

Horsley Witten Group

Sustainable Environmental Solutions

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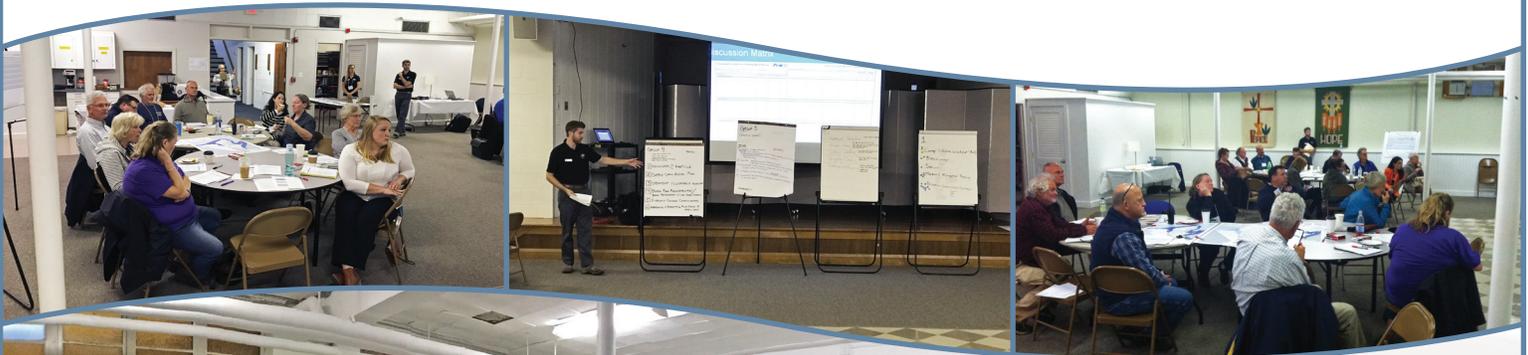
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# Summary of Findings Tisbury Municipal Vulnerability Preparedness Workshop

Tisbury, Massachusetts

October 17, 2018



Prepared for:  
**Town of Tisbury**  
Attn: John Grande, Town Administrator  
Town Hall  
51 Spring Street  
Vineyard Haven, MA 02568

Prepared by:  
**Horsley Witten Group, Inc.**

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# Tisbury Municipal Vulnerability Preparedness (MVP) Workshop

## *Summary of Findings*

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### **Acknowledgements:**

Funding to support the Tisbury Municipal Vulnerability Preparedness (MVP) workshop was provided by the Massachusetts Executive Office of Energy and Environmental Affairs through an MVP Planning Grant, issued to the Town of Tisbury during the fiscal year of July 2018 through June 2019. The Town of Tisbury contracted with the Horsley Witten Group, Inc. to provide MVP-certified staff to support the Town in planning and facilitating the workshop.

The core planning team would like to thank St. Augustine's Church for providing a workshop facility, the Town of Tisbury for providing refreshments and the Martha's Vineyard Commission for providing GIS layers to develop the base maps.

### **Suggested Citation:**

Town of Tisbury. 2018. *Tisbury Municipal Vulnerability Preparedness (MVP) Workshop Summary of Findings*. Prepared by the Horsley Witten Group, Inc., Sandwich, MA.



## Executive Summary

On October 17, 2018, the Town of Tisbury held a Municipal Vulnerabilities Preparedness (MVP) workshop. The goals of the workshop were to identify hazards Tisbury faces that are being exacerbated by climate change, and to prioritize actions the Town can take to prepare for identified hazards. This workshop, planned by a core team of organizers and the Horsley Witten Group, Inc., (HW) was a step towards MVP certification, which allows certified communities access to additional state grants for projects related to climate change resiliency. Thirty-six community members attended the workshop, representing a wide cross section of Town officials, response partners, and other interested parties.

During discussion, participants concluded that the most relevant climate change hazards to Tisbury were hurricanes and Nor'easters, coastal flooding and storm surge, sea level rise, and intense rain and flooding. Working in four small groups, participants listed features of Tisbury that may be impacted by climate change (vulnerabilities) or may help the community cope with climate-related hazards (strengths). The groups then recommended actions that could be taken to protect Tisbury's infrastructure, people and environment from the impacts of climate-related hazards. Following small and large group discussions, the workshop participants selected the following seven high priority action items, in no particular order:

1. Conduct a comprehensive supply chain vulnerability assessment.
2. Identify and initiate harbor improvements (e.g., breakwater extensions) to protect downtown areas and the harbor.
3. Identify and undertake roadway improvements that improve resiliency to coastal flooding, storm surge and sea level rise in locations including, but not limited to:
  - Water Street from 5 Corners to Union Street.
  - Beach Road from 5 Corners to the Bridge.
  - Lagoon Pond Road from 5 Corners to Hines Point.
4. Develop a comprehensive stormwater management plan for the community.
5. Review and update the Tisbury section of the Dukes County Hazard Mitigation Plan.
6. Increase community education and outreach with regards to climate change hazards, emergency preparedness and sheltering options.
7. Review Town regulations and identify changes that could mitigate future impacts of climate change.

These high priority action items will be incorporated into ongoing municipal planning efforts. High priority action items identified in this process are also eligible for future grant funding under the MVP Action Grants program administered by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). By undertaking the MVP workshop and preparing this report, the Town of Tisbury is also initiating its certification as an MVP Certified Community, which elevates the scoring profile for related project proposals to other state grant programs.

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Attachment A: Tisbury MVP Workshop Participants List

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Attachment C: Tisbury Base Maps

Attachment D: All Groups – Completed Risk Matrices

Attachment E: All Groups – Annotated Tisbury Base Maps

Attachment F: All Groups – Recommended Action Items

Attachment G: High Priority Action Items

## 1. Introduction

The Municipal Vulnerability Preparedness (MVP) program is a Massachusetts state program designed to increase municipality-level resilience to natural hazards being exacerbated by climate change. This program helps municipalities identify their vulnerabilities, strengths, and opportunities to take action to reduce risk and build resilience. MVP workshops use the Community Resilience Building (CRB) Framework, a system of discussion and note-taking developed by The Nature Conservancy and prescribed by the MVP Program. The Town of Tisbury (the Town) received a grant to participate in the MVP program in order to build on its prior resiliency planning efforts and develop a list of priority actions for the immediate future.



### **Workshop Planning and Core Team**

Following the award of the technical assistance grant, several Town officials and local committee members formed a core planning team. Team members included the following individuals, who were assisted by Will Keefer of the Horsley Witten Group, Inc. (HW), Tisbury's MVP Provider:

- Pam Bennett, Administrative Assistant to the Town Administrator and Board of Selectmen
- Christina Colarusso, Tisbury Wastewater Planning Committee/Department of Public Works (DPW) Advisory Board
- Cheryl Doble, Chair of Planning Board
- Jay Grande, Town Administrator
- Patricia Harris, Assistant to the Planning Board
- Gerard Hokanson, Tisbury Waterways, Inc.
- Alexandra Karl, Executive Assistant to the Town Administrator and Board of Selectmen
- Roger Moffat, Tisbury Waterways and Harbor Planning Committee
- Doug Reece, Tisbury Wastewater Planning Committee/Lagoon Pond Association
- John Schilling, Fire Chief

Team members met three times in September and October 2018, and communicated via email and telephone as needed. Responsibilities of the core team included:

- Confirming workshop logistics (e.g., date, location).
- Reviewing the workshop agenda.
- Providing reference material, context and background for the MVP effort.
- Reviewing maps and reference materials for use in workshop discussion groups.
- Identifying a group of representative stakeholders to invite to the workshop.
- Reaching out to invitees to encourage attendance.

The core team also participated in the workshop as discussion facilitators, note takers and stakeholders.

## Workshop Attendees and Materials

Tisbury's MVP workshop was held on October 17, 2018 at St. Augustine's Church, 56 Franklin Street, Vineyard Haven. A total of 58 stakeholders were invited to the workshop and 36 stakeholders attended. Participants represented a cross section of the Town's stakeholders and decision-makers, including representatives from the Red Cross, the local hospital, the Steamship Authority, non-profits, the Martha's Vineyard Museum, and a wide variety of municipal department staff and volunteers from local boards and commissions. **Attachment A** includes a full list of participants, including their organizational affiliation. On the day of the workshop, participants were provided with the following materials:

- Workshop agenda
- Overview Presentation PowerPoint slides with note taking space
- Summary of climate projections for the Martha's Vineyard Basin provided by EEA and prepared by the Northeast Climate Science Center
- Summary of Tisbury demographic data
- Handout summarizing Tisbury actions previously identified and recommended in the 2015 Dukes County Hazard Mitigation Plan
- Example vulnerabilities and strengths excerpted from the CRB guidance document

**Attachment B** provides a copy of the participant materials. Participants were also provided with Tisbury base maps showing critical infrastructure along with FEMA floodplain data, hurricane surge inundation data, and sea level rise inundation data (**Attachment C**).

## Workshop Overview

The Town Administrator, Jay Grande, provided opening remarks, welcomed everyone to the workshop and reiterated the important role that the invited stakeholders had in determining a way forward in the community with regards to preparing for future climate change. Following introductions and an overview of the MVP program and workshop agenda, participants listened to a presentation by MVP-certified facilitator Will Keefer, of HW, about climate change projections and their current and potential future impacts on Tisbury. Mr. Keefer shared the following central objectives of the workshop:

- Define top local natural and climate-related hazards of concern.
- Identify existing and future strengths and vulnerabilities.
- Develop prioritized actions for the Community.
- Identify immediate opportunities to collaboratively advance actions to increase resilience.



Additionally, the presentation highlighted specific challenges currently facing the Town in the light of climate change. Challenges discussed included weather events (e.g., Nor'easters, severe weather) that disrupt the flow of people and services to and from Martha's Vineyard. Participants stressed that Tisbury has the only year-round ferry stop (Vineyard Haven) and that even one or two days of missed

ferry service can negatively impact not just Tisbury, but the entire island. Following this introduction, HW led a large group conversation to confirm the four primary climate change hazards chosen by stakeholders through an online poll prior to the event. These were used to frame the rest of the workshop.

The next phase of the workshop was conducted in four small discussion groups. Groups were made up of an HW staff member as facilitator, a note taker from the community and nine community stakeholders. The small groups began their discussions by listing environmental, societal and infrastructural features that represent either a vulnerability or a strength of the community with regards to anticipated climate change hazards. The note taker in each group listed these items within the CRB Risk Matrix, a system for note taking developed as a part of the CRB Framework. Groups listed multiple features for each category, along with information about their location, ownership, and if the feature is a strength or vulnerability for the Town. **Attachment D** includes scanned copies of each groups risk matrices. When appropriate, the groups also marked these features on the base maps provided at each table (**Attachment E**).

Following a midday break, the small groups discussed action items for each feature. Action items could either be a way to protect a vulnerable feature from a negative impact, or a way to better utilize one of Tisbury's strengths. Common action items suggested by participants included: raising or protecting critical infrastructure, mitigating stormwater challenges and addressing supply chain vulnerabilities.



Each group then came to an agreement on five or six action items that they felt would most effectively address infrastructural, societal and environmental vulnerabilities in the Town or build on existing strengths (**Attachment F**). Then, a representative from each group reported out their recommended action items, along with a brief summary of their group's discussion. Following the presentation of each group's recommended action items, workshop participants, together along with the workshop facilitator, combined duplicative suggestions to create a final list of seven high priority action items that the Town of Tisbury should embark upon to increase the resilience of the community in the face of anticipated climate change hazards, in no particular order:

1. Conduct a comprehensive supply chain vulnerability assessment.
2. Identify and initiate harbor improvements (e.g., breakwater extensions) to protect downtown areas and the harbor.
3. Identify and undertake roadway improvements that improve resiliency to coastal flooding, storm surge and sea level rise in locations including, but not limited to:
  - Water Street from 5 Corners to Union Street.
  - Beach Road from 5 Corners to the Bridge.
  - Lagoon Pond Road from 5 Corners to Hines Point.
4. Develop a comprehensive stormwater management plan for the community.
5. Review and update the Tisbury section of the Dukes County Hazard Mitigation Plan.

6. Increase community education and outreach with regards to climate change hazards, emergency preparedness and sheltering options.
7. Review Town regulations and identify changes that could mitigate future impacts of climate change.

**Attachment G** provides a table of the seven recommended action items.

The results of each stage of the workshop are presented in the subsequent sections of this report and its attachments.

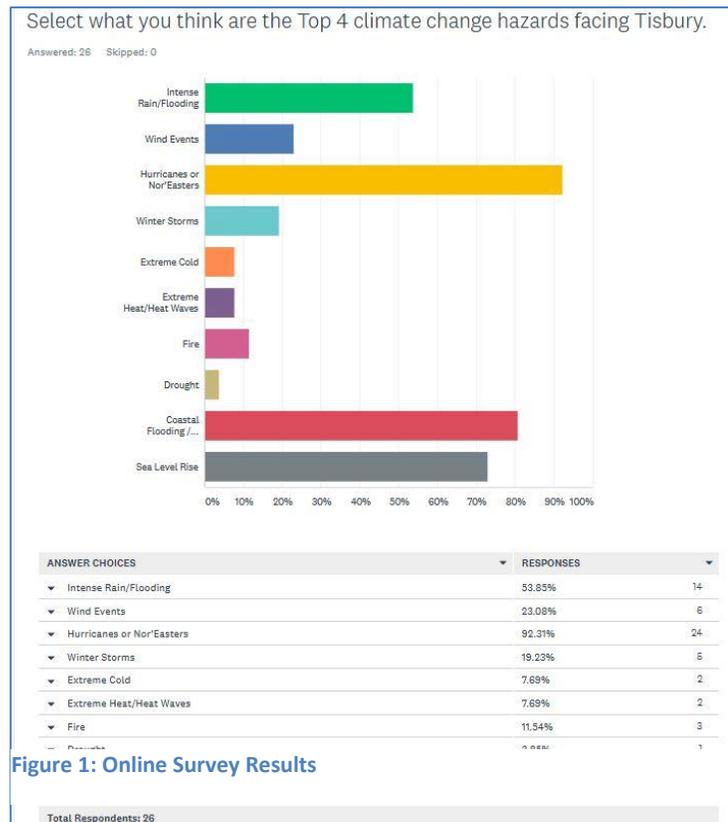
## 2. Top Climate Change Hazards of Concern

Prior to the October 17, 2018 workshop, the core planning team decided to provide an opportunity for stakeholders to choose the top four climate change hazards of concern through an online poll. This was done to build consensus prior to the workshop and to allow more time for small group discussion during the event. The following list presents the potential climate change hazards proposed to the stakeholder in the online poll:

- Intense rain/flooding
- Wind events
- Hurricanes or Nor’ Easters
- Winter storms
- Extreme cold
- Extreme heat/heat waves
- Fire
- Drought
- Coastal flooding/storm surge
- Sea level rise

Approximately half of the invited stakeholders answered the poll and based on the survey results (**Figure 1**), the participants chose the following climate change-related hazards as the most significant to Tisbury:

- Hurricanes or Nor’ Easters
- Coastal flooding/storm surge
- Sea level rise
- Intense rain/flooding



HW led a large group discussion to confirm the four climate change hazards prior to the start of the small group discussion. The participants were in agreement that the workshop should focus on these hazards, but felt that it would be important to discuss additional hazards (e.g., fire) in the small groups if they came up as well.

### 3. Current Concerns and Challenges Presented by Climate Change Hazards

Tisbury has experienced a number of climate- and weather-related challenges in recent years, and can expect to experience more severe events in the years to come due to climate change. For example, intense rain storms in 2017 and 2018 have caused street flooding that limits the ability for people to get around, especially in the waterfront area where a lot of community commercial property and gathering places (e.g., Post Office) are located. In fact, one week prior to the workshop the remnants of Hurricane Michael caused street flooding. In March 2018 there were four Nor'easters that led to coastal flooding, power outages and major travel disruptions. During the first Nor'easter from March 1 – 3, the Steamship Authority, which provides passenger and cargo ferry service from Woods Hole to Vineyard Haven, was shut down for two days. Even shutdowns of two days can cause major disruptions to not only life in Tisbury, but on the rest of the island as Tisbury is home to the only year round terminal on Martha's Vineyard. In addition, many roadways in the community have been flooded due to storm surge and surcharged stormwater drainage systems, or in some cases, both.

The biggest challenges, concerns and vulnerabilities for Tisbury that were raised in the small group discussions at the MVP workshop are noted in the CRB matrices in **Attachment D** and summarized below.

- *Coastal flooding due to storm surge:* During intense rain events and/or storm surge events flooding regularly occurs on the properties along the waterfront in the Steamship Authority-Five Corners-Beach Road area, and along Lagoon Pond Road. In addition, during high tides and/or storm surge events, stormwater drainage in this area can back up and cause flooding in the commercial district. Many key pieces of infrastructure are within this area and are at risk of failure due to flooding.
- *Inland flooding due to heavy rain:* The stormwater network can also back up during heavy rain events. Participants offered both structural and land use planning strategies that may be used to address these issues. Stakeholders identified the need for a comprehensive stormwater study to identify ways to increase retention time in higher areas, which would result in reduced flow to flood prone areas. Projects suggested included increasing green space, utilizing porous pavement, adding green infrastructure, as well as the redirection and diversion of water to bioretention systems in key areas to avoid flooding and pollution of harbor. Contaminated coastal waters can hinder the economic wellbeing of the Town, which depends on tourism from fishing, boating, swimming and recreating near the shore, as well as a developing shellfish industry.
- *Coastal erosion:* The coastline in the harbor area has experienced erosion over the past several decades, putting infrastructure and the commercial district at risk. Beach Road, which provides an important transportation route to and from the community, is particularly vulnerable to undercutting and overtopping and needs to be hardened. In addition, the Eastville breakwater is insufficient in length to adequately protect the harbor and Beach Road. Both hard (e.g., breakwaters, seawalls) and soft (e.g., beach nourishment) structural solutions have been suggested to address these issues.

- *High wind events:* Winter snow storms and wind events experienced in the early months of 2018 caused widespread power outages throughout the community, and drew significant attention to the risks to the power grid from future severe weather events. Most of Tisbury’s electrical wires are above ground.
- *Supply chain vulnerabilities:* The natural hazards described above can severely impact the Town’s supply chain and cause cascading impacts on the population. Most goods are brought to the island via ferry service and a significant portion of the skilled workforce - up to 2,000 people per day - rely on the ferry to come to island. Therefore it is important for the Town to strengthen its resiliency and self sufficiency in order to be able to withstand long term disruptions in goods and service delivery. The suggestions included strengthening the Town’s emergency preparedness, response, and recovery capabilities, which could be address through a combination of planning, community outreach, hazard mitigation planning and assessment of resources. In addition, the community would like to develop further fuel storage capacity.



#### 4. Current Strengths and Assets

A number of strengths were also identified among the infrastructural, societal and environmental assets of the Town. These strengths were noted on the CRB Risk Matrices (**Attachment D**) and include:

##### Infrastructural:

- Tisbury’s Vineyard Haven terminal is the only year-round port for the delivery of resources, including propane, fuel oil and gasoline to Martha’s Vineyard.
- The R.M. Packer Marine Terminal also receives regular petroleum deliveries for its customers.
- Eversource has been very responsive in past storms in restoring electrical service to the Town.
- Martha’s Vineyard Transit Authority provides regular bus service throughout the community.
- The Martha’s Vineyard Airport provides regular passenger services to the island.
- Generators are in place at the Steamship Authority and at other municipal buildings.
- The Town Hall, emergency services, evacuation centers, and the transfer station are all located at a higher elevation and are therefore at reduced risk of flooding.

##### Societal:

- The Town developed a “vulnerable population” list for emergency planning purposes.
- The solar array at the landfill provides alternative energy source to the community. It may be possible in the future to store the energy in batteries.
- The [Martha’s Vineyard Volunteer Emergency Service Organizations](#) provide emergency response capabilities along with citizen volunteers.
- The Town is a tight knight community where neighbors help neighbors.

Environmental:

- Veteran’s Park provides a natural capacity for flooding and water infiltration.
- West Chop barrier beaches and natural wetlands absorb coastal and stormwater flooding.
- The community is increasing island self sufficiency through food production, both agriculturally and hunting/fishing.
- Pristine sole source aquifer for drinking water.
- Barrier beaches provide natural protection from erosion and storm surge.

The identified strengths and assets are examples of features that should be protected and replicated throughout the community to protect against future impacts of climate change

## 5. Top Recommendations to Improve Resilience

Following the presentation of each group’s five to six recommended action items to address vulnerabilities and build on existing strengths (**Attachment F**), workshop participants, along with the workshop facilitator and combined duplicative suggestions to create a final list of seven high priority action items. These seven high priority action items are included in **Attachment G** and are listed below, in no particular order:



1. Conduct a comprehensive supply chain vulnerability assessment.
2. Identify and initiate harbor improvements (e.g., breakwater extensions) to protect downtown areas and the harbor.
3. Identify and undertake roadway improvements that improve resiliency to coastal flooding, storm surge and sea level rise in locations including, but not limited to:
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4. Develop a comprehensive stormwater management plan for the community.
5. Review and update the Tisbury section of the Dukes County Hazard Mitigation Plan.
6. Increase community education and outreach with regards to climate change hazards, emergency preparedness and sheltering options.
7. Review Town regulations and identify changes that could mitigate future impacts of climate change.

## 6. Conclusion and Next Steps

Tisbury held a formal public information and listening session at 7:00 PM on November 8, 2018 at the Tisbury Senior Center, 34 Pine Tree Road in Vineyard Haven. This session provided an opportunity for members of the public to learn, ask questions and provide feedback regarding the seven high priority action items that emerged from that October 17, 2018 MVP workshop. **Attachment H** provides a summary of discussion at the public listening session.

The Town also plans to coordinate with the other communities on Martha's Vineyard to identify common action items and to undertake island-wide planning.

High priority action items identified during the October 17, 2018 MVP workshop will be integrated into existing municipal planning efforts and the Town will also consider pursuing grant funding to implement the high priority action items identified through the MVP workshop process to continue to improve the Town's resilience to climate change.

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## **Attachment A: Tisbury MVP Workshop Participants**

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