TOWN OF WESTHAMPTON

Community Resilience Building Workshop Summary of Findings

Municipal Vulnerability Preparedness Planning Grant - FY21

Weston & Sampson℠

Catalyst for Regional Progress PVPC

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1.0 INTRODUCTION

The Town of Westhampton pursued the Massachusetts Executive Office of Energy and Environmental Affairs' (EEA) Municipal Vulnerability Preparedness (MVP) Planning Grant to engage the community in a conversation about preparing Westhampton to withstand future weather and climate change related hazards. In doing so, the community has identified projects that will not only build the Town's resilience to weather and climate change related hazards, but also to other major disruptions or shocks to day-to-day life. Resilience, for the purpose of this plan, strives to strengthen the community across all sectors, from economic diversity to robust social networks and communications, and beyond.

MVP Objectives in Westhampton

- Increase the resilience of the community
- Increase understanding of climate threats
- Identify priority actions to move forward
- Create implementation pathways

The MVP planning process expanded upon efforts from the 2017 Hazard Mitigation Plan (HMP), which fulfilled the grant eligibility requirements of the Federal Emergency Management Agency (FEMA). Westhampton's FEMA approved HMP contains additional information on historic natural hazard occurrences, the Town's current capabilities for mitigating hazards, and a vulnerability and risk assessment for non-weather-related natural hazards, like earthquakes. The 2017 HMP does incorporate climate change, however, it is not the focus of the document and is not a FEMA requirement. In contrast, EEA does require that the MVP Summary of Findings Report focus on climate change adaption and resiliency. By completing this report, Westhampton is now eligible for additional grant funding through the MVP program and will be more competitively scored in other state grants. At this time (2021), MVP Action Grants must be awarded to the Town, however, projects can take place on public or private property. The MVP Action Grant also requires a 25% match of cash or in-kinds services, which can also be provided through public or private sources.

1.1 Process and Timeline

The MVP planning process was informed by previous planning efforts and coordinated with ongoing initiatives and operations. Two priorities currently underway include an overhaul to the zoning code and upgrading the emergency operations center. The MVP planning process engaged municipal leaders, key stakeholders, and the general public through a series of meetings described in the following sections. The 2021 "Community Resilience Building Workshop Summary of Findings" Report reflects the results of this process.

The MVP planning process also updated the list of critical facilities included in the *Town of Westhampton Natural Hazards Mitigation Plan Update 2017* report[1] and developed a hazard map to inform discussions on strengths and vulnerabilities (please see Appendix B for the Community Lifelines and a Critical Facilities List and Map). According to FEMA a Community Lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security. Lifelines are the most fundamental services in the community that when stabilized, enable all other aspects of society to function.[2] Critical Facilities comprise all public and private facilities deemed

[1]Town of Westhampton. 2017. Natural Hazard Mitigation Plan Update. Prepared by Westhampton Hazard Mitigation Planning Committee and The Pioneer Valley Planning Commission.

[2] FEMA Community Lifelines (2021, February 24). FEMA. https://www.fema.gov/emergency-managers/practitioners/lifelines

by the Town to be essential for the delivery of vital services as well as the protection of special populations.[3] Critical Facilities include, but are not limited to, shelters, educational facilities, public safety operations, public works, utilities, and agricultural operations. Through the MVP process, Westhampton has identified its critical facilities and lifelines and developed strategies to provide resilience and protection for those necessary functions in the face of increasing hazard events.

Figure 1. MVP Planning Process

1.2 Core Team Meetings

The Town convened its first Core Team meeting, which included participants from a broad range of municipal departments and volunteer boards/commissions, on December 10th, 2020. The Core Team guided the planning process by reviewing and providing feedback on the materials that would later be used at the Community Resilience Building (CRB) Workshop. The Core Team provided input on prevalent natural hazards in Westhampton, key assets or features, as well as existing work the Town has undertaken to adapt to climate change impacts. The Core Team also developed the invitation list for the Community Resilience Building Workshop described below. Core Team members are listed in Section 7.1: CRB Workshop Participants.

1.3 Community Resilience Building Workshop

The objective of the Community Resilience Building Workshop was to capture ideas from a diverse set of perspectives and to build a broad coalition of stakeholders to move climate resilience forward in Westhampton. Municipal staff, Town boards and committees, local organizations, regional partners, state agencies and representatives, and adjacent towns were invited to participate in the CRB Workshop. Due to COVID-19 pandemic, the CRB Workshop could not be conducted in person. As a solution, a series of three 2-hour webinars were held on every Thursday from January 21st to February 4th, 2021. The webinars utilized the CRB Risk Matrix to facilitate discussion and record input. Each webinar focused on one of the three categories in the Risk Matrix: Infrastructure, Society, and Environment. Approximately 13-15 participants were able to join each webinar.

[3] FEMA. 2007. Risk Management Series: Design Guide for Improving Critical Facility Safety from Flooding and High Winds. https://www.fema.gove/sites/default/files/2020-08/fema543_design_guide_complete.pdf

The CRB Workshop's central objectives were to:

- Identify existing and future strengths and vulnerabilities.
- Develop prioritized actions for the community.
- Identify immediate opportunities to collaboratively advance actions to increase resilience.

The workshop participants' major area of concern was from precipitation and flooding. The need for infrastructure upgrades at critical facilities, undersized stormwater infrastructure, and protection of environmental assets from erosion and flooding were highlighted during discussions. Many workshop participants felt that Westhampton's greatest assets include the Town's overall communication network both internally among departments, and externally to residents. Participants highlighted the Town's two emergency warming centers and their extensive volunteer network that is able to respond and assist during emergency and hazard situations. Westhampton's infrastructure, including its new public safety building (opening Fall 2021), and environmental assets related to open space also contribute to the Town's ability to successfully navigate hazard events that include intense precipitation and flooding. The completed matrix is available in Appendix B: Community Resilience Building Workshop Materials. Additionally, a list of workshop participants is included in Section 7.1 of this report.

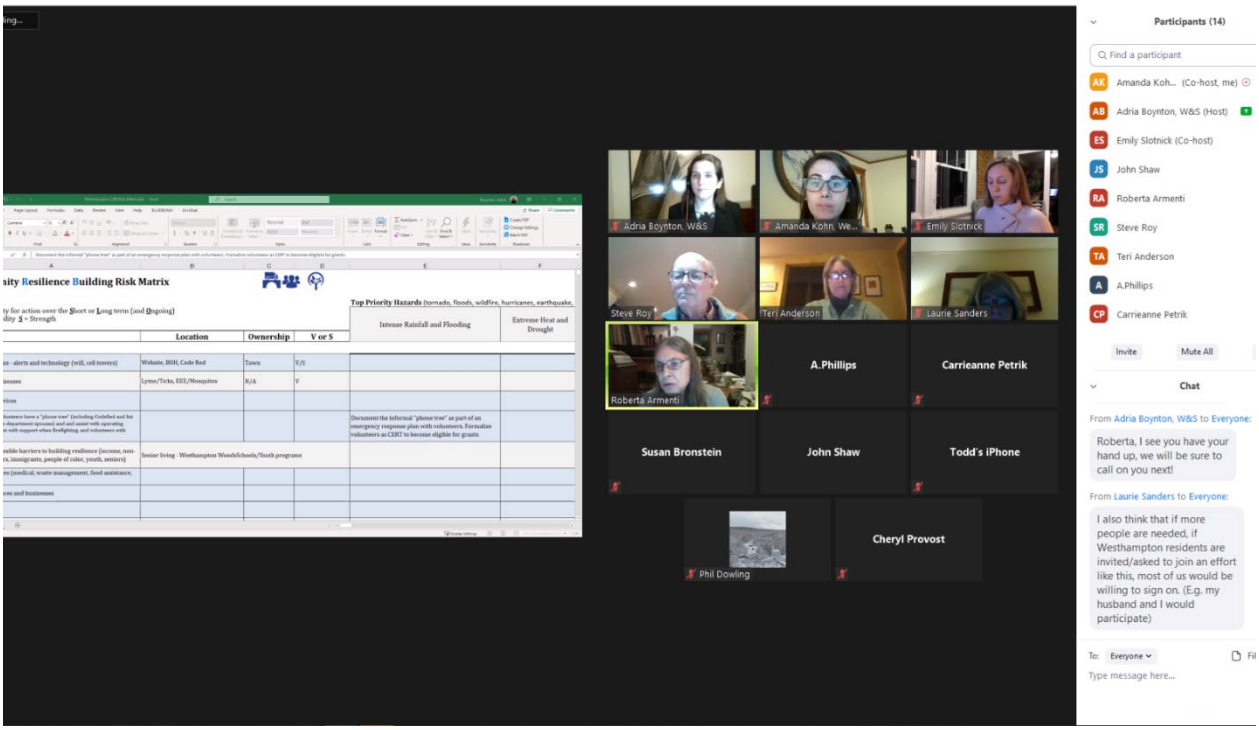


Figure 2. Community Resilience Building Zoom Meeting Screenshot

1.4 Listening Session and Public Comment

The Town convened a public listening session and three-week public comment period to receive feedback on the MVP Summary of Findings draft report. To promote the opportunities to provide input, an e-blast was sent to the CRB invitee list and through the Town's newsletter. A flyer and social media post were forwarded to the Core Team for posting. A hard copy of the flyer, comment form, and report were available at Town Hall and the Library. The Town and the Library also posted the opportunity on their webpages. Ultimately, over 20 participants attended the meeting on April 29th virtually through the Zoom platform and seven comments were submitted online. The meeting notes and a summary of the comments are available in Appendix C and are integrated throughout the report.

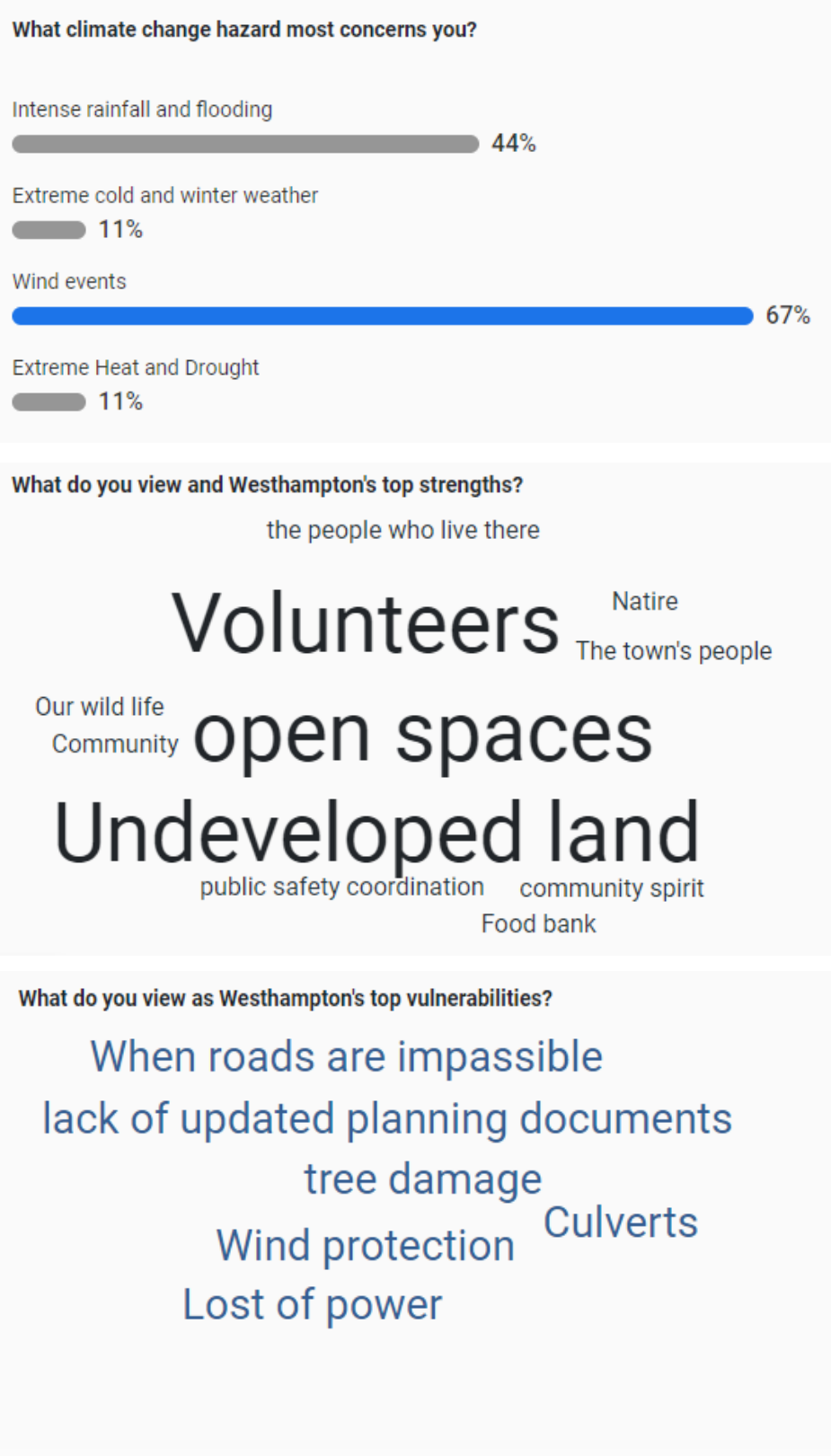


Figure 3. Polling Results from the Listening Session

2.0 INFRASTRUCTURE, CRITICAL FACILITIES, AND EMERGENCY COMMUNICATIONS

The Town of Westhampton operates and maintains the local stormwater and roadway systems. As identified in the Town's HMP[4], limited weight bridges and failing culverts are prominent concerns. The number of limited weight bridges has led to increased traffic on the single bridge leaving Westhampton, which is causing a faster rate of wear on the roadway. Westhampton also has many dirt roads that erode and cause sedimentation of streams and wetlands. These issues are anticipated to continue and to increase due to increased impacts related to climate change. Projected increases in intensity and frequency of rainfall events will likely exacerbate issues related to stormwater runoff. Public transportation in Westhampton is limited to an on-demand van transportation service, which is available through the Council on Aging and the Franklin Regional Transit Authority. The Town's evacuation routes are labeled in the Critical Facilities and Community Lifelines map in the Appendix.

Power outages are one of the biggest concerns in Westhampton during climate hazard events. The electricity in Town is provided by Eversource through several minor substations. Eversource regularly works with the Town on vegetation management to reduce the risk of trees or tree limbs falling on power lines during severe weather events. The Highway Department receives phone calls regarding hazardous trees and makes recommendations to the Tree Warden for removal based on calls received and individual assessments.

The Public Safety Complex (the designated Emergency Operation Center), Highway Department, Westhampton Woods (senior living facility), Westhampton Elementary School (warming and cooling center), and Hampshire Regional High School (regional shelter) all have emergency generators. The Town Hall hosts the servers to support communication for the central offices and does not have a backup generator. The Public Library serves as an information hub and informal shelter and does not have a generator. Neither of these locations (Town Hall, Public Library) currently have the necessary

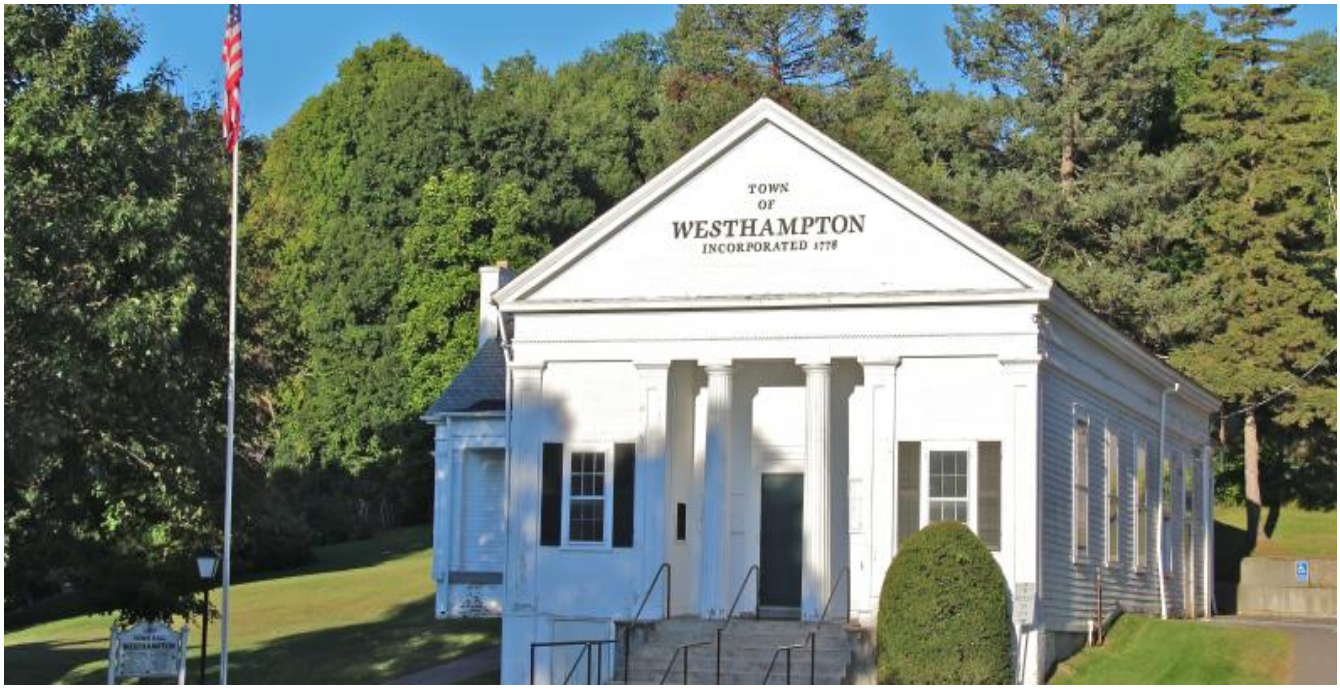


Figure 4. Westhampton Town Hall (Town Website)

[4]Town of Westhampton. 2017. Natural Hazards Mitigation Plan Update. Prepared by Westhampton Hazard Mitigation Planning Committee and The Pioneer Valley Planning Commission.

hardwiring for a portable generator to be hooked up. Generators provide could provide interim short-term power solution but may not be realistic for power outage events that may last several days.

Many homes also have solar installations for individual power generation. There are several larger ground mounted solar arrays throughout Town and the zoning bylaws include regulatory requirements for solar installations. The Town's bylaw committee is currently reviewing the Town's solar bylaw requirements and considering ways to address potential conflicts between conserving natural spaces and solar development. There is no designated natural gas provider or major pipelines within the Town. The Town is entirely serviced by private drinking water wells, limited public water supply wells, and septic systems. There are six public water supply wells (each serving over 25 people or 15 connections). Given this scenario, no public water supply backup source is available.

There are at least three dams located in Westhampton. All are privately owned and have different hazard classes as defined by the Office of Dam Safety (Table 1). Hazard class does not signify the condition of the dam, rather the potential amount of damage possible if the dam were to breach. All owners of High and Significant Hazard dams must complete an Emergency Action Plan and update it annually. The conditions of the dams themselves are not a concern, but the town-owned culvert downstream of the Pine Island Lake Dam under Reservoir Road is in disrepair.[5] The culvert under Reservoir Road has overtopped and failed previously and caused significant damage.

Table 1. Dams in Westhampton

Name	Hazard Class
Pine Island Lake Dam	High Hazard
Pine Island Lake Dike	Significant Hazard
Lyman Pond Dam	Low Hazard

The communication infrastructure and channels to send messages to residents is well managed through website alerts and messages, CodeRED through the Fire Department, and Board of Health alerts. The Town has one frequency radio receivers and a Town repeater on Mt. Tom. This has allowed the Town to have a mobile emergency operations center when needed. The Hampshire County Fire Department has a repeater on Mt. Holyoke in Skinner State Park. Comcast is the Town's TV provider. There are three cell towers located in Town.

2.1 Infrastructure Vulnerabilities

Workshop participants identified key infrastructural features in Westhampton that are most vulnerable to natural hazards and climate change impacts or may be so in the future. These features include:

- Undersized culverts that lead to washouts and flooding.
- Limited weighted bridges at risk of flooding and cause additional wear and tear on other roadways by forcing heavy truck access to a single roadway.
- Town Hall, a historic building, has experienced flooding previously. Drainage has been installed but should be monitored or evaluated for the protection provided under climate change.
- Outdated police and fire station.
- Flood risk and moisture in the old basement of the Library as precipitation events worsen.
- Shallow drinking water wells may be at risk during future droughts.
- Power outages and roadway closures due to downed lines from fallen trees, wind and ice.
- Lack of heat and water supply during power outages.
- Dirt road conditions during extreme storms and unpredictable freeze-thaw cycles.
- The Elementary School does not have any back-up power and would not have water if the power goes out.

[5] Interview. Bill Jablonski. Feb 2021.

- Culvert under Reservoir Road accepting water from the overtopping of Pine Island Lake Dam is failing and needs to be replaced.
- Lack of power backup at Mt. Tom police communication tower.

2.2 Infrastructure Strengths

Workshop participants identified key infrastructure features in Westhampton that provide strength against natural hazards and climate change impacts. These features include:

- Plans to build a new public safety building.
- Dam condition is not a concern and Emergency Action Plans for the Pine Island Dam and Pine Island Dike are shared with the Highway Department.
- Open communication between the Town and Eversource.
- Properties with deep drinking water wells.
- Communication network between emergency services.

3.0 COMMUNITY ASSETS

The Town of Westhampton is a thriving residential community with approximately 1,858 residents (see Table 2 for more information). When preparing for weather or climate change related hazards, special attention should be paid to protecting specific sub-populations or demographic groups that may have less adaptive capacity or ability to respond and quickly recover from hazard events. Vulnerable populations include residents at risk of isolation or who lack access to support services. This could include youth or seniors who are unable to drive to reach regional services or people with limited English-speaking abilities. Other barriers to building personal resilience, such as income, may also lead to increased vulnerability. When compared with the State, Westhampton has a similar percentage of residents over the age of 65 and a slightly lower percentage of children. Westhampton's residents are predominately white, which is significantly different than the state as a whole. Statistically, there are very few to no households with limited English-speaking ability. The median income ($88,313) is very similar when compared to the State, but the poverty rate is comparatively lower.

Table 2. Vulnerable Population Information

Demographic Information[6]	Westhampton	Massachusetts
Population 2010	1,585	6,547,790
Population 2019	1,858	6,892,503
Under 18 years old	17%	20%
Over 65 years old	18%	17%
Limited English-speaking households	0%	9%
People with a disability	10%	12%
Persons in poverty	3%	9%
Median household income	$88,313	$85,843
People who are White/Caucasian American	99%	77%
Black, Indigenous and People of Color (BIPOC)	1%	23%

Many social services are offered to Westhampton residents through regional services. For example, an emergency shelter and housing shelter is available in Northampton. There are several regional organizations that provide food assistance, and the Westhampton Congregational Church established a food pantry during the coronavirus pandemic. The Fire Department has several mutual aid agreements with surrounding communities for fire and ambulance services.

[6] US Census Bureau. 2010. Decennial Census.; US Census Bureau. 2015-2019. American Community Survey. 5-year estimates.

3.1 Social Vulnerabilities

Workshop participants discussed the impact of climate change to vulnerable populations and essential services, which included:

- Vector borne disease increasing with climate change, such as ticks causing Lyme disease.
- Ability to prepare, respond, and recover during a global pandemic.
- Need for more affordable housing for young families and seniors.
- Agricultural industry and other resource economies may be impacted by a changing climate.
- Conflicts and divisions have become apparent in social, political, racial viewpoints in recent years.
- There is no option for fire hydrants with the use of private wells.

3.2 Social Strengths

Workshop participants identified key societal aspects of Westhampton that provide strength against natural hazards and climate change impacts. These aspects include:

- Multiple communication networks out to residents through "What's Up in Westhampton, Town Website, CodeRed, Board of Health, Council on Aging Newsletter, Bell Tower articles, the Town website, and informal established community phone trees.
- Regional efforts have worked well.
- Town volunteers are the backbone of the community.
- Library has recently signed up to be a climate resilient hub.
- Town of Westhampton Council on Aging services.
- The Town has an emergency management plan in place.
- The Town uses large water tankers to supply fire fighters.

4.0 LAND USE, NATURAL RESOURCES, HISTORIC RESOURCES

Westhampton is a rural community with significant areas of undeveloped land. All of Westhampton is zoned as agricultural/residential. Residential development is primarily frontage lots along existing roads. A local committee is currently working on updating the zoning bylaws with an aim to update the bylaw to current best practices. According to MassAudubon, 91% of Westhampton is natural land, 6% is open space, and 3% is developed land.[7] The topography and zoning may deter future development in Westhampton, however, growing demand and costs in neighboring communities may make Westhampton more attractive to developers in the future.[8]

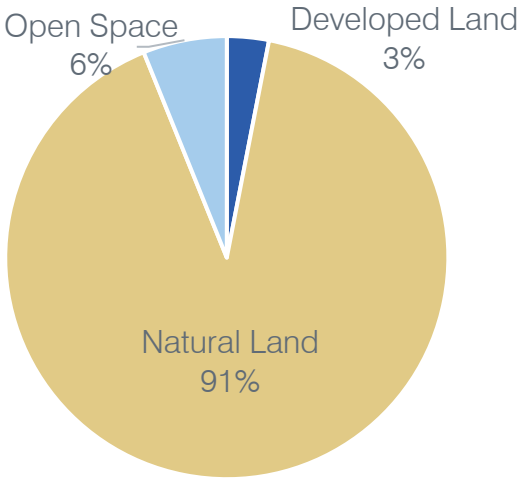


Figure 5. Westhampton Land Use

Westhampton's three major rivers are all within the larger Connecticut River watershed. A small portion of the Town drains to the Mill River, whereas the majority of the Town flows to the Manhan River. The northwest corner of Westhampton drains into the Dead Branch and eventuates into the Westfield River. There are also several cold and rocky perennial streams. Pine Island Lake is the only large pond greater than five acres in the Town. It is a privately held impoundment in the upper watershed of the North Branch of the Manhan River. Hanging Mountain Pond is a small natural pond near the intersection of North and Montague Roads. There are no other significant waterbodies identified in the 2017 Natural Hazards Mitigation Plan Update. The Westfield River, at the convergence of the Dead Branch and the East Branch, flows through 2,000 acres of Army Corps of Engineers flood control land.

The Town's economy has historically been, and continues to be, resource based focused primarily on activities related to mining (gravel/stone), forestry, and agriculture. There is interest in supporting the overall resilience of these industries and by helping property owners to minimize the potential runoff impacts to nearby waterbodies during storm events that could be a concern as rainfall increases in intensity and frequency. The anticipated effects of climate change on the maple syrup industry and local farmers are a concern. Historic landscapes and properties are found throughout Westhampton, including the Westhampton Blacksmith Shop Museum.

4.1 Environmental Vulnerabilities

Workshop participants identified key environmental features in Westhampton that are most vulnerable to natural hazards, weather, and climate change impacts. These features include:

- Potential flooding, erosion, and runoff of pollutants as a result of increased storm severity.
- Outdated Open Space and Recreation Plan and lack of a Master Plan.
- Invasive species present emerging risks to trees and other habitat.
- Beaver activity causes and exacerbates flooding.
- Weakening of trees from invasive species and drought.

[7] Mass Audubon. 2020. Losing Ground Report. https://www.massaudubon.org/our-conservation-work/advocacy/shaping-the-future-of-your-community/publications-community-resources/losing-ground
[8] Town of Westhampton. 2017. Natural Hazards Mitigation Plan Update. Prepared by Westhampton Hazard Mitigation Planning Committee and The Pioneer Valley Planning Commission.

4.2 Environmental Strengths

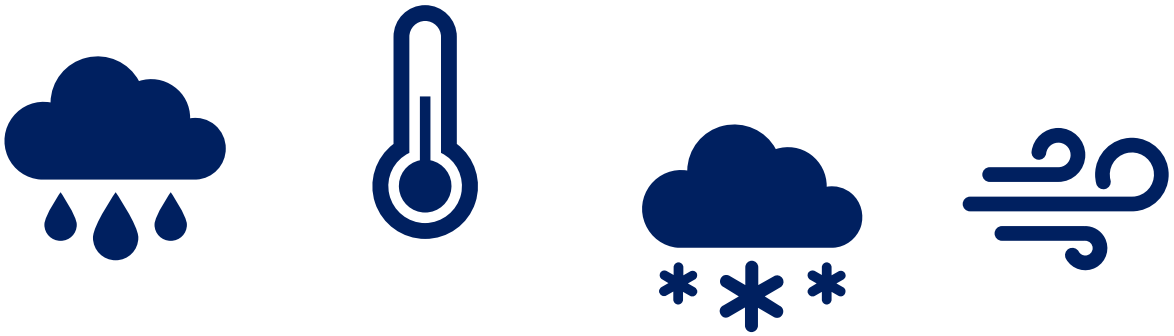
Workshop participants identified key environmental features in Westhampton that provide strength against natural hazards, weather, and climate change impacts. These features include:

- Abundant natural lands and open spaces.
- Rural character and historic sites.
- Wetlands and forestlands.
- Several solar energy arrays and an existing solar bylaw.

5.0 TOP HAZARDS

During the Core Team meeting, members discussed the Town's greatest threats under severe weather and climate change conditions. The hazards initially introduced to initiate the conversation included intense precipitation and flooding, extreme temperatures, snow and blizzards, wind-related hazards including hurricanes and Nor'easters, drought, and fires. During the meeting, the Core Team narrowed down these extreme events to four top hazards, which were confirmed during the CRB Workshop and used to focus the conversation.

The CRB Workshop focused on four main climate hazards: intense rainfall and flooding, extreme heat and drought, extreme cold and winter weather, and wind-related hazards (including nor'easters, tornadoes, and severe thunderstorms). These hazards are discussed in more detail in the following sections.



Intense Rainfall and Flooding | Extreme Heat and Drought | Extreme Cold and Winter Weather | Wind-Related Hazards

5.1 Intense Rainfall and Flooding

Across the northeast, precipitation during heavy events increased by more than 70% between 1958-2010.[9] This change in precipitation patterns can lead to increased riverine and stormwater flooding causing property damage, road closures, and damage to ecosystems. Intense rainfall events, and as a result flooding, are expected to increase in frequency and volume. Climate change projections suggest there will be an 8% increase in extreme precipitation events by midcentury, and a 13% increase by 2100.[10] The Town can prepare for these precipitation trends by incorporating climate change considerations into regulatory policy and the design of public infrastructure, which often have a lengthy design life and can be difficult to retrofit.

[9] Massachusetts Executive Office of Energy & Environmental Affairs (EOEEA), "Climate Change Clearinghouse for the Commonwealth," Resilient MA, 2019, resilientma.org/.
[10] Massachusetts Executive Office of Energy & Environmental Affairs and Adaptation Advisory Committee, "Massachusetts Climate Change Adaptation Report," September 2011. P19

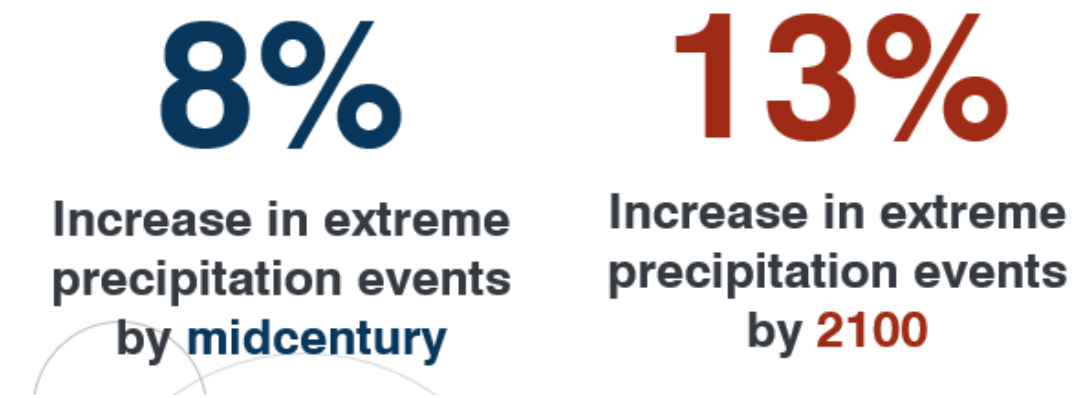


Figure 6. Future Precipitation Trends in Massachusetts

Stormwater flooding due to poor drainage, and undersized infrastructure is a growing concern. Westhampton's 2017 *Natural Hazards Mitigation Plan* identified known areas that are susceptible to flooding including Stage Road and Easthampton Road, Northwest Road at beaver pond, Chesterfield Road to the Chesterfield Town line, South Road at crossing with Rice Brook, and Stage Road east of Southampton Road. Additionally, high priority areas identified during the CRB include Northwest Road and Kings Highway, Laurel Hill Road, and Perry Hill Road. The Core Team also noted that beaver activity is creating further flooding issues in some areas.[11] A map of the flood areas is available in Appendix B. The Town has retained the services of Integrated Wildlife Control to address such problems when needed and efforts have been successful in several areas in reducing beaver impacts.[12]

5.2 Extreme Heat and Drought

Since 1970, annual air temperatures in the Northeast have been warming at an average rate of 0.5°F per decade, while winter temperatures have been warming at an average rate of 1.3°F per decade.[13]. Currently in the Connecticut River basin in MA, there are 6 days on average where the temperature is above 90 °F, and this is expected to rise to 30 days annually by mid-century and 45 days annually by the end of the century.[14] During the winter, there are currently 161 days with temperatures below 32 °F, which is expected to decrease to 130 days by the midcentury and 118 by end of century. [15] Extreme temperatures in Westhampton will likely impact agricultural activity in the future as climate change effects growing seasons. As a significant component of the Town's economy and identity, agricultural resilience is a high priority. Fewer deep freeze days can also provide more opportunity for invasive species growth and a reduction in the die-off of native species like ticks that can be pathogen vectors.

[11] Workshop Attendees, Community Resilience Building Workshop: Westhampton, Massachusetts
[12] Town of Westhampton. 2017. Natural Hazards Mitigation Plan Update. Prepared by Westhampton Hazard Mitigation Planning Committee and The Pioneer Valley Planning Commission.
[13] Massachusetts Executive Office of Energy & Environmental Affairs (EOEEA), "Climate Change Clearinghouse for the Commonwealth," Resilient MA, 2019, resilientma.org/.
[14] Massachusetts Executive Office of Energy & Environmental Affairs (EOEEA), "Climate Change Clearinghouse for the Commonwealth," Resilient MA, 2019, resilientma.org/.
[15] Massachusetts Executive Office of Energy & Environmental Affairs. 2019. "ResilientMA Datagrapher." Massachusetts Climate Change Clearinghouse. Resilientma.org/datagrapher/?c=Temp/state/tx90/ANN/MA/

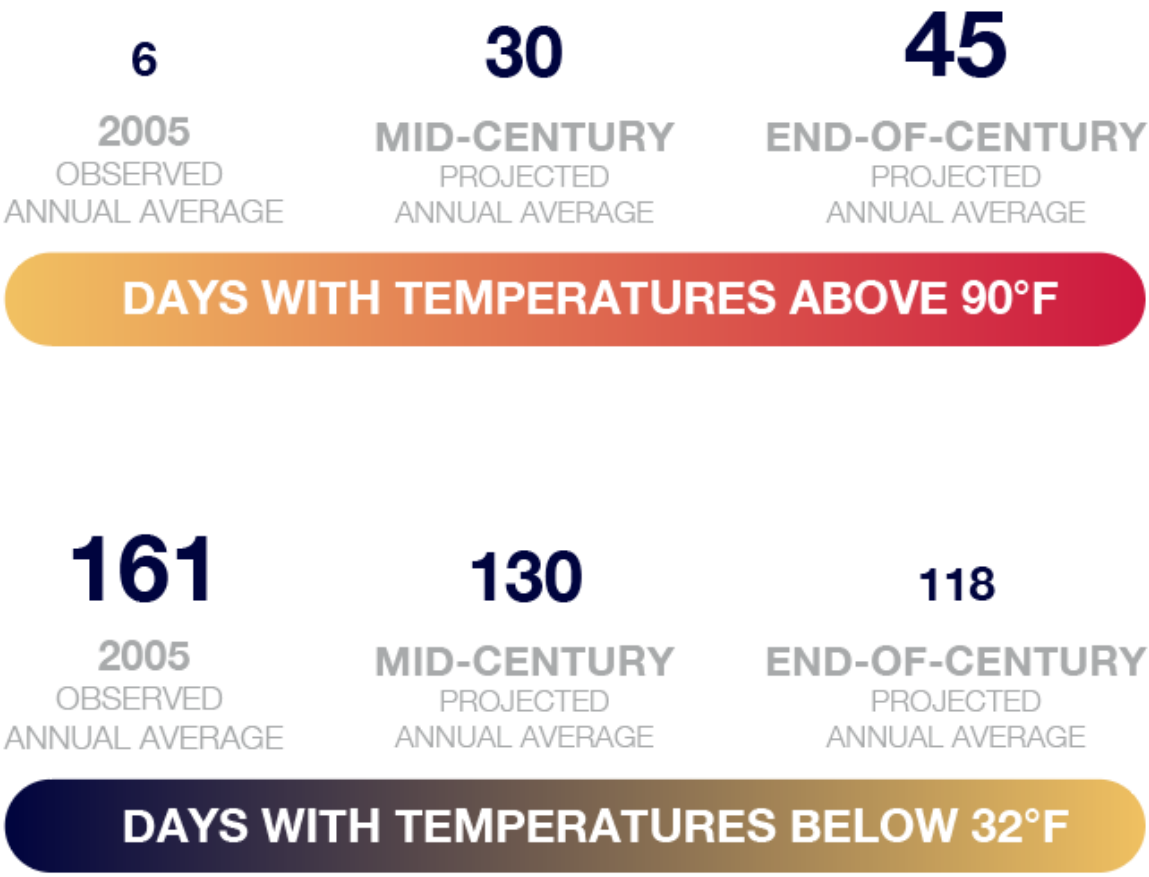


*Figure 7. Days Over 90˚ **Fahrenheit in Connecticut River Basin in Massachusetts***

Episodic droughts, or droughts lasting one to three months, are predicted to occur more frequently in the late summer and early fall as a result of climate change. Under a high emissions scenario, episodic drought frequency could increase as much as 75%.[16] Droughts can negatively impact natural resources and have social and economic consequences. For example, loss of crops, root systems can weaken, ponds, vernal pools and wetlands can dry up, and low water flows can disturb aquatic habitat and harm wildlife. Properties with shallow drinking water wells have also needed to conserve during the droughts of 2016. Droughts also increase wildfire and brushfire vulnerability. Figure 7 shows how these impacts could cause a shift in how we experience seasons. The western side of Westhampton is at a greater risk of wildfire due to the large protected forested tracts, but there have been no significant wildfires to date. Approximately, six to ten brushfires occur annually in Westhampton.[17]

[16] Massachusetts Executive Office of Energy and Environmental Affairs. 2011. Massachusetts Climate Adaptation Report. Ch. 2. https://www.mass.gov/files/documents/2017/11/29/ch%202.pdf

[17] Town of Westhampton. 2017. Natural Hazards Mitigation Plan Update. Prepared by Westhampton Hazard Mitigation Planning Committee and The Pioneer Valley Planning Commission.

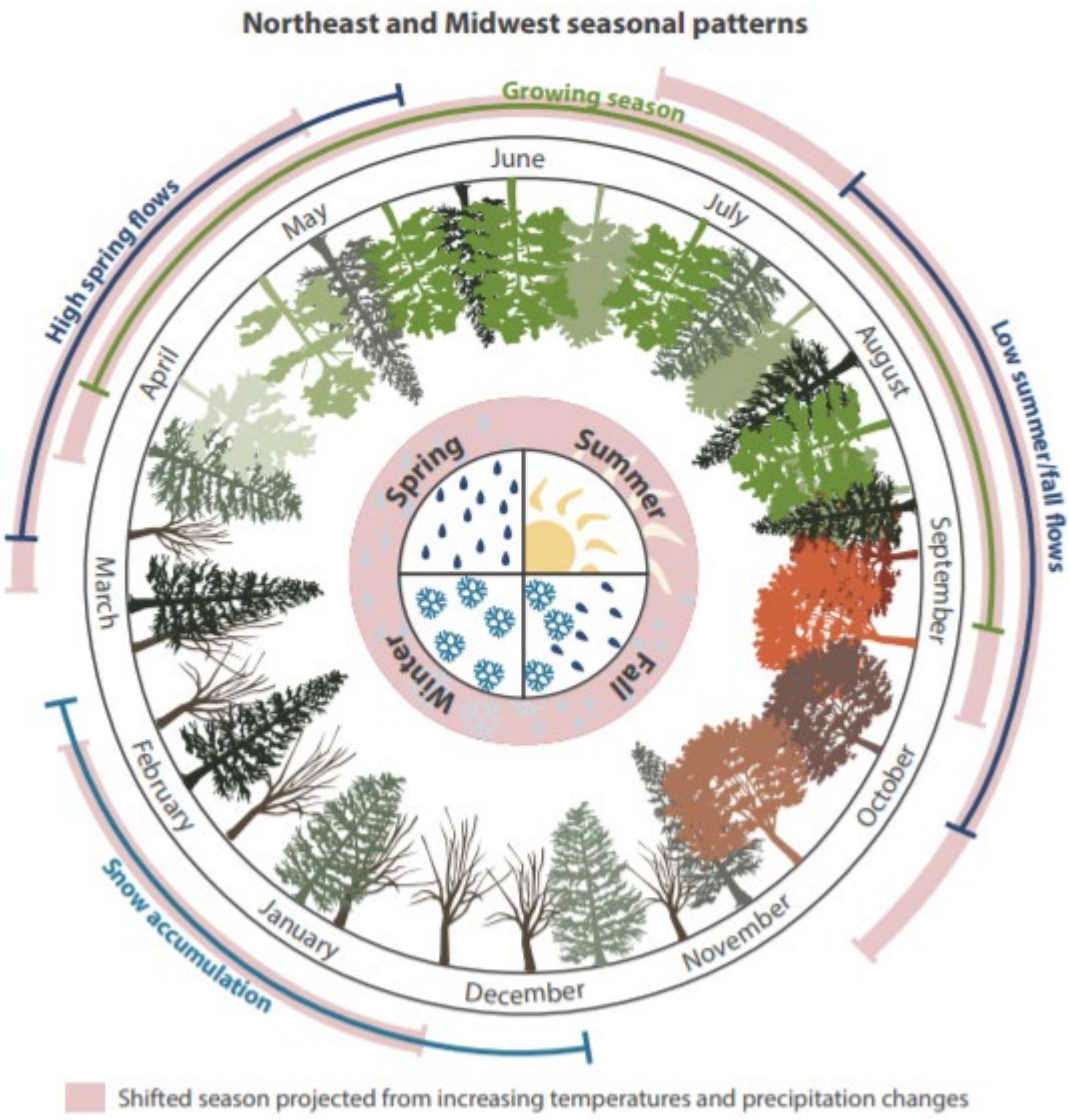


Figure 8. Seasonal Shift in Rainfall Patterns (Northeast Climate Science Center, University of Maryland)

5.3 Extreme Cold and Winter Weather

With the number of days that fall below 32°F decreasing, annual snow fall is also predicted to decrease. However, climate predictions also expect extreme snow events to become increasingly intense and produce heavier snowfall in the short-term. In the long-term, depending upon emission scenarios, winters in New England may have very little snow fall. Ice storms and repeated freeze-thaw cycles in one season are of growing concern. Ice storms can down trees, which can damage homes and infrastructure. Repeated freeze-thaw cycle disrupts natural cycles (spring buds) and deteriorate infrastructure exposed to the elements, such as roadways. Increased roadway treatment may impact water quality in the future but is not a current concern. The Town is investigating alternative methods for roadway treatment and coordinates this effort with information from the Massachusetts Department of Environmental Protection. Snowstorms and blizzards also have the potential to block transportation corridors in Westhampton, isolating residents from essential services. Power outages during winter months poses additional concerns when residents and businesses rely on electricity for heat.

5.4 Wind-Related Hazards

Wind-related hazards include hurricanes and Nor'easters, both of which have the potential to impact Westhampton even though their immediate tracks may not pass directly through the Town. North Atlantic hurricane activity has been on an upward trend since 1970.[18] Nor'easters are characterized by large counterclockwise wind circulation around a low-pressure center that often results in heavy snow, high winds, and rain along the East Coast of North America. Nor'easters can have significant impacts and are currently the most frequently occurring natural hazard in Massachusetts, generally occurring on an annual basis, some years bringing up to four nor'easter events. Flood impacts are often precipitated by Nor'easters, and blizzards can also be categorized as Nor'easters. High winds from these events can lead to fallen trees and downed power lines in Westhampton, cutting off power to residents and critical facilities that do not have backup power. Downed trees can also block roadways, potentially impacting evacuation routes and increasing emergency management personnel response times to certain areas.

[18] U.S. Global Change Research Program (USGCRP). 2018. Climate Science Special Report, Fourth National Climate Assessment (NCA4).

6.0 TOP RECOMMENDATIONS TO IMPROVE RESILIENCE

After discussing impacts of the Town's top hazards and listing vulnerability and strengths, workshop participants brainstormed possible actions to address climate change impacts. Participants were given the option to rank action items as a low, medium, or high priority. In some cases, the actions were prioritized as moderate because they are ongoing processes that the Town is already working on. In other cases, the prioritization was informed by cost, technical requirements, political feasibility, and community benefit. A summary of findings is included below.

6.1 High Priorities

- Electric Grid
  - Investigate a microgrid system or renewable backup energy in the Town center to include Town Hall, the Library, Elementary School, Fire Department, and Hampshire Regional School.
  - Investigate the installation of solar and battery backup at the transfer station.
  - Utilize Eversource as a partner for technical advice and consulting on battery backup systems and energy savings at cooling centers.
  - Educate residents about vegetation management related to climate change and implement a volunteer program that can train individuals to participate in tree trimming and other vegetation maintenance and management .
  - Develop a municipal planting guide in alignment with Conservation Commission, Town Forester, and Pollinator Committee recommendations to promote species diversity and identify species to be planted near power lines to reduce power outages from downed limbs.

- Roadways
  - Update limited weighted bridges and where necessary elevate bridge to reduce risk of flooding. Limited weighted bridge locations are available on the critical facilities map in Appendix B.
  - Work with Massachusetts Department of Transportation on elevating the bridge on Route 66 near South Road as necessary to reduce future flood impacts
  - Consider purchasing new equipment to pre-wet roads with a salt-mixture to reduce salting during a storm.

- Stormwater System
  - Update culverts (including Northwest Road and Kings Highway, Perry Hill Road, Chesterfield Road, Laurel Hill Road, Reservoir Road) using climate projections, and include co-benefits such as wildlife habitat and passage. Culvert locations are available on the critical facilities map in Appendix B.
  - Maintain list of undersized culverts and carefully document all related issues.

- Water Supply
  - Evaluate the Town's groundwater protection bylaw and update as needed.

- Municipal Operations
  - Complete the new public safety complex and evaluate options for the current complex.
  - Investigate flood protection of Town Hall under climate conditions considering recent upgrades were for current rainfall frequencies.
  - Investigate moisture protection needs for the Library.

- Move records stored in the Town Hall and Library basements into a different storage area and/or upload the records to an electronic system.
- Relocate the heating system from the Town Hall basement to another floor.
- Install more air conditioning units at Elementary School.
- Investigate options for regular and emergency regional transit services.

- Emergency Communications
  - Develop list of the communication services provided (CodeRED and other alerts) and educate residents about communication services. Provide comprehensive list to new residents. Destigmatize using town services and shelters. Ensure some form of communication is available in hard copy and does not rely on the electric grid or Wi-Fi. Relay more information on power outage extent and other information in-real time.
  - Centralize volunteer efforts through the Fire Department so that services can support one another and not duplicate efforts. Explore interest in starting a Community Emergency Response Team (CERT).
  - Identify options for redundancies in the communication networks, including for cell towers, cable, internet, and power to support municipal buildings, residents, and businesses.
  - Install a generator for police communication network at Mount Tom.
  - Update the emergency response plans including the Town's Comprehensive Emergency Management Plan (CEMP) and document the informal phone tree.
  - Develop a disaster response and recovery plan that includes protocols for a pandemic incorporates the Foothills Health District and the Hampshire Public Health Preparedness Coalition.
  - Incorporate pandemic response and disaster recovery to the next update of the Town's Hazard Mitigation Plan.

- Municipal Initiatives and Regulatory Policies
  - Investigate the source of sedimentation issues and identify nature-based solutions to reduce impacts on waterbodies and conduct a pilot project on public or private property to showcase implementation of resilience best practices.
  - Develop a combined resilient Master Plan and Open Space and Recreation Plan that addresses:
    - Sustainable economic development.
    - Set goals for conservation land and greenways.
    - Identify parcels and establish acquisition priorities critical to current conservation efforts that also increase resiliency through carbon sequestration and preservation of forested land with high ecologic value.
    - Determine the amount of land available for development.
    - Continue to work with the Hilltown Land Trust, Kestrel Land Trust, The Nature Conservancy, New England Forestry Foundation, Massachusetts Department of Conservation and Recreations, and others to partner on land acquisition for conservation, biodiversity, and resiliency.
    - Encourage agricultural preservation programming.
    - Identify rural public transportation options.
  - Develop an educational campaign/resources on building business resilience/continuity, personal resilience, and evacuation routes.
  - Adopt a revised floodplain bylaw in accordance with state/federal requirements.

- Update the Town bylaws to allow for increased flexibility and variety in terms of housing options.
- Identify grant opportunities to revise and update the Town bylaws.
- Complete the ongoing evaluation of solar bylaws and work with the Planning Board, Conservation Commission, and Bylaw Review Committee to implement findings.
- Increase social resilience by developing and implementing a diversity, equity, and inclusion plan including community engagement and discussion to build community and understanding.
- Learn from other MVP Action Grants and implement best practices, for example, the dirt roads vulnerability assessment and recommendations project.

- Agriculture, Flora, and Fauna
  - Conduct an assessment of invasive species in Town and identify special roadside trees impacted for targeted chemical management.
  - Compile existing educational resources and establish a public awareness campaign for residents including landscaping choices, invasive species management, proper handling of yard waste, targeted mechanical control techniques, and vegetative and tree maintenance best practices.

6.2 Moderate Priorities

- Electric Grid
  - Continue to partner with Eversource to address hazard trees threatening powerlines.
  - Inform property owners with Eversource easements about encroachment restrictions.

- Water Supply
  - Complete a survey to better understand the extent of properties with shallow wells and their vulnerability. Explore the possibility of identifying groundwater recharge areas and carrying capacities relative to water demand and wastewater needs relative to the type(s) of aquifers to better understand private well resiliency options.

- Municipal Operations
  - Explore regional possibilities to explore shared staff and projects in order to maximize municipal financial and operational resilience.
  - Establish the Library as a climate resilient hub providing related information and programing to the public.

- Emergency Communications
  - Public education and communication about vector borne diseases and other public health concerns expected to increase with climate impacts.
  - Develop a resilience engagement plan for public health communication, risk education, and website templates.

- Agriculture, Flora, and Fauna
  - Support farmers in adopting resilience best practices including but not limited to: Integrated Pest Management, erosion control, crop protection and irrigation during severe weather, etc.
  - Use the “Grow Westhampton” series and other local forums for public education and a discussion on land use, restoration, and planning for resilience.

- Plan for food security in the face of climate change impacts.
- Collaborate with UMASS and local farmers to provide opportunities for farms to remain viable.
- Secure additional tree management funding.

6.3 Other Priorities

- Solicit input from local history experts on preservation of historic landscapes and historic sites within Town.
- Provide public education on what it means to become a Community Preservation Act community, which would allow the Town to charge a small surcharge on property taxes to be used in combination with matching funds from the state's Community Preservation Trust Fund. These funds are then used to build and rehabilitate parks, playgrounds, and recreational fields, protect open space, support local affordable housing development, and preserve historic buildings and resources.
- Evaluate cost effective options for disposal and recycling of solar panels and batteries. Ensure that solar bylaw provides for a provision for dismantling and recycling of solar components by the system owner.

7.0 ADDITIONAL INFORMATION

7.1 CRB Workshop Participants

The CRB Workshop invitees included the Core Team, Town staff, Town Boards and Committees, local organizations, regional partners, state agencies, and adjacent communities. The list of CRB Workshop attendees is included in the sections below.

7.1.1 Core Team

Name	Title	Affiliation	Attendance
Laurie Sanders	Secretary	Zoning Board of Appeals	x
Davide White	Chief	Police	x
Teri Anderson	Member	Selectboard, Franklin Regional Transit Authority Representative	x
Cheryl Provost	Administrative Assistant	Administration	x
Todd Alexander	Building Inspector & Emergency Management Director	Building Inspections & Emergency Operations Center	x
Brigid O'Riordan	Chair	Westhampton Elementary School Committee	
Robby Armenti	Clerk	Board of Health	x

7.1.2 Additional Town Staff, Boards, and Committees

Name	Title	Affiliation	Attendance
Phil Dowling	Chair	Selectboard, Capital Improvement Planning Committee	x
Arthur Clapp	Chair	Agricultural Commission	x
Meaghan Shwelm	Director	Westhampton Public Library	x
Anne Marie O'Reilly	Chair	Westhampton Public Library Trustees	x
Susan B. Bronstein	Chair	Planning Board	x
John Shaw	Chair	Zoning Bylaw Review Committee	x
Brad Morse	Chair	Conservation Commission	
David Antosz	Fire Chief	Fire Department	
Mark Bushbee	Health Agent	Board of Health	
Bill Jablonski	Superintendent	Highway Department, Transfer Station	
Amy Landau	Coordinator	Council on Aging	
Richard Tracy	Chair	Westhampton Zoning Board of Appeals & Historic Commission	
Mark Gould	Emergency Medical Services Coordinator	Emergency Operations Center	
Thomas Martin	Chair	Board of Health	

Name	Title	Affiliation	Attendance
Julia Lennen	Co-Chair	Council on Aging	
Louise Jasionkowski	Co-Chair	Council on Aging	
Mary Cleary	Chair	Finance Committee	
Joseph Henning	Veterans' Agent	Veterans Affairs	
Walter Morrey	Chair	Board of Assessors	
David Zagorski	Assistant Assessor	Board of Assessors	
Thomas Quinlan	Building Commissioner/Zoning Enforcement	Building Inspections	
James Mailoux	Electrical Inspector	Building Inspections	
Brian Pichette	Plumbing and Gas Inspector	Building Inspections	
Winnie Gorman	Chair	Cultural Council	
Ginny Curtis	HMP Involvement		
Art Pichette		Public Safety Complex Building Committee	
Thomas Jenkins	Tree Warden	Tree Warden	
Chris Brooks	Chair	Town Property & Energy Committee	
Kristen Smidy	Principal	Hampshire Regional High School	
Deane Bates	Principal	Westhampton Elementary School	
Scott Johndrow	Westhampton Rep	Hampshire Regional School Committee	
Tom Cleary	Westhampton Rep	Hampshire Regional School Committee	
Peter Cleary	Westhampton Elementary School	Hampshire Regional School Committee	

7.1.3 Adjacent Communities

Name	Title	Affiliation	Attendance
Wayne Feiden	Director Planning & Sustainability	Northampton	
Jeffrey Bagg	City Planner	Easthampton	
Ed Gibson	Town Administrator	Southampton	
Helen Speckles	Administrative Assistant	Huntington	
Charlene Nardi	Town Administrator	Williamsburg	
Susan Labrie	Town Administrator	Chesterfield	

7.1.4 Regional and State Agencies

Name	Title	Affiliation	Attendance
Carrieanne Petrik	MVP Coordinator	EEA	x
Joseph Mitchell	Community Relations	Eversource	x
Allen Phillips	Region Representative	MEMA	x
Michael Perreault	Assistant Administrator	Franklin Regional Transit Authority	x
Edward Markey	MA Senator	US Senate	
Elizabeth Warren	MA Senator	US Senate	
Charlie Baker	Governor	Office of the Governor	
Karyn Polito	Lt. Governor	Office of the Governor	
Adam Hinds	State Senator	Massachusetts Senate	
Richard Neal	Congressman, 1st District	US House of Representatives	
James McGovern	Congressman, 2nd District	US House of Representatives	
Lindsay N. Sabadosa	State Representative, 1st Hampshire District	Massachusetts House of Representatives	
Mary Hurley	Governor's Councilor, 8th District	MA Governor's Council	
Ron O'Connor		Department of Public Health	
David Gray	Office of Ecosystem Protection	U.S. Environmental Protection Agency	
Heather Wasilewski	Municipal Asst Coordinator	MA Department of Environmental Protection	
Andrea Donlon	River Steward	Connecticut River Conservancy	
Jeff Zukowski	Hazard Mitigation Planner	MEMA	
		DCR	

7.2 Citation

Town of Westhampton. (2021). Community Resilience Building Workshop Summary of Findings. Prepared by Weston & Sampson and Pioneer Valley Planning Commission.

7.3 CRB Workshop Project Team

Key Contacts:

- Philip Dowling, Selectboard Chair

Facilitators from Weston & Sampson:

- Amanda Kohn
- Steve Roy
- Lindsey Adams
- Adria Boynton

Facilitator from Pioneer Valley Planning Commission

- Emily Slotnick

7.4 Acknowledgements

The project team would like to recognize Westhampton's Core Team members for leading by example throughout the MVP planning process. The team would also like to acknowledge Phil Dowling for his dedication to spearheading and coordinating this project. A special thanks to the Massachusetts Executive Office of Energy and Environmental Affairs for providing the grant funding to conduct the MVP Planning process, and to the Nature Conservancy for providing the Community Resilience Building Guidebook. An additional thanks to all of the CRB Workshop and Listening Session participants.

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US Census Bureau. 2015-2019. American Community Survey. 5-year estimates.

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Workshop and Listening Session Attendees. Westhampton, Massachusetts.

APPENDIX A

Core Team Meeting Materials

Town of Westhampton
Municipal Vulnerability Preparedness (MVP) Planning Grant

Core Team Meeting - NOTES
12/10/2020

1. Introductions
    - Steve Roy, W&S
    - Amanda Kohn, W&S
    - Emily Slotnick, PVPC
    - Laurie Sanders, Public Safety Complex Committee, former Zoning Bylaw Review Committee
    - David White, Chief of Police
    - Teri Anderson, Selectboard
    - Cheryl Provost, Town Administrator
    - Todd Alexander, Building Inspector, Emergency Operations Coordinator
    - Brigid O'Riordan, Chair Westhampton Elementary School Committee, former Zoning Bylaw Review Committee
    - Robbie Armenti, Board of Health

2. Core Team Role
    - Overview of MVP process, and then prep for workshop
    - Local match for MVP Planning Grant - By coming to the meetings you are helping the town to meet the requirement of 120 match hours for the grant.
3. Presentation - Climate Change in Westhampton
4. Project Overview
    a. Scope and Schedule
        i. Three webinars, core team will need to attend all 3, plus a listening session including the public. The webinars will be invitation only.
    b. Core Team Input was discussed
    c. Data Sources
        i. Westhampton HMP should be looked at to make sure that any actions identified and not completed are brought into this plan
        ii. Open space plan is out of date, and so much has changed since 2009 in terms of prime forest land, etc
        iii. No master plan in Westhampton
        iv. One zoning area (all agriculture), and no updates recently
        v. Resilient Lands Data http://maps.tnc.org/resilientland/. Need to check to include on MVP Vulnerability Map
        vi. New solar bylaws have gone in place recently with an overlay

vii. New/Recent Development
    1. Public safety complex – just went out to bid to just obtain pricing, will bring proposal to voters to demo existing and build new facility
    2. Brand new solar facilities feeds directly back into the grid. No large backup storage that we're aware of. The library also has solar panels, but it goes back into the grid.

viii. Eversource – substation to come at Montague road solar project, corner of Easthampton and Stage Road substation is a critical facility
    1. David will reach out to Eversource to find out where their critical facilities are located
    2. Eversource has been doing tree and line management
    3. Power goes out a lot, but usually comes back quickly

ix. Health Services
    1. Robbie has just been assigned to an emergency distribution center – Hampshire Public Health Preparedness Coalition (HPHPC) – Westhampton's location is in Easthampton – setting up for vaccinations and other critical supplies.
    2. Westhampton is under service agreement with Easthampton Fire Department – they are our primary provider
    3. Highland Valley Elder Service in Florence – provides meals on wheels
    4. Northampton Survival center provides food support

x. Communications
    1. Code red, reverse 911, managed through fire department – has to go through fire station, police department, and BOD in order to be approved to use. Is a more streamline process warranted?
    2. Alert module on town website to sign up for alerts, an opt-in only system
    3. Emergency Notices are also posted to Town website
    4. Comcast provides cable, but no direct cable access tv station, but we have access to Northampton cable access station
    5. There is also a BOH alert, you can provide your phone number on the BOH website and you will receive calls
    6. Town repeater is on Mt. Tom County has one on Mt. Holyoke near Skinner State Park for fire department.
    7. Also have a town-wide dedicated frequency, so we can operate independently outside county dispatch. This is a big deal during hurricanes, snowstorms, and tornado. Easy to stand up, and works really well.
    8. Broadcast radio - people listen to WHMP, WRSI and WFCR

xi. Transit
    1. FRCOG has an agreement with the town to provide on-demand van service for seniors and people with disabilities. Info could be better distributed about this service availability
xii. Evac routes – Kings Highway, Loudville, and Easthampton rd are all the same road, eventually
xiii. Contaminated sites – is the former junkyard a confirmed contaminated site? Building department is working with the landfill on a cleanup plan, but we don't think it is contaminated. Check DEP hazardous waste sites (MassOliver 21E sites)
xiv. Recent release on Loudville Rd from storm damage, on private property, but highway dept. says it has been cleaned up. Is there a potential for this in the future during extreme storm events?
xv. Bridges – 2 on Easthampton rd., limited weight.
    1. It is difficult to avoid low-weight limit bridges, which causes trucks to have to reroute.
xvi. Culverts
    1. Many culverts are getting filled in, deteriorating, and are undersized, and we don't currently have any comprehensive assessment
    2. Perry Hill Road where Mehan's activity is, area gets inundated and then muddy floodwater goes into the north branch of the Manhan River.
    3. Highway dept. may have a full list of culverts and problem areas that they could send to the team
    4. Easthampton Road river crossing also to add to crit facil list

d. Community Lifelines and Critical Facilities

5. Community Resilience Building (CRB) Workshop Series Materials
    e. Tentative Dates: three Thursdays in a row, evening is best. Get started in January, start time at 5:30 so we can wrap up at 7:30.
    f. Pre-select features – core team to add input to google doc
    g. Pre-select hazards – core team to add input to google doc
6. Webinar Participants
    - Stakeholder list – comes from TNC's draft list of invitees. Amanda will post this to a google drive for all to access and edit, and will share this with Cheryl as she has most of the contacts
        i. Add agricultural commission to this list
7. Wrap Up and Next Steps
    - The committee wants to see some examples of other communities' projects that were successfully funded through MVP action grants. Especially with regards to public safety complex work.
    - Public listening session – short video with a survey has worked very well with other communities

APPENDIX B

Community Resilience Building Workshop Materials

TOWN OF WESTHAMPTON
Municipal Vulnerability Preparedness (MVP) Planning Process

Community Resilience Building (CRB) Workshop Series
5:30 - 7:30 PM

January 21st | Infrastructure
January 28th | Community Resilience
February 4th | Natural Resources

The workshop series will be held through the online meeting platform Zoom. We are encouraging all participants to join the workshop series through your internet browser. Alternatively, you may opt to call in via phone for audio and also use an internet browser for visuals. We do not recommend using only your phone for audio. By joining online, you will be able to view the risk matrix that we will be creating as a group in real-time. However, we are sending along draft materials that you will be able to view if you call on the phone and are not able to join over an internet connection.

We will join the meeting fifteen minutes early to try to help resolve any technology issues. Please email Amanda Kohn, kohn.amanda@wseinc.com, if you have barriers to participation or concerns. We have step by step instructions on the following page on how to join a Zoom meeting.

AGENDA

Welcome and Introductions	10 minutes
MVP Program Overview	10 minutes
Overview of Hazards and Climate Change Data	15 minutes
Risk Matrix Confirmation	15 minutes
Climate Adaptation Strategies	10 minutes
Action Items	40 minutes
Prioritization	15 minutes
Wrap Up and Next Steps	5 minutes

ZOOM INSTRUCTIONS

Option 1 – Join with Direct Link

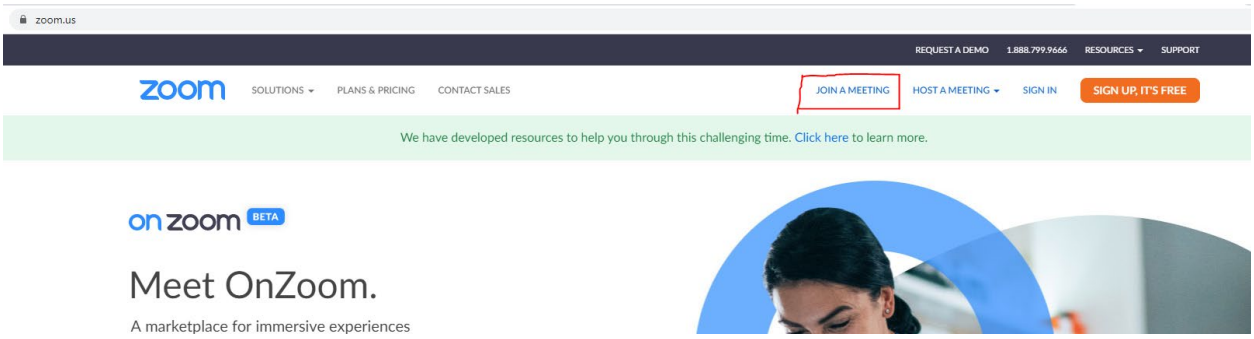
To join via computer or smartphone:

- Click on the link: https://us02web.zoom.us/j/89679663199
- Enter Passcode: CRB-MVP
- Follow on-screen instructions
- Enter your full name under participant

Option 2 – Join on the Website or App

To join via computer or smartphone:

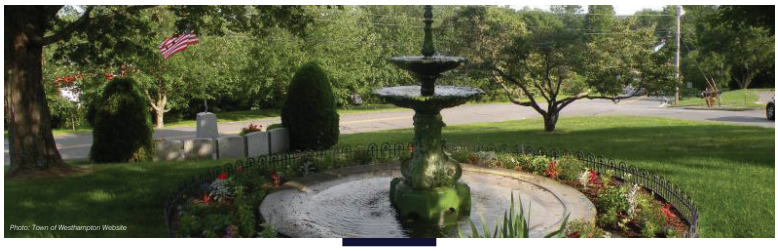
- Type “Zoom.us” into a web browser
- Click “join a meeting”



- Enter the Meeting ID: 896 7966 3199
- Enter Passcode: CRB-MVP
- Follow on-screen instructions
- Enter your full name under participant

Option 3 – Join Online for Visuals and with Phone for Audio

- Join visually using the methods described in Option 1 and Option 2 above
- Call in using phone by dialing: +1-929-205-6099
- Enter the Meeting ID: 896 7966 3199
- Enter Passcode: 0771645



TOWN OF WESTHAMPTON

Community Resilience Building (CRB) Workshop Series

January 21st - Infrastructure | January 28th | February 4th

WELCOME FROM FACILITATORS

Lindsay Woodson
Resiliency Specialist

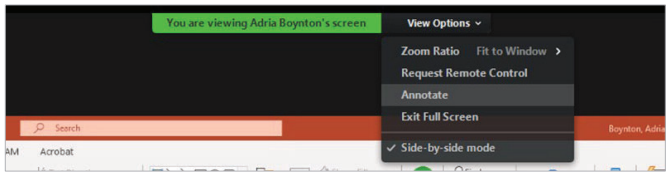
Steve Roy
Senior Technical Leader

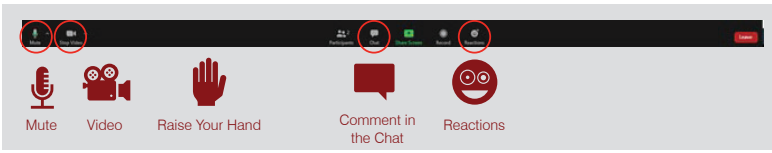
Amanda Kohn
Sustainability Project Planner

Emily Slotnick
Senior Planner Specialist

ZOOM LOGISTICS

This webinar is being recorded





WEBINAR OUTLINE

PRESENTATION:
- Overview of the MVP
- Historic and Future Climate Change Impacts

DISCUSSION:
- Confirm Hazards
- Confirm Features
- Identify and Prioritize Action Items

MEETING MATERIALS SHARED:

PDF of Presentation Agenda (for Reference)

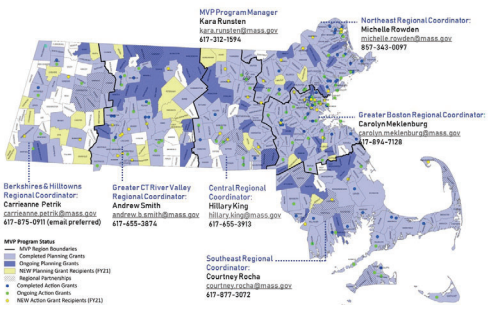
for **comment:**
Risk Matrix
Hazard Map
Critical Facilities List

Municipal Vulnerability Preparedness (MVP) Program

Community Resilience Building (CRB) Process:
89% participation
312 communities

Action Grant Projects:
FY 18: **37**
FY 19: **36**
FY20: **53**
FY21: **41**

Total Awards:
$44M to date



MVP Website: www.mass.gov/mvp
Berkshire/Hilltowns Regional Coordinator:
carrieanne.petrik@mass.gov

MVP CORE PRINCIPLES

MVP PROGRAM

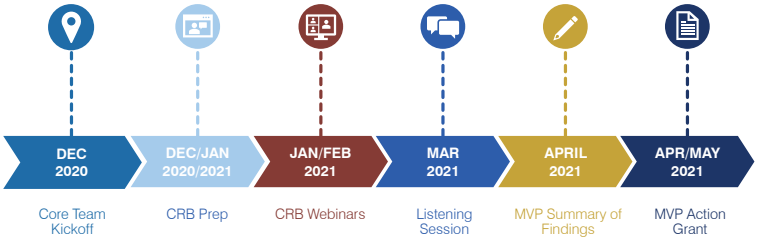
1. MVP Planning Grant
- Define climate hazards
- Identify community vulnerabilities and strengths
- Develop and prioritize adaptation actions
- Receive MVP designation

2. MVP Action Grant
- Implement priority adaptation actions identified during the planning process

What Can the MVP Action Grant Fund?

- Assessments
- Outreach & Education
- Management Measures
- Redesign & Retrofit
- Nature-Based Solutions
- Ecological Restoration
- Water Quality & Infiltration
- Flood Protection
- Extreme Heat Mitigation
- Drought Mitigation
- Energy Resilience
- Chemical Safety
- Land Acquisition
- Housing
- Mosquito Control

MILESTONE SCHEDULE



MA CLIMATE PROJECTIONS

By end of century:

Changes in precipitation
- 18% increase in consecutive dry days
- 57% increase in days with > 1 in. rainfall
- 7.3 inches additional annual rainfall
- Increase in flooding

Rising temperatures
- 10.8°F increase in average annual temperature
- 42% decrease in days/year with min. temperatures < 32* F
- 1,280% increase in 90-degree days/year

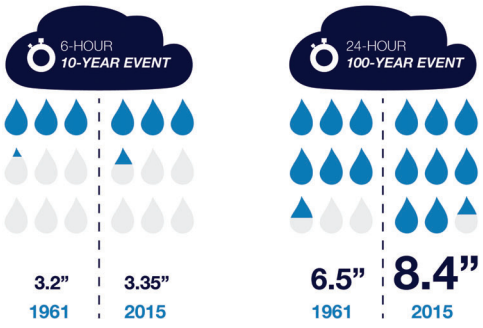
Winter weather
- Overall a decrease in annual snowfall
- Likely to have fewer events with a lot of snow
- Freeze –thaw cycle to change

Regional changes
- Increase in frequency and magnitude of hurricanes and nor'easters
- 4-10.5 feet of sea level rise

Source: State Hazard Mitigation and Climate Adaptation Plan, September 2018 / resilientma.org / Northeast Climate Adaptation Science Center

Weston & Sampson

CHANGES IN **PRECIPITATION**



Sources: NOAA TP-40 (1961) and NOAA Atlas Volume 10 (2015)

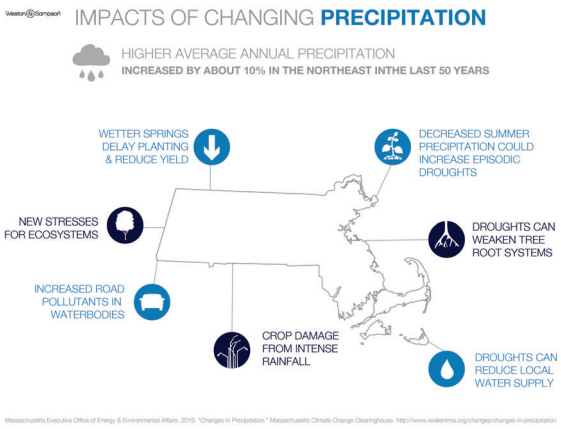
Flood Prone Areas
- Stage Road and Easthampton Road
- Stage Road east of Southampton Road
- Northwest Road at Beaver Pond
- Chesterfield Road to the Chesterfield town line
- Laurel Hill Road
- Kings Highway
- Tob Road
- South Road at Rice Brook

FIRM Updated in 1979 for Westhampton

"By 2050, Massachusetts could experience the current 100- year riverine flood every two to three years on average"

PRECIPITATION DURING **HEAVY EVENTS** IN THE NORTHEAST **INCREASED BY MORE THAN 70%** BETWEEN 1958-2010

Massachusetts Executive Office of Energy & Environmental Affairs. 2019. "Changes in Precipitation." Massachusetts Climate Change Clearinghouse. Resilientma.org/changes/changes-in-precipitation



Massachusetts Executive Office of Energy & Environmental Affairs, 2019. "Changes in Precipitation." Massachusetts Climate Change Clearinghouse. http://www.resilientma.org/changes/changes-in-precipitation

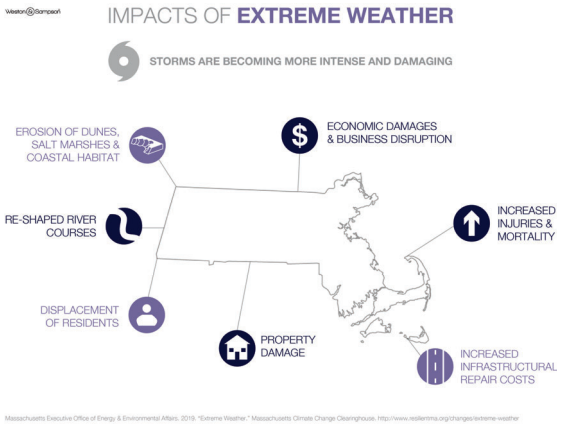
WIND AND WINTER STORMS

Upward trend in North Atlantic hurricane activity since 1970

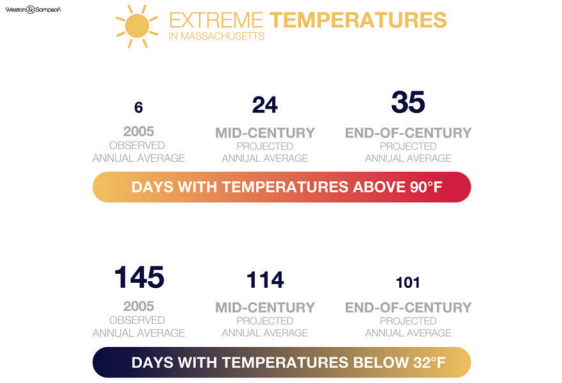
Nor'easters along the Atlantic coast are increasing in frequency and intensity

- The blizzard of 2013 left nearly **400,000 Massachusetts residents without power.**[1]
- "Heavy blizzards are among the **most costly and disruptive** weather events for Massachusetts communities."[2]
- Snowpack likely to **decrease annually,** but snowfall will occur with **heavy intensity**
- Extended power outages, cost of snow removal, repairing damages, and loss of business can have a **severe economic impact.**
- **The elderly and infirmed** are populations of particular concern during these events

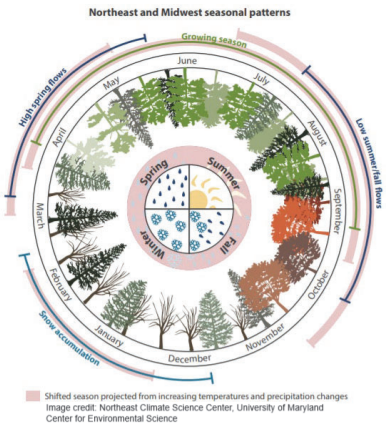
1. *Resilient MA Climate Change Clearinghouse for the Commonwealth. "Extreme Weather," 2017*
2. *"Massachusetts State Hazard Mitigation and Adaptation Plan," 2018. P4-226*



Massachusetts Executive Office of Energy & Environmental Affairs, 2019. "Extreme Weather." Massachusetts Climate Change Clearinghouse. http://www.resilientma.org/changes/extreme-weather



Massachusetts Executive Office of Energy & Environmental Affairs, 2019. "ResilientMA Datagraphs." Massachusetts Climate Change Clearinghouse. Resilientma.org/datagrapher/?c=Temp/state/tx90/ANN/MA/
Notes: Mid-century projected annual averages use a 2040-2069 time range. End-of-century project annual averages use a 2080-2099' time range.



Shifted season projected from increasing temperatures and precipitation changes
Image credit: Northeast Climate Science Center, University of Maryland Center for Environmental Science

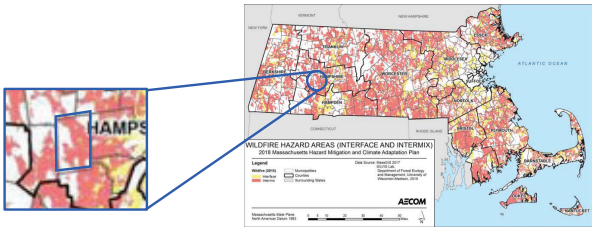
The most recent notable drought event was in **2016.**[1]

The occurrence of droughts **lasting 1 to 3 months** could go up by as much as **75% over existing conditions** by the end of the century, under the high emissions scenario.[1]

What was the drought response in 2016?

1. *Source: Executive Office of Energy and Environmental Affairs, Adaptation Advisory Committee, 2011. "Massachusetts Climate Change Adaptation Report," 17.*

WILDFIRE

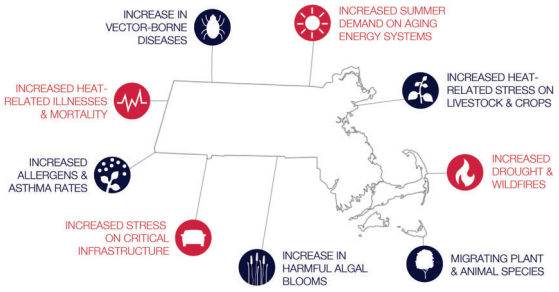


Map: Wildfire Hazard Areas, 2018 Massachusetts Hazard Mitigation and Climate Adaptation Plan, p4-176

IMPACTS OF **RISING TEMPERATURES**

WARMER ANNUAL AIR TEMPERATURES
UP 0.5°F PER DECADE SINCE 1970, ON AVERAGE

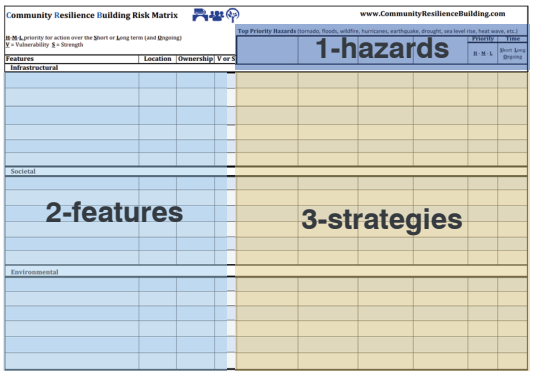
WARMER WINTERS
UP 1.3°F PER DECADE SINCE 1970, ON AVERAGE



Massachusetts Executive Office of Energy & Environmental Affairs. 2019. "Rising Temperatures." Massachusetts Climate Change Clearinghouse. http://www.resilientma.org/changes/rising-temperatures

Any questions
about climate hazards?

RISK MATRIX



TOP CLIMATE HAZARDS IN WESTHAMPTON

- Intense Rainfall and Flooding
- Extreme Cold and Winter Weather
- Wind Events
- Extreme Heat and Drought

INFRASTRUCTURAL FEATURE EXAMPLES

Photos: Town of Westhampton Website

- Water supply - wells
- Wastewater infrastructure – private septic
- Communications network
- 3 Dams
- Culverts
- Limited weight bridges
- Roadways – paved and gravel
- Solid waste management
- Electric – Eversource
- Emergency shelters
- Municipal buildings

DEMOGRAPHIC INFORMATION

Population	Westhampton	Massachusetts
2019	1,858	6,892,503
2010	1,585	6,547,790
Age		
Under 18 years	17.4%	19.6%
65+ years	18.2%	17%
Economics		
Median household income	$88,313	$85,843
Persons in poverty	3.4%	9.4%
Additional Information		
Bachelor's degree or higher:	41.2%	45%
With a disability	10%	11.5
Limited English Households	0.4%	9.2%

Census Bureau, American Community Survey, 5-year estimate, 2014-2019.

SOCIETAL FEATURE EXAMPLES

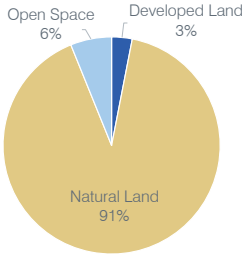
- Historic buildings
- People with possible barriers to building resilience (income, non-English speakers, immigrants, people of color, youth, seniors)
- Regional services (medical, waste management, food assistance, etc.)
- Businesses
- Communications – alerts and technology
- Vector borne diseases

Photos: Town of Westhampton Website

ENVIRONMENTAL FEATURE EXAMPLES

Photo: Town of Westhampton Website

- Open Space and Recreation Areas
- Trees and Forests
- Agriculture
- Wildlife
- Wetlands
- Local Agriculture
- Invasive Species/Pests
- Flood Maps, Plans, Regulations



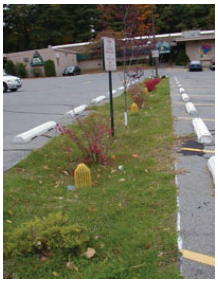
Mass Audubon 2020 Losing Ground Report

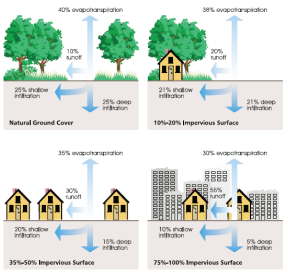
ADAPTATION STRATEGIES: INFRASTRUCTURE

Photos: Town of Westhampton Website

STORMWATER TERMINONOLGY

DETENTION
RETENTION
CONVEYANCE



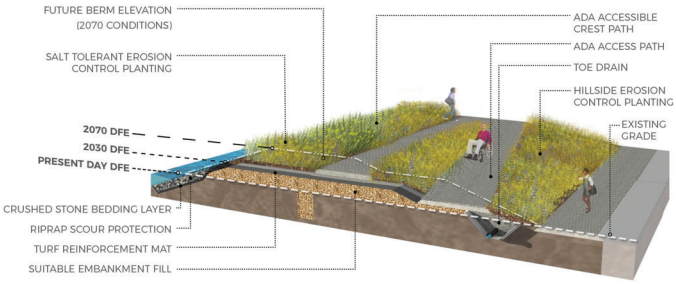


LOW IMPACT DEVELOPMENT (LID)

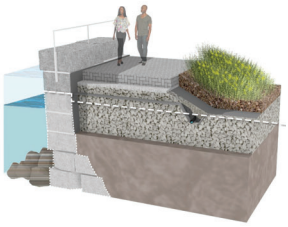
Bioretention
Rain Gardens
Tree Box Filters
Permeable Pavement

MULTI-PURPOSE FLOOD STORAGE

VEGETATED BERM



FLOOD WALLS | DEPLOYABLE BARRIERS



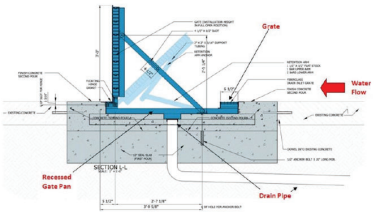
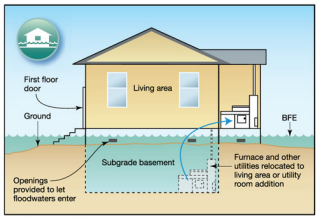


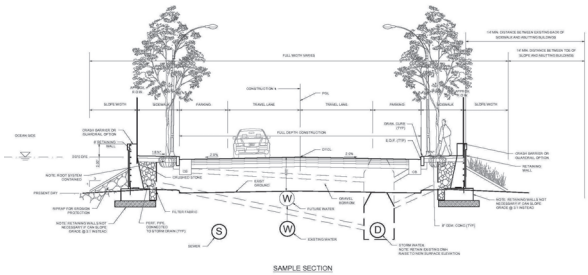
FIGURE 1 | A FloodBreak barrier gate diagram

RAISED BUILDINGS | WET FLOODPROOFING



CULVERT WIDENING TO IMPROVE HABITAT & FLOW

RAISED ROADWAYS



ROOF STRATEGIES

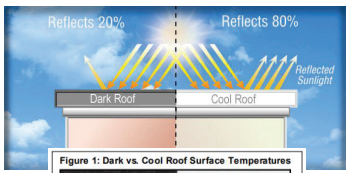
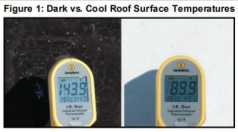
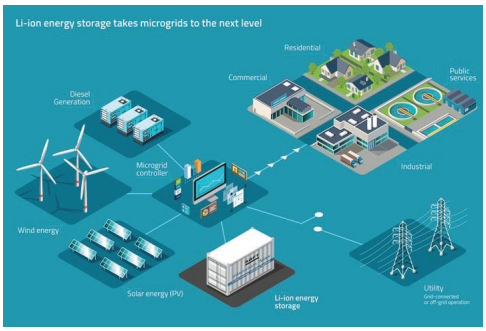


Figure 1: Dark vs. Cool Roof Surface Temperatures



A dark roof (left) becomes much hotter than a cool white roof (right) on a sunny afternoon.

RENEWABLE ENERGY/MICRO-GRIDS



ADAPTATION STRATEGIES: COMMUNITY RESILIENCE

Photos: Town of Westhampton Website

CHILDCARE

Information Background Outcomes Objectives Criteria Consequences

KNOWLEDGE

TRANSPORTATION

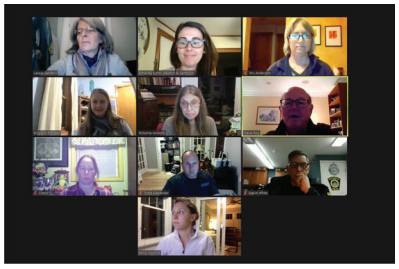
FOOD

TRANSLATION

TECHNOLOGY

REDUCE BARRIERS TO PARTICIPATION

WORK WITH VOLUNTEERS



MULTI-PRONGED APPROACH

VIDEO CONFERENCING

VIDEO

ONLINE

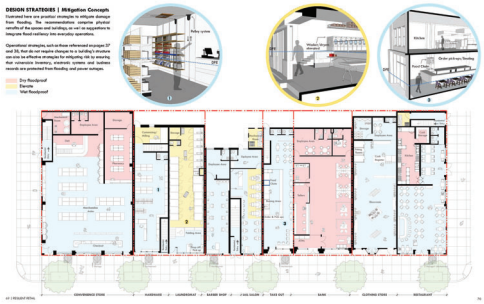
IN-PERSON

PRINT

PUBLIC HEALTH

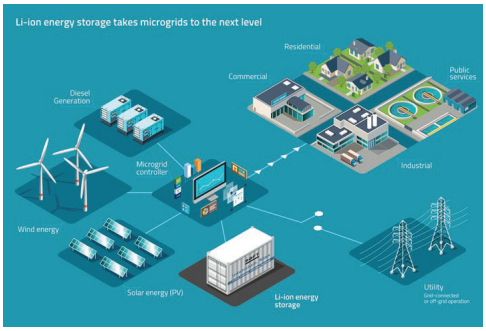
- Wellness checks
- Database of residents at risk of isolation
- Community Emergency Response Teams (CERT)
- Mobile markets
- Housing upgrades and investment

LOCAL BUSINESSES



SHELTERS, HEATING AND COOLING CENTERS

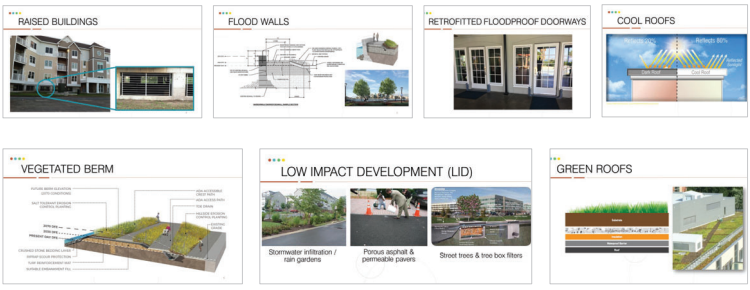
RENEWABLE ENERGY/MICRO-GRIDS



HOUSEHOLD PREPAREDNESS

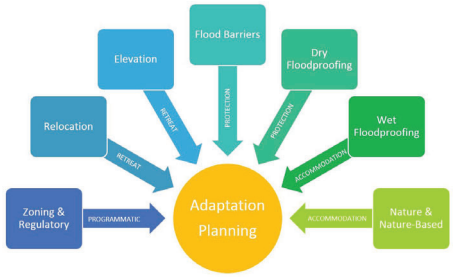
TRANSLATING MATERIALS

ADDITIONAL ADAPTATION STRATEGIES



ADAPTATION STRATEGIES: NATURAL RESOURCES

ADAPTATION STRATEGY TYPES



LOCAL REGULATIONS & POLICIES

EVALUATE EXISTING
- Stormwater Management Standards
- Zoning Bylaw

ADOPT NEW
- Protection (Wetland, Tree, Water Supply, Groundwater)
- Limiting Requirements (Impervious Surfaces)
- Allowances (Green Roofs)
- Incentives (Fee Waivers)

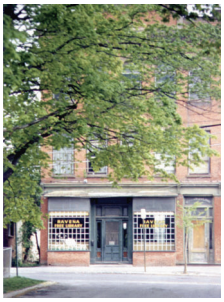
WETLAND RESTORATION

Wetlands in Troy, New York

REMOVAL OF INVASIVE SPECIES

Invasive Japanese Knotweed in Arlington, MA

TREE OR FOREST MANAGEMENT



Tree species, placement, and maintenance recommendations by W&S for Ravena, NY

LAND AQUISITION

As part of an MVP Action Grant, Mattapoisett purchased 120 acres of forest, streams, freshwater wetlands, and coastal salt marsh as conservation land to prevent development in vulnerable areas

Image from EOEAA, 2019

REMEDIATE CONTAMINATED SITES

Medfield State Hospital, Remediation along the Charles River

BANK RESTORATION & STABILIZATION

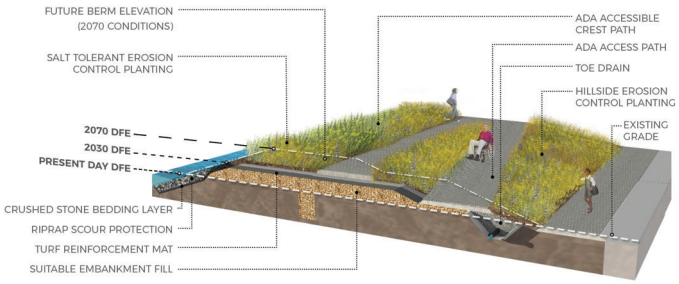
Live Crib Wall

Vegetated Retaining Wall

Joint Planting

Gabions

VEGETATED BERM

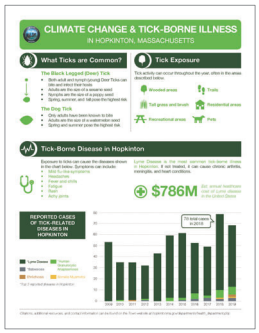


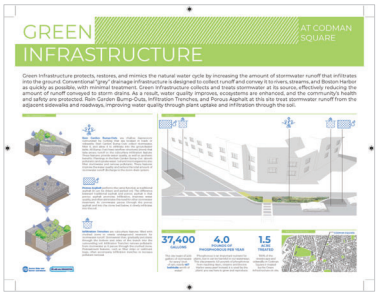
MULTI-PURPOSE FLOOD STORAGE

LOW IMPACT DEVELOPMENT (LID)

Bioretention
Rain Gardens
Tree Box Filters
Permeable Pavement

EDUCATION, OUTREACH, SIGNAGE





NEXT STEPS

Thank you for joining us today!

Join our next webinar!
January 28th: Community Assets
February 4th: Natural Resources

Check Email for Listening Session Details

Example MVP Action Grant Projects - 167 Projects Funded since FY 18

Nature-Based Solutions for Ecological and Public Health
Planning, Assessment, and Regulatory Updates

Deerfield
$572,250

- Replace a failing culvert,
- Install green infrastructure in multiple locations in town,
- Revise zoning and other bylaws to promote climate resiliency and low impact design

Deerfield
$278,023

- Install green infrastructure in the town center
- Develop a municipal green infrastructure policy,
- Replace two top priority culverts
- Conduct public education on the town's new Rave emergency alert system
- Evacuation action plan for potential dam failures and major floods on the Deerfield River,
- Develop a land conservation priority plan for protecting key parcels in the Deerfield River floodplain.

Example MVP Action Grant Projects

Resilient Redesigns and Retrofits for Critical Facilities and Infrastructure

Blandford
$102,824

Retrofitting a major waterfront park into a legacy park that uses nature-based solutions to address climate vulnerabilities while providing important access to recreation for residents.

Granby
$34,272

- Update zoning and stormwater management and erosion control bylaw, and subdivision regulations to Promote a low impact development approach
- New design standards for stormwater management.

Example MVP Action Grant Projects

Planning, Assessments, and Regulatory Updates

Shirley
$63,272

Investigate the feasibility of implementing a microgrid for the town's key municipal complex.

- design options for maintaining the critical operations/facilities during outages independently from the utility electrical grid

Winthrop
$99,740

- Draft a new resilient zoning policy or land use tool,
- Conduct resilient land use planning and zoning training

Example MVP Action Grant Projects

Planning, Assessments, and Regulatory Updates

Holyoke
$149,825

Conducted a detailed demographic analysis of individuals who arrived in Holyoke from Puerto Rico as a result of Hurricane Maria and develop recommendations for planning for future climate change migrants in Holyoke.

Hampden County's Puerto Rican Population, 2017

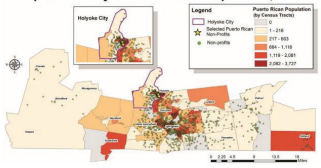


Image credits: Town of Holyoke, Hunter College CUNY, El Instituto UCONN

Uxbridge
$256,926

Develop an integrated vector-borne disease management plan. This would include (1) a tailored, biological-based, and regional approach to mosquito control, (2) replacing highly degraded priority culverts, and (3) strengthening the emergency communications plans and systems in order to reach all members of the community.

Example MVP Action Grant Projects

Planning, Assessments, and Regulatory Updates

Bolton, Harvard, & Devens
$250,000

Complete an ecological climate assessment for three communities along the outer-495 corridor.

- ecological planning with focus on nature-based solutions
- soil health assessment,
- literature research regarding wetlands analysis, and
- policy updates and best management practices.

South Hadley
$105,000

- climate resilient transportation asset management plan;
- implementing a tree planting campaign; and
- completing a regulatory review and update of the Town's Stormwater Management Bylaw to include best available climate data and nature-based solutions.

Example MVP Action Grant Projects

Resilient Redesigns and Retrofits for Critical Facilities and Infrastructure

Monson
$75,000

Increase energy resiliency at its Town Hall through identifying a viable strategy for preparing the Town's main emergency response operations center for a renewable energy back-up power system.

Example MVP Action Grant Projects

Nature-Based Solutions for Ecological and Public Health

Millbury
$1M

- Green infrastructure (stormwater planters, bioretention, rain gardens
- Porous Pavers

to reduce heat island effects and stormwater runoff into the Blackstone River.

Belchertown
$698,356

- Design and permitting for a replacement water storage tank that would increase storage capacity and resiliency to drought,
- Feasibility/ concept design of a rainwater harvesting system at Belchertown High School to irrigate the athletic fields.

Example MVP Action Grant Projects

Planning, Assessments, and Regulatory Updates

Brookline
$56,188

Conduct an audit of its storm water, floodplains, zoning, and wetlands bylaws and create DPW Site Plan Review Checklist to identify opportunities to mandate higher standards for climate resiliency or identify any conflicts with State policy.

Littleton
$763,050

Acquire over 22 acres of land to provide a nature-based solution to potential climate change related impacts in the town and in particular in the Long Lake watershed.

Example MVP Action Grant Projects

Nature-Based Solutions for Ecological and Public Health

Melrose
$70,313

Design green infrastructure solutions for the City Hall Parking Lot to alleviate regular flooding and standing water issues and to provide water quality improvements to downstream resource areas.

Waltham
$217,370

Create a Resilient Stormwater Management and Implementation Plan to address the City's vulnerable stormwater infrastructure

Agricultural Funding from Mass Dept of Agricultural Resources (MDAR)

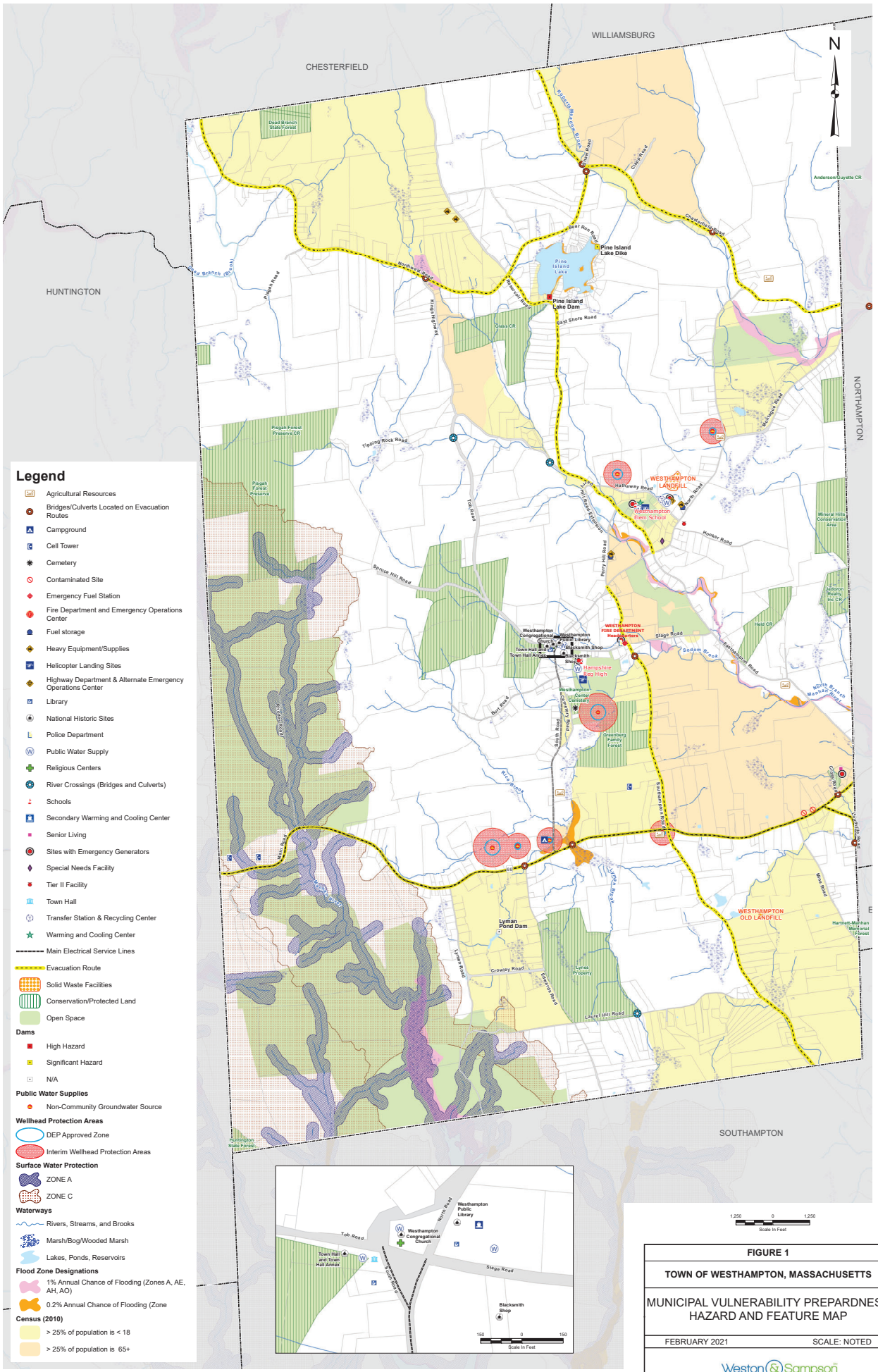
Nature-Based Solutions for Ecological and Public Health

Agriculture Climate Resilience & Efficiencies Program (ACRE)
$50,000/application

- Measures to reduce vulnerability to climate change
- improve economic resiliency of farm operations

The **Climate Smart Agriculture Program** combines the Agricultural Climate Resiliency & Efficiencies (ACRE) Grant, the Traditional Ag-Energy Program Grant (ENER), and the Agricultural Environmental Enhancement Program Grant (AEEP).

- **Part I: Adaptation & Mitigation Projects**
  - **Reduce heat stress on animals**
  - **Water Management**
  - **Crop Diversification**
  - **IPM**
- **Part II: Agricultural Energy Projects**
- https://www.mass.gov/how-to/how-to-apply-to-the-climate-smart-agriculture-program



Legend

- Agricultural Resources
- Bridges/Culverts Located on Evacuation Routes
- Campground
- Cell Tower
- Cemetery
- Contaminated Site
- Emergency Fuel Station
- Fire Department and Emergency Operations Center
- Fuel storage
- Heavy Equipment/Supplies
- Helicopter Landing Sites
- Highway Department & Alternate Emergency Operations Center
- Library
- National Historic Sites
- Police Department
- Public Water Supply
- Religious Centers
- River Crossings (Bridges and Culverts)
- Schools
- Secondary Warming and Cooling Center
- Senior Living
- Sites with Emergency Generators
- Special Needs Facility
- Tier II Facility
- Town Hall
- Transfer Station & Recycling Center
- Warming and Cooling Center
- Main Electrical Service Lines
- Evacuation Route
- Solid Waste Facilities
- Conservation/Protected Land
- Open Space

Dams

- High Hazard
- Significant Hazard
- N/A

Public Water Supplies

- Non-Community Groundwater Source

Wellhead Protection Areas

- DEP Approved Zone
- Interim Wellhead Protection Areas

Surface Water Protection

- ZONE A
- ZONE C

Waterways

- Rivers, Streams, and Brooks
- Marsh/Bog/Wooded Marsh
- Lakes, Ponds, Reservoirs

Flood Zone Designations

- 1% Annual Chance of Flooding (Zones A, AE, AH, AO)
- 0.2% Annual Chance of Flooding (Zone

Census (2010)

- > 25% of population is < 18
- > 25% of population is 65+

FIGURE 1

TOWN OF WESTHAMPTON, MASSACHUSETTS

MUNICIPAL VULNERABILITY PREPARDNESS HAZARD AND FEATURE MAP

FEBRUARY 2021 SCALE: NOTED

Weston & Sampson

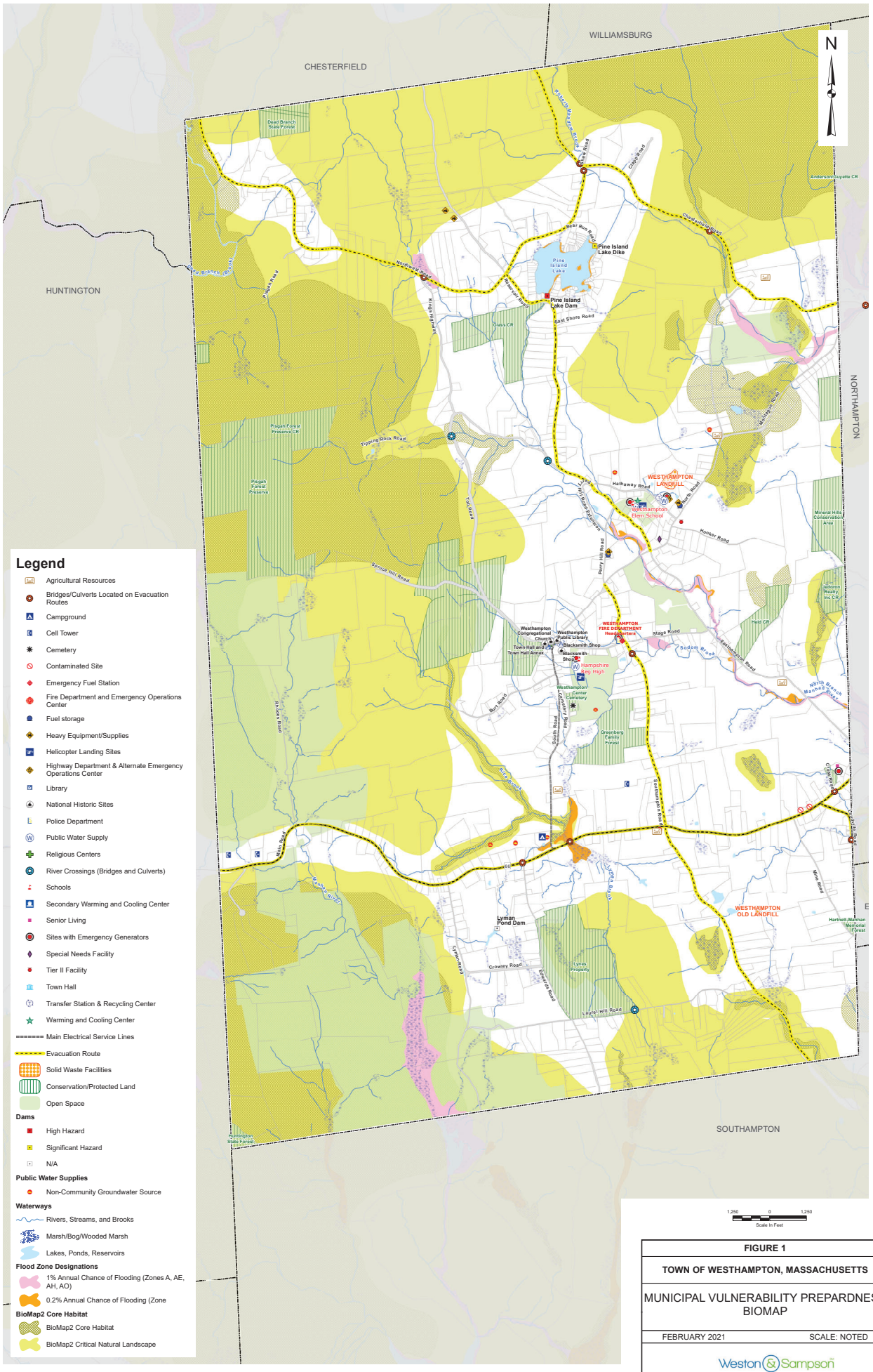


FIGURE 1

TOWN OF WESTHAMPTON, MASSACHUSETTS

MUNICIPAL VULNERABILITY PREPARDNESS BIOMAP

FEBRUARY 2021 SCALE: NOTED

Weston & Sampson

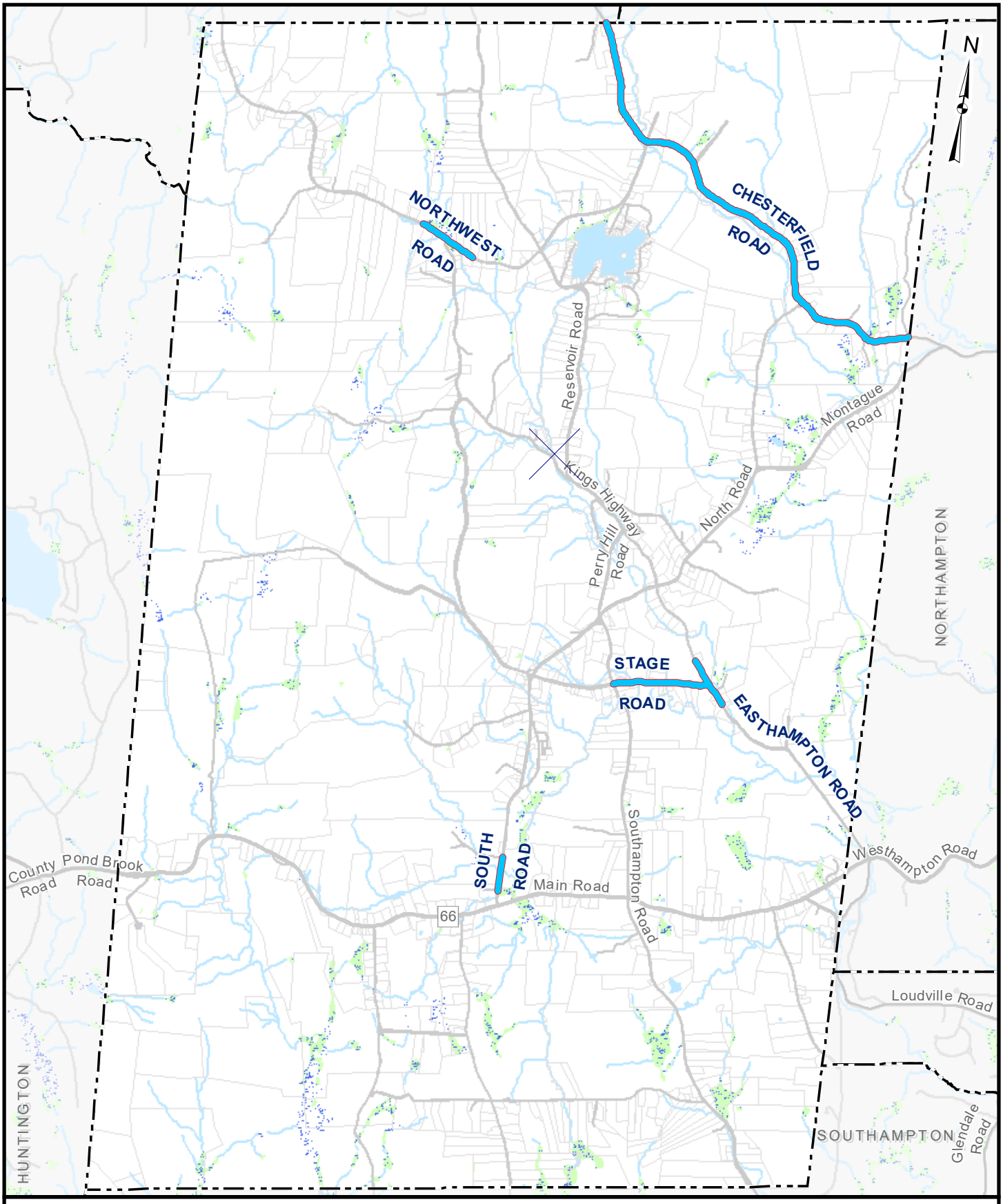


FIGURE 1
TOWN OF WESTHAMPTON, MASSACHUSETTS

FLOOD AREAS
LOCUS MAP

Areas Susceptible to Flooding

0.75 0 0.75
Miles

Weston & Sampson

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Westhampton Community Lifelines and Critical Facilities

The following list of features and assets serves as documentation of the Town's Community Lifelines and Critical Facilities and Infrastructure. The items in the table will be mapped to assess the town's vulnerability.

Feature Type	Name	Address
SAFETY AND SECURITY		
Emergency Operations Center	Westhampton Fire Department	48 Stage Road
Highway Department & Alternate Emergency Operations Center	Westhampton Highway Department	58 Hathaway Road
Fire and Police	Fire Department Police Department	48 Stage Road
FOOD, WATER, SHELTER		
Agriculture	Outlook Farm & Market	136 Main Road
	Intervale Farm	106 South Road
	Bridgmont Farm	71 Chesterfield Road
	Mayval Farm	137 Easthampton Road
	Runnymede	105 South Road
	Hanging Mountain Farm & Café	188 North Road
Warming and Cooling Center	Westhampton Elementary School	37 Kings Highway
Secondary Warming and Cooling Center	Westhampton Public Library	1 North Road
Sites with Emergency Generators	Public Safety Complex	48 Stage Road
	Highway Department	58 Hathaway Road
	Westhampton Woods	13 Main Road, Unit F
	Westhampton Elementary School	37 Kings Highway
	Hampshire Regional High School	19 Stage Road
Public Water Supply (Wells serving over 25 people or over 15 connections)	Westhampton Elementary School	37 Kings Highway
	Hampshire Regional High School	19 Stage Road
	Westhampton Congregational Church	1 Tob Road
	Westhampton Public Library	1 North Road
	Town Hall and Town Hall Annex	1 South Road
	Highway Department	58 Hathaway Road
Wastewater	Private Septic Systems	Town-wide
HEALTH AND MEDICAL		
End of Life Facilities	Center Cemetery	7 Cemetery Road
Health Services	See regional section	
Special Needs Facilities	Massachusetts Department of Health and Human Services Home	100 North Road

ENERGY		
Eversource (critical infrastructure)	Minor substations	Corner of East Hampton and Stage Rd. Upper 66 Will be one on Montague
No natural gas provider		
Solar (feeds the grid)		Library Planned Solar Field near the corner of Montague Rd. near North Rd. Zimmerman's/Old School
Portable Generators	Highway Department	58 Hathaway Road
	Public Safety Complex	48 Stage Road
Emergency Fuel Station	Public Safety Complex	48 Stage Road
Power Transmission Line	None	
Main Electrical Service Lines	Loudville Road Route 66 South Road	See Critical Facilities Map
COMMUNICATIONS		
Cell Towers		477 Route 66
		461 Route 66
		Southampton Road
TV Provider - Comcast		
Radio Receivers	Town Repeater Also have town-wide frequency	Mt. Tom
	County Repeater (Fire Department)	Mt. Holyoke, Skinner State Park
Alert Systems	Code Red through Fire Department Website alerts and messages Board of Health alerts	
TRANSPORTATION		
Evacuation Routes	Route 66	See Critical Facilities Map
	Chesterfield Road	See Critical Facilities Map
	Northwest Road	See Critical Facilities Map
	Southampton Road	See Critical Facilities Map
	Reservoir Road/Easthampton Road/Loudvillle Road	See Critical Facilities Map
Rail	None	
Transit	On-demand van service- COA and Franklin Regional Transit Authority	12 Olive Street, Greenfield
Helicopter Landing Sites	Hampshire Regional High School parking lot	19 Stage Road
	Westhampton Elementary School	37 Kings Highway

HAZARDOUS MATERIAL		
Waste Management	Westhampton Transfer Station & Recycling Center	52 Hathaway Road
	Westhampton landfill (capped, closed)	Hathaway Road
	Old landfill (Uncapped, inactive)	250 Southampton Road
	Former junkyard	35 Main Road
Tier II Facility	Hathaway Construction Corp Westhampton Plant	119 North Road
Fuel storage	Hathaway Construction	128 North Road
	Meehan Construction	19 Perry Hill Road
COMMUNITY AND CULTURAL FACILITIES		
Religious Centers	Westhampton Congregational Church	1 Tob Road
Library	Westhampton Public Library	1 North Road
	Westhampton Memorial Library	3 South Road
Schools	Westhampton Elementary School	37 Kings Highway
	Hampshire Regional High School	19 Stage Road
National Historic Sites	Blacksmith Shop	5 Stage Road
	Town Hall and Town Hall Annex	1 South Road
	Westhampton Congregational Church	1 Tob Road
	Westhampton Public Library	1 North Road
Senior Living	Westhampton Woods	13 Main Road
Public Offices	Town Hall	1 South Road
Campground	Windy Acres KOA Campground	139 South Road
REGIONAL FACILITIES		
Hospital/Medical Response	Easthampton Fire Department (Service Agreement, Primary Provider)	
	Southampton Fire Department (Mutual Aid Ambulance)	
	Northampton Fire Department (Mutual Aid Ambulance)	
	Pioneer Valley Ambulance	34 N Maple Street, Northampton
	Emergency Distribution Center	TBD, Easthampton
	Cooley Dickinson Hospital	30 Locust Street, Northampton
Regional Emergency Shelter	Smith Vocational and Agricultural High School	80 Locust Street, Northampton
Housing/Shelter	Hampshire County Interfaith Shelter	43 Center Street, Northampton
Waste Management	Northampton Sanitary Landfill	170 Glendale Road, Florence

Food Assistance	Easthampton Community Center	12 Clark Street, Easthampton
	Highland Valley Elder Services (Meals on Wheels)	
	Northampton Survival Center	
	Community Action Pioneer Valley	56 Vernon Street, Northampton
Post Office	Easthampton Post Office	191 Northampton Street, Easthampton
Communications	Cable Access TV	Northampton
	Radio Stations – WHMP, WRSI, WFCR	
Cabs	Cosmic Cab	78 Conz Street, Northampton
	Go Green Cab	2 Conz Street, Northampton
	Northampton Cab	68 Bradford Street, Northampton
	Paradise Taxi	16C North Maple Street, Northampton
Bus Service	Durham Transportation (Buses)	77 Ferry Street, Easthampton
	Lecrenski Brothers (Buses)	169 College Highway, Southampton
	Strong Corporation (Buses)	40 O'Neil Street, Easthampton
NATURAL RESOURCE ASSETS		
BioMap2 Areas		See MVP Environmental Map
Groundwater Protection Areas		See MVP Environmental Map
Surface Water Protection Areas		See MVP Environmental Map
Parks and Open Space		See MVP Environmental Map
Waterbodies		See MVP Environmental Map
OTHER		
Dams	Pine Island Lake Dam Pine Island Lake Dike Lyman Pond Dam	See Critical Facilities Map
Heavy Equipment/Supplies	Todd Alexander	202 Reservoir Road
	David Loven	230 Reservoir Road
	Hathaway Construction	128 North Road
	Meehan Construction	19 Perry Hill Road
Gravel Pits		Chesterfield Road North Road South Road Reservoir Road Perry Hill Rd

Bridges/Culverts Located on Evacuation Routes (from 2016 HMP)

- Route 66 – two Sodom Brook crossings; 1 Manhan River crossing
- Chesterfield Road – 2 Roberts Meadow Brook crossings
- Northwest Road – 1 at Manhan River crossings; 1 at Roberts Meadow Brook
- Southampton Road – 1 Sodom Brook crossing
- Loudville Road – 1 culvert to unnamed brook
- Easthampton Road – 2 bridges (*note: both have weight limits due to condition*)

River Crossings, Including Bridges and Culverts (from 2016 HMP)

- Laurel Hill Road at Lyman Brook (*note: culvert here is undersized*)
- Northwest Road at Manhan River (*note: culvert here is undersized*)
- Chesterfield Road near Roberts Meadow Brook (*note: weight limit due to condition*)
- Kings Highway at Manhan River (*note: weight limit due to condition*)
- Tob Road near small tributary to Manahan River (*note: weight limit due to condition*)

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

H-**M**-**L** priority for action over the **S**hort or **L**ong term (and **O**ngoin
V = Vulnerability **S** = Strength

Features	Location	Ownership	V/S	Intense Rainfall and Flooding	Extreme Heat and Drought	Extreme Cold and Winter Weather	Wind	Priority **H** - **M** - **L**	Time **S**hort **L**ong **O**ngoing
Infrastructural									
Culverts - undersized. Culvert washouts reported by DPW. Washouts have involved flooding of town hall.	Perry Hill Rd., near Town Hall, dirt road runoff increases flooding issues beaver activity is creating further	Town	V	Culvert Priority Assessment Upsize and rehabilitate undersized culverts - Northwest Road and Kings Highway, Laurel Hill Road, Perry Hill Road				H/M	S/O
Limited weight bridges - truck	see critical facilities list	Town	V	replace bridges	Low spot on 66 floods			M	S/O
Municipal Buildings: **Town Hall (historic building)** Flooding, Library (old building from 1814) topography could cause basement flooding Antiquated Police/Fire Station New safety building in planning (will house fire and police, EOC, potential for	Stage Road Town Hall basement flooding (currently used for storage of records)	Town	Flooding of municipal basement: V S	Library: waterproof library basement, install green infrastructure to infiltrate/store runoff or design it to bypass basement Town Hall Flooding Assessment: potential action items: move record storage to new Safety Building and/or upload them to the records management system (work with UMass), install storm water detention system or stormwater diversion system for runoff from slope, infiltrate stormwater in and around parking lot, relocate HVAC from basement, address potential mold in basement	Town hall floods every time it rains, need to think about piping to basins in front of town hall			H	S/M
Dams (Pine Island Lake Dam - High Hazard, Pine Island Lake Dike - Significant Hazard, Lyman Pond Dam - Low Hazard)	Pine Island Lake Dam - Reservoir Rd.	Private	V?	Verify condition of the dams. Work with owners of Pine Island Lake Dam (privately owned) on dam maintenance if needed (engineering consultant inspects and reports on condition every year). Under Reservoir Rd, the culvert and spillway need replaced. Dam is in good condition.				M	look at EAP: short term monitoring: ongoing
Electric grid/minor substation	Poles are all above ground Elementary school doesn't have water if the power goes out		Above ground poles are a Vulnerability - power goes out often S	Add backup power to well at elementary school (school is used as an warming shelter, not an emergency shelter due to water power issue). Eversource offers help and advice for battery backup.				M/H	short/mediu
Drinking water wells - wells running dry is not a concern due to high water table, if it is a deep well. Some folks have shallow wells (older wells) that are a greater concern during droughts	shallow wells (drying up, pollution)		deeper wells: S Shallow wells and droughts: V		some residents have needed to dig deeper wells. Do a study of what water supplies exist in Town and how they will be impacted by climate. Groundwater protection - how to protect groundwater from development.	pre-wet roads with a salt mixture to reduce salting during a storm (new equipment)		M/H	
Societal									
Communications - alerts and technology (Wi-Fi, cell towers, "What's Up in Westhampton," Town Website, Comcast chosen as provider due to cost).	Website, BOH, Code Red	Town	V/S	Central communication needed for all residents - including linking volunteers with EM.			Identify options for resilient backup for cell towers, cable, internet, and power to support municipal buildings, residents, and businesses. Need generator for police network. Fire and EMS system has access to three connected towers. Evaluate microgrid with Town Hall, library, regional high school. Add additional solar with battery backup	H	S/M
Vector borne diseases (ticks and Lyme disease is always a concern, but COVID has become a larger public health concern. Ticks were recently down due to drought. Concern about indiscriminate spraying related to EEE, although EEE hasn't been an issue in Town)	Lyme/Ticks, EEE/Mosquitos	N/A	V		Public education and communication about vector borne diseases and other public health concerns expected to increase with climate impacts. Council on Aging Newsletter, Bell Tower articles, workshops. Public educational campaign with fact sheets, social media, brochure, **trail posts - there are a lot of walkers in Town**. Formalize an engagement plan with templates, distribution channels. Pilot communications			M	S/M

Emergency services (Town has 2 warming centers)			S		Eversource offers help and advice for cooling centers	Public education on how to build personal resilience (have an emergency supply kit at home)	Elementary school generator does not cover the water pump - see infrastructure action item. Town Hall is a big concern because that's where all the servers are	M	M
Volunteers (volunteers have a "phone tree" (including CodeRed and list maintained by fire department spouses) and assist with operating shelters, also assist with support when firefighting, and volunteers with vehicles. Church and schools provide food and have associated volunteers and food trees. Westhampton Connects group links various Town interests)			S	Document the informal "phone tree" and update emergency response plans to include volunteer work. Formalize volunteers as CERT to become eligible for grants.				H	S
People with possible barriers to building resilience (income, non-English speakers, immigrants, people of color, youth, etc.)	Senior living - Westhampton WoodsSchools/Youth programs							M	O
Regional services (medical, **waste management,** food assistance, etc.) Select Board has also discussed regional staff positions for the Town - priority to help recruit and keep staffing							Transfer station needs a generator. Its a public health concern. Considering solar at transfer station. Evaluate cost effective options to get rid of solar panels and batteries - life cycle approach.	M/H	O
Private residences and businesses (including agriculture - maple syruping, crops, dairy farming, beef production) Westhampton is a registered agricultural community and all of the zoning must reflect that.				Green infrastructure to address sedimentation from gravel operations and businesses at specific sites and reduce impact on stream. **Develop a Resilient Economic Development Plan/Assessment (M-H Priority and M Timeframe)** to assess gravel pits and agriculture and prepare Town's economy for future. Hire an outside party to assist in these conversations - offer businesses helpful resources. Business Assistance Program rather than a regulatory approach. Also applicable to timber harvesting businesses and local tree removal. Support sustainability of businesses' operations	Ensure there's a plan in place for agricultural preservation and to preserve local businesses/farms. Include local farmers and advocacy groups in MVP Planning process.			H	O
Library (communicate information, public access to wifi but must connect to landline, small gathering space)				Sign library up to be a "climate resilience hub" - will lead to free flyers, information about climate impacts, and host at least one community program			Library needs a generator.	M	M
Housing (zoning, senior housing, young residents. Ongoing zoning review - in-law apartments, multigenerational homes)				Adopt revised floodplain bylaw within 2 years, or when FIRMs are updated (if earlier). Seek funding to review floodplain bylaw to make sure it meets new standards, and to update FIRMs.	Updating bylaws for different housing types. Pass revised bylaw at Town Meeting. Identify grants to support volunteers revising zoning (DLTA, Planning Assistance grants). If Westhampton became a CPA Town, funds would be available for housing. Public education on what CPA means for community			H	S
Environmental									
Planning and Bylaws	Open Space and Rec Plan, Zoning Updates	Town	V	Pair zoning updates with a Comprehensive Plan. Develop Comprehensive Plan and updated OSRP together/write OSRP within the Master Plan and work with partners.				H	S
Open Space - forests, parks, recreation areas		Town/State	V/S	**OSRP** needs to be updated and combine with public outreach and education. Twilight series - meet at end of farmers' workday to talk about erosion issues, etc. Integrate resilient land mapping tool while updating OSRP. Do a study of Town land mass and how much is protected, under Land Trust, watershed - much land is tax exempt. Develop a **Master Plan** identifying land for conservation and land for development. Where Town wants development to occur and to continue agricultural base. Pilot project on private land (could be a gravel operation) to demonstrate proposal/public education - demonstrate how to develop a restoration plan. Expand on current conservation areas and create trail corridors - include in updated OSRP. Town may exercise right of refusal re: future land acquisition. Prioritize possible parcels now in preparation for future opportunities. Updated OSRP would make Town eligible for grants.			Secure more tree management funding. Town can call Eversource to ask for help addressing hazard trees threatening Eversource wires. Eversource does some vegetation management to minimize storm impacts. In Town ROW and on Eversource properties - address encroachment of private properties to facilitate future resiliency work when needed. Town can assess proposals from properties abutting ROW carefully for impacts on Town and Eversource	M	M/O
Agriculture		Private		Pollinator Committee is discussing concerns around Town/private pesticide/herbicide use - support				M	**S/M/O**
Historic Resources				Get input from local history experts on historic landscapes and historic sites in Town (beyond Town Hall)				L	L/O
Wetlands		Public/Private		Engage ConCom to discuss.					
Waterbodies		N/A		All farms are near brooks and tributaries, but cows can be fenced off from them (to avoid waste issues -not a large concern in Town). Cows can be at risk to flooding impacts				L	L/O
Landfill				Assess for opportunities for solar, battery storage. Issue RFP for developers after study is completed. Evaluate options/needs for solar bylaw				M	M/L
Invasive species (Japanese Knotweed, Ash boarer - Town is losing Ash Trees. Maple trees are		N/A	V		Assessment needed. Town has a invasive species export locally.			H/M	M/O

Allergies have developed recently - much worse in the past 30 years

APPENDIX C

Public Listening Session Materials

ARE WE PREPARED?

Join us for a discussion on how to increase resiliency in Westhampton

Municipal Vulnerability Preparedness Plan Listening Session

Thursday

April 29

7:00-8:00PM

PRESENTATION
+ LIVE POLLING
+ DISCUSSION

Weston & Sampson
transform your environment

Catalyst for Regional Progress
PVPC

Due to the COVID-19 pandemic and the Governor's guidelines for distancing and gatherings, we will hold a virtual meeting. To join, go to zoom.us and select "join a meeting."

Enter ID Code: 812 6757 9565

Passcode: 3321

Or by phone: 929-205-6099

www. westhampton-ma.gov/

MUNICIPAL VULNERABILITY PREPAREDNESS PLANNING GRANT LISTENING SESSION

Due to the COVID-19 pandemic and the Governor's guidelines for distancing and gatherings, we will hold a virtual meeting. To join, go to zoom.us and select "join a meeting." Enter ID Code: 812 6757 9565, then the passcode: 3321. You can also call in by phone: 929-205-6099 with the same ID and passcode.

Welcome	5 minutes
Municipal Vulnerability Preparedness (MVP) Program Overview	5 minutes
Climate Change in Westhampton	10 minutes
Strengths and Vulnerability in Westhampton	10 minutes
Priorities in Westhampton	15 minutes
Discussion/Questions	15 minutes

Westhampton MVP Public Listening Session and Online Comments

Listening Session Attendees:

1. Shirl Morrigan
2. Richelle
3. Teri Anderson
4. Shawna
5. Sue O'Rourke
6. Susan Bronstein
7. Barbara Pelissier
8. Marilyn R Witherell
9. Catherine Ratte PVPC
10. Ryan Feyre
11. Jessica Lerman
12. Anne Marie O'Reilly
13. Chris W
14. Roberta Armenti
15. Laurie Sanders
16. John Shaw
17. Sheila Marks
18. Brigid O'Riordan
19. Lily Lombard
20. Amanda Kohn, W&S
21. Adria Boynton, W&S

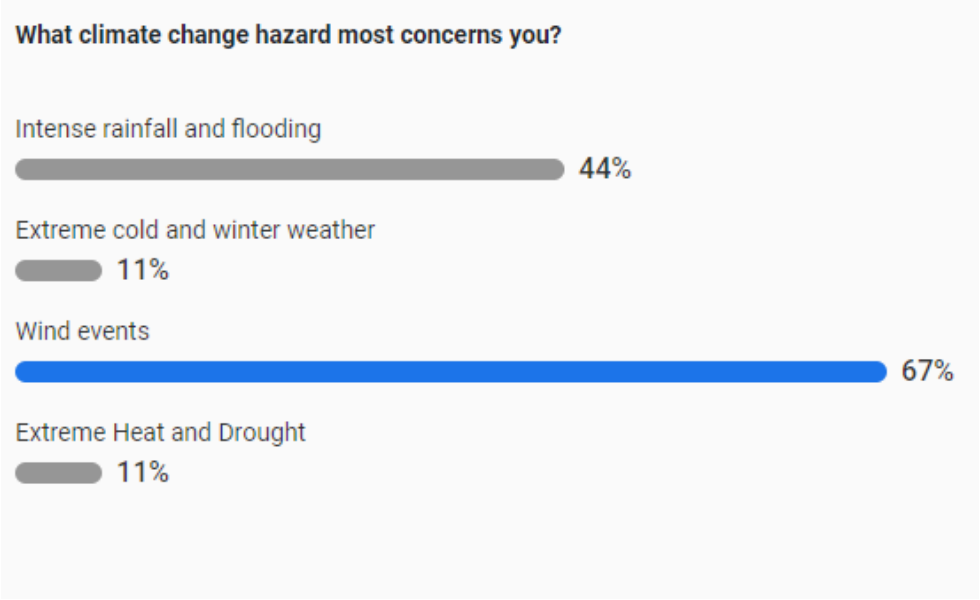
Notes from Meeting:

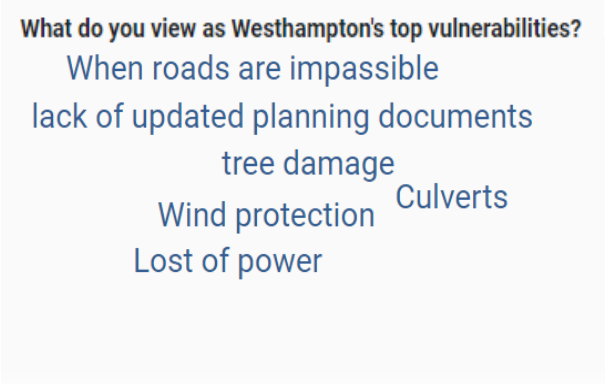
Q= Question from Participant
A = Answer
C= Comment from Participant
Names of Core Team Members were left in the notes.

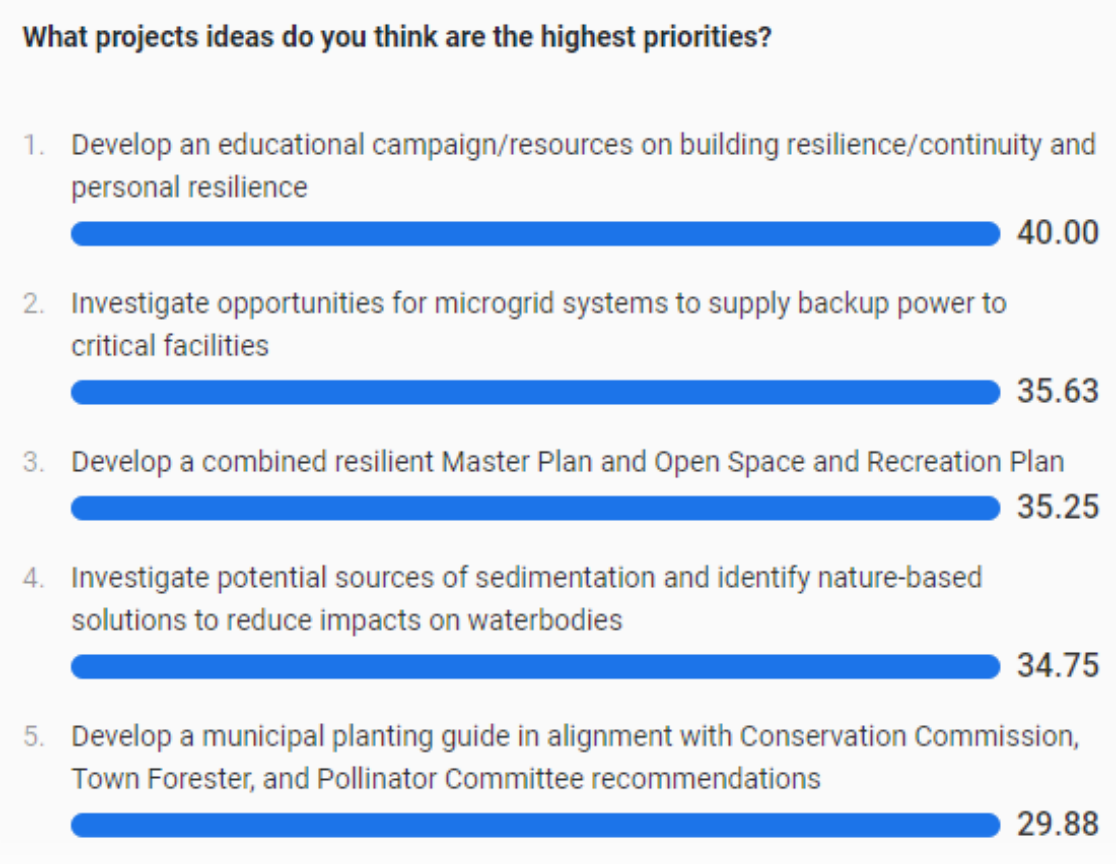
- How did people hear about the meeting? Most people heard of the meeting through the e-blast.
- Presentation from Amanda
- Q: Are you state representatives? A: We're from W&S, We're MVP certified providers here to assist, PVPC is also a project partner and is your regional planning agency.
- Q: How were those areas of flooding identified? A: We looked at FEMA flooding. These were also areas identified in the workshop, interviews, Core Team meeting, and in the last Hazard Mitigation Plan (HMP).
- Q: Who was involved in the workshop? A: We used the required workshop format from The Nature Conservancy that recommends a list of stakeholders to invite, which includes state and regional agencies, elected officials, municipal departments and board members, neighboring municipalities, town staff, and other local groups or champions. We had approximately 70-80 people on the invite list. The invite list and participation list are available in the report. We met three days in a row to discuss.
- Q: 4 Nor'easters in 4 weeks – did they impact Westhampton? A: Participants did not remember the these had a large impact on the Town.
- C: The town experiences a more windstorms. I haven't noticed the higher temperatures.
- C: Highway Superintendent was involved in identify high priority issues. Core Team is composed of Town members.
- Slido poll – Wind events was top of the list of concerns. Tell us why:
    - As a resident of Northwest Road who goes to work when it is dark, I don't know if trees or power lines are blocking the road. The last storm we had there were trees across the road.
    - In past year, an elm tree split in half from a windstorm. To remove the tree and remove other trees that are putting our house at risk, we have incurred a lot of costs.

    - Drought leads to sick trees, trees get infected with bugs, and then the trees get weaker.
- Q: Were specific culverts identified as undersized by highway department? A: Yes, it's in the plan: Northwest Road and Kings Highway, Perry Hill Road, Chesterfield Road, Laurel Hill Road, Reservoir Road.
- Q: Why was affordable housing listed as a vulnerability? A: People were seeing the lack of affordable housing in Town as a vulnerability on the social side of things. Recognizing that some of our climate vulnerable populations may be low income and are looking for affordable ways to live in Westhampton. We don't want to overburden people with the cost of housing – then it's harder to prepare and respond to events when they do happen.
    - C: We've heard at Select Board there's very little senior housing for seniors that wans to stay in town. There's a desire for affordable Senior Housing. There's just one option currently.
- Discussion on water access for firefighting. We're all on individual wells. We have no water source to feed fire hydrants under pressure. That could be long-term consideration, but we do have large water tankers that should be sufficient in the short-term.
- Q: Can you explain what microgrids are? A: They are isolated systems linked to renewable energy in the context of MVP. The Town of Shirley did an assessment that could be applicable to Westhampton.
- Discussion of other MVP projects – Blandford is doing resilient master plans. Project in Springfield to improve communications to improve confidence in local government. And microgrid project in Springfield. Agawam theater/art project to provide education on storm drains. Holyoke is doing a tree project. S Palmer project related to an assessment of a microgrid – they didn't build it. One community was looking into a power purchasing program to offset some cost – to pay for construction.
- Q: How were these action items chosen for the poll? A: These were a diverse range – infrastructure, societal, environment.
- Q: Is the grant money for the Town or individual citizens? A: The funding must go to the Town, but the project does not have to be on Town property. The grant also requires a 25% match. The match doesn't have to be Town funding – can be foundation, public/private partnership, federal funding, private business.
- Q: I was expecting there would be more undersized culvert projects/civil engineering projects. Why isn't there many hard infrastructure projects? A: Almost 90% of State is MVP certified or will be this year. It's more and more competitive. EEA is encouraging people to go to DER culvert replacement grant. There is also an emphasis on nature-based solutions. Springfield got $1M to plant trees.
- Q: Thinking about wind and downed trees, if the power is off, what are the communications systems – a generator at Town Hall? How could we improve emergency response to severe weather? What are other Towns doing?
    - A: Please refer to the MVP Action Grants discussed previously on energy resilience that used solar and backup storage.
    - A: Robust communication between residents can also be critical. New Bedford was looking at establishing community hubs. Each hub would have a community champion who would maintain the community hub and check in on people. The location needs to be a home or facility that everyone is comfortable going to, has a backup energy source, food, and storage of emergency goods (extra flashlights, batteries, blankets). Some have an emergency contact list for neighbors or a phone tree.

    - C: The town has an emergency response and communications plan and does check on vulnerable residents they are aware of.
    - C: We need more redundancy for internet and cell service or ways to communicate without relying on technology. More information on outages and services during events would be useful
- C: There should be more education on where you can go to for warming/cooling centers or simply places to charge your phone
    - Northampton's Smith School can be open 24/7.
    - Elementary School has a generator and could stay open, but if people don't come, they do have more limited hours because they have to be staffed.
    - The Hampshire Regional School is also a shelter.
    - Many residents would not go to a shelter and would ride out the storm or heat. Need to find a way to motivate people or destigmatize the resources.
    - Will be easier to use these shelters after COVID.
- C: I was interested in open space, senior living, affordable housing, there's a lot we need to do. Master Plan and OSRP should be a high priority.
- Q: Did you talk about forest conservation, longer term climate mitigation and adaptation in the plan? A: A key piece of updating OSRP is looking at carbon sequestration, climate mitigation, resilience.
- Partnerships could be possible (for example with the Hilltown Land Trust) since MVP might be one eventual source of funding for land conservation.
- C: 20 years ago, Westhampton had storm and the power was out for five days. It was during the summer, so heating the home was not a problem. Many people hooked up to generators to keep the fridge running and other essentials. Many needed to get water from neighbors who had power or generators.
- The Board of Health records did not provide any evidence that the drought of 2016 or 2020 led to an increase in wells being dug. Perhaps further research might uncover more information on the number of shallow wells and the impact of droughts.
- Improving the water quality of natural brooks and waterbodies would also help with water supply security, but the water would still need to be filtered.







Comments from Online Form

- Barbara Pelissier
- Lilly Lombard
- John Lombard
- Sheila Marks
- Barbara Page

Summary of Comments from Online Form

- As part of the MVP activity, the towns of Sheffield, New Marlboro and Sandisfield are participating in a newly developed assessment project regarding the vulnerability of unpaved roads in times of extreme storms and unpredictable freeze-thaw times. There is a lot of valuable information that Westhampton might want to consider and ways to get to that information at the following link: mvpresilientdirtroadsproject.wordpress.com.
- In addition to vulnerability of both natural (slope, etc.) and man-made (culverts, roadbeds) considerations, the percentage of unpaved roads as well as the percentage of the Hwy Dept. Funds/time expended on repairing/maintaining them can be very revealing. In extreme weather events/emergencies, dirt roads can hinder emergency personnel from reaching vulnerable residents, can prevent residents from evacuating to a shelter, and considerations for the fact that we have school busses travelling on the unpaved roads are all considerations that carry points in evaluations. It's certainly worth looking at that link. Also, I hope the town's Hwy. Dept. will have shovel-ready projects on hand for when Biden's infrastructure money starts rolling out. If not, now would be the time!
- While the report mentions wells several times, it never mentions the fact that residents without power cannot access the water in their wells. I think that needs to be stated somewhere, because it could lead to the town providing water to residents in a days-long power outage event.
- Strongly support identifying critical forested land for permanent conservation for ecological services and carbon sequestration. Also identifying private forested land where landowners may not be either interested in or in a position to donate it but could be financially incentivized to hold/grow carbon sinks and habitats of high value.
- Given that the state is massively incentivizing solar power generation, including on previously forested tracts of land (including especially western MA), I think, as a counterbalance, Westhampton's MVP plan should affirm priority in identifying and permanently protecting forested land in Westhampton of high ecologic value.
- Maybe about 5 years ago, several of us tried to hold a couple of info sessions about implementing a CPA in town. The measure was ultimately put to a vote in town and defeated.
- We need a way to monitor water quality and trace the source of human activity responsible.
- More publicly accessible information on the Pine Island Lake Dam and ability to be used for flood mitigation would be useful. Thank you for all your efforts!
- The draft report looks excellent and the work of all the volunteers on this is so appreciated. Based on patterns elsewhere, my main concern is that fire is under-emphasized here as a major threat. Our forests depend on regular rainfall, but climate patterns seem to indicate increases in stalled weather systems that could lead to significant drought and fire danger if no rain occurs for weeks or months. Fire may not be the top risk, but its devastating impact should make it a priority in planning. Brush clearing and evacuation plans are two ideas that come to mind. Many resources on addressing fire must be available nationally and could be adapted for our town. Thanks again for this important work.