ft. of new seawall along Edward Foster Road across from the new Marine Park.
- Completed seawall projects:
 1. Reconstruction of the Mann Hill/Egypt Beach Cobble Berm (DPW).
 2. Reconstruction of the section of Cedar Point Revetment that protects the historic lighthouse and park (DPW).
 3. North Jetty recently repaired (USACOE).
- Future seawall projects (FEMA funded):
 1. Minot Beach/North Scituate Beach/Shore Acres (Seaside Road)/First Cliff/Second Cliff/Third Cliff.

2016 Plan Report Card

Action #3

Foreshore Protection

Partially Completed...remains ongoing.

- Future seawall projects (Town funded):

1. Closing sections along Oceanside Drive in final design and scheduled for construction 2021.

- Future seawall projects (USACOE funded):

1. Closing sections along Oceanside Drive/Turner Road between Turner Road and #3 Rebecca Road in design phase.

Action #4

Drainage and Culvert Repairs, Improvements and Upgrades

Partially Completed...remains ongoing.

- Culvert upgrades at Bailey's Causeway and Gilson Road (DPW)

- Ocean outfall refurbished on Oceanside Drive (DPW)

2016 Plan Report Card

Action #5

CRS Participation/Implementation of Public Information Program

Not Completed...carry forward

Action #6

Complete Coastal Assessment

Completed...August 2016/Executive Office of Energy and Environmental Affairs/\$270,000 grant

Action #7

Implement Recommendations of Coastal Assessment

Not Completed...carry forward

- Elevation of/berm along Humarock Road was pursued and abandoned due to limited public support.

2016 Plan Report Card

Action #8

Beach and Berm Nourishment & Replenishment

Partially Completed...implementation remains ongoing

Action #9

Install Strategic Power Grid Shutoffs

Completed...2016 – 2018/funded by utility companies

Action #10

Installation of Generators

Completed.

- All schools/Public Safety/Town Hall/Board of Health/Communications Shed/Old Gates and Recreation/New Senior Center/Station 1/Water Treatment/Sewer Dept.

Online Public Survey

<https://www.surveymonkey.com/r/ScituateMAHazardMitigationPlanUpdate>



Horsley Witten Group
Sustainable Environmental Solutions

Project Schedule

Draft Update available for comment: **Fall/Winter 2021**

Draft Update to MEMA: **Winter 2022**

Contact Us...

Questions/Comments:

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