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TOWN OF TYRINGHAM
COMMUNITY RESILIENCE
COMMUNITY RESILIENCE BUILDING WORKSHOP
SUMMARY OF FINDINGS REPORT

December 1 & 15, 2021
File No. 15.0166972.00

PREPARED FOR:
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EXECUTIVE SUMMARY

Per Executive Order 569, on December 1st and 15th, 2021 the Town of Tyringham facilitated a Community Resilience Building (CRB) Workshop using the Nature Conservancy's CRB guidance. In preparation for the CRB Workshop, the Core Team, with assistance from GZA GeoEnvironmental, Inc. (GZA), invited local stakeholders to attend the CRB Workshop. These stakeholders included local and regional representatives. The Workshop's central objectives were to:

- Define the top local natural and climate change-related hazards of concern,
- Identify hazard vulnerabilities,
- Identify existing Town capabilities,
- Develop and prioritize actions for the community, and
- Identify opportunities to collaboratively advance actions to increase resilience.

The following is a brief summary of the CRB Workshop results with an emphasis on the top hazards, specific areas of concern and top priorities for climate adaptation actions.

Top Natural and Climate Related Hazards

1. Flooding
2. Ice Storms
3. Heat/Extreme Temperatures
4. High Winds

Vulnerabilities & Strengths – Infrastructure

Infrastructural Vulnerabilities

- Town Hall
- Roads
- Highway Department
- Fire House Property
- Goose Pond Dam
- Power Lines
- Shaker Pond Dam
- Transfer Station

Infrastructural Strengths

- Schoolhouse Property
- Union Church

Vulnerabilities & Strengths – Societal

Societal Vulnerabilities

- Elderly Population
- Lack of Public Transportation
- Lack of Cellular Service

Societal Strengths

- Council on Aging
- Hop Brook Club
- Valley Club
- Strong Public Service

Vulnerabilities & Strengths – Environmental

Environmental Vulnerabilities

- Round Mountain Beaver Dam
- Hop Brook
- Goose Pond
- Abundant Tree Canopy
- Drainage Ditch

Environmental Strengths

- Fire Ponds
- Abundant Tree Canopy

Identified Climate Adaptation Action Priorities

High Priority Actions

- Conduct a Hydrologic and Hydraulic Analysis of Hop Brook & Flood Vulnerability Assessment Study for Town Infrastructure along Main Road (Town Hall/Highway Garage, Fire House property). (Short Term)
- Engineering design of improvements at Beach Road to address flooding (Short Term)
- Relocate Highway Garage out of flood zone. – Supported by Flood Vulnerability Assessment (Long Term)
- Address vulnerabilities at Town Hall – including climate control records storage, digitalizing town records and improving remote access, flood-proofing the basement (Long Term, Ongoing)
- Identify properties for purchase to be used for relocation of vulnerable Town facilities (Short Term)

Medium Priority Actions

- Identify roads vulnerable to flooding and/or erosion. (Short Term)
- Town-wide flood study, including culvert assessments and beaver impacts. (Long Term)

Low Priority Actions

- Collaborate with utility companies to place wires underground. (Long Term)

- Feasibility Study regarding back-up water supply for Town of Tyringham. (Long Term)

Top Priority Actions

1. Relocate Highway Garage out of flood zone. – Supported by Flood Vulnerability Assessment (Long Term)
2. Engineering design of improvements at Beach Road to address flooding (Short Term)
3. Conduct a Hydrologic and Hydraulic Analysis of Hop Brook & Flood Vulnerability Assessment Study for Town Infrastructure along Main Road (Town Hall/Highway Garage, Fire House property). (Short Term)
4. Identify properties for purchase to be used for relocation of vulnerable Town facilities (Short Term)
5. Address vulnerabilities at Town Hall – including climate control records storage, digitalizing town records and improving remote access, flood-proofing the basement (Long Term, Ongoing)

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1.0 OVERVIEW

1.1 INTRODUCTION

The Town of Tyringham is one of 278 municipalities (see **Figure 1)** in the Commonwealth of Massachusetts that are proactively increasing resiliency to natural hazards and climate change at the local level through the Municipal Vulnerability Preparedness (MVP) Program. Natural disasters can cause loss of life and extensive damages to properties and infrastructure, affecting the local, state, and national economic, social, and environmental well-being. Weather natural disasters are likely being impacted by climate change and are expected to be further exacerbated by future changes in climate.

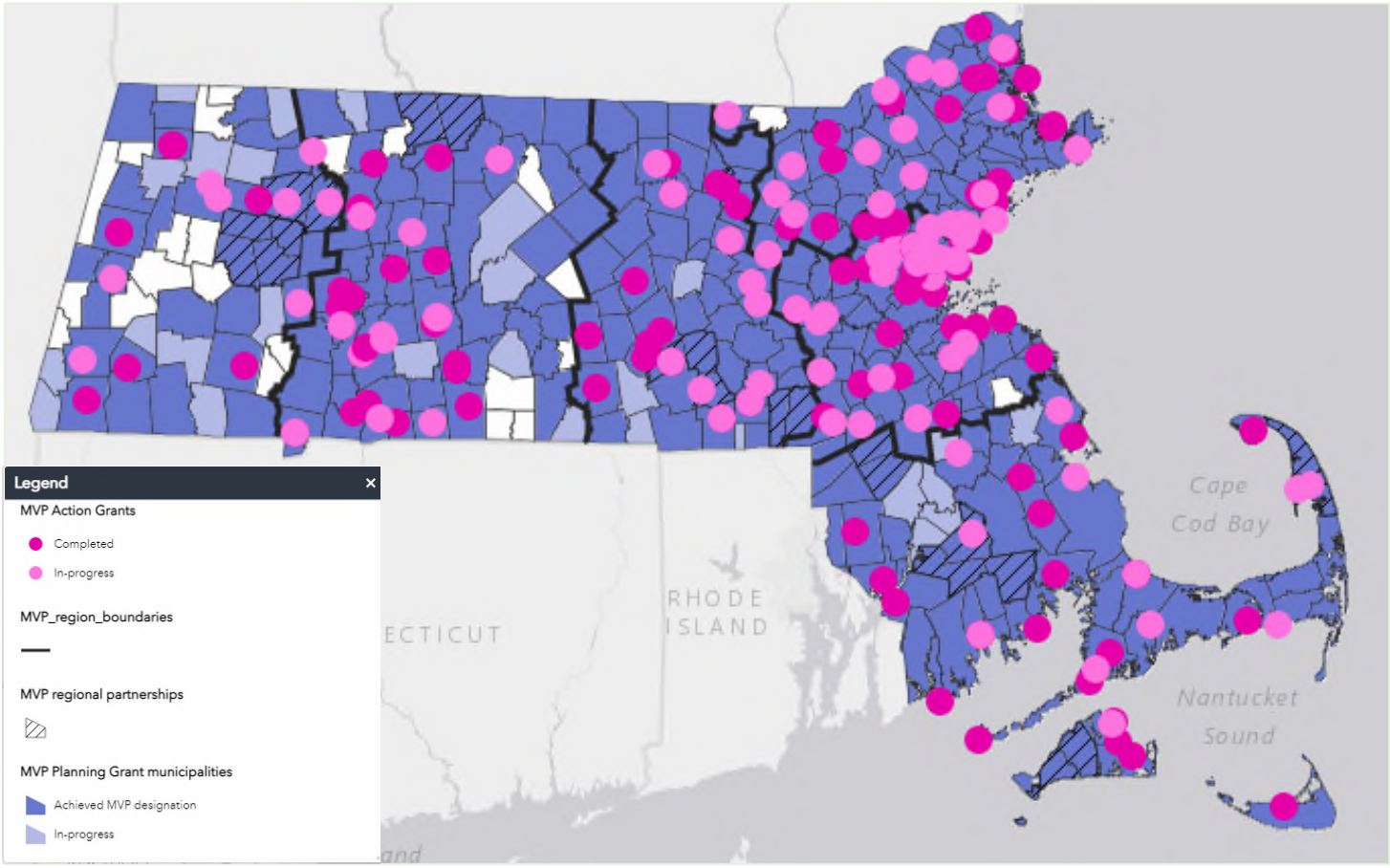


Figure 1. Map of MVP Designated Communities, FY2022 Planning Grant Communities and Locations of MVP Action Grant Projects

Over the last decade Tyringham has experienced impacts from weather-related natural hazards such as "nor'easters", severe winter weather, severe weather, and flooding. The Town has been actively identifying the Town's vulnerabilities from natural hazards through the development of the Town's FEMA-approved Local Natural Hazard Mitigation Plan Update, dated June 3, 2021 (2021 HMPU). The recent impacts from hurricanes Sandy and Irene in New England have increased the urgency for municipalities to increase resilience to address extreme weather and climate change vulnerability. In 2018, the Commonwealth experienced significant impacts from multiple nor'easters that resulted in property damage and utility disruption including power outages. New England, including Massachusetts, is expected to experience increased frequency and intensity of rain events, increased temperatures, and rising sea levels, which will increase the Town's natural hazard vulnerability. In consideration of these factors, the Town is taking the necessary steps

to build on the results of the Town's 2021 NHMP to develop climate adaptation and resilience priorities as outlined in this Community Resilience Building (CRB) Summary of Findings Report.

As of January 2022, the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EEA) has funded MVP planning grants for 330 out of a total of 351 communities (see **Figure 1**). The purpose of the grant is to provide financial assistance to communities to create a comprehensive, baseline climate change vulnerability assessment and to develop prioritized actions for dealing with climate-related and natural hazards using a field-tested approach, known as the CRB Workshop. In July 2021, the Town received an MVP planning grant.

COMMUNITY RESILIENCE BUILDING WORKSHOP

The CRB Workshop guide includes a six-step approach (see Community Resilience Building Guide for more details) to conduct a vulnerability assessment and develop prioritized actions consistent with EEA requirements to become a designated "MVP Community." Receiving MVP designation will enable the Town of Tyringham to apply for future MVP Action grants and will increase its standing for future funding opportunities from the Commonwealth. The Tyringham CRB Summary of Findings Report is the Town's completion of the six-step CRB process.

On December 1st and 15, 2021 the Town completed the CRB Workshop at the Tyringham Town Hall at 116 Main Rd. The central objectives of the CRB Workshop were to:

- Define the top local natural and climate change-related hazards of concern
- Identify hazard vulnerabilities
- Identify existing Town capabilities
- Develop and prioritize actions for the community
- Identify opportunities to collaboratively advance actions to increase resilience

This report summarizes the findings of the CRB Workshop, identifies top natural and climate change related hazards and vulnerabilities, strengths and assets, and recommendations to improve resilience for the Town of Tyringham.

1.2 CORE PROJECT TEAM

The Town's Core Project Team for the MVP Planning Grant included the following individuals:

- Laura Lee Bertram – MVP Team Leader
- Molly Curtin-Schaefer, Town Administrator & Assistant Emergency Manager
- Larry Gould, Building Inspector & Floodplain Administrator
- Noah Choquette, Highway Superintendent
- Charles Slater Jr., Fire Chief & Forest Fire Warden
- Patrick J. Holian, Police Chief
- James Curtin, Emergency Management Director
- Nicholas Felix, Business Owner, Cobble Mountain Farm
- Jennifer Salinetti, Business Owner, Woven Routes Farm

The Core Project Team along with technical assistance from State-Certified MVP Providers Rosalie Starvish of GZA GeoEnvironmental Inc (GZA) and assisted by Seth Taylor, planned and facilitated the two-day workshop (totaling eight hours). GZA was responsible for preparing the CRB workshop materials, leading presentations, facilitating large group

exercises and providing guidance during the small group exercises. Members from the Town's Core Team and workshop participants were responsible for facilitating and documenting key information during the group exercises.

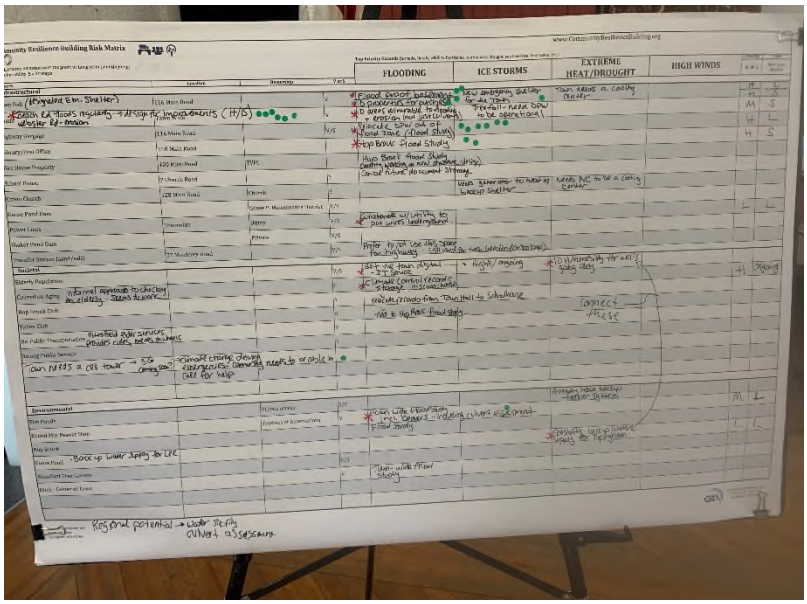


Figure 2. Group Breakout Session

1.3 WORKSHOP PARTICIPANTS

Stakeholders were invited to the two-day workshop from various Town departments, Tyringham Council on Aging, Cultural Council, Conservation Commission, Historical Commission, Planning Board, Assessors Department, Police Department, Fire Department, Highway Department, Town Clerk, Goose Pond Maintenance District, the Hop Brook Club, and the five surrounding towns of Becket, Great Barrington, Monterey, Otis, and Lee. As Tyringham is a very small town with a population of approximately 320, residents of the Town were also invited via the Town's website news email notification system, posting on the TEBB (Tyringham Electronic Bulletin Board), posting on the Town's website under the MVP page, and posting bulletins at the Post Office in multiple places, at the Town Hall in multiple places, at the Library in multiple places, on the Town's meeting board, and at the Goose Pond meeting board.

Sixteen (16) stakeholders participated in the December 1st portion of the workshop and ten (10) participated on the December 15th portion of the workshop. These stakeholders included individuals from the Selectboard, the Highway Department, the Police Department, the Fire Department, the Assessor's Office, the Building Department, the Planning Office, and the Town Administration Office.

1.4 CRB WORKSHOP PROCESS

The CRB workshop was held in two half-day sessions on December 1 and December 15, 2021. The first workshop started with a welcome by GZA who presented an overview of natural hazards and vulnerabilities followed by Carrieanne Petrik, the MVP Regional Coordinator for the Berkshires and Hilltowns, who presented an overview of the MVP program.

The presentation and workshop handouts (see **Appendix A**) included the following:

- MVP Program Overview
- CRB Workshop Process/Small Group Breakout Instructions
- Risk Matrix Overview
- Overview of Natural Hazards and Climate Change

After the presentations, GZA led a group discussion to prioritize the top four hazards for the Town of Tyringham. The hazards were prioritized based on group voting; and the setting was small enough to use hand counts.

The exercise was followed by a session during which stakeholders completed the risk matrix as a group to identify specific Town vulnerabilities and strengths.

The second workshop focused on the identification and prioritization of actions to reduce vulnerability and enhance the Town's resilience and adaptation capabilities. **Appendices B** and **C** include the stakeholder group mapping and completed risk matrix that present the results from the exercise. The workshop concluded with a prioritization of actions.

Figure 3. Flood line along wall in Highway Garage below Town Hall (Left); Constructed Berm to hold back floodwaters along Hop Brook (Right)

2.0 TOP NATURAL AND CLIMATE-RELATED HAZARDS

The Core Team presented hazards for consideration based on those identified from the Town's 2021 HMPU and the Commonwealth of Massachusetts 2018 State Hazard Mitigation and Climate Adaptation Plan (2018 SHMCAP).

Natural Hazards reviewed included:

- severe winter weather hazards (ice, snow, blizzards, extreme cold)
- severe storms (thunderstorms, high winds, hurricanes, nor'easters, tornadoes)
- flooding (urban drainage, riverine, inland, dam failures, ground failures, sea level rise)
- fire (wildfire, urban fire)
- geologic hazards (earthquakes, landslides)
- primary climate change interactions (including changes in precipitation, sea level rise, rising temperatures, and extreme weather)

Appendix A includes the hazards overview from the workshop presentation and handouts provided to the workshop participants.

Following the hazards overview the workshop participants discussed and identified the top natural hazards and climate change interactions for the Town of Tyringham that included the following:

- Heat/Extreme Temperatures
- Flooding
- High Winds/Storms
- Ice Storms
- Fire/Drought
- Beaver Dams

The four hazards that were prioritized as the top hazards to be included on the CRB matrix were ***flooding, ice storms, extreme heat/drought, and high winds***.

Figure 4. Damage to Main Road as a result of beaver dam breach in 2012

3.0 CURRENT CONCERNS AND CHALLENGES PRESENTED BY NATURAL HAZARDS

To assist the workshop participants in identifying vulnerabilities and areas of concern, the Core Team and GZA prepared a base map for each group to evaluate during the exercise. Critical assets included in the 2021 HMPU, areas previously identified as having experienced flooding, and natural resources including open space and parks were presented on the base map. Critical assets from the 2021 HMPU included public safety facilities (i.e. police, fire etc.), lifeline systems (i.e. electric substations, gas distribution, etc.), vulnerable populations (i.e. children and seniors), and churches. GZA also prepared and provided participants with a packet of information that included details on natural hazards in Tyringham as well as an index of the critical assets (see **Appendix B**). Based on a review of the base map and additional information, participants identified key areas of concern and challenges posed by hazards in Tyringham. Each group identified ***flooding*** as the greatest concern to the community and the Town's infrastructure, societal features and environmental features. Participants noted that the Town has experienced significant impacts from flooding.

Stakeholders also expressed concerns on impacts that ***high winds and severe storms*** pose to 1) public safety and public works response capabilities; and 2) power outage potential at public safety facilities and vulnerable populations. Stakeholders noted that over the last five years Tyringham has experienced impacts from numerous nor'easters combined with other winter storm events including blizzards.

Stakeholders expressed concern for the current level of preparedness for future ***heat events and extreme temperatures*** especially in consideration of vulnerable populations. Stakeholders were aware that the number of days that will exceed 90 degrees will increase for the Town and region in the future which will lead to the need for the Town to develop a more comprehensive preparedness approach to addressing ***heat/extreme temperatures*** for vulnerable populations.

Further details on the specific areas of concern and challenges identified by the stakeholders in relation to infrastructure, societal features and environmental resources are outlined in Section 4 of this report.

4.0 SPECIFIC CATEGORIES OF CONCERNS AND CHALLENGES

The following significant categories of concern and challenges were identified by stakeholders during the small work group sessions relative to Tyringham's infrastructure, and societal and environmental features.

4.1 INFRASTRUCTURE

- Stakeholders expressed concern for the Town Hall/Highway Garage that has experienced flooding in the past and is not simply "at risk" of flooding.
- Stakeholders expressed concern that town roadways have experienced flooding caused by stormwater run-off and riverine flooding including Hop Brook. Stakeholders noted that inundated roadways would also limit the emergency response capabilities of police, fire and emergency management during and directly after major flood events. In addition, unpaved roads with steep slopes are vulnerable to erosion.
- Stakeholders expressed concern that High Winds may cause damage to the Firehouse Property, Union Church, and the Powerlines throughout town.
- Stakeholders expressed concern about Ice Storms which may affect Tree Fall on utility lines.

4.2 SOCIETAL

- Stakeholders expressed concern for Societal Topics including the local Elderly Population and no local Public Transportation.

4.3 ENVIRONMENTAL

- Stakeholders expressed concern for fire ponds, which may be a strength or a vulnerability. Excessive heat and drought were identified as being of concern for Fire Ponds.
- Stakeholders expressed concern for the risk of breach of Round Mountain Beaver Dam.
- Stakeholders expressed concern with Hop Brook and Goose Pond.
- Stakeholders expressed concern about abundant tree canopy making the Town more vulnerable to power outages from tree fall due to high winds or ice storms.
- Stakeholders expressed concern about flood impacts during storm events along the ditch in the center of Town.
- Stakeholders expressed concern that the bridge near 144-146 Main Road is undersized and has resulted in flooding at nearby properties.

Figure 5. Flooding near 144-146 Main Road in 2012

5.0 CURRENT STRENGTHS AND ASSETS IN THE TOWN OF TYRINGHAM

Based on the results of the small group discussions in evaluating community assets and hazards, the workshop participants identified many infrastructural, societal and environmental strengths in Tyringham.

5.1 INFRASTRUCTURAL

- Stakeholders identified the people of Tyringham as major strengths for the Town.
- Police and fire departments are a major strength for the Town in terms of providing emergency response support for Tyringham.
- The participants all cited the importance of the Highway Department Facility operations and equipment and the need to maintain those assets in the event of a disaster, but also the importance of maintaining infrastructure to prevent or mitigate potential hazards. The Core Team envisions building on this legacy through the preparation of this report to assist Tyringham in becoming more resilient to the impacts from future extreme weather and natural hazard events.
- Stakeholders noted the School House as an asset, as it is on higher ground and can be used for document storage. The building needs major renovations, and the Town is working on that. Currently it is not a usable building but could be in the future and would be an asset for the Town at that point.

- Stakeholders noted the Union Church as an asset as a backup shelter and a community resource.
- Stakeholders noted Goose Pond as an asset for recreation and its capacity to hold more storage water as it's not at full capacity.
- Stakeholders noted Power Lines as an asset.
- Stakeholders noted Shaker Pond as an asset for fire control.
- Stakeholders noted the Transfer Station as an asset where sand and salt are stored, and no history of prior flooding.

5.2 SOCIETAL

- Stakeholders expressed strengths of the town including that there is a strong sense of local public service, as evidenced by the Council on Aging, Hop Brook Club, and Valley Club.

5.3 ENVIRONMENTAL

- Stakeholders expressed strengths of the town including Fire Ponds.
- Stakeholders expressed strengths of the town including abundant tree cover as it absorbs water, protects against erosion, and provides shading and cooling.

6.0 PRIORITY ACTIONS TO IMPROVE RESILIENCE

During the final group exercise the stakeholders developed actions to bolster the existing strengths and to improve/mitigate the vulnerabilities. Throughout the workshop stakeholders from the group discussed their recommended priority actions. Nine (9) total Priority Actions to natural and climate-related hazards were identified, consisting of five (5) High Priority Actions, two (2) Medium Priority Actions, and two (2) Low Priority Actions which included:

6.1 PRIORITY ACTIONS

Action	Type	Lead Department	Support
HIGH PRIORITY ACTIONS			
Conduct a Hydrologic and Hydraulic Analysis of Hop Brook & Flood Vulnerability Assessment Study for Town Infrastructure along Main Road (Town Hall/Highway Garage, Fire House property). (Short Term)	Infrastructure	Engineering	Consulting Firms
Engineering design of improvements at Beach Road to address flooding (Short Term)	Infrastructure	Engineering	Consulting Firms, Highway Dept.
Relocate Highway Garage out of flood zone. – Supported by Flood Vulnerability Assessment (Long Term)	Infrastructure, Community Resilience	Planning	Engineering, Highway Dept., Consulting Firms

Action	Type	Lead Department	Support
Address vulnerabilities at Town Hall/Highway Department and the Schoolhouse – including climate control records storage, digitalizing town records and improving remote access, flood-proofing the basement (Long Term, Ongoing)	Emergency Preparedness and Response, Community Resilience	Town Administration	-
Identify properties for purchase to be used for relocation of vulnerable Town facilities (Short Term)	Infrastructure	Town Administration	Assessors
MEDIUM PRIORITY ACTIONS			
Identify roads vulnerable to flooding and/or erosion. (Short Term)	Infrastructure	Highway Dept.	Engineering
Town-wide flood study, including culvert assessments and beaver impacts. (Long Term)	Infrastructure	Engineering	Highway Dept., Consulting Firms
LOW PRIORITY ACTIONS			
Collaborate with utility companies to place wires underground. (Long Term)	Infrastructure, Emergency Preparedness and Response	Planning, Conservation Commission	Engineering, Highway Dept., Utilities
Feasibility Study regarding back-up water supply for Town of Tyringham. (Long Term)	Infrastructure, Emergency Preparedness and Response	Engineering	Conservation Commission, Planning, Highway Dept., Fire Dept.

The priority actions were voted on by the stakeholders using sticky-dot voting to determine the Town's top priorities for actions to improve resiliency in Tyringham, as listed below:

Action	Type	Lead Department	Support
TOP PRIORITY ACTIONS			
Relocate Highway Garage out of flood zone. – Supported by Flood Vulnerability Assessment (Long Term)	Infrastructure, Community Resilience	Planning	Engineering, Highway Dept., Consulting Firms
Engineering design of improvements at Beach Road to address flooding (Short Term)	Infrastructure	Engineering	Consulting Firms, Highway Dept.

Action	Type	Lead Department	Support
Conduct a Hydrologic and Hydraulic Analysis of Hop Brook & Flood Vulnerability Assessment Study for Town Infrastructure along Main Road (Town Hall/Highway Garage, Fire House property). (Short Term)	Infrastructure	Engineering	Consulting Firms
Identify properties for purchase to be used for relocation of vulnerable Town facilities (Short Term)	Infrastructure	Town Administration	Assessors
Address vulnerabilities at Town Hall/Highway Department and the Schoolhouse – including climate control records storage, digitalizing town records and improving remote access, flood-proofing the basement (Long Term, Ongoing)	Emergency Preparedness and Response, Community Resilience	Town Administration	-

7.0 PUBLIC LISTENING SESSION

Tyringham hosted a public listening session at the Town Hall and online on February 9, 2021 from 2:00pm to 4:00pm. The Town advertised the public listening session on the Town's website, social media, and community distribution lists. At the listening session the Town and GZA provided the public with the chance to learn about the CRB Workshop with an overview of the Draft Summary of Findings Report (Draft Report) including the priority actions that resulted from the workshop. Participants had the opportunity to ask questions and provide written feedback in response to the details provided in both the presentation and responses to questions during the second half of the session. **Appendix D** includes the details of the listening session presentation, public comments and the list of attendees.

At the end of the public listening session the Town made the Draft Summary of Findings Report available for public comment. Feedback was provided by the Core Team but there were no comments from the general public. Many comments provided in response to both the public listening session and Draft Report highlighted and supported priorities outlined in both the presentation and Draft Report. Based on the additional feedback presented in **Appendix D** the table presented in section 7.1 outlines additional community priorities for inclusion in this Final Report.

7.1 PUBLIC COMMENT PRIORITY ACTIONS

Action	Type
The Town Hall and Highway Garage are in one building and the Garage is on the bottom, flooding has occurred in the past (not just is "at risk" of flooding).	Infrastructure
The school house needs major renovation and the Town is working on that. Therefore, it is not a useable building now but could be useable in the future and would be an asset for the Town at that point.	Infrastructure, Emergency Management

Action	Type
Additional environmental vulnerability includes bridge near 144-146 Main Road, bridge is undersized and flooding has occurred at the properties near that bridge.	Infrastructure

8.0 SURVEY

A written survey was sent out to community members to inquire about hazards from extreme events which have been experienced recently and those which may occur in the future which may impact the town's infrastructure, social resources, and environmental resources. The following is a summarized list of the survey results with the questions posed, the data is available in **Appendix C**.

1. What climate hazard are you most concerned about impacting Tyringham? (1 = most concerned; 7 = least concerned).
2. How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.
3. What steps have you taken to prepare for extreme events?
4. What are some of Tyringham's greatest strengths?
5. What are some of Tyringham's greatest vulnerabilities?
6. What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three.
7. How would you like to receive information about climate change risks and resiliency projects in Tyringham?
8. Additional comments or questions about planning for climate resiliency that you would like to share with the project team.

Twenty-six (26) residents responded to the survey, including seventeen (17) homeowners, three (3) renters, two (2) persons who work in Town, one (1) who owns a business, and one (1) who owns a secondary home in Tyringham. Ten (10) respondents are aged 66-75, seven (7) aged 56-65, three (3) aged 36-55, three (3) aged over seventy-five (>75), and one (1) aged 18-25. Twenty-two (22) respondents identified as white, one (1) identified as having a black partner, one (1) Asian, and one (1) other (Irish). Asked if the respondent identified as Hispanic, Latino, or of Spanish origin, nineteen (19) answer no and one (1) answered yes.

The primary climate hazards identified in the questionnaire, and prioritized by the respondents, in order of importance or level of impact were (# in Parentheses indicates # of ranked votes): 1. Flooding (29), 2. Extreme Temperatures (21), 3. Winter Weather (18), 4. Severe Wind Events (Tornado, Hurricane) (17), 5. Drought (16), 6. Brushfires and Wildfires (14), and Other (Invasive Species, Emerald Ash Borer Causing Downed Trees) (3).

A follow up question to the climate hazard in the questionnaire was: "How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more." The responses included:

- "Disturbed communications, emergency services."
- "Power outages and flooding on Meadow Street."
- "Wind damage - trees and limbs."
- "Power outages."
- "Winter weather can prevent priests from coming to celebrate our Daily Mass."
- "Ice storms and heavy snowfall. One summer drought we were concerned our well would go dry."
- "Heat wave-high temperature, excessive rain."

The questionnaire asked: "What are some of Tyringham's greatest strengths?" (Parentheses indicate # of ranked votes)

- Experienced highway department (22).
- Emergency facilities, including the Fire Station (19).
- Communications infrastructure, including the Town's Emergency Notification System (17).
- Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries (17).
- Public facilities, including the library (13).
- Agriculture, including local farms (11).
    - "Need More Farms"
- Transportation infrastructure, including roads and bridges (10).
- Public support systems, including Council of Aging (6).
- Local businesses (2).

The questionnaire asked: "What are some of Tyringham's greatest vulnerabilities?" (Parentheses indicate # of ranked votes)

- Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff (17).
- Power outages due to extreme wind or winter weather events (15).
- Not having an appropriately-sized Highway Garage facility located outside the flood zone (15).
- Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns (14).
- Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma (13).
    - "Unvaccinated Emergency Response Individuals and Town Employees"
- Communications/phone outages due to extreme wind or winter weather events (12).
- Potential dam failure (10).
- Invasive species, crop disease, and pest infestations (9).
- Gas transmission pipeline (8).
- Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents (3).
- Erosion of land surrounding bridges and roadways (3).
- New development in hazard-prone areas (2).
- Spills along transportation routes (2).
- Private drinking water wells (1).

The questionnaire asked: "What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three." (Parentheses indicate # of ranked votes)

- Locating suitable land outside of a flood zone to build a highway garage facility (18).
- Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards (17).
- Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests (10).
    - "Add Trustees"
- Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power (9).
- Planning to address invasive species and their impacts on natural resources (8).
- Investing opportunities for renewable energy (8).
- Pursing data or studies showing the project impacts of future climate hazards in Tyringham, such as updated flood maps (7).
- Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas (5).
- Educating the public on hazard impacts and emergency preparedness (5).

- Updating bylaws and regulations to incorporate climate change considerations (4).
- Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change (1).
- Assessing watershed protection opportunities and developing regional partnerships to improve water quality (1).
- Other (1).
    - "Plant More Trees"
- Conducting a town-wide water supply analysis (0).

9.0 CITATION

Town of Tyringham (2022) Community Resilience Building Workshop Summary of Findings Report, GZA GeoEnvironmental, Inc. and Town of Tyringham, Massachusetts.

10.0 ACKNOWLEDGEMENTS

This project was made possible through funding from the Massachusetts Executive Office of Energy and Environmental Affairs' Municipal Vulnerability Preparedness (MVP) Grant Program. The Town wants to thank EEA for their leadership and funds to support this effort. The Town would like to extend a special thanks to the MVP Berkshire & Hilltowns Regional MVP Coordinator, Carrieanne Petrik for participating in both the workshop and public listening session.

Thank-you to the Town of Tyringham community members and leaders for their commitment and dedication to this process, the Core Team Members included.

11.0 WORKSHOP STAKEHOLDERS

Attendees of the CRB Workshop are listed in the following table:

Attendee Name	Department / Group	Workshop 1 on 12/1/2021	Workshop 2 on 12/15/21
Larry Gould	Town of Tyringham Building Department	✓	
Nick Felix	Winbrooke	✓	
Laura Lee Bertram	Town of Tyringham Selectmen Office	✓	✓
Lynn Bertelli		✓	
Kim Lederman		✓	✓
Ellen Freeman		✓	
Patrick J. Holian	Town of Tyringham Police Department	✓	✓
Andrew Slater	Town of Tyringham Highway Department	✓	✓
William Roche	Town of Tyringham Highway Department	✓	✓

Attendee Name	Department / Group	Workshop 1 on 12/1/2021	Workshop 2 on 12/15/21
Noah Choquette	Town of Tyringham Highway Department	✓	✓
Al Wilcox	Town of Tyringham Assessor	✓	✓
Charles Slater	Town of Tyringham Fire Chief	✓	✓
Amanda Hamilton	Town of Tyringham Planning Department	✓	
Jen Salenetti		✓	
Carrieanne Petrik	MA EEA	✓	
Jim Consolati	Town of Tyringham Selectmen		✓
Molly Curtin-Schaefer	Town of Tyringham Selectman Office	✓	✓

Appendix A

Workshop Presentations, Handouts, Notes, Attendance

Known for Excellence. Built on Trust.

Community Resilience Building Workshop 1

Town of Tyringham, Massachusetts

December 1, 2021

Photo credit: Town of Tyringham (https://www.tyringham-ma.gov/)

Rosalie Starvish, P.E., CFM, CPMSM
Seth Taylor, CEP, CESSWI, CIPM
GZA GeoEnvironmental, Inc.

Workshop Agenda

- 10:00 – 10:15 Registration and Refreshments
- 10:15 – 10:20 Welcome and Introductions
- 10:20 – 10:45 MVP Overview and Workshop Goals
- 10:45 – 11:00 Risk Matrix Overview
- 11:00 – 11:45 Large Group Exercise
  - Presentation Overview Hazards
  - Identify and Prioritize Hazards (Exercise)
- 11:45 – 12:45 Lunch
- 12:45 – 1:50 Small Group Exercise
  - Introductions (5 minutes)
  - Identify Infrastructure Vulnerabilities and Strengths (20 minutes)
  - Identify Environmental Vulnerabilities and Strengths (20 minutes)
  - Identify Social Vulnerabilities and Strengths (20 minutes)
- 1:50 – 2:00 Closing Remarks and Next Steps

Welcome and Introductions

Tyringham Introductions

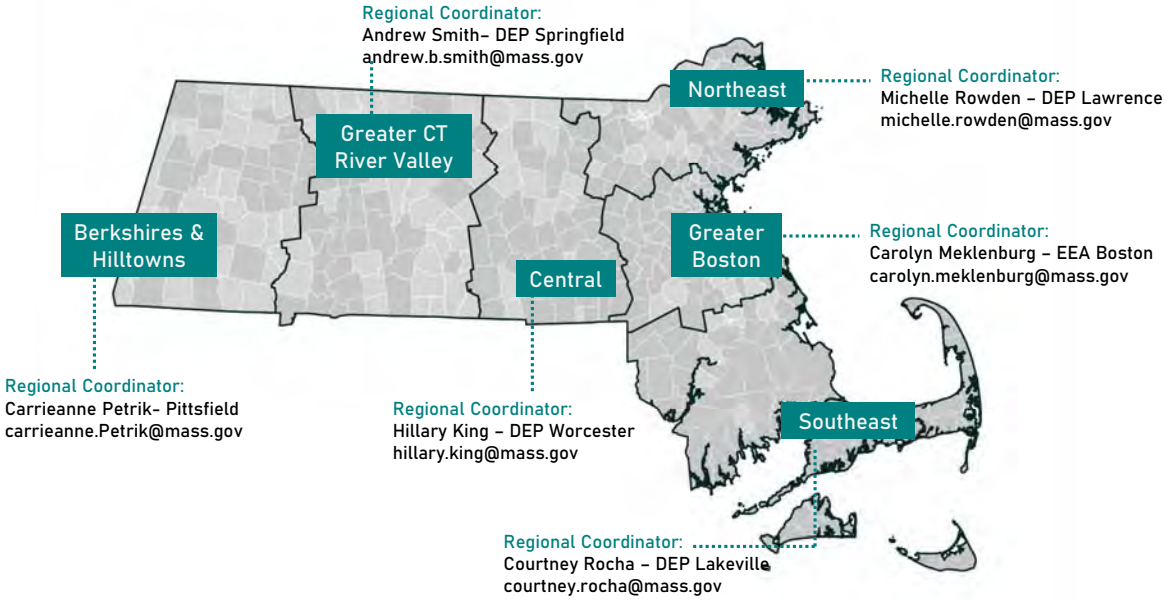
Laura Lee Bertram, MVP Team Leader

Core Team Members:

- Molly Curtin-Schaefer, Town Administrator & Assistant Emergency Manager
- Larry Gould, Building Inspector & Floodplain Administrator
- Noah Choquette, Highway Superintendent
- Charles Slater Jr., Fire Chief & Forest Fire Warden
- Laura Lee Bertram, MVP Team Leader
- Patrick J. Holian, Police Chief
- James Curtin, Emergency Management Director
- Nicholas Felix, Business Owner, Cobble Mountain Farm

Municipal Vulnerability Preparedness Program

MVP Regions & Regional Coordinators



Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) - September 2018

- Acknowledges that climate change is already worsening natural hazards, integrating information and planning elements for 14 natural hazards that affect the Commonwealth
- Uses best scientific data and projections to assess risk and vulnerability
- Evaluates the Commonwealth's existing capabilities to implement agency-specific and statewide activities to reduce risk and increase resilience

MA 2050 Decarbonization Plan

EEA is conducting an **80x50 Study** to identify the strategies, policies, and implementation pathways for MA to achieve at least 80% Greenhouse Gas reductions by 2050.

The results of that research will be published in a **2050 Roadmap report** and will inform the setting of a **2030 GHG emissions limit** and the development of the **Clean Energy and Climate Plan for 2030**.

More information and opportunities to get involved:
www.mass.gov/2050Roadmap

Massachusetts Global Warming Solutions

MVP Principles

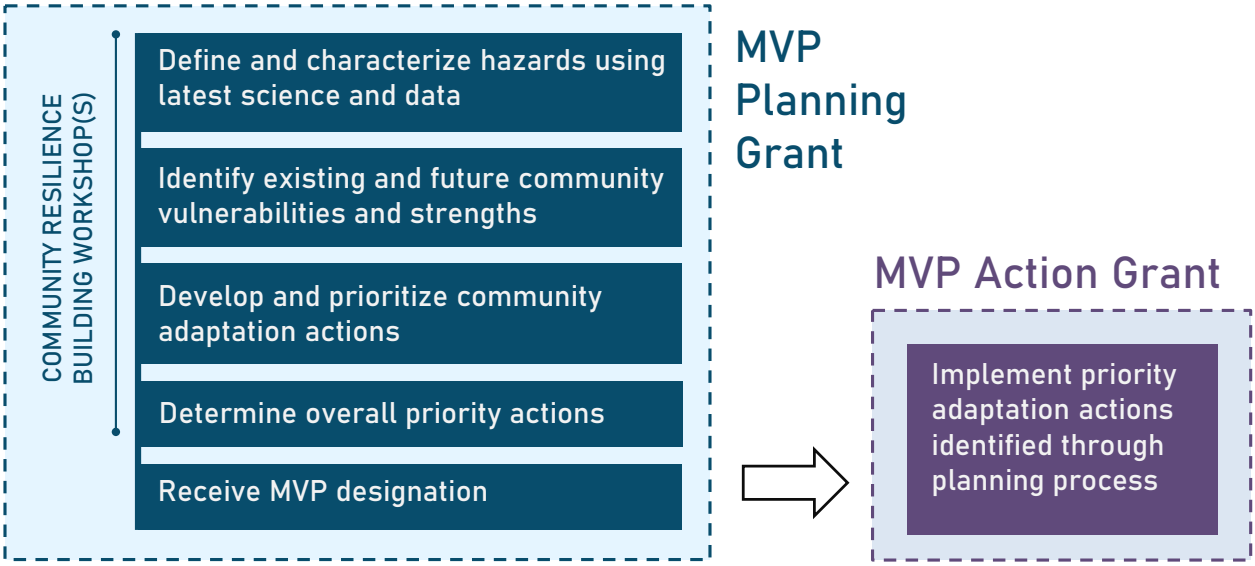
A community-led, accessible process that

- Employs local knowledge and buy-in
- Utilizes partnerships and leverages existing efforts
- Is based in best available climate projections and data
- Incorporates principles of nature-based solutions
- Demonstrates pilot potential and is proactive
- Reaches and responds to risks faced by EJ communities and vulnerable populations

Why nature-based?

Where appropriate, nature-based solutions can be more cost-effective, protect water quality and quantity, sustain lands that provide food and recreation opportunities, reduce erosion, and minimize temperature increases associated with developed areas and climate change.

MVP Process/ Grant Types

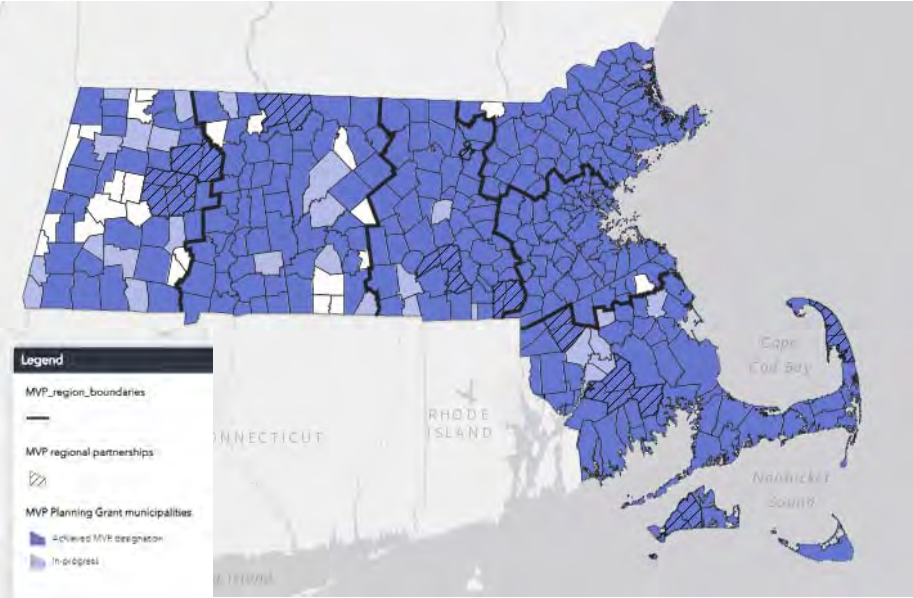


MVP Program Status

MVP Designations
89% of the Commonwealth
312 communities

Action Grant Projects
FY 18: 37
FY 19: 36
FY 20: 53
FY 21: 41

Total Awards
$44M in planning and action grants to date



MVP Action Grants: Project Types

- Detailed Vulnerability and Risk Assessment*
- Community Outreach and Education
- Local Bylaws, Ordinances, Plans, and Other Management Measures
- Redesigns and Retrofits***
- Nature-Based Flood Protection, Drought Mitigation, Water Quality, and Water Infiltration Techniques**
- Nature-Based, Infrastructure and Technology Solutions to Reduce Vulnerability to Extreme Heat and Poor Air Quality

* Most common project type
** Second-most common project type
***Third-most common project type

MVP Action Grants: Project Types (cont.)

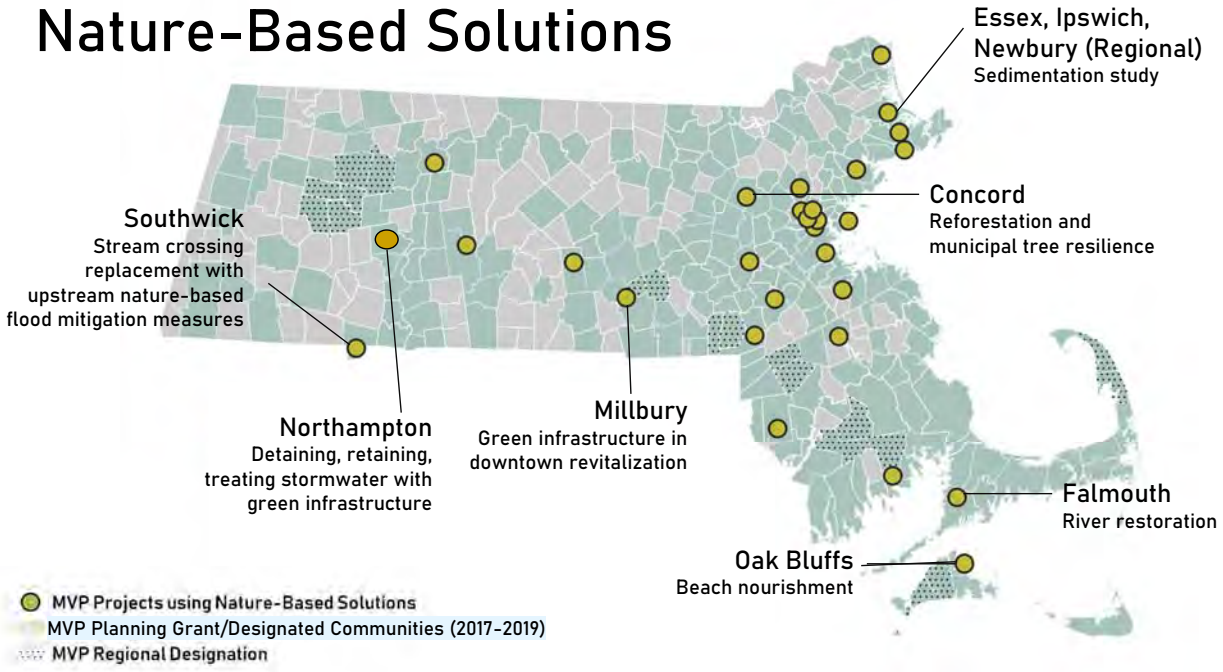
- Nature-Based Solutions to Reduce Vulnerability to other Climate Change Impacts
- Ecological Restoration and Habitat Management to Increase Resiliency

NEW IN 2019

- Energy Resilience
- Chemical Safety
- Land Acquisition for Resilience
- Subsidized Low-Income Housing Resilience Strategies
- Mosquito Control Districts

\+ Expanded eligibility of project location

Nature-Based Solutions



Example Action Grant Projects

Nature-Based Flood Protection, Drought Prevention, Water Quality, and Water Infiltration Techniques

Millbury

Utilizing green infrastructure like stormwater planters, bioretention bump outs, rain gardens, and other measures like porous pavers and pervious pavement to reduce heat island effects and stormwater runoff into the Blackstone River.

Nature-based solutions

FY18 Action Grant Projects

Detailed Vulnerability and Risk Assessment, Further Planning

Holyoke

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

Informational graphics from Holyoke's final report

Table 12

How did the Holyoke municipal government respond to your needs? Was the response...	Freq.	Percent
Helpful	26	63.4
I don't know	7	17.1
Neither helpful nor unhelpful	2	4.9
There was no response from this resource	6	14.6
Total	**41**	**100**

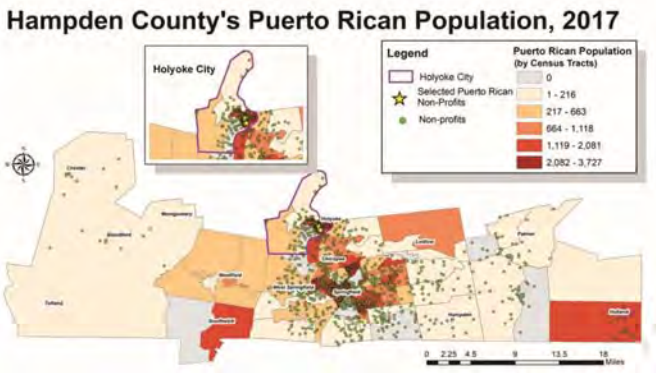


Image credits: Town of Holyoke, Hunter College CUNY, El Instituto UCONN

CRB Workshop Overview

Community-led Process:

CRB Workshops 1 & 2.
Today, December 1 & Wednesday, December 15

Public Listening session
- February 9 at 2 pm (virtual using Zoom)
- to present overview of the workshop results, resilience actions, and implementation plan.
- to provide opportunity for the public to ask questions and provide input

Survey coming soon
Follow updates on Town of Tyringham website
https://www.tyringham-ma.gov/mvp-committee

CRB Workshop Overview

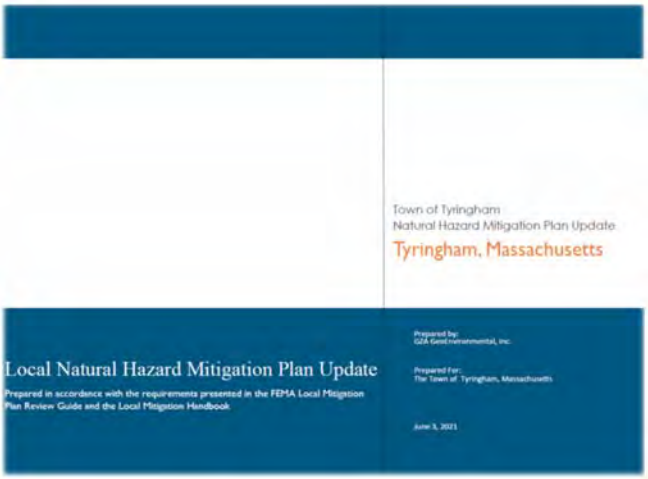
Objectives:

1. **Define top hazards**. Understand connections between ongoing issues, hazards, and local planning and actions in your Community.
2. **Identify and map vulnerabilities and strengths** to develop infrastructure, societal and environmental risk profiles for your Community.
3. **Develop and prioritize actions** that reduce vulnerabilities and reinforce strengths for your community - local organizations, academic institutions, businesses, private citizens, neighborhoods, and community groups.
4. **Identify opportunities** to advance actions that further reduce the impact of hazards and increase resilience in your Community.

CRB Workshop Overview

Tyringham – Resources:

- GIS
- Hazard Mitigation Plan 2021 Update
- Goose Pond Dam Emergency Action Plan
- Berkshire County Regional Plans



Risk Matrix Overview

Risk Matrix

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org

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

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

Features	Location	Ownership	V or S					Priority H-M-L	Time S-M-L O-going
Infrastructural									
Societal									
Environmental									

Risk Matrix - Hazards

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

				Priority H-M-L	Time S-M-L O-going

Risk Matrix – Features

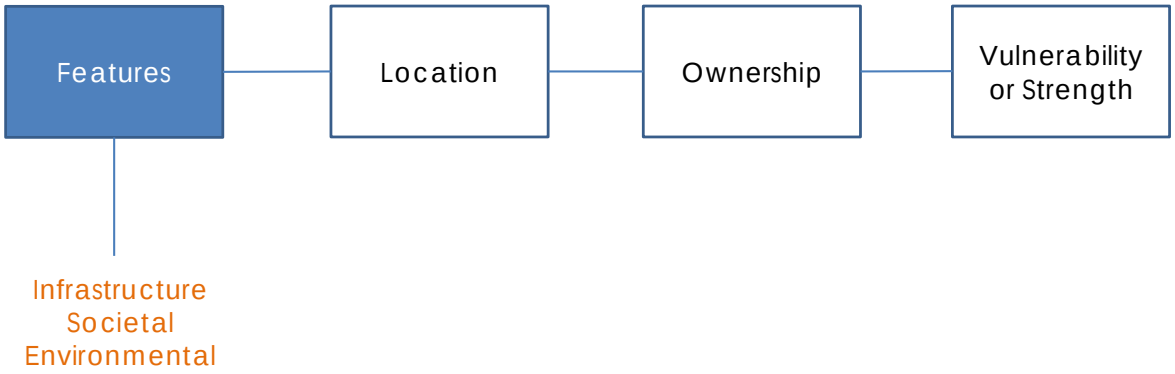
Infrastructure

Societal

Environmental

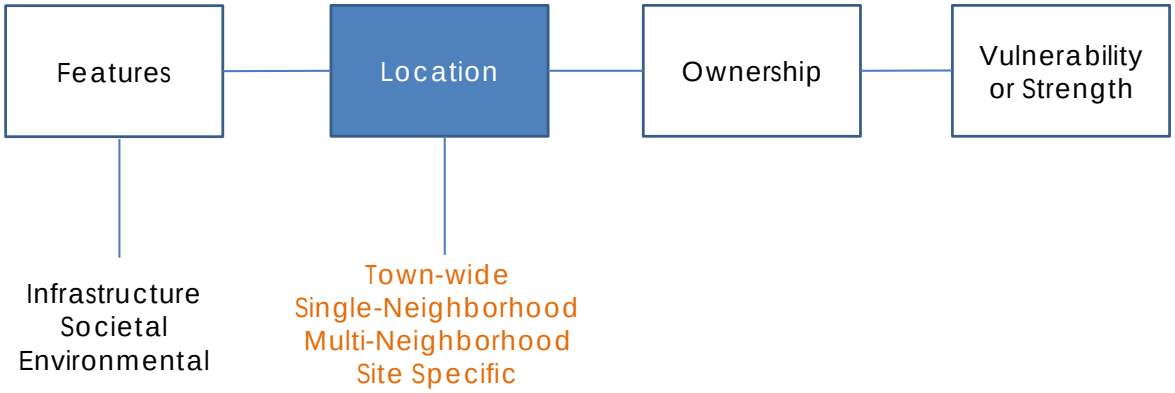
Features	Location	Ownership	Y or N
Infrastructural			
Societal			
Environmental			

Tyringham Features



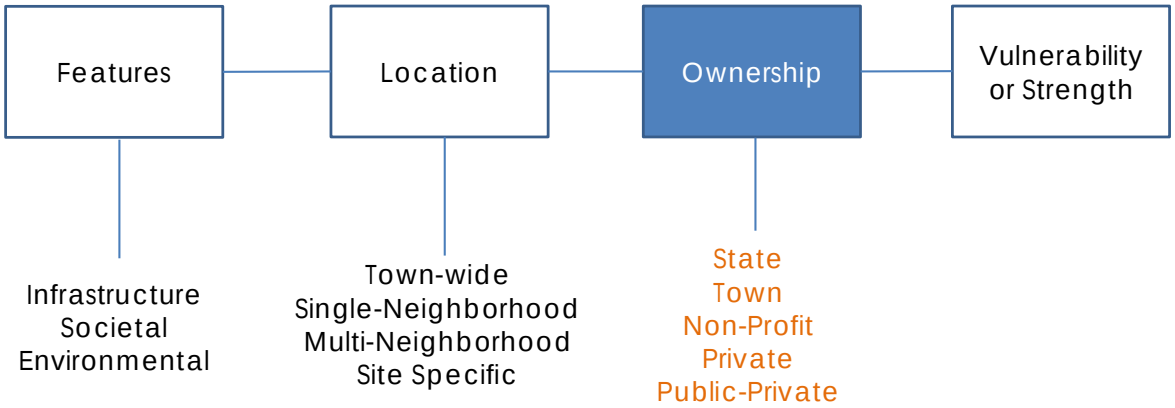
Tyringham Features

Location



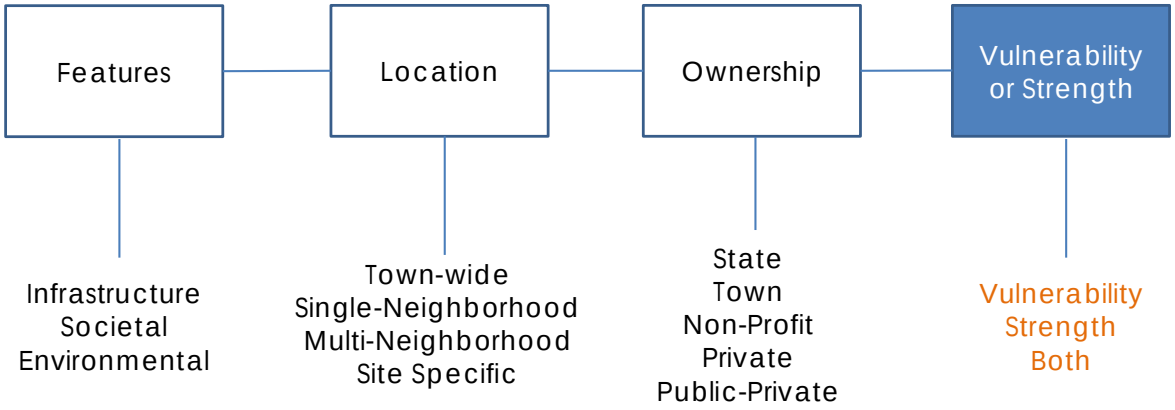
Tyringham Features

Ownership



Tyringham Features

Vulnerability or Strength



Infrastructure Features

- Transportation Systems including roadways and bridges
- Utilities
- Stormwater Infrastructure

Societal Features

- Neighborhoods
- Police and Fire Departments
- Vulnerable Populations including elderly and children
- Emergency Medical Services
- Low to Moderate Income Areas
- Special Needs

Environmental Features

- Hop Brook
- Goose Pond
- Open Space and Parks
- Appalachian Trail

Hop Brook (Image Ref: John Phelan, Wikimedia)

Large Group Exercise

+/- 45 Minutes

Identify and Prioritize Hazards

1. Hazard Overview (presentation)
2. Identify and Prioritize Hazards (exercise)

Tyringham Natural Hazards Rankings

Top Hazards – 2021 Hazard Mitigation Plan Update Approved June 24, 2021

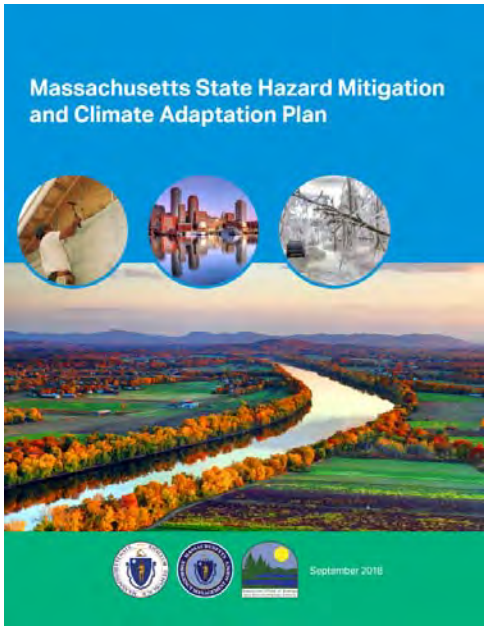
- Flooding - High Frequency & Serious Severity
- Hurricanes/Tropical Storms – Medium Frequency & Catastrophic Severity
- Severe Winter Weather – High Frequency & Minor Severity
- Severe Thunderstorms – High Frequency & Serious Severity
- Poor Drainage & Beaver Dams – High Frequency & Serious Severity
- Extreme Temperatures – Medium-High Frequency & Minor Severity
- Drought – Medium Frequency & Minor to Serious Severity

Severe Weather Hazards:	**Hazard Index**
Severe Wind:	
Hurricanes/Tropical Storms	**7**
Thunderstorms	6
Tornadoes	6
Lightning	5
Intense Rainfall	5
Hail	5
Flood:	
Riverine Flooding	**7**
Poor Drainage Flooding	6
Beaver Dams	6
Severe Winter Weather:	
Snow and Blizzards	**7**
Ice Storms	7
Climate-Related Hazards:	
Extreme Temperature:	
Heat	5
Cold	6
Drought	5
Wildfire	2
Geologic Hazards:	
Earthquake	5
Landslides	1
Tsunami	0
Secondary Hazard:	
Dam Failure	**5**

Massachusetts 2018 Hazards Rankings

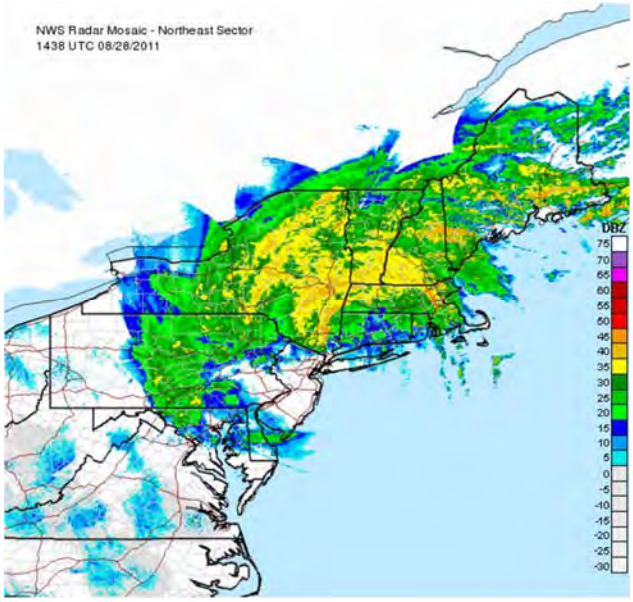
Top 5 Hazards 2018 State Hazard Mitigation and Climate Adaptation Plan

- Extreme Precipitation
- Hurricanes/Tropical Storms
- Nor'easters
- Ice Storms
- Severe Winter Storm



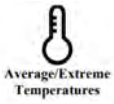
Climate Change

- Hot Temperatures +
- Precipitation Intensity +
- Heavy Precipitation Frequency +
- Snowfall -

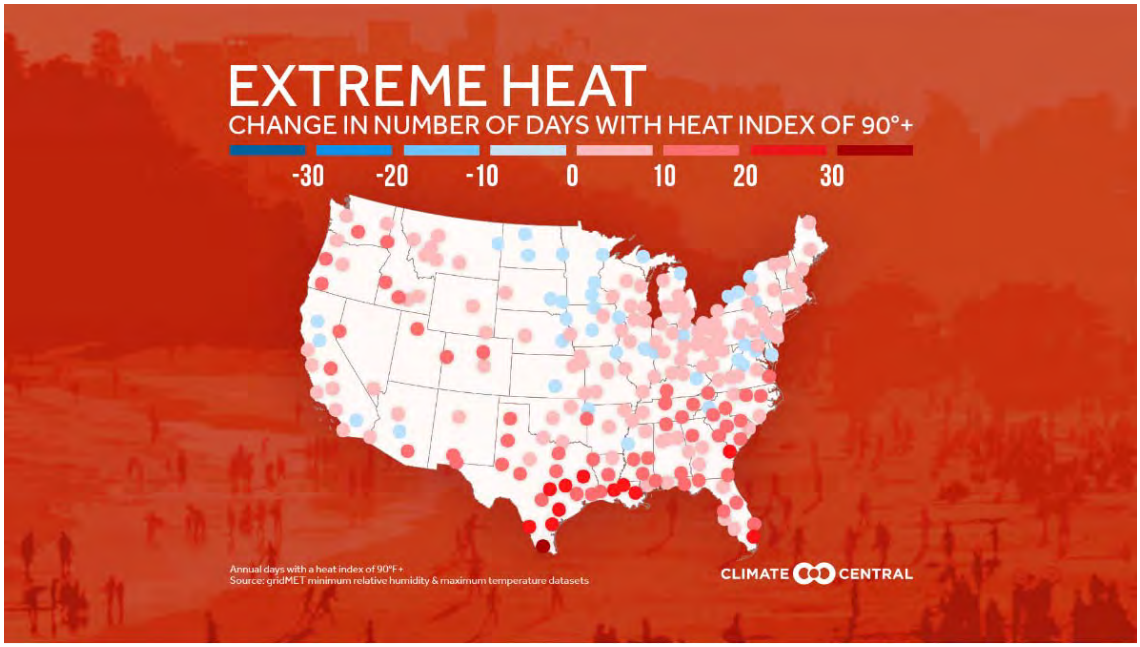


Irene; By NWS - http://weatherinnyc.blogspot.hk/2011/08/aug-27-hurricane-irene-updates.html, Public Domain, https://commons.wikimedia.org/w/index.php?curid=68686636

Heat

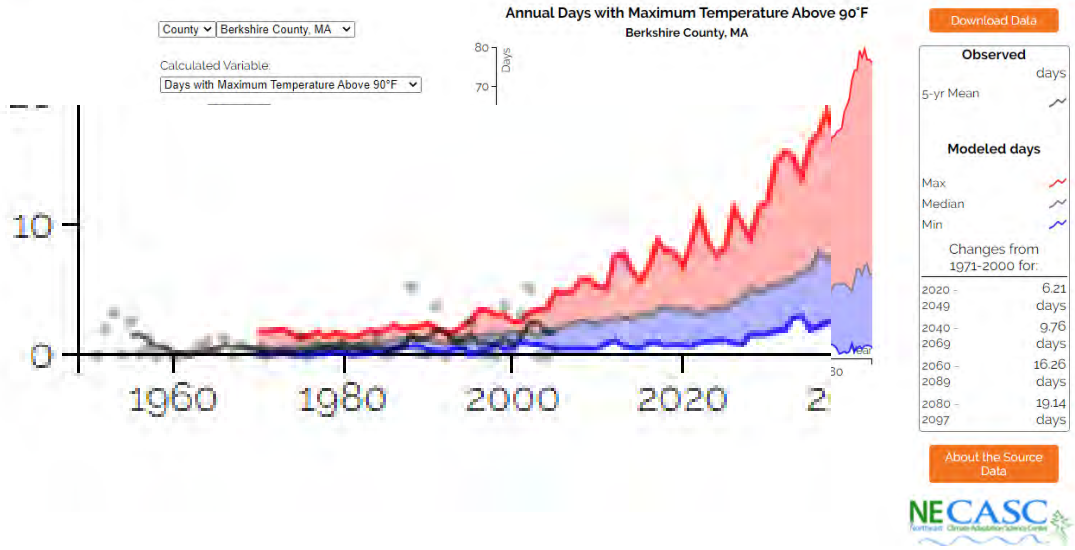


Increased Temperatures/Extreme Heat



Increased Temperatures/Extreme Heat

Resilient MA
Climate Change Clearinghouse for the Commonwealth



Winter Hazards

Snowfall

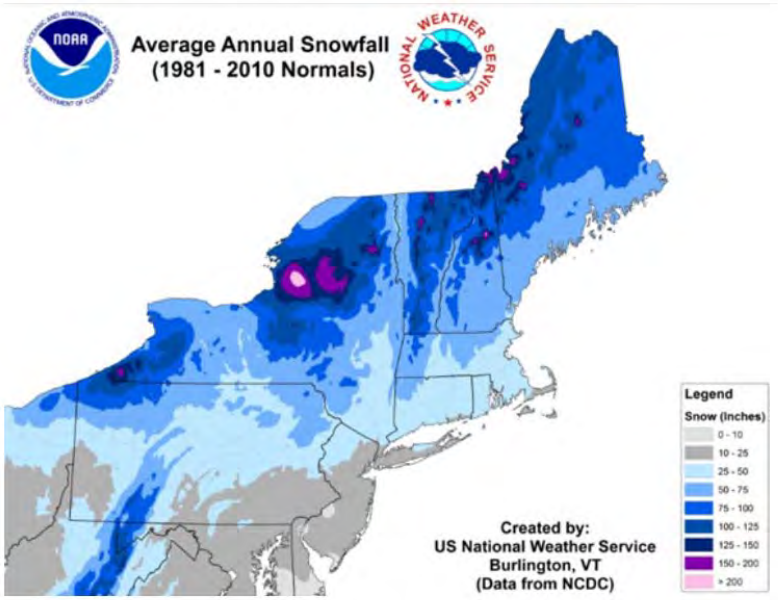


Figure 2-13: Average Annual Snowfall (http://www.weather.gov/btv/winter)

Wind

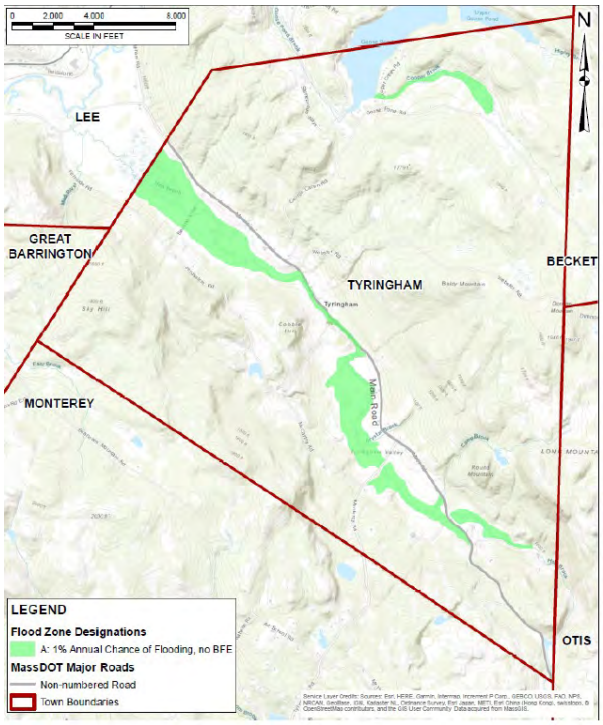
Wind Speed

Sustained Wind Speed	Annual Recurrence Interval (years)	Physical Effects
6-38 kts (30-44 mph)	<1	Trees in motion. Light-weight loose objects (e.g., lawn furniture) tossed or toppled.
39-49 kts (45-57 mph)	2 to 10	Large trees bend; twigs, small limbs break, and a few larger dead or weak branches may break. Old/weak structures (e.g., sheds, barns) may sustain minor damage (roof, doors). Building partially under construction may be damaged. A few loose shingles removed from houses. Carports may be uplifted; minor cosmetic damage to mobile homes and pool lanai cages.
50-64 kts (58-74 mph)	10 to 70	Large limbs break; shallow rooted trees pushed over. Semi-trucks overturned. More significant damage to old/weak structures. Shingles, awnings removed from houses; damage to chimneys and antennas; mobile homes, carports incur minor structural damage; large billboard signs may be toppled
65-77 kts (75-89 mph)	70 to 300	Widespread damage to trees with trees broken/uprooted. Mobile homes may incur more significant structural damage; be pushed off foundations or overturned. Roof may be partially peeled off industrial/commercial/warehouse buildings. Some minor roof damage to homes. Weak structures (e.g., farm buildings, airplane hangars) may be severely damaged.
78+ kts (90+ mph)	>300	Many large trees broken and uprooted. Mobile homes severely damaged; moderate roof damage to homes. Roofs partially peeled off homes and buildings. Moving automobiles pushed off dry roads. Barns, sheds demolished.

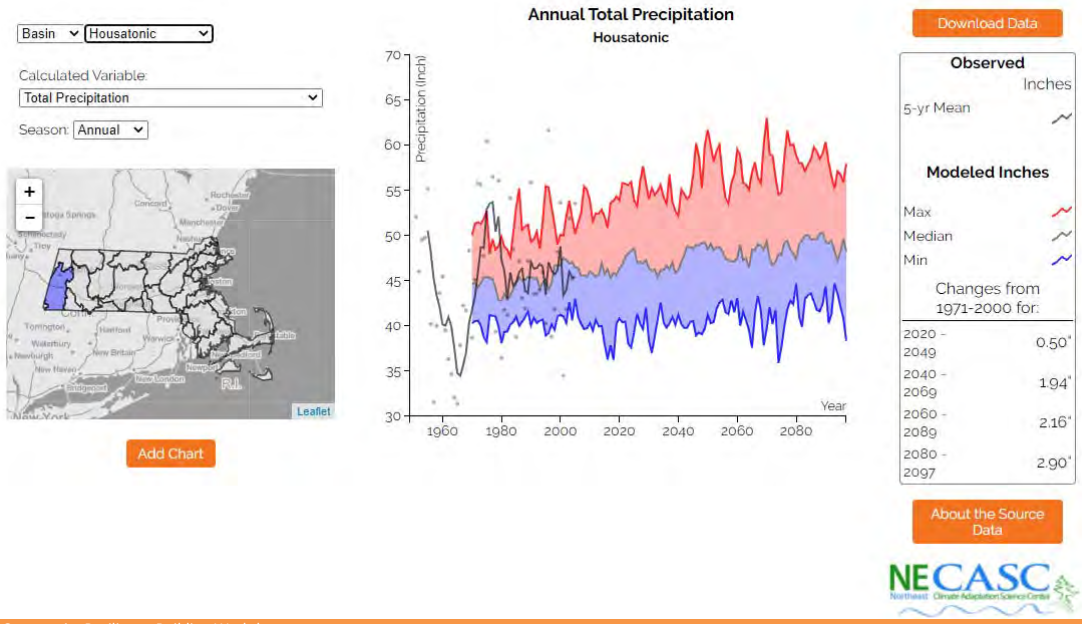
Table 3-5: Physical Effects associated with different wind speeds

Flood

FEMA Flood Hazard Zones



Flooding Frequency: Future



Large Group Exercise

+/- 45 Minutes

Identify and Prioritize Hazards

1. Hazard Overview (presentation)
2. Identify and Prioritize Hazards (exercise)

LUNCH 11:45AM to 12:45PM

Small Group Exercise

+/- 1 hr

Identify Feature Vulnerabilities and Strengths

Closing Remarks and Next Steps

Next Steps

Workshop 2: December 15, 2021

Community Actions Overview

Small Group Exercise

- Define and prioritize actions

Handouts

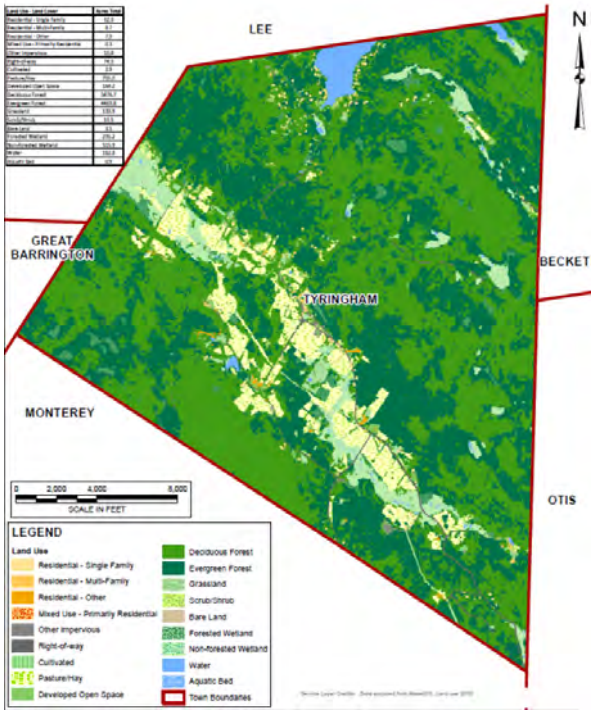
CRB Workshop Overview

Resources:

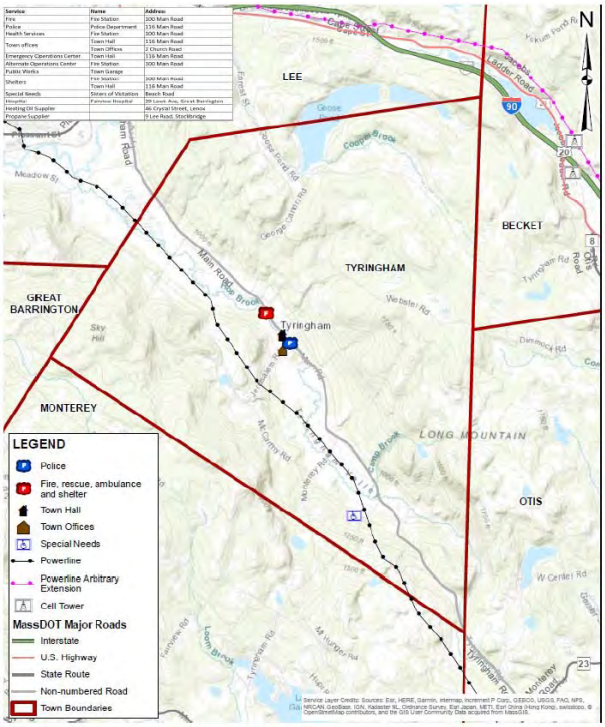
Select resources for Massachusetts

- Mass.Gov: Climate Change
- EPA's Resilience and Adaptation in New England (RAINE)
- Massachusetts Ocean Resource Information System (MORIS)
- Comparison Matrix: Sea Level Rise and Coastal Flood Web Tools
- Adaptation Clearinghouse: sea level rise adaptation
- Georgetown Climate Center: state climate change preparations and progress
- Climate Adaptation Knowledge Exchange (CAKEX): sea level rise
- MassGIS: OLIVER - Online Mapping Tool
- MA CZM: Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning
- The Boston Harbor Association: 2013 Preparing for the Rising Tide Report
- City of Boston: Climate Action Plan
- City of Boston: Greenovate Boston
- Cambridge: Climate Change Vulnerability Assessment
- The Provincetown Center for Coastal Studies
- Sea Level Rise Viewer | Digital Coast - NOAA Office for Coastal Management
- Coastal Flood Exposure Mapper | Digital Coast - NOAA Office for Coastal Management
- MA CZM: StormSmart Coasts - Massachusetts Shoreline Change Project

Tyringham Land Use



Tyringham Essential Facilities



Service	Name	Address
Fire	Fire Station	300 Main Road
Police	Police Department	116 Main Road
Health Services	Fire Station	300 Main Road
Town offices	Town Hall	116 Main Road
	Town Offices	2 Church Road
Emergency Operations Center	Town Hall	116 Main Road
Alternate Operations Center	Fire Station	300 Main Road
Public Works	Town Garage	
Shelters	Fire Station	300 Main Road
	Town Hall	116 Main Road
Special Needs	Sisters of Visitation	Beach Road
Hospital	Fairview Hospital	29 Lewis Ave, Great Barrington
Heating Oil Supplier		46 Crystal Street, Lenox
Propane Supplier		9 Lee Road, Stockbridge

Town of Tyringham, Massachusetts

Community Resilience Building Workshop

December 1, 2021, 10 AM- 2 PM

Tyringham Town Office, 116 Main Road, Tyringham, MA 01264

~ Sign-in Sheet ~

Name (Please print)	Department/Group	Email Address
Larry Gould	Bldg. Town of Tyringham	bldginspector@gmail.com
Nick Felly	Winbrooke	nickfelly41@hotmail.com
Laura Lee Bertram		
Molly Curtin Schaefer		
Lynn Bertelli		bertellilynn@gmail.com
Kim Lederman		KLEDERMAN@SWBELL.NET
Ellen Freeman		free@freeman.net
Patrick J Holian	Tyringham PD	TYRPD@BCN.NET

Community Resilience Building

Name (Please print)	Department/Group	Email Address
Andrew Slater	Tyringham Highway	
William Roche	Tyringham Highway	
Noah Choquette	Tyringham Highway	Tyringham highway @ gmail. com
Al wilcox	Assessor	
Charles Slater	fire chief	
Amanda Hamilton	Planning	Remote
Jen Salvetti		Remote
Carrieanne		Remote

THANK YOU FOR YOUR PARTICIPATION IN THIS PROCESS TO STRENGTHEN OUR COMMUNITY'S RESILIENCE!

Handouts

CRB Workshop Overview

Resources:

Select resources for Massachusetts

- Mass.Gov: Climate Change
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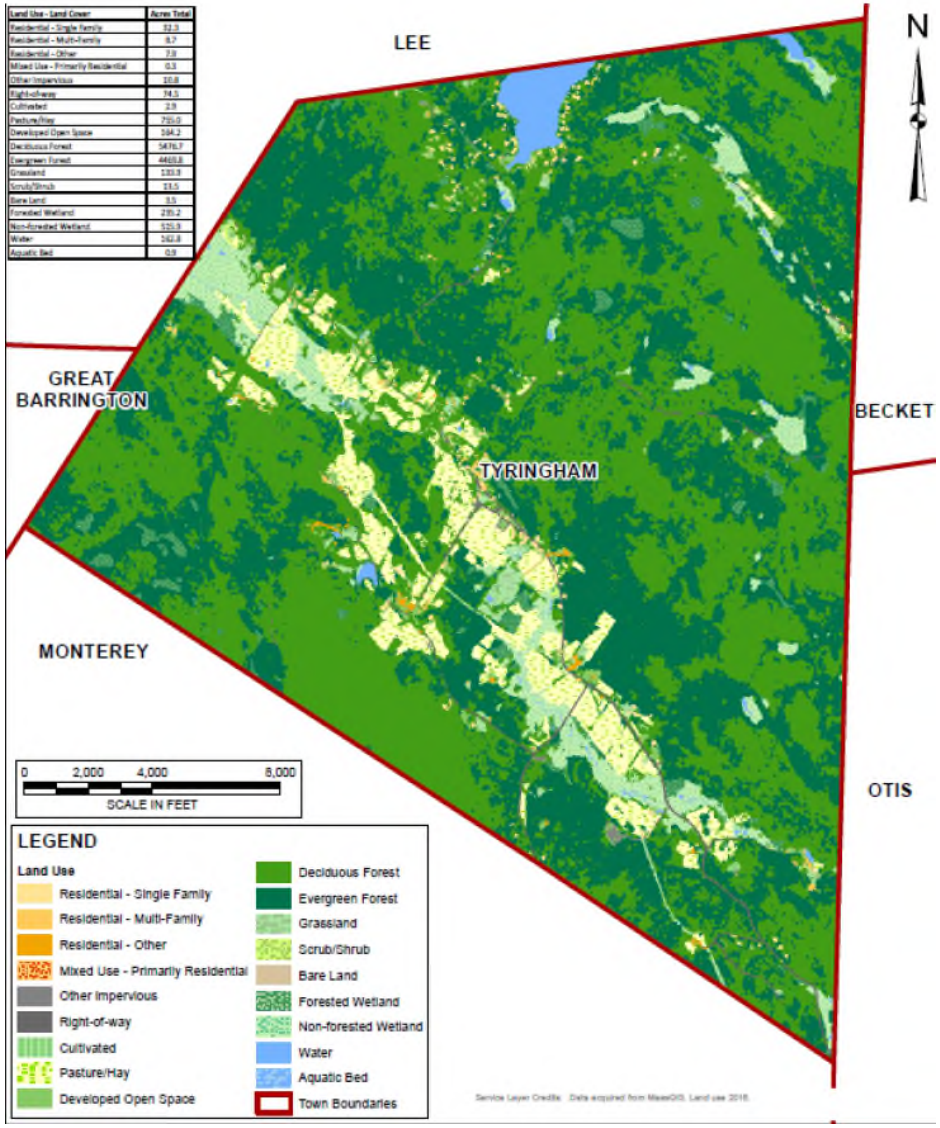
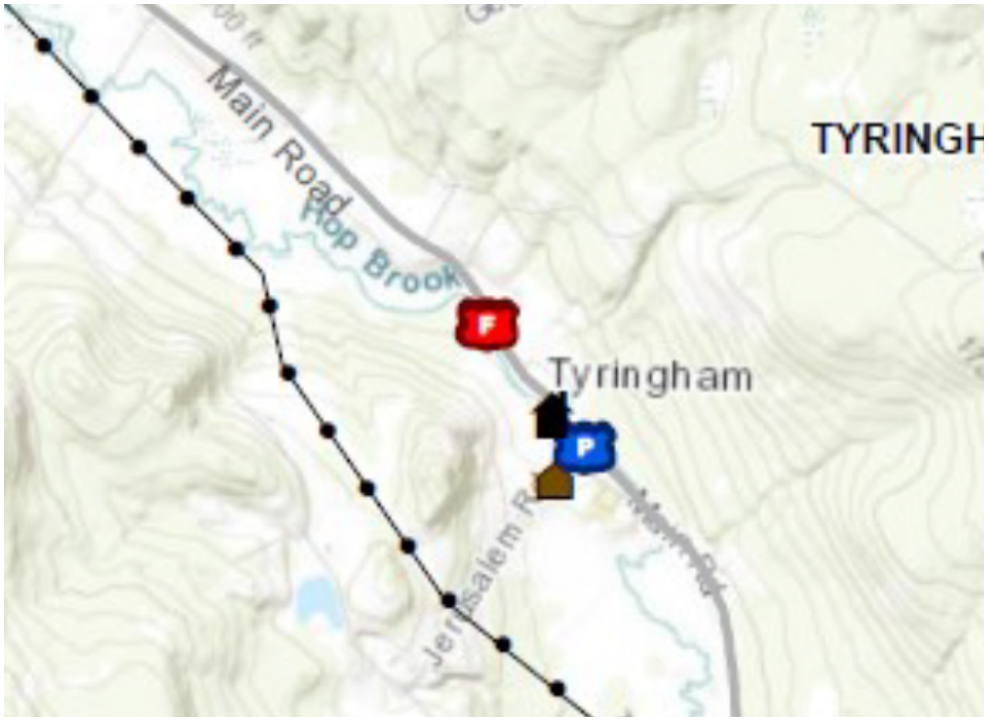
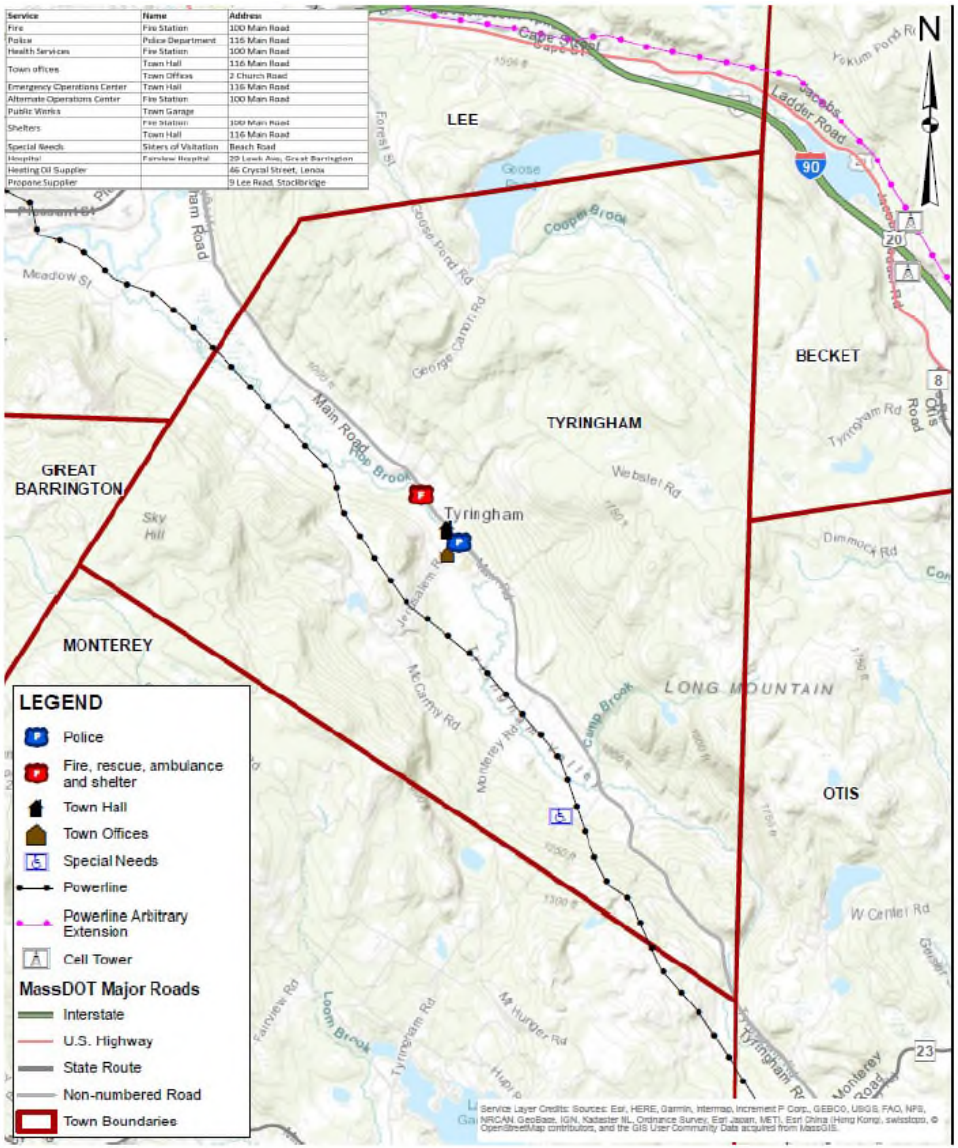
Tyringham Land Use



Land Use - Land Cover	Acres Total
Residential - Single Family	32.3
Residential - Multi-Family	0.7
Residential - Other	7.9
Mixed Use - Primarily Residential	0.3
Other Impervious	10.8
Right-of-way	74.5
Cultivated	2.9
Pasture/Hay	755.0
Developed Open Space	594.2
Deciduous Forest	5476.7
Evergreen Forest	4403.8
Grassland	133.3
Scrub/Shrub	33.5
Bare Land	3.5
Forested Wetland	235.2
Non-forested Wetland	525.3
Water	162.8
Aquatic Bed	0.9

Tyringham Essential Facilities





Service	Name	Address
Fire	Fire Station	100 Main Road
Police	Police Department	116 Main Road
Health Services	Fire Station	100 Main Road
Town offices	Town Hall	116 Main Road
	Town Offices	2 Church Road
Emergency Operations Center	Town Hall	116 Main Road
Alternate Operations Center	Fire Station	100 Main Road
Public Works	Town Garage	
Shelters	Fire Station	100 Main Road
	Town Hall	116 Main Road
Special Needs	Sisters of Visitation	Beach Road
Hospital	Fairview Hospital	29 Lewis Ave, Great Barrington
Heating Oil Supplier		46 Crystal Street, Lenox
Propane Supplier		9 Lee Road, Stockbridge

Filled Risk Matrix - Example / Guide

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

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

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

Features	Location	Ownership	V or S	Riverine Flood	Extreme Precip	Winter Hazards	Heat Waves	Priority	Time
								H - **M** - **L**	**S**hort **L**ong **O**ngoing
Infrastructural									
Main road			V	flooded during storms, blocking emergency response					
Power lines and substations			V			power outage after snow storms or during heave waves			
Sewer pump			V	insufficient capacity during severe flood events					
Stream crossing culvert			V	insufficient capacity during severe flood events and cause local ponding					
Main road			S						
MBTA			V and S	S: evacuation; V: interruption during storms					
Reliable telecommunication line			S	backup power available; not affected by flooding or wind					
Societal									
Senior housing			V	w/ no backup power					
Residential area			V	cut off by flooding; cannot access evacuation route.					
Medical center			S	not affected by flooding and has backup power					
Residential area			V			power outage due to ice/snow-caused fallen tree branches			
Shelter			V	lack of generator hook-up; cause disfunction of the shelter facility					
Volunteer program			S	well supported community volunteer program; proven to be effective in the past					
Emergency communication protocols			S	well maintained; regularly reviewed					
Environmental									
Lack of tree canopy			V				significant urban heat island		
Rodent problem			V	Erosion, stability issues caused by rodent burrows near culvert					
Cemetery next to substation			S	improved infiltration and less runoff down the street					
Riverfront green space			S	not occupied by residents; open green space during flooding					

Resilientma.org

- Beaver Dams – Above Barnes Rd
- Ice Storms
- Center of Town Flooding
- High Winds
- Extreme Heat
- Drought

Known for Excellence. Built on Trust.

Community Resilience Building Workshop 2

Town of Tyringham, Massachusetts

December 15, 2021

Photo credit: Town of Tyringham (https://www.tyringham-ma.gov/)

Rosalie Starvish, P.E., CFM, CPMSM
Seth Taylor, CEP, CESSWI, CIPM
GZA GeoEnvironmental, Inc.

Workshop Agenda

- 10:00 - 10:15 Registration and Refreshments
- 10:15 – 10:20 Welcome and Introductions
- 10:20 – 10:30 MVP Overview
- 10:30 – 10:35 Workshop Goals
- 10:35 – 10:50 Review Workshop 1 Outputs
- 10:50 – 11:00 Community Actions Overview
- 11:00 – 11:55 Group Exercise
  - Define actions
- 11:55 – 12:35 Lunch
- 12:35-1:05 Group Exercise
  - Prioritize Actions
- 1:05 – 1:50 Large Group Exercise
  - Small group report out, as needed
  - Finalize Top Action Priorities
- 1:50 – 2:00 Closing Remarks and Next Steps

Welcome and Introductions

Tyringham Introductions

Molly Curtin-Schaefer, Town Administrator

Core Team Members:

- Molly Curtin-Schaefer, Town Administrator & Assistant Emergency Manager
- Larry Gould, Building Inspector & Floodplain Administrator
- Noah Choquette, Road Superintendent
- Charles Slater Jr., Fire Chief & Forest Fire Warden
- Laura Lee Bertram, Conservation Commission Clerk
- Patrick Holian, Police Chief
- Jim Curtin, Emergency Manager

Municipal Vulnerability Preparedness Program

MVP Principles

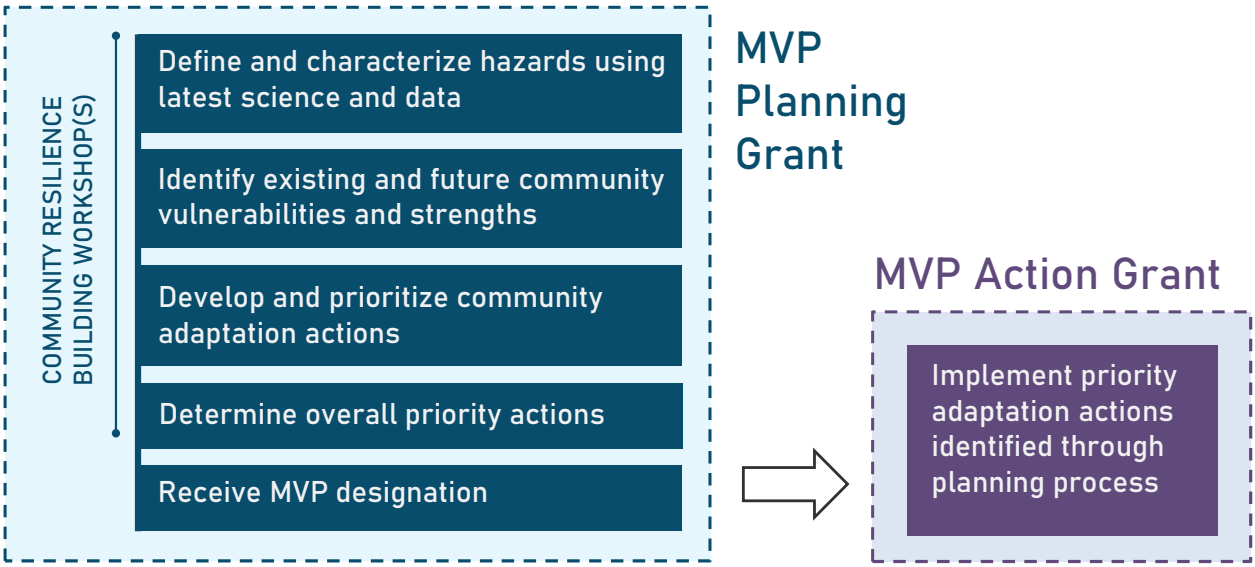
A community-led, accessible process that

- Employs local knowledge and buy-in
- Utilizes partnerships and leverages existing efforts
- Is based in best available climate projections and data
- Incorporates principles of nature-based solutions
- Demonstrates pilot potential and is proactive
- Reaches and responds to risks faced by EJ communities and vulnerable populations

Why nature-based?

Where appropriate, nature-based solutions can be more cost-effective, protect water quality and quantity, sustain lands that provide food and recreation opportunities, reduce erosion, and minimize temperature increases associated with developed areas and climate change.

MVP Process/ Grant Types



CRB Workshop Overview

Community-led Process:

CRB Workshops 1 & 2.
December 1 & Today, December 15

Public Listening session
- February 9 at 2 pm (virtual using Zoom)
- to present overview of the workshop results, resilience actions, and implementation plan.
- to provide opportunity for the public to ask questions and provide input

Survey coming soon
Follow updates on Town of Tyringham website
https://www.tyringham-ma.gov/mvp-committee

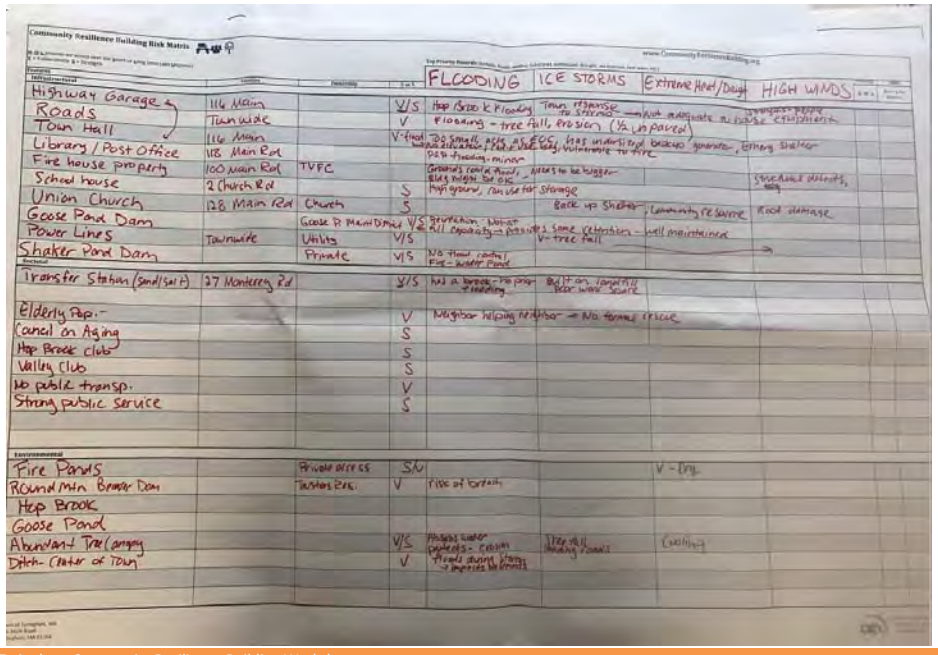
CRB Workshop Overview

Objectives:

1. **Define top hazards**. Understand connections between ongoing issues, hazards, and local planning and actions in your Community.
2. **Identify and map vulnerabilities and strengths** to develop infrastructure, societal and environmental risk profiles for your Community.
3. **Develop and prioritize actions** that reduce vulnerabilities and reinforce strengths for your community - local organizations, academic institutions, businesses, private citizens, neighborhoods, and community groups.
4. **Identify opportunities** to advance actions that further reduce the impact of hazards and increase resilience in your Community.

Workshop #1 Recap

Community Resilience Building Risk Matrix:



Risk Matrix

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org

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

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

Features	Location	Ownership	V or S					Priority H-M-L	Time Short Long Ongoing
Infrastructural									
Societal									
Environmental									

Risk Matrix - Hazards

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

FLOODING	ICE STORMS	EXTREME HEAT/DROUGHT	HIGH WINDS	Priority H-M-L	Time Short Long Ongoing

Risk Matrix – Features

Infrastructure

Societal

Environmental

Features	Location	Ownership	Y or N
Infrastructural			
Societal			
Environmental			

Risk Matrix – Features

Infrastructure

Highway Garage/Town Hall (same building)

Roads

Library/Post Office

Fire House property

School House

Union Church

Goose Pond Dam

Power Lines

Shaker Pond Dam

Transfer Station

Features	Location	Ownership	Y or N
Infrastructural			
Societal			
Environmental			

Risk Matrix – Features

Societal

Elderly Population

Council on Aging

Hop Brook Club

Valley Club

No public transportation

Strong sense of public service

Features	Location	Ownership	Y or N
Infrastructural			
Societal			
Environmental			

Risk Matrix – Features

Fire ponds

Round Mountain beaver dam

Hop Brook

Goose Pond

Abundant tree canopy

Ditch in center of Town

Environmental

Features	Location	Ownership	Y or N
Infrastructural			
Societal			
Environmental			

Risk Matrix

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

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

Resource	Location	Ownership	V or S	FLOODING	ICE STORMS	EXTREME HEAT/DROUGHT	HIGH WINDS	Priority	Time
Infrastructural									
Town Hall	116 Main Road		V	Too small, acts as EOC, has undersized backup generator, emergency shelter, no elevator, can't use building, vulnerable to fire					
Roads	Town Wide		V	Tree fall, erosion (1/2 unpaved)					
Highway Garage	116 Main Road		V/S	Hop Brook flooding	Town response to storms, not adequate to house equipment, strengths - people				
Library/Post Office	118 Main Road			Past flooding - minor					
Fire House Property	100 Main Road	TVFC		Grounds could flood, building might be OK, needs to be bigger			Structural defects		
School House	2 Church Road		S	High ground, can use for storage					
Union Church	120 Main Road	Church	S		Back up shelter	Community resource	Roof damage		
Goose Pond Dam		Goose P. Maintenance District	V/S	Recreation, not at full capacity, provides some retention, well maintained					
Power Lines	Townwide	Utility	V/S		Tree fall		Tree fall		
Shaker Pond Dam		Private	V/S	No flood control, fire, water pond					
Transfer Station (sand/salt)	27 Monterey Road		V/S	Has a brook, no prior flooding	Built on landfill, poor work space				
Societal									
Elderly Population			V/S	Neighbor helping neighbor, no formal rescue					
Council on Aging			S						
Hop Brook Club			S						
Valley Club			S						
No Public Transportation			V						
Strong Public Service			S						
Environmental									
Fire Ponds		Private access	S/V			V-dry			
Round Mtn Beaver Dam		Trustees of Reservations	V	Risk of breach					
Hop Brook									
Goose Pond									
Abundant Tree Canopy			V/S	Absorbs water, prevents erosion	Tree fall, shading roads	Cooling			
Ditch - Center of Town			V	Floods during storm, impacts basements					

Community Actions Overview

MVP Action Grants: Project Types

- Detailed Vulnerability and Risk Assessment*
- Community Outreach and Education
- Local Bylaws, Ordinances, Plans, and Other Management Measures
- Redesigns and Retrofits***
- Nature-Based Flood Protection, Drought Mitigation, Water Quality, and Water Infiltration Techniques**
- Nature-Based, Infrastructure and Technology Solutions to Reduce Vulnerability to Extreme Heat and Poor Air Quality

* Most common project type
** Second-most common project type
***Third-most common project type

MVP Action Grants: Project Types (cont.)

- Nature-Based Solutions to Reduce Vulnerability to other Climate Change Impacts
- Ecological Restoration and Habitat Management to Increase Resiliency

NEW IN 2019

- Energy Resilience
- Chemical Safety
- Land Acquisition for Resilience
- Subsidized Low-Income Housing Resilience Strategies
- Mosquito Control Districts

\+ Expanded eligibility of project location

Previously Funded MVP Action Grants

https://www.mass.gov/doc/mvp-action-grant-project-descriptions/download

MVP

Municipal Vulnerability Preparedness Grant Program

Executive Office of Energy and Environmental Affairs

MVP Action Grant Funded Project Descriptions

FY22 MVP Action Grant Projects

Grantee: Acton (& Acton-Boxborough Regional School District)
Project Title: Climate Action Plan and Electrification Roadmap
Award: $157,940
The Town of Acton and ABRSD will use MVP Action Grant funding to support the: 1) development of a Climate plan to reach net zero carbon emissions as quickly as possible while enhancing local resilience; and 2) development of an Electrification Roadmap, an analysis of action steps and priorities for electrification of seven key existing public buildings.

Grantee: Andover
Project Title: Shawsheen River Watershed Land Conservation Planning and Prioritization for Climate Resilience and Environmental Justice
Award: $181,790
The grant will fund an assessment of properties along the Shawsheen River to identify and prioritize parcels for future land acquisition, with the goal of increasing climate and flood resiliency. The assessment will focus on properties that could provide flooding relief to the most flood-prone areas in downtown Andover, including repetitive loss areas, as well as down-stream environmental justice communities in neighboring Lawrence.

Grantee: Ashfield
Project Title: Baptist Corner Road Stream Crossing Ecological Improvements
Award: $448,600
The project will involve the replacement of the Baptist Corner Road Culvert over a tributary to the Bear River to fully meet the Massachusetts Stream Crossing Standards and future modeled climate conditions. The design will increase flood resiliency, reduce community risk, and restore natural habitats.

Grantee: Athol
Project Title: Greening Lord Pond Plaza Phase 2
Award: $213,630
Phase 2 of the Greening Lord Pond Plaza is intended to advance the findings from Phase 1 planning efforts to a 100% construction design plan and secure the necessary funds to move the project into construction in 2024. The Greening Lord Pond Plaza Climate Resilience Plan developed for Phase 1 presents preliminary feasibility analysis and conceptual design for the plaza. Phase 2 will finalize a design that achieves infrastructural, social, and environmental conditions to increase the climate resilience of Lord Pond Plaza and downtown Athol.

1

2021 Hazard Mitigation Plan - Priority Mitigation Actions

- FLOOD Hazard Mitigation Actions
  - Maintain Hop Brook berm
  - New Firehouse- relocated outside of flood zone or with flood protection
  - Establish FEMA CRS program
  - Develop public safety complex outside of flood zone
  - Culvert improvement projects
  - Track dam inspections and maintenance
- CLIMATE
  - Integrate climate change consideration into design and plan review process
- GEOLOGIC
  - Seismic risk study for natural gas pipeline

Group Exercise

1 hour

Identify Community Actions

LUNCH 11:55AM to 12:35PM

Group Exercise

30 minutes

Prioritize Actions

Large Group Exercise

Small group report out

Finalize Top Action Priorities

Closing Remarks and Next Steps

Next Steps

1. Prepare Summary of Findings Report
2. Facilitate Public Listening Session on February 9, 2022
3. Revise Summary of Findings Report
4. Submit Final Summary of Findings Report to EEA
5. Receive MVP Designation by EEA
6. Apply for MVP Action Grants

Town of Tyringham, Massachusetts

Community Resilience Building Workshop

December 15, 2021, 10 AM- 2 PM

Tyringham Town Office, 116 Main Road, Tyringham, MA 01264

~ Sign-in Sheet ~

Name (Please print)	Department/Group	Email Address
JIM CONSOLATI	Selectmen	Jimconsolati@gmail.com
Noah Choquette	Highway	Tyringhamhighway@gmail.com
William Roche	Highway	
KIM LEDERMAN	N/A	KLEDERMAN@SWBELL.NET
Laura Lee Bertram	Selectmen ofc	
Molly Curtin-Schaefer	Selectmen ofc	
Peter J. HOLIAN	TYRINGHAM PD	TYRPD@BCN.NET
Charles Slater	Fire	

Community Resilience Building

Name (Please print)	Department/Group	Email Address
Alan Wilcox	Assessor	ashift1956@yahoo.com
Andrew Slater	DPW	

THANK YOU FOR YOUR PARTICIPATION IN THIS PROCESS TO STRENGTHEN OUR COMMUNITY'S RESILIENCE!

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

H-**M**-**L** priority for action over the **S**hort or **L**ong term (and **O**ngoing)
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Infrastructural									
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Hop Brook Club			S						
Valley Club			S						
No Public Transportation			V						
Strong Public Service			S						
Environmental									
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Hop Brook									
Goose Pond									
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MUNICIPAL VULNERABILITY PREPAREDNESS (MVP) GRANT PROGRAM
BRIEF SUMMARY OF ELIGIBLE PROJECTS FOR FY 2022 MVP ACTION GRANTS
(EXCERPTS FROM SPRING 2021 EEA REQUEST FOR GRANT APPLICATIONS)

Municipalities may request up to $2,000,000 in funding and awards are expected to range from $25,000-$2,000,000. Regional proposals may request up to $5,000,000. Exceptions may be made at EEA's discretion. **Municipalities** need to provide a minimum of **25% total project costs** as "matching funds" with other eligible funds and in-kind services. **LAND OWNERSHIP AND PROPERTY OWNER SUPPORT:** Projects may be completed on lands held by municipal, state, or federal agencies or government bodies, lands held by non-profit conservation organizations, or lands held privately with consent of private owners.

To review Action Grant Projects by Town:

https://www.mass.gov/info-details/municipal-vulnerability-preparedness-program-action-grant-projects

ELIGIBLE PROJECT TYPES:

1. **Planning, Assessments, Capacity-Building, and Regulatory Updates**

   Projects must meet the MVP program's core principles and may include the following:

   - Identifying, assessing, and prioritizing people, places, resources, and/or critical facilities or infrastructure[1] that may be impacted by climate change in order to plan for and implement resiliency strategies.
   - Assessing the feasibility of a specific climate adaptation strategy.
   - Developing and/or formally adopting planning documents and regulations that encourage climate change adaptation.
   - Undertaking capacity-building activities that will increase social resiliency. These activities may involve municipal staff, community leaders, local business owners, residents, and/or community organizations. Activities could include:
     - Education campaigns and/or training workshops on topics related to climate change adaptation, social resilience, and/or anti-racism.
     - Identifying potential partners and hosting gatherings to discuss opportunities for collaborating on climate resilience work, including social resilience strategies.
     - Creating and/or implementing a "Climate Ambassador"-like program in which community members are trained and compensated to educate fellow residents on climate change, run community events, assist residents with accessing relevant municipal resources, and/or manage climate resiliency projects.
     - Developing or improving access to communication systems so that residents with a range of needs and abilities (including limited English proficiency, limited technology access, etc.) are aware of municipal and/or community resources and ways to access them.
     - Designing, recruiting for, and hosting a "green jobs" training for interested community members in partnership with local businesses and community-based organizations.
     - Partnering with residents and/or community-based organizations to design and implement participatory planning processes.
     - Other innovative capacity-building activity to increase social resilience.

2. **Design and Permitting**

   Projects must meet the MVP program's core principles and may include the following:

[1] Critical infrastructure may be publicly or privately owned, including but not limited to water and wastewater, transportation, energy, dams, food distribution, communications, containment of chemicals or other toxins, and other infrastructure which supports public health and well-being.

- Creating design plans for site preparation, installation, and project monitoring and maintenance.
- Preparing and filing federal, state, and local permit applications for proposed activities.

3. **Construction and On-the-Ground Implementation**

   Proposals for implementation projects should demonstrate that all necessary planning, feasibility assessment, siting analysis, and design have been completed, and that **all necessary permits and permissions are secured.**

   Projects must meet the MVP program's core principles and may include the following:

   - Preparing the project site, constructing/installing adaptation options, and developing/implementing appropriate monitoring protocols.
   - Installing or implementing tangible energy resilience projects like solar + storage systems at critical facilities, energy efficiency measures at critical facilities, relocation of building utilities outside of flood-prone locations, and other innovative pilot projects.
   - Acquiring land or property in order to achieve climate resiliency goals.
   - Implementing other "on-the-ground" adaptation projects (e.g., tree planting, pilot project, etc.).

MVP CORE PRINCIPLES:

Successful projects will embody and reflect the MVP program's core principles. These principles are reflected in the MVP Action Grant scoring criteria. The Applicant's proposed project must align with these principles to be competitive for MVP funding. The principles are as follows:

1. **Furthering a community identified priority action to address climate change impacts:** Projects funded under this program must address one (or more) priority implementation action(s) identified and documented within the municipality's MVP plan or similar EEA-approved plan.

2. **Utilizing climate change data for a proactive solution:** Projects funded under this program should fully consider and incorporate climate change projections (where available) and data that align with the anticipated lifespan of the project and the criticality of the asset. Climate data can be found on the resilient MA Climate Change Clearinghouse: resilientma.org and/or local-level climate change studies.

3. **Employing Nature-Based Solutions (NBS):** NBS are adaptation measures focused on the protection, restoration, and/or management of ecological systems to safeguard public health, provide clean air and water, increase natural hazard resilience, and sequester carbon. More information on nature-based solutions can be found in the MVP NBS toolkit.

4. **Increasing equitable outcomes for and supporting strong partnerships with Environmental Justice (EJ) Populations and Climate Vulnerable Populations:** EJ Populations are defined in the 2017 EJ Policy. Climate Vulnerable Populations are those who have lower adaptive capacity or higher exposure and sensitivity to climate hazards like flooding or heat stress due to factors such as access

to transportation, income level, disability, racial inequity, health status, or age.[2] Learn more in the MVP EJ & Equity toolkit.

5. **Conducting robust community engagement:** All projects proposed under this BID/RFR will be required to submit a specific Public Involvement and Community Engagement Plan as part of the application.

6. **Achieving broad and multiple community benefits:** Projects that maximize resilience and provide other co-benefits (e.g., public health, environmental, social, economic, etc.) for many people will receive priority.

7. **Committing to monitoring project success and maintaining the project into the future**: Projects that proactively set in place mechanisms to measure success over time and maintain the proposed project will receive priority.

8. **Utilizing regional solutions for regional benefit:** Projects that provide regional benefits are prioritized. Regional partnerships of multiple municipalities are eligible and encouraged under the program, provided that the lead applicant is MVP-designated.

9. **Pursuing innovative, transferable approaches:** Innovative projects that seek to address critical issues with widespread relevance for many communities are encouraged.

List of Example Projects Funded Through MVP Program

MUNICIPAL VULNERABILITY PREPAREDNESS PROGRAM FY 22

MVP ACTION GRANT
RFR ENV 22 MVP 02

This list provides a non-exhaustive selection of projects that have been funded through the MVP Action Grant program, organized by project type.

Planning, Assessments, Capacity Building, and Regulatory Updates

- **Great Barrington -- Climate Action, Resilience, and Equity Great Barrington (CARE GB) (FY21; $70,400 Award):** This project aims to bring the needs of underrepresented and historically marginalized communities into the center of the Town's climate change adaptation and planning strategy. A local group will train key Town staff and stakeholders on climate justice, equity, and inclusion and perform community outreach to Climate Vulnerable Populations. As a part of the project, key takeaways will be reported back to the Town and shared with other MVP communities. Great Barrington's FY21 MVP Grant was highlighted during the MVP Program's Community Engagement and Environmental Justice webinar. Find the section of that program here: https://www.youtube.com/watch?v=1wehCkoovxI&t=4522s
- **Fall River, Dighton, Somerset, and Swansea – Regional Emergency Water System**

[2] Definition adapted from the State Hazard Mitigation and Climate Adaptation Plan, 2018

Interconnectivity Analysis (FY21; $100,650 Award): To create a significantly more robust and resilient intermunicipal water supply system, and to respond to citizen concerns expressed in its 2019 MVP Report, the City of Fall River is working with its neighbors to evaluate the ability of the combined water supplies to provide redundancy during periods of critical need.

- **Lakeville, Middleborough, Freetown, Rochester, Taunton and New Bedford – Assawompset Pond Complex Watershed Management and Climate Action Plan (FY21; $93,236 Award):** Regional climate resilience will be bolstered through the development of a comprehensive management plan that contains actionable strategies for coping with floodwater issues throughout the Assawompset Pond Complex while also equally addressing water supply and drought potential, water quality, preservation of critical habitat, and compatible recreational access. The project will improve social resilience through the commitment of a network of regional stakeholders operating from coordinated best management practices. This Action Grant was highlighted during the MVP Program's Building Resilience through Partnerships webinar. Find the section of that program here: https://youtu.be/ipOuD0j6mec?t=530
- **Uxbridge – Integrated Vector-borne Disease Control Program (FY20; $256,926 Award):** The Town of Uxbridge is developing an integrated vector-borne disease management plan. This includes (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. Find more information here: https://www.mass.gov/doc/uxbridge-showcase-project/download
- **Holyoke – Meeting an Immediate Need by Learning from Hurricane Maria Survivors in Holyoke (FY18; $149,825 Award):** The Town of Holyoke partnered with a bilingual consulting team to gather a detailed demographic analysis of individuals who arrived in the Town from Puerto Rico as a result of Hurricane Maria. Interviews were conducted with local social service providers, local politicians, local governmental agencies, and state/federal agencies to determine the ground rules for what transpired during and after Holyoke's response to Maria. The project produced an institutional analysis and checklist for steps that communities need to implement to be more prepared for accommodating climate migrants. Explore key findings from this report here: https://www.mass.gov/doc/final-study-0/download

Design and Permitting

- **Malden – Malden River Works (FY21; $150,015 Award):** The project goal is to transform the City's Department of Public Works yard on the Malden River for better climate change preparedness (as a key second responder for the city), and to create a vibrant, resilient public riverfront park. Led by a new coalition of community leaders of color, youth, environmental advocates, and government stakeholders as the newly formed Malden River Works Steering Committee, this project has already put in place a community-led design process that will continue into the upcoming phase of design and engineering development. This Action Grant was highlighted during the MVP Program's Community Engagement and Environmental Justice webinar. Find the section of that program here: https://youtu.be/1wehCkoovxI?t=2115

- **Lexington & Resilient Mystic Collaborative – Upper Mystic River Watershed Regional Stormwater Wetlands (FY21; $670,000 Award):** Furthering a FY20 MVP Action Grant, the overall goal of this initiative is to develop a multi-community master plan of stormwater wetland projects that help manage regional flooding while providing co-benefits to host communities. Under this grant, the Resilient Mystic Collaborative will select projects to work with willing landowners and community stakeholders to move to forward with design on several of the projects. The Resilient Mystic Collaborative was highlighted during the MVP Program's Building Resilience through

Partnerships webinar. Find the section of that program here: https://youtu.be/ipOuD0j6mec?t=4632

- **Boxford, Topsfield, & Ipswich – Increasing Regional Flood Resiliency through Re-Designing Culverts in the Howlett Brook Watershed (FY20; $45,866 Award):** A comprehensive regional culvert design project in the Howlett Brook Sub-basin of the Ipswich River Watershed, the project provided 30% design plans for priority sites based on the Massachusetts Stream Crossing Standards and future modeled climatic conditions. Once implemented, the culverts will increase flood resiliency, reduce community risk, and restore natural habitats. Learn more about the project here: https://www.mass.gov/doc/case-study-19/download and here: https://youtu.be/ipOuD0j6mec?t=2714

Construction and On-the-Ground Implementation

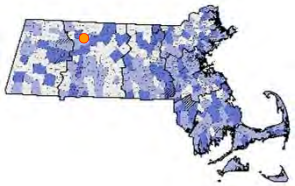
- **Braintree – Monatiquot River Restoration (FY21; $750,000 Award):** The project includes removal of the "High Hazard" Armstrong Dam and Ames Pond Dam, restoration of the Monatiquot River channel in the area of the former mill pond, construction of a bypass fishway for river herring and American eel passage, and construction of a public access trail with interpretive signage along the restored river channel through the site. This Action Grant was highlighted during the MVP Program's Building Resilience through Partnerships webinar. Find the section of that program here: https://youtu.be/jmpIfGHkNm4?t=181
- **Newburyport – Resilient Critical Infrastructure: Adapting a Wastewater Treatment Facility, Underground Electric Lines, and Public Rail Trail to Future Sea Level Rise and Storm Surge (FY21; $1,000,000 Award):** This project is the construction phase of rebuilding a higher sloped stone revetment and installing an elevated berm with a public trail on top, which will be a critical step towards making the Newburyport Wastewater Treatment Plant resilient to storm surge and future sea level rise, along with protecting the underground electric transmission lines (23kV) serving the city and the region. Learn more about the design phase of this project (also funded by MVP) here: https://www.mass.gov/doc/case-study-24/download
- **Northampton – Restoring the Pine Grove Golf Course for Climate Resiliency (FY20; $225,000 Award):** The City of Northampton procured the 105-acre Pine Grove Golf Course in the spring of 2019 and used MVP funding to restore an adjacent brook's natural hydrology through a combination of targeted reforestation, soil aeration, removal of anthropogenic drainage features, and the development of a masterplan for the future restoration of wetlands and stream channels. Learn more about this project here: https://www.mass.gov/doc/case-study-25/download
- **Falmouth – Coonamessett River Restoration Project: Construction of Phase 2 (FY19; $760,000 Award):** The Town undertook the restoration of the lower Coonamessett River and associated former cranberry bog complex. Phase 2 included removal of a second dam, replacement of a failing culvert, and restoration of the remaining 39 acres of the cranberry bog complex and 3,000 linear feet of the Coonamessett River. Falmouth's grant was highlighted during the MVP Program's Nature-Based Solutions webinar. Find the section of that program here: https://youtu.be/6iIOLcgJnyQ?t=1164

FY18 Action Grant Projects

Detailed Vulnerability Assessment
Nature-Based Flood Mitigation

Montague City Road Flooding Protection Project: Design and Permitting

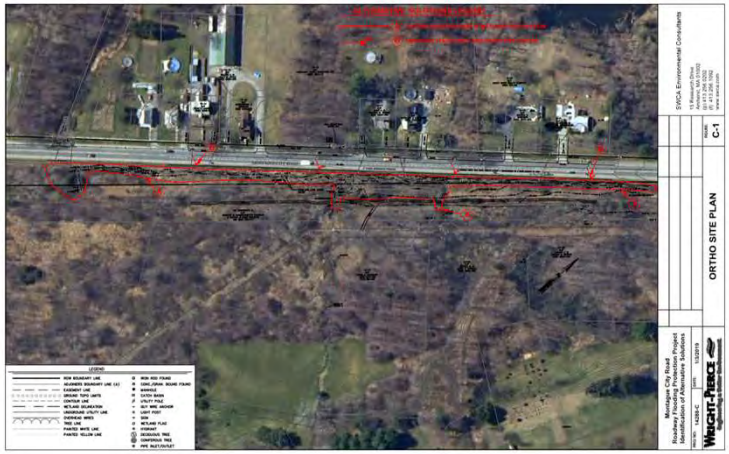
Montague



MVP Grant: $33,750
Match Amount: $11,250
Total Project Cost: $45,000

Project Priorities:

- Analyze alternative nature-based storm damage protection and other bioengineering methods to adapt to seasonal flooding that routinely closes one of Montague's main thoroughfares
- Create design and obtain necessary permits to construct the chosen alternative, a vegetated drainage swale



Analysis of existing flood conditions along Montague City Road

Image credits: Town of Montague, Wright-Pierce

MITIGATION ACTIONS	Benefits	Costs	Timeline	Priority	Responsible Agencies	Potential Funding Sources
MITIGATION HAZARDS						
Action 1. Continue to participate in local disaster response drills with REPC	Medium	Low	Ongoing	Medium	Town of Tyringham, Regional Emergency Planning Committees (REPC)	Department of Homeland Security, MEMA
Action 2. Digitize Town records to further minimize risk of loss due to natural hazards.	Medium	High	3-5 years	Low	Town Clerk, Tyringham office administrators, EMD, Fire & Police	Town of Tyringham
Action 3. Implement Local Hazard Mitigation Plan	High	Low	Ongoing	High	Planning Department (Lead), All Town Departments and Town Administrator	Town of Tyringham
Action 4. Consider climate change resiliency in the repair, replacement, or construction of new Town-owned facilities, to minimize future impacts from natural hazards, particularly flooding, storm damage, erosion, and high winds	High	Low	Ongoing	High	Town of Tyringham, Planning Department, Board of Selectmen	Town of Tyringham
Action 5. Identify electrical back-up generator needs (new or replacement) in critical facilities such as Town Hall, etc. and purchase as needed	High	High	3-5 years	Medium	Town of Tyringham, Highway Dept., EMD, Fire & Police	MEMA FEMA MA Department of Conservation and Recreation (DCR) Town of Tyringham
Action 6. Continue to Review and Update Current Mutual Aid agreements	Medium	Low	Ongoing	Medium	Fire and Police Departments, Emergency Services	MEMA Town of Tyringham

Table 7: Natural Hazard Mitigation Action Matrix & Prioritization

MITIGATION ACTIONS	Benefits	Costs	Timeline	Priority	Responsible Agencies	Potential Funding Sources
FLOOD HAZARDS						
Action 7. Inspect and maintain berm which protects Town Hall, Highway Department, Library and Post Office from flooding from Hop Brook	Medium	Low	Ongoing	High	Town of Tyringham	Town of Tyringham
Action 8. Culvert Improvement Projects for the Town: Breakneck Road Bridge, Beach Road; and/or Town-wide Culvert Assessment	Medium	Medium to high	Ongoing	Medium	Highway Dept.	FEMA Town of Tyringham
Action 9. Participate in reviews of regulatory floodplain maps updates and revisions being prepared by FEMA.	High	Low to Medium	Ongoing	High	Town Administrator, Planning Dept. Fire and Police HWY Dept., Floodplain Manager Building Dept., Board of Selectmen	FEMA
Action 10. Continue to pursue development of new firehouse, either relocated out of floodplain, or with integrated flood protection measures	High	High	Ongoing	High	Tyringham Volunteer Fire Company	MEMA/FEMA, Town of Tyringham, Tyringham Volunteer Fire Company
Action 11. Continue to participate in National Flood Insurance Program (NFIP) (or other) training offered by the State and/or FEMA that addresses flood hazard planning and management	High	Low	Ongoing	High	Town Administrator, Planning Dept. Building Dept. Floodplain Manager	FEMA MEMA DCR Town of Tyringham

Table 7 cont.: Natural Hazard Mitigation Action Matrix & Prioritization

MITIGATION ACTIONS	Benefits	Costs	Timeline	Priority	Responsible Agencies	Potential Funding Sources
FLOOD HAZARDS						
Action 12. Enhance communication with neighboring municipalities on water resources across Town borders	Low	Low	Ongoing	Low	Tyringham Conservation Commission	Housatonic Valley Association Town of Tyringham Town of Lee Town of Otis
Action 13. Evaluate the possibility of participating in FEMA's Community Rating System (CRS) program that would result in reducing the cost of NFIP premiums while improving flood resiliency.	High	Medium	1-2 years	High	Town Administrator; All Departments	NFIP DCR MEMA Town of Tyringham
Action 14. Plan for land acquisition and other steps to develop a public-safety complex at a location outside of the floodplain, to include facilities for police, fire, highway, and emergency management.	High	High	3-5 years	Medium to High	Tyringham Volunteer Fire Company Police Department Highway Department	FEMA/MEMA EOEEA Town of Tyringham
CLIMATE RELATED HAZARDS						
Action 15. Conduct a Town-wide climate change vulnerability assessment to receive designation from MA EEA under the MA Municipal Vulnerability Preparedness (MVP) Program	High	Low to Medium	1-2 years	Medium	Town Administrator and all Town agencies and departments	EOEEA, Town of Tyringham
Action 16. Consider integrating climate change considerations into design and plan review process for future development and redevelopment projects	Medium	Low	Ongoing	High	Planning Board, Building Department	EOEEA, MEMA, Town of Tyringham

Table 7 cont.: Natural Hazard Mitigation Action Matrix & Prioritization

MITIGATION ACTIONS	Benefits	Costs	Timeline	Priority	Responsible Agencies	Potential Funding Sources
GEOLOGIC HAZARDS: EARTHQUAKE						
Action 17. Consider completing a detailed quantitative study of the seismic risk to natural gas pipelines and include an alternatives analysis to identify seismic retrofit measures based on the results of the quantitative study.	High	Low to Medium	3-5 years	Low	Town of Tyringham	EOEEA, MEMA, Town of Tyringham
SECONDARY HAZARDS: DAM FAILURE						
Action 18. Continue to track inspection and maintenance by private dam owners; maintain records of inspections and Emergency Action Plans (Goose Pond, Shaker Pond, Steadman Pond dam in Monterey)	Medium	Low	Ongoing	High	Town of Tyringham Emergency Management, Private dam owners	Town of Tyringham

Table 7 cont.: Natural Hazard Mitigation Action Matrix & Prioritization

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

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

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

Features	Location	Ownership	V or S	FLOODING	ICE STORMS	EXTREME HEAT/DROUGHT	HIGH WINDS	Priority H - M - L	Time Short Long Ongoing
Infrastructural									
Town Hall	116 Main Road		V						
Roads	Town Wide		V						
Highway Gargage	116 Main Road		V/S						
Library/Post Office	118 Main Road								
Fire House Property	100 Main Road	TVFC							
School House	2 Church Road		S						
Union Church	128 Main Road	Church	S						
Goose Pond Dam		Goose P. Maintenance District	V/S						
Power Lines	Townwide	Utility	V/S						
Shaker Pond Dam		Private	V/S						
Transfer Station (sand/salt)	27 Monterey Road		V/S						
Societal									
Elderly Population			V/S						
Council on Aging			S						
Hop Brook Club			S						
Valley Club			S						
No Public Transportation			V						
Strong Public Service			S						
Environmental									
Fire Ponds		Private access	S/V						
Round Mtn Beaver Dam		Trustees of Reservations	V						
Hop Brook									
Goose Pond									
Abundant Tree Canopy			V/S						
Ditch - Center of Town			V						

Municipal Vulnerability Preparedness Grant Program

Executive Office of Energy and Environmental Affairs

MVP Action Grant Funded Project Descriptions

FY22 MVP Action Grant Projects

Grantee: Acton (& Acton-Boxborough Regional School District)
Project Title: Climate Action Plan and Electrification Roadmap
Award: $157,940
The Town of Acton and ABRSD will use MVP Action Grant funding to support the: 1) development of a Climate plan to reach net zero carbon emissions as quickly as possible while enhancing local resilience; and 2) development of an Electrification Roadmap, an analysis of action steps and priorities for electrification of seven key existing public buildings.

Grantee: Andover
Project Title: Shawsheen River Watershed Land Conservation Planning and Prioritization for Climate Resilience and Environmental Justice
Award: $131,700
The grant will fund an assessment of properties along the Shawsheen River to identify and prioritize parcels for future land acquisition, with the goal of increasing climate and flood resiliency. The assessment will focus on properties that could provide flooding relief to the most flood-prone areas in downtown Andover, including repetitive loss areas, as well as down-stream environmental justice communities in neighboring Lawrence.

Grantee: Ashfield
Project Title: Baptist Corner Road Stream Crossing Ecological Improvements
Award: $448,600
The project will involve the replacement of the Baptist Corner Road Culvert over a tributary to the Bear River to fully meet the Massachusetts Stream Crossing Standards and future modeled climatic conditions. The design will increase flood resiliency, reduce community risk, and restore natural habitats.

Grantee: Athol
Project Title: Greening Lord Pond Plaza Phase 2
Award: $213,630
Phase 2 of the Greening Lord Pond Plaza is intended to advance the findings from Phase 1 planning efforts to a 100% construction design plan and secure the necessary funds to move the project into construction in 2024. The Greening Lord Pond Plaza Climate Resilience Plan developed for Phase 1 presents preliminary feasibility analysis and conceptual design for the plaza. Phase 2 will finalize a design that achieves infrastructural, social, and environmental conditions to increase the climate resilience of Lord Pond Plaza and downtown Athol.

Grantee: Belchertown
Project Title: Land Conservation and Restoration of the Scarborough Brook Headwaters for Climate Resilience
Award: $480,025
Belchertown will conduct a multi-pronged project focused on the headwaters of the Scarborough Brook watershed and the Scarborough Brook Conservation Area (SBCA) to increase habitat and water supply resilience under future climate conditions.

Grantee: Belmont
Project Title: Stormwater Flood Reduction and Climate Resilience Capital Improvement Plan
Award: $195,000
The primary goal of this project is to identify the current and future stormwater flooding risks through Belmont in the context of climate change. The development of a 2-D stormwater model will assist in the confirmation of flood issues and the evaluation of resilience alternatives. Ultimately, the project will coalesce into an infrastructure improvement plan that prioritizes nature-based solutions in environmental justice neighborhoods that would offer multiple co-benefits like open space improvement, air quality improvements, water pollution load reduction, pollution control, or urban heat island reduction.

Grantee: Bolton (& Clinton)
Project Title: Nashua River Communities Resilient Lands Management Project
Award: $302,691
This project aims to improve residents' quality of life and to enhance ecosystem services in the participating towns through the development and adoption of better land management practices and by-laws and regulations updated to better affect climate mitigation and adaptation.

Grantee: Braintree
Project Title: Smith Beach Green Infrastructure Project
Award: $47,500
The project will take conceptual plans to create full construction drawings and specifications including all necessary permitting. The proposed project will include a design for increased tree canopy, vegetated islands, permeable pavement, and a subsurface stormwater infiltration and treatment system. These improvements would divert stormwater for 10 acres around the site, reducing nuisance flooding in the road and improving water quality at Smith Beach. Additionally, increasing vegetation and tree canopy will cool the area adjacent to the beach.

Grantee: Bridgewater
Project Title: High Street Dam Removal
Award: $750,000
The Town will remove an existing dam on High Street referred to as the High Street Dam and/or Jenkins Pond Dam and replace the existing High Street Bridge ("road stream crossing"), which is a series of four undersized culverts with a single span. The project considers climate altered precipitation and complies with the Massachusetts Road Stream Crossing Standards.

Grantee: Buckland (& Ashfield, Hawley)
Project Title: Watershed-Based Assessment and Climate Resiliency Plan for Clesson Brook
Award: $100,117
The Town seeks to complete a fluvial geomorphic assessment of the Clesson Brook Watershed, develop a baseline of physical conditions that will lead to a hydrologic model and projections for future conditions, create a database of stream crossings, and create a priority list for parcels within the Clesson Brook to focus conservation and restoration efforts.

Grantee: Burlington
Project Title: Vine Brook Watershed and Urban Heat Island Assessment
Award: $108,500
The project is intended to address urban flood impacts from extreme precipitation and urban heat island effects from anticipated extreme climate events. This project will evaluate this highly developed watershed for opportunities to implement nature-based solutions to address any anticipated impacts due to climate change.

Grantee: Chelsea
Project Title: Battery Storage System and Solar at Chelsea City Hall
Award: $624,000
The objectives of the project are (1) to increase resiliency in the face of climate-change-induced vulnerability to storms and flooding; (2) to eliminate fossil fuel use and reduce environmental impacts of both on-site and grid-based generation; and (3) to complete the municipal-buildings phase of the Chelsea Community Microgrid. Grant funds will be used for a battery energy storage system (BESS), solar power, energy efficiency, and green-fueling installations at the city hall and the 911 building.

Grantee: Conway
Project Title: South River Flood Resiliency Project
Award: $191,200
The goal of the project is to continue work from FY20 Mohawk Trail Woodlands Partnership MVP project in the Town of Conway. The main tasks are to secure environmental permits for flood resiliency projects; additional hydraulic and hydrologic modeling; public engagement on NBS and resilient rivers; and land acquisition.

Grantee: Deerfield
Project Title: Healthy Soils, Green Infrastructure and Climate Resiliency Public Engagement in Deerfield
Award: $40,951
The goal of this project is to actively engage the general public, businesses, students, and town boards in the town's climate resiliency initiatives. Grant funds will be used to implement Deerfield's innovative new town policy on green infrastructure and climate resiliency, protect and manage soils for carbon sequestration, and increase public engagement through a town-wide climate resiliency forum and science class programming in local schools.

Grantee: Dennis
Project Title: Pound Pond, Dennis- Flood Mitigation and Storm Drainage Improvements

Award: $120,010
This project will provide engineering, public outreach, and permitting for the final phase drainage system improvements originating at Route 28 and extending along Division Street and Chase Avenue to the Nantucket Sound. The concept design for this final phase, located at Pound Pond, addresses both water quality and flooding. The design utilizes bioengineering to enhance the natural system, stabilize shorelines and improve water quality; and culvert daylighting to improve flood plain function and habitat diversification.

Grantee: Easthampton
Project Title: Cherry Street Green Infrastructure and Slope Restoration Construction
Award: $2,000,000
Easthampton will construct designs developed and permitted under their FY21 MVP Action Grant project for stream bank restoration and stabilization at the Cherry Street outfall and reconstruction of Cherry Street. This project will build resiliency to increased precipitation by infiltrating stormwater in addition to adding tree cover for shade. It will also build new sidewalks for better walkability, safety, and enhanced connectivity to open space and resources in this EJ community.

Grantee: Everett (& Chelsea)
Project Title: Island End River Flood Resilience Project
Award: $716,500
The City of Chelsea and Everett seek to continue their joint efforts to promote flood resilience in the Island End River (IER) corridor. This project will focus on evaluating flood wall alignments in Everett and initiating design work on a selected alignment while continuing work in Chelsea to address future environmental remediation activities under the Massachusetts Contingency Plan (MCP) and to initiate permitting activities. Community engagement through advisory groups of both residents and private business stakeholders will continue in this phase of the project.

Grantee: Falmouth
Project Title: Conceptual Design of Flood-Resiliency Improvements for Sewer Infrastructure
Funding: $104,040
The project will build on the findings of completed MVP projects to evaluate multiple alternatives and determine a recommended approach to allow the Town's vulnerable infrastructure to survive a design storm event.

Grantee: Fitchburg
Project Title: Bolstering Public and Private Action to Improve Flood Resilience in Baker Brook
Award: $173,350
The project team proposes to revise and enhance the existing stormwater model to further evaluate potential flood prone areas and solutions. The improvements will be scored and prioritized for the benefits to environmental justice populations, the reduction of an urban heat island, and other co-benefits to the community. The final product will be a targeted capital improvement plan for identified and assessed public properties and a pilot retrofit program for specific private properties. The feasibility of financing this program through a stormwater and climate resilience utility will be explored.

Grantee: Foxborough
Project Title: Advancing Green Infrastructure in Foxborough for Enhancing Climate Resilience through Planning and Design
Award: $166,543
This project will site and design green infrastructure to alleviate flooding and protect water quality in an Area of Critical Environmental Concern. The project will also create a master plan to guide future implementation of green infrastructure while simultaneously engaging climate vulnerable populations and portions of the community who are often left out of these conversations.

Grantee: Framingham
Project Title: Walnut Street Neighborhood Flood Mitigation – Design and Permitting
Award: $269,030
The project will include design and permitting for wetland, stream channel, and streambank restorations to reduce flooding. The project includes the removal of an earthen berm in the wetlands complex between Walnut Street and Stony Brook Road that has experienced flooding. The berm will be replaced with an elevated boardwalk providing ADA accessible, safe, and walkable access through an environmental justice neighborhood to connect community amenities. The project also includes robust public engagement including climate leadership for teens, youth programs, and targeted outreach to various segments of the community.

Grantee: Gloucester
Project Title: Gloucester Climate Action and Resilience Plan (CARP)
Award: $69,890
Gloucester will develop a city-wide Climate Action and Resilience Plan (CARP). The plan will serve to identify and inventory Gloucester's community greenhouse gas (GHG) emissions, renewables, and sequestration resources. This baseline will help the community in identifying the highest priority and most feasible solutions to put Gloucester on track to meet its long-term energy, climate, and resiliency goals.

Grantee: Groveland
Project Title: Johnson Creek Watershed Resiliency Project
Award: $82,186
The purpose of the project is to provide a detailed watershed-wide vulnerability study relative to potential future climate change conditions to improve resiliency throughout the Johnson Creek Watershed. Project activities will include assessments at key watershed locations and development of a hydrologic and hydraulic model to identify and quantify areas of flooding concern throughout the watershed relative to potential future conditions. A prioritized action plan will be developed to increase resiliency throughout the watershed. The action plan will prioritize recommended nature-based solutions.

Grantee: Hampden (& East Longmeadow)
Project Title: Hampden/East Longmeadow Infrastructure Assessment and Prioritization of Nature-Based Solutions and Public Outreach and Participation
Award: $389,092

The project will include the assessment of infrastructure and prioritization of nature-based solutions, the development and maintenance of a comprehensive public outreach and participation program, and education of the public and DPW staff on best management practices, low impact development, green infrastructure, and native plantings.

Grantee: Haverhill
Project Title: Little River Dam Removal and River Restoration
Award: $475,000
The City intends to build on its FY21 Dam Removal Feasibility Study and is apply for funds to develop designs and complete permitting processes for the removal of the Little River Dam and restoration of the river corridor as the next step toward implementation. To date, no major hurdles are foreseen for the removal of the dam, which is expected to reduce the extent of flooding risk and provide shade and river access for cooling and recreation in the heart of an EJ community. The design concept developed under the first MVP Action Grant includes community amenities in the EJ neighborhood, such as a fishing platform, a kayak/canoe launch, and a walking trail along the river. The dam removal project is thus at the core of a larger urban revitalization effort.

Grantee: Ipswich
Project Title: Ipswich River Sewer Interceptor Bank Bio-stabilization Project
Award: $117,803
The Town of Ipswich received a FY20 MVP Action grant for final design of the Ipswich River Sewer Interceptor and Siphon replacement project. Construction of the sewer interceptor and siphon is nearing completion. This project will conduct bio-stabilization of the northern bank of the Ipswich River, implementing nature-based solutions to improve natural systems while protecting critical sewer infrastructure.

Grantee: Lenox (& Pittsfield, Stockbridge, New Marlborough)
Project Title: Housatonic Stream Restoration for Regional Flood Resilience Project
Award: $295,190
Four communities (Lenox, Pittsfield, Stockbridge, and New Marlborough) will embark on regional, community-wide culvert assessments of approximately 400 culverts, and design the replacement of three priority culverts. A unique feature to this project is the component of youth development—youth from Environmental Justice communities will be hired to conduct the assessments. In target areas, upstream and downstream assessments with a developed nature-based assessment protocol will identify sites for future projects that will allow stormwater to infiltrate, slow flow, restore floodplain, and shore up erosion that has occurred due to increased precipitation.

Grantee: Leominster
Project Title: Monoosnoc Brook Bank Stabilization Project
Award: $167,625
The project will complete the final design of the Monoosnoc Brook Bank Restoration Project, having completed the preliminary design and permitting phase of the project, partially funded by an FY21 MVP Action Grant. The resilient design, a naturalized slope edge that includes naturalizing of a downgradient culvert structure, was selected through collaboration with interested community members and

informed by modeling of future climate change projections. The goals of the project are to complete a final design with input from the permitting agencies and continued collaboration with the community.

Grantee: Leverett
Project Title: Shutesbury Road Culvert Enhancement
Award: $258,750
The project will replace this corroding, poorly embedded, and significantly perched culvert with an embedded natural stream culvert.

Grantee: Lynn
Project Title: Barry Park Green Infrastructure Project
Award: $147,367
This project proposal includes the design, engineering, and construction of Low Impact Design solutions in and adjacent to Barry Park. LID elements include the construction of a previous parking area, rain garden and/or bioswale along the perimeter to the parking area, and a minimum of two bio-swales along a short stretch of Balchelder's Court leading to the park's parking area. The project seeks to mitigate flooding and improve stormwater management and water quality.

Grantee: Lynnfield
Project Title: Richardson Green Conservation Acquisition
Award: $1,638,750
The project goal is to acquire the 20-acre Richardson Green property for conservation of the natural resource values provided by maintaining the land in its wooded, undeveloped state. The property sits within the Lynnfield Center Water District Zone II for drinking water and the Lynnfield Groundwater Protection Area.

Grantee: Malden
Project Title: Malden River Works for Waterfront Equity and Resilience
Award: $354,600
The project goal is to transform the City's Department of Public Works (DPW) yard on the Malden River for better climate change preparedness, and to create a vibrant, resilient public riverfront park for all. The main tasks covered within this application include developing the design from a 25% level to 75% Plans and permitting, and the continuation of ongoing community participation in the project under the leadership of Malden residents of color.

Grantee: Marlborough
Project Title: Regulatory Updates to Support Climate Resiliency
Award: $56,250
The project will include expert review and update of city ordinances related to development for climate resiliency. A design guidance document will also be developed.

Grantee: Marshfield
Project Title: Marshfield Long-term Coastal Resiliency Plan
Award: $78,030

The goal of the proposed project is to proactively address future coastal flooding and erosion risks by developing a long-term coastal resiliency plan. The plan will be guided by the best available climate change data; will identify and prioritize the most at-risk sections of town; will include a benefit cost analysis; and will develop a set of guiding principles and recommended zoning policies that will allow the Town to proactively reduce vulnerabilities in these areas, and if necessary, rebuild in a more resilient way after a catastrophic event.

Grantee: Mashpee
Project Title: Watershed-based Solutions to Increase Resilience to Harmful Algal Blooms in Santuit Pond in a Warmer and Wetter Climate
Award: $131,691
The Town of Mashpee proposes to leverage the 2010 Diagnostic Study and over a decade of water quality monitoring to develop a multi-prong approach to improve the resilience of Santuit Pond to a warmer and wetter climate. The approach: (1) develops concept design for nutrient pollution reduction at key wet water input locations around Santuit Pond and carries one design forward to permitting, (2) reviews and provides recommended changes to municipal bylaws to reduce nutrient impacts to all surface waters in Mashpee, and (3) creates a robust public education and outreach program that incorporates the knowledge and perspective of the Wampanoag.

Grantee: Melrose (& Upper Mystic Communities)
Project Title: Working Across Boundaries to Minimize Stormwater Flood Damage in the Upper Mystic Watershed
Award: $108,655
This project (an "exposure analysis") will document where flood damage occurs, and create measures of its social, economic, and infrastructure costs, especially to low-income residents of color. The project team will then come up with a toolbox of policy strategies geared toward cost-effective, multiple-benefit solutions for the most vulnerable areas. Year 1 work will include updating the regional stormwater model with the flood exposure analysis. Year 2 work will include reviewing local regulations, hosting regional workshops to discuss reducing directly connected impervious areas (DCIA) and producing recommended regulation changes to coordinate DCIA reduction strategies across the Upper Mystic.

Grantee: Melrose (& Malden, Medford)
Project Title: Melrose, Malden, and Medford Building Resilience, Efficiency, and Affordability Project
Award: $101,108
The project will collaboratively develop complimentary sustainable and resilient building design standards for residential and mixed-use developments and retrofits that are co-created in consultation with community members. In particular, the community members will be those from Environmental Justice communities and other populations with high exposure to climate-driven extreme weather.

Grantee: Mendon
Project Title: Mendon Town Hall Campus Green Stormwater Infrastructure: Design through Contractor Mobilization
Award: $169,905

The purpose of this project is to construct green stormwater infrastructure (GSI) controls at the Town Hall Campus using a suite of nature-based solutions to manage, treat, and infiltrate stormwater runoff using practices such as rooftop runoff capturing planters, bioretention, previous pavers, infiltration systems, and depaving a portion of the existing driveway and parking lot northwest of Town Hall. The project will also include a robust public engagement campaign documenting the benefits of nature-based solutions.

Grantee: Methuen (& Lawrence)
Project Title: Searles Pond/Bloody Brook Corridor Resilience Planning
Award: $80,250
Working with project partners Groundwork Lawrence, Merrimack River Watershed Council and the City of Lawrence, the City of Methuen will conduct resilience planning in the Searles Pond/Blood Brook corridor of Methuen and Lawrence— EJ neighborhoods vulnerable to flooding because of inadequate infrastructure. Tasks associated with resilience plan development include a robust civic engagement process, conditions assessment, and alternatives evaluation.

Grantee: Millbury
Project Title: Armory Village Green Infrastructure Project- Phase II
Award: $366,000
The project aims to address the stormwater capacity and heat island impacts of climate change within an Environmental Justice community, as well as minimize inputs of non-point source pollutants throughout Millbury Center that enter the Blackstone River. Vegetated bump outs, rain gardens, bioswales, porous pavers, perforated underdrains, deep sump catch basins, intersection diets, and street and parking lot areas will work together to reduce heat island impacts and stormwater runoff volumes/pollutant loads, increase groundwater recharge, and help address routine localized flooding and system capacity issues.

Grantee: Millis
Project Title: Flood Resiliency Plan
Award: $170,000
The Town of Millis has widespread flooding problems, and they are expected to worsen in the future due to the impacts of climate change. This project will develop a Flood Resiliency Plan that will mitigate current and future flooding problems in the Town.

Grantee: Natick (& Charles River Watershed Communities)
Project Title: Building Resilience Across the Charles River Watershed Phase II
Award: $233,085
The implementation plan will include design for up to four site-specific flood mitigation projects within the Charles River watershed that are prioritized by the project team with public input, as well as policy tools and resources to support each municipality in achieving non-site-specific strategies that the model demonstrates to be effective, such as reducing impervious surface cover and increasing green infrastructure. The policy guideline will mainstream climate adaptation through local processes and actions.

Grantee: Natick (& Framingham, Ashland)
Project Title: Building Relationships and Resilience with MetroWest Environmental Justice Neighborhoods
Award: $127,150
This project is focused on increasing the resiliency and engagement of Environmental Justice populations in the MetroWest communities of Natick, Framingham and Ashland. As part of their work, municipal staff will complete an equity training and will collaborate with community liaisons to develop a better understanding of regional climate equity and resilience needs. The project will culminate with a series of Community Climate Conservations, in which municipal staff and residents from priority neighborhoods work together to share findings and discuss a path forward. At this project's conclusion, each municipality will update its climate-related plans to reflect feedback received from EJ populations and will identify strategies for sustaining and strengthening the relationships established during the project.

Grantee: New Bedford
Project Title: New Bedford Green Infrastructure Master Strategy and Implementation Roadmap
Award: $432,440
The proposed Green Infrastructure Master Strategy and Implementation Roadmap will take a holistic look at all the City's major drainage areas and assess existing and proposed future drainage and combined sewer system infrastructure outlined in the City's Long-Term Control and Integrated Capital Improvements Plan and other City projects. The proposed plan will strive to preserve and enhance New Bedford's coastal areas, rivers, streams, ponds, wetlands, and other resource assets.

Grantee: Northbridge
Project Title: Carpenter Road Causeway Alternatives Analysis and Source Water Green Infrastructure Protection Plan
Award: $146,100
This project looks to protect water quality and improve the resilience of drinking water supplies servicing two communities. By creating a long-term plan for the use of green infrastructure and the evaluation of climate resilient alternatives for key infrastructure in need of repair or replacement, this project will improve the resilience of a vital public water supply.

Grantee: Norwood
Project Title: Traphole Brook Flood Prevention and Stream Restoration Project
Award: $682,421
This MVP Grant will be used to pay for the cost of removing the Mill Pond Dam. The dam is obsolete and will fail during intense and prolonged storm events, the type associated with the impacts of climate the change.

Grantee: Oak Bluffs (& Tisbury, West Tisbury, Edgartown, Chilmark, Aquinnah, Gosnold)
Project Title: Martha's Vineyard and Gosnold Climate Action Plan, Phase II
Award: $173,843
This project (Phase II) will be a comprehensive, locally driven CAP for the 7 towns that make up Dukes County. The CAP will address six critical regional climate impact themes. The project will result in a final

plan, an interactive dashboard website, and an implementation strategy. The process is highly inclusive of EJ/vulnerable populations and focuses on community engagement and nature-based solutions.

Grantee: Peabody (& Salem)
Project Title: Peabody-Salem Resilient North River Corridor & Riverwalk Project
Award: $150,000
Ongoing redevelopment and the identification of a gap in the region's expanding multiuse path network has brought a renewed focus to the North River Corridor's vulnerability to climate change impacts. This project will evaluate climate change impacts on this area and identify potential nature-based solutions.

Grantee: Pepperell
Project Title: Sucker Brook Continuity Restoration
Award: $492,030
This is the on-the-ground construction phase of a project to remove a dam and replace two undersized, failing culverts on Sucker Brook, a cold-water fishery of high ecological value. The dam removal and replacement culvert designs will restore the stream's natural processes, exceed MA River and Stream Crossing Standards, and rely on stream restoration as a nature-based solution to reconnect fragmented sections of the brook and build community resilience by addressing multiple climate change impacts.

Grantee: Plymouth
Project Title: Subterranean Resiliency: Predicting, Assessing and Mitigating Saltwater Intrusion
Award: $304,915
Using groundwater models, the project team will predict vulnerable areas, suggest nature-based solutions, establish an early warning system, and guide future development. The project will also include a robust outreach and education program on an Indigenous philosophical foundation.

Grantee: Revere
Project Title: Gibson Park Resiliency Design and Permitting
Award: $161,516
The project addresses the impacts of climate change and storm surge caused by extreme weather events and creates a space that is more resilient to withstand the impacts of sea level rise. The project seeks to design for coastal restoration and protection measures, landscape sculpting, bioswales, raingardens, and unique and practical flood water storage capacity to alleviate impact to the park and adjacent areas while simultaneously increasing the recreational potential of the surface area of Gibson Park.

Grantee: Sandwich
Project Title: Dynamic Adaptation Pathways and Prioritized Resilient Design Solutions for Historic Sandwich Village
Award: $79,789
The project will work with Town department heads, the Chamber of Commerce, and MassDOT to develop flexible adaptation pathways and design priority near-term implementation projects to reduce vulnerability to sea level rise and storm surge in Historic Sandwich Village. The project will include outreach to local partners and the public via the Heritage Museums & Gardens.

Grantee: Saugus
Project Title: Saugus Climate Adaptation and Resilience Plan
Award: $74,500
The Saugus Climate Adaptation and Resilience Plan will comprehensively assess the top four (4) hazards identified in the MVP Planning process by the community. The Plan will assess both inland and coastal flood risks and other hazards such as the Urban Heat Island effect. The plan will include quantitative and qualitative vulnerability and risk assessments which will inform the development of future-looking adaptation scenarios. The Plan will result in preferred resilience strategies, including policy, nature-based, and structural recommendations, along with costs estimates and a roadmap for implementation.

Grantee: South Hadley
Project Title: Queensville Dam Removal Feasibility Study and Buttery Brook Watershed Enhancement
Award: $125,000
South Hadley is seeking an MVP Action Grant to fund a feasibility study for removal of Queensville Dam, located at Titus Pond on Route 116/Newton Street; restoration and ecological enhancement of the Titus Pond impoundment to increase flood storage capacity and habitat function; and downstream watershed improvements along Buttery Brook.

Grantee: Southborough
Project Title: Planimetric Impervious Surface Mapping Project
Award: $22,875
The project will increase understanding of the amount of locations of impervious surfaces in Southborough. The planimetric data layers will allow departments to assess the ability to reduce impervious surfaces, create a sustainable funding source through a fee-based system, and educate the public on nature-based solutions.

Grantee: Southwick
Project Title: Klaus Anderson Road/Johnson Brook Replacement Culvert and Green Infrastructure
Award: $728,300
The Town will construct a replacement stream crossing at the Klaus Anderson Road/Johnson Brook culvert and upgradient green infrastructure components. This project will implement the plans that were designed and permitted under the Town's FY19 MVP Action Grant, and the replacement crossing will meet the Massachusetts Stream Crossing Standards.

Grantee: Springfield
Project Title: Trees, Homes, and People/ Creating a More Resilient Living Environment
Award: $2,000,000
Project tasks include the construction of a resilient Forestry Operation Center as well as community outreach through neighborhood councils to increase civic engagement and build social and economic resilience in Environmental Justice communities.

Grantee: Tewksbury
Project Title: Stormwater Analysis for Nature-Based Solutions and Community Co-Benefits

Award: $193,935
The Town will develop a stormwater analysis on municipal and vacant Town-owned parcels that could be used for nature-based solutions and flood storage, while considering opportunities for affordable housing and regional benefits.

Grantee: Waltham
Project Title: Bringing Climate Resilience to Beaver Brook
Award: $362,000
Waltham completed a flood mitigation and stormwater improvement plan as part of their FY22 MVP Action Grant that ranked the proposed resiliency measures in Beaver Brook as a top priority for mitigating flooding in an environmental justice neighborhood. This project will implement a suite of flood mitigation actions: 1) brook restoration design and permitting, 2) stream crossing improvement designs and permitting, and 3) wetland storage preliminary design.

Grantee: Watertown
Project Title: Equity-Based Community Greening Program
Award: $94,240
The Town will conduct an equity-based green infrastructure program. This program will utilize data to reveal the most climate-vulnerable areas of Watertown and will result in green infrastructure investments in those target neighborhoods.

Grantee: Wellfleet (& Truro, Eastham, Brewster, Barnstable, Bourne)
Project Title: Regional Low Lying Road Assessment and Feasibility
Award: $236,258
The project will identify and assess roads and road segments prone to flooding. Feasible strategies will also be identified, including nature-based solutions, to reduce vulnerability to coastal hazards and storm induced impacts. A major component of the project is to engage the community, especially Environmental Justice and climate vulnerable populations.

Grantee: Wellfleet
Project Title: Herring River Restoration Project Phase 1 Final Construction Plans and Bid Specifications
Award: $589,960
The project aims to restore a total of 890 acres of salt marsh at full restoration. Sea level rise was incorporated into hydrodynamic model runs and infrastructure design incorporates up to 2 feet of freeboard. Specific tasks for this phase include preparing final plans and bid specification packages.

Grantee: Westford
Project Title: Westford Tree and Invasive Species Inventory and Management Plan with Tree Planting Plan
Award: $79,200
Through robust community engagement, the Town will prepare a Tree and Invasive Species Inventory and Management Plan with a Tree Planting Plan to help Westford become more resilient to climate change. The project will also educate the public about invasive species and will be incorporated into the town's GIS to monitor and track progress over time as Westford becomes a greener community.

Grantee: Westhampton
Project Title: Resilience Building through Community Visioning and Planning
Award: $237,516
The Town will develop a Resilient Master Plan and update its Open Space & Recreation Plan using the lens of climate adaptation and resiliency. The project will help The Town analyze, envision, plan, prepare, and take steps to address the future and reduce vulnerability to climate-related changes, including increased development due to migration, threats to water supplies during drought, shifts in growing seasons, and impacts to the natural world.

Grantee: Winthrop (& Boston, Revere)
Project Title: Belle Isle Marsh: Evaluating Nature Based Solutions to Protect Abutting Communities and Critical Shorebird Habitat from Coastal Inundation
Award: $145,307
The project aims to identify the conditions under which a nature-based coastal flood resilience solution can both enhance and prolong the habitat value of 300-acre Belle Isle Marsh and prevent coastal flood damage to Winthrop, East Boston, and Revere and the MBTA Blue Line just inland of the marsh.

Grantee: Wrentham
Project Title: Climate Resilience and Low Impact Development Regulatory Integration and Green Infrastructure Master Plan
Award: $113,344
This project will combine a Town-specific update of Wrentham's bylaws and regulations with the goal of increasing climate resilience with implementation of stormwater green infrastructure. The project also includes a related green infrastructure assessment and community engagement targeting private property owners around the three major lakes in Town.

FY21 MVP Action Grant Projects

Grantee: Agawam
Project Title: Agawam Stormwater Master Plan
Award: $216,750
The Town will develop a long-term plan to sustainably manage its stormwater assets, reduce impervious cover, and promote green infrastructure to provide accessory environmental and public health benefits. It also will include development of an Impervious Area Strategy and Municipal Code assessment to maximize community benefit and promote nature-based and green infrastructure solutions to stormwater problems. The project will include an extensive public engagement component including a 10-day intensive program with local art and environmental organizations at a public middle school that will culminate in a public storm drain art project and community event, where students will present a gallery of their work.

Grantee: Arlington & Resilient Mystic Collaborative
Project Title: Wicked Hot Mystic
Award: $186,200

This project will provide the Resilient Mystic Collaborative with high-resolution, watershed-wide, baseline data on ground-level air temperatures, humidity, wind, and particulate matter. These data will drive social resilience work in the region. The project includes recruiting, training, and supporting youth and adults from the local community in conducting this local STEM learning opportunity and data gathering initiative.

Grantee: Athol & North Quabbin Community Coalition
Project Title: Lord Pond Plaza Improvement Project
Award: $117,760
This project involves completing a feasibility study for critical improvements to the Lord Pond Plaza parking lot area to install green infrastructure and nature based solutions such as stream daylighting, shade trees for cooling, green space for stormwater/flooding mitigation and open space improvements for social benefits.

Grantee: Auburn
Project Title: Leesville Pond Water Quality Protection and Community-Wide Resiliency Improvements
Award: $209,895
This project consists of two initiatives. The first initiative would focus on water quality improvements to Leesville Pond through public education and outreach efforts to the surrounding neighborhoods in both Auburn and Worcester. The second initiative looks to build upon outcomes of the Town's FY20 MVP project by furthering design of the Sword Street crossing over Kettle Brook with a focus on green bridge design and ecological restoration.

Grantee: Belchertown
Project Title: Enhancing Water Supply Reliability: Resilient Water Storage and Water Conservation – Design & Implementation
Award: $698,356
In a continuation of a previous MVP Action Grant, the Town of Belchertown and the Belchertown Water District will replace the Park Street water storage tank with a new tank that would increase storage capacity and resiliency to drought. The tank replacement project includes improvements to the municipal parking lot adjacent to the tank, which will incorporate green stormwater practices that will enhance water quality and provide significant opportunities for public education and outreach at this highly visible site in the Town center. The Town and the Water District will also pursue detailed design and permitting for a rainwater harvesting system at Belchertown High School to irrigate the athletic fields, which would reduce public water use during periods of peak demand.

Grantee: Blandford
Project Title: Resilient Community-Driven Master Plan and Resilient Regulatory Work
Award: $102,824
The Town will develop a climate resilient focused Master Plan for the community, including an update to the Open Space and Recreation Plan. The planning process and resulting document will assure integration of nature-based solutions and climate resilience with the Town's land protection and recreational development work. The project also includes researching and drafting improvements to

Blandford's stormwater management regulations and other code as appropriate to integrate nature-based solutions and green infrastructure.

Grantee: Bolton, Harvard, & Devens
Project Title: Apple Country Ecological Climate Resiliency and Carbon Planning Assessment
Award: $250,000
This project would complete an ecological climate assessment for three communities along the outer-495 corridor – all three have significant natural land resources that continue to experience development pressures. Comprehensive ecological planning would focus on Nature-based Solutions for climate resilience, including a soil health assessment (putting the State Healthy Soils Action Plan to work on a downscaled regional approach), literature research regarding wetlands analysis, and recommendations for policy updates and best management practices.

Grantee: Boston
Project Title: City of Boston Heat Resilience Planning Study
Award: $280,070
The result of this planning process will be a roadmap for strategically reducing hot spots and heat related vulnerabilities in Boston. The project will include four core tasks: (1) a review of existing plans, policies, and procedures as they pertain to heat, (2) an assessment of urban heat island dynamics and heat risk utilizing existing data sets, (3) a robust and community driven engagement process, and (4) the development of heat resilience strategies in specific timelines and locations throughout Boston.

Grantee: Braintree
Project Title: Monatiquot River Restoration – Construction
Award: $750,000
The project is construction of the Monatiquot River Restoration Project which includes removal of the "High Hazard" Armstrong Dam and Ames Pond Dam, restoration of the Monatiquot River channel in the area of the former mill pond, construction of a bypass fishway for river herring and American eel passage, and construction of a public access trail with interpretive signage along the restored river channel through the site.

Grantee: Cambridge & Metropolitan Mayors Coalition
Project Title: Building Resilience to Climate Driven Heat in Metro Boston
Award: $268,820
The project aims to bring together municipal staff from the Metro Mayors Coalition Climate Preparedness Taskforce to collaborate regionally on heat response and preparedness efforts in the urban core. The goals of the project include establishing a heat preparedness group as a Subcommittee of the Climate Preparedness Taskforce to coordinate regional planning and implementation; developing a science-based, regional heat preparedness and adaptation plan that incorporates best available climate projections, heat, social vulnerability, and public health data.

Grantee: Chelsea
Project Title: Urban Heat Island Mitigation Project
Award: $262,996

The City of Chelsea will advance a citywide urban heat island mitigation initiative. This project will complement ongoing regional efforts by analyzing ambient air and land surface temperatures; performing a social vulnerability assessment; prioritizing corridors for public and private heat mitigation interventions; and devising and carrying out five pilot heat mitigation projects on public properties.

Grantee: East Longmeadow
Project Title: Comprehensive Master Plan
Award: $84,833
The Town will complete a Master Plan, with all work being filtered through a climate resilience lens, giving an opportunity for community consensus to safely, sustainably, and properly advance East Longmeadow into the mid twenty-first century. With large-scale development opportunities on the horizon such as a proposed multi-use development, having an up-to-date Master Plan will be essential in addressing the Town's land uses, infrastructure, transportation, and natural and cultural resources, all in particular regard to climate resiliency. Goals include integrating nature-based solutions and the most up-to-date climate data into the municipal regulatory framework.

Grantee: Easthampton
Project Title: Green Infrastructure Planning and Resiliency Design for Cherry Street
Award: $175,957
The City of Easthampton will develop a City-Wide Green Infrastructure Master Plan to address stormwater-driven flooding hazards, with a special focus on the Cherry Street neighborhood, which is an ongoing flooding and erosion concern to DPW staff. The city-wide planning process will include a green infrastructure assessment throughout the City, to culminate in 20 concept-level designs that will be identified for future design, permitting, and implementation, as well as a set of standard details for common green infrastructure practices that are low maintenance and could be implemented by the DPW in a variety of locations.

Grantee: Fall River, Dighton, Somerset, & Swansea
Project Title: Regional Emergency Water System Interconnectivity Analysis
Award: $100,650
To create a significantly more robust and resilient intermunicipal water supply system, and to respond to citizen concerns expressed in its 2019 MVP Report, the City of Fall River seeks funding to evaluate the ability of the combined water supplies to provide redundancy during periods of critical need.

Grantee: Fitchburg
Project Title: John Fitch Highway – A Resilient Road Corridor
Award: $271,787
John Fitch Highway was constructed over Bakers Brook and its associated wetlands in the 1960s and, over the past decade, several studies have evaluated drainage issues along this busy commercial corridor. Situated within one of the City's Environmental Justice Census Blocks, this project aims to utilize the City's Complete Streets Policy, with a focus on Community Context Design and equitable engagement, to address flooding, heat islands, and an outdated car-oriented roadway design. Grant funds will be used to assess the many proposed flood control suggestions and create a design analysis

focusing on the John Fitch Highway median and roadway drainage areas and addressing runoff from private development parcels.

Grantee: Granby
Project Title: Resilient Regulatory Work and Refocusing on Climate Resilience Pathway in Master Plan
Award: $34,272
The Town will update its zoning and stormwater management and erosion control bylaw, and subdivision regulations to promote a low impact development approach and include new design standards for stormwater management.

Grantee: Great Barrington
Project Title: Climate Action, Resilience, and Equity Great Barrington (CARE GB)
Award: $70,400
This project aims to bring the needs of underrepresented and historically marginalized communities into the center of the Town's climate change adaptation and planning strategy. A local group will train key Town staff and stakeholders on climate justice, equity and inclusion and perform community outreach to Climate Vulnerable Populations. As a part of the project, key takeaways will be reported back to the Town and shared with other MVP communities.

Grantee: Haverhill
Project Title: Little River Dam Removal Feasibility Study
Award: $129,693
Haverhill will conduct a feasibility study for the removal of the Little River Dam, located just north of Winter Street on the Little River. The dam is believed to contribute to upstream flooding in one of the city's Environmental Justice communities.

Grantee: Holyoke
Project Title: Urban Forest Equity Plan
Award: $135,032
This project consists of interrelated projects aimed at fundamentally reshaping Holyoke's relationship with its trees and people. The Urban Forest Equity Plan will provide detailed background, establish a planning agenda, and set goals for canopy expansion over time. The concurrent Regulatory Review will examine policies and ordinances related to tree-friendly practices and make recommendations for changes. The Street Tree Inventory will document all public trees within the project locus, forming the foundation for continued monitoring and maintenance, and provide preliminary data for a "Historic Trees of Holyoke" interpretive map.

Grantee: Lakeville, Middleborough, Freetown, Rochester, Taunton, & New Bedford
Project Title: Assawompset Pond Complex Watershed Management and Climate Action Plan
Award: $93,236
Regional climate resilience will be bolstered through the development of a comprehensive management plan that contains actionable strategies for coping with floodwater issues throughout the Assawompset Pond Complex while also equally addressing water supply and drought potential, water quality, preservation of critical habitat, and compatible recreational access, and will improve social resilience

through the commitment of a network of regional stakeholders operating from coordinated best management practices.

Grantee: Lawrence
Project Title: Flood Study and DPW Yard Adaptation Plan
Award: $213,418
The project is to complete a flood study and develop an adaptation plan for the City's only Department of Public Works Yard, located within the 100-year floodplain of the Spicket River. The DPW Yard is critical for public works operations and emergency management throughout the City. It is also an active waste disposal site. This project will develop a high-resolution flood model of the Spicket and Merrimack Rivers in Lawrence that will support an in-depth understanding of the flooding issues and develop an adaptation plan that will provide recommended measures that will reduce the frequency, extent, duration, and/or impact of flooding.

Grantee: Leominster
Project Title: Monoosnoc Brook Bank Stabilization Project
Award: $200,661
The project involves the initial phases of work necessary to design and implement a solution to stabilize a section of bank along Monoosnoc Brook in the city's downtown. By further defining the Brook as an environmentally forward and resiliency focused downtown community anchor, this project can begin to catalyze larger revitalization efforts and help set a new tone in Downtown Leominster.

Grantee: Lexington & Resilient Mystic Collaborative
Project Title: Upper Mystic River Watershed Regional Stormwater Wetlands
Award: $670,000
Furthering a FY20 MVP action grant, the overall goal of this initiative is to develop a multi-community master plan of stormwater wetland projects that help manage regional flooding while providing co-benefits to host communities. Under this grant, the Resilient Mystic Collaborative will select projects to work with willing landowners and community stakeholders to move to forward with design on several of the projects.

Grantee: Littleton
Project Title: Watershed Protection for Climate Resiliency- Brown's Woods Acquisition
Award: $763,050
The Town of Littleton will 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. The property includes a gradient of habitats that can be resilient to climate change impacts, is uniquely situated in the headwaters of the watershed to Long Lake, and is a key link in the planned bike trail that would connect the train station to neighborhood and commercial areas.

Grantee: Lowell
Project Title: Claypit Brook Climate Resilience Stormwater Management Capital Improvement Plan
Award: $138,000
This project will increase the resilience of the city's infrastructural, environmental, and societal features through proactive stormwater management and equitable public engagement. The project's main components include hydraulic modeling, assessing the drainage system, completing a preliminary design of the highly vulnerable Stockbridge Avenue culvert for replacement, conducting an Urban Heat Island assessment, and looking for opportunities to design nature-based, Low Impact Development stormwater controls throughout the watershed. This will culminate in a package of materials for a Claypit Brook Climate Resilience Stormwater Management Capital Improvement Plan.

Grantee: Lynn
Project Title: Strawberry Brook Green Infrastructure Implementation
Award: $199,090
In FY20 the City was awarded an MVP Action Grant to look for opportunities to implement nature-based solutions within the Strawberry Brook watershed to specifically reduce stormwater flooding and urban heat island effect. The final Resilient Stormwater Management and Implementation Plan identified ten conceptual green infrastructure opportunities that were prioritized based on cost, impact, and feasibility. This grant will develop a green street concept design for Boston Street and will start constructing some of the elements. It will also include a stormwater detention concept design and park improvement vision plan for Barry Park and the General Electric Athletic Association Field.

Grantee: Malden
Project Title: Malden River Works
Award: $150,015
The project goal is to transform the City's Department of Public Works yard on the Malden River for better climate change preparedness (as a key second responder for the city), and to create a vibrant, resilient public riverfront park. Led by a new coalition of community leaders of color, youth, environmental advocates, and government stakeholders as the newly formed Malden River Works Steering Committee, this project has already put in place a community-led design process that will continue into the upcoming phase of design and engineering development.

Grantee: Medford
Project Title: Conceptualization and Community Building for Equitable, Community-Driven Resilience Hubs in Medford
Award: $202,485
This project will further advance the establishment of a community Resilience Hub by first working to foster a foundation of trust between community members and City Hall through intentional relationship building and by a strong commitment from the City of Medford to equity and to actively practice anti-racism. Additionally, the project will further engage community-based organizations in planning Resilience Hub site co-location or acquisition, management, and operations.

Grantee: Milford
Project Title: Green Stormwater Infrastructure in Milford Town Park
Award: $419,123
The Town of Milford and Charles River Watershed Association will work together to design and construct green stormwater infrastructure within Milford Town Park. This project will install two rain gardens and 1 one infiltration system. These nature-based solutions will help provide ecological resilience for the town. The project team will engage with the schools that sit adjacent to the site and the surrounding Environmental Justice community.

Grantee: Millbury
Project Title: Armory Village Green Infrastructure Project - Phase II
Award: $125,600
This project is the second chapter of a multi-year, multi-phase project aimed at addressing the stormwater capacity and heat island impacts of climate change, as well as minimizing inputs of non-point source pollutants throughout Millbury's center that would otherwise enter the Blackstone River. A previous phase was funded by an MVP Action Grant. This phase focuses on surveying, designing, and permitting green infrastructure solutions for several parking lots and a stretch of Elm Street.

Grantee: Natick & Charles River Watershed
Project Title: Building Resilience Across the Charles River Watershed
Award: $264,171
The Town of Natick, working with 14 additional communities that are part of the Charles River Climate Compact, will conduct a regional project to develop a Charles River watershed model. This initiative will produce both much needed technical information about where and when precipitation driven flood-risk in the watershed is expected to be exacerbated by climate change, and bring consistency across the watershed communities in regards to how they are planning and governing for expected climate impacts, thus promoting a more comprehensive and synergistic approach.

Grantee: Newburyport
Project Title: Resilient Critical Infrastructure: Adapting a Wastewater Treatment Facility, Underground Electric Lines, and Public Rail Trail to Future Sea Level Rise and Storm Surge
Award: $1,000,000
This project is the construction phase of rebuilding a higher sloped stone revetment and installing an elevated berm with a public trail on top, which will be a critical step towards making the Newburyport Wastewater Treatment Plant resilient to storm surge and future sea level rise, along with protecting the underground electric transmission lines (23kV) serving the city and the region.

Grantee: Plympton
Project Title: Building a Municipal Resilience Portfolio: Assessment of Critical Land in the Winnetuxet River Corridor
Award: $41,929
The project's focus is to identify, assess, and protect natural systems and open space in the Winnetuxet River corridor. The first phase of the project is an assessment of the resiliency capacity of target properties, with the goal of preserving the resiliency built into the natural green infrastructure of these properties. The second phase will use the results of the assessment to prioritize specific properties to be permanently conserved.

Grantee: Provincetown
Project Title: Permit Level Design of the Ryder Street Outfall Relocation and Drainage Improvements
Award: $70,465
This project will develop permit level design, including permitting of the relocation of a 36-inch drainage outfall on Ryder Street and the addition of stormwater improvements.

Grantee: Revere
Project Title: Coastal Resilience Feasibility Study for the Point of Pines and Riverside Area
Award: $210,689
This project will conduct a coastal resilience feasibility study to identify solutions to avoid or minimize damages associated with coastal storms and sea level rise for the Point of Pines and Riverside Area that is comprised of the following main elements: stakeholder outreach and engagement, assessment of current and future conditions, identification of short-term resilience measures, development of a coastal resilience toolkit, assessment of feasibility of coastal resilience options, and preparation of a coastal resilience feasibility report that summarizes the findings from the study and includes an implementation plan.

Grantee: Salisbury
Project Title: Resilient Rings Island: Preventing a Neighborhood from Being Stranded by Flooding
Award: $250,000
The Town of Salisbury will build upon the FY19 MVP Action Grant that provided funds for the initial assessment and development of concept designs to resolve chronic coastal flooding of the roads leading to Rings Island. This stage of the project involves final design of culvert replacements and raising of access/egress roads.

Grantee: South Hadley
Project Title: Climate Resilient South Hadley
Award: $105,000
The project includes developing components of a climate resilient transportation asset management plan; implementing a tree planting campaign to expand tree cover within the community; and completing a regulatory review and update of the Town's Stormwater Management Bylaw to ensure the best available climate change data is utilized in design of permitted systems and to ensure nature based solutions/green infrastructure systems are adequately supported through the local regulatory review process.

Grantee: Springfield
Project Title: People-focused Resilient Redesign and Retrofits for Community/Civic Infrastructure and Critical Facilities
Award: $210,422
The project will consist of two components. The first is to resiliently redesign Springfield's civic/communications infrastructure by creating and staffing a Frontline Community Resident Advisor Council to work with City department heads and senior staff to oversee this work; engaging an experienced communications specialist with experience in racial equity and outreach with marginalized populations to review current outreach and communications strategies; launching a series of capacity building workshops including participation in an Undoing/Healing Racism workshop; and advancing implementation of a Racial Equity Impact Assessment with the intent of ensuring increased equity in governmental decision making. The second component will include advancing design for a microgrid project.

Grantee: Stow & Hudson
Project Title: Assessing the Health of Lake Boon – A Key to Climate Resiliency in Stow & Hudson, MA – and Beyond
Award: $154,000
With the help of residents as trained "citizen scientists," the goal of this project is to collect data on nutrients, water flows, aquatic biology and other aspects of the lake's dynamics. The data will then be analyzed using hydrologic and water quality models, which will integrate current and projected impacts of climate change. Based on this analysis, the project team will create a set of recommendations for consideration by the residents and civic leaders in Stow and Hudson, with a special focus on nature-based solutions.

Grantee: Williamstown & Mohawk Trail Woodlands Partnership
Project Title: Mohawk Trail Woodland Partnership Forest Stewardship, Resilience, and Climate Adaptation
Award: $164,575
The project will take emergent ideas such as New England Forestry Foundation's exemplary forestry standards, Northern Institute of Applied Climate Science's adaptation recommendations and extensive background work, the Massachusetts Department of Conservation and Recreation's Working Forest Initiative climate forestry work, and The Nature Conservancy and American Forest Foundation's Family Forest Carbon Program work and pull these ideas together, fill in the gaps, and make a simple program for private landowners, town forest owners, consultant foresters and harvesters to implement. This project will bridge the divide between climate mitigation and adaptation to achieve multiple goals.

Grantee: Windsor
Project Title: River Road Site 1 Culvert
Award: $460,000
The Town of Windsor is in the process of upgrading a stretch of River Road that passes through the Windsor State Forest parallel to a branch of the Wild and Scenic Westfield River. The road itself is a major connector between Route 9 and Route 116. Overall, the project includes repaving the entire road, improving drainage, and replacing three old, undersized and failing culverts. This grant will enable the Town to complete construction of one of the culverts.

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Grantee: Acton
Project Title: 53 River Street Dam Removal
Award: $112,500
The Town of Acton seeks to produce designs, apply for permits, and perform building demolition to prepare for the removal of a historical but unsafe dam at 53 River Street. Completion of this project will allow for dam removal, and eventually, the creation of a riverside park that will highlight the historical nature of the property.

Grantee: Adams & Mohawk Trail Woodlands Partnership
Project Title: Mohawk Trail Woodland Partnership Regional Adaptation & Resilience Project
Award: $1,489,956
This comprehensive project addresses the multitude of climate challenges faced by the communities within the Mohawk Trails Woodland Partnership. This will include a regional feasibility study that will explore forestry management practices that incorporate carbon sequestration. Additional sub-regional projects include a stormwater infrastructure asset inventory and prioritization, exploring regulatory options for river corridor protection, and design and implementation of nature-based solution projects in various municipalities. Municipal-scale projects include dam repairs, stormwater infrastructure upgrades, and several culvert repairs.

Grantee: Amesbury
Project Title: Open Space and Recreation Plan Update
Award: $37,500
The City of Amesbury will prepare a 2020-2027 Open Space and Recreation Plan (OSRP). This will include updating the information from the draft 2012-2019 OSRP and integrating climate resiliency into the OSRP process with a focus on nature-based solutions and education and community outreach.

Grantee: Amherst
Project Title: Climate Action, Adaptation and Resilience Plan
Award: $ 100,000
The Town of Amherst will develop a Climate Action, Adaptation and Resiliency Plan to further its decarbonization goals and will conduct an intensive equitable community engagement process to prevent decarbonization from disproportionately affecting underrepresented members of the Amherst Community.

Grantee: Auburn
Project Title: Develop Protection Measures for Vulnerable Drinking Water Supply Areas and Evaluate Green Bridge Design
Award: $ 145,452
The Town of Auburn and the Auburn Water District seek to further protect the Town's public water supply from contaminants. This project will assess threats to drinking water supply areas, establish best practices to address prioritized threats, and evaluate nature-based solutions and retrofits to stormwater infrastructure, including green bridge design concepts for the replacement of an existing culverted stream crossing.

Grantee: Beverly & Salem
Project Title: Climate Action and Resilience Plan
Award: $ 100,000
Beverly and Salem will develop a joint Climate Action and Resiliency Plan that will inventory greenhouse gas emissions for both municipal and community sources, identify and prioritize mitigation and adaptation actions, complete a Community Climate Action Toolkit to facilitate community actions and engagement, and develop a monitoring and evaluation system for annual reporting that prioritizes community engagement.

Grantee: Boxford, Topsfield, & Ipswich
Project Title: Increasing Regional Flood Resiliency through Re-Designing Culverts in the Howlett Brook Watershed
Award: $ 45,866
A comprehensive regional culvert design project in the Howlett Brook Sub-basin of the Ipswich River Watershed, the project will provide 30% design plans for priority sites based on the Massachusetts Stream Crossing Standards and future modeled climatic conditions. The project will position the Towns towards implementation and increase flood resiliency, reduce community risk, and restore natural habitats.

Grantee: Brookline
Project Title: Urban Forest Climate Resiliency Master Plan
Award: $112,500
The Town of Brookline seeks to develop a research- and data-based, actionable Urban Forest Climate Resiliency Master Plan (UFCRMP). In addition to identifying opportunities for tree planting, the plan will also include recommendations on operations, budget allocation, best management practices, and emergency response procedures. Recommendations will consider specific climate impacts on Brookline's tree canopy.

Grantee: Canton
Project Title: Climate Change Vulnerability and Resiliency Assessment Study
Award: $ 337,500
The Town will develop a hydrologic/hydraulic drainage model that will illustrate the extent of flooding issues and their relation to community assets and vulnerable populations, as well as assess opportunities for effective nature-based flood mitigation strategies. The model will provide the Town with a foundational tool for climate change planning, engineering design, and public education and outreach.

Grantee: Chelmsford
Project Title: Dunshire Drive Culvert Replacement & Deep Brook Stream Restoration: Phase I
Award: $ 83,545
The project will redesign undersized drainage infrastructure as well as develop an ecological and stream bank restoration plan. These improvements will increase the resiliency of the neighborhood and its roadways, reduce current and future localized flooding, and enhance the resiliency of 13+ acres of residential land within the Merrimack River floodplain.

Grantee: Chelsea & Everett
Project Title: Island End River Flood Resilience Project
Award: $ 454,555
Chelsea and Everett seek to develop a final design plan consisting of a coastal barrier, salt marsh restoration and expansion of public waterfront space for permitting and land acquisition along Island End River. This final design phase will continue outreach to the environmental justice communities, key stakeholders and the broader community.

Grantee: Deerfield
Project Title: Flood Resiliency Through Green Infrastructure in Deerfield
Award: $ 572,250
Using design plans funded by a 2019 MVP Action Grant, the Town will replace the failing Kelleher Drive culvert, and will install green infrastructure in both the town center and at the Deerfield Elementary School. The project will also revise current Deerfield zoning and other bylaws to promote climate resiliency as well as low impact development. The Town will actively engage youth from Deerfield and surrounding communities by involving students at Frontier Regional High School in designing water conservation measures for the Frontier Regional High School campus.

Grantee: Easton
Project Title: Wetland Restoration- Removal of Abandoned Structures
Award: $ 177,620
The project will restore a degraded stream channel, remove derelict farm structures, restore a former wetland, and create an "invasive free" buffer zone around the restored stream and wetland area, all within a Flood Zone A. The approximately 9. 7 acre work area is located on town-owned conservation land known as Sam Wright Farm within the Canoe River Area of Critical Environmental Concern.

Grantee: Erving
Project Title: Wheelock Culvert Repair/Replacement and Data Redundancy
Award: $64,000
With this project, the Town of Erving will address two priority vulnerabilities: culvert repair and replacement, and document redundancy. The Town will prepare designs and permits for repairing and replacing critical culverts in poor condition and will assess and implement the moving of their local server with critical municipal records to a cloud-based system. This will include digitizing hard copies of critical documents that are vulnerable to any hazards that may impact Town Hall.

Grantee: Fall River
Project Title: Water Supply Risk & Resilience Assessment (RRA) and Distribution System
Award: $ 115,725
The City first will update and recalibrate its existing water distribution system computer model to obtain an accurate representation of current water demand, pipe conditions, and tank level fluctuation data that reflect climate change factors. Upon completion, the calibrated model will be used to develop a comprehensive Resilience Assessment by evaluating system performance and identifying potential risks to, and resilience of, the piping network and distribution storage.

Grantee: Framingham
Project Title: Walnut Street Neighborhood Flood Mitigation & City Stormwater Utility Feasibility Studies
Award: $ 206,850
This project will conduct a flood mitigation study for the Walnut Street neighborhood. The challenges of mitigating storm impacts in this neighborhood exemplify the need for a City-wide, long-term, sustainable stormwater program, so this project will also assess the potential development of a stormwater utility that would provide sustainable funding for the City's stormwater infrastructure.

Grantee: Gosnold
Project Title: Cuttyhunk Land Conservation Project
Award: $ 1,400,000
The specific objectives of this project are 1) the purchase+ of land (67 acres) by the Town of Gosnold and its partner, Buzzards Bay Coalition, 2) the simultaneous purchase of permanent conservation restrictions on these lands (to both provide permanent protection and facilitate acquisition), and 3) the recording of a permanent conservation restriction on the adjacent 235-acre parcel to be donated by Ridgely Farm Limited Partnership.

Grantee: Harvard
Project Title: Community Climate Action & Land Stewardship Plan
Award: $ 70,860
Harvard will develop a community climate action and land stewardship plan framework, with an in-depth assessment of their agricultural community, and high level discussion for buildings, transportation, waste, natural resources, land use, and resilience.

Grantee: Holyoke
Project Title: Impervious Surface Mapping for Resiliency Planning and Implementation
Award: $ 93,850
The City of Holyoke aims to develop an actionable, scalable and data-driven impervious surface reduction plan. This project will involve two phases of work: 1) a technical analysis using advanced impervious mapping techniques and 2) the development of impervious surface reduction targets city-wide, based on the phase 1 analysis.

Grantee: Hull
Project Title: Assessment of Shoreline Resiliency Alternatives for Marginal Road
Award: $ 25,373
The Town of Hull seeks to develop alternatives for providing long-term shore protection on Marginal Road, a coastal road with chronic flooding. This analysis will assess the Town's options for increasing resiliency to the shoreline, roadway, and critical infrastructure in this area.

Grantee: Ipswich
Project Title: Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements
Award: $ 18,945
This will produce final construction documents for the redesign and retrofit of vulnerable wastewater infrastructure in and along the Ipswich River. The rehabilitation, replacement, and protection of sewers in the project area will improve the resiliency and reliability of the infrastructure and safeguard the existing environment.

Grantee: Lynn
Project Title: Strawberry Brook Resilient Stormwater Management and Implementation Plan
Award: $ 112,500
The City of Lynn is seeking to support a Strawberry Brook Resilient Stormwater Management and Implementation Plan to conduct a watershed assessment and develop a comprehensive plan of actions to restore the drainage in Strawberry Brook and address the City's vulnerable stormwater infrastructure associated with the brook and tributary neighborhood.

Grantee: Manchester-by-the-Sea
Project Title: Sawmill Brook Central Pond Restoration Project Phase 2: Permitting and Final Design
Award: $ 72,385
The project aims to complete permitting and final design for the restoration of the Central Pond area of Sawmill Brook. The restoration design addresses failing infrastructure and seeks to: (1) increase resiliency by reducing flooding, and (2) improve habitat value by restoring a currently impounded water body to a tidally flushed riverine/marsh system and planting native vegetation for stabilization.

Grantee: Medford
Project Title: Equity-Centered Process for Climate Action and Adaptation Planning
Award: $ 36,136
The City of Medford will partner with the Medford Family Network to co-host a set of Community Dinners to create new spaces for underrepresented residents to participate in conversations around climate change and resilience that will inform the City's Climate Action and Adaptation Plan. Deliverables include an abstract and slide deck about this process for use in webinars and conferences about engaging underrepresented residents.

Grantee: Medford
Project Title: Suitability Assessment for Equitable, Community-Driven Resilience Hubs
Award: $ 65,259
To address community health vulnerabilities, the City of Medford will assess the suitability of establishing a Resiliency Hub in Medford by identifying a priority service area for a pilot Resiliency Hub, exploring potential partner organizations and their resiliency capacity, highlighting community member concerns, interests, and goals relating to community climate resiliency, and prospectively identifying and evaluating potential Resiliency Hub sites.

Grantee: Melrose
Project Title: City Hall Parking Lot Green Infrastructure Project
Award: $ 70,313
The City will 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.

Grantee: Monson
Project Title: Energy Resiliency for Town Hall-EOC-Police HQ Facility
Award: $ 75,000
The Town of Monson will work to increase energy resiliency at its Town Hall through identifying a viable strategy for preparing the Town's main emergency response hub for a renewable energy back-up power system.

Grantee: Monterey
Project Title: Enhancing Flood Resiliency through Culvert Improvements along the Konkapot River in Monterey Town Center
Award: $ 57,893
The Town of Monterey seeks to conduct an engineering evaluation and develop a conceptual design that incorporates climate change projections for the expansion of the upstream Route 23 culvert at Monterey Town center in order to accept projected climate-change related stormwater flows. The project provides flood prevention and protects vulnerable populations of residents and visitors in Monterey town center.

Grantee: Nahant
Project Title: Increasing the Resiliency of Short Beach on Nahant to Sea Level Rise: Access Point Restoration and Modification Plan
Award: $ 35,565
The main goals of this project are to raise and restore concrete pathways that currently cut through a critical barrier beach and leave businesses, critical infrastructure, and an evacuation route highly vulnerable to coastal flooding. The beach restoration will involve nature-based solutions. This phase of the project will result in design and permitting plans as well as an outreach program to educate the public on climate change projections for Nahant and plans for access point restoration.

Grantee: New Bedford & Fairhaven
Project Title: New Bedford Harbor MC-FRM Evaluation and Resilience Design Guideline Development
Award: $ 58,662
Using Woods Hole Group's Massachusetts Coast Flood Risk Model (MCFRM) data projections for 2030, 2050, and 2070, the City will develop New Bedford Harbor Resilience Design Guidelines for use in future development to avoid future impacts related to sea level rise and storm surge projections. These guidelines will incorporate nature-based solutions into new development and redevelopment to maximize climate mitigation.

Grantee: Newbury
Project Title: Controlling Flooding and Addressing Future Climate Impacts through the Replacement of the Orchard Street Culvert
Award: $ 126,324
The goal of this project is to upgrade the culvert at Orchard Street to benefit public safety, flood resilience and the ecology of the area. The project includes surveying and data collection, preliminary engineering, hydraulic analysis and geotechnical investigation.

Grantee: Newbury & Newburyport
Project Title: Plum Island Cost/Benefit Analysis
Award: $ 217,451
This project will identify the public costs and benefits that both communities need to consider in order to evaluate management options for Plum Island and to plan for the Island's future.

Grantee: Newburyport
Project Title: Resilient Critical Infrastructure: Adapting a Wastewater Treatment Facility, Underground Electric Lines and Public Rail Trail to Future Sea Level Rise and Storm Surge
Award: $ 71,160
This project seeks to produce designs for a sloped stone revetment and elevated berm that will increase the resilience of the wastewater treatment facility, which is currently threatened by sea level rise and storm surge inundation.

Grantee: Northampton
Project Title: Restoring the Pine Grove Golf Course for Climate Resiliency
Award: $ 225,000
The City of Northampton procured the 105-acre Pine Grove Golf Course in the spring of 2019 and now seeks to restore an adjacent brook's natural hydrology through a combination of targeted reforestation, soil aeration, removal of anthropogenic drainage features, and the development of a masterplan for the future restoration of wetlands and stream channels.

Grantee: Oak Bluffs, Aquinnah, Chilmark, West Tisbury, Tisbury, & Edgartown
Project Title: Development of an Island-Wide Specific Adaptation Strategy
Award: $ 54,000
The project will develop a specific Island-wide climate change adaptation strategy. This strategy includes the determination of methods and identification of specific physical infrastructure needed to respond to the goals and policies set forth in the various Town MVP plans. The project will focus on and utilize nature based solutions/strategies that rely on ecological processes to achieve climate resilience objectives.

Grantee: Palmer
Project Title: RT 181 Culvert Replacement & Culvert Infrastructure Assessment
Award: $ 26,000
The project will inventory and assess town culverts according to the North Atlantic Aquatic Connectivity Collaborative standards for aquatic and terrestrial passage. This project will also include permitting, development of construction documents, and construction of the Route 181 culvert redesign to upgrade this crossing to meet MA stream crossing standards, and to address stormwater quality and flow concerns.

Grantee: Palmer
Project Title: Comprehensive Master Plan
Award: $ 112,500
The town of Palmer last went through a master planning process in 1975. The creation of an updated Master Plan will be essential in addressing the Town's land uses, infrastructure, transportation, and natural and cultural resources, all in particular regard to climate adaptation, vulnerability, and resiliency.

Grantee: Peabody
Project Title: Resilient North River Canal Corridor– Phase 2
Award: $ 365,014
The project is Phase II of the Resilient North River Canal Corridor project. Phase II will prepare designs and permitting documents for a riverwalk and for stabilization of the south bank. The bank stabilization will increase the stormwater and riverine flood storage capacity in Peabody Square, while the riverwalk will create new recreational open space as well as a pedestrian corridor for multimodal transportation in an economically disadvantaged part of the community.

Grantee: Pelham
Project Title: Pelham Severe Weather Mitigation Project
Award: $ 140,000
The Town of Pelham will receive funding to install a Variable Refrigerant Flow (VRF) HVAC system at its Community Center, which contains Pelham's public library as well as its police and fire stations. Installation of this system will enhance the Town's ability to provide services to residents during extreme temperature events.

Grantee: Pittsfield
Project Title: Mill Street (Tel-Electric) Dam Removal Project
Award: $ 99,000
This project contributes to the removal of the Mill Street dam, which will support ecosystem and climate resilience through restoration of riparian continuity and by eliminating obsolete and deteriorating infrastructure. Additionally, the removal of this dam and contaminated sediment will further address the City's obligation to increase community and neighborhood health and resilience in this Environmental Justice neighborhood.

Grantee: Plainfield
Project Title: Transportation Infrastructure Improvement, Inventory, and Prioritization Plan
Award: $ 33,550
The Town of Plainfield will conduct a culvert replacement and surface repair at Bow Street as well as undertake a road stream crossing inventory and vulnerability assessment.

Grantee: Quincy
Project Title: Coastal Flood Mitigation Storm Drainage Improvements- Phase 1: Engineering & Public Outreach
Award: $164,046
Quincy seeks to evaluate opportunities to improve resiliency to climate change in the Adams Shore and Houghs Neck neighborhoods. The first phase of this project includes detailed engineering analysis to better understand site-specific flood conditions in low- lying areas now and under various storm and climate change scenarios, refining recommended alternatives for storm mitigation system design, and outreach to the community and permit agencies.

Grantee: Salem
Project Title: Ocean Ave. West Pump Station Flood Mitigation – Preliminary Design
Award: $ 174,750
The objective of this project is to develop preliminary designs for improvements to the stormwater system to alleviate flooding to this vulnerable portion of the City. Specifically, the design will improve the collection system piping and pump station to accommodate the 100-year flood event.

Grantee: Sheffield, New Marlborough, & Sandisfield
Project Title: Rural Dirt Road Resilience: Assessment, Pilot Study, and Recommendations Report
Award: $ 123,972
The project will conduct a regional assessment of the vulnerabilities of rural dirt roads due to climate change impacts. Once assessments and recommendations are made, they will be incorporated into a pilot project that will apply nature-based solutions to a rural dirt roadway, Weatogue Road, in Sheffield. This project will include community outreach on the lessons learned across the three subject communities.

Grantee: Shirley
Project Title: Microgrid Feasibility Study
Award: $ 63,272
This project will investigate the feasibility of implementing a microgrid for the town's key municipal complex, which includes the town hall, public library, town police station, and the adjacent regional middle school. The study will provide design options for maintaining the critical operations/facilities independently from the utility electrical grid via digitized renewable energy microgrid during loss of utility power incidents.

Grantee: Somerville, Boston, Chelsea, Everett, Winthrop, & Revere
Project Title: Critical Regional Infrastructure and Social Vulnerability in the Lower Mystic Watershed
Award: $ 389,995
The Resilient Mystic Collaborative will conduct a two-part vulnerability assessment of the Lower Mystic watershed. The first will identify interdependencies among critical infrastructure and potential cascading failures during and after an extreme coastal storm, while the second will engage with community and public health experts to identify possible impacts to vulnerable residents and workers when critical infrastructure fails.

Grantee: Swampscott
Project Title: Beach Access Resiliency and Accessibility Improvements
Award: $ 375,521
This project aims to design, permit, and implement nature-based coastal resiliency improvements at the Cassidy Beach Park and Phillips Beach access ways, which serve as flood pathways into inland floodplains during coastal flooding events. By reducing flooding through these access ways, the project will increase the resilience of critical transportation, public safety, water, wastewater, and recreational assets.

Grantee: Uxbridge
Project Title: Integrated Vector-borne Disease Control Program
Award: $ 256,926
The Town of Uxbridge seeks to 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.

Grantee: Waltham
Project Title: Resilient Stormwater Management and Implementation Plan
Award: $ 217,370
The City of Waltham will create a Resilient Stormwater Management and Implementation Plan to address the City's vulnerable stormwater infrastructure. This plan will allow the City to identify priority stormwater projects and key areas to equitably incorporate green infrastructure, to evaluate projects to more efficiently direct future resources, and to better maintain, protect, and improve the assets and natural resources of the City through proactive stormwater management.

Grantee: Weston
Project Title: Climate Action & Resiliency Plan
Award: $ 100,000
Weston seeks to develop a Climate Action & Resiliency Plan, which takes the MVP planning work to the next level by engaging in a deep and equitable engagement process with all community members and municipal staff. This engagement will also allow the community to build a common language on what a sustainable and resilient future looks like for Weston, and together, to create a 3-5 year work plan for the Town and community partners.

Grantee: Woburn
Project Title: Shaker Glen Restoration and Flood Mitigation
Award: $ 145,445
This project seeks to assess the possibility of building flood storage and stormwater features in the upstream Shaker Glen Extension by restoring wetlands in this previously developed area. The City envisions the redesign will also provide an opportunity to build passive recreational walking trails with interpretive signage to educate the public on climate resiliency.

Grantee: Worcester
Project Title: Worcester Senior Center Parking Lot – Nature-Based Solutions
Award: $ 466,140
The City is looking to provide green infrastructure solutions to a parking lot redesign of its Senior Center – a potential emergency shelter within the community that is central to Environmental Justice neighborhoods. This project could provide an important case study for installing nature-based solutions to address flooding and heat resiliency within an urban constrained site.

Grantee: Yarmouth
Project Title: Energy Resiliency for Mission-Critical Facilities
Award: $ 150,000
The Town of Yarmouth will engage in energy resilience planning for two mission-critical facilities: The Regional Septage Plant and the Police Headquarters. The project scope will include (1) planning, feasibility assessment and siting, (2) design and (3) developing strategies for energy resiliency, finances, and operations, as well as a supporting engineering design.

FY19 MVP Action Grant Projects

Grantee: Belchertown
Project Title: Enhancing Water Supply Reliability: Resilient Water Storage and Water Conservation Planning
Award: $223,513
The Town of Belchertown and the Belchertown Water District will design and permit for a replacement water storage tank that would increase storage capacity and resiliency to drought, and complete a feasibility/concept design of a rainwater harvesting system at Belchertown High School to irrigate the athletic fields.

Grantee: Boston
Project Title: Moakley Park - Resilience Preliminary Design, Technical Analysis, and Pre-Permitting
Award: $1,500,000
The City of Boston is advancing climate readiness along Boston's shoreline at Moakley Park. The project will result in a preliminary design, technical analysis, and pre-permitting assessment of Moakley Park in order to begin phased construction.

Grantee: Braintree
Project Title: Armstrong Dam and Ames Pond Dam Removal - Final Design and Permitting
Award: $90,000
The project consists of the final design and permitting of the Armstrong Dam and Ames Pond Dam removal, two obsolete and deteriorating dams on the Monatiquot River in Braintree, river channel restoration in the area of former mill pond, as well as the design of a public access walkway and interpretive trail along portions of the river through the site.

Grantee: Brockton
Project Title: Integrated Water Infrastructure Vulnerability Assessment for Climate Resiliency
Award: $312,615
The City will conduct modelling and assessment that will provide a baseline understanding of risks to infrastructure, environment, and residents associated with flooding events.

Grantee: Cambridge
Project Title: Completing a watershed-wide analysis to optimize and coordinate regional stormwater management in the Mystic River Watershed
Award: $350,000
The Resilient Mystic Collaborative (RMC) will identify and pursue site-specific green infrastructure opportunities for regional stormwater management and local co-benefits. The project will include ranked, mapped, and characterized descriptions of each of the regional opportunities for green infrastructure, along with an understanding of the remaining need for other flood management strategies.

Grantee: Concord
Project Title: Climate Action and Resilience Plan
Award: $100,095
The Town will develop a comprehensive Climate Action & Resilience Plan.

Grantee: Concord
Project Title: Reforestation and Tree Resilience
Award: $150,000
This project includes planting 100-125 trees (following Greening the Gateway Cities Program standards), ash tree treatment to control the spread of Emerald Ash Borer, and a tree farm feasibility study and preliminary design to determine if the development of a municipal tree farm/nursery on a predetermined site is feasible and will provide long-term climate benefits. A preliminary design will be created for such a tree farm.

Grantee: Dedham
Project Title: Dedham Climate Action & Resilience Plan
Award: $185,895
The Towns will conduct a Climate Action & Resilience Plan project that will include updates to its existing hazard mitigation plan, a targeted vulnerability assessment focused on identifying recommendations to improve the resilience of its infrastructure, an accounting of the greenhouse gas emissions and a pathway to reduce them, the development of a climate resilience framework, and an equitable engagement process.

Grantee: Deerfield
Project Title: Reducing Flooding Vulnerability in Deerfield
Award: $278,023
The Town will install green infrastructure in the town center, develop a municipal green infrastructure policy, replace two top priority culverts with more resilient culverts with improved wildlife passage, coordinate a community climate awareness event, conduct public education on the town's new Rave emergency alert systems, create an evacuation action plan for potential dam failures and major floods on the Deerfield River, and develop a land conservation priority plan for protecting key parcels in the Deerfield River floodplain.

Grantee: Devens
Project Title: Devens Climate Action & Resilience Plan
Award: $142,170
The Devens Enterprise Commission in partnership with Mass Development Devens will create a community wide climate action and resilience plan.

Grantee: Duxbury
Project Title: Climate Change Flood Vulnerability Assessment/Adaptation Planning
Award: $131,712
The Town of Duxbury will conduct a detailed vulnerability and risk assessment of municipal infrastructure, commercial infrastructure in the Snug Harbor business district, and natural resources to develop targeted strategies aimed at reducing risks from flooding, increased storm intensity, sea level rise and storm surge.

Grantee: Edgartown
Project Title: Climate Change Flood Vulnerability Assessment/Adaptation Planning
Award: $90,035
The Town of Edgartown will conduct a climate change vulnerability assessment of municipal infrastructural and environmental features to develop targeted strategies aimed at reducing risks from flooding, increased storm intensity, sea level rise and storm surge. The goal of the project is to develop a GIS database the Town can use moving forward with resiliency planning.

Grantee: Essex & Ipswich
Project Title: Impacts of future storminess, greater wave energy, and increased sediment transport along Castle Neck and into Essex Bay: Essex, MA
Award: $190,349
Using a suite of Delft3D models (hydrodynamic, wave, and sediment transport), the Town will quantify how future sea-level rise and increased storminess will impact the relationships amongst the longshore transport, erosion/depositional patterns, and spit growth/retreat along Castle Neck Island in Ipswich and into Essex Bay. The Town will also determine how to *work with the system* to improve the resilience of the coastline around Essex via nature-based solutions.

Grantee: Falmouth
Project Title: Coastal Resiliency Planning for the Surf Drive Area
Award: $74,787
The Town will develop a phased management approach for reducing vulnerability to natural hazards and enhancing coastal resiliency along the Shining Sea Bike Path and Surf Drive between Trunk River and Shore Street. The study will consist of three main components: identify vulnerabilities and threshold, develop a conceptual phased management approach, and public outreach.

Grantee: Falmouth
Project Title: Coonamessett River Restoration Project: Construction of Phase 2
Award: $760,000
The Town is currently undertaking the restoration of the lower Coonamessett River and associated former cranberry bog complex. Phase 2 includes removal of a second dam, replacement of a failing culvert, and restoration of the remaining 39 acres of the cranberry bog complex and 3,000 linear feet of the Coonamessett River.

Grantee: Mattapoisett
Project Title: Pine Island Pond Watershed Lands Project
Award: $960,000
The Town of Mattapoisett is partnering with the Mattapoisett Land Trust and the Buzzards Bay Coalition to purchase 120 acres of pristine forest, streams, freshwater wetlands, and coastal salt marsh in the Pine Island Pond area of Mattapoisett.

Grantee: Medford
Project Title: Flood Mitigation Strategy Feasibility Analysis and Conceptual Design
Award: $93,529
This project will include an implementation feasibility analysis of two mitigation alternatives (identified in Medford's previous MVP Action Grant award), and development of the preferred alternative to conceptual design.

Grantee: Millbury
Project Title: Armory Village Green Infrastructure Project
Award: $1,000,000
This project represents Phase 1 of a larger project addressing stormwater capacity throughout Armory Village. Green infrastructure like stormwater planters, bioretention bump outs, rain gardens, tree box filters, tree planting, and selective application of porous pavers and pervious pavement will reduce heat island effects and stormwater runoff to the Blackstone River. Interpretive signage will be installed on the Lower Common to describe green infrastructure techniques used and their benefits for ameliorating climate change, improving water quality, and minimizing the quantity of water impacting the Blackstone River.

Grantee: Nantucket
Project Title: Designed for Adaptation
Award: $78,000
The Town will develop a public awareness toolkit incorporating information on flooding adaptation strategies for private property owners in the Nantucket National Historical Landmark District, the development of Design Guidelines for the Town of Nantucket's locally-designated historic districts, and a Resilient Nantucket statewide workshop to address flood risk, public awareness strategies and design guidance for adapting historic districts to a future of flooding.

Grantee: Northampton
Project Title: Protecting Downtown: Northampton's Flood Control Levees
Award: $315,000
The project will provide the field work, borings, analysis, and engineering necessary to identify what upgrades are necessary so the flood control levees protecting downtown Northampton can withstand floods from the Connecticut River and the Mill River.

Grantee: Oak Bluffs
Project Title: North Bluff Preservation Project
Award: $2,069,310
The Town will conduct a beach nourishment project to dredge Sengekontacket Pond, retrofit existing timber groins on the North Bluff beach to better contain the beach nourishment, and nourish the North Bluff beach below mean high water to enlarge it for climate resiliency and increased recreational value.

Grantee: Pittsfield
Project Title: Churchill Brook and West Street Culvert Replacement Project
Award: $814,524
Pittsfield's MVP Action Grant will include work on two high priority culverts in Pittsfield, MA: replacement of Churchill Brook at Churchill Street culvert and design of West Street at May Brook replacement culvert.

Grantee: Rehoboth
Project Title: Culvert and Green Infrastructure Concept Design and Dam Resiliency Assessment
Award: $119,622
The Town will assess two stream crossings on Danforth Street, downstream of the Perryville Dam, and a stream crossing on County Street. The Town will prepare concept designs to replace the culverts, prepare concept designs for green infrastructure at each stream crossing site, and prepare order of magnitude costs for design and construction for the stream crossing and green infrastructure.

Grantee: Salem
Project Title: Green Infrastructure for Stormwater Management in City Projects
Award: $320,861
The City is seeking to incorporate flood prevention measures using green infrastructure in renovations to Gallows Hill Park and Bertram Field, and the planting of new streets trees in downtown Salem.

Grantee: Salisbury
Project Title: Resilient Ring's Island: Preventing a Neighborhood from Being Stranded by Flooding
Award: $157,500
The Town will take steps to increase the resilience of the neighborhood of Ring's Island by raising its access/egress roads and by improving tidal flushing through culvert replacements at both First Street/March Road and Ferry Road. This project involves a redesign and retrofit of infrastructure, as well as a natural storm damage protection technique.

Grantee: Sandwich
Project Title: Communicating the Local Benefits of a Resilient Coast
Award: $46,795
The Town will develop outreach and education materials – including an ArcGIS StoryMap, printed materials, and a 7th – 8th grade STEM curriculum unit – to communicate climate change vulnerabilities and the benefits that the Town's ongoing coastal resilience initiatives provide to the community as a whole.

Grantee: Scituate & Cohasset
Project Title: Mapping Storm Tide Pathways in Scituate and Cohasset: Assessing Coastal Vulnerability to Storms and Sea Level Rise
Award: $112,668
The Towns will identify storm tide pathways and develop associated maps and GIS data. Field work necessary to verify the location of pathways identified through spatial analysis, as well as to document accurate locations, will be conducted and incorporated into the project.

Grantee: Southwick
Project Title: Klaus Anderson Road/Johnson Brook Road-Stream Crossing Redesign, Floodplain Restoration and Green Stormwater Management
Award: $128,056
The Town will complete specific designs and permitting for a replacement stream crossing at the Klaus Anderson Road/Johnson Brook culvert that will meet Massachusetts Stream Crossing Standards. The project will include upstream stormwater management and flood resiliency improvements that utilize green infrastructure, Low-Impact Design, or other nature-based solutions such as floodplain restoration and reconnection.

Grantee: Spencer
Project Title: Green Infrastructure Implementation in Downtown Spencer, Mechanic Street Parking Lot
Award: $370,492
The Town will implement green stormwater infrastructure techniques as part of a parking lot redevelopment project in downtown Spencer. The design will incorporate rain gardens/bioretention and belowground infiltration systems to reduce runoff and pollutant loads from the lot, as well as green stormwater practices along Mechanic Street to capture and treat additional runoff. The requested grant funding would support the design, permitting, and construction of the project.

Grantee: Springfield
Project Title: Community Resilience Through Urban Forestry: Improving Emergency Response and Environmental Conditions in Springfield Massachusetts
Award: $315,000
The project aims to support detailed vulnerability and risk assessment of Springfield's urban forest, increase capacity of municipal nursery operation, and support green job skills training through engaging local non-profits, academic institutions, and city residents.

Grantee: Uxbridge
Project Title: Integrated Water Infrastructure Vulnerability Assessment and Climate Resiliency Plan
Award: $288,904
Uxbridge will create an Integrated Water Infrastructure Vulnerability Assessment and Climate Resiliency Plan. The plan will address water infrastructure and will include a review of local bylaws with consideration for green infrastructure and nature-based solutions, as well as a robust public outreach and education program.

Grantee: Walpole
Project Title: Culvert Assessment and Green Infrastructure Survey, Walpole, MA
Award: $166,496
The assessment addresses flooding concerns related to increases in precipitation totals and intensity. Tasks include an inspection and review of major road-stream crossings with consideration for green infrastructure and nature based solutions, and a robust public outreach and education program targeting vulnerable and environmental justice communities in Walpole and neighboring communities.

Grantee: Westport
Project Title: Assess and Plan for Climate Threats to East Beach Corridor
Award: $75,000
The Town will carry out assessments of the potential risks to the roadway and utility lines along East Beach and recommend feasible actions to reduce or eliminate these risks.

Grantee: Winthrop
Project Title: Climate Resilient Land Use
Award: $99,740
Winthrop will work with the Metropolitan Area Planning Council (MAPC) to conduct a policy scan and audit and draft a new resilient zoning policy or land use tool. Winthrop will also work to further the development of best practices and resources/templates for the municipalities in the Metropolitan Mayors Coalition and design and implement a resilient land use planning and zoning training for municipal staff and volunteers.

Grantee: Woburn
Project Title: Horn Pond Brook Improved Fisheries Habitat and Flood Control
Award: $235,355
The City will evaluate and restore Horn Pond Brook so that flooding is reduced, and habitat is improved for migratory fish passage. The City also plans to install two green infrastructure demonstration projects: a rain garden near its water treatment plant on Lake Avenue, adjacent to Horn Pond, to capture and treat stormwater and protect the brook's water quality, as well as shade tree plantings at the City's Senior Center.

Grantee: Wrentham
Project Title: Eagle Dam Removal
Award: $46,000
The Town will partner with Charles River Watershed Association (CRWA) to assess the feasibility of removing Eagle Dam to restore natural flow patterns and re-establish the floodplain along the Eagle Brook.

FY18 MVP Action Grant Projects

Grantee: Adams
Project Title: Assessment and Design for Adaptation and Resilience
Award: $56,250
The Town of Adams will assess, analyze, evaluate, and prioritize small storm water conveyances to understand current conditions. The Town will advance the recommendations that result from this process, and conceptual designs will be developed for 2-3 of the highest priority sites.

Grantee: Arlington
Project Title: Mill Brook Corridor Flood Management Demonstration Project: Pilot Study and Implementation
Award: $399,260
The Town of Arlington will expand upon an existing project supported by Community Preservation Act funds to survey the Mill Brook corridor, design public access improvements between Wellington Park and the Brook and enhance the natural resources of the Brook and surrounding areas. Improvements to Mill Brook include invasive plant removal, flood storage capacity, bank stabilization, and revegetation.

Grantee: Belchertown
Project Title: Town-wide Road Stream Crossing Assessment and Climate Change Adaptation Plan
Award: $151,437
The Town of Belchertown will identify and provide recommendations and concept designs for high-priority crossings to enhance community resilience, mitigate existing and potential flooding, and increase stream continuity and aquatic passage. The project will also provide recommendations for areas that are known to be heavily influenced by beaver activity.

Grantee: Boston
Project Title: Climate Ready Zoning and Design Guidelines
Award: $250,000
The Boston Planning and Development Agency and Boston Environment Department will establish a future sea level rise zoning layer with urban design guidelines for reconstruction, retrofits in historic districts, district level flooding interventions, and requirements for new construction through a community engagement process.

Grantee: Brookline
Project Title: Climate Resiliency Policy Audit/Amendments and LID and Design Guidelines
Award: $56,188
The Town of Brookline will engage with an engineering firm to conduct an audit of its storm water, floodplains, zoning, and wetlands bylaws and DPW Site Plan Review Checklist to identify opportunities to mandate higher standards for climate resiliency or identify any conflicts with State policy.

Grantee: Cambridge
Project Title: Cambridge Climate Change Preparedness & Resilience Catalyst Project
Award: $118,000
The City of Cambridge will develop four resilience toolkits for renters, small residential owners, smalls businesses, and large businesses. Each toolkit will be presented in a workshop targeting the relevant audience.

Grantee: Carver
Project Title: Climate Change Water Resource Vulnerability and Adaptation Strategy Assessment
Award: $196,979
The Town of Carver will conduct a climate change vulnerability assessment and management plan that addresses natural and man-made water resource features in the community. The project will consist of a series of technical assessments focused on these major types of water resources within the community and associated climate change vulnerabilities. The results of the technical assessments will guide the development of an integrated water resources climate resiliency management plan.

Grantee: Charlton & Spencer
Project Title: Integrated Water Infrastructure Vulnerability Assessment and Climate Resiliency Plan
Award: $300,000
The Town of Charlton and the Town of Spencer will conduct a comprehensive, regional climate change vulnerability assessment and climate resiliency plan that addresses water infrastructure in both communities. The results of these assessments, combined with input from a committee, will guide the development of an integrated climate resiliency plan.

Grantee: Deerfield
Project Title: Municipal Vulnerability Preparedness Plan Implementation
Award: $47,325
The Town of Deerfield will design and permit for the replacement of a vulnerable culvert on Mill Village Road to accommodate the larger flows anticipated with climate change and accommodate fish and wildlife passage. The Town will update the Town's floodplain zoning regulations to protect natural flood storage areas and incorporate new flood maps reflecting climate change.

Grantee: Essex
Project Title: Feasibility Study for an Essex Bay Living Shoreline
Award: $15,000
The Town of Essex will conduct a feasibility study on the creation of a "living shoreline" that will investigate how a nature-based solution relying on green infrastructure for storm protection can be designed to also provide ecological restoration and habitat management to increase coastal resiliency for the Town**.**

Grantee: Essex, Ipswich, & Newbury
Project Title: Documenting Effects of a Large-Scale, Natural Sediment Event on Salt Marsh Resiliency in the Great Marsh Estuary
Award: $60,000
The Towns of Essex, Ipswich, and Newbury will study the effects of large-scale sediment additions over marsh areas to recreate given environmental regulations. Results will be used to characterize marsh plant and soil responses to sediment nourishment on a landscape sale and determine whether this natural event increases or decreases marsh resilience to sea level rise.

Grantee: Gloucester
Project Title: Watershed and Water Supply Vulnerability, Risk Assessment, and Management Strategy
Award: $107,044
The City of Gloucester will develop an in-depth climate change risk assessment and management strategy for its water supply and reservoir system, including its watersheds. The project will assess the potential impacts of long-term climate change on this system. The City will also identify and evaluate the effectiveness of different management, operational, and infrastructural strategies to mitigate identified climate risks to water supply reliability.

Grantee: Holden
Project Title: Water/Sewer Infrastructure Green Emergency Power Study
Award: $24,588
The Town of Holden will conduct a study to investigate the possibilities of providing "green" emergency power.

Grantee: Holyoke
Project Title: Meeting an Immediate Need by Learning from Hurricane Maria Survivors in Holyoke
Award: $149,825
The Town of Holyoke will partner with a bilingual consulting team to gather a detailed demographic analysis of individuals who arrived in the Town from Puerto Rico as a result of Hurricane Maria. In-person interviews will be conducted with local social service providers, local politicians, local governmental agencies, and state/federal agencies to determine the ground rules for what transpired during and after Holyoke's response to Maria. This will produce an institutional analysis and checklist for steps that communities need to implement to be more prepared for accommodating climate migrants.

Grantee: Manchester-by-the-Sea
Project Title: Sawmill Brook Central Pond Restoration Design
Award: $88,180
The Town of Manchester-by-the-Sea will complete the permit level design for its Sawmill Brook Central Pond Restoration. The restoration design will be optimized to maintain flood storage capacity and will consider hard and soft solutions for erosion control, evaluate options to retrofit a storm water outfall, and improve habitat value within the Pond through a shift from the currently impounded water body to a tidally flushed riverine/marsh system.

Grantee: Medford
Project Title: Medford Open Space Plan Update
Award: $60,000
The City of Medford will update its Open Space Plan and incorporate current climate change projections for the City. It will identify open space and recreation resources within the city and identify growth trends that will help project future availability and demand.

Grantee: Medford
Project Title: Drainage Model and Conceptual Strategies to Reduce Future Flooding in South Medford
Award: $60,830
The City of Medford will refine its city-wide drainage model and create a more detailed 2-D map of South Medford, including simulations of future storms and the potential impact of increased water volumes flowing down the Mystic River from the Upper and Lower Mystic Lakes. Additionally, the City will develop both green and grey infrastructure options for flow reduction and flood attenuation to provide protection on a neighborhood scale.

Grantee: Mendon
Project Title: Integration of Low Impact Development Standards into Local Bylaws and Subdivision Regulations
Award: $8,025
The Town of Mendon will build on the work done in 2016 with Mass Audubon and the MVP process to hire a consultant to undertake the drafting of comprehensive Low Impact Development (LID) bylaws.

Grantee: Montague
Project Title: Montague City Road Flooding Protection Project: Design and Permitting
Award: $33,750
The Town of Montague will employ nature-based storm damage protection and other bioengineering methods to adapt to seasonal flooding that routinely closes one of Montague's main thoroughfares.

Grantee: Natick
Project Title: Tree Planting Plan to Mitigate Heat Islands and Reduce Runoff
Award: $9,025
The Town of Natick will develop a 5-10 year tree planting plan focused on mitigating heat islands, providing shade for vulnerable populations, and reducing stormwater runoff. The Town will focus on public and private properties with significant impervious surface, areas with known environmental justice communities and vulnerable populations, and land with significant stormwater runoff.

Grantee: Natick
Project Title: Water Conservation Campaign
Award: $16,640
The Town of Natick plans to implement a new water utility software, WaterSmart, that uses data and behavioral science to save water. The Town will use funds to support community outreach to achieve widespread adoption of the WaterSmart technology. Engagement includes mailings, a main street banner, and "Water Week" community outreach activities.

Grantee: Natick
Project Title: Low Impact Development Regulation Development and Zoning Bylaw Inclusion
Award: $39,053
The Town of Natick is seeking to update its current regulations to incorporate as many of the Mass Audubon LID Zoning ByLaw suggestions in order to create more LID rich zoning bylaws fit for the Town of Natick. The Town will hire a consultant to review and analyze the feasibility for the suggested opportunities for LID inclusion into Zoning Bylaws and draft subsequent Bylaw modifications.

Grantee: New Bedford
Project Title: Comprehensive Climate Adaptation and Resilience Action Plan and Interactive Community Dashboard
Award: $165,120
The City of New Bedford will develop a Community Climate Adaptation and Resilience Action Plan and an associated online Community Sustainability Dashboard. The City will also update its existing Multi-Hazard Mitigation Plan.

Grantee: Newbury
Project Title: Assessing storm energy reduction by the vegetated salt marsh platform in Newbury, MA: A background to enhancing natural protection by the living shoreline
Award: $225,840
The Town of Newbury will use hydrodynamic and wave modeling and fields studies to improve marsh resiliency and evaluate the effectiveness of marshes in reducing storm surges and wave energy, as well as determine if defenses to Newbury can be improved through CZM StormSmart principals and Living Shoreline solutions.

Grantee: Newburyport
Project Title: Wastewater Treatment Plant Climate Resilience
Award: $122,695
The City of Newburyport will improve the resilience of Newburyport's Wastewater Treatment Plan to effects of various climate change stressors. The project will involve performing a detailed climate risk assessment to the various components within the wastewater facility, identifying solutions to reduce flood risk, and creating a roadmap with timeline for implementing these solutions.

Grantee: Northampton
Project Title: Northampton Designs with Nature to Reduce Storm Damage
Award: $400,000
The City of Northampton will design green infrastructure to detain, retain, and treat stormwater using nature-based solutions. The City will do site analysis on ten opportunity sites on public land that have been identified and prioritized based on harm/vulnerability reduction and stormwater benefits.

Grantee: Peabody
Project Title: Peabody North River Canal Resilient Wall, Riverwalk, and Park
Award: $224,216
The City of Peabody will conduct a comprehensive project along the North River Canal with project components that will improve resilience, address site contamination from historic use as a tannery district, and create a park resource that enhances public access and vitality of the area.

Grantee: Peabody
Project Title: Lawrence Brook Watershed Flood Mitigation and Water Quality Improvement
Award: $243,400
To address ongoing flooding issues along City streets in the watershed, the City evaluated alternatives to mitigate flood depth and extent while also addressing water quality, including LID and green infrastructure approaches, to mitigate flooding and improve stormwater quality in the watershed. The City determined that a combination of GI and LID as well as a new stormwater outfall will serve to alleviate flooding. A conceptual design for the outfall and BMPs/LID elements has been completed, and this project entails evaluation of climate change predictions on the final design, as well as execution of the final design and permit application preparation.

Grantee: Pelham
Project Title: Resilient Pelham
Award: $137,250
The Town of Pelham proses 3 projects: 1) Resilient Roads 2) Resilient Communications and 3) Resilient Campus for emergency operations and sheltering. The Town will 1) assess and incorporate nature-based solutions toward removing vulnerabilities such as failing culverts and the potential threat of roads washing out, 2) conduct a study to identify residential neighborhoods at risk of total isolation due to culvert failure, roadway flooding, and temporary or long term route closure, 3) compile data and assess and enhance various forms of communication in the town, and craft an education and outreach strategy.

Grantee: Salem
Project Title: Salem Sanitary Sewer Trunk Line Relocation Assessment
Award: $345,000
The City of Salem will evaluate and identify a feasible solution to remove and relocate critical sewer infrastructure out of a resource area and outside a hazardous area where it is subject to damage from storms and storm surge.

Grantee: Sandwich
Project Title: Climate Change Vulnerability Assessment/Adaptation Planning for the Town of Sandwich
Award: $88,025
The Town of Sandwich will conduct a detailed vulnerability and risk assessment of municipal infrastructure and natural resources to develop targeted strategies aimed at reducing risks from flooding, increased storm intensity, seal level rise, and storm surge. Through this project the Town will provide data on likely scenarios and degrees of potential impact.

Grantee: Scituate
Project Title: Comprehensive Wastewater Treatment Resilience Feasibility Study
Award: $75,100
The Town of Scituate will conduct a feasibility study to more closely assess the vulnerability of specific wastewater infrastructure facilities with respect to current and future coastal flood hazards, identify and prioritize the most suitable climate adaptation strategies for each facility based on the results of the feasibility study, and budget for future costs associated with the recommendations.

Grantee: Somerville
Project Title: Detailed Vulnerability and Risk Assessment, Green Infrastructure, Public Education & Communication
Award: $350,000
The City of Somerville will enhance its basic city-wide storm water and sanitary system model to understand its vulnerability to flooding on a street-by-street basis, and use this data to learn where green infrastructure can best impact flood control and water quality management and to develop a flood risk communications strategy, messaging, and materials targeted towards residents in inundation-prone areas.

Grantee: Swansea
Project Title: Public Water Supply Infrastructure Vulnerability Assessment
Award: $28,495
The Town of Swansea will conduct a climate change vulnerability assessment of its desalination treatment facility's raw water intake infrastructure and the primary access road to the infrastructure. The assessment will be conducted by an engineering consultant, in collaboration with the Town's technical staff, to develop a future resiliency plan to protect the public water supply from sea level rise and extreme storms.

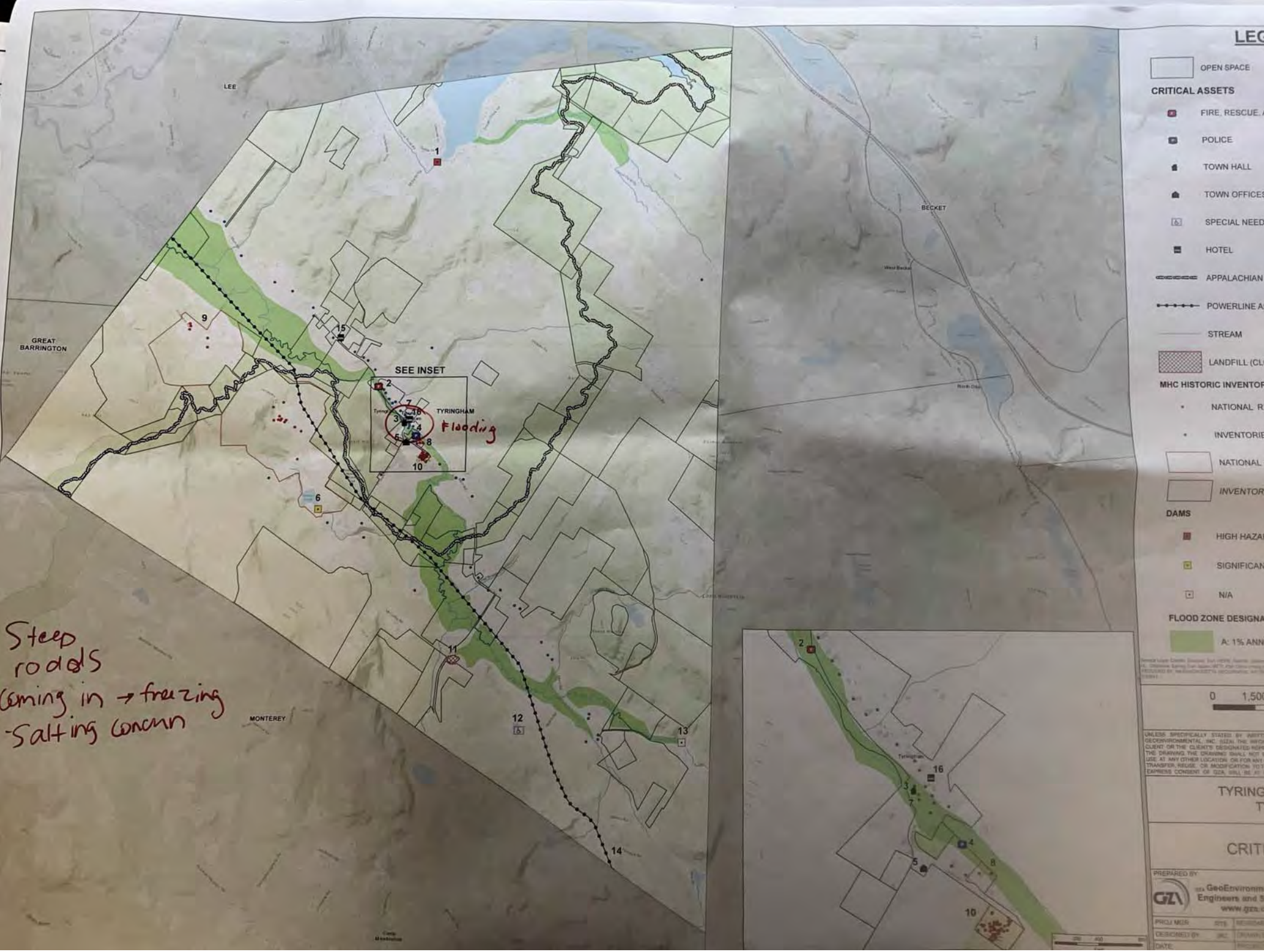
Grantee: Wareham
Project Title: Climate Change Flood Vulnerability Assessment/Adaptation Planning
Award: $62,735
The Town of Wareham will conduct a climate change vulnerability assessment of municipal infrastructural, societal, and environmental features to develop targeted strategies aimed at reducing risks from flooding, increased storm intensity, sea level rise, and storm surge.

Grantee: Weymouth
Project Title: Fort Point Road Coastal Infrastructure Resilience Project
Award: $129,557
The Town of Weymouth will redesign critical coastal infrastructure within the Fort Point Road neighborhood. The seawall, revetment, and drainage structures in the area of Fort Point Road will be redesigned to new standards of protection, relying on new generation materials, best practice and engineering techniques, and anticipation of climate change impacts.

Grantee: Winthrop
Project Title: Ingleside Park Feasibility Study and Permitting
Award: $156,750
The Town of Winthrop will conduct a feasibility study to mitigate flooding in Ingleside Park. In addition, the coastal processes at the site will be evaluated to determine the water levels, tidal influence, waves, and storm surge elevations at the project site for present day, as well as three future time periods (i.e., 2030, 2070, and 2100) incorporating sea level rise. These data will inform the alternatives analysis to select an appropriate nature-based or conventional infrastructure type.

Appendix B

Stakeholder Group Mapping, Risk Matrices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Steep roads coming in → freezing
-Salting concern

Community Resilience Building Risk Matrix

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

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

Features	Location	Ownership	V or S	FLOODING	ICE STORMS	Extreme Heat/Drought	HIGH WINDS	Priorit H-M-
Infrastructural								
Highway Garage	116 Main		V/S	Hop Brook Flooding	Town response to storms →	Not adequate to house equipment	Strengths - people	
Roads	Town wide		V	Flooding + tree fall, erosion (½ unpaved)				
Town Hall	116 Main		V-flood	Too small, acts as EOC, has undersized backup generator, Emerg. Shelter				
Library / Post Office	118 Main Rd			↳ No elevator; can't use bldg; Vulnerable to fire				
Fire house property	100 Main Rd	TVFC		Past flooding - minor				
School house	2 Church Rd		S	Grounds could flood, Bldg might be OK - High ground, can use for storage	Needs to be bigger		Structural defects,	
Union Church	128 Main Rd	Church	S		Back up shelter;	Community resource	Roof damage	
Goose Pond Dam		Goose P. Maint District	V/S	Recreation · Not at full capacity → provides some retention -		well maintained		
Power Lines	Townwide	Utility	V/S		V - tree fall →			
Shaker Pond Dam		Private	V/S	No flood control Fire - Water Pond				
Societal								
Transfer Station (sand/salt)	27 Monterey Rd		V/S	has a brook - no prior flooding	Built on landfill Poor work space			
Elderly Pop. -			V	Neighbor helping neighbor → No formal rescue				
Council on Aging			S					
Hop Brook club			S					
Valley Club			S					
No public transp.			V					
Strong public service			S					
Environmental								
Fire Ponds		Private access	S/V			V - Dry		
Round Mtn Beaver Dam		Trustees Res.	V	risk of breach				
Hop Brook								
Goose Pond								
Abundant Tree Canopy			V/S	Absorbs water protects - erosion	Tree fall shading roads	Cooling		
Ditch - Center of Town			V	floods during storm → impacts basements				

wn of Tyringham, MA
6 Main Road
ringham, MA 01264

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mmunity Resilience Building Risk Matrix

priority for action over the Short or Long term (and Ongoing)
ulnerability S = Strength

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

ures	Location	Ownership	V or S	FLOODING	ICE STORMS	EXTREME HEAT/DROUGHT	HIGH WINDS	Priority H-M-L	Time Short Long Ongoing
frastructural									
wn Hall (designated Em. Shelter)	116 Main Road		V	* Flood proof basement	New emergency shelter for the Town	Town needs a cooling center		H	L
*Beach Rd floods regularly → design for improvements (H/S)	Town Wide		V	* ID properties for purchase				H	S
webster Rd - erosion				* ID areas vulnerable to flooding + erosion (not just culverts)	Tree-fall - need DPW to be operational			M	S
ighway Gargage	116 Main Road		V/S	* Relocate DPW out of flood zone (flood study)				H	L
ibrary/Post Office	118 Main Road			* Hop Brook flood study				H	S
Fire House Property	100 Main Road	TVFC		Hop Brook flood study currently working on new structure (design)					
School House	2 Church Road		S	Can be future document storage					
Union Church	128 Main Road	Church	S		Needs generator to heat as backup shelter	Needs A/C to be a cooling center			
Goose Pond Dam		Goose P. Maintenance District	V/S					L	L
Power Lines	Townwide	Utility	V/S	* Collaborate w/ utility to put wires underground.					
Shaker Pond Dam		Private	V/S						
Transfer Station (sand/salt)	27 Monterey Road		V/S	Prefer to not use this space for highway - still used for trash collection (ok to keep)					
Societal									
Elderly Population			V/S	* Get the town digital - IT Service	→ High P./ongoing	* ID vulnerability for wells going dry		H	Ongoing
Council on Aging — Informal approach to checking on elderly - seems to work			S	* Climate Control records storage (in schoolhouse)					
Hop Brook Club			S	relocate records from Town Hall to Schoolhouse		Connect these			
Valley Club			V	tied to Hop Brook flood study					
No Public Transportation — Pittsfield elder services provides rides, meals on wheels			S						
Strong Public Service									
Town needs a cell tower → 5G coming soon?	→ climate change driving emergencies - community needs to be able to call for help.								
Environmental									
Fire Ponds		Private access	S/V			Already have backup tanker system		M	L
Round Mtn Beaver Dam		Trustees of Reservations	V	* Town wide flood study incl. beavers - including culvert assessment					
Hop Brook				Flood study				L	L
Goose Pond - Back up water supply for Lee						* feasibility - back up water supply for Tyringham			
Abundant Tree Canopy			V/S						
Ditch - Center of Town			V	Town-wide flood study					

Regional potential → water supply
culvert assessment

Tyringham, MA
Tyringham, MA 01264

Appendix C

Tyringham MVP Survey, Survey Results Table, Survey Data

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

Climate change has the potential to impact our economy, how we support our community's health and vulnerable residents, how we build our infrastructure, and how we protect our natural resources. Your voice represents a unique perspective from the Tyringham community, and by taking this survey you will help us prepare for a more resilient future. Please stay up to date on this planning process by checking the Town's website at https://www.tyringham-ma.gov/mvp-committee. Please return your survey by Friday, January 14.

If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or mailto:tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- ___ Flooding
- ___ Extreme temperatures
- ___ Winter weather
- ___ Drought
- ___ Brushfires and wildfires
- ___ Severe wind events (tornado, hurricane)
- ___ Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☐ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☐ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
- ☐ I have backup power options (generator, solar panels, extra firewood)
- ☐ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event

- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

What are some of Tyringham's greatest strengths? Check all that apply.

- ☐ Wastewater infrastructure (septic systems)
- ☐ Emergency facilities, including the Fire Station
- ☐ Communications infrastructure, including the Town's Emergency Notification System
- ☐ Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- ☐ Public facilities, including the library
- ☐ Public support systems, including Council on Aging
- ☐ Transportation infrastructure, including roads and bridges
- ☐ Agriculture, including local farms
- ☐ Local businesses
- ☐ Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- ☐ Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- ☐ Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- ☐ Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- ☐ Potential dam failure
- ☐ Erosion of land surrounding bridges and roadways
- ☐ Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- ☐ Invasive species, crop disease, and pest infestations
- ☐ New development in hazard-prone areas
- ☐ Private drinking water wells
- ☐ Power outages due to extreme wind or winter weather events
- ☐ Communications/Phone outages due to extreme wind or winter weather events
- ☐ Spills along transportation routes

- ☐ Degradation or loss of priority natural areas and core wildlife habitat
- ☐ Gas transmission pipeline
- ☐ Other: _____

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- ☐ Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- ☐ Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- ☐ Planning to address invasive species and their impacts on natural resources
- ☐ Educating the public on hazard impacts and emergency preparedness
- ☐ Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- ☐ Updating bylaws and regulations to incorporate climate change considerations
- ☐ Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- ☐ Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- ☐ Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- ☐ Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- ☐ Conducting a town-wide water supply analysis
- ☐ Investigating opportunities for renewable energy
- ☐ Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- ☐ Interactive online webinars
- ☐ Pre-recorded videos posted online
- ☐ Online surveys
- ☐ PDFs available online
- ☐ Printed media shared via mail

- ☐ Information posted to the Town of Tyringham website
- ☐ Newsletters from the Town
- ☐ Through social media, including Facebook
- ☐ Through the newsletters and meetings of local groups and regional organizations
- ☐ In-person events
- ☐ Other:_____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address:_____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☐ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ○ 66-75
- ○ Over 75

How would you describe yourself?

- ○ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

SURVEY RESULTS

What climate hazard are you most concerned about impacting Tyringham? 1 = most concerned; 7 = least concerned												
	1	2	3	4	5	6	Stephen Baluk	Carl Hardy-Fanta	Emily Wasserman	Catherine Mardula	11	Steve Cowell
Extreme temperatures		6	✓	✓		✓	5	6		✓	✓	3
Flooding	✓	3		✓	✓	✓	1	3				2
Winter weather	✓	1		✓	✓	✓	5	4				7
Severe wind events (tornado, hurricane)		5	✓	✓		✓	3	2			✓	1
Drought		2	✓	✓		✓	7	5				4
Brushfires and wildfires		4		✓		✓	4	1				5
Other		7										6 - invsasive specie
How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.			Disturbed communications, emergency services					Power outages and flooding on Meadow Street			Wind damage - trees and limbs	
What steps have you taken to prepare for extreme events?												
I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)	✓	✓	✓	✓	✓	✓	✓	✓	✓			
I have backup power options (generator, solar panels, extra firewood)	✓	✓	✓	✓	✓	✓	✓	✓			✓	
I receive news, updates, and information about emergency preparedness	✓	✓		✓	✓	✓	✓				✓	✓
I have increased my food security with a garden or stockpiling nonperishable foods	✓		✓	✓		✓	✓	✓	✓		✓	
I know what the local evacuation routes are	✓			✓	✓	✓	✓					✓
I know where the nearest local shelter is	✓			✓	✓	✓	✓					
I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event	✓			✓	✓	✓	✓				✓	
A neighbor checks in on me and helps with food, snow removal, or other support during an extremem event	✓			✓	✓	✓		✓				
I know what community resources and/or support are available to me	✓			✓		✓					✓	
Other												Passive solar home - no frozen pipes
What are some of Tyringham's greatest strengths?												
Experienced Highway Department	✓	✓	✓	✓	✓	✓	✓				✓	✓
Emergency facilities,including the Fire Station	✓	✓	✓	✓	✓	✓	✓				✓	✓
Communications infrastructure, including the Town's Emergency Notification System	✓			✓	✓	✓	✓	✓			✓	
Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries	✓				✓		✓	✓		✓	✓	✓
Public facilities, including the library	✓						✓	✓		✓	✓	✓
Agriculture, including local farms		✓					✓			✓		✓
Transporation Infrastructure, including roads and bridges	✓						✓				✓	
Public support systems, including Council of Aging	✓						✓				✓	
Local businesses		✓										
Other												

	1	2	3	4	5	6	Stephen Baluk	Carl Hardy-Fanta	Emily Wasserman	Catherine Mardula	11	Steve Cowell
What are some of Tyringham's greatest vulnerabilities?												
Culverts, undersized drainage infrastrucutre, impervious surfaces, and stormwater runoff	✓	✓		✓	✓	✓	✓			✓	✓	✓
Power outages due to extreme wind or winter weather events							✓	✓		✓	✓	✓
Not having an appropriate sized Highway Garage facility located outside the flood zone	✓	✓	✓	✓	✓	✓						
Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns	✓			✓	✓	✓	✓					
Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma			✓				✓	✓		✓	✓	✓
Communications/phone outages due to extreme wind or winter weather events			✓				✓	✓		✓	✓	
Potential dam failure	✓			✓	✓	✓	✓					✓
Invasive species, crop disease, and pest infestations							✓	✓			✓	✓
Gas transmission pipeline	✓	✓		✓		✓						
Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents								✓				
Erosion of land surrounding bridges and roadways							✓					
new development in hazard-prone areas							✓					
Spills along transportation routes												✓
Private drinking water wells												
Other												
What do you think Tyringham's top priorities should be for building cimate resilience? Please select your top three.												
Locating suitable land outside of a flood zone to build a highway garage facility	✓	✓	✓	✓	✓	✓					✓	
Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards	✓			✓	✓	✓			✓	✓	✓	✓
Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests		✓			✓				✓	✓		✓
Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power		✓		✓			✓	✓	✓	✓		
Planning to address invasive species and their impacts on natural resources										✓	✓	✓
Investing opportunities for renewable energy		✓		✓		✓				✓		✓
Pursing data or studies showing the project impacts of future climate hazards in Tyringham, such as updated flood maps	✓	✓					✓					
Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas										✓		
Educating the public on hazard impacts and emergency preparedness								✓		✓		✓
Updating bylaws and regulations to incorporate climate change considerations							✓		✓	✓		

	1	2	3	4	5	6	Stephen Baluk	Carl Hardy-Fanta	Emily Wasserman	Catherine Mardula	11	Steve Cowell
Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change												
Assessing watershed protection opportunities and developing regional partnerships to improve water quality								✓				
Other												
Conducting a town-wide water supply analysis												
How would you like to receive information about climate change risks and resiliency projects in Tyringham?												
Information posted to the Town of Tyringham website	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PDFs available online	✓	✓	✓	✓	✓	✓		✓			✓	✓
Surveys			✓	✓								
In-person events				✓						✓		
Other								TEBB			TEBB	
Additional comments or questions about planning for climate resiliency that you would like to share with the project team.												
If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please ennter your name and email.												
Optional Demographic Questions												
Please tell us about your connection to Tyringham												
I own a home (primary residence) in Tyringham				✓	✓	✓	✓	✓		✓	✓	✓
I rent a home or apartment in Tyringham			✓									
I work in Tyringham	✓											
I own a business in Tyringham												
I own a home (secondary residence) in Tyringham									✓ but now here most of the time			
Please select your age												
66-75				✓		✓	✓	✓				✓
56-65	✓				✓				✓			
36-55												
Over 75			✓								✓	
18-35										✓		
Under 18 years old												
How would you desribe yourself?												
White	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black or African-American									✓ have a black partner, James Browne			
Asian												
Other												
American Indian or Alaskan Native												
Native Hawaiian or other Pacific Islander												
Multiple races												
Are you of Hispanic, Latino, or of Spanish origin?												
No	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Yes			✓									

SURVEY RESULTS

What climate hazard are you most concerned about impacting Tyring	Eileen Mahoney	Carey Melntosh	15	16	17	18	19	Lindsay Crampton	21	22	23	24	25	26	Totals
Extreme temperatures	✓	1	3	4	1	2	✓	6	✓		✓	✓	6		**21**
Flooding			1	6	3	3		5	✓	✓	✓	✓	1	✓	**19**
Winter weather	✓		4	5	2	1		1			✓	✓	4	✓	**18**
Severe wind events (tornado, hurricane)	✓		2	1	4	5		3			✓		2	✓	**17**
Drought		2	6	3	6	4		2			✓	✓	5		**16**
Brushfires and wildfires			5	2	5	6		4		✓	✓		3		**14**
Other	s							7 Emerald Ashborer causing downed trees							**3**
How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.				Power outages		Winter weather can prevent priests from coming to celebrate our Daily Mass		Ice storms and heavy snowfall. One summer drought we were concerned our well would go dry.					Heat wave-high temperatures, excessive rain		
What steps have you taken to prepare for extreme events?															
I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	**21**
I have backup power options (generator, solar panels, extra firewood)	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	**20**
I receive news, updates, and information about emergency preparedness	✓	✓	✓		✓			✓	✓		✓	✓	✓		**17**
I have increased my food security with a garden or stockpiling nonperishable foods	✓	✓	✓		✓				✓		✓	✓		✓	**16**
I know what the local evacuation routes are		✓	✓						✓		✓	✓	✓	✓	**13**
I know where the nearest local shelter is		✓	✓		✓				✓		✓	✓			**11**
I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event		✓						✓	✓		✓	✓			**11**
A neighbor checks in on me and helps with food, snow removal, or other support during an extremem event		✓	✓					✓				✓			**9**
I know what community resources and/or support are available to me				✓					✓		✓	✓			**8**
Other															**1**
What are some of Tyringham's greatest strengths?															
Experienced Highway Department		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**22**
Emergency facilities,including the Fire Station	✓	✓	✓	✓		✓			✓	✓	✓	✓		✓	**19**
Communications infrastructure, including the Town's Emergency Notification System		✓	✓	✓		✓		✓	✓		✓	✓	✓	✓	**17**
Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries	✓	✓	✓	✓	✓	✓		✓			✓		✓	✓	**17**
Public facilities, including the library	✓	✓	✓	✓							✓	✓		✓	**13**
Agriculture, including local farms	Need more farms	✓			✓	✓	✓				✓			✓	**11**
Transporation Infrastructure, including roads and bridges	✓	✓	✓	✓							✓		✓	✓	**10**
Public support systems, including Council of Aging		✓					✓				✓				**6**
Local businesses											✓				**2**
Other															**0**

	Eileen Mahoney	Carey Melntosh	15	16	17	18	19	Lindsay Crampton	21	22	23	24	25	26	**Totals**
What are some of Tyringham's greatest vulnerabilities?															
Culverts, undersized drainage infrastrucutre, impervious surfaces, and stormwater runoff			✓			✓		✓	✓	✓	✓	✓		✓	**17**
Power outages due to extreme wind or winter weather events	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓		**15**
Not having an appropriate sized Highway Garage facility located outside the flood zone		✓			✓	✓	✓		✓	✓	✓	✓		✓	**15**
Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns	✓		✓		✓		✓		✓	✓	✓	✓		✓	**14**
Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma	✓	✓	✓	✓				✓ unvaccinated emergency repsonse individuals and town employees				✓		✓	**13**
Communications/phone outages due to extreme wind or winter weather events	✓			✓	✓	✓		✓				✓	✓		**12**
Potential dam failure					✓			✓			✓	✓			**10**
Invasive species, crop disease, and pest infestations	✓		✓		✓	✓		✓							**9**
Gas transmission pipeline			✓	✓						✓		✓			**8**
Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents	✓				✓										**3**
Erosion of land surrounding bridges and roadways												✓	✓		**3**
new development in hazard-prone areas	✓														**2**
Spills along transportation routes												✓			**2**
Private drinking water wells			✓												**1**
Other															**0**
What do you think Tyringham's top priorities should be for building cimate resilience? Please select your top three.															
Locating suitable land outside of a flood zone to build a highway garage facility		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	**18**
Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards			✓	✓	✓			✓	✓	✓		✓	✓	✓	**17**
Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests	✓ and trustees			✓		✓		✓						✓	**10**
Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power	✓		✓		✓										**9**
Planning to address invasive species and their impacts on natural resources	✓		✓	✓	✓	✓									**8**
Investing opportunities for renewable energy		✓				✓					✓				**8**
Pursing data or studies showing the project impacts of future climate hazards in Tyringham, such as updated flood maps									✓		✓	✓	✓		**7**
Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas	✓				✓	✓		✓					✓	✓	**7**
Educating the public on hazard impacts and emergency preparedness	✓												✓		**5**
Updating bylaws and regulations to incorporate climate change considerations	✓														**4**

	Eileen Mahoney	Carey Melntosh	15	16	17	18	19	Lindsay Crampton	21	22	23	24	25	26	**Totals**
Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change													✓		**1**
Assessing watershed protection opportunities and developing regional partnerships to improve water quality															**1**
Other					Plant more trees										**1**
Conducting a town-wide water supply analysis															**0**
How would you like to receive information about climate change risks and resiliency projects in Tyringham?															
Information posted to the Town of Tyringham website	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	**25**
PDFs available online	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	**21**
Surveys									✓		✓				**4**
In-person events				✓			✓								**4**
Other															**2**
Additional comments or questions about planning for climate resiliency that you would like to share with the project team.															
If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please ennter your name and email.															
Optional Demographic Questions															
Please tell us about your connection to Tyringham															
I own a home (primary residence) in Tyringham		✓	✓		✓	✓		✓			✓	✓	✓	✓	**17**
I rent a home or apartment in Tyringham	✓								✓						**3**
I work in Tyringham										✓					**2**
I own a business in Tyringham												✓			**1**
I own a home (secondary residence) in Tyringham															**1**
Please select your age															
66-75	✓							✓	✓		✓		✓		**10**
56-65			✓		✓		✓							✓	**7**
36-55						✓				✓		✓			**3**
Over 75		✓													**3**
18-35															**1**
Under 18 years old															**0**
How would you desribe yourself?															
White		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	**22**
Black or African-American															**1**
Asian							✓								**1**
Other	Irish														**1**
American Indian or Alaskan Native															**0**
Native Hawaiian or other Pacific Islander															**0**
Multiple races															**0**
Are you of Hispanic, Latino, or of Spanish origin?															
No	✓		✓			✓		✓	✓	✓	✓	✓	✓	✓	**19**
Yes															**1**

SURVEY RESULTS

What climate hazard are you most concerned about impacting Tyring	
	Notes Summarized
Extreme temperatures	
Flooding	
Winter weather	
Severe wind events (tornado, hurricane)	
Drought	
Brushfires and wildfires	
Other	Invasive species Emerald Ashborer causing downed trees
How have these hazards impacted you or your community?	
Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.	Disturbed communications, emergency services Power outages and flooding on Meadow Street Wind damage - trees and limbs Power outages Winter weather can prevent priests from coming to celebrate our Daily Mass Ice storms and heavy snowfall. One summer drought we were concerned our well would go dry. Heat wave-high temperature, excessive rain.
What steps have you taken to prepare for extreme events?	
I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)	
I have backup power options (generator, solar panels, extra firewood)	
I receive news, updates, and information about emergency preparedness	
I have increased my food security with a garden or stockpiling nonperishable foods	
I know what the local evacuation routes are	
I know where the nearest local shelter is	
I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event	
A neighbor checks in on me and helps with food, snow removal, or other support during an extremem event	
I know what community resources and/or support are available to me	
Other	Passive solar home - no frozen pipes
What are some of Tyringham's greatest strengths?	
Experienced Highway Department	
Emergency facilities,including the Fire Station	
Communications infrastructure, including the Town's Emergency Notification System	
Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries	
Public facilities, including the library	
Agriculture, including local farms	Need more farms
Transporation Infrastructure, including roads and bridges	
Public support systems, including Council of Aging	
Local businesses	
Other	

	Notes Summarized
What are some of Tyringham's greatest vulnerabilities?	
Culverts, undersized drainage infrastrucutre, impervious surfaces, and stormwater runoff	
Power outages due to extreme wind or winter weather events	
Not having an appropriate sized Highway Garage facility located outside the flood zone	
Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns	
Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma	unvaccinated emergency repsonse individuals and town employees
Communications/phone outages due to extreme wind or winter weather events	
Potential dam failure	
Invasive species, crop disease, and pest infestations	
Gas transmission pipeline	
Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents	
Erosion of land surrounding bridges and roadways	
new development in hazard-prone areas	
Spills along transportation routes	
Private drinking water wells	
Other	
What do you think Tyringham's top priorities should be for building cimate resilience? Please select your top three.	
Locating suitable land outside of a flood zone to build a highway garage facility	
Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards	
Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests	and trustees
Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power	
Planning to address invasive species and their impacts on natural resources	
Investing opportunities for renewable energy	
Pursing data or studies showing the project impacts of future climate hazards in Tyringham, such as updated flood maps	
Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas	
Educating the public on hazard impacts and emergency preparedness	
Updating bylaws and regulations to incorporate climate change considerations	

	Notes Summarized
Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change	
Assessing watershed protection opportunities and developing regional partnerships to improve water quality	
Other	Plant more trees
Conducting a town-wide water supply analysis	
How would you like to receive information about climate change risks and resiliency projects in Tyringham?	
Information posted to the Town of Tyringham website	
PDFs available online	
Surveys	
In-person events	
Other	TEBB
Additional comments or questions about planning for climate resiliency that you would like to share with the project team.	
If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please ennter your name and email.	
Optional Demographic Questions	
Please tell us about your connection to Tyringham	
I own a home (primary residence) in Tyringham	
I rent a home or apartment in Tyringham	
I work in Tyringham	
I own a business in Tyringham	
I own a home (secondary residence) in Tyringham	but now here most of the time
Please select your age	
66-75	
56-65	
36-55	
Over 75	
18-35	
Under 18 years old	
How would you desribe yourself?	
White	
Black or African-American	have a black partner, James Browne
Asian	
Other	Irish
American Indian or Alaskan Native	
Native Hawaiian or other Pacific Islander	
Multiple races	
Are you of Hispanic, Latino, or of Spanish origin?	
No	
Yes	

1

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [x] Public facilities, including the library
- [x] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [x] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [x] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
- [ ] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [ ] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [ ] Power outages due to extreme wind or winter weather events
- [ ] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [x] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [x] Gas transmission pipeline
- [ ] Other: _____

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

Climate change has the potential to impact our economy, how we support our community's health and vulnerable residents, how we build our infrastructure, and how we protect our natural resources. Your voice represents a unique perspective from the Tyringham community, and by taking this survey you will help us prepare for a more resilient future. Please stay up to date on this planning process by checking the Town's website at https://www.tyringham-ma.gov/mvp-committee. Please return your survey by February 1st.

If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- — Flooding
- — Extreme temperatures
- — Winter weather
- — Drought
- — Brushfires and wildfires
- — Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☐ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☐ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
- ☐ I have backup power options (generator, solar panels, extra firewood)
- ☐ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

(1)

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [x] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [ ] Planning to address invasive species and their impacts on natural resources
- [ ] Educating the public on hazard impacts and emergency preparedness
- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [ ] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [ ] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [ ] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [ ] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

1

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address: _____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☐ I own a home (primary residence) in Tyringham
- ☑ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ✓ 56-65
- ○ 66-75
- ○ Over 75

How would you describe yourself?

- ✓ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ✓ No

2

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

3 Flooding
7 Extreme temperatures
1 Winter weather
2 Drought
5 Brushfires and wildfires
6 Severe wind events (tornado, hurricane)
— Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- [x] I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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- [ ] I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- [ ] A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- [ ] Other: _____

2

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [ ] Communications infrastructure, including the Town's Emergency Notification System
- [ ] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [ ] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [x] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [ ] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
- [ ] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [ ] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [ ] Power outages due to extreme wind or winter weather events
- [ ] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [x] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [x] Gas transmission pipeline
- [ ] Other: _____

2

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
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- [ ] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
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- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [x] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [x] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [ ] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
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- [ ] Conducting a town-wide water supply analysis
- [x] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

2

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address: _____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☐ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ○ 66-75
- ○ Over 75

How would you describe yourself?

- ○ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address:_____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- [x] I rent a home or apartment in Tyringham Monastery
- [ ] I own a home (primary residence) in Tyringham
- [ ] I work in Tyringham
- [ ] I own a business in Tyringham
- [ ] I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ○ 66-75
- ✓ Over 75

How would you describe yourself?

- ✓ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ✓ Yes
- ○ No

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
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- [x] Information posted to the Town of Tyringham website
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- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

What are some of Tyringham's greatest strengths? Check all that apply.

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- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
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- [ ] Power outages due to extreme wind or winter weather events
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3

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If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- — Flooding
- ✓ Extreme temperatures
- — Winter weather
- ✓ Drought
- — Brushfires and wildfires
- ✓ Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

Disrubled communications, emergency services

What steps have you taken to prepare for extreme events? Check all that apply.

- ☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☐ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
- ☑ I have backup power options (generator, solar panels, extra firewood)
- ☑ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

4

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— Flooding
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— Winter weather
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— Brushfires and wildfires
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How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

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☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
☐ Other: _____

4

What are some of Tyringham's greatest strengths? Check all that apply.

- ☐ Experienced Highway Department
- ☐ Emergency facilities, including the Fire Station
- ☐ Communications infrastructure, including the Town's Emergency Notification System
- ☐ Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- ☐ Public facilities, including the library
- ☐ Public support systems, including Council on Aging
- ☐ Transportation infrastructure, including roads and bridges
- ☐ Agriculture, including local farms
- ☐ Local businesses
- ☐ Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- ☐ Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- ☐ Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- ☐ Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- ☐ Potential dam failure
- ☐ Erosion of land surrounding bridges and roadways
- ☐ Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- ☐ Invasive species, crop disease, and pest infestations
- ☐ New development in hazard-prone areas
- ☐ Private drinking water wells
- ☐ Power outages due to extreme wind or winter weather events
- ☐ Communications/Phone outages due to extreme wind or winter weather events
- ☐ Spills along transportation routes
- ☐ Not having an appropriate sized Highway Garage facility located outside the flood zone
- ☐ Gas transmission pipeline
- ☐ Other: _____

4

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
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- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [x] Surveys
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- [x] Information posted to the Town of Tyringham website
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- [ ] Other:_____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

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Name: _____ Email address: _____

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- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
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Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

5

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Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- X Flooding
- — Extreme temperatures
- X Winter weather
- — Drought
- — Brushfires and wildfires
- — Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

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5

What are some of Tyringham's greatest strengths? Check all that apply.

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- [ ] Agriculture, including local farms
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- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
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- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

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- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
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Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

5

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address: _____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☒ I own a home (primary residence) in Tyringham
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Please select your age range:

- ○ Under 18 years old
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- ○ 36-55
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How would you describe yourself?

- ☒ White
- ○ Black or African-American
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- ○ Asian
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- ○ Multiple races
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Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ☒ No

6

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Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- 6 Flooding
- 0 Extreme temperatures
- 0 Winter weather
- 0 Drought
- 0 Brushfires and wildfires
- 0 Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☐ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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- ☐ I know what community resources and/or support are available to me
- ☐ I have backup power options (generator, solar panels, extra firewood)
- ☐ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

6

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [ ] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [ ] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [x] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [x] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
- [ ] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [ ] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [ ] Power outages due to extreme wind or winter weather events
- [ ] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [x] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [x] Gas transmission pipeline
- [ ] Other: _____

6

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [ ] Planning to address invasive species and their impacts on natural resources
- [ ] Educating the public on hazard impacts and emergency preparedness
- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [ ] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [ ] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [ ] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [x] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [ ] Other:_____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

6

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address:_____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☒ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ● 66-75
- ○ Over 75

How would you describe yourself?

- ● White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ● No

7

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

1 Flooding
5 Extreme temperatures
5 Winter weather
7 Drought
4 Brushfires and wildfires
3 Severe wind events (tornado, hurricane)
— Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- [x] I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- [x] I receive news, updates, and information about emergency preparedness in Tyringham
- [x] I know where the nearest local shelter is
- [x] I know what the local evacuation routes are
- [ ] I know what community resources and/or support are available to me
- [x] I have backup power options (generator, solar panels, extra firewood)
- [x] I have increased my food security with a garden or stockpiling nonperishable foods
- [x] I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- [ ] A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- [ ] Other: _____

7

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
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- [x] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [x] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
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- [x] Potential dam failure
- [x] Erosion of land surrounding bridges and roadways
- [x] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [x] Invasive species, crop disease, and pest infestations
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- [ ] Private drinking water wells
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- [ ] Spills along transportation routes
- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

7

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [ ] Locating suitable land outside of a flood zone to build a highway garage facility
- [x] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [ ] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
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- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
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- [x] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
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- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [ ] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [ ] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [ ] Other:_____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

7

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: Stephen Baluk Email address: Balsteph5@AOL.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☒ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ● 66-75
- ○ Over 75

How would you describe yourself?

- ● White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ● No

8

Name: CAROL HARDY-FANTA Email address: HARDYFANTA@GMAIL.COM

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☒ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ☐ Under 18 years old
- ☐ 18-35
- ☐ 36-55
- ☐ 56-65
- ☒ 66-75
- ☐ Over 75

How would you describe yourself?

- ☒ White
- ☐ Black or African-American
- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Native Hawaiian or other Pacific Islander
- ☐ Multiple races
- ☐

Are you of Hispanic, Latino, or of Spanish origin?

- ☐ Yes
- ☒ No

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8

8

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [ ] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [ ] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
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- [ ] Conducting a town-wide water supply analysis
- [ ] Investigating opportunities for renewable energy
- [ ] Other:

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [x] Other: TEBB

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

PLANNING BOARD CAN HELP

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

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supplies)

- [ ] I receive news, updates, and information about emergency preparedness in Tyringham
- [ ] I know where the nearest local shelter is
- [ ] I know what the local evacuation routes are
- [ ] I know what community resources and/or support are available to me
- [x] I have backup power options (generator, solar panels, extra firewood)
- [x] I have increased my food security with a garden or stockpiling nonperishable foods
- [ ] I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- [x] A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- [ ] Other:

What are some of Tyringham's greatest strengths? Check all that apply.

- [ ] Experienced Highway Department
- [ ] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [x] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other:

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
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- [ ] Potential dam failure
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- [ ] Private drinking water wells
- [x] Power outages due to extreme wind or winter weather events
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- [ ] Spills along transportation routes
- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other:

8

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

___

3 Flooding

6 Extreme temperatures

4 Winter weather

5 Drought

1 Brushfires and wildfires

2 Severe wind events (tornado, hurricane)

___ Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

POWER OUTAGES & FLOODING ON MEADOW STREET

What steps have you taken to prepare for extreme events? Check all that apply.

☒ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other

9

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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— Flooding
— Extreme temperatures
— Winter weather
— Drought
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— Severe wind events (tornado, hurricane)
— Others ___7 7___

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

___ ? ?___

___

What steps have you taken to prepare for extreme events? Check all that apply.

- [x] I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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- [ ] I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- [ ] A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- [ ] Other: ___

9

What are some of Tyringham's greatest strengths? Check all that apply.

- ☐ Experienced Highway Department
- ☐ Emergency facilities, including the Fire Station
- ☐ Communications infrastructure, including the Town's Emergency Notification System
- ☐ Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
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- ☐ Public support systems, including Council on Aging
- ☐ Transportation infrastructure, including roads and bridges
- ☐ Agriculture, including local farms
- ☐ Local businesses
- ☐ Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- ☐ Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- ☐ Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- ☐ Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- ☐ Potential dam failure
- ☐ Erosion of land surrounding bridges and roadways
- ☐ Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- ☐ Invasive species, crop disease, and pest infestations
- ☐ New development in hazard-prone areas
- ☐ Private drinking water wells
- ☐ Power outages due to extreme wind or winter weather events
- ☐ Communications/Phone outages due to extreme wind or winter weather events
- ☐ Spills along transportation routes
- ☐ Not having an appropriate sized Highway Garage facility located outside the flood zone
- ☐ Gas transmission pipeline
- ☐ Other: _____

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- ☐ Locating suitable land outside of a flood zone to build a highway garage facility
- ☐ Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
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- ☐ Planning to address invasive species and their impacts on natural resources
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Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

9

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: Emily Wasserman Email address: emilywas@gmail.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☐ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☒ I own a home (secondary residence) in Tyringham But I'm now here most of the time

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ● 56-65
- ○ 66-75
- ○ Over 75

How would you describe yourself?

- ● White
- ● Black or African-American I have a black partner, James Browne
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ● No

10

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_____

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☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
☐ Other: _____

10

What are some of Tyringham's greatest strengths? Check all that apply.

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- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

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What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

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- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
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- [x] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [x] Updating bylaws and regulations to incorporate climate change considerations
- [x] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
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- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [ ] PDFs available online
- [x] Information posted to the Town of Tyringham website
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- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: Catherine Mardula Email address: catherine.mardula@gmail.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- [ ] I rent a home or apartment in Tyringham
- [x] I own a home (primary residence) in Tyringham
- [ ] I work in Tyringham
- [ ] I own a business in Tyringham
- [ ] I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ☒ 18-35
- ○ 36-55
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How would you describe yourself?

- ☒ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ☒ No

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Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- — Flooding
- X Extreme temperatures
- — Winter weather
- — Drought
- — Brushfires and wildfires
- X Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

Wind Damage - trees + limbs

What steps have you taken to prepare for extreme events? Check all that apply.

- ☐ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☑ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☑ I know what community resources and/or support are available to me
- ☑ I have backup power options (generator, solar panels, extra firewood)
- ☑ I have increased my food security with a garden or stockpiling nonperishable foods
- ☑ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

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What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [x] Public facilities, including the library
- [x] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [ ] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
- [x] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [x] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [x] Power outages due to extreme wind or winter weather events
- [x] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

11

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [x] Planning to address invasive species and their impacts on natural resources
- [ ] Educating the public on hazard impacts and emergency preparedness
- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [ ] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [x] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [ ] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [x] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [x] Other: TEBB

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address:_____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☑ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ○ 66-75
- ✓ Over 75

How would you describe yourself?

- ✓ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ✓ No

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2 Flooding
3 Extreme temperatures
7 Winter weather
4 Drought
5 Brushfires and wildfires
1 Severe wind events (tornado, hurricane)
6 Others invasive species

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☐ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☑ I receive news, updates, and information about emergency preparedness in Tyringham
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- ☐ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: Passive Solar home - No frozen pipes

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What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [ ] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
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- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
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- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
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- [ ] Other: _____

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What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [ ] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [x] Planning to address invasive species and their impacts on natural resources
- [x] Educating the public on hazard impacts and emergency preparedness
- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
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- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [x] Investigating opportunities for renewable energy
- [ ] Other: _____

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- [ ] Surveys
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- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

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If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: Steve Cowell Email address: steve@stevecowell2.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☑ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ✓ 66-75
- ○ Over 75

How would you describe yourself?

- ✓ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

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Survey Questions

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- — Flooding
- ✓ Extreme temperatures
- ✓ Winter weather
- — Drought
- — Brushfires and wildfires
- ✓ Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

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What are some of Tyringham's greatest strengths? Check all that apply.

- ☐ Experienced Highway Department
- ☑ Emergency facilities, including the Fire Station
- ☐ Communications infrastructure, including the Town's Emergency Notification System
- ☑ Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- ☑ Public facilities, including the library
- ☐ Public support systems, including Council on Aging
- ☑ Transportation infrastructure, including roads and bridges
- ☐ Agriculture, including local farms — need more farms
- ☐ Local businesses
- ☐ Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- ☐ Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- ☑ Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- ☑ Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- ☐ Potential dam failure
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- ☐ Spills along transportation routes
- ☐ Not having an appropriate sized Highway Garage facility located outside the flood zone
- ☐ Gas transmission pipeline
- ☐ Other: _____

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- ☐ Locating suitable land outside of a flood zone to build a highway garage facility
- ☐ Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
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- ☑ Updating bylaws and regulations to incorporate climate change considerations
- ☑ Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- ☑ Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests + Trustees
- ☐ Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- ☐ Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- ☐ Conducting a town-wide water supply analysis
- ☐ Investigating opportunities for renewable energy
- ☐ Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- ☐ Surveys
- ☑ PDFs available online
- ☑ Information posted to the Town of Tyringham website
- ☐ In-person events
- ☐ Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: Eileen Mahoney Email address: eileen.mahoney8@gmail.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

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- [ ] I own a home (primary residence) in Tyringham
- [ ] I work in Tyringham
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Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ✓ 66-75
- ○ Over 75

How would you describe yourself?

- ○ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○ Irish

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ✓ No

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- 1 Flooding
- 1 Extreme temperatures
- — Winter weather
- 2 Drought
- — Brushfires and wildfires
- — Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

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- ☒ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

14

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
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- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [x] Public facilities, including the library
- [x] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
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What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
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Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: Carey McIntosh Email address: remci44@gmail.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

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Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
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— Others _____

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_____

_____

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What are some of Tyringham's greatest strengths? Check all that apply.

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- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
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What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

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- [ ] In-person events
- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

15

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address:_____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☑ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ○ 66-75
- ○ Over 75

How would you describe yourself?

- ○ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

16

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

Climate change has the potential to impact our economy, how we support our community's health and vulnerable residents, how we build our infrastructure, and how we protect our natural resources. Your voice represents a unique perspective from the Tyringham community, and by taking this survey you will help us prepare for a more resilient future. Please stay up to date on this planning process by checking the Town's website at https://www.tyringham-ma.gov/mvp-committee. Please return your survey by February 1st.

If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- 6 Flooding
- 4 Extreme temperatures
- 5 Winter weather
- 3 Drought
- 2 Brushfires and wildfires
- 1 Severe wind events (tornado, hurricane)
- 7 Others N/A

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

power outages

What steps have you taken to prepare for extreme events? Check all that apply.

- [x] I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- [ ] I receive news, updates, and information about emergency preparedness in Tyringham
- [ ] I know where the nearest local shelter is
- [ ] I know what the local evacuation routes are
- [x] I know what community resources and/or support are available to me
- [ ] I have backup power options (generator, solar panels, extra firewood)
- [ ] I have increased my food security with a garden or stockpiling nonperishable foods
- [ ] I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- [ ] A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- [ ] Other: _____

16

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [x] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [ ] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
- [x] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [ ] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [x] Power outages due to extreme wind or winter weather events
- [x] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [x] Gas transmission pipeline
- [ ] Other: _____

16

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [ ] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [x] Planning to address invasive species and their impacts on natural resources
- [ ] Educating the public on hazard impacts and emergency preparedness
- [ ] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [ ] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [x] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [ ] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [ ] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [x] In-person events
- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

N/A

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address: _____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

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- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

17

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- 3 Flooding
- 1 Extreme temperatures
- 2 Winter weather
- 6 Drought
- 5 Brushfires and wildfires
- 4 Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☑ I receive news, updates, and information about emergency preparedness in Tyringham
- ☑ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
- ☑ I have backup power options (generator, solar panels, extra firewood)
- ☑ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

17

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
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- [ ] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [ ] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [x] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [x] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [x] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
- [ ] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [x] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [x] Power outages due to extreme wind or winter weather events
- [x] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [x] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

17

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility What!?
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [x] Planning to address invasive species and their impacts on natural resources
- [ ] Educating the public on hazard impacts and emergency preparedness
- [x] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [x] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [ ] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [ ] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [ ] Investigating opportunities for renewable energy
- [ ] Other: Plant more trees

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [ ] PDFs available online
- [ ] Information posted to the Town of Tyringham website
- [ ] In-person events
- [ ] Other:_____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

18

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address: _____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
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How would you describe yourself?

- ● White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

18

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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- 3 Flooding
- 2 Extreme temperatures
- 1 Winter weather
- 4 Drought
- 6 Brushfires and wildfires
- 5 Severe wind events (tornado, hurricane)
- 7 Others X

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

winter weather can prevent priests from coming to celebrate our Daily Mass.

What steps have you taken to prepare for extreme events? Check all that apply.

- ☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☐ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
- ☑ I have backup power options (generator, solar panels, extra firewood)
- ☐ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

1D

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
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- [ ] Spills along transportation routes
- [x] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

18

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [ ] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
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- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [x] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
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Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

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- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ● No

19

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— Flooding
✓ Extreme temperatures
— Winter weather
— Drought
— Brushfires and wildfires
— Severe wind events (tornado, hurricane)
— Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
☐ Other: _____

19

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [ ] Communications infrastructure, including the Town's Emergency Notification System
- [ ] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [ ] Public facilities, including the library
- [x] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [x] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [ ] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
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- [ ] Spills along transportation routes
- [x] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

19

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [ ] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
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_____

_____

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- ○ American Indian or Alaskan Native
- ● Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ○ No

2D

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What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

5 Flooding
6 Extreme temperatures
1 Winter weather
2 Drought
4 Brushfires and wildfires
3 Severe wind events (tornado, hurricane)
7 Others Emerald Ash borer causing downed Trees

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

Ice storms + heavy snowfall

one summer drought we were concerned our well would go dry.

What steps have you taken to prepare for extreme events? Check all that apply.

- ☐ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☑ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☐ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
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- ☑ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☑ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

20

What are some of Tyringham's greatest strengths? Check all that apply.

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- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [ ] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
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- [ ] Other: _____

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- [ ] Erosion of land surrounding bridges and roadways
- [ ] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma + unvaccinated emergency response individuals + Town employees
- [x] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [x] Power outages due to extreme wind or winter weather events
- [x] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

7

20

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- ☐ Locating suitable land outside of a flood zone to build a highway garage facility
- ☐ Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- ☑ Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- ☐ Planning to address invasive species and their impacts on natural resources
- ☐ Educating the public on hazard impacts and emergency preparedness
- ☑ Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- ☐ Updating bylaws and regulations to incorporate climate change considerations
- ☐ Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- ☑ Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- ☐ Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- ☐ Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- ☐ Conducting a town-wide water supply analysis
- ☐ Investigating opportunities for renewable energy
- ☐ Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- ☐ Surveys
- ☑ PDFs available online
- ☑ Information posted to the Town of Tyringham website
- ☐ In-person events
- ☐ Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

2D

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: LINDSAY CRAMPTON Email address: CRAMPTON.LG@Gmail.com

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☑ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
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Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ☑ 66-75
- ○ Over 75

How would you describe yourself?

- ☑ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ☑ No

20

21

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

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If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- 1 Flooding
- 4 Extreme temperatures
- — Winter weather
- — Drought
- — Brushfires and wildfires
- — Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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- ☑ I know where the nearest local shelter is
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- ☑ I have backup power options (generator, solar panels, extra firewood)
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- ☐ Other: _____

'2'

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [ ] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [ ] Public facilities, including the library
- [ ] Public support systems, including Council on Aging
- [ ] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [x] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [ ] Potential dam failure
- [ ] Erosion of land surrounding bridges and roadways
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- [ ] Gas transmission pipeline
- [ ] Other: _____

21

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [x] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
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Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

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Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ✓ No

22

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Survey Questions

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- 4 Flooding
- — Extreme temperatures
- — Winter weather
- — Drought
- 4 Brushfires and wildfires
- — Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

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What steps have you taken to prepare for extreme events? Check all that apply.

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- ☐ Other: _____

22

What are some of Tyringham's greatest strengths? Check all that apply.

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- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

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22

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- [ ] Conducting a town-wide water supply analysis
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How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
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Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

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- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ✓ No

23

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Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- X Flooding
- X Extreme temperatures
- X Winter weather
- X Drought
- X Brushfires and wildfires
- X Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

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What steps have you taken to prepare for extreme events? Check all that apply.

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23

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
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- [x] Local businesses
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23

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [x] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
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Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ☒ No

24

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24

What are some of Tyringham's greatest strengths? Check all that apply.

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- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ☒ No

24

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

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- 6 Extreme temperatures
- 4 Winter weather
- 5 Drought
- 3 Brushfires and wildfires
- 2 Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

Heat wave - high temperatures, Excessive rain

What steps have you taken to prepare for extreme events? Check all that apply.

- ☒ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
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- [ ] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [ ] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [ ] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
- [ ] Impacts from beavers, including flooding, damage to electrical or gas generation equipment, and water quality concerns
- [ ] Vulnerable populations, including identifying shelter capacity, meeting medical needs, and reaching at-risk residents
- [ ] Potential dam failure
- [x] Erosion of land surrounding bridges and roadways
- [ ] Increased public health hazards posed by climate change, including ticks, mosquitos, and asthma
- [ ] Invasive species, crop disease, and pest infestations
- [ ] New development in hazard-prone areas
- [ ] Private drinking water wells
- [x] Power outages due to extreme wind or winter weather events
- [x] Communications/Phone outages due to extreme wind or winter weather events
- [ ] Spills along transportation routes
- [ ] Not having an appropriate sized Highway Garage facility located outside the flood zone
- [ ] Gas transmission pipeline
- [ ] Other: _____

25

What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
- [x] Pursuing data or studies showing the projected impacts of future climate hazards in Tyringham, such as updated flood maps
- [x] Assessing and redesigning critical infrastructure including roads, bridges, and culverts to improve stormwater management and prepare for future hazards
- [ ] Planning to address invasive species and their impacts on natural resources
- [x] Educating the public on hazard impacts and emergency preparedness
- [x] Developing plans and actions to protect habitat corridors and reduce development in hazard-prone areas
- [ ] Updating bylaws and regulations to incorporate climate change considerations
- [ ] Identifying needs for public facilities and services to better support vulnerable residents during an extreme event, such as emergency shelters and backup power
- [ ] Developing a tree and forest management plan in partnership with utility companies to manage potentially hazardous areas and preserve forests
- [x] Strategic planning to identify how regional agriculture can be resilient to natural hazards and climate change
- [ ] Assessing watershed protection opportunities and developing regional partnerships to improve water quality
- [ ] Conducting a town-wide water supply analysis
- [ ] Investigating opportunities for renewable energy
- [ ] Other: _____

How would you like to receive information about climate change risks and resiliency projects in Tyringham? Check all that apply.

- [ ] Surveys
- [x] PDFs available online
- [x] Information posted to the Town of Tyringham website
- [ ] In-person events
- [ ] Other: _____

Additional comments or questions about planning for climate resiliency that you would like to share with the project team:

_____

_____

25

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

Name: _____ Email address: _____

Optional Demographic Questions

Please tell us about your connection to Tyringham by selecting all that apply:

- ☐ I rent a home or apartment in Tyringham
- ☑ I own a home (primary residence) in Tyringham
- ☐ I work in Tyringham
- ☐ I own a business in Tyringham
- ☐ I own a home (secondary residence) in Tyringham

Please select your age range:

- ○ Under 18 years old
- ○ 18-35
- ○ 36-55
- ○ 56-65
- ● 66-75
- ○ Over 75

How would you describe yourself?

- ● White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ● No

26

Tyringham Municipal Vulnerability Preparedness (MVP) Survey

Climate change has the potential to impact our economy, how we support our community's health and vulnerable residents, how we build our infrastructure, and how we protect our natural resources. Your voice represents a unique perspective from the Tyringham community, and by taking this survey you will help us prepare for a more resilient future. Please stay up to date on this planning process by checking the Town's website at https://www.tyringham-ma.gov/mvp-committee. Please return your survey by February 1st.

If you have additional input, questions, or barriers to participating, please contact Laura Lee Bertram (Town of Tyringham) at 413-243-1749 x102 or email to: tyrcc@bcn.net.

Survey Questions

What climate hazard are you most concerned about impacting Tyringham? Please rank the following options from most concerning (number 1) to least concerning (number 7)

- ✓ Flooding
- — Extreme temperatures
- ✓ Winter weather
- — Drought
- — Brushfires and wildfires
- ✓ Severe wind events (tornado, hurricane)
- — Others _____

How have these hazards impacted you or your community? Memories of climate hazards could include flooding of local roads, heat waves, heavy snowfall or ice storms, high winds, drought conditions, business and school disruptions, and more.

_____

_____

What steps have you taken to prepare for extreme events? Check all that apply.

- ☑ I have a kit in case of emergencies (which may include food, water, flashlights, batteries, and other supplies)
- ☐ I receive news, updates, and information about emergency preparedness in Tyringham
- ☐ I know where the nearest local shelter is
- ☑ I know what the local evacuation routes are
- ☐ I know what community resources and/or support are available to me
- ☑ I have backup power options (generator, solar panels, extra firewood)
- ☑ I have increased my food security with a garden or stockpiling nonperishable foods
- ☐ I check on a vulnerable neighbor and help them with food, snow removal, or other support during an extreme event
- ☐ A neighbor checks in on me and helps with food, snow removal, or other support during an extreme event
- ☐ Other: _____

2.6

What are some of Tyringham's greatest strengths? Check all that apply.

- [x] Experienced Highway Department
- [x] Emergency facilities, including the Fire Station
- [x] Communications infrastructure, including the Town's Emergency Notification System
- [x] Natural features, including open space, trails, trees, ponds, wetlands, streams, and fisheries
- [x] Public facilities, including the library
- [x] Public support systems, including Council on Aging
- [x] Transportation infrastructure, including roads and bridges
- [x] Agriculture, including local farms
- [ ] Local businesses
- [ ] Other: _____

What are some of Tyringham's greatest vulnerabilities? Check all that apply.

- [x] Culverts, undersized drainage infrastructure, impervious surfaces, and stormwater runoff
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What do you think Tyringham's top priorities should be for building climate resilience? Please select your top three actions.

- [x] Locating suitable land outside of a flood zone to build a highway garage facility
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_____

If you are interested in receiving additional updates related to climate or planning initiatives in Tyringham, please enter your name and email below.

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- ☑ White
- ○ Black or African-American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or other Pacific Islander
- ○ Multiple races
- ○

Are you of Hispanic, Latino, or of Spanish origin?

- ○ Yes
- ☑ No

Appendix D

Listening Session Presentation, Comments, Attendance

Known for Excellence. Built on Trust.

MVP Public Listening Session

Town of Tyringham, Massachusetts

February 9, 2022

Photo credit: Town of Tyringham (https://www.tyringham-ma.gov/)

Rosalie Starvish, P.E., CFM, CPMSM
Seth Taylor, CEP, CESSWI, CIPM
GZA GeoEnvironmental, Inc.

Public Listening Session Agenda

- MVP Program Overview
- Summary of Findings Report
  - Core Team
  - Project Timeline
  - Stakeholders
  - Hazards
  - Strengths and Vulnerabilities
  - Priority Actions
- Next Steps
- Public Comments and Questions

MVP Program Overview

MVP Principles

A community-led, accessible process that

- Employs local knowledge and buy-in
- Utilizes partnerships and leverages existing efforts
- Is based on best available climate projections and data
- Incorporates principles of nature-based solutions
- Demonstrates pilot potential and is proactive
- Reaches and responds to risks faced by Environmental Justice (EJ) communities and vulnerable populations

Why nature-based?

Where appropriate, nature-based solutions can be more cost-effective, protect water quality and quantity, sustain lands that provide food and recreation opportunities, reduce erosion, and minimize temperature increases associated with developed areas and climate change.

MVP Process/ Grant Types

COMMUNITY RESILIENCE BUILDING WORKSHOP(S)

- Define and characterize hazards using latest science and data
- Identify existing and future community vulnerabilities and strengths
- Develop and prioritize community adaptation actions
- Determine overall priority actions
- Receive MVP designation

MVP Planning Grant

MVP Action Grant

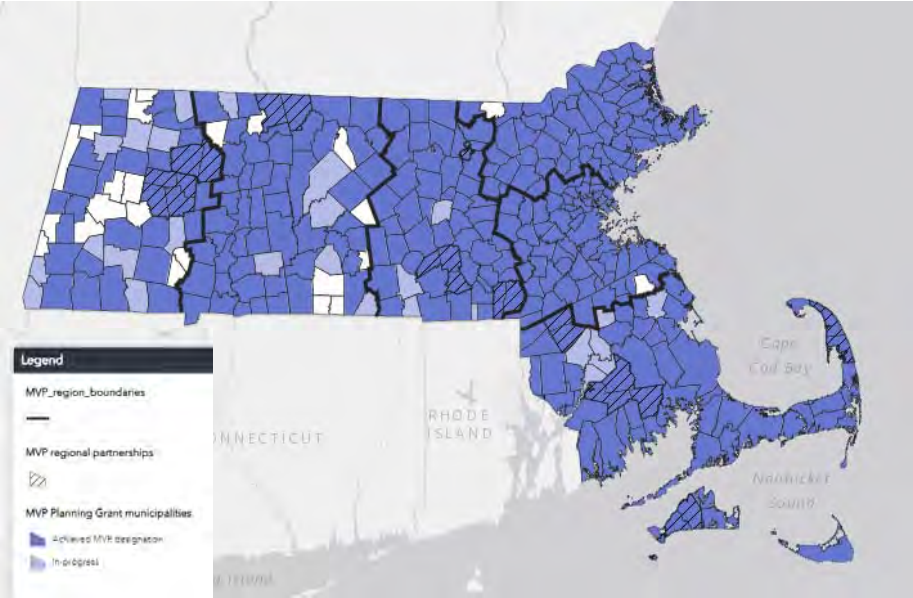
Implement priority adaptation actions identified through planning process

MVP Program Status

MVP Designations
89% of the Commonwealth
312 communities

Action Grant Projects
FY 18: 37
FY 19: 36
FY 20: 53
FY 21: 41

Total Awards
$44M in planning and action grants to date

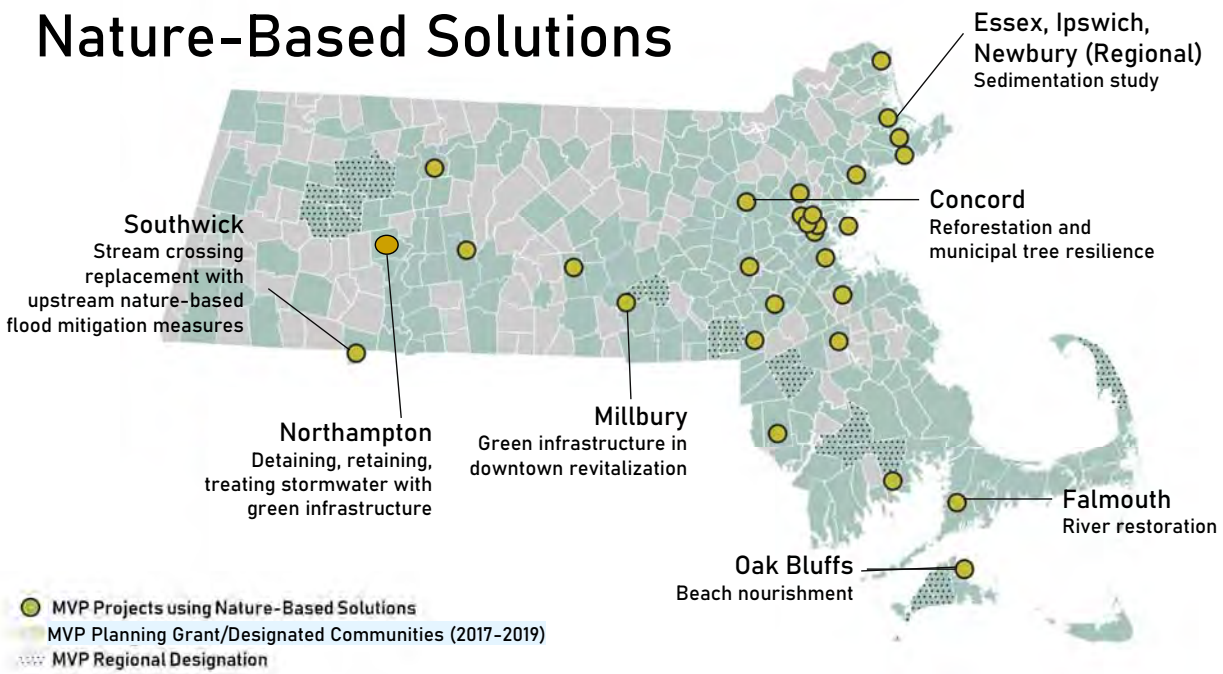


MVP Action Grants: Project Types

MVP Action Grants: Core Principles

- Furthering a community identified priority action to address climate change impacts.
- Utilizing climate change data for a proactive solution.
- Employing nature-based solutions.
- Increasing equitable outcomes for and supporting strong partnerships with Environmental Justice (EJ) Populations and Climate Vulnerable Populations.
- Conducting robust community engagement.
- Achieving broad and multiple community benefits.
- Committing to monitoring project success and maintaining the project into the future.
- Utilizing regional solutions for regional benefit.
- Pursuing innovative, transferable approaches.

Nature-Based Solutions



MVP Action Grants: Project Types

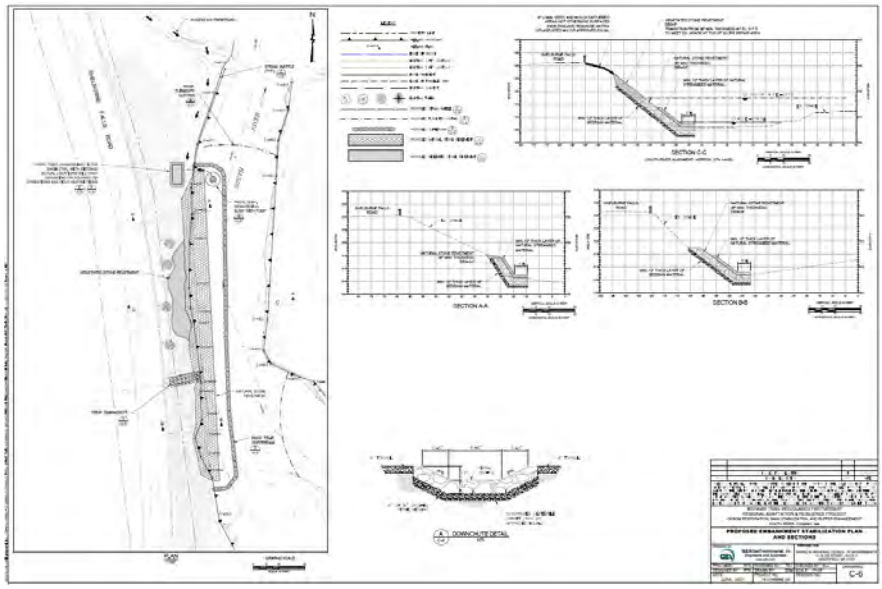
1. Planning, Assessments, Capacity-Building, and Regulatory Updates
2. Design and Permitting
3. Construction and On-the-Ground Implementation

Planning, Assessments, Capacity-Building, and Regulatory Updates

- Identification, assessment, and prioritization of vulnerabilities
- Feasibility studies
- Incorporate climate change adaptation in town plans and regulations
- Capacity-building for social resiliency
  - Education/training
  - Partnerships/collaboration
  - Communications

Design and Permitting

- Design Plans and Permit Applications



Construction and Implementation

- Site preparation, construction, monitoring
- Energy Resilience Projects
- Relocation out of flood prone areas
- Land acquisition
- Tree planting
- Pilot projects

Summary of Findings Report

Tyringham MVP Core Team

Core Team Members:

- Molly Curtin-Schaefer, Town Administrator & Assistant Emergency Manager
- Larry Gould, Building Inspector & Floodplain Administrator
- Noah Choquette, Highway Superintendent
- Charles Slater Jr., Fire Chief & Forest Fire Warden
- Laura Lee Bertram, MVP Team Leader
- Patrick J. Holian, Police Chief
- James Curtin, Emergency Management Director
- Nicholas Felix, Business Owner, Cobble Mountain Farm

Project Timeline

- Town receives MVP Planning Grant – July 2021
- Town establishes Core Team – August 2021
- Project Kick-off Meeting – September 2021
- Stakeholder Outreach – September – November 2021
- Community Resilience Building Workshop – December 1 & 15, 2021
- Public Listening Session – February 9, 2022
- Final Summary of Findings Report – April 2022

CRB Workshop Overview

Objectives:

1. **Define top hazards**. Understand connections between ongoing issues, hazards, and local planning and actions in your Community.
2. **Identify and map vulnerabilities and strengths** to develop infrastructure, societal and environmental risk profiles for your Community.
3. **Develop and prioritize actions** that reduce vulnerabilities and reinforce strengths for your community - local organizations, academic institutions, businesses, private citizens, neighborhoods, and community groups.
4. **Identify opportunities** to advance actions that further reduce the impact of hazards and increase resilience in your Community.

Tyringham Natural Hazards Rankings

Top Hazards – 2021 Hazard Mitigation Plan Update Approved June 24, 2021

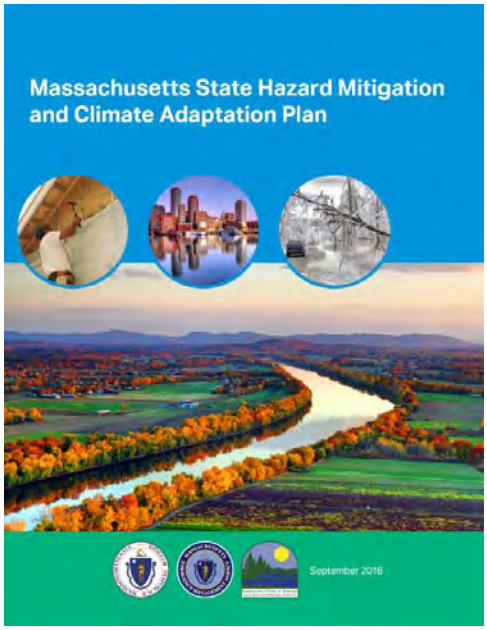
- Flooding - High Frequency & Serious Severity
- Hurricanes/Tropical Storms – Medium Frequency & Catastrophic Severity
- Severe Winter Weather – High Frequency & Minor Severity
- Severe Thunderstorms & Tornadoes – High Frequency & Serious Severity
- Poor Drainage & Beaver Dams – High Frequency & Serious Severity
- Extreme Temperatures – Medium-High Frequency & Minor Severity
- Drought – Medium Frequency & Minor to Serious Severity

Severe Weather Hazards:	Hazard Index
Severe Wind:	
Hurricanes/Tropical Storms	**7**
Thunderstorms	6
Tornadoes	6
Lightning	5
Intense Rainfall	5
Hail	5
Flood:	
Riverine Flooding	**7**
Poor Drainage Flooding	6
Beaver Dams	6
Severe Winter Weather:	
Snow and Blizzards	**7**
Ice Storms	7
Climate-Related Hazards:	
Extreme Temperature:	
Heat	5
Cold	6
Drought	5
Wildfire	2
Geologic Hazards:	
Earthquake	5
Landslides	1
Tsunami	0
Secondary Hazard:	
Dam Failure	**5**

Massachusetts 2018 Hazards Rankings

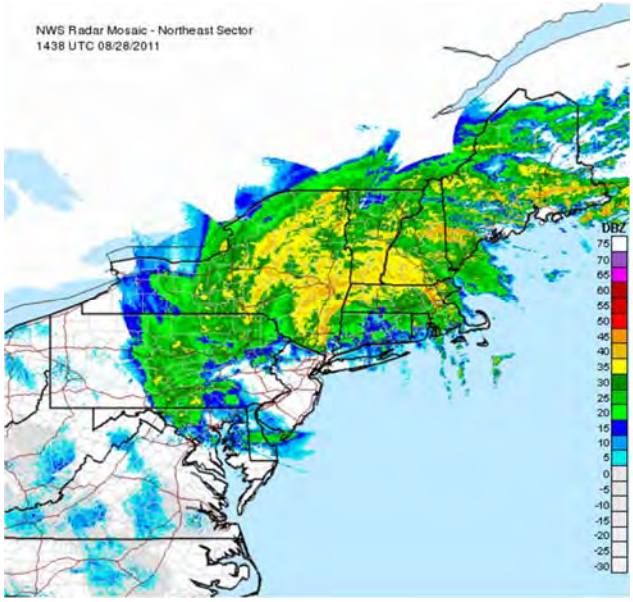
Top 5 Hazards 2018 State Hazard Mitigation and Climate Adaptation Plan

- Extreme Precipitation
- Hurricanes/Tropical Storms
- Nor'easters
- Ice Storms
- Severe Winter Storm



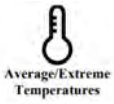
Climate Change

- Hot Temperatures +
- Precipitation Intensity +
- Heavy Precipitation Frequency +
- Snowfall -

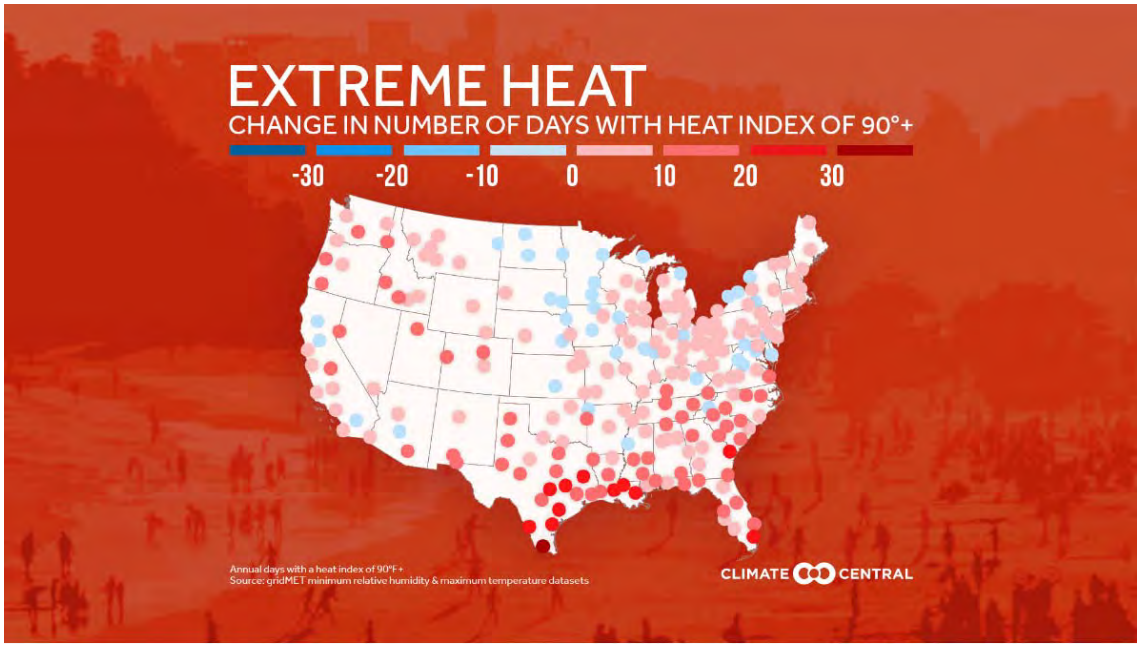


Irene; By NWS - http://weatherinnyc.blogspot.hk/2011/08/aug-27-hurricane-irene-updates.html, Public Domain, https://commons.wikimedia.org/w/index.php?curid=68686636

Heat

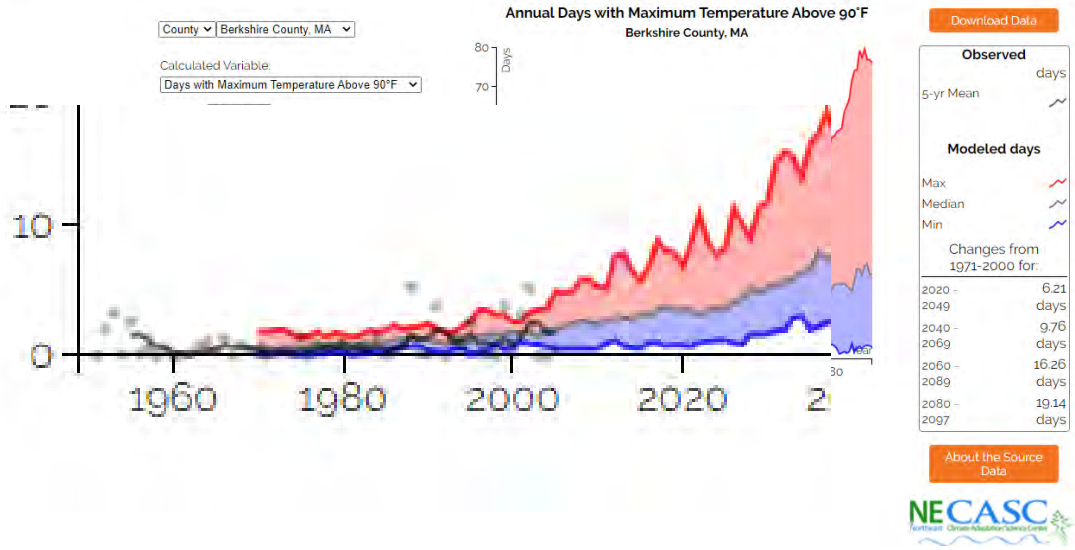


Increased Temperatures/Extreme Heat



Increased Temperatures/Extreme Heat

Resilient MA
Climate Change Clearinghouse for the Commonwealth



Winter Hazards

Snowfall

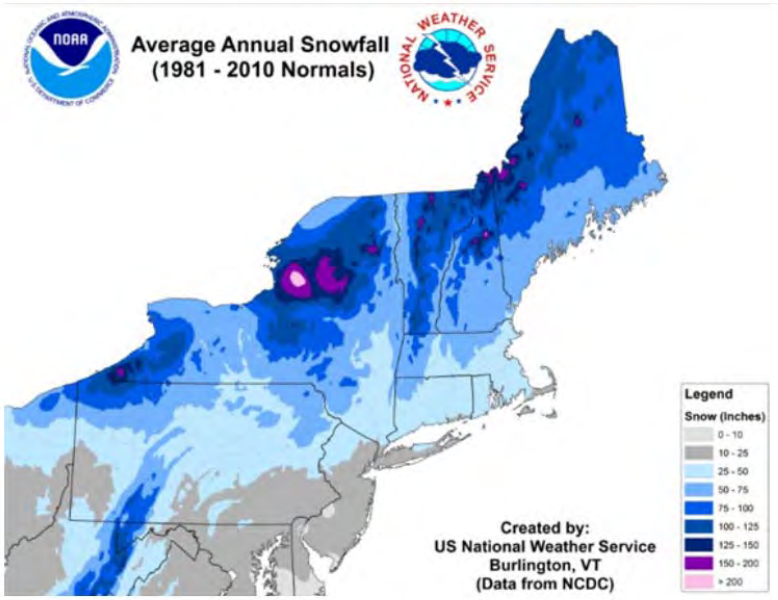


Figure 2-13: Average Annual Snowfall (http://www.weather.gov/btv/winter)

Wind

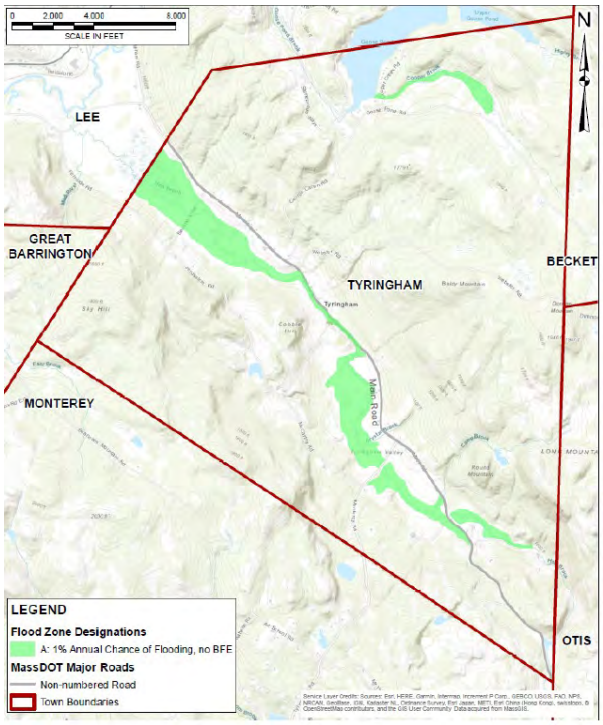
Wind Speed

Sustained Wind Speed	Annual Recurrence Interval (years)	Physical Effects
6-38 kts (30-44 mph)	<1	Trees in motion. Light-weight loose objects (e.g., lawn furniture) tossed or toppled.
39-49 kts (45-57 mph)	2 to 10	Large trees bend; twigs, small limbs break, and a few larger dead or weak branches may break. Old/weak structures (e.g., sheds, barns) may sustain minor damage (roof, doors). Building partially under construction may be damaged. A few loose shingles removed from houses. Carports may be uplifted; minor cosmetic damage to mobile homes and pool lanai cages.
50-64 kts (58-74 mph)	10 to 70	Large limbs break; shallow rooted trees pushed over. Semi-trucks overturned. More significant damage to old/weak structures. Shingles, awnings removed from houses; damage to chimneys and antennas; mobile homes, carports incur minor structural damage; large billboard signs may be toppled
65-77 kts (75-89 mph)	70 to 300	Widespread damage to trees with trees broken/uprooted. Mobile homes may incur more significant structural damage; be pushed off foundations or overturned. Roof may be partially peeled off industrial/commercial/warehouse buildings. Some minor roof damage to homes. Weak structures (e.g., farm buildings, airplane hangars) may be severely damaged.
78+ kts (90+ mph)	>300	Many large trees broken and uprooted. Mobile homes severely damaged; moderate roof damage to homes. Roofs partially peeled off homes and buildings. Moving automobiles pushed off dry roads. Barns, sheds demolished.

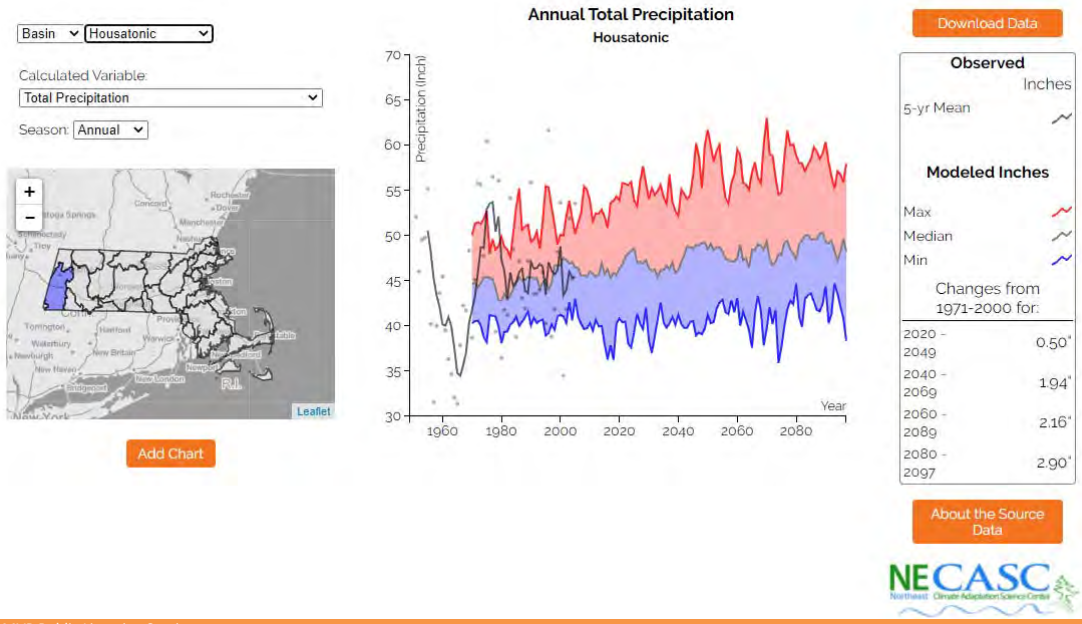
Table 3-5: Physical Effects associated with different wind speeds

Flood

FEMA Flood Hazard Zones



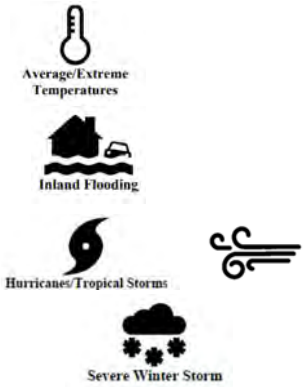
Flooding Frequency: Future



Highest Ranked Hazards

Highest Ranked Hazards

- Extreme Heat/Drought
- Flooding
- High Winds
- Ice Storms



Vulnerabilities and Strengths

Vulnerabilities & Strengths – Infrastructure

Infrastructure Vulnerabilities

- Town Hall
- Roads
- Highway Garage
- Fire House property
- Goose Pond Dam
- Power Lines
- Shaker Pond Dam
- Transfer Station

Infrastructure Strengths

- School House
- Union Church

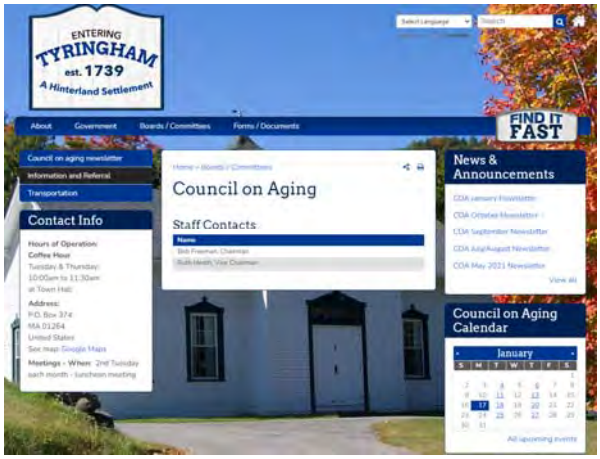
Vulnerabilities & Strengths – Societal

Societal Vulnerabilities

- Elderly Population
- Lack of Public Transportation

Societal Strengths

- Council on Aging
- Hop Brook Club
- Valley Club
- Strong Public Service



Vulnerabilities & Strengths – Environmental

Environmental Vulnerabilities

- Round Mountain Beaver Dam
- Hop Brook
- Goose Pond
- Abundant tree canopy
- Drainage ditch

Environmental Strengths

- Fire ponds
- Abundant tree canopy

Priority Actions

Priority Actions

- 9 Total Priority Actions
  - 5 High Priority Actions
  - 2 Medium Priority Actions
  - 2 Low Priority Actions

Hop Brook (Image Ref: John Phelan, Wikimedia)

High Priority Actions

- ***Conduct a Hydrologic and Hydraulic Analysis of Hop Brook & Flood Vulnerability Assessment Study for Town Infrastructure along Main Road (Town Hall/Highway Garage, Fire House property)***. (Short Term)
- ***Engineering design of improvements at Beach Road to address flooding*** (Short Term)
- ***Relocate Highway Garage out of flood zone***. – Supported by Flood Vulnerability Assessment (Long Term)
- ***Address vulnerabilities at Town Hall –*** *including climate control records storage, digitalizing town records and improving remote access, flood-proofing the basement (*Long Term, Ongoing)
- ***Identify properties for purchase to be used for relocation of vulnerable Town facilities*** (Short Term)

Medium Priority Actions

- ***Identify roads vulnerable to flooding and/or erosion***. (Short Term)
- ***Town-wide flood study, including culvert assessments and beaver impacts***. (Long Term)

Low Priority Actions

- ***Collaborate with utility companies to place wires underground***. (Long Term)
- ***Feasibility Study regarding back-up water supply for Town of Tyringham***. (Long Term)

Top Priority Actions

1. ***Relocate Highway Garage out of flood zone***. – Supported by Flood Vulnerability Assessment (Long Term)
2. ***Engineering design of improvements at Beach Road to address flooding*** (Short Term)
3. ***Conduct a Hydrologic and Hydraulic Analysis of Hop Brook & Flood Vulnerability Assessment Study for Town Infrastructure along Main Road (Town Hall/Highway Garage, Fire House property)***. (Short Term)
4. ***Identify properties for purchase to be used for relocation of vulnerable Town facilities*** (Short Term)
5. ***Address vulnerabilities at Town Hall –*** *including climate control records storage, digitalizing town records and improving remote access, flood-proofing the basement* (Long Term, Ongoing)

Next Steps

Next Steps

1. Draft Summary of Findings Report will be available at https://www.tyringham-ma.gov/mvp-committee
2. Submit your ideas and comments to Laura Lee Bertram tyrcc@bcn.net
3. Provide Report to EEA for review
4. Receive Designation as an MVP Community
5. Prepare to Apply for MVP Action Grants in March 2022

Questions and Answers

Public Listening Session Comments

The Town Hall and Highway Garage are in one building and the Garage is on the bottom, so it floods and has in the past (not just is “at risk” of flooding).

The schoolhouse needs major renovation and the Town is working on that. So it is not a useable building now but could be useable in the future and would be an asset for the Town at that point.

The group at the listening session was in general agreement that what was presented matched the outcomes of the CRB workshops.

An environmental vulnerability – bridge near 144-146 Main Road, the culvert is undersized and flooding has occurred at the properties near that bridge.

Public Listening Session Attendance

Molly Curtin-Schaefer

Laura Lee Bertram

Patrick Holian

Charles Slater Jr

Noah Choquette

William Roche

Andrew Slater

Larry Gould

Rosalie Starvish

GZA GeoEnvironmental, Inc.