LOOKING FORWARD

CLIMATE CHANGE
ADAPTATION CONTEXT

WEST TISBURY
Introduction

This document aims to share a baseline of information, based on existing published sources, to support resilience planning for West Tisbury and the Island of Martha’s Vineyard, by providing:

1) Up-to-date projections for changes that are expected by mid-century and the end of the century
2) Impacts of concern from these changes that West Tisbury residents have identified
3) Common impacts identified by multiple towns
4) Existing strengths and initiatives to support climate change adaptation
5) An inventory of relevant reports, policies, and initiatives most relevant to West Tisbury in supporting adaptation

The purpose of this document is to foster discussion about how the Martha’s Vineyard Commission (MVC) can support West Tisbury in these efforts and explore areas for Islandwide collaboration in the drafting of an Islandwide Climate Resilience Plan. We recognize there may be gaps in information, and we hope this document will help to illuminate data and information that needs to be updated.
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This section provides basic demographics, along with information related to infrastructure, land use, socio-economic factors, and natural resources, which can be used to support climate-change resilience planning in West Tisbury.

### Demographics

**Population Projection**

- **Total**
- **65+**

![Graph showing population projection from 2010 to 2040.]

*UMass Donahue Institute, 2015; updated in 2018*

### Infrastructure and Land Use

**Developed Land**

- Protected Open Space: 46%
- Potentially Available: 30%
- Fully Developed: 12%
- Available: 10%
- Wetlands: 2%

*MVC, 2020*

**Projected New Houses in 2060**

- Projected increase: 52%

*Dukes County Hazard Mitigation Plan, 2015; the MVC projected how many houses would be built by 2016 if current zoning is maintained and past rates of construction continue*

### Ethnic Diversity

- White: 95.2%
- Two or more races: 2.5%
- Other: 0.4%
- African American: 1.0%
- Asian: 0.8%

*American Community Survey, 2018*

### Buildings in 100-Year Floodplain

- Seasonal: 0
- Year-round: 14

*MVC, 2018; based on FEMA flood zones*

### Houses at Risk from Wildfire

- Lower risk: 40%
- Higher risk: 60%

*Dukes County Hazard Mitigation Plan, 2020 (draft)*
Environment

» Tisbury Great Pond (shared with Chilmark) and James Pond, along with beaches, dunes, marshes, wetlands, and inland ponds  
» West Tisbury includes the high points for 10 coastal pond watersheds, including in Tisbury, Oak Bluffs, and Edgartown  
» 46% of the land is conserved  
» DCPCs include the Dr. Fisher Road and Wild and Scenic North Shore districts, where all forms of development are subject to careful review by local boards and/or committees  
» The Greenlands Water Resource Protection District and Manuel F. Correllus State Forest are intended to protect drinking water resources  
» All homes rely on private wells

Socio-Economic Factors*

» 1,136 households  
» About 53% of the 2,411 housing units are vacant in the winter, reflecting a strongly seasonal economy; however the proportion is significantly less than Edgartown, Aquinnah, or Oak Bluffs  
» Median household income: $94,306 (second highest on the Island, after Chilmark)  
» 36% of the population in 2019 was over 65 (second highest after Chilmark)  
» 10% of students at the West Tisbury School speak a first language other than English; 22% are considered economically disadvantaged

Top Five Industries

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>400</td>
</tr>
<tr>
<td>Educational services, health care, and social assistance</td>
<td>300</td>
</tr>
<tr>
<td>Professional, scientific, management, administrative, and waste management services</td>
<td>200</td>
</tr>
<tr>
<td>Arts, entertainment, recreation, accommodation, food service</td>
<td>100</td>
</tr>
<tr>
<td>Public administration</td>
<td></td>
</tr>
</tbody>
</table>

Vulnerable or under-represented communities include:

- Immigrants and non-English speakers
- Low- and fixed-income residents
- Members of the African-American community
- Residents older than 65
- Disabled residents
- Residents who are isolated in some way

*Data from American Community Survey, 2018; town street lists, 2019; and MA Dept. of Elementary and Secondary Education, 2019
### HAZARDS AND IMPACTS

This section provides more localized projections for climate-change hazards, and highlights some of their impacts in the region.

<table>
<thead>
<tr>
<th>HAZARD*</th>
<th>LOCAL PROJECTIONS</th>
<th>LOCAL IMPACTS</th>
</tr>
</thead>
</table>
| **Rising Temperatures** | Annual average temperatures on Martha’s Vineyard are projected to increase by 2.4–5.2°F by 2050, and 3.0–9.1°F by 2100. | » Damage to crops and food plants; unpredictable growing seasons  
» Higher demand on water resources  
» Increased vector-borne disease  
» Heat stress, especially among elders  
» Increased risk of wildfire  
» Increased potential for invasive species |
|         | Annually, we expect to see 2–10 more days with maximum temperatures over 90°F by mid-century, and 4–31 more days by 2100. | |
|         | We expect 19–39 fewer days per year with minimum temperatures below 32°F by mid-century, and 23–63 fewer days by 2100. | |
| **Sea-Level Rise** | Sea-level projections vary according to the source and timescale. Sea levels on the Vineyard have risen about 6” since 1970, and are expected to rise another 6” by 2050; projections from the Woods Hole tide gauge show an increase of 1.5–6.5 feet by 2100 relative to mean sea level in 2000. | » More frequent flooding and nuisance tides  
» Increase in erosion of beaches and dunes when coupled with storm surge  
» Damage to coastal property and infrastructure  
» Potential for saltwater intrusion of coastal wells  
» Flooding and loss of salt marshes |
|         | By 2050, it’s projected we will see 35–135 “sunny-day coastal flooding days” per year, as opposed to 2020, which is expected to have no more than three to seven days. | |
| **Rising Sea Surface Temperatures and Ocean Acidification** | The average sea surface temperature in the Atlantic increased 0.74 °F between 1950 and 2009, and is expected to increase 1.8–5.4°F by 2100. | » Declines in pond water quality  
» Loss of habitat for key fisheries  
» Changes in fish migration patterns  
» Increased potential for invasive species  
» Impacts to shellfish life cycles and growth rates  
» Impacts to commercial and recreational fishing |
|         | Downscaled models project faster rates of warming in the Northeast continental shelf ecosystem compared to the global average. | |
|         | Ocean pH has decreased by approximately 0.1 units over 100 years and is expected to continue to become more acidic in the coming years. | |

Coastal resources are some of the most critical assets in protecting our communities from the impacts of climate change, and also some of the most threatened by climate change. A 2017 economic valuation of coastal resources done for Oak Bluffs is the only study of its kind completed on Martha’s Vineyard, but provides an indication of how valuable these resources are Island-wide. The report estimates that the public coastal resources of Oak Bluffs alone provide an annual value of $133 to $168 million in benefits from nature, including but not limited to commercial fishing and shellfishing, storm and flood protection, recreational activities, shoreline stabilization, habitat, and water quality. Assuming these services continue at present values until 2050, the report finds that the total value from 2016–2050 ranges from $4.5 to $5.7 billion.

Precipitation, air temperature, sea-level rise projections, and storm data are sourced from the MA Statewide and Sub-basin Climate Change Projections Guidebook, with sea-level rise projections also based on information in the MA Climate Clearinghouse, the Oak Bluffs Climate Change Vulnerability Assessment and Adaptation Plan, and NOAA Technical Report NOS CO-OPS 092. Storm event data is based on information in the MA Climate Clearinghouse.
### Extreme Storm Events

All of these changes can create more extreme weather events, including hurricanes, tropical storms, and nor'easters.

- Climate change is expected to result in more intense and frequent storm events on the Vineyard.
- Future hurricanes that form in the North Atlantic will produce more rain and may have higher wind speeds.
- Some evidence suggests that nor'easters are also increasing in both frequency and intensity.

### Changes in Precipitation

Rising temperatures and other shifting climate patterns will also change the amount, frequency, and timing of rainfall and snowfall.

- Total precipitation projections for Martha’s Vineyard show variability.
- The winter season is expected to see anywhere from 4% less to 14% more precipitation by mid-century, and 1% less to 24% more by the end of the century.
- Martha’s Vineyard basin could see a slight decrease, or an increase, in consecutive dry days throughout this century.
- Annual consecutive dry days during the summer season are expected to increase between by up to 4 days by the end of the century.

### Sea-Level Rise Projections

- **Scenarios:**
  - Highest
  - Intermediate-high
  - Intermediate-low

![Change in Degrees, 1997–2017](chart)

*National Oceanic and Atmospheric Administration*
# Top Climate Change Impacts

Climate change will impact the town’s infrastructure, environment, and socio-economic systems. This section highlights some of the impacts of highest concern identified in the West Tisbury/Chilmark Community Resilience Building Workshops in 2018. It also highlights Island-wide concerns.

## Buildings and Infrastructure
Low-lying infrastructure is particularly susceptible to adverse impacts of climate change, and increased intensity of natural disasters will push the limits of some infrastructure capacity. Planning for long-term projections will help reduce the potential for failures of these systems.

### WEST Tisbury
- Most infrastructure is located inland, so sea-level rise is less of a concern than wildfire and other hazards
- Vulnerable facilities at risk of wildfire include 900 homes; 39 commercial buildings; 16 municipal, public, or nonprofit buildings including the fire station; Mill Brook Bridge; 500 feet of transmission line; and parts of South and State roads
- A few hundred feet of Tiah’s Cove Rd. could be inundated during hurricanes
- High dependence on electricity for private well pumps; concerns about water access for fire fighting during power outages, and lack of water during droughts
- Concentrated stormwater can wash out key infrastructure, especially near low-lying roads, bridges, undersized culverts, and private dirt roads, severely impacting emergency access

### ISLANDWIDE
- Disruption of the supply chain, emergency services, and transportation from flooding and storm damage of major roadways
- Impacts to SSA service from storms and flooding
- Potential for prolonged power outages with lack of water and communication

## Natural Resources
Our natural systems (e.g. beaches, dunes, marshes) provide the first line of defense against climate change, and are the foundation for our economy and ways of life on the Vineyard. A healthy environment will be less affected by climate change and will recover faster when problems occur.

### WEST Tisbury
- Loss of marshes, dunes, and beaches from sea-level rise and storm events; reduces natural protection from climate change
- Impacts of stormwater runoff on natural systems, such as erosion and water quality reduction (including nutrient loading from septic systems)
- Impacts of sea-level rise, temperature changes, and severe weather on agricultural systems, including herring runs
- High wildfire risk from changing forest structure, including increased connectivity and fuel supply from dead wood

### ISLANDWIDE
- Erosion of beaches and dunes from sea-level rise and storm surge
- Flooding of marshes from sea-level rise
- Warming and nitrification of ponds from higher sea temperatures and runoff from heavy rain
- Loss of fishery habitat from higher sea temperatures
- Susceptibility to wildfire from droughts and higher air temperatures

## Socio-Economic Systems
Our socio-economic systems (e.g. health, food security, economy) will face increased stress from climate change. Planning for the impacts can reduce the extent of these stressors.

### WEST Tisbury
- Rural and isolated populations could be stranded if roads wash out from storms or disruptions to the electrical grid, resulting in a lack of power and/or water access
- Aging and/or disabled populations that are de-centralized and need home care could be stranded or without communication in emergencies
- General lack of forest management awareness to help homeowners minimize potential for wildfire and tick-borne disease

### ISLANDWIDE
- Stress on food security
- Impact on emergency services, and loss of access
- Stress on aging and isolated residents from heat and during natural hazards
- Consequences for tourism and the economy from storms, and loss of beaches, coastal homes, and tax revenue
- Increased vector-borne disease
- Reduced water security
STRENGTHS AND CURRENT EFFORTS

The Island and its six towns have many strengths that can help us reduce the negative effects of climate change. This section highlights some of those strengths, as identified during the towns’ Community Resilience Building Workshops in 2018–2020.

Aquinnah

» A Community Emergency Response Team (CERT) supplementing emergency services
» Menemsha Harbor is a refuge during storms
» A major substation upgrade in Chilmark will make the grid more resilient for customers in Aquinnah
» West Basin and Lobsterville provide an alternative access point in case of damage to Hariphs Creek Bridge
» Current health of coastal wetlands, fisheries, and wild food sustainability
» Wampanoag Tribe’s ongoing initiatives and access to dedicated funding for federally recognized tribes
» Restrictive zoning bylaws, including restrictive development in buffers of flood-prone zones, and various DCPCs in Aquinnah
» The Town and Tribe have multiple shelters and government resources designated for emergencies; the Tribe has a Health Clinic, Community Center (a designated Red Cross Shelter), and Administration Building; town resources include Aquinnah Town Hall and offices, and police and fire stations

Edgartown

» Responsive and committed town leadership (day-to-day and in emergencies)
» Public outreach and communication through the local TV station
» Emergency responders and town personnel have a strong commitment to the effective management and protection of the town and its residents
» Volunteerism and supportive social services provided by the Anchors (Edgartown Council on Aging)
» Edgartown’s tourism industry and the influx of summer visitors are vital to the Edgartown economy
» The Edgartown school is an emergency shelter and the generator has been upgraded
» Wells and water distribution systems have been rated at low risk for damage

Oak Bluffs

» Town barn and generator home to crucial town-owned infrastructure
» Town sewer system helps limit the concentration of nitrogen runoff
» Seasonal ferry docks bring supplies to and from the Island to all of Martha’s Vineyard
» Location of Martha’s Vineyard Hospital
» Vulnerable population plan includes a list of priority residents to contact during outages
» The Brazilian population is tight-knit and self-reliant, and churches are an important communication network
» Social-service organizations make critical social services available
» Proactive town climate adaptation planning
» Wastewater infrastructure in flood zone has been elevated

Islandwide

» Town buildings inland can act as emergency shelters: schools, libraries, town halls, MV Ice Arena, and the YMCA
» Vital amenities and services are located inland, such as fire stations and police stations
» Emergency responders, including volunteers and town personnel, are responsive and committed and have a good communication network
» Wetlands, salt marshes, dunes, and beaches act as an essential buffer, offering the first line of defense against storms and storm surge
» Sense of self-sufficiency
» The community is increasing Island self-sufficiency through food production, both agriculturally and hunting/fishing
» Pristine sole-source aquifer for drinking water
» The Martha’s Vineyard Airport provides regular passenger services to the Island
» Martha’s Vineyard Transit Authority provides regular bus service in all towns
» Generators are in place at the SSA and other municipal buildings
» A Community Emergency Response Team (CERT) supplementing emergency services
STRENGTHS AND CURRENT EFFORTS

» Town buildings inland can act as emergency shelters: schools, libraries, town halls, MV Ice Arena, and the YMCA are located inland, such as fire
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      » Culturally and hunting/fishing
      » pristine sole-source aquifer for drinking water
      » Martha’s Vineyard Airport provides regular passenger
      » Martha’s Vineyard Transit Authority provides regular bus
      » Generators are in place at the SSA and other municipal
      » The Vineyard Haven Terminal is a year-round port for
      » independent and self-sufficient nature of year-
        » Round Island residents accustomed to periods of
        » enforced isolation during winter storms, occasional
        » interruptions in supplies, and other challenges
        » Most residents are active participants in community
        » life and look out for one another
        » Vulnerable population plan includes a confidential
        » list of priority residents to contact in the event of an
        » emergency
        » Chilmark has a designated public water source with a
        » backup power supply, where residents can fill water
        » containers in emergencies
        » Active and engaged town climate committees

Adapted from the Community Resilience Building Workshop
Summaries of Findings for each town and West Tisbury/Chilmark
As with other Island communities around the world, West Tisbury and Martha’s Vineyard face significant challenges related to climate change. This section and the following pages highlight the existing groups, initiatives, and resources that can help us address these challenges in the years ahead.

*Island Climate Change Groups and Committees (and West Tisbury contacts)*

West Tisbury Energy Committee: Sue Hruby  
Vineyard Sustainable Energy Committee (VSEC): Sue Hruby  
West Tisbury Climate Advisory Committee: Kate Warner  
MVC Climate Resilience Committee: Kate Warner  
MVC Climate Action Task Force (CATF): Richard Andre, Bob Johnston, Marc Rosenbaum, Kate Warner  
Island Climate Action Network (ICAN): Susan Feller, Samantha Look, Hunter Moorman, Kate Warner  
Tribal planning: Durwood Vanderhoop, Beckie Finn

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**Existing Climate Change Resilience Initiatives in West Tisbury**

MA Clean Energy Center Grant to study how to make six town buildings more resilient to prolonged power failures

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**Climate Mitigation Efforts, Islandwide and in West Tisbury**

Development of Islandwide energy transformation / climate change mitigation plan (in progress)  
MVC Climate Action Task Force Working Papers on the electricity sector, transportation, buildings and HVAC, and efficiency  
MVC Climate Action Task Force partnership with Eversource on long-term infrastructure needs  
Proposal to install inductive charging station for VTA buses on Church Street  
Wampanoag Tribe marsh-elevation and air-quality monitoring  
Vineyard Power is pursuing various energy initiatives, including partnering with Vineyard Wind on its proposed wind farm south of the Island  
100% Renewable warrant article

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**Regional planning activity underway**

- Martha’s Vineyard Commission  
- Vineyard Sustainable Energy Committee  
- Island Climate Action Network and nonprofits  
- Vineyard Power

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- Climate Resilience Plan  
- Mitigation master plan  
- Energy baseline and working papers  
- MVC energy policy  
- Outreach and advocacy
Looking Forward

While there are many challenges ahead, climate change also presents a chance to look forward, plan to minimize negative impacts, and explore opportunities that benefit the community. To do this, the MVC is initiating a process to develop an Islandwide Climate Resilience Plan.

As a first step, the MVC completed an inventory of relevant policies, regulations, reports, grants and other material to support resilience planning on the Island. In addition, the MVC Climate Resilience Committee is carrying out a series of stakeholder listening sessions to identify climate impacts of concern, current efforts to address those impacts, and ways that further planning could help. This document presents a summary of these efforts so far, with information that is most relevant for West Tisbury. Similar materials have been developed for the other towns as well. These documents provide a quick reference to the extensive body of existing knowledge and efforts supporting climate change adaptation on the Island.

The next 18 months will focus on developing the Climate Resilience Plan through a series of community engagement opportunities that build on the existing information.

We want your input to shape this process:

» What additional resources, information, and support would help you with climate adaptation? (Climate change data, case studies, etc.)
» How do you see our Island towns working together on these issues?
» How do you think an Islandwide plan could help?
» Are there any specific issues you would like to see the resilience plan address?

MVC Contacts:

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(508) 338 7321

Alex Elvin
General Planner
elvin@mvcommission.org
(413) 884-3289

Lucy Morrison
Executive Assistant
morrison@mvcommission.org
(508) 338-7313
The following resources have been compiled and are available to support adaptation in West Tisbury and on the Island. These are the most directly relevant documents to West Tisbury but there are several other documents relevant to the Island and region available [here](#).

### TOWN RESOURCES

#### POLICIES AND REGULATIONS

<table>
<thead>
<tr>
<th>Title</th>
<th>Author/Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Districts of Critical Planning Concern (DCPCs)</td>
<td>MVC, 1975–2014</td>
<td>All forms of development within the DCPCs are subject to careful review by local boards and/or committees; includes Dr. Fisher Road (1976) and Wild and Scenic North Shore (2001) districts</td>
</tr>
<tr>
<td>Green Communities Act designation requirements</td>
<td>MA Dept. of Energy Resources, 2020</td>
<td>The Green Community Designation and Grant Program provides a road map and financial and technical support to municipalities that pledge to cut municipal energy use by 20 percent over 5 years and meet other criteria</td>
</tr>
<tr>
<td>List of designated scenic roads</td>
<td>Town of West Tisbury</td>
<td>List and description of scenic roads in town</td>
</tr>
<tr>
<td>West Tisbury Board of Health Bylaws</td>
<td>West Tisbury Board of Health</td>
<td>Bylaws regarding underground tanks, fuel storage, and solid waste</td>
</tr>
<tr>
<td>West Tisbury Board of Health Regulations</td>
<td>West Tisbury Board of Health, amended 2014</td>
<td>Bylaws regarding wells, disposal works, underground tanks, small wastewater facilities, and other topics</td>
</tr>
<tr>
<td>West Tisbury Capital Improvement Planning Committee Bylaws</td>
<td>Town of West Tisbury</td>
<td>Establish the Capital Improvement Planning Committee to study the need, impact, timing and cost of capital improvement projects and prepare an annual report recommending a Capital Improvement Budget</td>
</tr>
<tr>
<td>West Tisbury Historic District Bylaw</td>
<td>Town of West Tisbury, 1982</td>
<td>Promotes the educational, cultural, economic, and general welfare of the town through the preservation and protection of the distinctive characteristics of buildings and places of historical significance</td>
</tr>
<tr>
<td>West Tisbury Historic District Commission Design Guidelines</td>
<td>West Tisbury Historic District Commission</td>
<td>Guiding principles that the Historic Commission uses as a basis for its decisions, and that applicants may use in formulating design solutions</td>
</tr>
<tr>
<td>West Tisbury Historic District expansion map</td>
<td>MVC, 2020</td>
<td>Map of land uses in the West Tisbury Historic District</td>
</tr>
<tr>
<td>West Tisbury Roads Bylaw</td>
<td>Town of West Tisbury</td>
<td>Specifies the requirements for roads to be accepted as town property</td>
</tr>
<tr>
<td>West Tisbury Water Resources Protection Bylaw</td>
<td>Town of West Tisbury, 2019</td>
<td>Functions to protect the water quality and volume of water in the surface water bodies in West Tisbury by prohibiting the withdrawal of water for private or commercial use</td>
</tr>
<tr>
<td>West Tisbury Wetlands Protection Bylaw</td>
<td>Town of West Tisbury, 2004</td>
<td>General bylaws to control activities deemed to significantly affect wetlands</td>
</tr>
<tr>
<td>West Tisbury Wetlands Protection Bylaw Regulations</td>
<td>Town of West Tisbury, amended 2016</td>
<td>Regulations pertaining to coastal and inland wetlands; establishes definitions, criteria, design specifications, performance standards, and uniform procedures by which the Commission is to carry out its responsibilities</td>
</tr>
<tr>
<td>West Tisbury Zoning Bylaw</td>
<td>Town of West Tisbury, amended 2019</td>
<td>Bylaws to protect the town's rural and natural character, and provide year-round housing, opportunities for small businesses, and a healthy and scenic environment, in line with the town master plan; includes regulation of residential and light industrial districts, special overlay districts including DCPCs, site plan approval, the Greenlands Water Resource Protection District, and other provisions</td>
</tr>
<tr>
<td>Title</td>
<td>Author(s)</td>
<td>Description</td>
</tr>
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<tr>
<td>Hydrology of Tisbury Great Pond</td>
<td>Study of the hydrology of Tisbury Great Pond, by Kent Healy</td>
<td></td>
</tr>
<tr>
<td>Land Use Control Implementation Plan for Tisbury Great Pond Munitions Response Site</td>
<td>Army Corps of Engineers, 2019</td>
<td>Outlines land use controls to reduce risk to human health and the environment for the Tisbury Great Pond Munitions Response Area</td>
</tr>
<tr>
<td>List of West Tisbury CPA-funded projects, 2007–2020</td>
<td>Town of West Tisbury, 2020</td>
<td>A summary of approved CPA projects and their current status</td>
</tr>
<tr>
<td>Mass Estuaries Project: Lake Tashmoo</td>
<td>UMass Dartmouth and MA Dept. of Environmental Protection, 2015</td>
<td>Results from the Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Threshold for the Lake Tashmoo Estuary</td>
</tr>
<tr>
<td>Mass Estuaries Project: Tisbury Great Pond/Black Point Pond System</td>
<td>UMass Dartmouth and MA Dept. of Environmental Protection, 2013</td>
<td>Results from the Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Threshold for Tisbury Great Pond/Black Point Pond System</td>
</tr>
<tr>
<td>Mill Brook Watershed Study Report and Recommendations</td>
<td>Mill Brook Watershed Management Planning Committee, 2018</td>
<td>A comprehensive study of the Mill Brook Watershed; includes analysis of existing data and draft a report with recommendations to the Selectmen and for town meeting adoption</td>
</tr>
<tr>
<td>Mill Pond Baseline Assessment and Management Plan</td>
<td>Aquatic Control Technology, Inc., 2006</td>
<td>Documents current/baseline morphometric, water quality, and vegetation growth conditions, and evaluates potential near-term and long-range management strategies for the preservation of habitat diversity and passive recreational quality</td>
</tr>
<tr>
<td>Vulnerability Assessment for West Tisbury</td>
<td>MVC with emergency managers and planning teams of Dukes County, 2015</td>
<td>Matrices highlighting vulnerabilities to wildfire, flood, storm, and sea-level rise; projections estimate vulnerability at build-out</td>
</tr>
<tr>
<td>West Tisbury building density and sewered areas map</td>
<td>MVC, 2016</td>
<td>Map showing building density and sewered areas</td>
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<tr>
<td>West Tisbury building permits, 2009–2018</td>
<td>MVC, 2018</td>
<td>Table showing building permits issued by town 2009 to 2018 with breakdown by type</td>
</tr>
<tr>
<td>West Tisbury Capital Improvement Planning Committee Annual Report</td>
<td>West Tisbury Capital Improvement Planning Committee, 2020</td>
<td>Narrative and chart that outline the FY21 capital budget, as well as projections for the capital program through FY26</td>
</tr>
<tr>
<td>West Tisbury Community Development Plan</td>
<td>MVC, 2004</td>
<td>MVC report with information on open space, housing, economic development, and water resources</td>
</tr>
<tr>
<td>West Tisbury Community Preservation Plan</td>
<td>West Tisbury Community Preservation Committee (CPC), 2015</td>
<td>Provides a town profile in regard to open space, historic preservation, housing, and recreation; and a set of goals for the town to pursue; the goals are meant to help evaluate projects that come before the CPC</td>
</tr>
<tr>
<td>West Tisbury Comprehensive Emergency Management Plan</td>
<td>West Tisbury Capital Improvement Planning Committee</td>
<td>Provides a framework for the community to plan and perform emergency functions at the local, state or national levels</td>
</tr>
<tr>
<td>West Tisbury flood and hurricane surge maps</td>
<td>MVC, 2013–2016</td>
<td>Maps of 100- and 500-year floodplains, flood boundaries, hurricane surge inundation, and past hurricane tracks</td>
</tr>
<tr>
<td>West Tisbury Housing Production Plan</td>
<td>JM Goldson with RKG Associates, 2017</td>
<td>Establishes a strategic plan for producing affordable housing; provides a detailed analysis of development constraints due to infrastructure capacity, environmental factors, protected open space, and regulatory barriers</td>
</tr>
<tr>
<td>West Tisbury water and wellhead protection map</td>
<td>MVC, 2016</td>
<td>Map showing town water service and well head protection areas</td>
</tr>
<tr>
<td>West Tisbury/Chilmark Community Resilience Building (MVP) Workshop Summary of Findings</td>
<td>Dodson &amp; Flinker for MA Executive Office of Energy and Environmental Affairs, 2019</td>
<td>Identifies hazards for West Tisbury and Chilmark that are being exacerbated by climate change, and prioritizes actions for the towns; includes detailed maps and data</td>
</tr>
</tbody>
</table>
### Enabling Act of the Steamship Authority
- **Location**: Massachusetts, amended 2016
- **Content**: Empowers the Steamship Authority to acquire, maintain, and operate a boat line between Woods Hole, and Hyannis, and the Islands

### Districts of Critical Planning Concern (DCPCs)
- **Location**: MVC, 1975–2014
- **Content**: Islandwide DCPCs: Coastal (1975), Special Places (1976), Island Road (1975; last amended in 2019), Island Wind (2009), Lawn Fertilizer Control (2014); some districts also apply to specific towns or parts of the Island

### MVC Development of Regional Impact (DRI) Checklist
- **Location**: MVC, 2017
- **Content**: Standards and criteria for DRI referral, updated every two years

### MVC Development of Regional Impact (DRI) policies
- **Location**: MVC, 2006–2019

### Plans, Reports, and Other Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>A Meeting of Land and Sea</strong></td>
<td>David R. Foster, 2017</td>
</tr>
<tr>
<td><strong>ACE MV workforce needs presentation</strong></td>
<td>ACE MV, 2015</td>
</tr>
<tr>
<td><strong>Climate Vulnerability Assessment: Coastal Properties, Trustees of Reservations</strong></td>
<td>Woods Hole Group, 2017</td>
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<tr>
<td><strong>Community Resilience Building Workshop summaries</strong></td>
<td>MVC, 2020</td>
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<tr>
<td><strong>Dukes County Flood Insurance Study</strong></td>
<td>Federal Emergency Management Agency, 2010</td>
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<tr>
<td><strong>Eelgrass study and interim report</strong></td>
<td>Martha’s Vineyard Shellfish Group, 2019 and 2020</td>
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<tr>
<td><strong>Flood Risk Model (FRM)</strong></td>
<td>MassDOT/ Woods Hole Group/UMass Boston, 2020</td>
</tr>
<tr>
<td><strong>Hazard Mitigation Plan for Seven Towns in Dukes County</strong></td>
<td>MVC, 2015 (2020 update in progress)</td>
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<tr>
<td><strong>Inventory of Historic Buildings in Dukes County</strong></td>
<td>MVC, 2017</td>
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<tr>
<td><strong>Island Plan</strong></td>
<td>MVC, 2009</td>
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<tr>
<td><strong>Living shoreline presentation</strong></td>
<td>Martha’s Vineyard Shellfish Group, 2015</td>
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<tr>
<td><strong>Map of Chapter 61 Lands and Farmland Soils</strong></td>
<td>ArcGIS, 2020</td>
</tr>
<tr>
<td><strong>Map of Island topography and water features</strong></td>
<td>MVC, mid-1970s</td>
</tr>
<tr>
<td><strong>Martha’s Vineyard Regional Transportation Plan 2020–2040</strong></td>
<td>MVC and the MV Joint Transportation Committee, 2019</td>
</tr>
</tbody>
</table>
**Martha’s Vineyard Statistical Profile** | MVC, 2019 | Wide-ranging profile of the Vineyard in numbers; includes sections on demographics, land use, economy, health and education, housing and real estate, transportation, energy and environment (including weather and climate), and town services

**Martha’s Vineyard Tick-borne Illness Reduction Initiative** | Martha’s Vineyard Board of Health, ongoing | A program to reduce the number of ticks and incidence of tick-borne illnesses on the Island through education, advocacy, and cooperation with organizations and individuals

**Martha’s Vineyard Transportation Improvement Plan (TIP)** | MVC and the MV Joint Transportation Committee, 2019 | Features detailed 5-year budget for funded transportation projects; updated every year

**Municipal Vulnerability Preparedness (MVP) Program** | Various consultants on behalf of the towns | All Island towns are now part of the statewide MVP program, which provides technical and financial resources to support municipal resilience to climate change

**MV Land Bank Memorandum of Aspirations** | MV Land Bank, 2019 | Aspirations and ideas for Land Bank management team

**MVC Climate Crisis Resolution** | MVC, 2019 | MV Commissioners adopted a Climate Crisis Resolution agreeing to further consider climate impacts in their decision-making process, and draft both mitigation and adaptation master plans for the Island

**Pond and Water Quality Data Reports** | MVC, 2003–2008 | Results of a program to gather water quality information for Island coastal ponds, funded in part by MassDEP

**Population projections** | UMass Donahue Institute on behalf of the State, updated in 2017–2018 | Population projections through 2040, by sex and age group; for each town in Dukes County and the County as a whole; includes final report

**Presentation on SSA finances and operations** | MVC, 2020 | Overview of SSA enabling act, budgeting procedures, and operations

**Property values by town** | MVC, 2019 | Table of assessed building and land values for each town, with breakout for seasonal and year-round properties

**Shell Recovery Program proposal** | Martha’s Vineyard Shellfish Group, 2019 | Proposal for further developing the Island’s Shell Recovery Program

**Wetland elevation monitoring presentation** | MVC, 2016 | MVC Coastal Conference 2016 presentation on sea-level rise impacts on salt marshes

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## GRANTS AND STUDIES IN PROGRESS

- **Development of an ArcGIS StoryMap** | MVC, in progress | With funding through the Edey Foundation; shows climate change impacts on the Vineyard, with key areas of focus; based on the Sea Level Affecting Marshes Model (SLAMM)

- **Martha’s Vineyard Climate Resilience Plan** | MVC, in progress | Development of an Islandwide Climate Resilience Plan, with funding through the state MVP program; phase one of the project was funded in 2019; phase two funding will be announced in August 2020; anticipated completion of master plan document and website by June 2022

- **Islandwide storm tide pathway study** | MVC and Town of Oak Bluffs, in progress | With funding through the Office of Coastal Zone Management; looks at the actual areas where floodwater goes, as opposed to the general floodplain maps

- **MV-Nantucket Supply Chain Resilience Plan** | MVC and Nantucket, proposal pending | The MVC has partnered with the town of Nantucket in applying for an FY21 MVP Action Grant to develop a Supply Chain Resilience Plan for the two islands; funding announcement expected in August 2020

- **Woods Hole Research Center climate modeling** | Woods Hole Research Center, in progress | A climate change modeling pilot project for Dukes County that will provide detailed projections on a decadal time scale; results likely delivered in the fall of 2020
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<thead>
<tr>
<th><strong>Policies and Regulations</strong></th>
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<tbody>
<tr>
<td><strong>Applying the Massachusetts Coastal Wetlands Regulations</strong></td>
<td>State guidance to help conservation commissions evaluate projects proposed in coastal areas for their potential to impact the storm damage prevention and flood control interests of the Wetlands Protection Act.</td>
</tr>
<tr>
<td><strong>Community Preservation Act</strong></td>
<td>All towns in Dukes County have adopted the CPA, which allows them to collect a property surcharge of up to 3% and apply for matching funds from the state; CPA funds may be used for open space, housing, historic preservation, and recreation.</td>
</tr>
<tr>
<td><strong>Environmental Permitting in Massachusetts</strong></td>
<td>Guidance and overview related to environmental permitting in the state.</td>
</tr>
<tr>
<td><strong>FEMA Requirements and Technical Guidance</strong></td>
<td>Includes the National Flood Insurance Program policy index, and information related to Title 44: Emergency Management and Assistance.</td>
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<td><strong>Global Warming Solutions Act</strong></td>
<td>Set economy-wide greenhouse gas emission reduction goals for MA, including 25% reduction below 1990 levels by 2020, and 80% reduction by 2050.</td>
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<tr>
<td><strong>GreenDOT</strong></td>
<td>MA Dept. of Transportation's sustainability initiative.</td>
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<tr>
<td><strong>MA Building Code and Stretch Energy Code</strong></td>
<td>Consists of a series of international model codes and any state-specific amendments adopted by the Board of Building Regulation and Standards; includes Stretch Energy Code; administered by local building inspectors.</td>
</tr>
<tr>
<td><strong>MA Climate Clearinghouse</strong></td>
<td>Climate change data, information on community resiliency, and links to grant programs and technical assistance; catalogs vulnerabilities, risks and strategies concerning agriculture, forestry, local government, education, energy, recreation, and transportation.</td>
</tr>
<tr>
<td><strong>MA Coastal Program Policies</strong></td>
<td>MA Coastal Zone Management program policies; serve as the foundation for the MA Coastal Program as approved by NOAA's Office of Ocean and Coastal Resource Management.</td>
</tr>
<tr>
<td><strong>MA Flood Hazard Management Program</strong></td>
<td>Works with FEMA to implement the National Flood Insurance Program (NFIP) (technical assistance only, has no regulatory authority).</td>
</tr>
<tr>
<td><strong>MA Rural Policy Plan</strong></td>
<td>Intends to illustrate the unique attributes and challenges faced by rural communities, inform policy makers of existing best-practices and identify a series of recommendations for a new Office of Rural Policy.</td>
</tr>
<tr>
<td><strong>MA Title 5 (Septic System Regulations)</strong></td>
<td>The state environmental code, including standard requirements for the siting, construction, inspection, upgrade and expansion of on-site sewage treatment and disposal systems and transport and disposal of septage; administered by local boards of health.</td>
</tr>
<tr>
<td><strong>MA Waterways Regulations</strong></td>
<td>Regulations to protect the public’s right to access the state’s tidelands and waterways; and the kinds of activities that can take place on coastal and inland waterways.</td>
</tr>
<tr>
<td><strong>MA Wetlands Protection Act Regulations</strong></td>
<td>Procedures for conservation commissions and MassDEP to follow in issuing permits in areas protected under the WPA; administered by local Conservation Commissions.</td>
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<tr>
<td>Resource Title</td>
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<tr>
<td>Cape Cod Climate Initiative</td>
<td>Cape Cod Commission, ongoing</td>
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<tr>
<td>Guide to Invasives</td>
<td>The Trustees of Reservations, 2016</td>
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<tr>
<td>MA Bureau of Geographic Information (MassGIS)</td>
<td>Commonwealth of Massachusetts</td>
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<tr>
<td>MA Hurricane Resources for Emergency Managers</td>
<td>MA Emergency Management Agency</td>
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<tr>
<td>MA Integrated State Hazard Mitigation and Climate Adaptation Plan</td>
<td>Commonwealth of Massachusetts, 2018</td>
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<td>MA StormSmart Coasts Program</td>
<td>MA Office of Coastal Zone Management, ongoing</td>
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<tr>
<td>Massachusetts Coastal Infrastructure Inventory and Assessment Project</td>
<td>Bourne Consulting and Engineering, for MA Coastal Zone Management and Dept. of Conservation and Recreation, 2009</td>
</tr>
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<td>Massachusetts Coastal Zone map</td>
<td>MA Office of Coastal Zone Management, 2014</td>
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<tr>
<td>Massachusetts Cultural Resource Information System (MACRIS)</td>
<td>MA Secretary of the Commonwealth</td>
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<tr>
<td>Massachusetts Estuaries Project (MEP)</td>
<td>UMass Dartmouth and MA Dept. of Environmental Protection</td>
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<td>MassWildlife and Climate Adaptation</td>
<td>MA Dept. of Fish and Wildlife, ongoing</td>
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<td>Overview of Acidification in the Northeast Region</td>
<td>Northeast Coastal Acidification Network, ~2015</td>
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<td>Protecting Coastal Property from Major Storm Damage</td>
<td>MA Dept. of Environmental Protection, 2008</td>
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<td>StormSmart Coasts Factsheets</td>
<td>MA Office of Coastal Zone Management, 2009–2016</td>
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