

# Town of Plymouth Hazard Mitigation Plan Update Public Workshop



Craig Pereira, CFM  
Project Manager – Horsley Witten Group

Date: December 8, 2020 6:30 PM – 8:00 PM  
Virtual



# Virtual Platform



# A Request of Participants

- **In the Chat area to Lee Hartmann:**
  - 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 Plymouth

## Local Hazard Mitigation Committee

- Lee Hartmann, Director of Planning and Development
- Henry Lipe, Director of Emergency Management
- Kim Tower, Environmental Technician
- Richard Vacca, Conservation Planner
- Malcolm MacGregor, Planning Board Chair

# 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 Plymouth, 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 Plymouth, 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: \_\_\_\_\_
- 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: Low

### **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: Low

### **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

## **Regional Goal:**

*Reduce the loss of life, property, infrastructure, and environmental and cultural resources from natural disasters.*

## **Additional Goals in support of the regional goal:**

- Investigate, design and implement structural projects that will reduce and minimize the risks and impacts from riverine and coastal flooding.
- Investigate, design and implement projects that will reduce and minimize the risks and impacts from non-flooding hazards, such as wildfires, earthquakes, tornadoes, etc.
- Improve pre-disaster planning, communication and coordination between federal, state, county, community private and non-profit entities so that they can plan for and mitigate natural hazards in a clear and comprehensive manner.



# Establish Goals...Mitigation Goals

## **Regional Goal:**

*Reduce the loss of life, property, infrastructure, and environmental and cultural resources from natural disasters.*

## **Additional Goals in support of the regional goal:**

- Increase the awareness of the public and communities to the risks presented by the multiple natural hazards that affect the region as well as to the mitigation activities and grant opportunities available to minimize the impacts of these hazards.
- Improve existing policies and programs to further reduce or eliminate the impacts of natural hazards.

# 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**

# Climate-Ready Healthy Plymouth, Municipal Vulnerability Preparedness (May 2020)

## Top Priority Actions

- Increase access to recreation opportunities for residents in every neighborhood by improving existing facilities and expanding walking and bicycling paths so that people have safe, non-vehicle alternatives to access open space amenities.
- Prepare for emergencies using an integrated preparedness and communications plan that leverages diverse media, social networks, and neighborhood response teams to prioritize the wellbeing of vulnerable residents.
- Conserve natural areas and prevent sprawl by encouraging adaptive reuse of older buildings, incentivizing cluster developments, and acquiring and permanently conserving properties in ecologically sensitive areas, especially along coastlines and wetlands.



# Climate-Ready Healthy Plymouth, Municipal Vulnerability Preparedness (May 2020)

## Top Priority Actions

- Manage and protect water resources through frequent water quality testing, water conservation measures, regulating sources of pollution (e.g. pesticide and fertilizer use), and by completing and implementing the Town's Water Master Plan.
- Upgrade residential wastewater systems by providing incentives and assistance to homeowners, so they can inspect and upgrade cesspools and septic systems or connect to town sewer.
- Promote renewable power and energy efficiency by securing Green Communities designation, supporting adoption of electric vehicles, reducing municipal energy use, encouraging residential and commercial energy efficiency, and facilitating solar power generation on roofs, parking lots, and farms.

# 2015 Plan Report Card

## Action #1

Buildout alternate and auxiliary data center infrastructure to support the Town of Plymouth's continuity planning for critical IT systems.

Completed...Site Recovery Manager was introduced in 2010. In 2015/2016 a Cloud Disaster Recovery solution was added for redundancy. In 2017, major Financial Systems and Exchange Server.

## Action #2

Seek funding through Plymouth's Community Preservation Fund to acquire and demolish structures subject to repetitive flood losses. Plymouth will continue to partner with repetitive loss property owners to apply for funding through FEMA.

Completed, remains ongoing. 2013, Town took down 2 buildings for beach/emergency access and restore Bartlett Brook water flow after storms. 2015, Town took down one building.

# 2015 Plan Report Card

## Action #3

Develop DPW's planning to make improvements to the Water Street Wastewater Treatment Plant Pump Station to include flood barrier protection.

Design completed, seeking funding for construction...carry forward.

## Action #4

Seek available MassDOT and/or Hazard Mitigation 406 or 404 funding to address identified infrastructure (conduct structural assessment for and develop/implement plans to retrofit and replace town-owned bridges and other critical storm drain and outfall infrastructure that are categorized as deficient and are necessary for response agencies to use during an emergency.

Currently working on the design/permitting of Jenney Pond Dam repairs and a bypass around the dam for increased fish passage and larger storm flows. Also currently working on Russell Pond Dam repairs...move to Capability Assessment.

# 2015 Plan Report Card

## Action #5

Stabilize seawall, dunes and coastal bluffs susceptible from erosion and sliding through netting and vegetation stabilization methods.

- Warren's Cove Feasibility Study (July 2015)
- Cobble Nourishment of Washover Areas at Plymouth Long Beach (March 2016)
- Warren's Cove Cobble Nourishment Project – Design and Permitting (June 2016)
- Long Beach Stone Dike Repairs (2017)
- Day Parking Area and Ryder Way repairs following winter storm Riley (March 2018)
- Plymouth Beach Seawall and Revetment Reconstruction – Design and Permitting (May 2018)
- Warren's Cove Revetment Reconstruction - Bert's to Pilgrim Sands (May 2018)
- Plymouth Beach Seawall and Revetment Reconstruction (in progress)
- Plymouth Long Beach Mixed Sediment Nourishment – Design and Permitting (in progress)
- White Horse Beach Dune Nourishment – Phase 1 (April 2020)
- White Horse Beach Dune Nourishment – Phase 2 (carry forward)
- Center Hill Preserve Dune Nourishment (March 2018)

# 2015 Plan Report Card

## Action #6

Develop a policy for Plymouth's Building and Construction Committee requiring all municipal facilities vulnerable to wind or flood damage to include design measures to protect these facilities from such hazards.

Completed via State Building Code...Policy not formalized yet...carry forward.

## Action #7

Conduct fuel break management practices to include prescribed burns and harvesting.

Not completed, carry forward.

## Action #8

Work with Plymouth's Right to Farm Committee and Harbor Committee to educate farmers and coastal associations on impacts of farming practices on wetland resources and areas prone to flooding. Work to minimize pollution and flooding risks associated with irrigation and drainage swales maintenance, water storage and discharge.

Not completed, carry forward.

# Online Public Survey

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



Horsley Witten Group  
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# Project Schedule

Draft Update available for comment: **July 2021**

Draft Update to MEMA: **August 2021**

# Contact Us...

## Questions/Comments:

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