



Climate Resiliency

1. **BACKGROUND:** The following provides a brief overview of climate related data and trends that can be particularly important for our coastal community. Links to websites and programs for more in-depth information are embedded throughout the text.

Data/Trends:

- Yarmouth has experienced more frequent and impactful storm events in recent years (2015 Blizzards, 2017 heavy rains, 2018 Nor'easters, and 2019 Tornado).
- Major natural hazards identified for Yarmouth include coastal flooding/erosion; inland flooding/high groundwater; extreme cold/winter storms; and heat/drought/fire.
- Areas of concern include our vulnerable populations (senior citizens, seasonal visitors, low income residents), impacts to ecosystems and natural resources, impacts to municipal infrastructure and budgets, coastal flooding and erosion, flooding of low lying inland roads and impacts to aging/failing culverts, critical facilities in hazard areas, high winds, tree damage, widespread power outages, and disruption to business activities.
- Average, minimum and maximum temperatures are expected to rise causing hotter, longer summers and warmer, shorter winters with more precipitation.
- In August 2020, Massachusetts Emergency Management Agency declared a Level 2 significant drought condition for Cape Cod due to above normal temperatures and below normal rainfall.
- Boston and Woods Hole have seen almost a foot of sea level rise (SLR) in the last century. SLR projections vary widely depending on the projection model, with Yarmouth potentially seeing 2'-5' of SLR in the next 50 years. Coastal homes, infrastructure and natural areas such as marshlands are vulnerable to SLR.
- Sea, Lake and Overland Surge from Hurricanes (SLOSH) maps are developed by the National Weather Service to estimate storm surge heights resulting from Category 1-4 Hurricanes. Along Cape Cod Bay, the large marshlands provide natural protection and storm surge mainly impacts undeveloped natural areas with fewer impacts to structures. However, storm surge along Nantucket Sound and our tidal rivers could have significant impacts to developed areas and major roadways. Almost the entire area south of Route 28 would be impacted by a Category 4 Hurricane, including Fire Station #1 and Town Hall.
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were updated in 2014 for Barnstable County and expanded the area and number of structures located in a Special Flood Hazard Area (SFHA) which are at higher risk of flooding. Currently about 27% of our Town is in a SFHA encompassing over 4,200 parcels with an assessed value over \$800 Million.
- Losses in vegetated areas have reduced natural removal of carbon dioxide from the atmosphere (carbon sequestration).

Studies and Reports: In addition to the links embedded in the text throughout this document, additional information can be found at:

- **Cape Cod Climate Initiative:** The Cape Cod Commission (CCC) has implemented the Cape Cod Climate Initiative as a community focused collaborative approach to address the region's contributions to and threats from climate change.



- **[Resilient Cape Cod](#)**: The CCC developed a tool and public outreach program to investigate the environmental and social-economic effects of local and regional coastal resiliency strategies. As part of their work, they developed the [Cape Cod Coastal Planner](#) which is a map based tool that helps to understand impacts associated with adaptation strategies to address sea level rise (SLR), storm surge and erosion.
- **[MA Sea Level Rise and Coastal Flooding Viewer](#)**: This CCC visual mapping tool illustrates how various levels of SLR can impact your neighborhood, as well as showing FEMA Coastal Flood Zones and Hurricane Surge (SLOSH).
- **[Regional Policy Plan](#)**: The 2018 Regional Policy Plan update includes an emphasis on climate change planning designed to reduce Cape Cod's vulnerability and improve resiliency.
- **[FEMA Flood Insurance Rate Maps \(FIRM\)](#)**: This website allows you to access the latest Special Flood Hazard Areas in your community and specifically for your address. Knowing your flood zone is important to know your risk and need or requirement for flood insurance.

2. EXISTING PROGRAMS/PROJECTS/INITIATIVES: Yarmouth has many different programs and initiatives that address climate and natural hazards in our community.

- **[Hazard Mitigation Plan \(HMP\)](#)**: The 2017 Yarmouth HMP detailed a plan to address natural disasters to minimize loss of life or injury, reduce damage to buildings and infrastructure, educate the public, and mitigate financial losses. The Plan includes 30 mitigation goals.
- **[Municipal Vulnerability Preparedness \(MVP\) Community](#)**: Yarmouth became an MVP community in 2019 to help prepare and protect the Town from local natural and climate-related hazards. The Town has already received a \$150,000 MVP grant focused on Energy Resiliency planning to support mission critical facilities during power outages. An [MVP Community Update](#) presentation was given on June 30, 2020.
- **[Green Community](#)**: Yarmouth became a Green Community in 2018 making us eligible for significant grants for energy conservation. The Town is committed to reducing energy consumption by 20% over five years. A grant paid for the recently installed electric car chargers at Town Hall and two electric cars are currently available for staff site visits.
- **[Energy Committee](#)**: The Energy Committee is very active in their mission to inspire energy sustainability and see Yarmouth powered by clean, affordable and secure energy. The Committee's [Annual Operating Plan](#) includes development of an energy usage baseline; outreach materials on energy efficiency, energy conservation, renewable energy, and electric and hybrid-electric vehicles; and public engagement. They also work to support the Board of Selectmen goals for sustainability and have a five year aspirational plan to reduce energy consumption, increase renewable energy and aim for adding more zero emission vehicles.
- **[Emergency Preparedness Webpage](#)**: This Town webpage provides a one-stop location for information on emergency shelters, hurricane preparedness, disaster planning guides, emergency traffic plan, evacuation zones and mapping for flood and storm surge zones.
- **[MA Building Code](#)**: In 2019, updates to the MA Building Code required lowest floor elevations for buildings in floodplains to be 1' above the Base Flood Elevation (BFE) shown on the FIRM maps, providing more flood protection.
- **[Alternative Modes of Transportation](#)**: Bike and pedestrian friendly roadways, sidewalks and shared use pathways help reduce vehicles trips and fossil fuel consumption. In addition to the completion of the first two phases of the Cape Cod Rail Trail (Peter Homer Park to the Bass River) with a third phase in design, the Town and the CCC completed a 2019 [Bicycle and Pedestrian Connectivity](#) study. This feasibility study ultimately recommended expanding bicycle accommodations along existing roadways, including Route 28.



- [State and local wetland protection regulations](#) protect wetlands and land subject to flooding (100-year floodplains) and the public interests they serve, including flood control, prevention of pollution and storm damage, and protection of public and private water supplies, groundwater supply, fisheries, land containing shellfish, and wildlife habitat. These public interests are protected and regulated through the Yarmouth Conservation Commission.
- **Prescribed Burn Plan:** Developed in 2008, the plan focuses on wild fire prevention and control, and land management on 35 acres of Town land. The primary goal of this controlled fire/mechanical land management program is to reduce wild fire fuel hazards, maintain and restore the northeast barrens habitat, and provide firefighter and wild land managers with special training in wildland fire fighting.

3. WHAT'S IN THE WORKS: In addition to the programs, projects and initiatives noted above, there are several potential climate related projects in the works:

- **Energy Park:** Town Staff have been working on the development of a Cape Cod Energy Park at the Septage Facility at 50 Workshop Road to look at solar, battery storage, and anaerobic digester to convert biosolids and food waste to energy. A Request for Proposal (RFP) has gone out for the lease of land for solar or other potential uses. The Town has a lease agreement in place to bring solar to the site to supply the Septage Facility with electricity.
- [Municipal Vulnerability Preparedness \(MVP\)](#): The Town applied for another MVP Grant for parking lot solar canopies at Fire Station #3 and a ground mounted solar array at the commercial transfer station with battery storage backup. This will create a resilient microgrid for the Septage Facility, Transfer Station, Fire Station #3 and the new DPW Building. Unfortunately this grant was not received, and staff are looking at other grant opportunities.
- **Green Community:** Yarmouth is moving forward with installation of electric car chargers at the Senior Center, Bayberry Golf Course, and the new DPW Facility.
- **Alternative Modes of Transportation:** Design is currently underway for a 10' wide shared use path along the east side of Higgins Crowell Road from Buck Island Road to the roundabout, with the Town recently awarded a \$150,000 MassTrails Grant for partial funding of the project. MassDOT is also considering improving bicycle accommodations for its planned work along Route 28 from the Barnstable Town Line to Parkers River. Shared use pathways have already been incorporated into the MassDOT preliminary designs for the Bass River Bridge and Four Corners projects along Route 28.
- **Wetland Regulations:** The Yarmouth Conservation Commission has prioritized amending the local wetland protection bylaw to reduce the exposure of existing and future development and infrastructure to coastal storm damages and climate impacts. This will be achieved by strengthening protection of coastal wetland resource areas and their associated buffer zones. Staffing and funding resources are being sought to meet this need.
- **Petitioned Article:** A citizens petitioned article will be on the 2020 Fall Town Meeting regarding the adoption of a general by-law that recognizes that there is a climate emergency and adopts a policy to reduce net greenhouse gas emissions to zero at the earliest feasible time and directs the Town to take the necessary actions to facilitate such a policy/objective.
- **Prescribed Burn Plan Expansion:** Evaluate additional large tracks of land near residential and commercial property that may benefit from wild fire fuel hazard reduction, and ecological management (maintenance and restoration) of northeast barrens habitat.
- **Coastal Structure Evaluation:** Evaluate the Town's coastal structures to determine if they are sustainable and able to continue to protect the town assets.
- **Investigate natural/green shore stabilization:** Investigate options for resilient shore line stabilization options for estuarine and fresh water shorelines that will be sustainable.



4. THINGS TO THINK ABOUT: Now that you have had an opportunity to learn a little bit about Climate Resiliency in Yarmouth, bring your thoughts and ideas to the Workshop or include them in your Survey responses. Some things to think about include:

- What strengths do we have regarding our Climate Resiliency?
- What challenges do you see related to Climate Resiliency?
- What opportunities could we tap into to address these challenges?
- Are there issues and influences holding us back?
- Is the Town spending its time and resources on the right projects or initiatives?
- If not, where should we be spending our time and resources?
- How does Climate Resiliency impact your vision for Yarmouth's future?

