



# **Town of Boylston**

## **Municipal Vulnerability Preparedness**

# **SUMMARY OF FINDINGS**

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**JUNE 2022**



## ABOUT THE AUTHORS

### CMRPC Mission

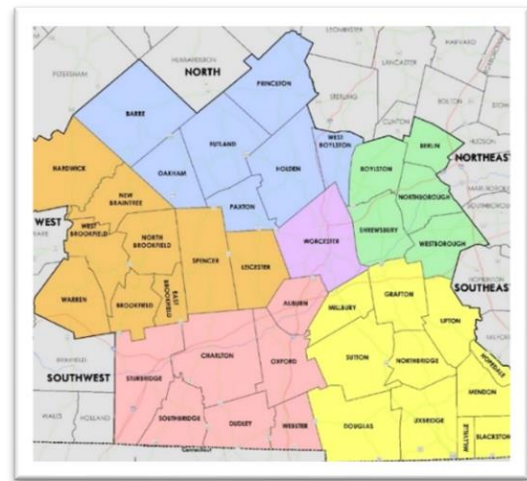
The Central Massachusetts Regional Planning Commission is a regional partnership serving the planning and development interests of 40 member communities in southern Worcester County in Massachusetts. Our primary mission is to improve the quality of life for those who live and work in our region.

We do this by (1) addressing growth and development issues that extend beyond community boundaries; (2) maintaining the region's certification for federal transportation improvement funds; (3) providing technical knowledge and resources to assist local government in addressing specific land use, economic or environmental problems resulting from growth or decline, and (4) building strong working relationships with member communities, state and federal officials, as well as the range of area stakeholders.



### Our History and Progress

Founded by the Massachusetts Legislature in 1963, the Central Massachusetts Regional Planning Commission (CMRPC) provides a variety of services to its constituencies and brings a regional perspective to planning and development. One of 13 regional planning agencies in Massachusetts, CMRPC serves the city of Worcester and 39 surrounding communities in the southern two-thirds of Worcester County. CMRPC's programs include Transportation, Regional Services, Geographic Information Systems (GIS), and Community Planning.



### FEDERAL TITLE VI/NONDISCRIMINATION PROTECTIONS

The Central Massachusetts Metropolitan Planning Organization (CMMPO) hereby states its policy to operate its programs, services and activities in full compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related federal and state statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin, including limited English proficiency, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, the Federal Transit Administration, or both prohibit discrimination on the basis of age, sex, and disability. These protected categories are contemplated within the CMMPO's Title VI Programs consistent with federal and state interpretation and administration. Additionally, the CMMPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with US Department of Transportation policy and guidance on federal Executive Order 13166.

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## EXECUTIVE ORDER 569 AND THE MASSACHUSETTS MUNICIPAL VULNERABILITY PREPAREDNESS PROGRAM

In September 2016, Massachusetts Governor Baker signed Executive Order 569, directing multiple state agencies to develop and implement a statewide comprehensive climate adaptation plan with the best climate-change data available. Recognizing that many adaptation solutions are local in nature, a key commitment of Executive Order 569 is to assist local governments in completing their own assessments and resiliency plans. The MVP Grant and Designation Program represents the first step in fulfilling this commitment.

The MVP program provides planning grants to municipalities to complete vulnerability assessments and develop action-oriented resiliency plans. Funding is used by cities and towns to hire an MVP-certified consultant who is trained to provide technical assistance and complete a community's vulnerability assessment and resiliency plan using the Community Resilience Building Framework. Towns and cities are free to choose the consultant of their choice from a list of certified MVP providers. The Town of Boylston invited the Central Massachusetts Regional Planning Commission to lead them in this planning effort.

Communities that complete the MVP planning process become certified "MVP Communities" and are eligible for Action Grant funding and other opportunities through the Commonwealth.



<https://www.mass.gov/news/governor-baker-signs-legislation-directing-24-billion-to-climate-change-adaptation>

## BOYLSTON: A PROFILE

The Town of Boylston, Massachusetts is located in Central Massachusetts and is part of Worcester County. The Town is bordered by Sterling and Clinton in the north, Berlin and Northborough in the east, Shrewsbury in the south, and West Boylston in the west. It is about 7 miles northeast of the City of Worcester, about 35 miles west of Boston, and 40 miles northwest of Providence, Rhode Island.

The first settlers of Boylston arrived in 1717, and the first settlement occurred in the early 1720's when several families from Lancaster moved to the area. In 1742, the population of Boylston grew enough that it warranted the creation of a separate town. A quasi-independent area was created called the Second or North Parish of Shrewsbury. By 1774, the population of North Parish had grown to 500 residents, and by 1786, North Parish was finally granted the status of a separate Town. This separate Town was named Boylston in honor of a prominent Boston family with the same name. At this time, Boylston was primarily an agricultural community with tradesmen, a school, a Meeting House, a general store, taverns, and a social library. In the 1800s, the Town of Boylston transformed from an agricultural community into a mill town. In the mid- to late-1800s, the Town experienced a population boom with immigrants moving into the area seeking employment at the textile mills. During the twentieth century, Boylston saw the advancement of trolley cars, electricity, telephones, and automobiles.

The Town's landscape changed dramatically in 1908 when 4,380 acres of land were flooded between Boylston, West Boylston, Clinton, and Sterling. This flooding resulted in the creation of the Wachusett Reservoir, the second largest body of water in the State. It also created about ten miles of waterfront along Boylston's northwestern border. The majority of the Town of Boylston lies within the southern edge of the Nashua River Watershed, which drains to the Wachusett Reservoir. The Nashua Watershed encompasses thirty-one communities, including seven in southern New Hampshire and twenty-four in central Massachusetts. The southwest corner of Boylston is also considered to be part of the Blackstone River Watershed, which drains to the south. And the eastern portion of Boylston lies within the Sudbury-Assabet-Concord River (SuAsCo) Watershed, which drains to the east.

Today, the Town of Boylston is primarily a small, suburban, middle-to-upper income community. The Town is largely forested with intersecting subdivisions. Boylston is home to the Berlin-Boylston School District, a local library, a Historical Society, Tower Hill Botanic Garden, and two golf courses. The total population is estimated to be around 4,849 residents (2020 American Community Survey 5-Year Estimates). The median age of residents in Boylston is around 44.8 years old, with 21.2% under 18 years old and 17.5% over 65 years old. A predominantly white community, the population of Boylston is 86.8% White, 5.2% Asian, less than 1% Black or African American, less than 1% American Indian or Alaska Native, and 3.1% Hispanic or Latino. The median household income is around \$106,100, with 3.0% of the population living below the poverty line.

## COMMUNITY RESILIENCE BUILDING WORKSHOP

The Town of Boylston contracted with the Central Massachusetts Regional Planning Commission (CMRPC) on November 4, 2021 to serve as the MVP provider, including completing the Community Resiliency Building (CRB) workshop. Through the Community Resilience Building (CRB) process, stakeholders actively engaged in an ongoing discussion to determine the top hazards related to climate change that currently impact or have the potential to impact Boylston. The project coordinators and CMRPC met on December 13, 2021 to begin the initial of this planning process. And on January 10, 2022, a small group of Town Officials, Board Members, and community leaders convened to form the 'Core Team' which, together with CMRPC staff, organized and planned the CRB Workshop over the course of five meetings.

The Town of Boylston's CRB workshop was scheduled to be held during the months of March and April 2022. The workshop would take place over the course of two separate meetings, one being entirely virtual and the other have virtual and in-person attendance options. The first meeting would be held for three hours. The first hour would be dedicated to welcoming and introducing participants to the workshop, familiarizing with all of ZOOM's functions, and discussing a brief overview the day's objectives. The remaining two hours would be dedicated to identifying features, location, and ownership of vulnerabilities and strengths in Town. The second meeting was reserved for completion of the prior meetings work and to develop actionable items to improve resiliency throughout the Town of Boylston.



### Workshop Overview

The workshop was held virtually on **Wednesday, March 30<sup>th</sup> from 6:00 – 9:00 PM**, and both virtually and in-person on **Wednesday, April 6<sup>th</sup> from 6:00 – 9:00 PM**. To prepare participants for the workshop all presentations were pre-recorded by the Core Team and the staff at CMRPC. Upon completion of the MVP program overview presentation, Climate Projections presentation, Hazards presentation, and Matrix/Nature Based solutions presentation, the invitation and workshop materials document were put together. The invitation included links to the ZOOM meeting, and the workshop materials document was complete with links to each presentation, table maps, two-page MVP program overview, CRB Workbook, how to use ZOOM information, and an agenda with ZOOM log-in information for each of the two meetings. Participants were instructed to watch all presentations at their leisure prior to the workshop.



The Workshop's goal was to identify the four top natural hazards that impact Boylston and develop strategies to enhance the town's resiliency related to climate change. Following the CRB work plan process, the Town, CMRPC facilitators and planners pre-recorded four presentations:

- Overview of the CRB process
- Overview of the MVP program
- A summary of climate change projections, impacts and mitigation strategies
- A detailed profile of natural hazards in the Town of Boylston, including the top four hazards perceived by the core team.

During the first workshop meeting date, the group discussed the top four hazards that affect Boylston. There was agreement between the Core Team and all participants that--in no particular order—***flooding (inland and coastal), severe storms (wind and tornado), winter storms (snow, ice, and extreme cold)*** and ***drought and extreme heat (wildfire and invasives)*** have the greatest effects and potential impacts on the Town. Having identified these hazards, workshop attendees were then asked to work through the CRB program's matrix and mapping exercise. Table facilitators, along with CMRPC staff guided stakeholders in four small group to examine the resources throughout the Town and to identify the town's most serious concerns regarding natural and climate-related hazards that threaten their community.

The group then reconvened one week later to build upon the first day's work. The goal of the second session was to continue to identify features and begin to identify actionable items to reduce or mitigate the projected impacts of climate change. Once the group had completed the matrix, the groups gave a summary of findings by the table reporters.

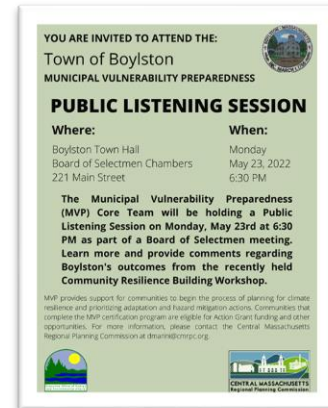


Upon completion of the two-day hybrid workshop, CMRPC compiled all information from the matrix into survey form. The survey was then distributed to all attendees of the workshop and was open from April 15, 2022, through April 27, 2022. The attendees' participation in the survey helped to prioritize what they believed to be the top projects in the infrastructure, society, and environmental categories. Results of the survey were used to prioritize and organize the matrix and report.



Twenty-five (25) stakeholders attended the hybrid CRB Workshop, including representatives from Town government, State Representatives, emergency services, the MVP Core team, Municipal Department Heads, Conservation Commission, Planning Board, local contractors, and concerned residents of Boylston.

A public listening session to discuss MVP results and recommendations for future actions was held virtually on Monday, May 23, 2022, as part of a Board of Selectmen meeting. The listening session was properly promoted across several avenues, with fifteen (15) people in attendance. Between the two meetings, a total of seventy-nine (79) people participated in the MVP process.



### Summary of Findings

Overall, the workshop was received positively by all in attendance. Following the presentations, participants were asked if they agreed with the core team's identification of, in no particular order, flooding, severe storms, drought and extreme temperatures, and winter storms and extreme cold as the primary hazards facing Boylston. All the participants agreed that these four hazards were the most relevant for Boylston.

The Town's public buildings, stormwater management, and water supply were described as strengths, along with the water resources and recreation opportunities. The Town's location in the three different watersheds was considered to be an overall strength due to the access to many water resources and regional environmental groups. Emergency preparedness and access were considered a vulnerability and a barrier to information distribution and evacuation ability. Dams and culverts were also considered vulnerable safety hazards leading to additional flooding concerns.

Another area that was widely seen as a hazard to the Town is the condition of some water resources in Town. Wetlands and vernal pools were viewed as vulnerable to development, and many ponds and brooks have been impacted by aquatic invasive species. Forests, street trees, and open spaces were also noted as being impacted by invasive species, threatening native species in these areas. Other vulnerable areas mentioned were roadway flooding, runoff contamination, beaver activity, and a growing deer population.

The Town's public water supply, sewer, and electrical grid were considered a major vulnerability by all. The water supply only covers a portion of the Town and has aging infrastructure. As the frequency and duration of drought increases, there will be a growing demand for water for drinking and firefighting purposes. The Town should identify strategies for expanding the public water supply so that the entire Town is within the water supply area. There is no public sewer system, so residents rely on private septic tanks which are more vulnerable to flooding. Providing educational materials to residents on proper septic maintenance and concerns could help to reduce issues with private septic systems. And the power grid was considered at-risk from fallen

trees. Establishing a tree removal and replacement program with native, drought-resistant and pest-resistant species should reduce the risk of power outages from fallen trees while still mitigating urban heat island effects.

It was also discussed that there is a need to develop a prioritization list of open space parcels that the Town should acquire and either protect or convert into recreational resources.

Both tables identified specific vulnerable areas that are already in need of attention and will likely face worsening impacts due to climate change. These include forested areas, surface waters, senior residents, and flooding.

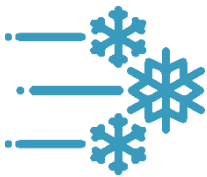
## TOP HAZARDS

Following the presentations at the beginning of the workshop, a full-group discussion was held to determine the top four hazards for breakout groups to further assess solutions. Taking climate change projections, critical infrastructure, and other considerations into account, workshop participants chose to focus on the four following hazards. They are presented in no particular order: **drought and extreme heat (wildfire and invasive species)**, **severe storms (wind and tornadoes)**, **floodings (inland and coastal)**, and **winter storms (snow and ice)**.

In 2016, Boylston experienced extreme droughts along with most of the state of Massachusetts. Severe storms, including high winds and intense rainfall, have been increasing in frequency and impact. All of these have caused disruption to the town, including localized flooding, power outages, and calling upon mutual aid agreements. With climate change, all of these natural events are expected to increase in severity and frequency.



### Flooding.



### DROUGHT/EXTREME HEAT

Projecting an increase of consecutive dry days, with the driest periods in the summer and fall. This leads to increased risk and stress on drinking water systems and wildfire potential.

### WINTER STORMS/EXTREME COLD

Annual days below freezing will decrease, winter precipitation falling as rain or freezing rain. This increases risk for ice storms and flash flooding when rain falls on frozen ground.



### FLOODING

Expected increase in precipitation across all seasons. Heavy rainfall will become more frequent, increasing the risk for flash floods. Also increases non-point source pollution.



### SEVERE STORMS

Intensity of storm events is expected to increase due to the warmer atmosphere. This will lead to increased severe thunderstorm and hurricane activity with higher wind speeds.

**Flooding.** Extreme weather in recent years demonstrates how the various hazards impact the town. There have been numerous flooding events over the years, and this threat is only going to increase as the climate continues to change. Local dams, undersized culverts, and beaver activity have all contributed to flooding throughout Town.

**Winter Storms and Extreme Cold.** Winter ice storms, a regional problem, are expected to be more intense and include more mixed precipitation which is highly damaging to trees, power lines and other infrastructure.

**Drought and Extreme Heat.** Wildfires are expected to increase due to the impact of prolonged droughts and extreme heat. Drier forests and wooded areas will be more combustible in drought conditions. Drought will also lead to water shortages that will impact the entire town whether or not residents and businesses are on town water or have wells.

**Severe Storms.** Heavy wind events are a serious concern. The town and the surrounding area have experienced a recent uptick in storms with hurricane-level winds. While this phenomenon can be linked to extreme temperatures and rising precipitation rates, workshop participants felt it was serious enough to be singled out as a hazard. Thus, the fourth hazard is focused primarily on the winds associated with these storms, leaving heavy rain events to be discussed under flooding.

The workshop participants agreed that different hazards affect the town at different times of the year. Flexibility and comprehensive response by town officials is needed to ensure the safety of the citizens in different hazard situations exacerbated by climate change.

These concerns, which are largely inter-related, are based on data provided by the Massachusetts Climate Clearinghouse as well as watershed-specific data from the Northeast Climate Adaptation Science Center at the University of Massachusetts at Amherst. For the Nashua River Basin, where Boylston is partially located, projections show an expected increase in precipitation overall, with the greatest increase during winter. The number of days with more than 2" of rainfall, potentially leading to inland flooding, is also expected to increase with the average expected to be close to 15 days by the year 2100 compared with approximately 10 days now. Consecutive dry days and days above 90 degrees Fahrenheit are expected to increase, leading to drought. Days at the wintery-mix level of cold are also expected to increase, leading to a greater likelihood of freezing rain and sleet in the winter. Higher wind in the summer and storm severity increases with warmer temperatures.

## CURRENT CONCERNS AND CHALLENGES PRESENTED BY HAZARDS AND CLIMATE CHANGE

Meetings with the MVP Core Team prior to the workshop as well as the helped to identify past climate-related events that significantly impacted the Town. Disaster events of concern included frequent major winter storms (as in 2015 and 2018), ice storms (2008), severe rain events (2005, 2010, 2016), tropical storms (Irene, Sandy), infestations of invasive and otherwise undesirable species (Asian Longhorn Beetle, spongy moths, aquatic invasive species, ticks), and extended periods of drought (2015 to 2016). Boylston does have a public water supply in place. However, it will be important for the town to secure a backup drinking water supply as the current supply does not cover the entire Town.

At the workshop, CMRPC staff presented downscaled climate change data provided by Massachusetts's Executive Office of Energy and Environment Affairs (EEA) and the Northeast Climate Science Center at the University of Massachusetts, Amherst. Boylston lies partially within the Nashua River Basin, and should projections for the watershed hold true, by mid-century, annual average temperatures will increase in the range of 3 to 6.4 degrees from the historical baseline. Hot days will increase with 8 to 29 days over 90 degrees annually; cold days will fall with 19 to 38 days below freezing annually; annual precipitation will increase 1.2 to 6.3 inches. Seasonal drought conditions will become more frequent as precipitation becomes more concentrated in extreme intensity events and winter snowpack is reduced. Some of the challenges of these projected changes – many of which are already being observed – were discussed in a presentation at the workshop focused on specific hazards in the Boylston area.

Challenges highlighted in the presentations and/or discussed as a group or in the breakout groups included the following concerns:

- Issues associated climate change will exacerbate problems that are already apparent, and the town lacks the resources to address comprehensively – flooding and storm water management, vulnerable roads, ecological damage, and vulnerable populations, all within the context of a small community.
- An increase in hot and warm days and decrease in cold days will mean greater need for cooling and less need for heating, especially among vulnerable groups such as children and seniors.
- Increased temperatures can also be expected to cause changes in the water cycle, leading to more intense rain events. Increased precipitation rates will lead to more frequent and severe flooding in areas outside of designated flood zones defined using historical data .
- Increased storm intensity will likely cause more tree damage leading to power outages and road closures, higher peak river flows requiring new approaches to storm water management, and increased erosion of river and brook banks and nearby infrastructure. Severe storms will still likely damage and impact the power lines throughout the town.



Tree damage will occur from intense windstorms such as recent tornadoes or from heavy snow and ice storms.

- More frequent and severe droughts will challenge water supplies and increase risks from wildfire. Increased risk of wildfire can lead to a wide range of ecological outcomes including increased damage to human property and life, removal of suitable habitat space, and changes in ecosystem services made available by forest cover.
- Invasive plant and animal species can impact public health through increasing numbers of disease carrying pests (e.g., ticks and mosquitoes) and by damaging key ecosystems such as forests and wetlands, thereby increasing wildfire and flood risks.

As the climate continues to change and natural disasters increase in frequency and strength there will be a greater need to communicate with residents, businesses, and other institutions. Changing climate will dictate the need for enhanced communications systems and related infrastructure and flexible emergency response and evacuation plans. These flexible response and evacuation plans will be particularly important for the senior citizens who live alone and do not have access to a vehicle.

## SPECIFIC CATEGORIES OF CONCERNS AND CHALLENGES

The following topics were identified by workshop attendees as concerns or challenges related to Boylston's changing climate and natural hazards.

### Infrastructure Concerns



#### *Culverts & Dams*

At the workshop, both tables noted that culverts and dams were a major vulnerability for the Town. According to the Massachusetts Office of Dam Safety, there are five dams in the Town of Boylston. Of those, one dam is categorized as a Significant Hazard, and two dams are categorized as a Low Hazard. A dam that is categorized as a Significant Hazard means that if the dam were to fail, or if there was improper operation of the dam, then that may cause loss of life and damage to homes, industrial or commercial facilities, secondary highways or railroad, or cause interruption of use of service of relatively important facilities.

### INFRASTRUCTURE

- Culverts & Dams
- Roadways
- Utility Systems

Many culverts in Town were identified as either undersized, in poor condition, or being impacted by beaver activity. When a culvert is functioning properly, they help to move water from one side of a road to another. However, when a culvert fails, it can damage structures downstream or increase flooding hazards. While this is a Town-wide issue, workshop attendees noted concern along Reservoir Street, Cross Street, and Route 70 as major flooding concerns. The intersection of Temple Street and Route 140 has also been known to flood frequently.

#### *Roadways*

Other roadways were also noted as a major vulnerability as well for a variety of reasons. In addition to undersized or failing culverts, beaver activity also leads to flooding concerns. Beavers will instinctively build a dam when they hear the noise of running water. As such, culverts are often targeted by beavers, adding to increases in flooding along roads in Town. Beaver activity has been noted along Route 70 and Stiles Road. Stiles Road has often been inaccessible due to flooding caused by beaver activity and increased precipitation. In addition to flooding as a concern, roadways were also listed as a vulnerability due to dead or dying street trees. Both tables noted a concern Town-wide regarding street trees falling into the roadways, blocking streets, and preventing access. Presence of invasive species and pests, combined with increased wind and lightning events, has left street trees at an increased risk of falling. This risk will continue to grow as the climate warms and storms become more frequent. Route 70 and Route 140 were of special consideration due to their role as the Town's evacuation routes.

#### *Utility Systems*

The Town's utility systems were viewed as vulnerable as well. The Town of Boylston does have a public water system, however, only half of the Town is on the public water system. The other half of the Town is on private wells. Those outside of the water supply area are more vulnerable, especially in the event of a fire or drought. Wells are more susceptible to drying out in times of

drought, and lack of hydrants can hinder firefighting ability. At the moment, there are no plans to extend the public water supply. The public water supply is vulnerable to salt use on Route 12 and Route 70. Participants were concerned about the older pipes in this water system that need fixing. The frequency of failed pipes will increase as the water table increases and as the frequency and duration of precipitation increases. There is also no public sewer system, so residents rely on septic systems. Newer developments are having difficulties finding locations for septic tanks. Septic tanks are prone to failure as groundwater rises, so they are more at-risk during periods of heavy flooding. As the frequency and duration of precipitation rises, the probability that these septic tanks will be compromised also increases. The power grid was also considered very vulnerable to tree damage. Just as street trees are falling and causing hazards on roadways, they are also likely to fall on electrical wires, creating power outages in Town.

## Societal Concerns



### *Emergency Preparedness*

A major societal concern that workshop attendees agreed on was the emergency preparedness of the community. It was noted that the emergency communication system infrastructure is at least thirty years old. In 2019, the Town intended to upgrade the communication system, however the Federal Communications Commission (FCC), held onto licenses in 2019, preventing the upgrades. The Town is now eligible to update the communication system, but the costs have tripled due to inflation and the supply chain. There are currently dead spots in Town, so it is believed that two new radio towers will be needed. And police officer radios have been dying, so officers have to rely on their cell phones to call dispatch. In addition to this, participants noted the reliance on electricity to send and receive emergency notifications. There was a desire to develop emergency communication methods that do not require a power source.

## SOCIETAL

- Emergency Preparedness
- At-Risk Populations
- Access

### *At-Risk Populations*

Participants at the workshop were also concerned about the Town's at-risk populations. In particular, the Town's senior populations, those who live alone, those without cars, and those with potential language barriers were all listed as more vulnerable to the effects of climate change. The aging and elderly population are more vulnerable to extreme temperatures and the limited drinking water supply that will be exacerbated by consecutive drought. In addition, older adults are more susceptible to disease, particularly EEE and other insect-borne illnesses. These diseases will increase as temperatures rise and as precipitation becomes more frequent. In addition, older adults will also be more at risk in times of emergency when evacuation is necessary due to their reduced ability to mobilize quickly. It was noted that in Boylston, most seniors in Boylston live on their own, though a small group live in the Sunbanke Village Apartments located on Heritage Lane. Having a widely dispersed senior population could make it difficult to respond to and assist these residents in times of need.

Another group that is at-risk during times of evacuation are those without access to cars. In times where evacuation is necessary, those without cars will be unable to get themselves out of Town. It was noted during the workshop, that the Town of Boylston does not have a public transportation system, so those without vehicles will have an even more difficult time evacuating or traveling to pick up emergency supplies. Residents who live alone were also considered vulnerable by participants at the workshop. In general, those who live alone may be more isolated from their neighbors and other residents in Town. With potentially limited interactions with others in Town, these individuals may lack important information about the Town and may not receive important emergency notifications. A second group who might also feel isolated include those with language barriers. Residents that have language barriers might have limited interactions with their neighbors. They might also be unable to understand the Town's emergency notifications if they are not distributed in a language that the resident is able to read. These communication barriers can isolate residents and create obstacles to disaster preparedness.

### *Access*

In addition to concern regarding at-risk populations and emergency preparedness, workshop attendees also discussed access as a vulnerability. As noted in the infrastructural concern section, many street trees have been impacted by invasive pest damage, have not been consistently maintained, or are otherwise at risk from snow, ice, lightning, and windstorms. Damages from these factors can lead to trees or limbs falling into roadways and blocking travel. Attendees were concerned that the evacuation routes in Town could be blocked by these fallen trees. The Town of Boylston only has two evacuation routes: Route 70, which runs through the central and western part of town from Clinton in the north down to Shrewsbury in the south, and Route 140, which runs through the southern part of town from West Boylston in the West down to Shrewsbury in the southeast. In addition, as discussed above, the Town of Boylston does not have a public transportation system. This leads to an increased dependency on personal vehicles and prevents access to easy, affordable transportation.

## Environmental Concerns



### *Nuisance Species*

Participants at the workshop noted that nuisance species have been a vulnerability to the Town. Nuisance species are plants, animals, or other organisms that are native to an area, but have overpopulated a region due to a lack of a predator, removal regulations, or the changing climate. Some nuisance species identified by Boylston's workshop attendees include beavers, deer, ticks, and mosquitos. Both tables at the workshop

## ENVIRONMENTAL

- Nuisance Species
- Invasive Species
- Water Resources

noted that beavers have been causing flooding and property damage concerns Town-wide. Beavers will instinctively build a dam when they hear the noise of running water. As such, culverts are often targeted by beavers, adding to increases in flooding along roads in Town. Because beavers are a keystone species, or a species that helps maintain a functioning ecosystem, the State's regulations limit how towns can trap and remove beavers. Even if beavers were removed from an area, their instinct would likely draw them back to the same location again. Though a Town-wide issue, participants noted increased beaver activity along Styles Road, Cross Street, and Route 70.

It was also noted that deer populations have increased. Gray wolves were historically predators to deer in Massachusetts. Once they became extinct, a predator and natural population control of deer was eliminated. Today, predation of deer is limited to recreational hunting and coyotes, but these strategies have been unable to keep up with the growing deer population. In addition to increased human-wildlife interactions, deer also create concerns from damage they cause to trees, shrubs, and gardens, and from carrying deer ticks. In Massachusetts, deer ticks can carry Lyme disease. Typically, deer ticks will die out during the cold winter months, controlling the deer tick population and managing the spread of Lyme disease. However, climate change will result in milder and warmer winters, causing fewer disease-carrying ticks to die out during those winter months. With fewer ticks dying, the overall tick population will increase, creating a greater chance of contracting Lyme disease. To help combat deer populations and lessen the impact that deer browsing has on vegetation in the area, the Department of Conservation and Recreation opened the land around the Wachusett Reservoir for hunting. And participants noted that Tower Hill installed a deer fence around the reservation to help mitigate this issue.

Along with beaver and deer populations, as the climate continues to warm, and as periods of flood and drought increase, risk of other insect-borne diseases, especially EEE and West Nile Virus, will worsen. Mosquitos carry EEE and West Nile Virus (WMV). They tend to lay their eggs in and around standing water, so populations of mosquitoes will likely increase in times of flooding. Mosquitos are also more aggressive on hot, dry days, and will feed more frequently during those periods, causing greater instances of contracting those diseases. Children, senior citizens, and other immuno-compromised individuals are more susceptible to the effects of insect-borne diseases.

### *Invasive Species*

Like nuisance species, participants at the workshop also noted a growing presence of invasive species around Town as a major vulnerability to the Town's environmental resources. Invasives are species of animals, plants, or other organisms that are from another region of the world that do not belong in this new environment. These species can be introduced to a new area either on purpose or by accidental release. Invasives can be very detrimental to their new environment. They can cause the extinction of native plants and animals, can destroy biodiversity, or can permanently alter habitats since there is no natural predator to control their population size. As temperatures rise and continue to warm, there is concern that invasive species will continue to overrun the Town's ecosystem by outcompeting native species. At the workshop, participants noted that invasive species have already begun impacting Boylston's aquatic and forest



resources. Aquatic invasives, such as Eurasian milfoil, have been found in Newton Pond, Sewall Pond, and Rocky Pond, impacting the use of these water resources. It was also discussed that invasive plants and insects have been impacting the health of trees and vegetation around Boylston, particularly street trees. Some common invasive plants that have been observed around Boylston include Japanese knotweed, Common barberry, Common buckthorn, Glossy buckthorn, Japanese barberry, Multiflora rose, Norway maple, Oriental bittersweet, and Purple loosestrife. Invasive insects that have been noted as a concern include the Asian longhorned beetle, Emerald ash borer, Spongy moth, and Hemlock woolly adelgid are a concern to the area. Though these insects typically do not have direct harmful effects to humans, they can have detrimental effects on native tree species in Massachusetts. The spongy moth prefers to feed on oak and birch trees, amongst other species, while the Asian Longhorn Beetle prefers hardwoods such as Ash, Birch, and Elm. Attendees discussed that spongy moths have caused significant damage to oak trees in the northern part of Town along Route 70. And in the Diamond Hill Avenue area, participants noted activity from spongy moths and Emerald ash borers leading to many standing dead trees. The colder climate has kept Hemlock woolly adelgid from advancing north, but the changing climate will expand this insect's range. Trees that are impacted by invasive insects are much more vulnerable to damage during intense storm events as well as drought. Ice storms, drought, and heat have added to this pest damage, and the town has been unable to keep up with the maintenance of its street trees.

### *Water Resources*

A third environmental vulnerability that participants discussed during the workshop was the condition and quality of the water resources in Boylston. Though the Conservation Commission was viewed as a strength of the Town for their efforts in protecting wetlands, wetlands and vernal pools were still viewed as vulnerable by the workshop participants. Wetlands are vulnerable to development, and there is a desire to strengthen the Wetlands Protection Bylaw to make development near wetlands more stringent. Aside from wetlands and vernal pools, surface waters were also considered to be vulnerable. Participants noted that Sewall Pond, Newtown Pond, and Rocky Pond all have an overgrowth of weeds impacting use of these resources. In addition to native weeds, workshop attendees also discussed that these ponds also have aquatic invasives growing in them, such as Eurasian milfoil. Like the other weeds, these invasive species limit use of the pond and disturb their ecosystems. In addition to weed growth and aquatic invasives, contamination from stormwater runoff also threatens these areas.

## CURRENT STRENGTHS AND ASSETS

Boylston has taken some steps to address natural hazards and climate change over recent years. Public opinion holds that municipal facilities and stormwater management are “infrastructural strengths” that will protect and strengthen the Boylston community. Perceived environmental strengths focused mainly on the large and diverse number of natural resources and recreation opportunities that Boylston residents can take advantage of.

### Infrastructure Strengths



#### *Stormwater Management*

Although culverts and dams were viewed as a vulnerability, the Town’s stormwater management system was identified as an overall strength to the Town. Though some culverts are undersized, those that are in good condition and are functioning properly provide a great benefit to the Town. Culverts are intended to convey water from one side of a road or obstacle to another. In doing this, well-maintained culverts allow water to continue to flow without running onto or flooding a roadway. The Town of Boylston should perform a Town-wide inventory and assessment of its culverts to help monitor their functionality. Similar to the culverts in Town, even though some dams may require upgrades, the dams that are functioning properly help to store water and control flooding. The Wachusett Dam, which was a High Hazard to the Town, was recently repaired, returning it to good condition. These structures should continue to be monitored and upgraded as needed.

### INFRASTRUCTURE

- Stormwater Management
- Municipal Facilities
- Water Supply

#### *Municipal Facilities*

Participants at the workshop also viewed the municipal facilities in Town as strengths. Boylston Elementary School, located at 200 Sewall Street, houses Pre-Kindergarten and Kindergarten through Fifth Grade. The elementary school recently had its roof upgraded, and has a kitchen, gym, and generator. It also sits in a high location, making it less vulnerable to flooding. With all of these strengths, participants believed it would be an ideal location for a shelter. Boylston’s Municipal Office Building, located at 221 Main Street, was also noted as a strength. This facility sits on top of a hill, making it less vulnerable to flooding, is centrally located in Town, and has a backup generator. Participants also noted that the Highway Department Facility, located at 385 Main Street, was a strength because it was recently updated.

#### *Water Supply*

While participants noted some concerns with the water system in Boylston, they also viewed having a public water supply as a major strength of the Town. Though some of the infrastructure may be old, participants felt that the system had a good supply and was in good quality. About half of the Town is on the water district, while the other half utilizes private wells for their water supply. The Town of Boylston’s water supply consists of 5 gravel-packed groundwater wells. Four of those wells are located near Route 140 and Route 70. The remaining well is located on Scar

Hill Road. The wells are less than 90 feet deep and draw water from gravel and sand deposits. In addition to these wells, the Town also has five pumping stations, three storage tanks, and two booster stations. Potassium Hydroxide is added to the public water supply to minimize the presence of lead and copper. Private wells are more susceptible to drying up during periods of drought and or becoming contaminated due to flooding. As such, those on the public water supply have a generally more resilient supply. The Town should look to expand the public water supply service to more residents so that they have easier access to water.

## Societal Strengths



### *Boards, Commissions, & Departments*

Many workshop participants discussed the Town of Boylston's various boards, commissions, and departments as strengths for the Town. In general, attendees viewed the increased collaboration of these boards and departments as a benefit. Specific groups mentioned as a strength to the Town include the Conservation Commission, Municipal Light Department, Highway Department, Council on Aging, and Fire Department. The Conservation Commission is a six-member commission that is tasked with upholding the Wetlands Protection Act and protecting the Town's water resources. Participants noted that the Conservation Commission is a good resource for wetland protection and stormwater management. The Conservation Commission has put parcels in conservation trusts and has worked with developers to limit disturbances. The Boylston Light Department manages the Town's electrical grid. The Highway Department is responsible for year-round maintenance of all public roads including paving management, repairs, drainage management, snow plowing, and treatment for icy conditions, as well as maintenance of the Town's recreational fields. Together, the Light Department and Highway Department manage the trees in Town to help limit potential hazards in the road or on powerlines. The Town of Boylston's Council on Aging was established in 1974 in order to help improve the lives of residents who are 60 years old and older. They accomplish this by providing referrals for social opportunities, recreational opportunities, meals, transportation, educational seminars, and referrals to services to seniors in Town. The Council also has one nine-passenger van that they utilize to provide transportation services to their seniors. Seniors in Town can schedule the van to transport them to various appointments and locations that they might need rides to. The Boylston Fire Department provides fire protection and ambulance services to the community. It has one fire chief, two fire officers, and 26 on-call firefighters who respond to medical emergencies, motor vehicle accidents, structure fires, vehicle fires, brush fires, and other alarms. They provide inspection services, fire prevention and educational programs, and community CPR and First Aid classes. In addition, the Town of Boylston recently launched a paramedicine program to improve the health of its residents. With this program, the Council on Aging and Fire Department continuously update a list of seniors and

## SOCIETAL

- Boards, Commissions, & Departments
- Community Groups
- Planning & Policy

other at-risk residents in Town to provide in-home medical services to them and to check on these residents in times of need. This effort aims to help make up for the potential gap in communication with these groups.

### *Community Groups*

In addition to the Town boards, commissions, and departments, workshop attendees also listed various community groups as strengths for Boylston. In general, Boylston's sense of community was considered a benefit. Though there are certain groups or areas of Town that may be secluded, other areas were described as close-knit neighborhoods. Specific groups that have helped forge this sense of community include the Lions Club, Central Community Grange, and Garden Club. The Town of Boylston's chapter of the Lions Club was formed in 1964. Since that time, the club has raised and donated hundreds of thousands of dollars to various charities, including those that help with blindness and disaster relief. They are also very active in the community by supporting youth sports and senior programs. The Central Community Grange #22 is a subordinate of the Massachusetts State Grange. This is a fraternal organization that focuses on agriculture, community service, and family support. They host numerous educational and social events, provide scholarships for students in Boylston and Westborough public schools, and promote a Junior Grange program for youth in the area. The Boylston Garden Club is an organization of women who support the community with plantings. The club has been active for the past 40 years and helps sponsor events with other organizations in Town.

### *Policy & Planning*

The Town of Boylston, like other communities in Central Massachusetts, must overcome the obstacle of limited resources and personnel. Yet, despite this obstacle, the Town is able to keep its planning and policy procedures up to date and reflective of the Town's needs. It was noted by participants during the workshop that the Town is always eager and willing to pursue grants and other funding opportunities to help update these procedures. Last year, the Town updated its Open Space and Recreation Plan, which aims to assess and improve conservation and recreation opportunities in Town. In addition, the Town recently completed a Housing Production Plan, which is a tool community's use to proactively plan and develop affordable housing. This plan helps the Town better understand the local housing needs and demands. And currently, the Town has been updating their Master Plan. Master Plans help to guide the orderly development of towns and involve a strong community visioning process. Once a Master Plan is adopted, it guides development, influences policy updates, and provides an action plan that will build on the community's vision. This Master Plan update should be completed in July. Participants also noted a willingness by the Town to consistently review and update its bylaws to ensure they stay relevant to the Town's needs and any resource needs that might arise.

## Environmental Strengths



### *Water Resources*

Though there are some concerns regarding the Town's water resources, participants also felt that the water resources in Boylston are an environmental strength for the Town. In total, about 19% of Boylston is covered in surface waters, and about 10% is covered in wetlands. There are about 900 acres of wetlands in Boylston. While the wetlands are dispersed town-wide, some notable areas of wetland habitat are near the Wachusett Reservoir, Mile Hill Road conservation area, the Heritage District, Sewall Pond, Spruce Pond, School Street, and Cross Street. These wetland areas provide significant wildlife habitat, flood storage, and drought protection. Vernal pools were also noted as a benefit. A vernal pool is a small, shallow pond characterized by a lack of fish, periods of dryness, and a variety of wildlife species and other organisms that spend periods of their lives in vernal pools. In the Town of Boylston, there are nine certified vernal pools and numerous potential vernal pools. Additionally, though the Wachusett Reservoir is not currently used as a source of drinking water for the Town, it does offer many other benefits. The land adjacent to the Reservoir is protected from development and preserves that land as drinking water supply protection, wildlife habitat, and flood protection. Within 200 feet from the Reservoir, the land is protected from alteration, and between 200 and 400 feet, land is protected from alteration with exemptions. It was suggested during the workshop that the Reservoir could be used as a potable water source in the future which could aid the Town during periods of drought. Some other surface waters include Rocky Pond, Pout Pond, Halls Pond, Flagg Pond, Sewall Pond, Spruce Pond, and Newton Pond, each providing habitat for a variety of wildlife.

## ENVIRONMENTAL

- Water Resources
- Forests & Parks
- Environmental Policies

### *Forests & Parks*

Workshop participants also discussed the strengths of the Town's many forests and parks. Attendees described the town as beautiful, full of numerous parks, forests, and a lot of open space. The Department of Conservation and Recreation owns and manages a significant number of forested areas in Boylston. Those areas include the Wachusett Reservoir, Hamilton WPR, and Woodbury WPR. Attendees noted that these forests are relatively healthy, and DCR attempts to create a diverse ecosystem with their management practices. By trying to promote different age classes in the forest, DCR hopes to reduce the impact of invasive species and storms and reduce the fire load. Different cuts and trimmings of trees help to support good forest health. The abundance of forested areas helps to avoid urban heat island effects. Some open space and recreation resources in the Town include Manor Playground, Town Tennis Courts, East Woods, Tahanto Regional High School Athletic Fields, Mile Hill Conservation Area, Wrack Meadow Conservation Area, Tower Hill Botanic Garden, Haven Country Club, Boylston Sportsmen's Club, and Worcester Pistol and Rifle Club. In total, there are 4,201.92 acres of open space in the Town of Boylston. The Town completed their Open Space and Recreation Plan update last year in order



to better understand the current open space and recreation offerings of the Town and the needs for the future.

### *Environmental Policies*

The third environmental strength that was identified by workshop attendees is the environmental policies that the Town of Boylston has put into place and continues to update. As mentioned above, the Town recently updated their Open Space and Recreation Plan (OSRP). OSRPs are intended to discuss the Town's environmental, historical, cultural, geologic, and recreational resources. In addition, OSRPs develop a Seven-Year Action Plan aimed at improving existing open space and recreation resources, expanding new opportunities, and protecting important natural and historic resources. Many actions listed in Boylston's OSRP align with the actions suggested during this MVP planning process to improve recreation opportunities and protect the Town's natural resources. Another important environmental policy that the Town views as a strength is the Stormwater Bylaw. Participants noted that this bylaw allows for low impact development and is successful at regulating new developments. Though it has been successful, it was recommended that the Town review and revise this bylaw as needed. And a final environmental policy that was discussed during the workshop is the Wetlands Protection Bylaw. This ordinance protects wetland areas by requiring a permit for any development activities within 100 feet of a wetland or 200 feet of a perennial stream. Additionally, all projects within the 100-year floodplain also require a permit. Participants felt that the Conservation Commission has done a good job at upholding the Wetlands Protection Act and the Town's wetland ordinance, however, this bylaw should also continue to be reviewed and revised as necessary.

## RECOMMENDATIONS TO IMPROVE RESILIENCE

Workshop attendees at both tables took the next step in completing the CRB Matrix by suggesting actions that would address vulnerabilities, or further bolster strengths they identified. The following actions are compiled from the matrices from both tables at the Boylston MVP Workshop. The completed Matrix for each table can be found in the Appendix at the end of this document.

### Infrastructure Actions



To combat future increases in flooding, participants at the workshop recommended **improving and expanding stormwater management** in Town. To do this, it was suggested that the Town perform a culvert inventory and assessment to identify the location and functionality of existing culverts. In addition, it was recommended that the Town perform an assessment and feasibility study of dams in Town, exploring funding opportunities where removal is applicable. The Town should align repaving efforts with water system and stormwater system upgrades. And a stormwater management plan should be developed that may include actions to review and update the zoning bylaws to improve stormwater management, create regulations on leaf debris removal, and create a stormwater utility fee.

#### INFRASTRUCTURE

- Stormwater Management
- Emergency Preparedness
- Utility Improvements

**Expanding emergency preparedness** of the Town will help make for a more resilient community. As such, it was recommended that the Town identify resources to improve radio coverage and explore the potential to regionalize radio coverage and equipment. Additionally, it was suggested that the Town perform a feasibility study for the relocation, design, and construction of a fire, police, and senior community center facility. And lastly, the Town should develop a forestry management plan and continue to collaborate with the Department of Conservation and Recreation to reduce the fire load.

With increased instances of flooding, drought, and severe storms, it will be important for the Town to improve and **fortify its utilities** to prevent a loss of access to these areas. Participants at the workshop recommended performing a town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas. It was also suggested that the Town perform an assessment of municipal water wells, conduct water quality testing at these sites, and investigate the feasibility of expanding the water system to aid with firefighting efforts across Town. Attendees also recommended exploring options for alternative energy sources, greywater systems, and renewable energy, as well as finding alternatives to reduce salt use on roadways.

## Societal Actions



**Fortifying partnerships** will be critical to bring in additional resources and expertise as the Town continues to build its resilience. Workshop attendees suggested improving advocacy through continued collaboration with local stakeholders, surrounding communities, regional organizations, State organizations, and State Representatives. The Town should also work with the Worcester Regional Transit Authority to expand public transportation services in Boylston.

### SOCIETAL

- Partnerships
- Policies & Procedures
- Education & Outreach

Environmental policies in Boylston are already relatively strong, however, the Town should continue to **monitor, review, and revise policies and procedures** as necessary to protect, and in some cases expand, its resources. It was suggested that the Town review and update the Wetlands Protection Bylaw to make it more stringent. Additionally, the Town should adopt the Community Preservation Act (CPA) in order to build funding for conservation, recreation, historical preservation, and affordable housing projects. Developing an education campaign promoting the benefits of the CPA program will be critical in a successful adoption of the Act.

**Building the education of and outreach** with the residents of Boylston will also be critical in ensuring that the Town is prepared for the adverse effects of climate change. Increasing awareness of and engagement with the recently launched paramedicine program was suggested by participants at the workshop. The Town should identify funding opportunities to continue to support this program. Additionally, it was recommended that the Town develop a series of educational campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits.

## Environmental Actions



Continuing to **prioritize environmental and open space planning** will help to strengthen its natural resources. Participants at the workshop suggested developing a prioritization plan for acquiring and protecting open space parcels in Town. Identifying areas to develop, expand, or connect trail systems, as well as utilizing the trail mapping services provided by CMRPC, was recommended as well. And lastly, it was suggested that the Town develop and implement a climate-action plan with an agricultural focus.

### ENVIRONMENTAL

- Environmental & Open Space Planning
- Resource Protection
- Stormwater Management

As the climate continues to change, it will be important for the Town of Boylston to **expand its resource protection efforts** to ensure that these are resilient and do not become a detriment to

the Town. Implementing a tree removal and planting program that utilizes native, drought-resistant, and pest-resistant tree species was recommended to fortify the street trees in Town. Additionally, performing a town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees will also aid in this area. It was also suggested that the Town develop a management plan for Rocky Pond to remove invasive species and improve water quality.

Projections indicate that the duration and frequency of rain events will increase, therefore, it will be important for the Town to **improve its stormwater management practices and infrastructure**. Constructing beaver deceivers in areas with high beaver activity should help to prevent damming that leads to flooding risks. It was also recommended that the Town construct bioswales at Morningdale Park to mitigate drainage issues. And lastly, it was suggested by participants to create a community garden, not only for providing access to healthy, locally grown food, but to also aid in stormwater runoff and absorption.

### Top Recommendations

Following the two-day hybrid workshop, these actions were placed into a survey on the Survey Monkey platform so that participants could prioritize their top recommendations. Participants answered survey questions on: 1) what hazards they were most concerned with; 2) whether an action was high, medium, or low priority; 3) whether an action was a short, long, or ongoing project; and 4) which actions they would like to see Boylston complete. A copy of the survey questions and the survey results can be found in the Appendix at the end of this document.




### TOP RECOMMENDATIONS






- Dam & Bridge Evaluation
- Climate Vulnerability Assessment
- Culvert Inventory
- Emergency Shelter Outreach Campaign



























































The majority of participants indicated that they were most concerned with winter storms, increased snow and icing events, as well as severe storms and wind events as the climate continues to change. The top four priority recommendations include:








































1. Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.
2. Develop a prioritization plan for acquiring and/or protecting open space parcels.
3. Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.
4. Identify needs and resources to improve the Town's potential shelter locations.

At the end of the two-day hybrid workshop, Dani Marini, Environmental Planner for CMRPC and workshop facilitator, thanked attendees for giving their time and attention, and commended the town for their willingness and flexibility to utilize a hybrid platform giving the current public health conditions. The top recommendations on the following pages were compiled based on those actions reported out voted on by participants. Actions are organized by priority and project type. The key below describes the Category and Hazard types found in the top priority action table.

Category	Key
Infrastructural	
Societal	
Environmental	

Hazard	Key
Severe Storms/Flooding	
Winter Storms	
Wind	
Drought	
Wildfires	

Category	Actions	Vote	Hazard
HIGH PRIORITY			
	Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.	8	  
	Develop a prioritization plan for acquiring and/or protecting open space parcels.	5	 
	Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.	4	  
	Identify needs and resources to improve the Town's potential shelter locations.	4	  
	Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	3	 
	Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	3	  
	Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.	3	 
	Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	3	 
	Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	3	   
MEDIUM PRIORITY			
	Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.	2	  
	Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	2	  
	Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.	1	 
	Align repaving efforts with water system and stormwater system upgrades.	1	  
	Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.	1	 
	Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.	1	  
	Review and update Wetlands Protection Bylaw.	1	 

	Increase awareness of and engagement with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.	1	  
	Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	1	 
	Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	1	 
	Create a community garden.	1	 
<b>LOW PRIORITY</b>			
	Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.	0	 
	Explore options for alternative energy sources, renewable energy, and/or greywater systems.	0	 
	Explore alternatives to reduce salt use on roadways.	0	 
	Work with WRTA to expand public transportation service in Town.	0	 
	Perform an inventory assessment of the Old Burial Grounds historic cemetery.	0	 
	Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..	0	  
	Develop and implement a climate-action plan with an agricultural focus.	0	  
	Construct bioswales at Morningdale Park to improve drainage issues.	0	 



## Next Steps

This planning process and list of prioritized recommendations is only the first step in building a more resilient community. The intent of the Summary of Findings Report is to identify the strengths and vulnerabilities of a Town, and to brainstorm potential actions that could help the Town build climate resilience. Once the State accepts the Summary of Findings report and deems the Town of Boylston an MVP Designated Community, the Town should begin identifying projects that they would like to complete from the list of Recommended Actions. Based on Town interests and capabilities, should begin developing action plans to pursue these projects, and should utilize MVP Action Grants, Town resources, or other grant programs and funding opportunities to explore these ideas further.

## CRB WORKSHOP PARTICIPANTS

Name	Affiliation	Attended	Table
Amy Gothing	Council on Aging	Y	2
April Steward	Town Administrator	Y	2
Arlene Murphy	Zoning Board of Appeals	Y	1
Arthur Resca	Massachusetts Department of Transportation	Y	2
Bill Moulton	Massachusetts Department of Conservation and Recreation	Y	2
Bruce Filgate	Historical Commission	Y	1
Chip Burkhardt	Conservation Commission	Y	2
Colin Novick	Greater Worcester Land Trust	Y	1
Dan Stimson	Sudbury Valley of Trustees	Y	2
Deb Cary	Mass Audubon	Y	1
Dennis Emery Goguen	Council on Aging	Y	1
Erica Hout	Boylston Public Library	Y	1
Hillary King	EEA MVP Regional Coordinator	Y	1
Jill Pupkar	Cemetery Commission	Y	1
Jimmy Ricciardi	Bond Farm	Y	2
Joe Flanagan	Fire Department	Y	2
Joe McGrath	Stormwater Committee	Y	1
John Annunziata	Police Department	Y	2
Mark Barakian	Boylston Light Department	Y	1
Mark Richardson	Tower Hill	Y	1
Melissa Fetterhoff	Chamber of Commerce	Y	1
Nancy Filgate	Historical Society	Y	1
Patrick Healy	Thompson-Liston Associates	Y	1
Paul Dell'Aquila	Town Planner	Y	1
State Representative Meghan Kilcoyne	State Representative	Y	2
Stefanie Covino	Blackstone Watershed Collaborative	Y	2
Steve Mero	Highway Department	Y	1
Teresa Prunier	Boylston Water District	Y	2
Andrew Loew	CMRPC	Y	2
Kerrie Salwa	CMRPC	Y	1
Sarah O'Brien	CMRPC	Y	2
Zack Blais	CMRPC	Y	1
Dani Marini	CMRPC	Y	ALL

## CRB WORKSHOP PROJECT TEAM

Name	Affiliation	Role
April Steward	Town of Boylston	Town Administrator
Paul Dell'Aquila	Town of Boylston	Town Planner
Scott McCubrey	Town of Boylston	Boylston Water District, Superintendent
Matthew Mecum	Town of Boylston	Board of Selectmen, Clerk
Joe Flanagan	Town of Boylston	Fire Department, Chief Emergency Management, Director
Steve Mero	Town of Boylston	Highway Department, Superintendent
Dennis Costello	Town of Boylston	Board of Health, Health Agent
Chip Burkhardt	Town of Boylston	Conservation Commission, Chair
Stefanie Covino	Blackstone Watershed Collaborative	Watershed Program Manager
Dani Marini	CMRPC	Associate Planner, Lead Coordinator

## CITATION

Town of Boylston (2022) Community Resilience Building Workshop Summary of Findings.  
Central Massachusetts Regional Planning Commission. Boylston, Massachusetts.

## ACKNOWLEDGEMENTS

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The CMRPC would like to acknowledge the Town of Boylston's Core Team for their time and hard work in participating in this project. These include, but are not limited to:

April Steward, Town Administrator  
Paul Dell'Aquila, Town Planner  
Scott McCubrey, Boylston Water District, Superintendent  
Matthew Mecum, Board of Selectmen, Clerk  
Joe Flanagan, Fire Chief and Emergency Management Director  
Steve Mero, Highway Department, Superintendent  
Dennis Costello, Board of Health, Health Agent  
Chip Burkhardt, Conservation Commission, Chair

The following individuals were directly and personally involved in planning and conducting the Boylston Community Resilience Building Workshop:

Dani Marini, Associate Planner, CMRPC  
Andrew Loew, Project Manager, CMRPC  
Kerrie Salwa, Project Manager, CMRPC  
Zack Blais, Associate Planner, CMRPC  
Sarah O'Brien, Assistant Planner, CMRPC  
Matt Franz, Project Manager, CMRPC  
Stefanie Covino, Watershed Program Manager, Blackstone Watershed Coalition  
Hillary King, Regional Coordinator, EEA

## APPENDIX

- I. Agendas
- II. Workshop Meeting Materials
  - a. Invitation
  - b. Agendas
  - c. Presentations
  - d. Survey
  - e. Sign In Sheet
  - f. Table Matrix
- III. Listening Session Materials
  - a. Flyer
  - b. Presentation
  - c. Sign In Sheet
- IV. Maps



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**Boylston Municipal Vulnerability Preparedness (MVP)**  
**Kickoff Meeting**

**Date/Time:** January 10, 2022 10:00 AM – 11:30 AM

**ZOOM:** <https://us02web.zoom.us/j/85658510376?pwd=MGJEUkVSd1RDZXh2U0QwUlJvSnZBZz09>

**Meeting ID:** 856 5851 0376 **Passcode:** 051764

**AGENDA**

- Introductions
- MVP Program Background
- Roles & Responsibilities
  - Town
    - Assemble Core Team (participates in prep meetings (approximately 3), workshop and listening session)
    - Identify stakeholders to invite to workshop and lead invitation/RSVP process
    - Provide scribes for workshop
    - Lead outreach for public listening session
    - Provide feedback on summary of findings report
    - Grant reporting and documentation of in-kind match
  - CMRPC
    - Organize and lead Core Team meetings
    - Organize and lead workshop, including preparation of presentations and other materials (maps, handouts, etc.)
    - Organize and lead public listening session; assist with outreach
    - Prepare and submit summary of findings report
- Core Team Timeline
  - Core Team Meetings (three-four total)
  - Pre-Workshop meeting/Call
  - CRB Workshop
  - Listening Session (Must be held before May 31<sup>st</sup>)
- Workshop Agenda/Structure
  - Welcome speaker(s) (Town)
  - Content speakers (CMRPC)
  - Table facilitators (generally Town or other local stakeholders; CMRPC will assist)
  - Table reporters (Town or other local stakeholders)
  - Scribes (generally students/seniors)
  - Food (can be funded through grant)
- In-Kind Match/Other/next meeting





1 Mercantile Street – Suite 520  
Worcester, MA 01608  
508.756.7717 P  
508.792.6818 F  
[www.cmrpc.org](http://www.cmrpc.org)

**Boylston Municipal Vulnerability Preparedness (MVP)**  
**Meeting #2**

**Date/Time:** January 26, 2022 10:00 AM – 12:00 PM

**ZOOM:** <https://us02web.zoom.us/j/86157267451?pwd=NVVo2S2wyMk42QTJ6VGpVV20vbUNUdz09>

**Meeting ID:** 861 5726 7451      **Passcode:** 175208

**AGENDA**

- I. Welcome/Recap
- II. Brainstorm Stakeholders
- III. Workshop Structure
  - a. Format
  - b. Date(s)
  - c. Time(s)
- IV. Natural Hazards Review
- V. Next Meeting

**Tasks to Complete**

- ☐ Create Stakeholder List
- ☐ Decide Workshop Format
- ☐ Decide Workshop Date(s) and Time(s)
- ☐ Determine Workshop Roles
- ☐ Send Invitations



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Worcester, MA 01608  
508.756.7717 P  
508.792.6818 F  
[www.cmrpc.org](http://www.cmrpc.org)

**Boylston Municipal Vulnerability Preparedness (MVP)**  
**Meeting #3**

**Date/Time: February 9, 2022**

**11:00 AM – 1:00 PM**

**ZOOM:** <https://us02web.zoom.us/j/82232710089?pwd=eU93cVlQT2x3K1pMVjltbUkvVVZLdz09>

**Meeting ID:** 822 3271 0089

**Passcode:** 033377

**AGENDA**

- I. Welcome/Recap
- II. Stakeholders Review
- III. Workshop Structure
  - a. Format
  - b. Date(s)
  - c. Time(s)
- IV. Natural Hazards Discussion
- V. Next Meeting

**Tasks to Complete**

- ☐ Create Stakeholder List
- ☐ Decide Workshop Format
- ☐ Decide Workshop Date(s) and Time(s)
- ☐ Determine Workshop Roles
- ☐ Send Invitations



1 Mercantile Street – Suite 520  
Worcester, MA 01608  
508.756.7717 P  
508.792.6818 F  
[www.cmrpc.org](http://www.cmrpc.org)

**Boylston Municipal Vulnerability Preparedness (MVP)**  
**Meeting #4**

**Date/Time:** February 23, 2022      **10:00 AM – 12:00 PM**

**ZOOM:** <https://us02web.zoom.us/j/84808827924?pwd=T2R0enU2elBOL2hmMWZzNVRVQXh4QT09>

**Meeting ID:** 848 0882 7924      **Passcode:** 307150

**AGENDA**

- I. Welcome/Recap
- II. Stakeholders Review
- III. Natural Hazards Review
- IV. Workshop Structure
  - a. Wednesday, March 30  
6:00 – 9:00 pm (Virtual)
  - b. Wednesday, April 6  
6:00 – 9:00 pm (Hybrid)
- V. Next Steps/Roles
  - a. Invitations
  - b. Pre-Workshop Materials
  - c. Scribes
  - d. Food for Hybrid Meeting?
- VI. Next Meeting

**Tasks to Complete**

- ☒ Create Stakeholder List
- ☒ Decide Workshop Format
- ☒ Decide Workshop Date(s) and Time(s)
- ☐ Determine Workshop Roles
- ☐ Send Invitations



## Participate in Boylston's Municipal Vulnerability Preparedness (MVP) Program

Given events like the Springfield tornado in 2011, the snowstorms of 2015, the extreme drought of 2016 and recent Hurricanes Harvey and Irma, we find ourselves in a new era of more unpredictable and severe weather that can potentially cause damage to our community.

To be as proactive as possible, I would like to personally invite you to participate in a, two-part, Community Resilience Building Workshops focused on preparing and protecting the Town of Boylston.

The MA Executive Office of Energy and Environmental Affairs' (EEA)

### **Municipal Vulnerability Preparedness (MVP) Program Workshops**

**Wednesday, March 30<sup>th</sup>, 6:00 – 9:00 pm**

**Virtually on ZOOM**

**&**

**Wednesday, April 6<sup>th</sup>, 6:00 – 9:00 pm**

**221 Main Street, Boylston, MA 01501 or Virtually on ZOOM**

***Refreshments provided for in-person participants***

The Town of Boylston is collaborating with EEA and CMRPC to offer this timely workshop which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across Boylston. This workshop will help develop and advance comprehensive community resilience planning, hazard mitigation, and adaptation efforts.

The workshops objectives are to:

- Define extreme weather and climate related hazards;
- Identify current and future vulnerabilities and strengths;
- Develop and prioritize actions; and
- Identify opportunities for the Town to advance actions and reduce risks to build resilience

To learn more about the general program information, please visit the following websites:

- Community Resilience Building: <https://www.communityresiliencebuilding.com/crbworkshopguide>
- Municipal Vulnerability Program: <https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program>
- Resilient MA, Climate Change Clearinghouse for the Commonwealth: <https://www.resilientma.org/>

Log-in information and meeting materials for Boylston's MVP workshop will be sent out on March 23<sup>rd</sup> to those who RSVP. We would appreciate your participation in this timely workshop. To RSVP to Boylston's MVP workshop, please complete this survey:

**<https://forms.gle/fPu378A2MaQxjZiM6>**

**Please RSVP by March 18, 2022**

If you have any questions about the program, please contact Paul Dell'Aquila, Boylston Town Planner, at [TownPlanner@boylston-ma.gov](mailto:TownPlanner@boylston-ma.gov), or Dani Marini, CMRPC Environmental Planner, at [dmarini@cmrpc.org](mailto:dmarini@cmrpc.org).

We look forward to seeing you or a designee at our workshop. Thank you for your assistance with this important project!

Sincerely,  
April Steward, Town Administrator



## Thank You for Your Participation in Boylston's Municipal Vulnerability Preparedness (MVP) Program!



The Town of Boylston is collaborating with EEA and CMRPC to offer a two-day hybrid workshop on **March 30<sup>th</sup> and April 6<sup>th</sup>** which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across Boylston. Follow the instructions below in order to help make your community more climate resilient! If you have any questions about the program, please contact Paul Dell'Aquila, Town Planner, at [TownPlanner@boylston-ma.gov](mailto:TownPlanner@boylston-ma.gov). We look forward to seeing you at our workshop!

### Step 1. Discover Boylston's MVP Dropbox

The resources included in this invitation will help you learn more about the MVP program and prepare you for the upcoming workshop. All of these resources and more can be found in the following Dropbox link. If possible, you will want to have this Dropbox link open during the workshop so that you can easily access this information.

**Workshop Dropbox:** [https://www.dropbox.com/sh/bts0tjlix9iu9ix/AADsC2eZrxJFTWx2\\_wDUUUIWa?dl=0](https://www.dropbox.com/sh/bts0tjlix9iu9ix/AADsC2eZrxJFTWx2_wDUUUIWa?dl=0)

### Step 2. Review the Program Overview and Workshop Guide

The following two documents will give you an overview of the MVP program and will describe a typical Community Resiliency Building (CRB) workshop.

**Program Overview:** [https://www.dropbox.com/s/q5n0y2qb29f78u6/MVP%20Program%20Info\\_Updated%202019.pdf?dl=0](https://www.dropbox.com/s/q5n0y2qb29f78u6/MVP%20Program%20Info_Updated%202019.pdf?dl=0)

**CRB Workbook:** <https://www.dropbox.com/s/5vhmh1fjzp5dor4/CRB%20Workshop%20Guide.pdf?dl=0>

### Step 3. Watch the MVP Presentations Prior to Workshop

The following link contains pre-recorded presentations that will help you be better prepared for the MVP workshop. The presentations include an overview of the program and the MVP process, climate projections, and hazards that Boylston may face in the future. Please take some time to review each of these presentations.

**Presentations:** <https://www.dropbox.com/sh/opmoe2ifhdcz9uz/AAB6j0LI4ZQUPPtqHGwYPoJPa?dl=0>

### Step 4. Familiarize Yourself with the Matrix and Maps

During the workshop, we will divide up into breakout groups to discuss strengths, vulnerabilities, and possible actions that the town can take. During this process, we will be filling out a matrix and marking up maps with our ideas. The following documents will show you an example of a completed matrix and will give you a set of pre-made maps that already display various features, hazards, and resources in Boylston.

**Complete Matrix Example:** <https://www.dropbox.com/s/qrhtlzstjk8k0jv/Completed%20Matrix%20Example.pdf?dl=0>

**Maps:** <https://www.dropbox.com/sh/phfa5rcwskwtf2x/AAArF-aAwIM6946t5xIhhLsya?dl=0>

### Step 5. Attend the Workshop!

The 2-day workshop will be held on **March 30<sup>th</sup> and April 6<sup>th</sup>**. The agenda for each day as well as the Zoom meeting links are listed below. Please review the agenda for each day and use the meeting links to join the Zoom.

**Agenda Day 1:** <https://www.dropbox.com/s/x7p06l2vh7uli6o/Day%201%20Agenda%20%28March%2030%29.pdf?dl=0>

**Zoom Link Day 1:** <https://us02web.zoom.us/j/81682022671?pwd=WjNhUTIMM1RwNENVZG5FTUF6cno4QT09>

**Agenda Day 2:** <https://www.dropbox.com/s/1jj50cepz5k3ue8/Day%202%20Agenda%20%28April%206%29.pdf?dl=0>

**Zoom Link Day 2 (Online):** <https://us02web.zoom.us/j/83312236275?pwd=dUkydkxFeIZzQm1IV1orMGFuMlItQT09>

**Meeting Location (In-person):** Town House, 599 Main Street, Boylston, MA 01505

### Learn How to Zoom

New to Zoom? The following document contains a series of instructional videos to help guide you through Zoom from downloading the app to joining a meeting for the first time.

<https://www.dropbox.com/s/z7sks13hjk0rz84/How%20To%20Zoom.pdf?dl=0>



# Community Resiliency Building Workshop

## Town of Boylston

### *Municipal Vulnerability Preparedness*

**Day 1- Wednesday, March 30, 2022**

6:00 – 9:00 pm; Check-in at 5:50 pm

**Meeting Link (Click to Join):** <https://us02web.zoom.us/j/81682022671?pwd=WjNhUTIMM1RwNENVZG5FTUF6cno4QT09>

**Meeting ID:** 816 8202 2671

**Passcode:** 675962

**Call in Number (if unable to join online):** 1-646-558-8656

**Workshop Materials:** [https://www.dropbox.com/sh/bts0tjlix9iu9ix/AADsC2eZrxJFTWx2\\_wDUUUIWa?dl=0](https://www.dropbox.com/sh/bts0tjlix9iu9ix/AADsC2eZrxJFTWx2_wDUUUIWa?dl=0)

## Workshop Agenda

5:50 – 6:00 pm

- Login to Zoom

6:00 – 6:15 pm

- Town Introduction
- Welcome from State Representative Kilcoyne

6:15 – 6:45 pm

- Overview Presentation
- Questions & Answers

6:45 pm – 7:45 pm

- Breakout Groups
  - Identify Hazards & Local Features
  - Discuss Strengths & Vulnerabilities

7:45 – 7:55 pm

- 10 Minute Break

7:55 – 8:50 pm

- Breakout Groups
  - Identify Hazards & Local Features
  - Discuss Strengths & Vulnerabilities
  - Identify Actions to Build Resilience  
(as time allows)

8:50 pm – 9:00 pm

- Reconvene as Large Group
  - Quick Table Summary
  - Closing Remarks & Wrap Up

## Day 1: Workshop Objectives

- Define extreme weather and climate related hazards
- Identify current and future vulnerabilities and strengths

## Homework

- Review hazards, vulnerabilities, and strengths
- Brainstorm actions to address vulnerabilities



**Thank you for participating in Boylston's Community Resilience Building Workshop!**







# Community Resiliency Building Workshop

## Town of Boylston

*Municipal Vulnerability Preparedness*

**Day 2- Wednesday, April 6, 2022**

6:00 pm – 9:00 pm; Check-in at 5:50 pm

**Meeting Location (In-Person Option):** Boylston Town House, 599 Main Street, Boylston, MA 01505

**Meeting Link (Virtual Option):** <https://us02web.zoom.us/j/83312236275?pwd=dUkydkxFelZzQm1IV1orMGFuMlItQT09>

**Meeting ID:** 833 1223 6275

**Passcode:** 255656

**Call in Number (if unable to join online):** 1-646-558-8656

**Workshop Materials:** [https://www.dropbox.com/sh/bts0tjlixyu9ix/AADsC2eZrxJFTWx2\\_wDUUUIWa?dl=0](https://www.dropbox.com/sh/bts0tjlixyu9ix/AADsC2eZrxJFTWx2_wDUUUIWa?dl=0)

## Workshop Agenda

**5:50 – 6:00 pm**

- Log in to Zoom OR Check-in and Grab Food

**6:00 – 6:20 pm**

- Welcome & Recap from Day 1
- Culverts Dashboard Presentation
- Questions & Answers

**6:20 – 7:20 pm:**

- Breakout Groups
  - Identify Actions to Reduce Risks and Build Resilience

**7:20 – 7:30 pm**

- 10 Minute Break

**7:30 – 8:30 pm**

- Breakout Groups
  - Identify Actions to Reduce Risks and Build Resilience
  - Prioritize Actions by Urgency and Timing

**8:30 – 9:00 pm**

- Reconvene as Large Group
- Table Reports
- Closing Remarks & Wrap Up

## Day 2: Workshop Objectives

- Review vulnerabilities and strengths identified on Day 1
- Develop and prioritize actions;
- Identify opportunities for the Town to advance actions and reduce risks to build resilience

## Homework

- Review actions to reduce risks and build resilience
- Vote for top priority actions via survey (link to be emailed)
- Attend Listening Session

**Thank you for participating in Boylston's Community Resilience Building Workshop!**



# **TOWN OF BOYLSTON**

## **Municipal Vulnerability Preparedness (MVP) Community Resilience Building Workshop**

**March 30 and April 6, 2022**

**Day One, March 30<sup>th</sup>, 6:00 – 9:00 pm  
Virtual**

# ZOOM BEST PRACTICES

- Rename yourself on Zoom (First name, last name, organization)
- Keep your video on (if possible)
- Keep microphone muted when you are not speaking (use \*6 if calling in from landline)
- Use Zoom's chat feature as needed
- Zoom-bombing
  - If this occurs, do not close Zoom
  - CMRPC staff will shut off video and audio for all participants and eject disruptor from the call



## Thank You for Your Participation in Boylston's Municipal Vulnerability Preparedness (MVP) Program!



The Town of Boylston is collaborating with EEA and CMRPC to offer a two-day hybrid workshop on **March 30<sup>th</sup> and April 6<sup>th</sup>** which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across Boylston. Follow the instructions below in order to help make your community more climate resilient! If you have any questions about the program, please contact Paul Dell'Aquila, Town Planner, at [TownPlanner@boylston-ma.gov](mailto:TownPlanner@boylston-ma.gov). We look forward to seeing you at our workshop!

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# Community Resiliency Building Workshop

## Town of Boylston

*Municipal Vulnerability Preparedness*

**Day 1- Wednesday, March 30, 2022**

6:00 – 9:00 pm; Check-in at 5:50 pm

**Meeting Link (Click to Join):** <https://us02web.zoom.us/j/81682022671?pwd=WlNhUTlMM1RwNENVZG5FTUF6cno4QT09>

**Meeting ID:** 816 8202 2671

**Passcode:** 675962

**Call in Number (if unable to join online):** 1-646-558-8656

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- Welcome from State Representative Kilcoyne

6:15 – 6:45 pm

- Overview Presentation
- Questions & Answers

6:45 pm – 7:45 pm

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  - Identify Hazards & Local Features
  - Discuss Strengths & Vulnerabilities

7:45 – 7:55 pm

- 10 Minute Break

7:55 – 8:50 pm

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  - Identify Hazards & Local Features
  - Discuss Strengths & Vulnerabilities
  - Identify Actions to Build Resilience  
(as time allows)

8:50 pm – 9:00 pm

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  - Quick Table Summary
  - Closing Remarks & Wrap Up

## Day 1: Workshop Objectives

- Define extreme weather and climate related hazards
- Identify current and future vulnerabilities and strengths

## Homework

- Review hazards, vulnerabilities, and strengths
- Brainstorm actions to address vulnerabilities



Thank you for participating in Boylston's Community Resilience Building Workshop!



# MUNICIPAL VULNERABILITY PREPAREDNESS (MVP)

- State grant program to support cities and towns to begin the process of planning for climate resiliency.
- MVP Planning Process includes CRB Workshop, Summary of Findings Report, Public Listening Session, and Annual Reporting
- Communities who complete the MVP Planning Process become certified as an MVP Community
- Designated communities become eligible for MVP Action Grant funding

**1. Engage  
Community**

**2. Identify CC  
Impacts &  
Hazards**

**3. Complete  
Assessment of  
Vulnerabilities  
& Strengths**

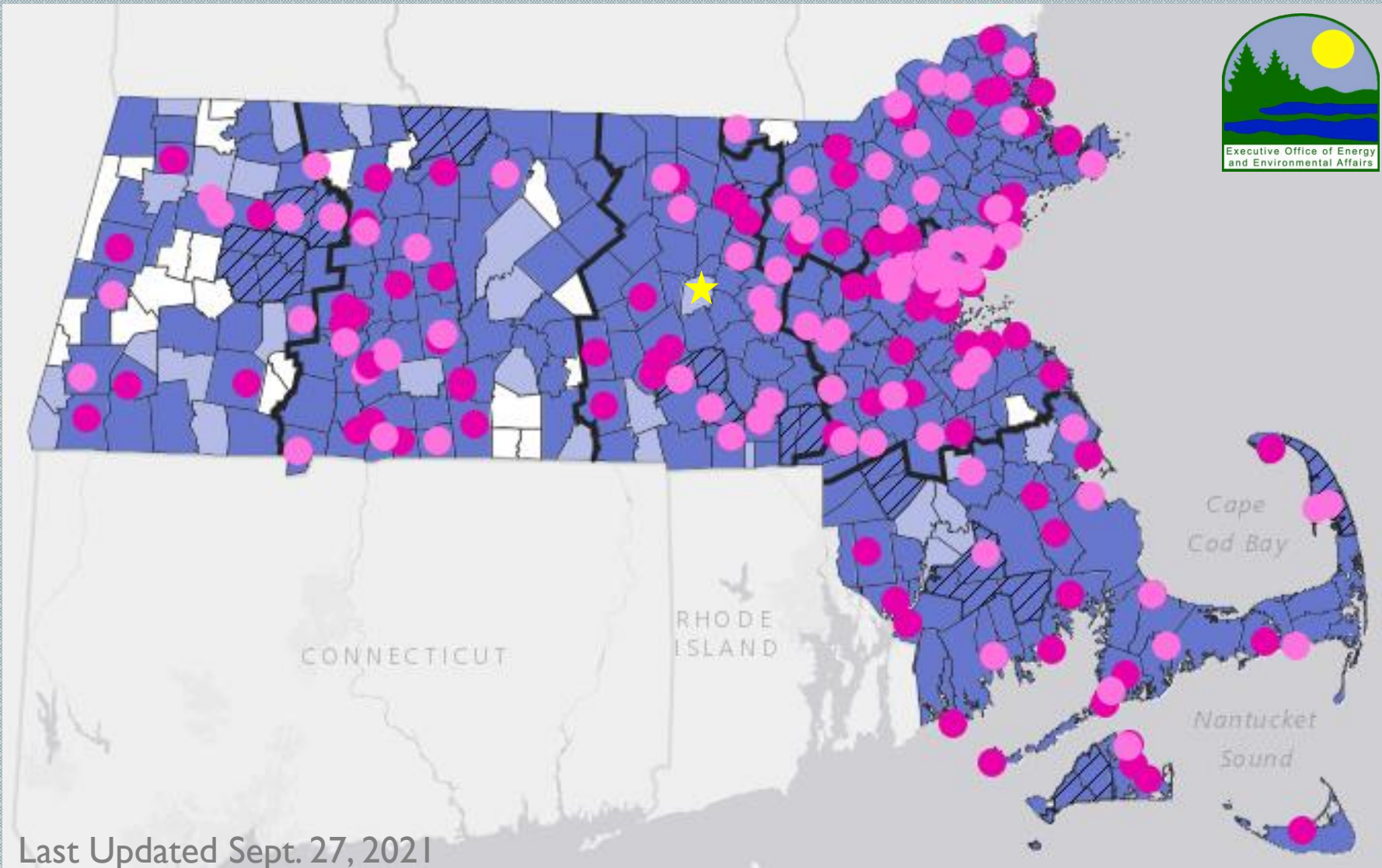
**4. Develop &  
Prioritize  
Actions**

**5. Take Action**



# Municipal Vulnerability Preparedness (MVP) Grant Programs

## Planning Grants and Action Grants

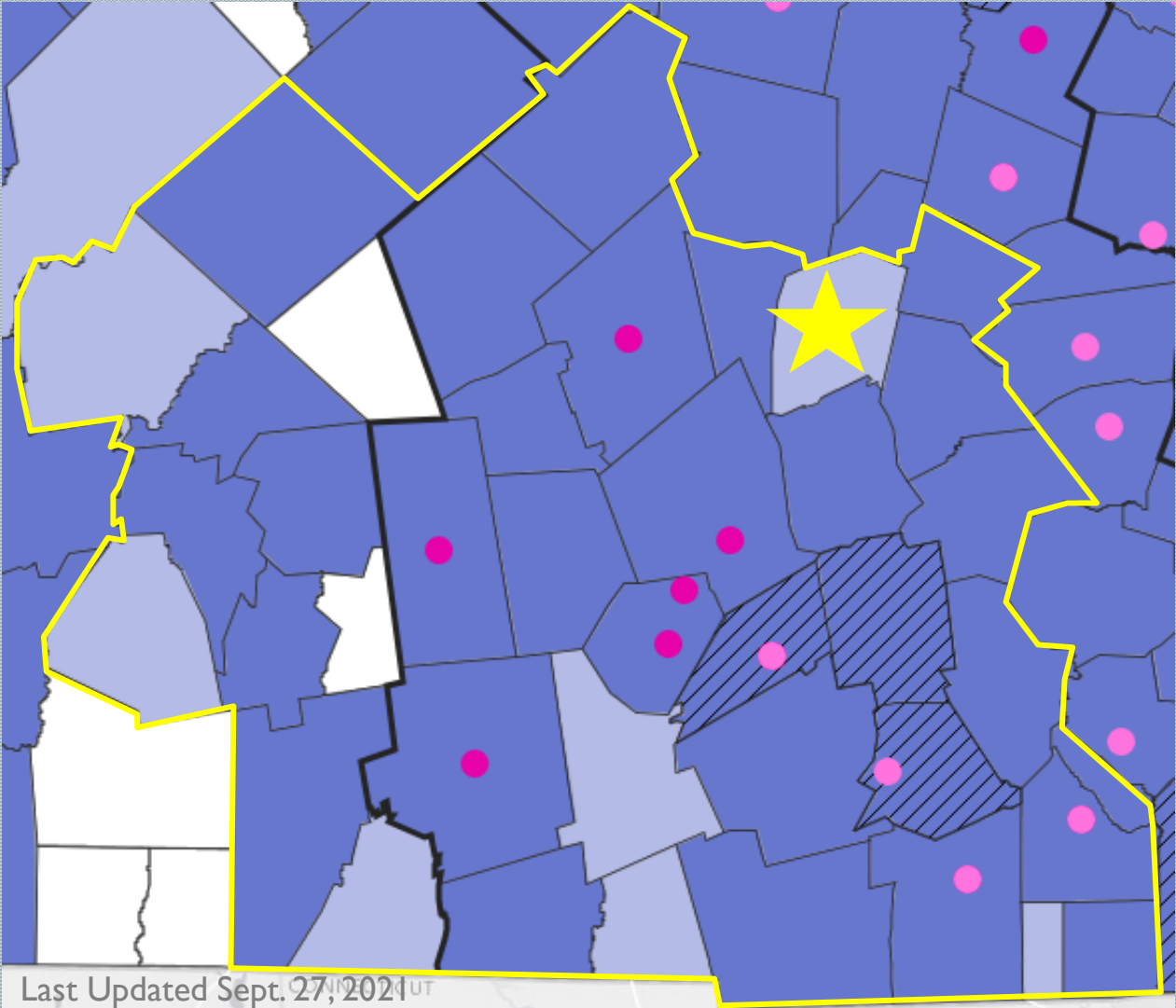


Last Updated Sept. 27, 2021

Source: Massachusetts Executive Office of Energy and Environmental Affairs beta Climate Grant Viewer

# Municipal Vulnerability Preparedness (MVP) Grant Programs

## Central Massachusetts Planning Grants and Action Grants



### Legend

#### MVP Action Grants

- Completed
- In-progress

#### MVP\_region\_boundaries

#### CMRPC region boundary

#### MVP regional partnerships

#### MVP Planning Grant municipalities

- Achieved MVP designation
- In-progress

**MVP Program Manager  
for Central Region:**  
Hillary King  
(617) 655-3913  
[Hillary.king@mass.gov](mailto:Hillary.king@mass.gov)




# CLIMATE RESILIENCE

is defined as the ability of a community to address the needs of its built, social, and natural environment in order to anticipate, cope with, and rebound stronger from events and trends related to climate change hazards, including temperature changes, extreme weather, sea level rise, coastal and inland flooding, changes in precipitation, and other impacts.



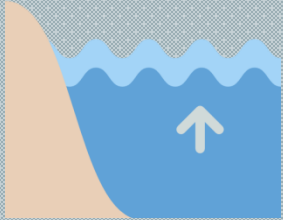
# THE MATRIX

Community Resilience Building Risk Matrix				www.CommunityResilienceBuilding.org				
				Top Priority Hazards (tornado, floods, wildfire, hurricanes, drought, heat wave, etc.)				
H-M-L priority for action over the Short or Long term (and Ongoing) V = Vulnerability S = Strength				Floods	Winter Storms	Droughts & Wildfires	Priority H - M - L	Time Short Long Ongoing
Features	Location	Ownership	V or S					
<b>Infrastructural</b>								
<b>Societal</b>								
<b>Environmental</b>								

## TABLE ROLES AND RESPONSIBILITIES

- Table Facilitator directs the discussion and keeps the dialogue moving
- Scribes filling in matrix
- Participants- All of you
- CMRPC resource person
- Table spokesperson for Report Out

# STEP ONE: HAZARD IDENTIFICATION



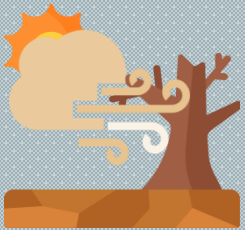
- **Flooding**
  - Riverine
  - Street



- **Landslides**
- **Mudslides**



- **Tornadoes**



- **Drought**
- **Dust Storms**



- **Tsunami**



- **Hurricanes/  
Nor'easters**



- **Wild Fires**



- **Winter Storms**
  - **Snow**
  - **Ice**



- **Extreme Temperatures**
  - **Heat**
  - **Cold**

# STEP ONE: HAZARD IDENTIFICATION

## 1. Winter Storms Ice Storms Snow

- Dust Storms

## 2. Severe Storms Wind Events Tornadoes

## 3. Flooding Inland Flooding (Direct) Coastal Flooding (Indirect)


- Tsunami

Nor'easters

## 4. Extreme Heat/Drought Invasives Wildfire



# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

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

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

Top 4 Hazards

H-M-L

Short Long Ongoing

Features	Location	Ownership	V or S						
Infrastructural									
Societal									
Environmental									

## PRIMARY TOPIC AREAS



- Infrastructure




- Society



- Environment

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)


**H-M-L** priority for action over the Short or Long term (and Ongoing)  
**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	Top 4 Hazards				Priority	Time
								H-M-L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									



# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)


H-M-L priority for action over the Short or Long term (e.g.)  
 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	Top 4 Hazards				Priority	Time
								H-M-L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									

Estimated Location

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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

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

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<b>Environmental</b>									
Wetlands									

**Public? Private? State?**

**Estimated Location**

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

**Community Resilience Building Risk Matrix** [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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Dam									
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Senior Housing									
<b>Environmental</b>									
Wetlands									

**Vulnerability or Strength**

**Public? Private? State?**

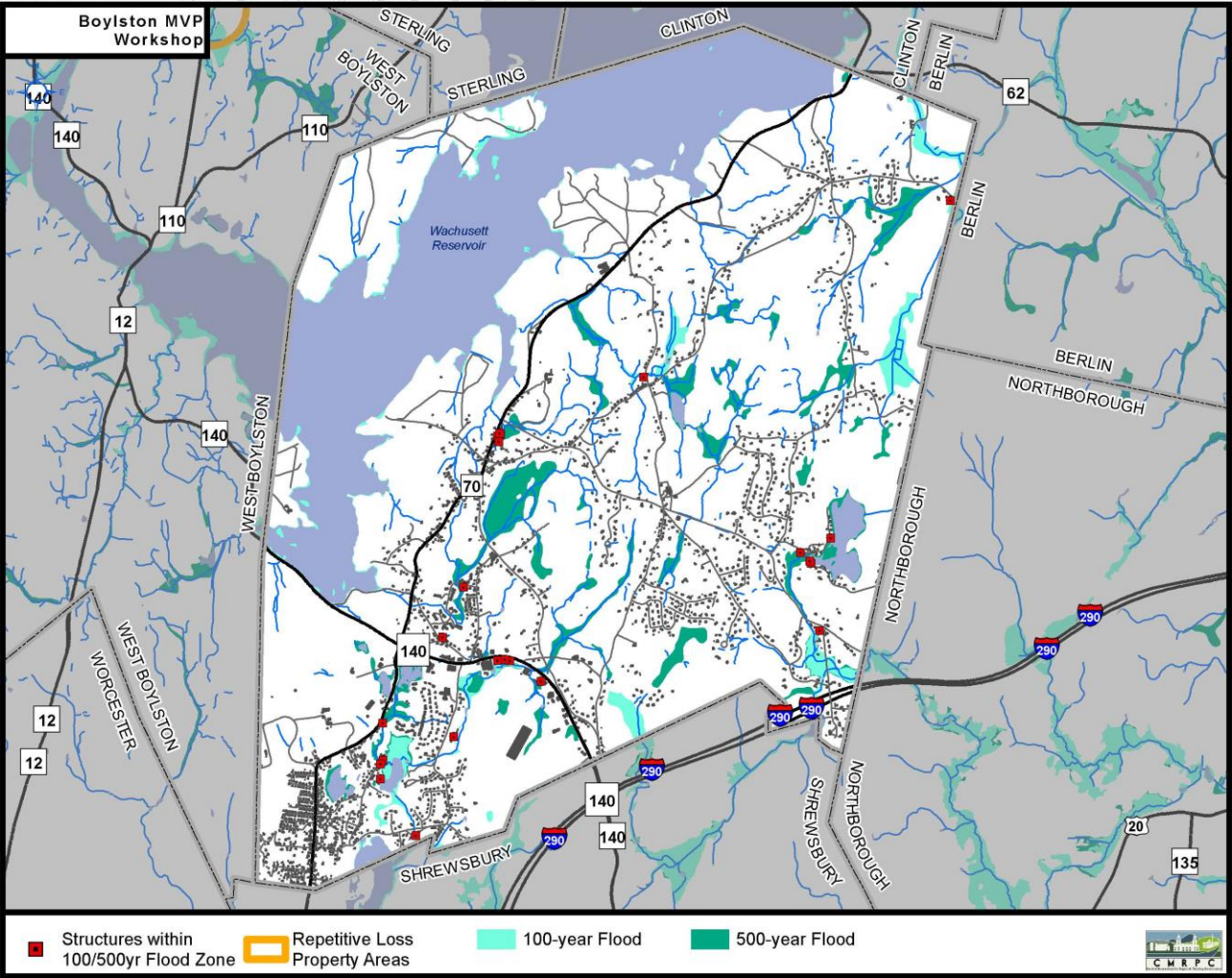
**Estimated Location**

# THINGS TO CONSIDER



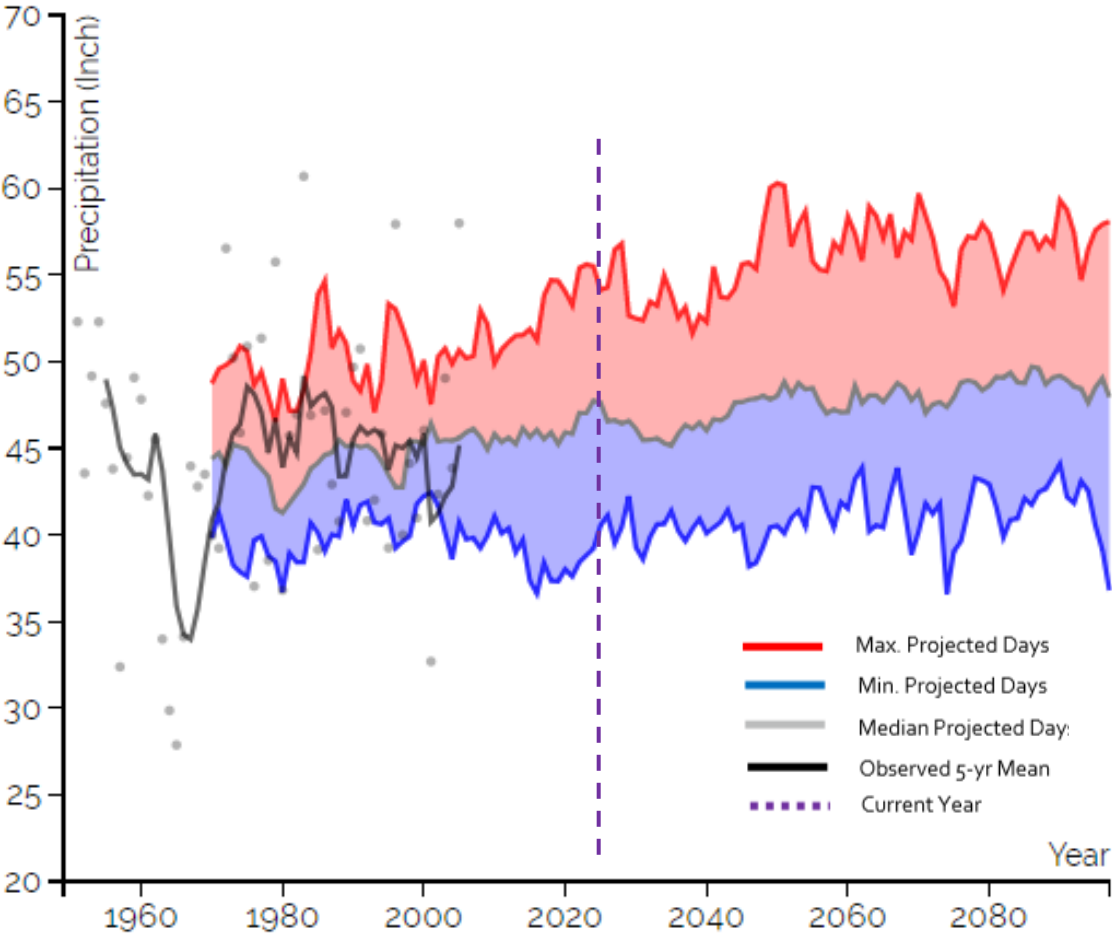
# HEAVY RAINFALL AND FLOODING IMPACTS

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_Nat-Haz\_Flood\_Impacts\_8x10.mxd



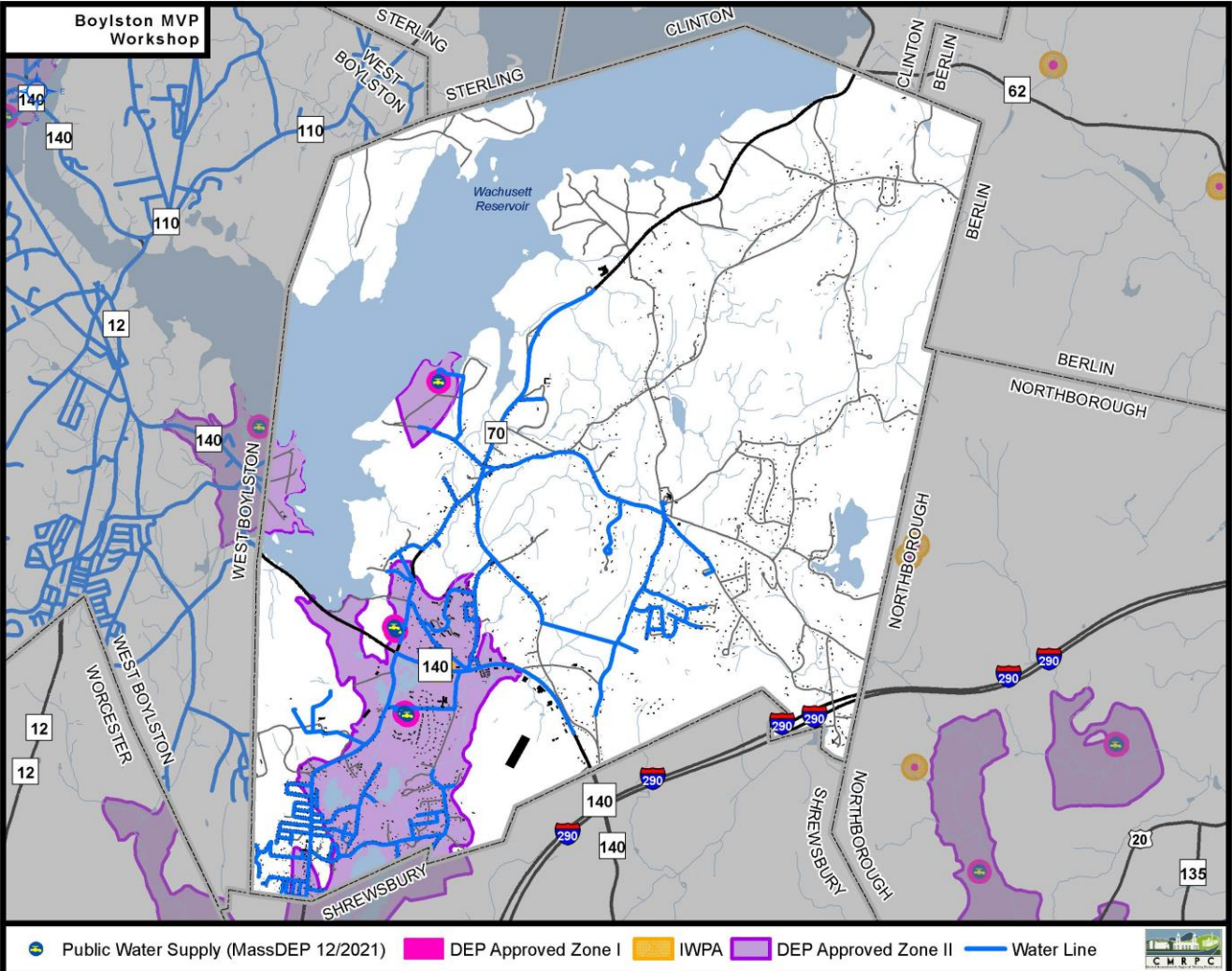
Source: Data provided by the town of Boylston, CMRPC, MassDOT, MassGIS. Information depicted on this map is for planning purposes only.

Annual Total Precipitation  
Nashua

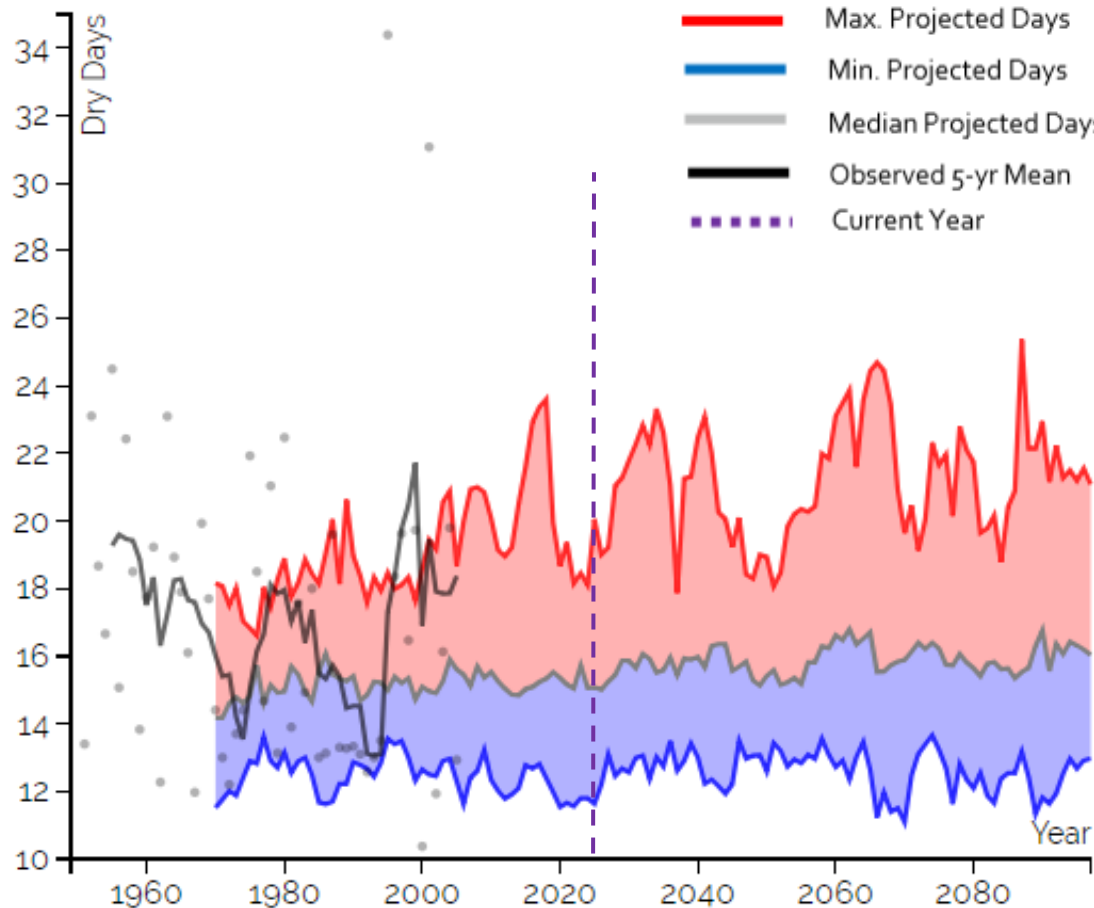


# DROUGHT IMPACTS

Date: 3/4/2022 Document Path: H:\Projects\HLS\_GIS\Subprojects\mvpp\mvpp\_slides\_NatHaz\_Drought\_8x10.mxd



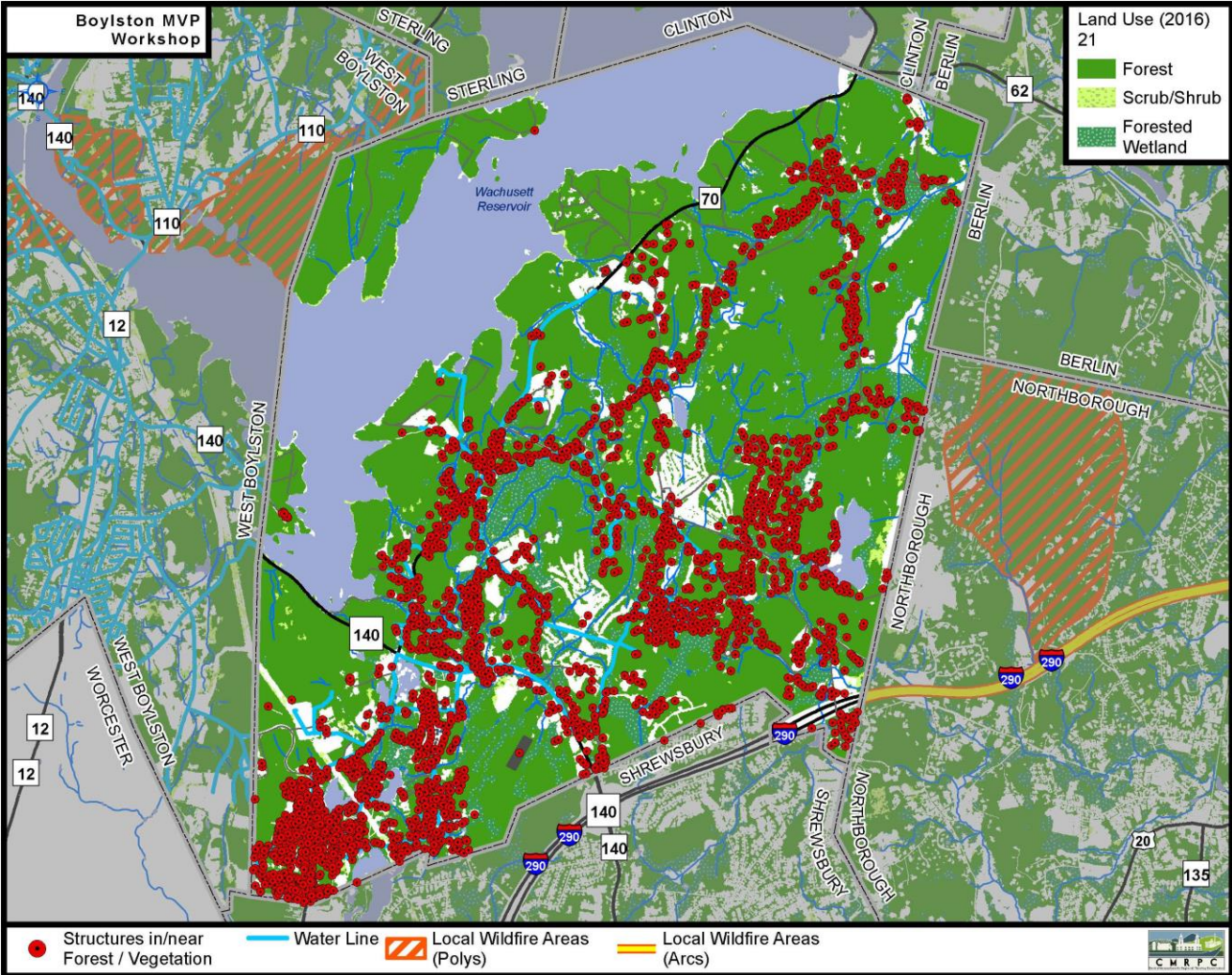
Annual Consecutive Dry Days  
Nashua





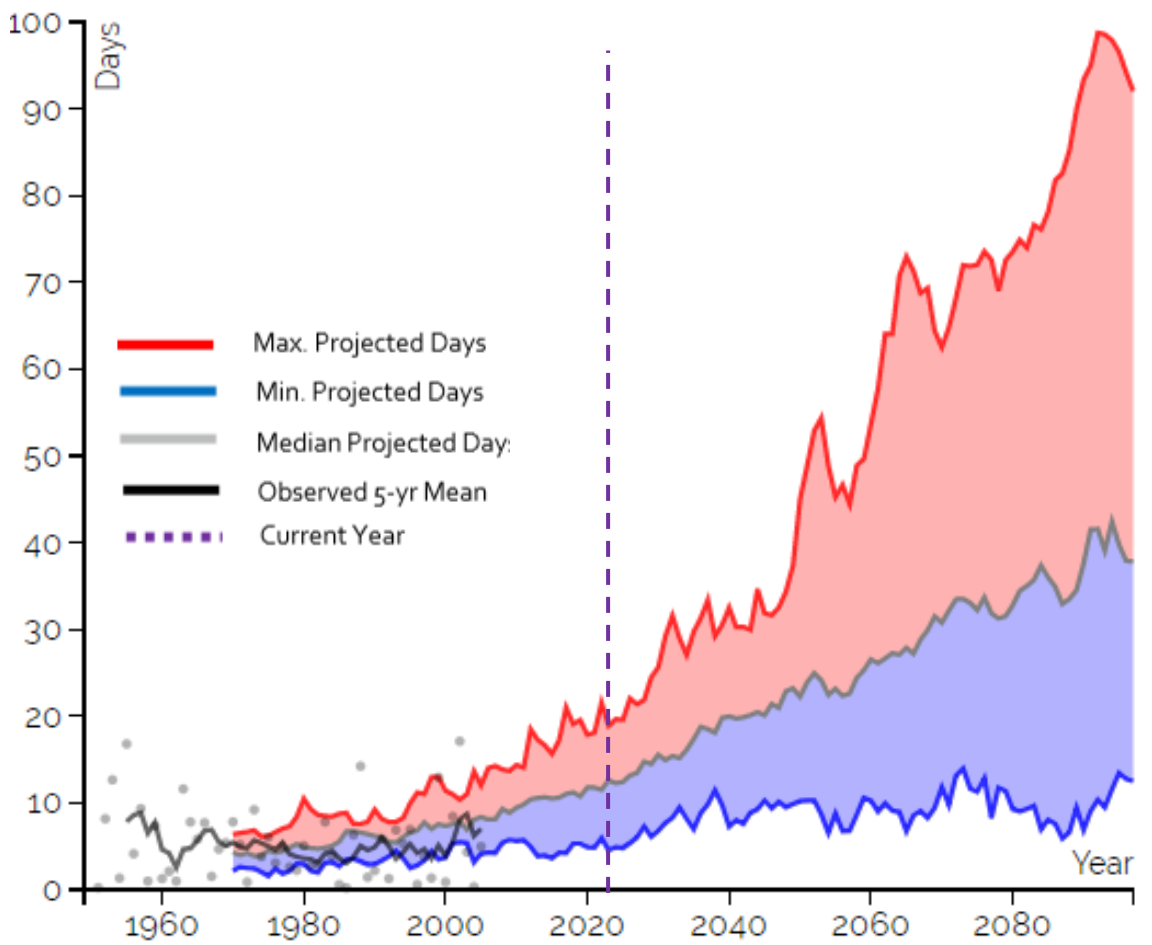
# HEAT IMPACTS

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Wildfires\_Urban\_8x10.mxd



Source: Data provided by the town of Boylston, CMRPC, Mass Audubon, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

## Annual Days with Maximum Temperature Above 90°F Nashua



# VULNERABLE POPULATIONS

**Seniors (65+)** - 17.5% of the population is 65 years or older

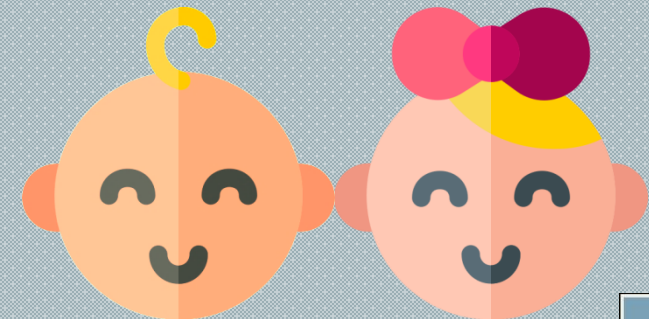
**Youth (Under 18)** – 21.2% of the population is under the age of 18

**Renter Occupied** – 18.8% of the population rents their home

**Language** – 9.0% of the population speaks a language other than English at home

**Low-Income** – 3.0% of the population is in poverty

**Disability** – 7.1% of the population is disabled



## BREAK OUT GROUP: FIRST MEETING

- Step 1- Fill in top 4 Natural Hazards

*Flooding, Drought/Extreme Heat, Severe Storms, Winter Storms/Extreme Cold*

- Step 2- Identify key features
  - Infrastructure- Dams
  - Societal- Senior Housing
  - Environmental- Wetlands
- Where is the Feature Located
- Identify ownership (Public, Private...)
- Identify vulnerability, strength or both

# QUESTIONS?

# TIME TO GET TO WORK



# NEXT STEPS



# Community Resiliency Building Workshop

## Town of Boylston

*Municipal Vulnerability Preparedness*

Day 2- Wednesday, April 6, 2022

6:00 pm – 9:00 pm; Check-in at 5:50 pm

**Meeting Location (In-Person Option):** Boylston Town House, 599 Main Street, Boylston, MA 01505

**Meeting Link (Virtual Option):** <https://us02web.zoom.us/j/83312236275?pwd=dUkydKxFeIZzQm1V1orMGFuMlltQT09>

**Meeting ID:** 833 1223 6275

**Passcode:** 255656

**Call in Number (if unable to join online):** 1-646-558-8656

**Workshop Materials:** [https://www.dropbox.com/sh/bts0tlixylu9ix/AADsC2eZrxJFTWx2\\_wDUUUIWa?dl=0](https://www.dropbox.com/sh/bts0tlixylu9ix/AADsC2eZrxJFTWx2_wDUUUIWa?dl=0)

## Workshop Agenda

5:50 – 6:00 pm

- Login to Zoom OR Check-in and Grab Food

6:00 – 6:20 pm

- Welcome & Recap from Day 1
- Questions & Answers

6:20 – 7:20 pm:

- Breakout Groups
  - Identify Actions to Reduce Risks and Build Resilience

7:20 – 7:30 pm

- 10 Minute Break

7:30 – 8:30 pm

- Breakout Groups
  - Identify Actions to Reduce Risks and Build Resilience
  - Prioritize Actions by Urgency and Timing

8:30 – 9:00 pm

- Reconvene as Large Group
- Table Reports
- Closing Remarks & Wrap Up

## Day 2: Workshop Objectives

- Review vulnerabilities and strengths identified on Day 1
- Develop and prioritize actions;
- Identify opportunities for the Town to advance actions and reduce risks to build resilience

## Homework

- Review actions to reduce risks and build resilience
- Vote for top priority actions via survey (link to be emailed)
- Attend Listening Session

Thank you for participating in Boylston's Community Resilience Building Workshop!



# QUESTIONS?

# CONTACT US

Boylston Core Team Leader

Paul Dell-Aquila, [TownPlanner@boylston-ma.gov](mailto:TownPlanner@boylston-ma.gov)

CMRPC Project Leader

Dani Marini, [dmarini@cmrpc.org](mailto:dmarini@cmrpc.org)

Executive Office of Energy and Environmental Affairs

Hillary King, [hillary.king@state.ma.us](mailto:hillary.king@state.ma.us)

**THANK YOU!**

# **TOWN OF BOYLSTON**

**Municipal Vulnerability Preparedness (MVP)  
Community Resilience Building Workshop  
March 30<sup>th</sup> and April 6<sup>th</sup>, 2022**

**Day Two  
Wednesday, April 6<sup>th</sup>  
6:00 – 9:00 pm**



# Community Resiliency Building Workshop

**Town of Boylston**  
**Municipal Vulnerability Preparedness**  
**Day 2- Wednesday, April 6, 2022**  
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## Workshop Agenda

**5:50 – 6:00 pm**

- Login to Zoom OR Check-in and Grab Food

**6:00 – 6:20 pm**

- Welcome & Recap from Day 1
- Culverts Dashboard Presentation
- Questions & Answers

**6:20 – 7:20 pm:**

- Breakout Groups
  - Identify Actions to Reduce Risks and Build Resilience

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# THE MATRIX

Community Resilience Building Risk Matrix				www.CommunityResilienceBuilding.com					
H-M-L priority for action over the <u>Short</u> or <u>Long</u> term (and <u>Ongoing</u> ) 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	Time
								H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
<b>Societal</b>									
<b>Environmental</b>									

## STEP THREE: ACTIONS, PRIORITY AND TIMELINE

[illegible]

# MVP CORE PRINCIPLES

**The MVP program has 9 core principles that should be incorporated into MVP Action Grant Applications and when completing the MVP Planning process.**

- I. Furthering a community identified priority action to address climate change impacts
- II. Utilizing climate change data for a proactive solution
- III. Employing Nature-Based Solutions (NBS)
- IV. Increasing equitable outcomes for and supporting strong partnerships with Environmental Justice (EJ) Populations and Climate Vulnerable Populations
- V. Conducting robust community engagement
- VI. Achieving broad and multiple community benefits
- VII. Committing to monitoring project success and maintaining the project into the future
- VIII. Utilizing regional solutions toward regional benefit
- IX. Pursuing innovative, transferable approaches

# NATURE BASED SOLUTIONS

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.

# NATURE BASED SOLUTIONS: LOW IMPACT DEVELOPMENT (LID)

Make use of or mimic natural systems to absorb and slow runoff and stormwater and reduce heat islands.

Low impact development (LID) designs can be integrated into new development at neighborhood scales and work with traditional approaches



**Bioswale between sidewalk and street**



**Contained bioswale or planter box**



# MORE EXAMPLES OF LOW IMPACT DEVELOPMENT AND GREEN INFRASTRUCTURE



**Green Parking Lots**



**Permeable Paving**



# INFRASTRUCTURE PROJECTS

**Traditional Culvert**



**Nature Based Culvert**

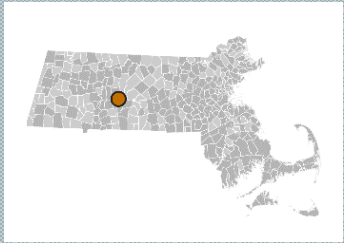




# Example Action Grant Projects

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

## Belchertown



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



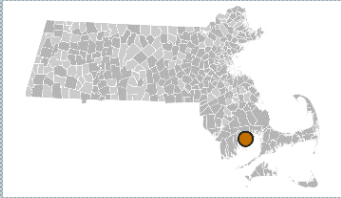
Nature-based solutions

Pilot potential

# Example Action Grant Projects

## Land Acquisition for Resilience

### Mattapoisett



Purchasing 120 acres of forest, streams, freshwater wetlands, and coastal salt marsh to preserve as conservation land to prevent development in vulnerable areas



Data Utilization

Proactive

# BENEFITS OF GREEN INFRASTRUCTURE AND LID

## Cost Savings

- Reduced development costs for infrastructure and maintenance
- Reduced energy costs for residents

## Public Safety

- Reduced flooding
- Improved water quality
- Increased climate change resiliency
- Reduced urban heat island effect

## Quality of Life

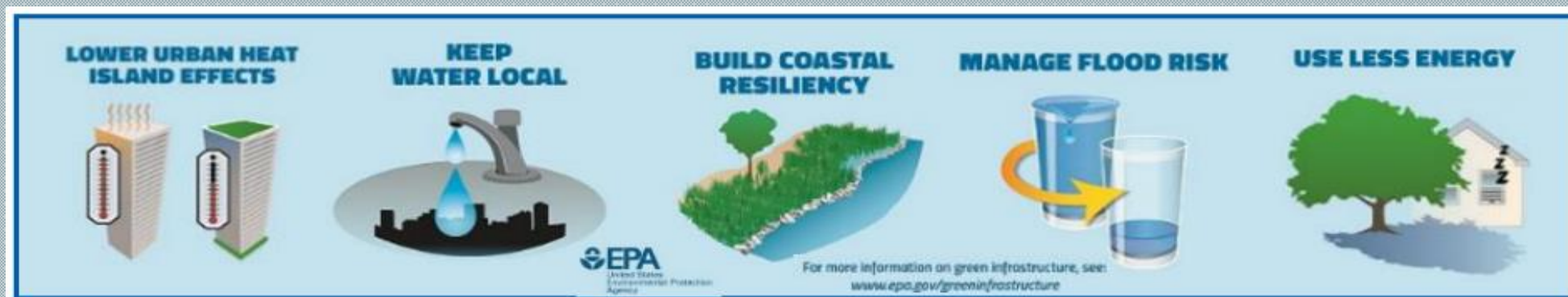
- Protect and restore natural features for improved aesthetics

## Value

- Increased property values


## Regulatory

- Assistance in meeting regulatory requirements





# STEP THREE: ACTIONS

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.org](http://www.CommunityResilienceBuilding.org)

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

Features	Location	Ownership	V or S	Top Priority Hazards (tornado, floods, wildfire, hurricane, drought, heat wave, etc.)			Priority		Time	
				Floods	Winter Storms	Droughts & Wildfires	H-M-L	Short Long Ongoing		
Infrastructural										
Societal										
Environmental										

**Completed**

1. Engage Community


2. Identify CC Impacts & Hazards

3. Complete Assessment of Vulnerabilities & Strengths

4. Develop & Prioritize Actions

5. Take Action

# STEP THREE: PRIORITIES

Community Resilience Building Risk Matrix  www.communityresiliencebuilding.com


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

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

Features	Location	Ownership	V or S	Top 4 Hazards	Time
Infrastructure					Short Long Ongoing
Societal					
Environmental					

**Completed**

# STEP THREE: TIMELINE

Community Resilience Building Risk Matrix  [www.communityresiliencebuilding.com](http://www.communityresiliencebuilding.com)

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 Y = Vulnerability S = Strength

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

Top 4 Hazards

Features	Location	Ownership	V or S	H-M-L	Priority
Infrastructure					
Societal					
Environmental					

**Completed**



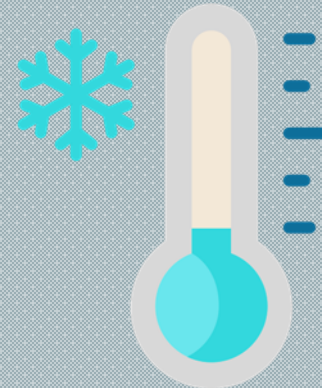
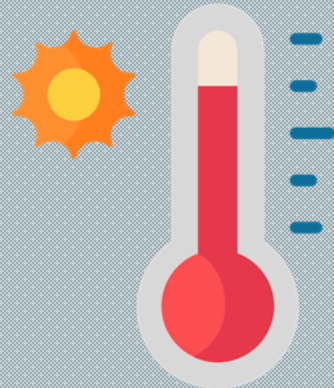
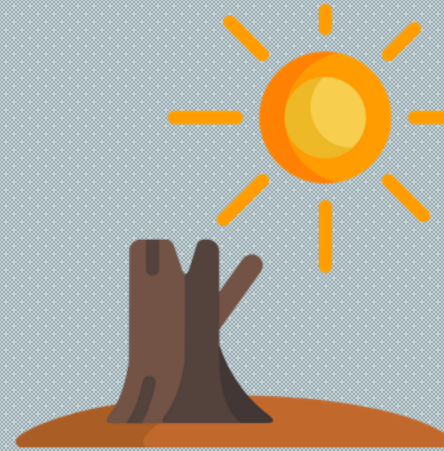
# TABLE REPORTS

Top Infrastructure, Societal, and Environmental Concerns

Top project ideas or actions that your group was excited about

Unique perspectives or observations

# QUESTIONS



**WHAT DID YOUR  
TABLE FIND?**

# TABLE REPORTS

Top Infrastructure, Societal, and Environmental Concerns

Top project ideas or actions that your group was excited about

Unique perspectives or observations

## NEXT STEPS

- Complete the Survey
- Summary of Findings Report Development
- Public Listening Session/Presentation to Board of Selectmen in Spring 2022
- Develop Resources and Implement Action

**1. Engage  
Community**

**2. Identify CC  
Impacts &  
Hazards**

**3. Complete  
Assessment of  
Vulnerabilities  
& Strengths**

**4. Develop &  
Prioritize  
Actions**

**5. Take Action**

# MVP ACTION GRANT

Next round is open and accepting applications until **May 5, 2022**

up to \$3 million for an individual community

up to \$5 million for regional projects

one year grant cycle (typically) July 1<sup>st</sup>- June 30<sup>th</sup>

25% Match - Cash or In-kind (Non-State Funds)

Discuss grant ideas with MVP coordinator to develop competitive application

<https://resilientma.org/mvp/>



**THANK  
YOU**

# **TOWN OF BOYLSTON**

## **Municipal Vulnerability Preparedness (MVP) Community Resilience Building Workshop**

**March 30<sup>th</sup>, 6:00 – 9:00 pm**

**&**

**April 6<sup>th</sup>, 6:00 – 9:00 pm**

# MUNICIPAL VULNERABILITY PREPAREDNESS (MVP)

- State grant program to support cities and towns to begin the process of planning for climate resiliency.
- MVP Planning Process includes CRB Workshop, Report, Listening Session and Annual Reporting
- Communities who complete the MVP Planning Process become certified as an MVP Community
- Designated communities become eligible for MVP Action Grant funding

**1. Engage  
Community**

**2. Identify CC  
Impacts &  
Hazards**

**3. Complete  
Assessment of  
Vulnerabilities  
& Strengths**

**4. Develop &  
Prioritize  
Actions**

**5. Take Action**

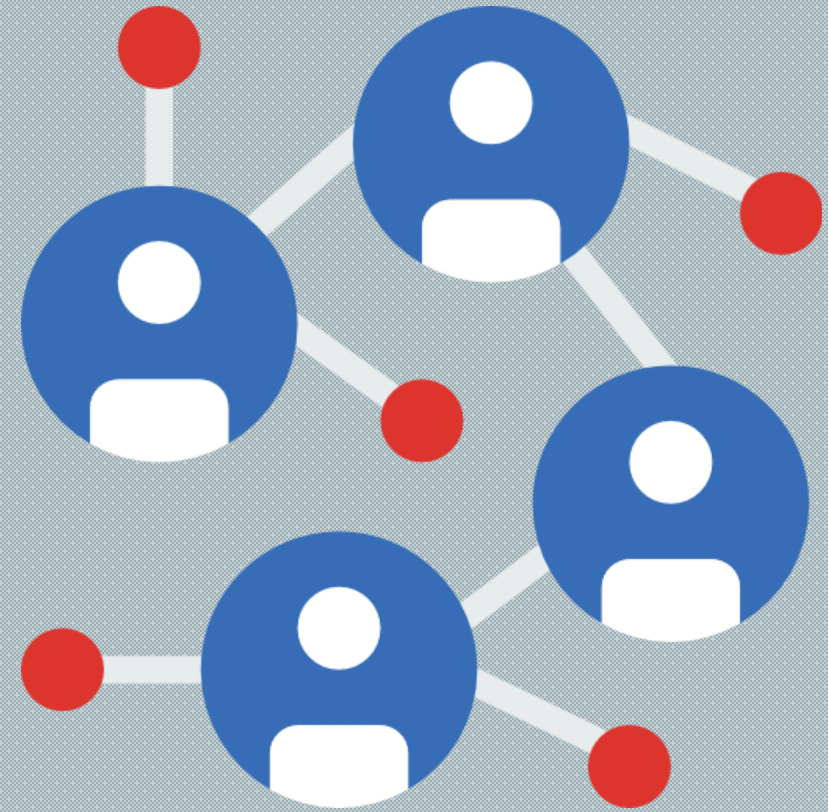


# COMMUNITY RESILIENCE BUILDING WORKSHOP OBJECTIVES

- Define extreme weather and climate-related hazards
- Identify current and future vulnerabilities and strengths
- Develop and prioritize actions for the community and broader stakeholder networks, and
- Identify opportunities for the community to advance actions to reduce risks and build resilience

# BREAKOUT GROUPS

- 3-4 tables of 6 to 8 individuals
- Each table will discuss
  - Societal,
  - Infrastructure, and
  - Environmental
- Tools and Resources
  - Matrix, Maps, & Each Other



# THE MATRIX

Community Resilience Building Risk Matrix				www.CommunityResilienceBuilding.com					
H-M-L priority for action over the <u>Short</u> or <u>Long</u> term (and <u>Ongoing</u> ) V = Vulnerability S = Strength				Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)				Priority	Time
Features	Location	Ownership	V or S					H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
<b>Societal</b>									
<b>Environmental</b>									



## STEP ONE: HAZARD IDENTIFICATION

# What are the Top Four Natural Hazards in Boylston?

1. Engage  
Community

2. Identify CC  
Impacts &  
Hazards

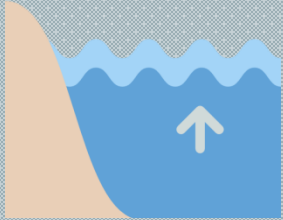
3. Complete  
Assessment of  
Vulnerabilities  
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4. Develop &  
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Actions

5. Take Action



# STEP ONE: HAZARD IDENTIFICATION



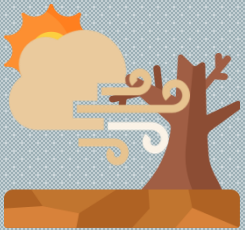
- **Flooding**
  - Riverine
  - Street



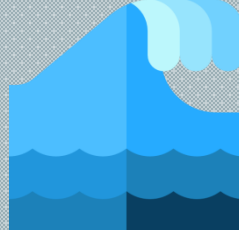
- **Landslides**
- **Mudslides**



- **Tornadoes**



- **Drought**
- **Dust Storms**



- **Tsunami**



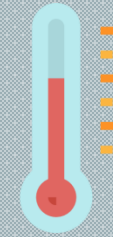
- **Hurricanes/  
Nor'easters**



- **Wild Fires**




- **Winter Storms**
  - **Snow**
  - **Ice**



- **Extreme Temperatures**
  - **Heat**
  - **Cold**

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

**H-M-L** priority for action over the Short or Long term (and Ongoing)  
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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	Top 4 Hazards				Priority		Time	
								H-M-L	Short	Long	Ongoing
<b>Infrastructural</b>											
<b>Societal</b>											
<b>Environmental</b>											

## PRIMARY TOPIC AREAS



- Infrastructure




- Society



- Environment

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES



Community Resilience Building Risk Matrix


www.CommunityResilienceBuilding.com

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Infrastructural									
Dam									
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# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)


H-M-L priority for action over the Short or Long term (e.g.)  
 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	Top 4 Hazards				Priority	Time
								H-M-L	Short Long Ongoing
<b>Infrastructural</b>									
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Estimated Location

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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**Public? Private? State?**

**Estimated Location**

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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<b>Societal</b>						
Senior Housing						
<b>Environmental</b>						
Wetlands						

**Vulnerability or Strength**

**Public? Private? State?**

# **DAY 1 COMPLETE**

# STEP TWO: COMPLETED

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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

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

				Top 4 Hazards				Priority	Time
Features	Location	Ownership	V or S					H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									



## STEP THREE: ACTIONS, PRIORITY AND TIMELINE

[illegible]

# NATURE BASED SOLUTIONS

- Make use of natural systems
- Mimic the natural processes
- Actions to protect, sustainably manage and restore ecosystems
- Simultaneously providing well-being and biodiversity

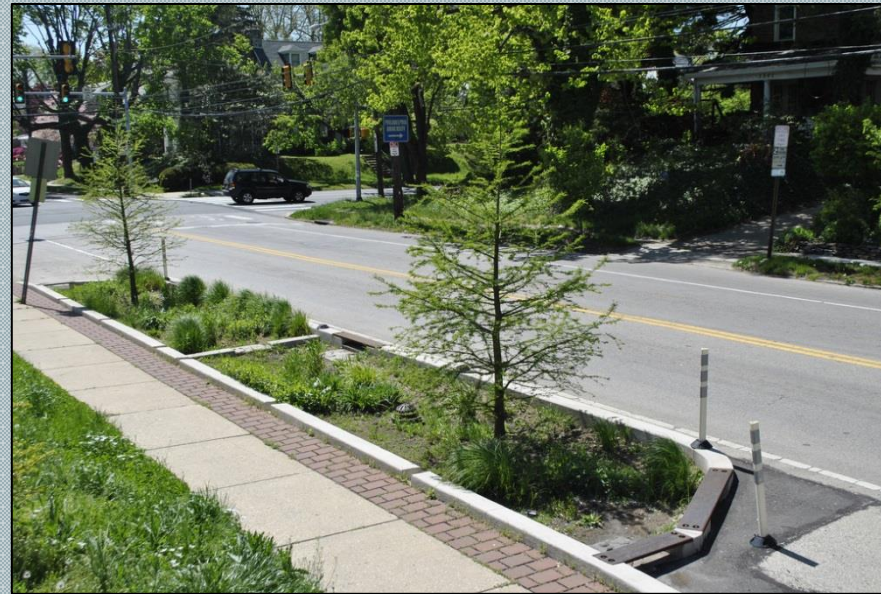
International Union for Conservation of Nature (IUCN)

# NATURE BASED SOLUTIONS (LID)

- Natural systems mimic natural processes to absorb and slow runoff and stormwater, and also reduce heat islands.
- Low impact development (LID) designs can be integrated into new development at neighborhood scales and work with traditional approaches



**Bioswale between sidewalk and street**

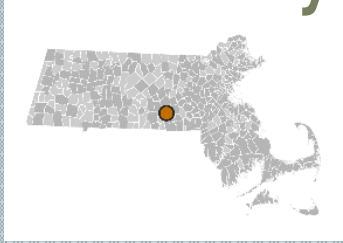


**Contained bioswale or planter box**

# Example Action Grant Projects

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

## Millbury



Designing 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



# MORE EXAMPLES OF LOW IMPACT DEVELOPMENT AND GREEN INFRASTRUCTURE



**Green Parking Lots**

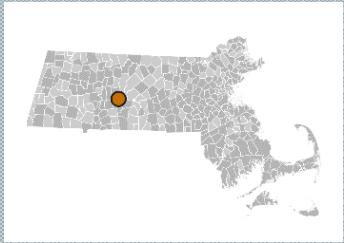


**Permeable Paving**

# Example Action Grant Projects

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

## Belchertown



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



Nature-based solutions

Pilot potential



# ECONOMIC BENEFITS OF LID AND GREEN INFRASTRUCTURE PROJECTS

Aquatic restoration projects in MA, like these natural culverts, are contributing to a growing “restoration economy” by providing jobs and economic output.

## Traditional Culvert



## Nature Based Culvert

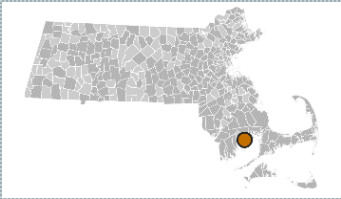




# Example Action Grant Projects

## Land Acquisition for Resilience

### Mattapoisett



Purchasing 120 acres of forest, streams, freshwater wetlands and coastal salt marsh as conservation land to prevent development in vulnerable areas




Data  
Utilization  
Proactive

# BENEFITS OF GREEN INFRASTRUCTURE AND LID

- Cost Savings
  - Reduced development costs for infrastructure and maintenance
  - Reduced energy costs for residents
- Public Safety
  - Reduced flooding
  - Improved water quality
  - Increased climate change resiliency
  - Reduced urban heat island effect
- Quality of Life
  - Protect and restore natural features for improved aesthetics
- Value
  - Increased property values
- Regulatory
  - Assistance in meeting regulatory requirements



# STEP THREE: ACTIONS

Community Resilience Building Risk Matrix  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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

Features	Location	Ownership	V or S	Top Priority Hazards (tornado, floods, wildfire, hurricane, earthquake, drought, sea level rise, heat wave, etc.)	Priority	Time
				Top 4 Hazards	H-M-L	Short Long Ongoing
Infrastructural						
Societal						
Env						

Completed

Nature Based Solutions

1. Engage Community

2. Identify CC Impacts & Hazards


3. Complete Assessment of Vulnerabilities & Strengths

4. Develop & Prioritize Actions

5. Take Action



# STEP THREE: PRIORITIES

Community Resilience Building Risk Matrix  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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

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

Features	Location	Ownership	V or S	Top 4 Hazards	Priority	Time
					H-M-L	Short Long Ongoing
Infrastructural						
Societal						
Environmental						


**Completed**

**Nature Based Solutions**

**High/ Med. Low**

**Top 4 Hazards**

# STEP THREE: TIMELINE

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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

**Top Priority Hazards** (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat waves)

				Top 4 Hazards				Priority	
Features	Location	Ownership	V or S					H - M - L	Short Long Ongoing
Infrastructural									
Societal									
Env									

**Completed**

**Nature Based Solutions**

**High/ Med. Low**

**Short/Long/Ongoing**

# **REPORT OUTS**

**What did your table  
find?**



# SUMMARY DISCUSSION

- Areas of agreement
- Areas of unique perspectives

# NEXT STEPS

- Complete the survey
- Report development
- Public “Listening” session with Members of the Public and Board of Selectmen in Spring 2022
- Develop resources and Implement actions.

**1. Engage  
Community**

**2. Identify CC  
Impacts &  
Hazards**

**3. Complete  
Assessment of  
Vulnerabilities  
& Strengths**

**4. Develop &  
Prioritize  
Actions**

**5. Take Action**



# CONTACT US

Boylston Core Team Leader

Paul Dell-Aquila, [TownPlanner@boylston-ma.gov](mailto:TownPlanner@boylston-ma.gov)

CMRPC Project Leader

Dani Marini, [dmarini@cmrpc.org](mailto:dmarini@cmrpc.org)

Executive Office of Energy and Environmental Affairs

Hillary King, [hillary.king@state.ma.us](mailto:hillary.king@state.ma.us)

**THANK  
YOU**

# CLIMATE PROJECTIONS AND IMPACTS FOR THE TOWN OF BOYLSTON

1. Engage  
Community

2. Identify CC  
Impacts &  
Hazards

3. Complete  
Assessment of  
Vulnerabilities  
& Strengths

4. Develop &  
Prioritize  
Actions

5. Take Action

**Municipal Vulnerability Preparedness  
Community Resilience Building Workshop – March 30 and April 6**



# CLIMATE CHANGE PROJECTIONS

## Climate projections

- Precipitation
  - Annual
  - Large events
  - Changes in “\_\_\_ year storms”
  - Consecutive dry days
- Temperature



## Natural Hazards

- Winter Storms
- Heavy Rainfall and Flooding
- Drought, Wildfire, and Heat





# EXAMPLES OF IMPACTS OF CLIMATE CHANGE

## Infrastructure

- **Transportation** - Increased precipitation and flooding can disrupt traffic, delay construction, and wash out soil and culverts that support roads, tunnels, and bridges.
- **Energy** - Increase in summer peak electricity demand in most regions of the United States.

## Societal

- **Agriculture** - Impact on crops from more extreme temperature and precipitation
- **Human Health** - More frequent, extreme and longer heat waves will impact vulnerable populations.

## Environment

- **Ecosystems** - Impacts such as range shifts, habitat loss, more pests and more invasive species

# OUR CLIMATE IS ALREADY CHANGING

**Temperature:**



**3° F  
Since 1895**

**Growing Season:**



**11 Days  
Since 1895**

**Sea Level Rise:**



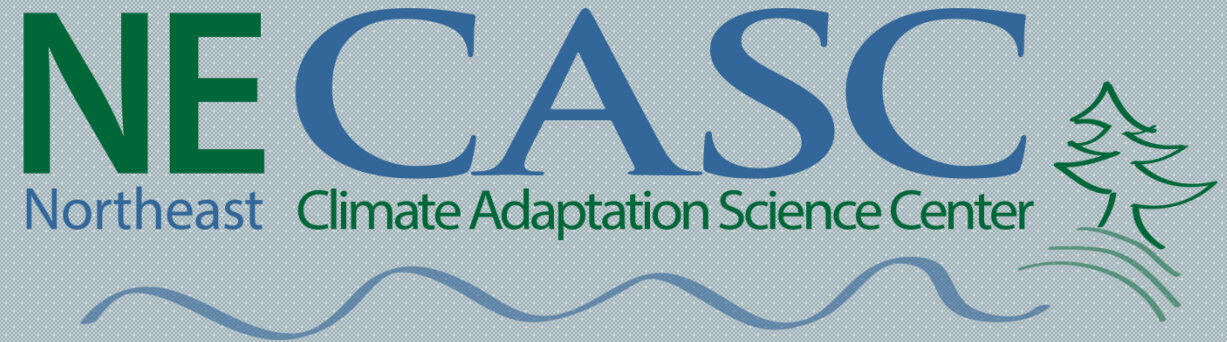
**8 inches  
Since 1900**

**Strong Storms:**



**55%  
Since 1958**

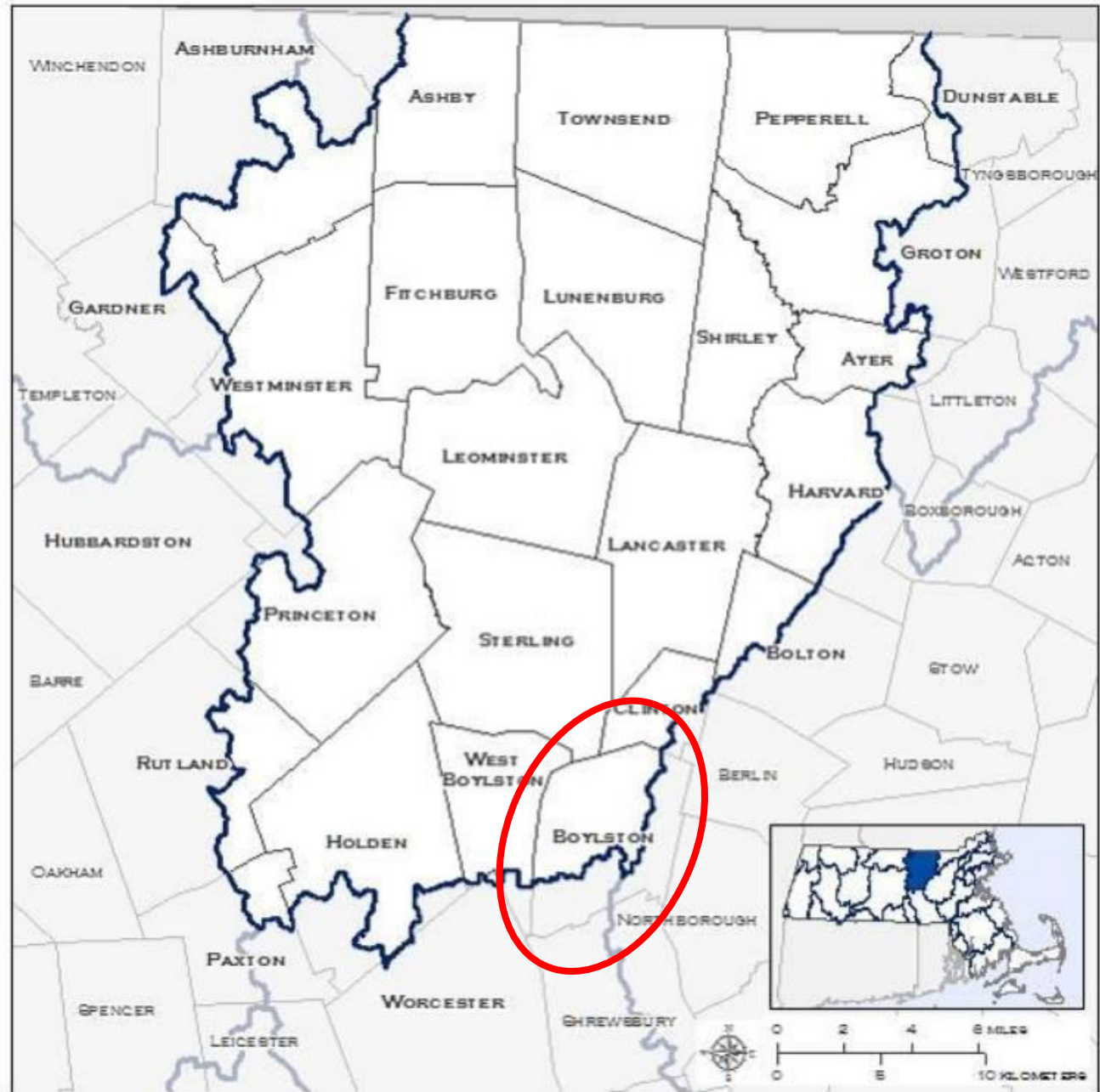
# **NORTHEAST CLIMATE SCIENCE CENTER UMASS AMHERST**



- NECASC downscaled climate projections for major drainage basins
- Climate Models from the IPCC Fifth Assessment Report
- Historical Data 1971-2000
- Medium and High Emission Scenarios were Chosen (RCP 4.5 and 8.5)
  - Medium Scenario Assumes Emissions Peak at Mid-Century
  - High Scenario Assumes a Continuing Emission Trajectory

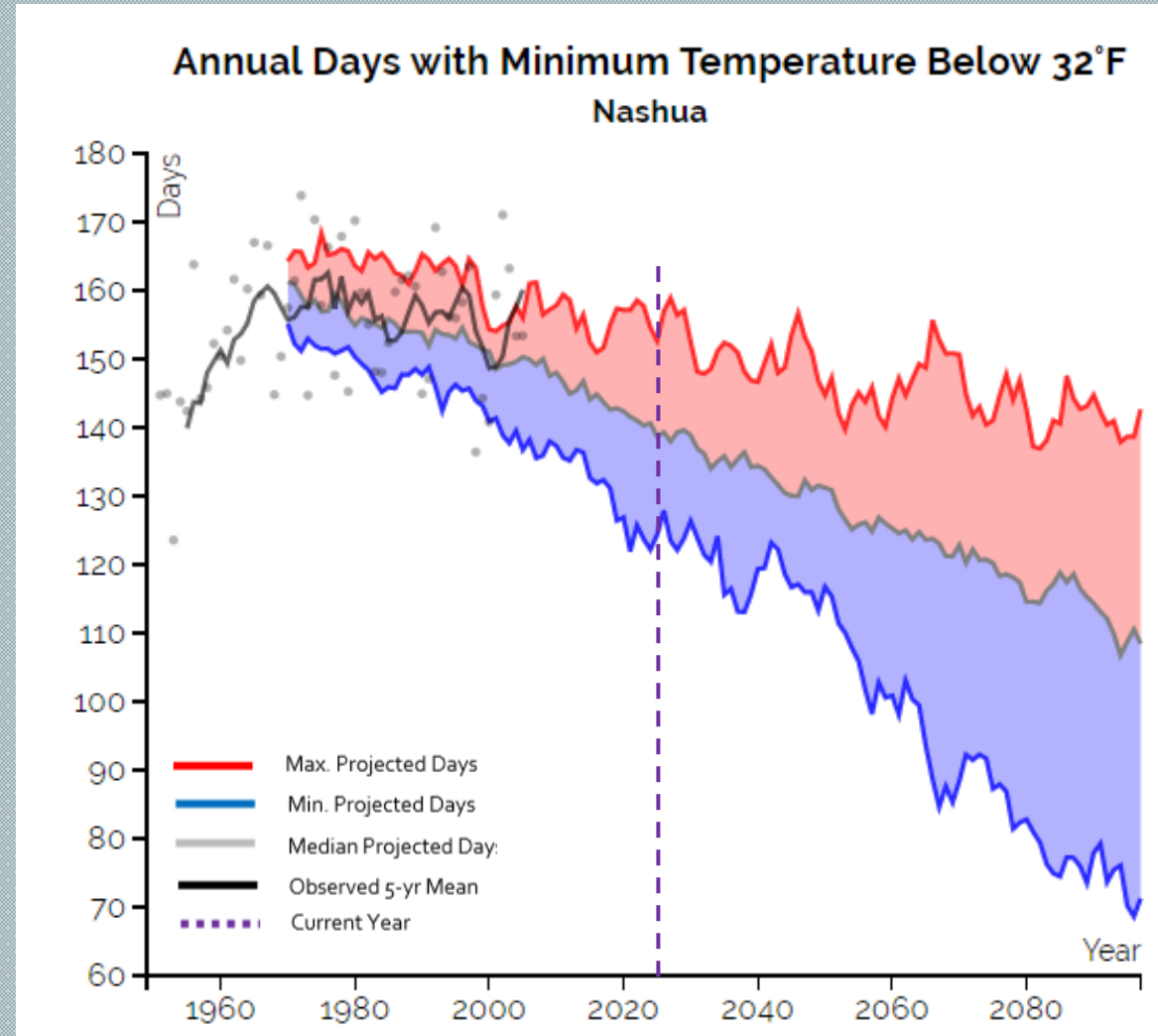


# NASHUA RIVER BASIN



# WINTER STORMS

- Annual days below freezing will decrease
- Rising temps → more winter precipitation to fall as rain or freezing rain
- Lower snowfall accumulation
- Winter - Highest projected increase in precipitation
- Storms that do occur may be worse  
- proximity to Atlantic Ocean increases risk of large storm events

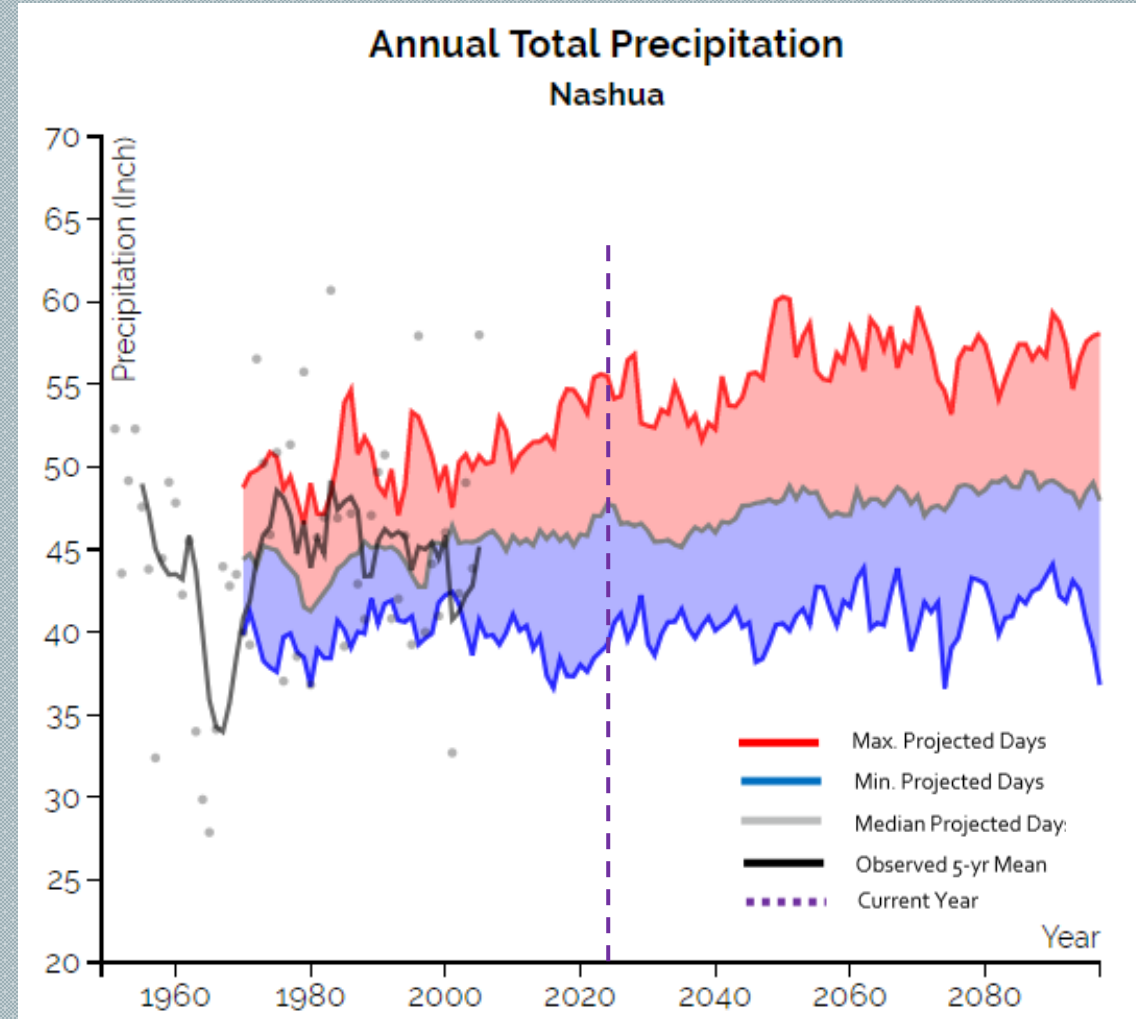




# HEAVY RAINFALL AND FLOODING

## Seasonal

- **Winter** – Largest increase expected, up to .6 to 3.9 inches by end of century
- **Spring** – Expected increase in days with precipitation over 1 inch by one day by the end of century.
- **Summer** – Possible decrease of 1.1 inches to increase of 2.2 inches by end of century
- **Fall** – Possible decrease of 1.4 inches to an increase of 1.5 inches by end of century

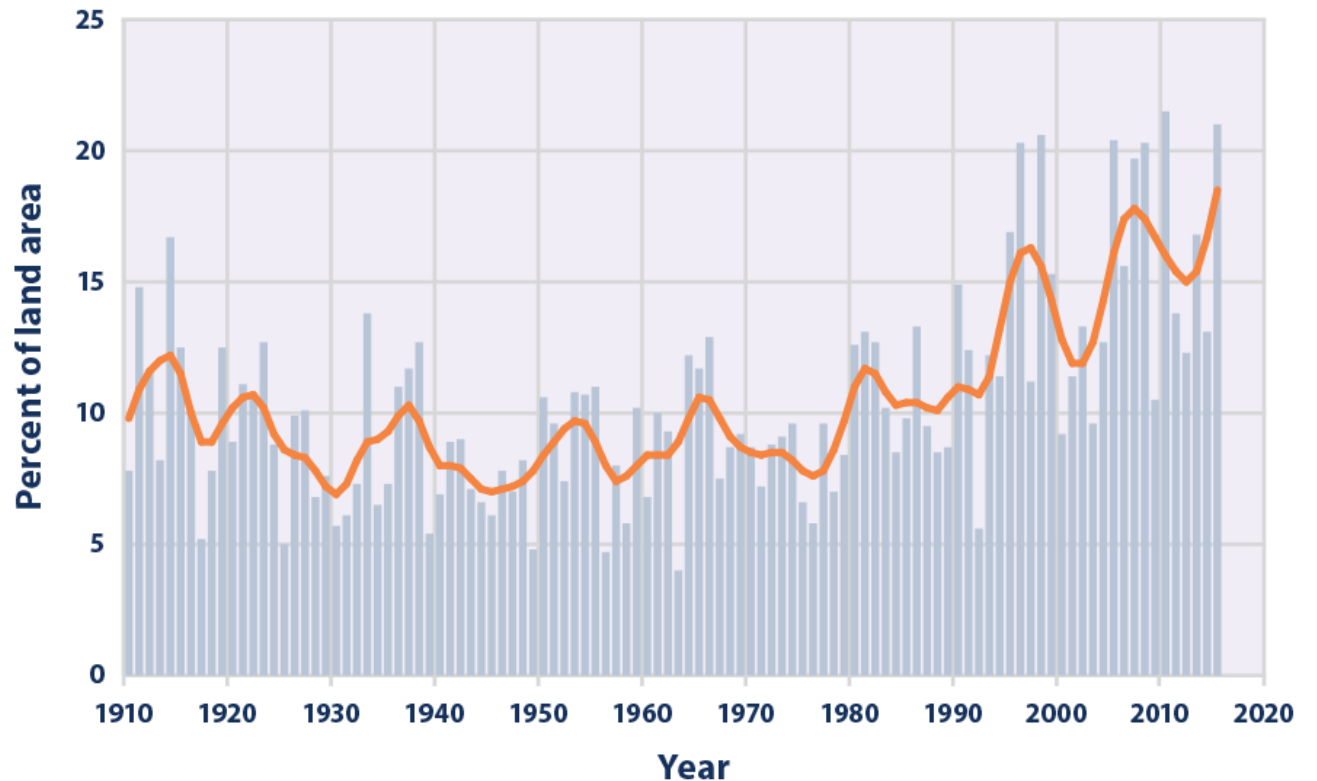




# HEAVY RAINFALL AND FLOODING

- Precipitation will increase across all seasons
- Total annual rainfall will increase
- Heavy rainfall events will become more frequent
  - Overbank flooding from rainfall and snowmelt
  - Piped Infrastructure backup and or failure
- Water quality impact from flooding
  - Erosion
  - Nonpoint source pollution

Extreme One-Day Precipitation Events in the Contiguous 48 States, 1910–2015



Data source: NOAA (National Oceanic and Atmospheric Administration). 2016. U.S. Climate Extremes Index. Accessed January 2016. [www.ncdc.noaa.gov/extremes/cei](http://www.ncdc.noaa.gov/extremes/cei).

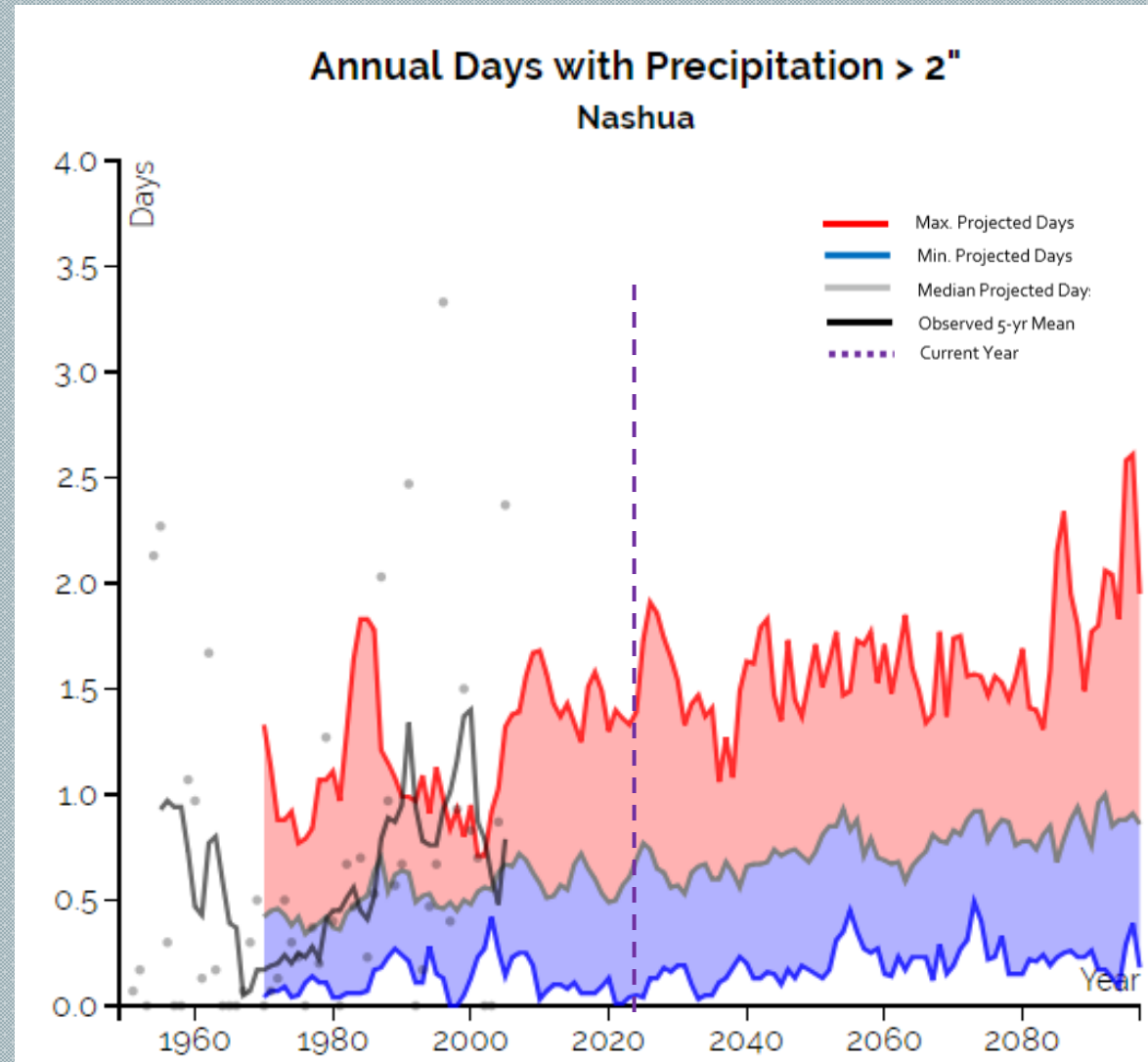
For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at [www.epa.gov/climate-indicators](http://www.epa.gov/climate-indicators).



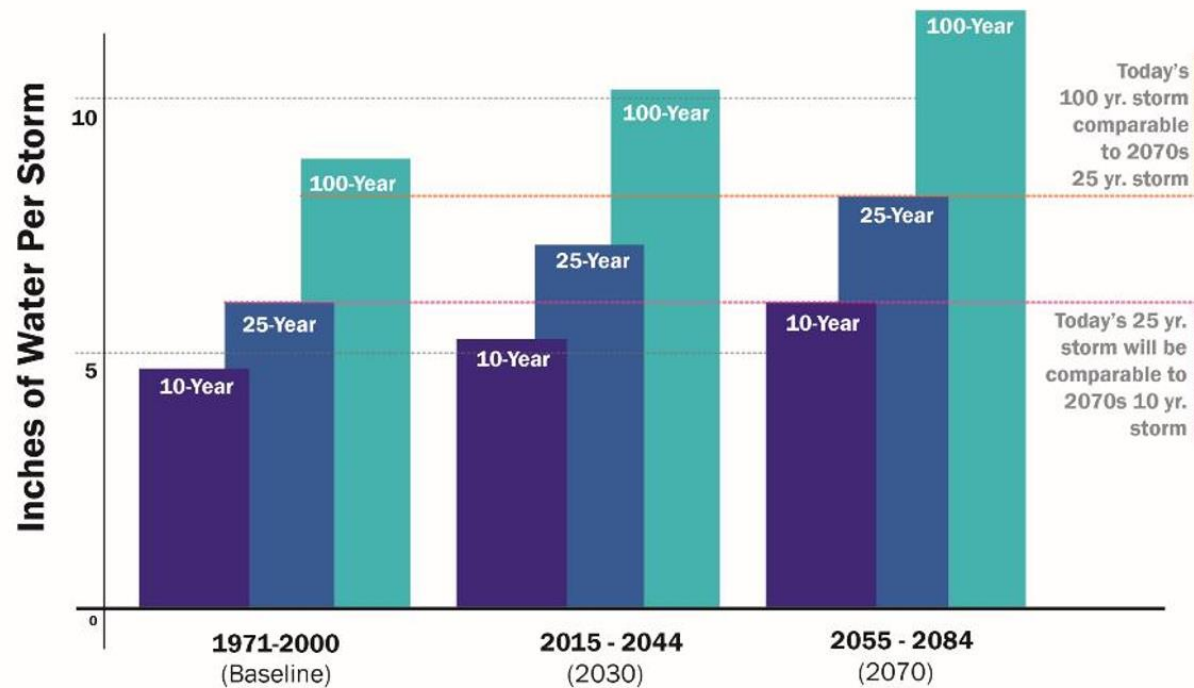
# HEAVY RAINFALL AND FLOODING

## Extreme Precipitation

- The number of days each year with more than 2 inches of precipitation will increase.



# HEAVY RAINFALL AND FLOODING



Source: Design storm projections for the Boston metro area based on Kleinfelder/ATMOS projections, Nov. 2015, Kleinfelder for City of Cambridge.



# IMPACTS OF INCREASED PRECIPITATION

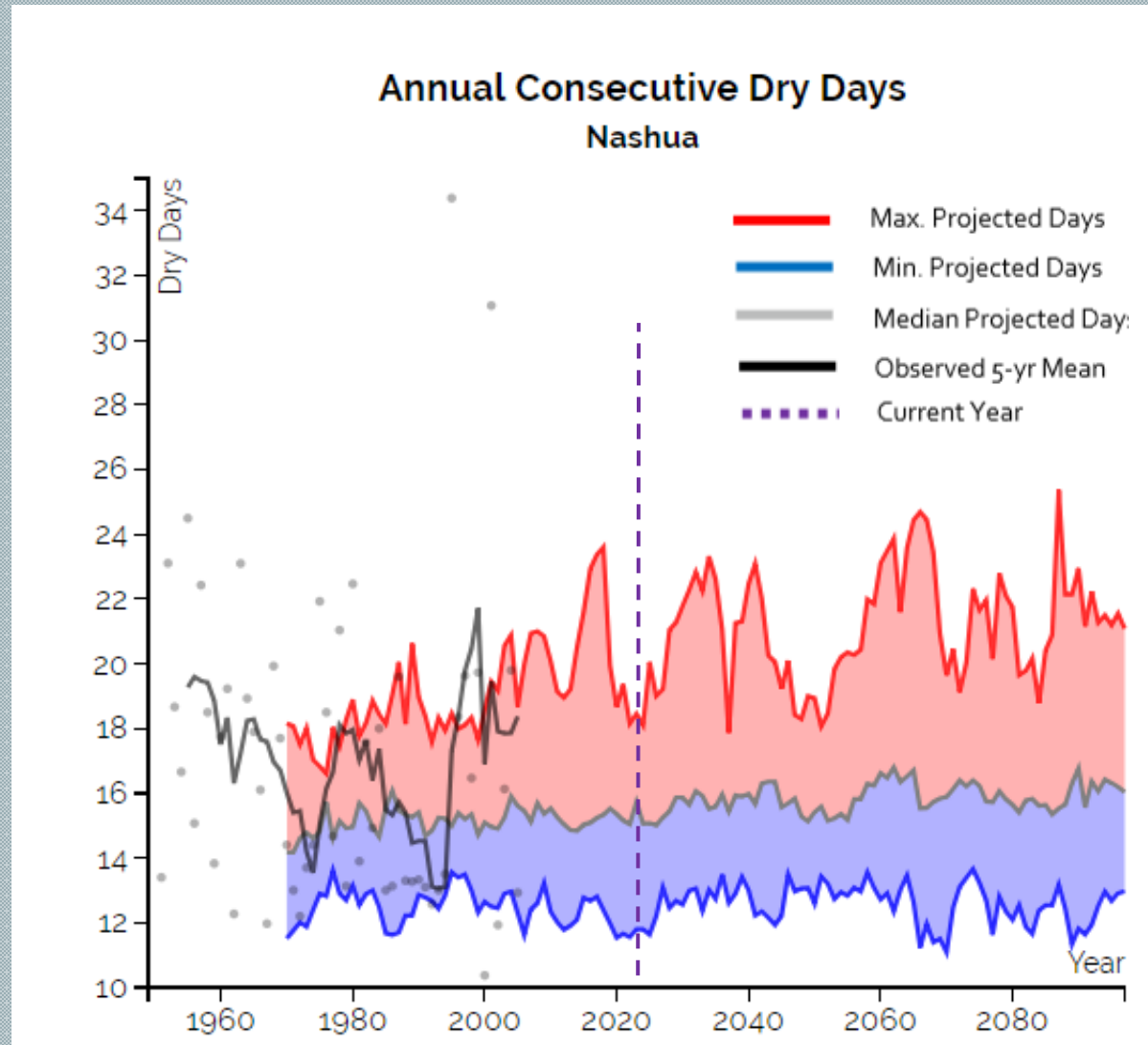
- More disruptive flooding events, especially with undersize stormwater infrastructure
  - Increased inland flooding
  - Soils become saturated
  - River flows rise
  - Capacity of urban SW infrastructure is exceeded
  - Impacts to property and critical infrastructure
- Increased non-point source pollution
  - Ecological damage to nearby waterbodies





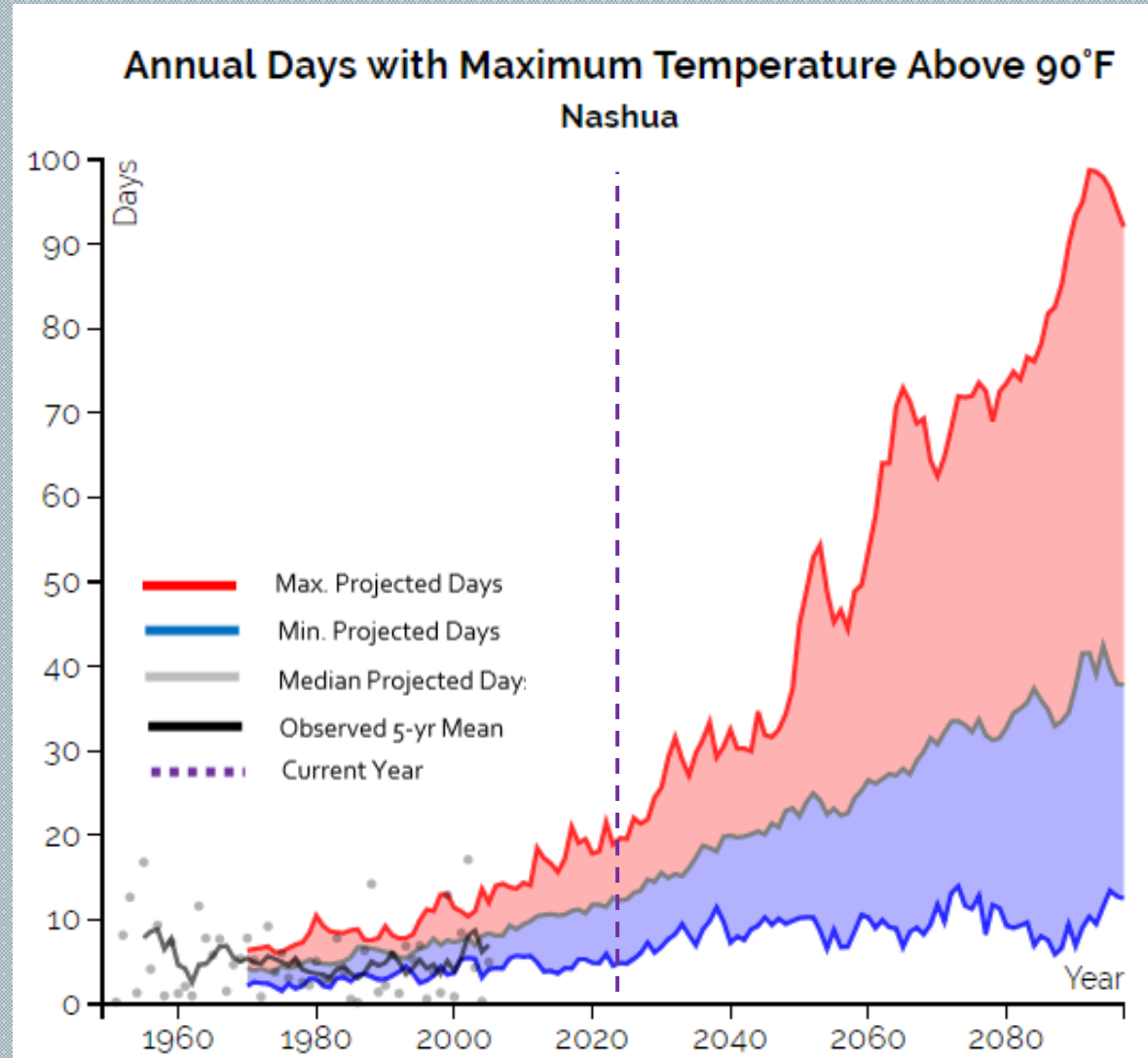
# DROUGHT IMPACTS

- More consecutive dry days
- Highest number of consecutive dry days in summer and fall.
- Increase of up to 3 additional consecutive dry days by the end of the century



# HEAT PROJECTIONS

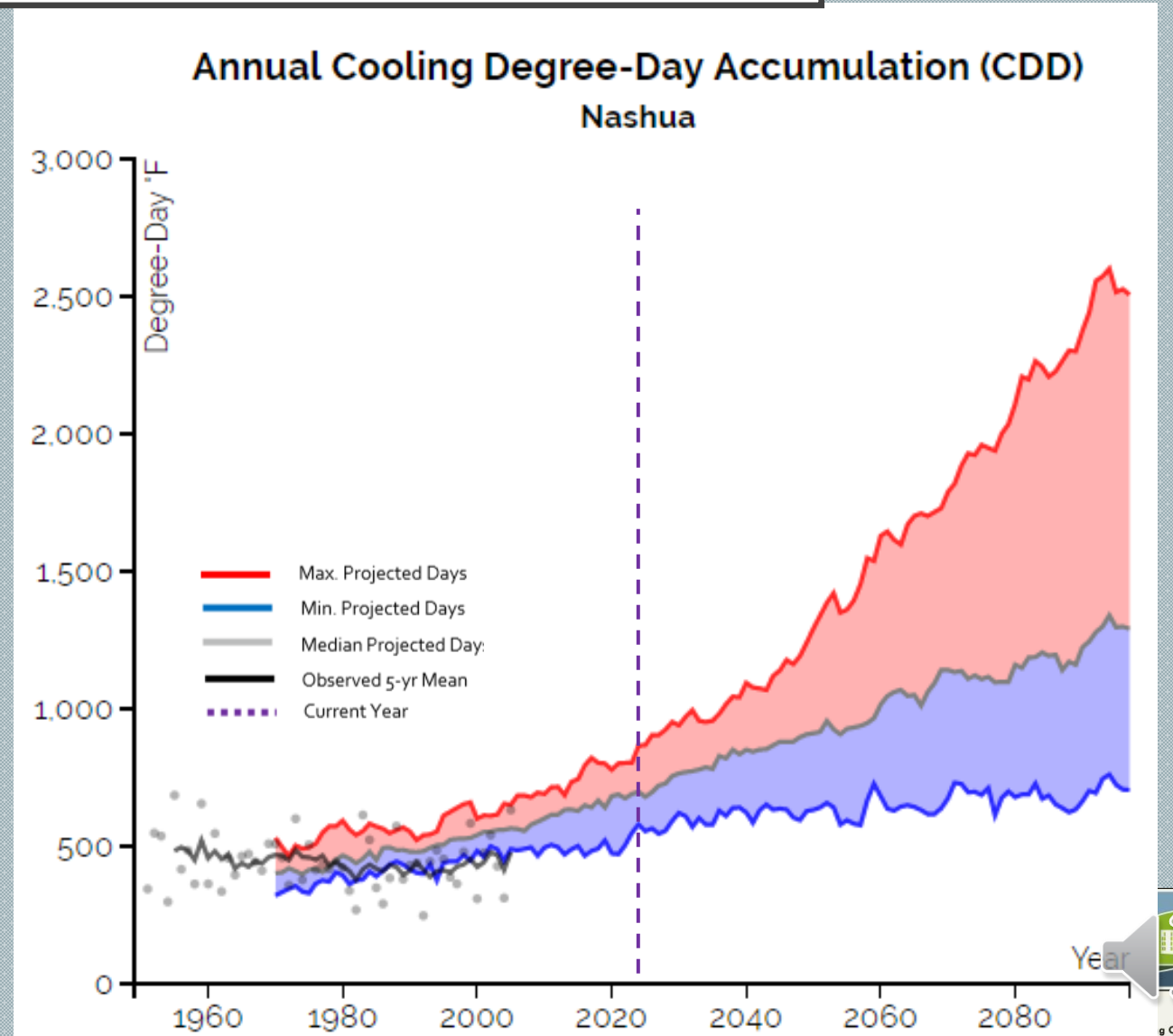
- Projected increase of 9 to 30 days annually over 90°F by mid century
- Projected increase of 13 to 70 days annually over 90°F by end of century





# HEAT PROJECTIONS

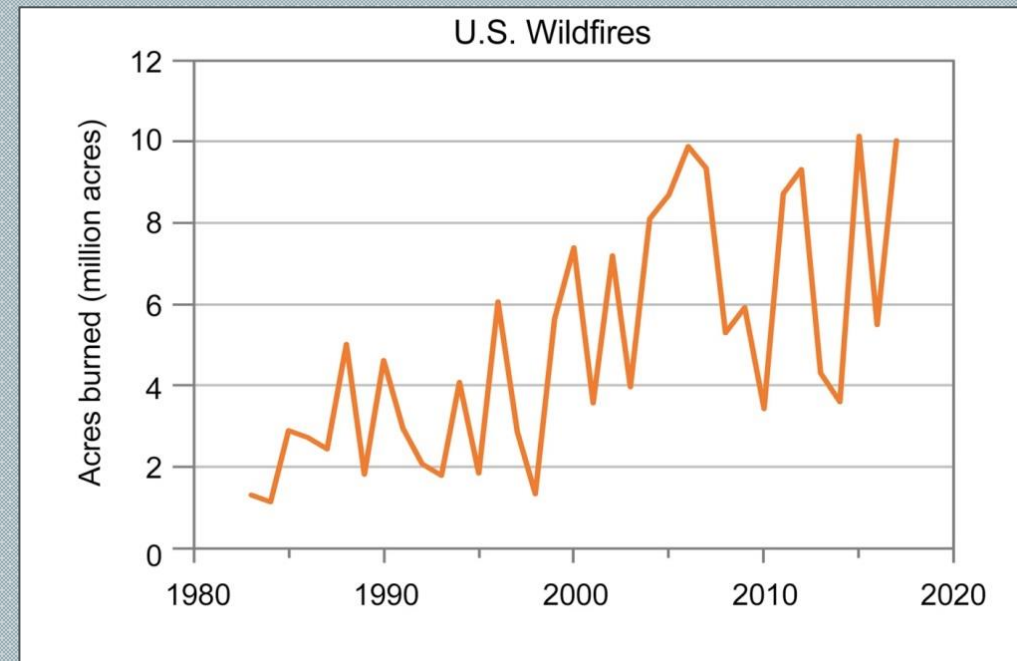
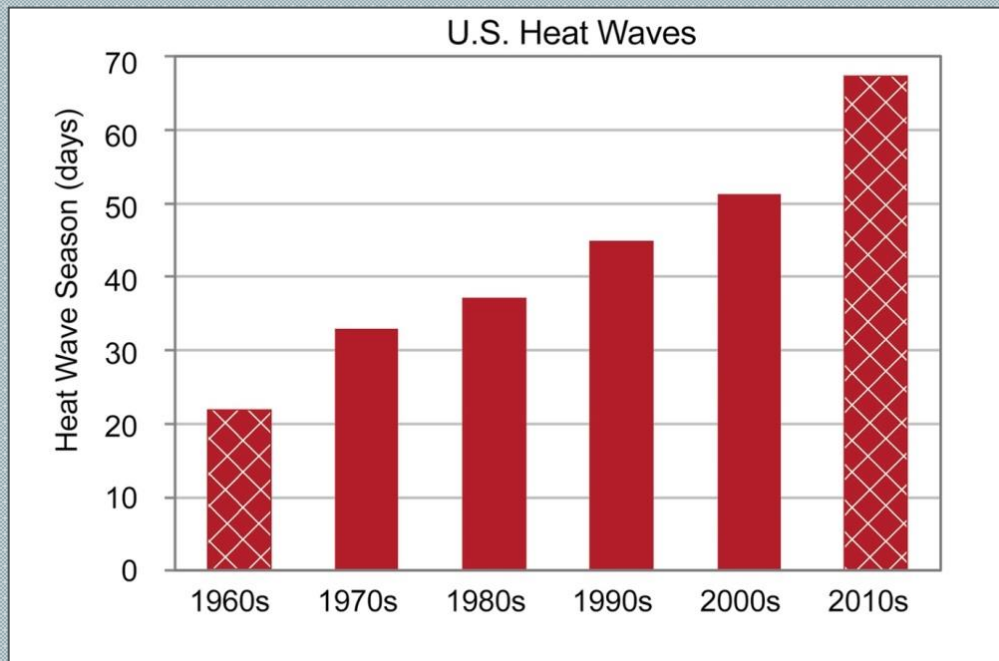
- Projected decrease in heating degree-days and increase in cooling-degree days
- More days above 65°F means fewer days needed to heat buildings and more days needed to cool buildings.
- Winter
  - 7-19% decrease in HDD by mid century
  - 10-27% decrease in HDD by end of century
- Spring
  - 16-40% decrease in HDD by end of century
- Fall
  - 20-53% decrease in HDD by end of century



# HEAT AND WILDFIRE

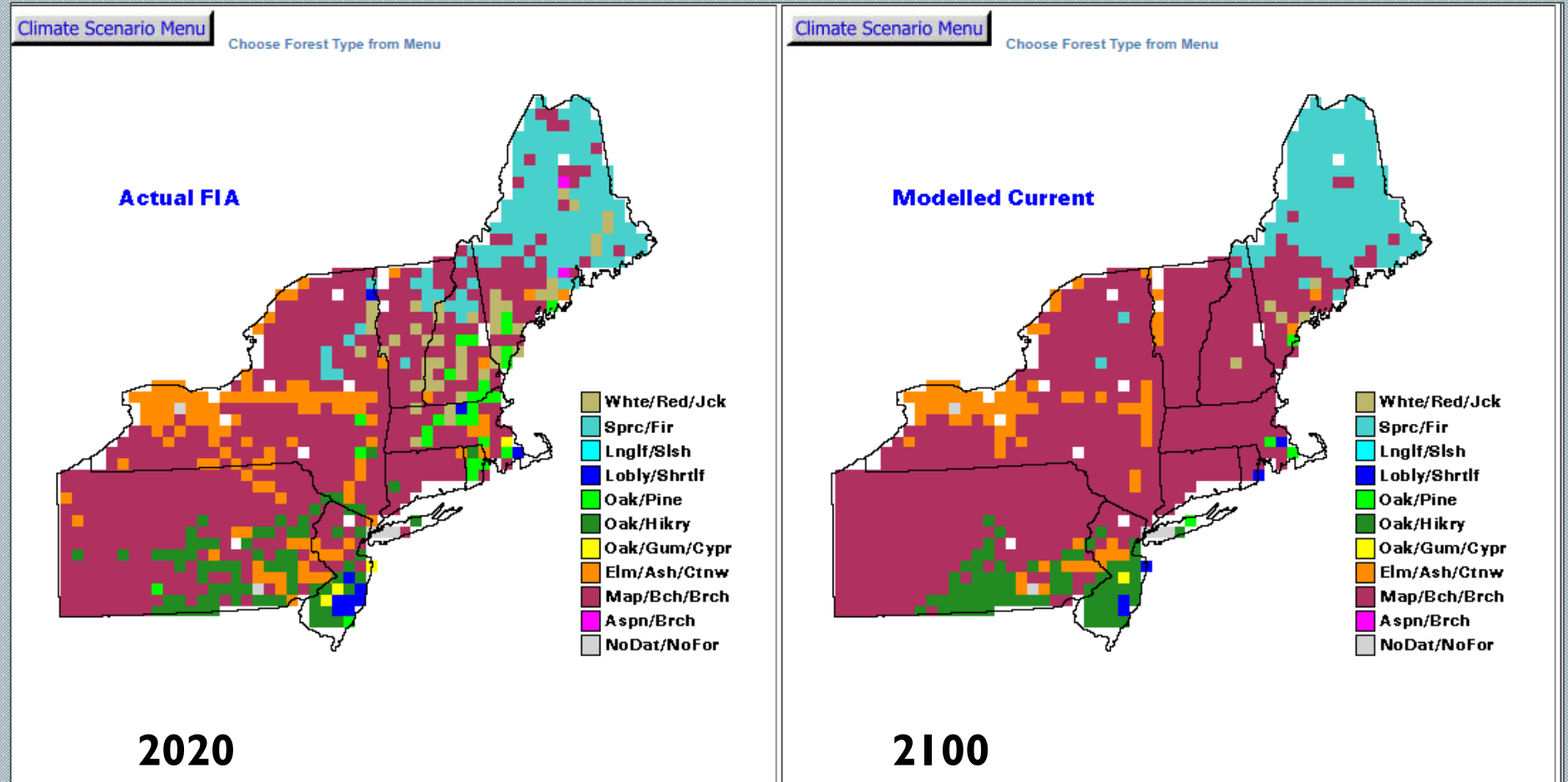
## Nation-Wide Data

As the number and length of heat waves increase, so will the incidence of wildfires.

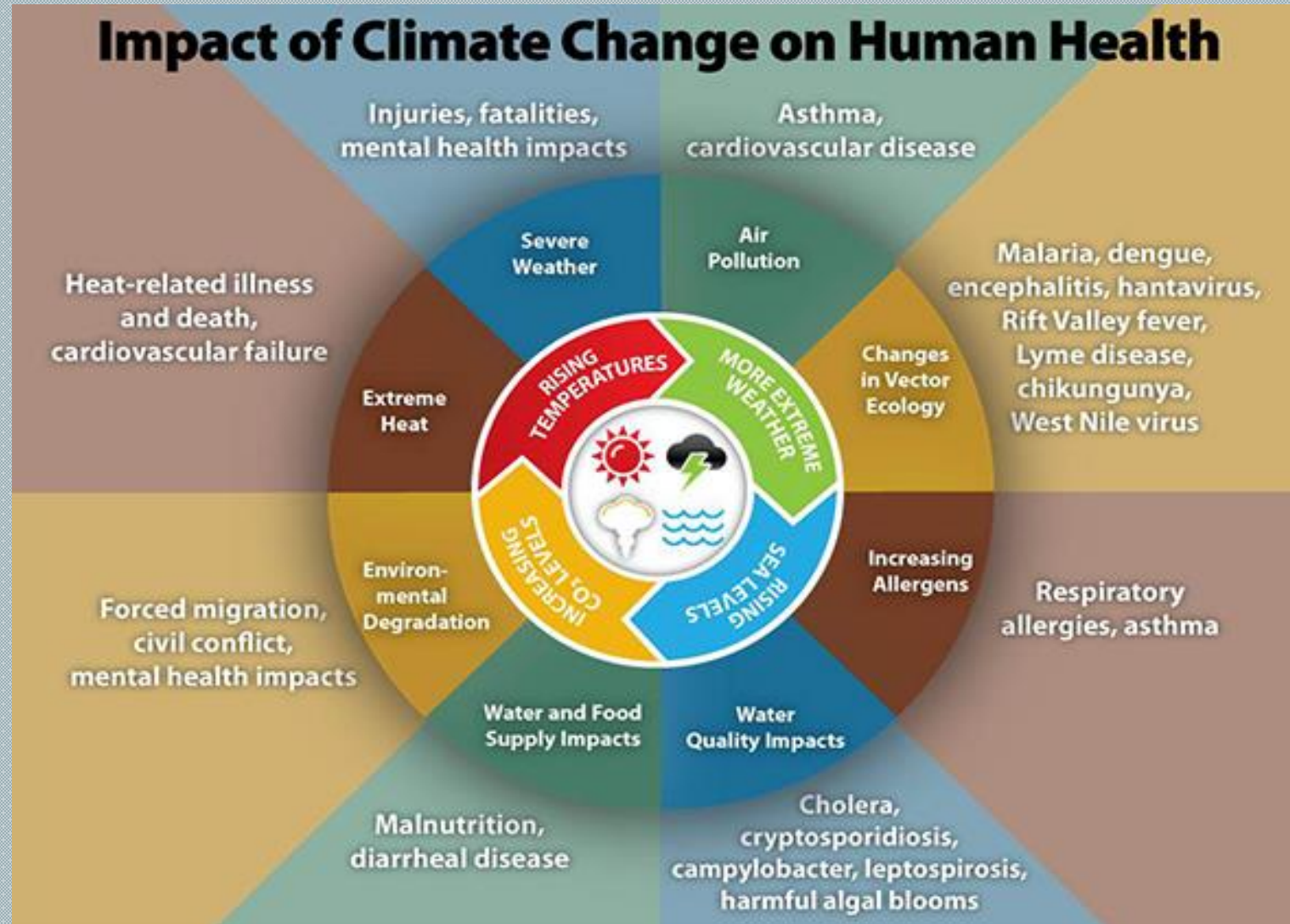


# HEAT IMPACTS ON THE ENVIRONMENT

- Ranges of tree species are expected to move north
- Diversity of species will decrease
- Increases of invasive species are likely

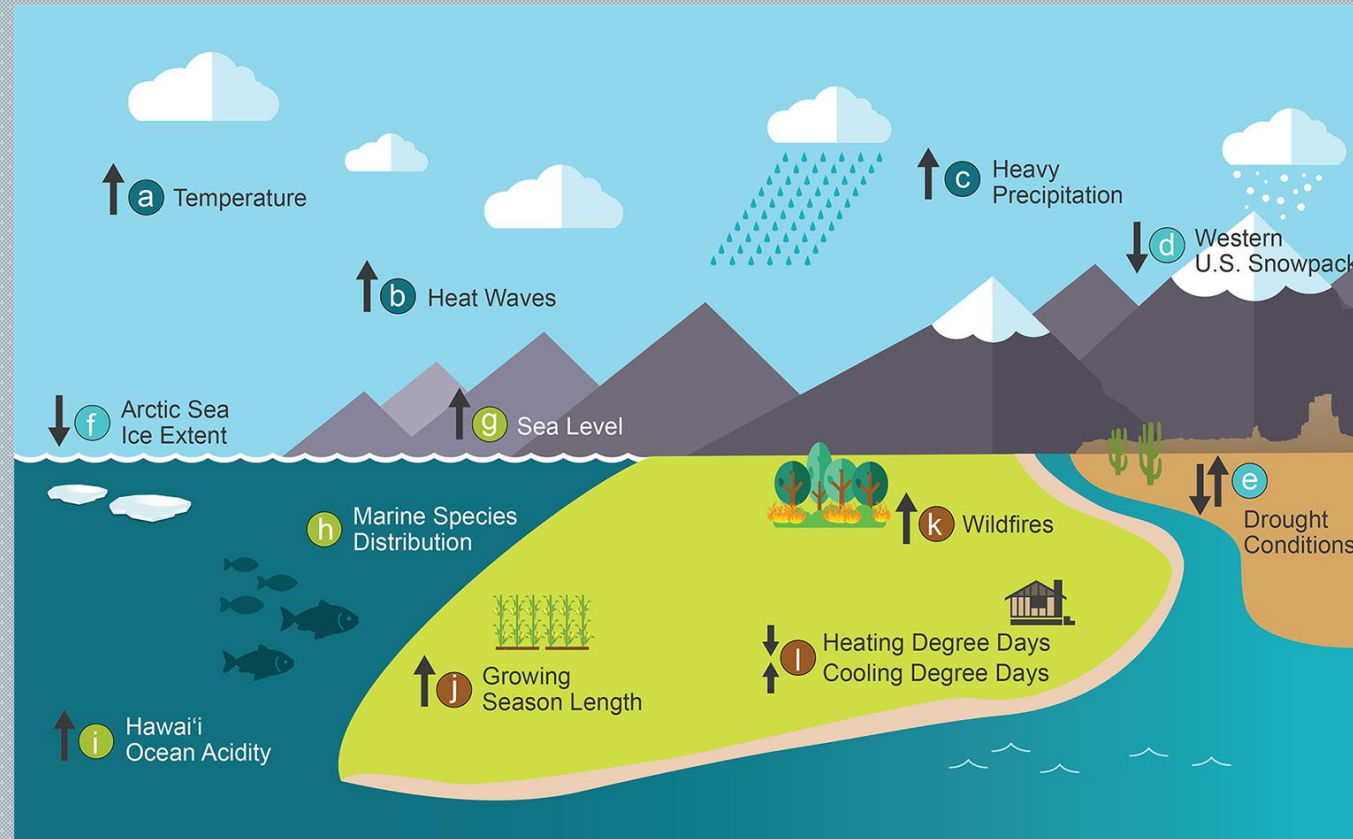


# HEAT IMPACTS ON SOCIETY



<https://www.cdc.gov/climateandhealth/effects/default.htm>

# THANK YOU!



# **NATURAL HAZARDS TOWN OF BOYLSTON**

**Municipal Vulnerability Preparedness (MVP)  
Community Resilience Building Workshop**

**March 30<sup>th</sup>, 6:00 – 9:00 pm**

**&**

**April 6<sup>th</sup>, 6:00 – 9:00 pm**



# HAZARD MITIGATION PLANNING

- Overlaps somewhat with Hazard Mitigation Planning, but MVP is more focused on climate change in the long term
- Boylston's Hazard Mitigation was adopted in January 2018 and Revised in January 2019.
- 5-year plans



## Boylston Hazard Mitigation Plan Update [ Last Revised – January 16, 2019 ]



*Wachusett Reservoir in Boylston, Massachusetts*

Adopted by the Board of Selectmen

January 18, 2018

Prepared by the Central Massachusetts Regional Planning  
Commission 1 Mercantile Street, Suite 520  
Worcester, MA 01608  
[www.cmrpc.org](http://www.cmrpc.org)




&

Local Hazard Mitigation Team  
Town of Boylston, Massachusetts



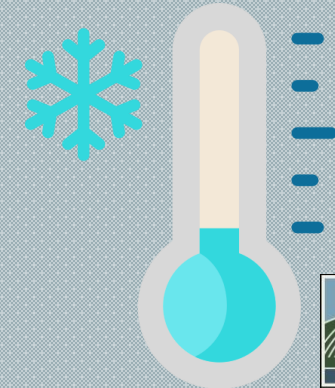
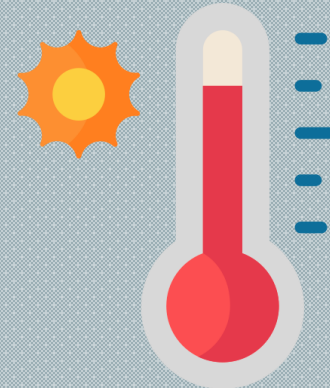
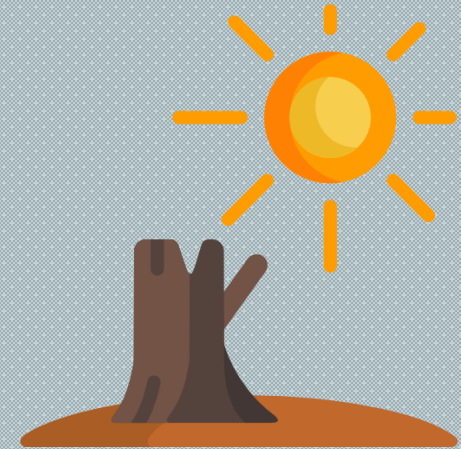
# BE PREPARED, MITIGATE THE COSTS

US Natural Disasters in 2017 cost \$306 Billion, the most expensive year since NOAA started keeping track in 1980

National Benefit-Cost Ratio Per Peril <small>*BCR numbers in this study have been rounded</small>		Exceed common code requirements	Meet common code requirements	Utilities and transportation	Federally funded
Overall Hazard Benefit-Cost Ratio		4:1	11:1	4:1	6:1
Savings (\$billion)		\$16/year	\$13/year	\$2.5	\$160
 Riverine Flood		5:1	6:1	8:1	7:1
 Hurricane Surge		7:1	Not applicable	Not applicable	Too few grants
 Wind		5:1	10:1	7:1	5:1
 Earthquake		4:1	12:1	3:1	3:1
 Wildland-Urban Interface Fire		4:1	Not applicable	Not applicable	3:1

# NATURAL HAZARDS

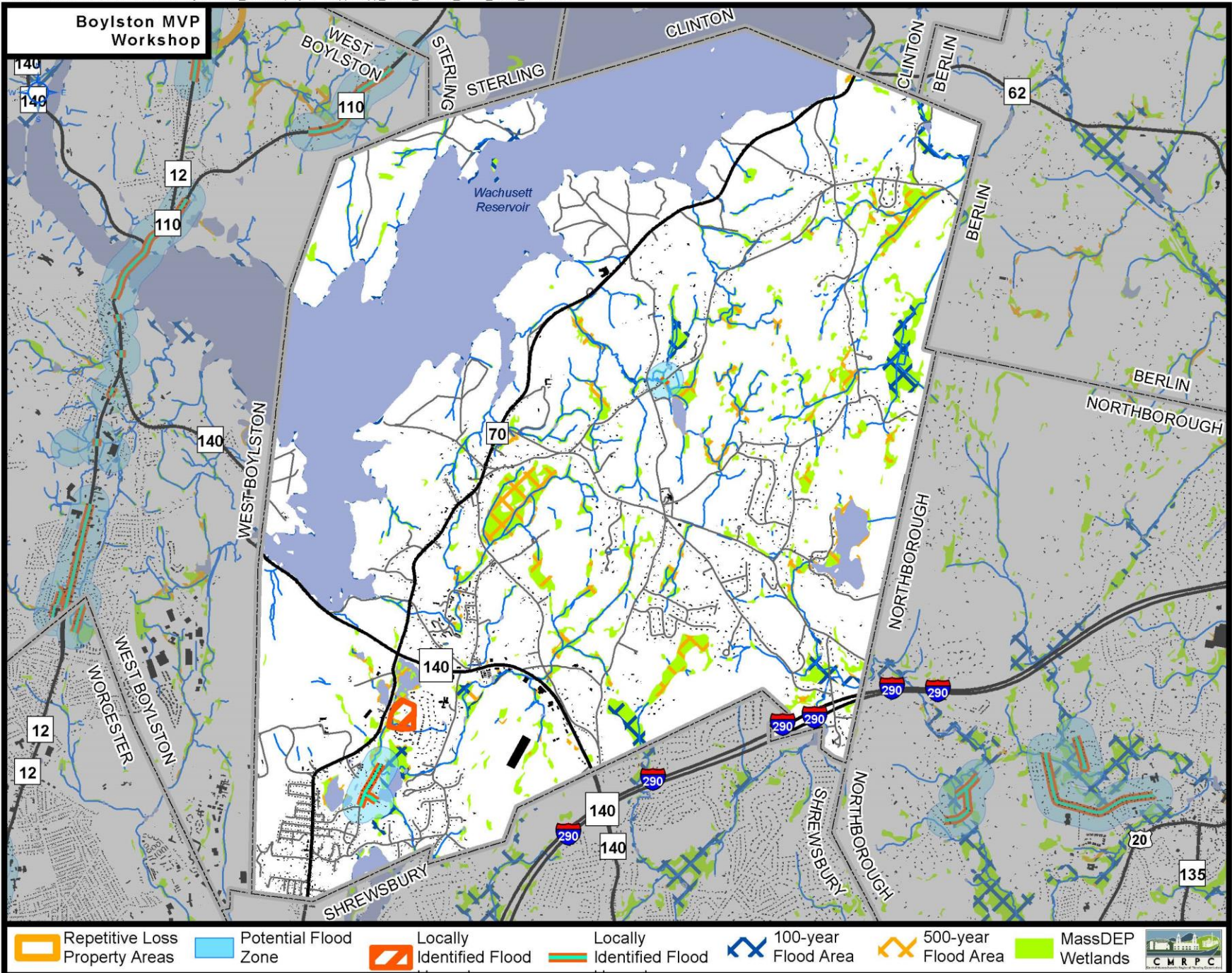
- Flooding (all types)
- Droughts and wildfires
- Winter storms
- Severe thunderstorms
- Hurricanes
- Wind and tornadoes
- Extreme temperatures
- Landslides
- Earthquakes





# FLOOD RISKS

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Flood\_Risks\_8x10.mxd



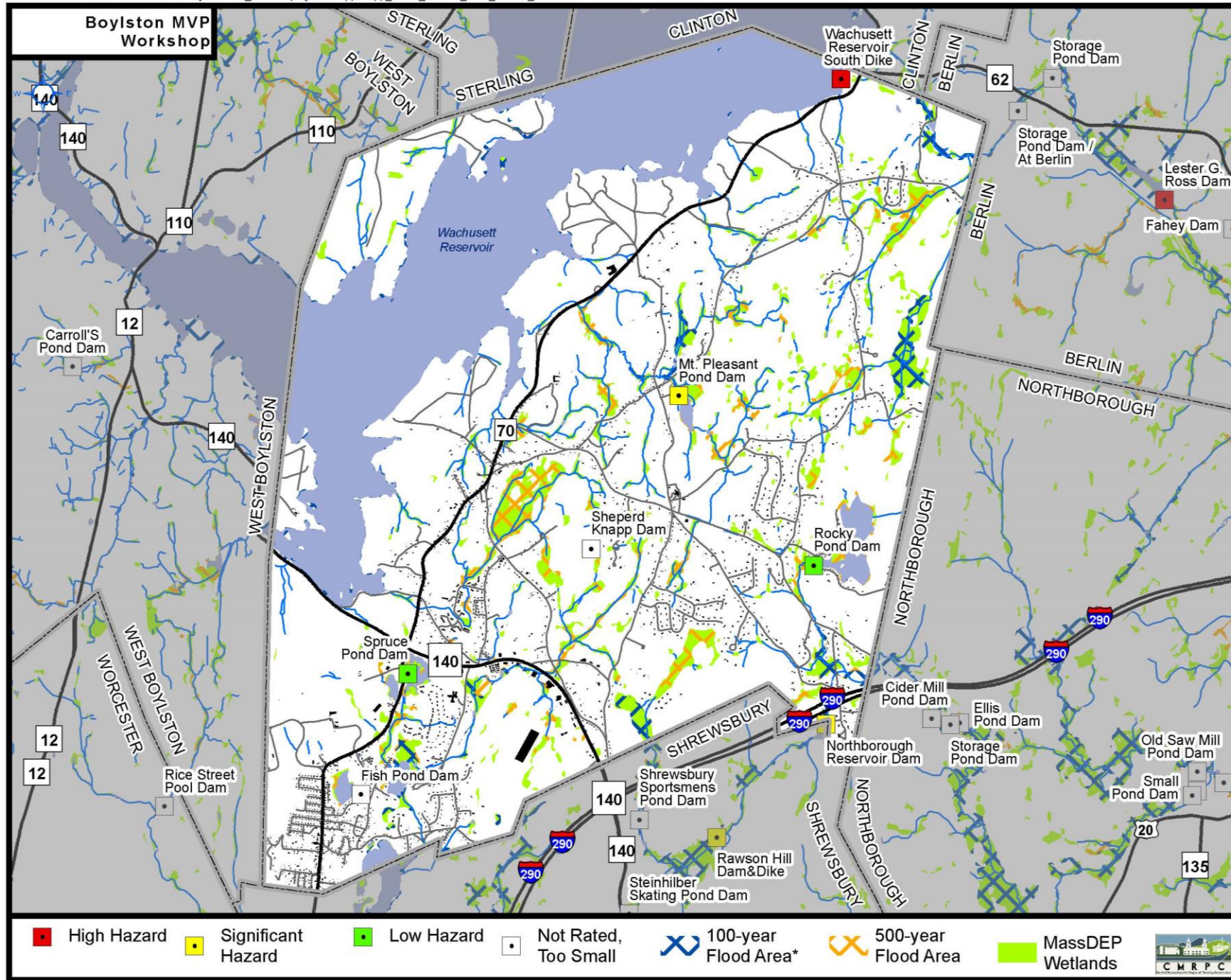
Source: Data provided by the town of Boylston, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.





# DAM FAILURE RISK

Date: 3/4/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_NatHaz\_Dam\_Failure\_8x10.mxd

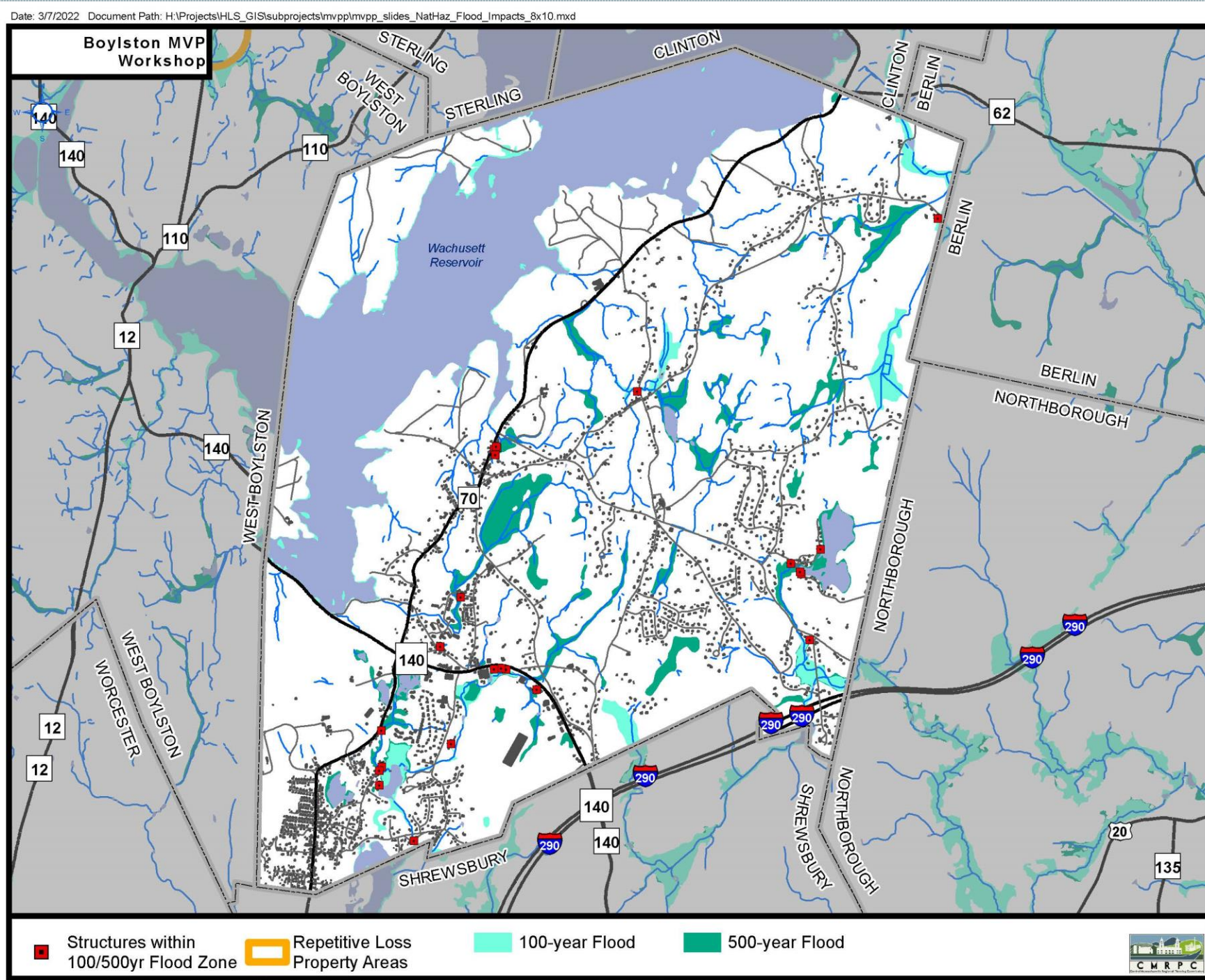


Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.





# FLOODING IMPACTS

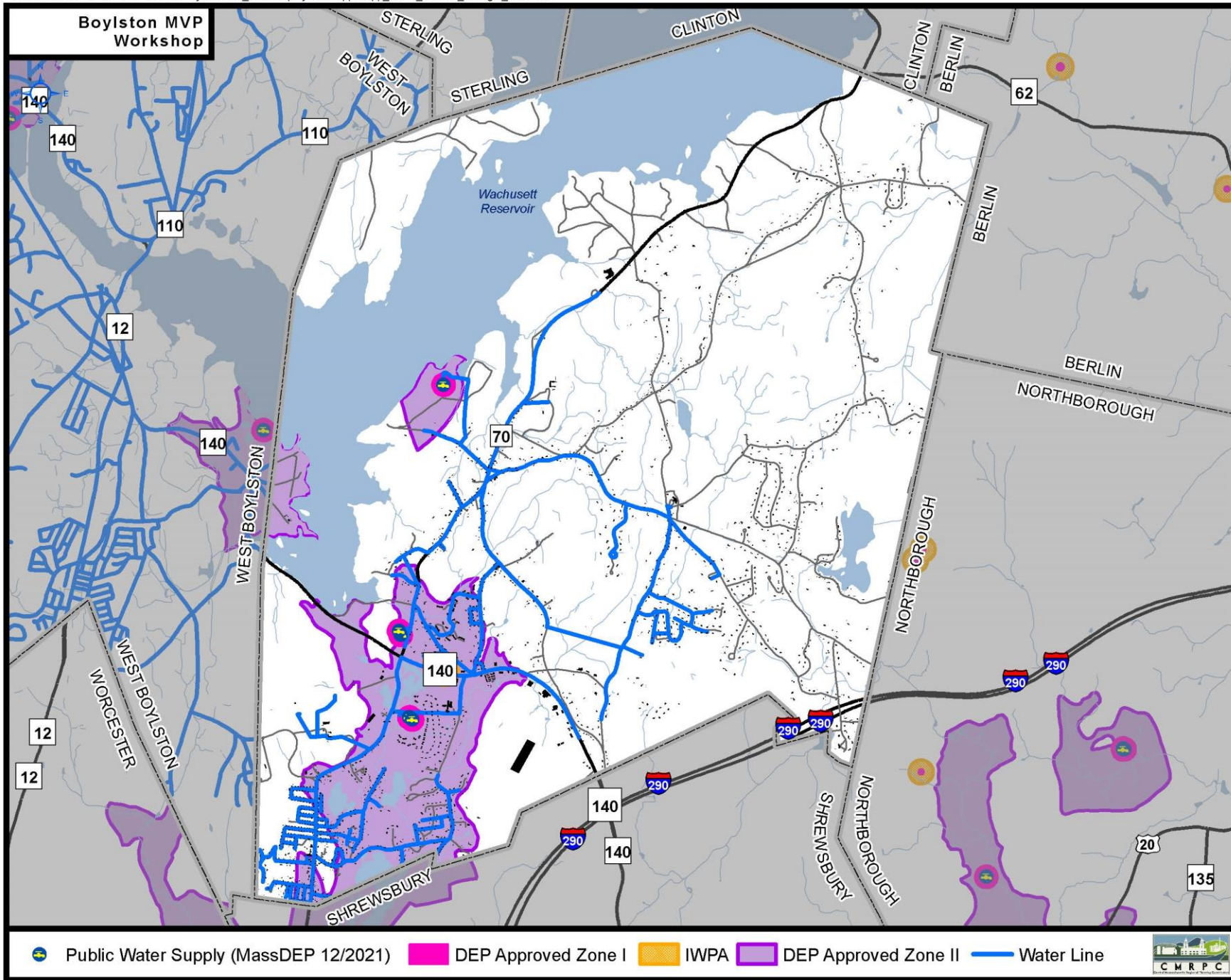


Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

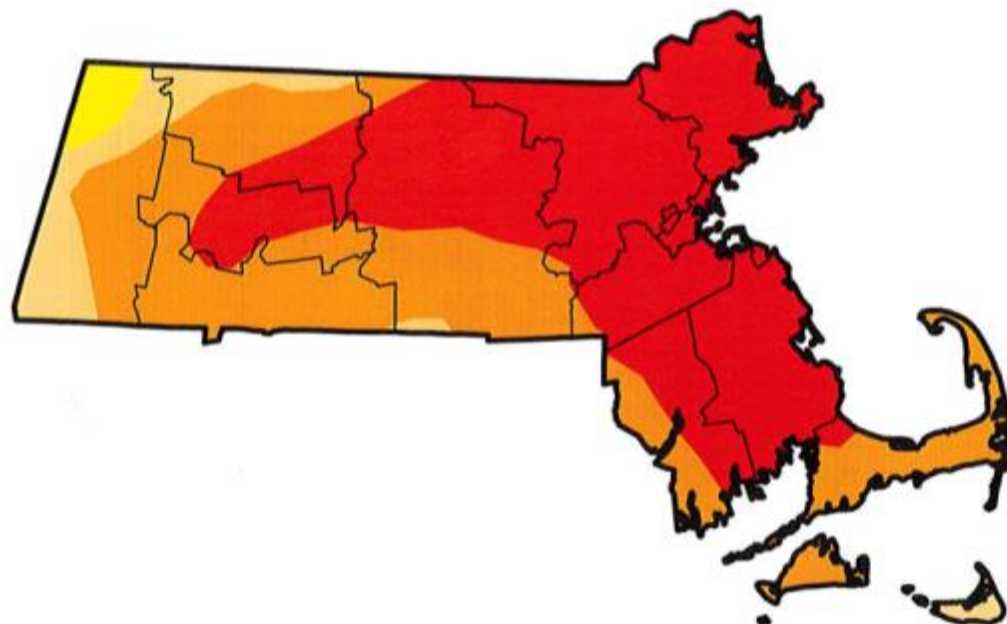


# DROUGHT IMPACTS

Date: 3/4/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvppl\mvppl\_slides\_NatHaz\_Drought\_8x10.mxd



## U.S. Drought Monitor Massachusetts



**September 13, 2016**  
(Released Thursday, Sep. 15, 2016)  
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	98.15	89.95	52.13	0.00
<b>Last Week</b> 9/6/2016	0.00	100.00	94.38	77.38	22.67	0.00
<b>3 Months Ago</b> 6/14/2016	20.09	79.91	13.56	0.00	0.00	0.00
<b>Start of Calendar Year</b> 12/29/2015	22.85	77.15	26.34	0.00	0.00	0.00
<b>Start of Water Year</b> 9/29/2015	12.90	87.10	30.43	0.00	0.00	0.00
<b>One Year Ago</b> 9/15/2015	34.81	65.19	0.23	0.00	0.00	0.00

Intensity:

D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**  
Eric Luebehusen  
U.S. Department of Agriculture

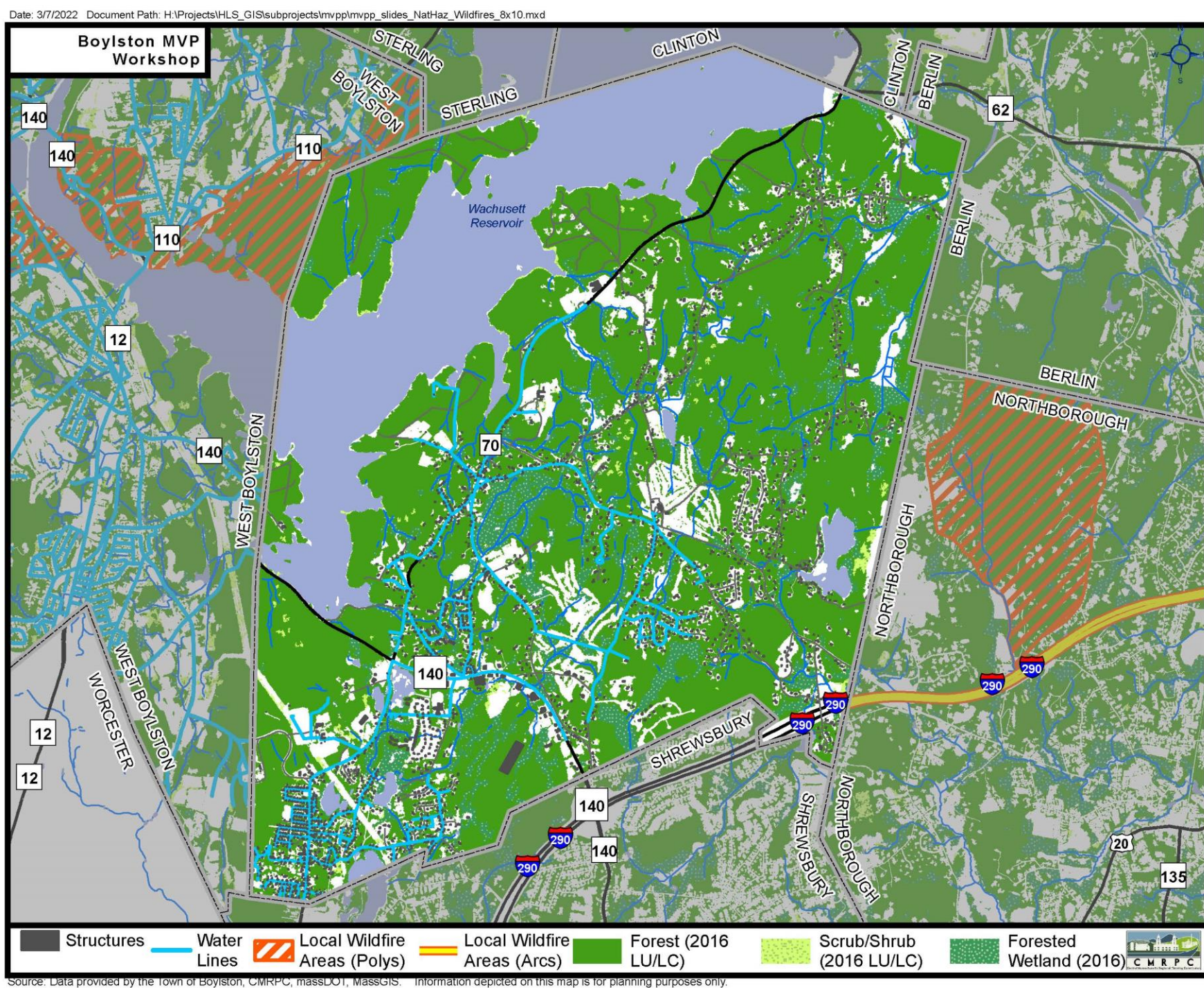


<http://droughtmonitor.unl.edu/>





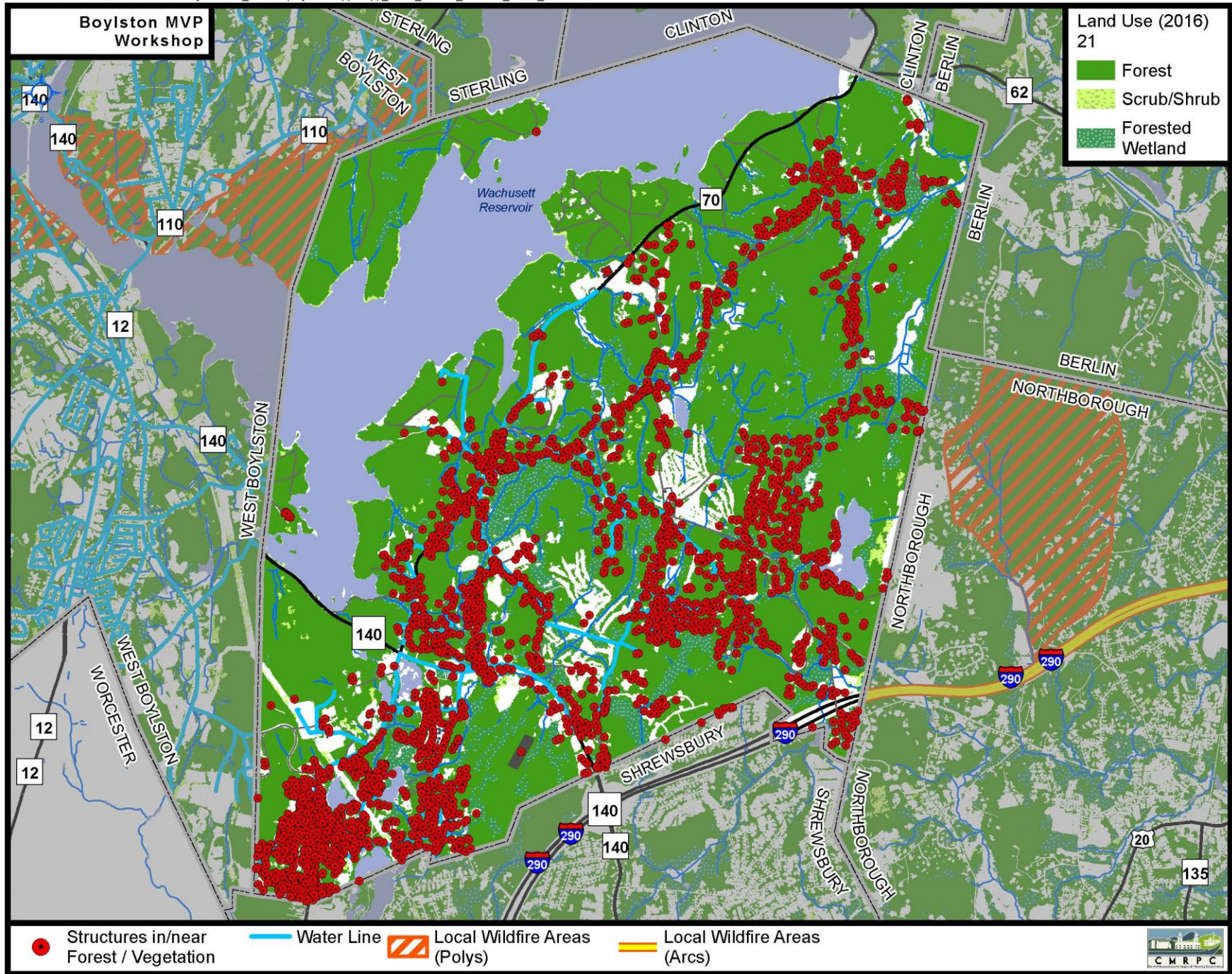
# WILDFIRE





# WILDLAND/URBAN INTERFACE

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Wildfires\_Urban\_8x10.mxd

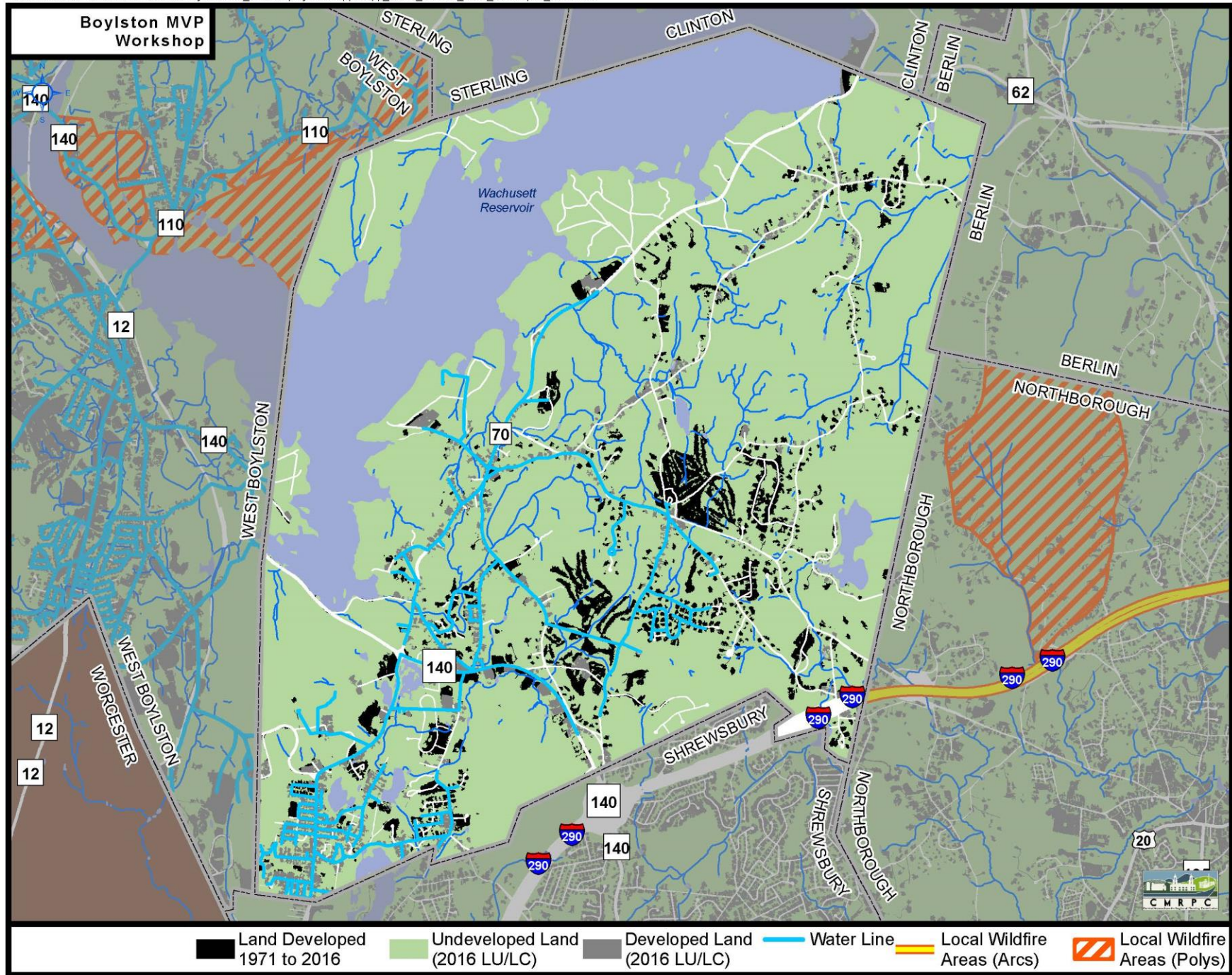


Source: Data provided by the Town of Boylston, CMRPC, Mass Audubon, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

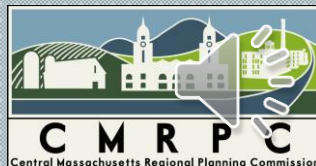


# FIRE & NEW DEVELOPMENT

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Land\_Developed\_8x10.mxd



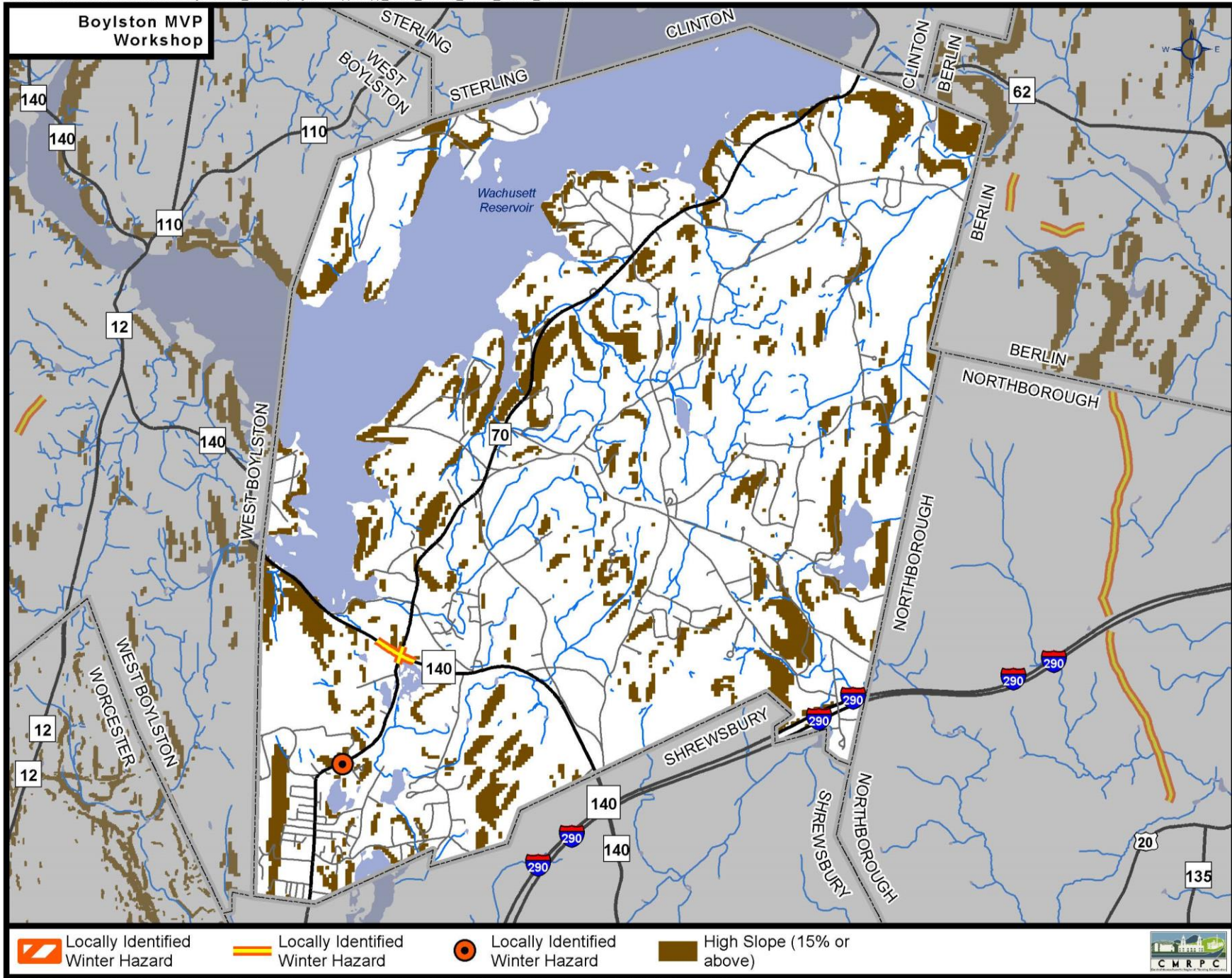
Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.





# WINTER STORMS

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Winter\_Storms\_8x10.mxd





# EXTREME STORMS

## Tornado Tracks, 1950-2017

☒ Show Touchdown Points

### Filter by Magnitude:

- ☒ F/EF 0
- ☒ F/EF 1
- ☒ F/EF 2
- ☒ F/EF 3
- ☒ F/EF 4
- ☒ F/EF 5

### Filter by Year Range:

1950 through 2017

### Filter by Month:

All Months

### Filter by Casualties:

- ☐ Injuries > 0
- ☐ Fatalities > 0

### For more information, click any:

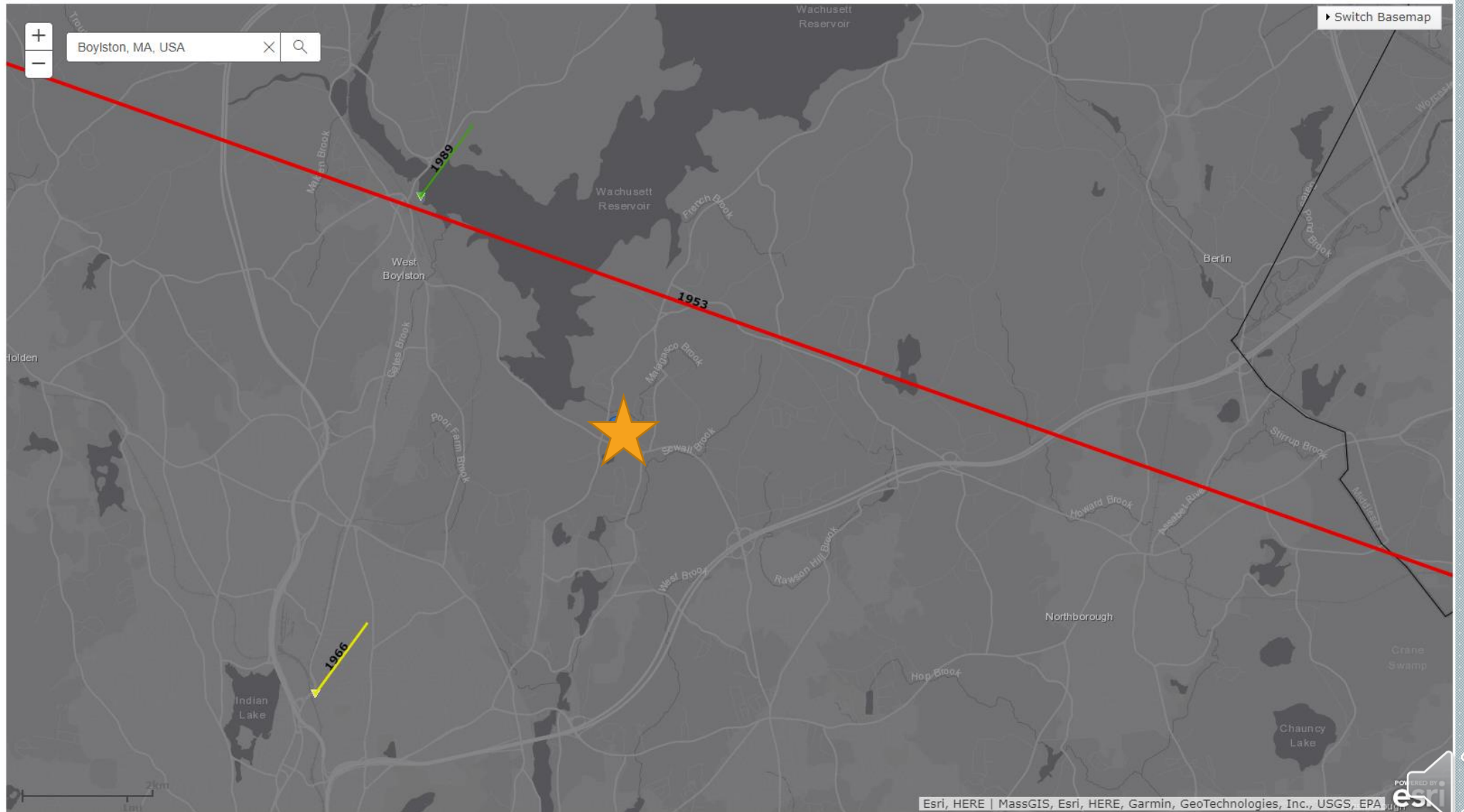
- ☒ Track (for tornado data)
- ☐ County (for county image)

Please note: Attempting to view many tracks may significantly hinder performance.



### Send Feedback

Tornado data from the  
National Weather Service  
Storm Prediction Center:  
<http://www.spc.noaa.gov/gis/svrgis>

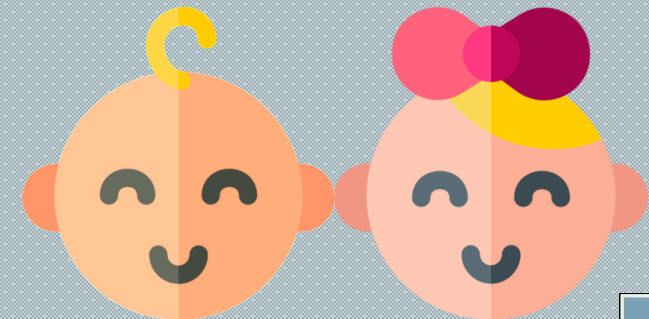
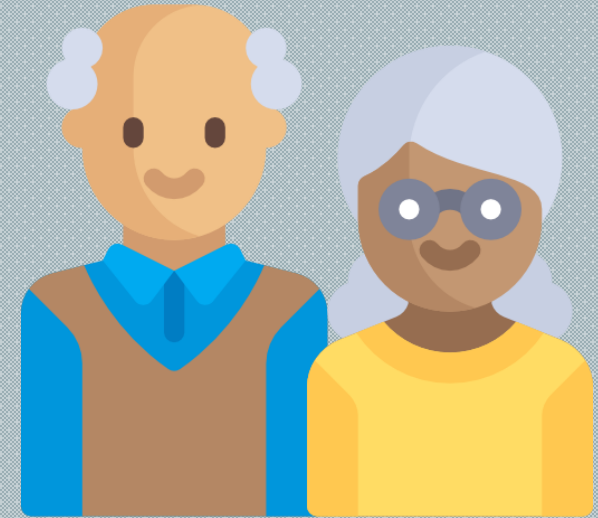


# CRITICAL INFRASTRUCTURE & FACILITIES

- What infrastructure and facilities are critical to the region and its residents? Which do we most need or desire to protect from hazards?
  - Those needed to respond to hazard events or which would exacerbate hazard scenarios, if affected
  - Those needed to perform day-to-day municipal operations and to support basic services and economic activity
  - Major employers and institutions, natural and cultural resources, recreational and historic sites, etc...

# VULNERABLE POPULATIONS

- Vulnerability is not just about utilities, facilities, or businesses
  - Disproportionate populations of potentially vulnerable demographic groups (elderly, children, etc.) or socioeconomic groups (low income households, etc.) living/working in high-risk areas
  - Can be on neighborhood scale, or at specific locations
  - Cultural vulnerability (cultural or language isolation)
  - These will evolve over time, as climate and populations change



# VULNERABLE POPULATIONS (CONT.)

**Seniors (65+)** - 17.5% of the population is 65 years or older

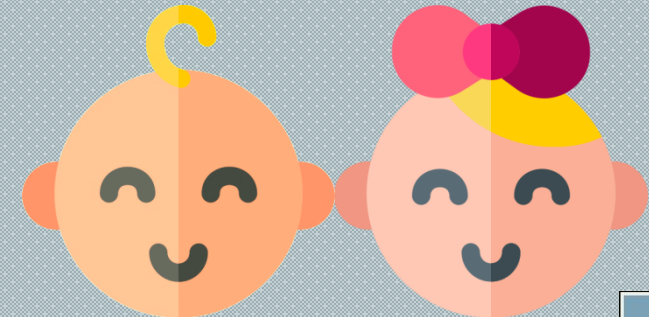
**Youth (Under 18)** – 21.2% of the population is under the age of 18

**Renter Occupied** – 18.8% of the population rents their home

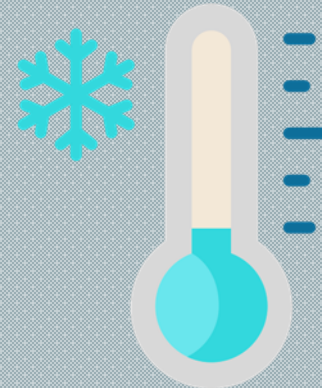
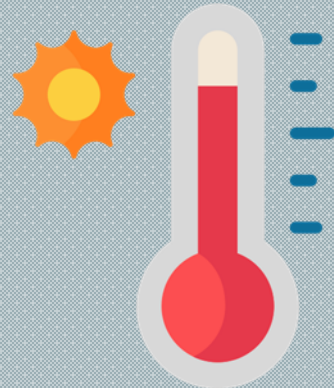
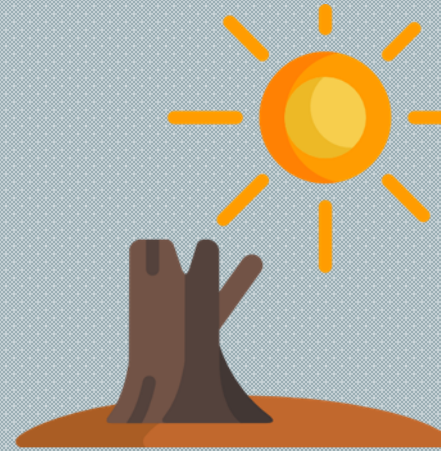
**Language** – 9.0% of the population speaks a language other than English at home

**Low-Income** – 3.0% of the population is in poverty

**Disability** – 7.1% of the population is disabled



# QUESTIONS





**THANK  
YOU**



# BOYLSTON MASSACHUSETTS

## Boylston Municipal Vulnerability Preparedness Program

### Top Priority Actions Survey

Thank you for participating in Boylston's MVP Workshop! Based on the action items that you came up with during the workshop, we have developed the survey below. This survey will help us identify the top priority actions that Boylston should take in order to become more resilient. Please complete the survey by **Wednesday, April 27, 2022**. The results of this survey will be described in the report and discussed during the listening session.

Thank you in advance for your help with this next step!

1. Please rank the following hazards in order from most concern (1) to least concern (4):

	Extreme Heat and Drought (Wildfires, Invasive Species)
	Winter Storms (Ice, Snow, Extreme Cold)
	Severe Storms (Tornadoes, Wind, Lightning)
	Flooding (Inland, Coastal)

2. Please vote on whether the following actions are High, Medium, or Low priorities. High priority actions are necessary to meet existing requirements or are needed to help prepare for/prevent a potential hazard. Low priority action items will help the town build resilience, but are not immediately necessary. Medium priority actions are somewhere in between.

	High	Medium	Low
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a management plan for Rocky Pond to remove invasive species and	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

improve water quality.

Develop a prioritization plan for acquiring and/or protecting open space parcels.



Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.



Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.



Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.



Develop and implement a climate-action plan with an agricultural focus.



Create a community garden.



Construct bioswales at Morningside Park to improve drainage issues.



Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER



grants to aid in this effort.

Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.



Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.



Align repaving efforts with water system and stormwater system upgrades.



Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.



Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.



Perform a Town-wide assessment of septic systems to



determine age, leakage, and potential failing septic areas.

Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.

Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.

Explore options for alternative energy sources, renewable energy, and/or greywater systems.

Explore alternatives to reduce salt use on roadways.

Review and update Wetlands Protection Bylaw.

Identify needs and resources to improve the Town's potential shelter locations.

Increase awareness of and engagement





with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.



Work with WRTA to expand public transportation service in Town.



Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.



Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.



Perform an inventory assessment of the Old Burial Grounds historic cemetery.



Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..



3. Please vote on whether the following actions are Short, Long, or Ongoing projects. Short-term projects are straightforward and can be completed within two years. Long-term projects take a longer time to complete, may require initial studies or public engagement strategies, and tend to be more complex. Ongoing projects are never truly completed. They require continuous action from year to year in order to maintain resilience.

	Short	Long	Ongoing
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a prioritization plan for acquiring and/or protecting open space parcels.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop and			

implement a climate-action plan with an agricultural focus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create a community garden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construct bioswales at Morningside Park to improve drainage issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Align repaving efforts with water system and stormwater system upgrades.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perform a feasibility study for			

the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.



Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.



Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.



Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.



Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.



Explore options for alternative energy sources, renewable energy, and/or greywater systems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explore alternatives to reduce salt use on roadways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Review and update Wetlands Protection Bylaw.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify needs and resources to improve the Town's potential shelter locations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase awareness of and engagement with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work with WRTA to expand public transportation service in Town.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adopt the Community Preservation Act. Develop an education campaign to help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



with adoption by promoting the benefits of the CPA program.

Perform an inventory assessment of the Old Burial Grounds historic cemetery.



Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..



4. Please vote for what you believe is the top priority INFRASTRUCTURAL action from the list below.

- ☐ Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.
- ☐ Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.
- ☐ Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.
- ☐ Align repaving efforts with water system and stormwater system upgrades.
- ☐ Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.
- ☐ Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.
- ☐ Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.
- ☐ Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.
- ☐ Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.
- ☐ Explore options for alternative energy sources, renewable energy, and/or greywater systems.
- ☐ Explore alternatives to reduce salt use on roadways.

5. Please vote for what you believe is the top priority SOCIETAL action from the list below:

- ☐ Review and update Wetlands Protection Bylaw.
- ☐ Identify needs and resources to improve the Town's potential shelter locations.
- ☐ Increase awareness of and engagement with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.
- ☐ Work with WRTA to expand public transportation service in Town.
- ☐ Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.
- ☐ Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.
- ☐ Perform an inventory assessment of the Old Burial Grounds historic cemetery.
- ☐ Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..

6. Please vote for what you believe is the top priority ENVIRONMENTAL action from the list below:

- ☐ Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.
- ☐ Develop a management plan for Rocky Pond to remove invasive species and improve water quality.
- ☐ Develop a prioritization plan for acquiring and/or protecting open space parcels.
- ☐ Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.
- ☐ Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.
- ☐ Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.
- ☐ Develop and implement a climate-action plan with an agricultural focus.
- ☐ Create a community garden.
- ☐ Construct bioswales at Morningside Park to improve drainage issues.

7. Please vote for TWO additional top priority actions that you believe Boylston should complete in order to build resilience. You may select actions from any category (Infrastructural, Societal, and Environmental), but do not select any actions that you already selected in the previous questions.

	Vote 1	Vote 2
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	<input type="radio"/>	<input type="radio"/>
Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	<input type="radio"/>	<input type="radio"/>
Develop a prioritization plan		

for acquiring and/or protecting open space parcels.	<input type="radio"/>	<input type="radio"/>
Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	<input type="radio"/>	<input type="radio"/>
Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	<input type="radio"/>	<input type="radio"/>
Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	<input type="radio"/>	<input type="radio"/>
Develop and implement a climate-action plan with an agricultural focus.	<input type="radio"/>	<input type="radio"/>
Create a community garden.	<input type="radio"/>	<input type="radio"/>
Construct bioswales at Morningside Park to improve drainage issues.	<input type="radio"/>	<input type="radio"/>
Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	<input type="radio"/>	<input type="radio"/>
Develop a stormwater		



management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.



Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.



Align repaving efforts with water system and stormwater system upgrades.



Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.



Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.



Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.



Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.	<input type="radio"/>	<input type="radio"/>
Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.	<input type="radio"/>	<input type="radio"/>
Explore options for alternative energy sources, renewable energy, and/or greywater systems.	<input type="radio"/>	<input type="radio"/>
Explore alternatives to reduce salt use on roadways.	<input type="radio"/>	<input type="radio"/>
Review and update Wetlands Protection Bylaw.	<input type="radio"/>	<input type="radio"/>
Identify needs and resources to improve the Town's potential shelter locations.	<input type="radio"/>	<input type="radio"/>
Increase awareness of and engagement with the recently launched paramedicine program. Identify	<input type="radio"/>	<input type="radio"/>

funding opportunities to continue to support this program.		
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Work with WRTA to expand public transportation service in Town.	<input type="radio"/>	<input type="radio"/>
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Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	<input type="radio"/>	<input type="radio"/>
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Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.	<input type="radio"/>	<input type="radio"/>
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Perform an inventory assessment of the Old Burial Grounds historic cemetery.	<input type="radio"/>	<input type="radio"/>
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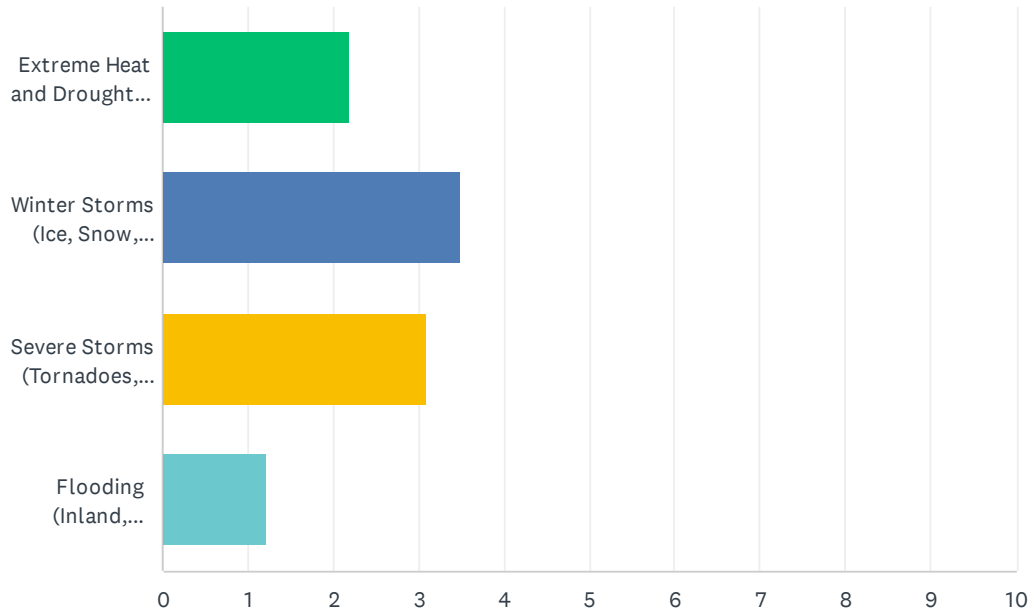
Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..	<input type="radio"/>	<input type="radio"/>
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8. Please describe any other actions that were not listed in this survey that the town should take to improve resilience.

Thank you for participating in Boylston's MVP Workshop and for taking the time to answer this survey!

## Q1 Please rank the following hazards in order from most concern (1) to least concern (4):

Answered: 10 Skipped: 0

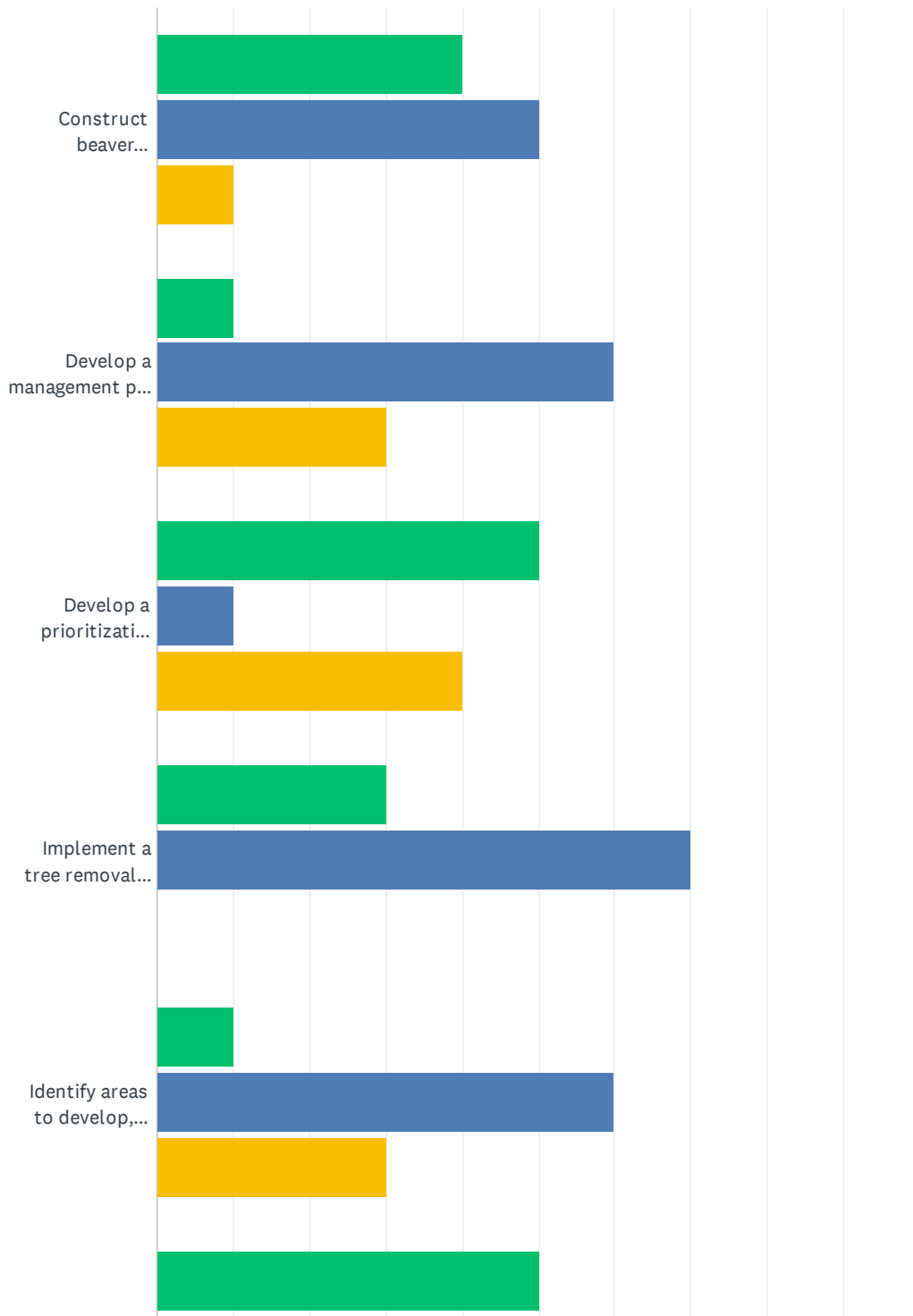


	1	2	3	4	TOTAL	SCORE
Extreme Heat and Drought (Wildfires, Invasive Species)	10.00% 1	20.00% 2	50.00% 5	20.00% 2	10	2.20
Winter Storms (Ice, Snow, Extreme Cold)	60.00% 6	30.00% 3	10.00% 1	0.00% 0	10	3.50
Severe Storms (Tornadoes, Wind, Lightning)	30.00% 3	50.00% 5	20.00% 2	0.00% 0	10	3.10
Flooding (Inland, Coastal)	0.00% 0	0.00% 0	22.22% 2	77.78% 7	9	1.22

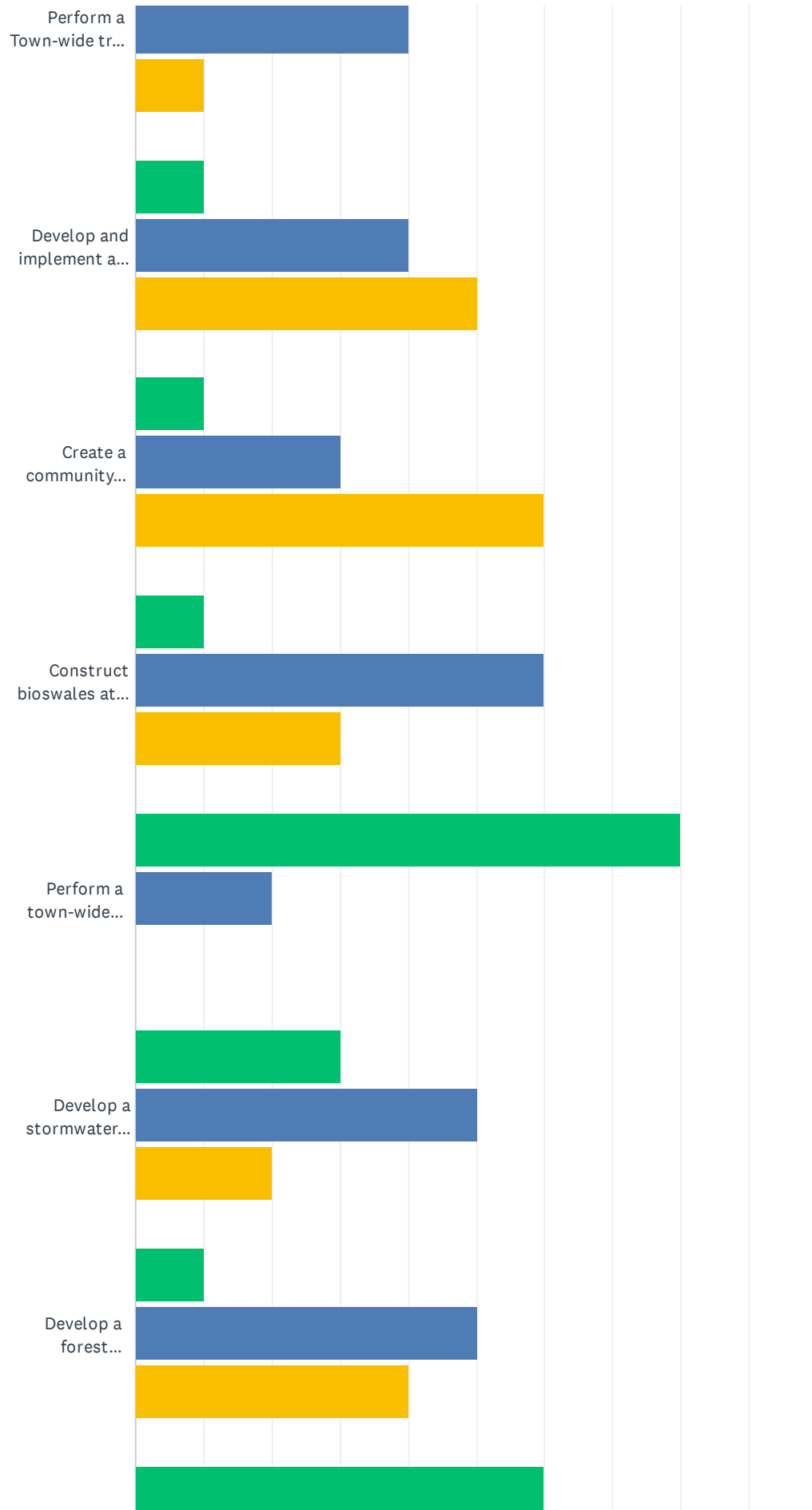


Q2 Please vote on whether the following actions are High, Medium, or Low priorities. High priority actions are necessary to meet existing requirements or are needed to help prepare for/prevent a potential hazard. Low priority action items will help the town build resilience, but are not immediately necessary. Medium priority actions are somewhere in between.

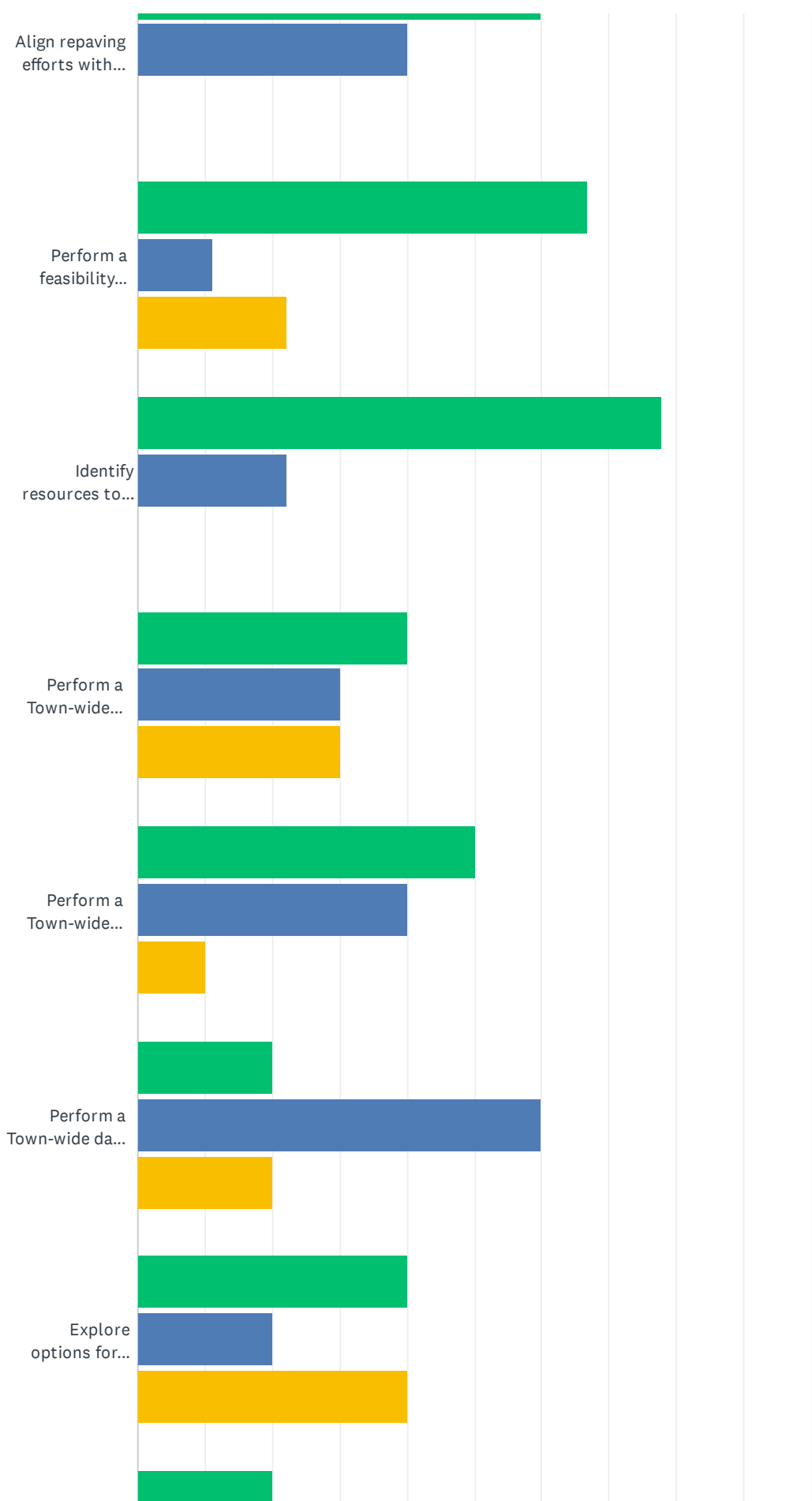
Answered: 10 Skipped: 0



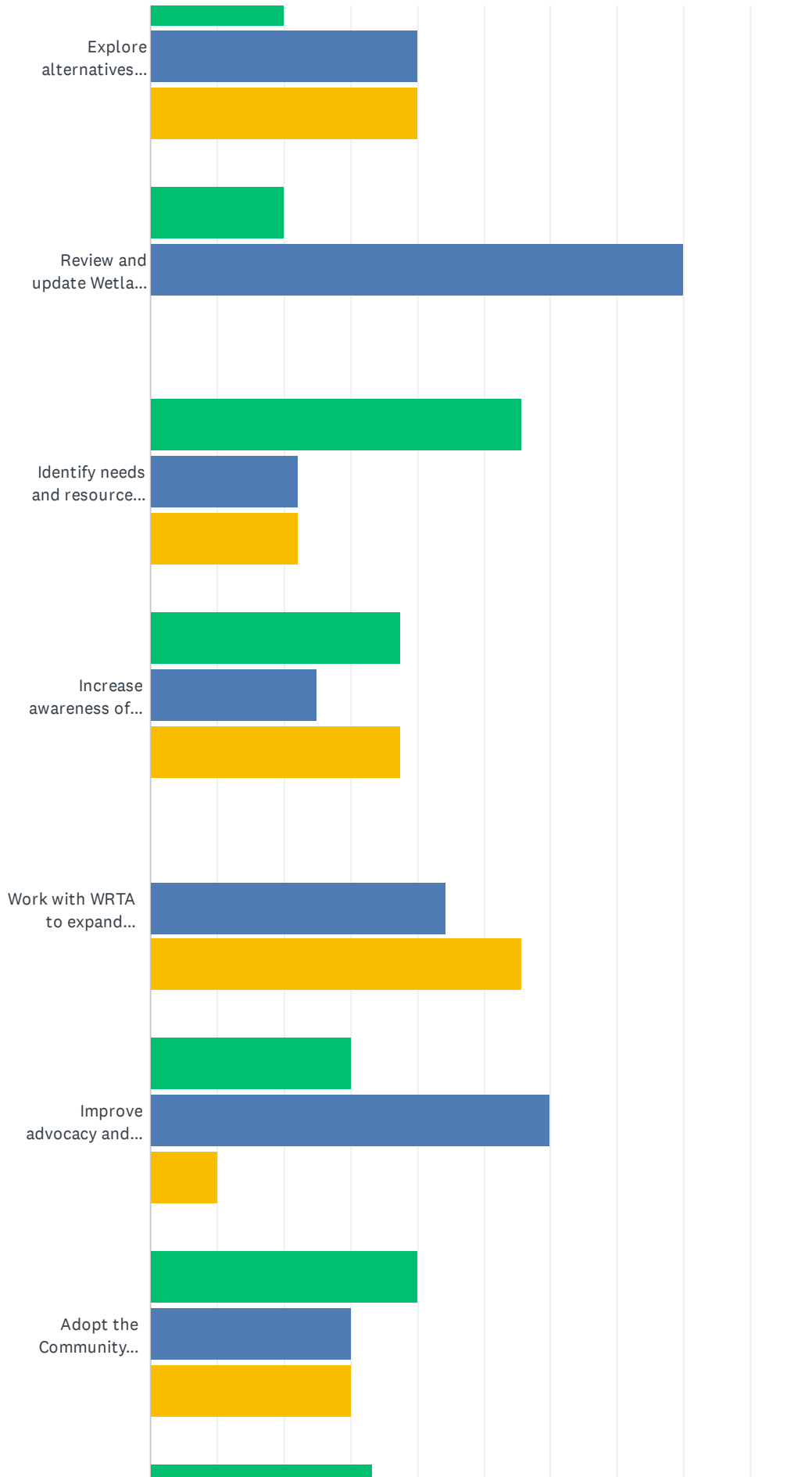
# Boylston Municipal Vulnerability Preparedness Program



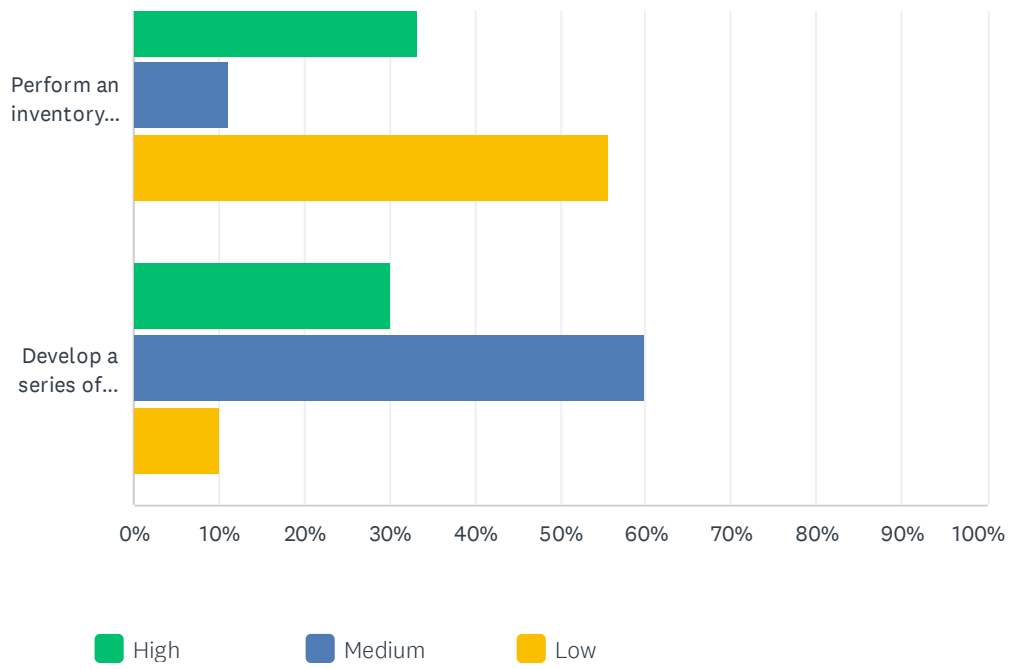
# Boylston Municipal Vulnerability Preparedness Program



# Boylston Municipal Vulnerability Preparedness Program



## Boylston Municipal Vulnerability Preparedness Program





# Boylston Municipal Vulnerability Preparedness Program

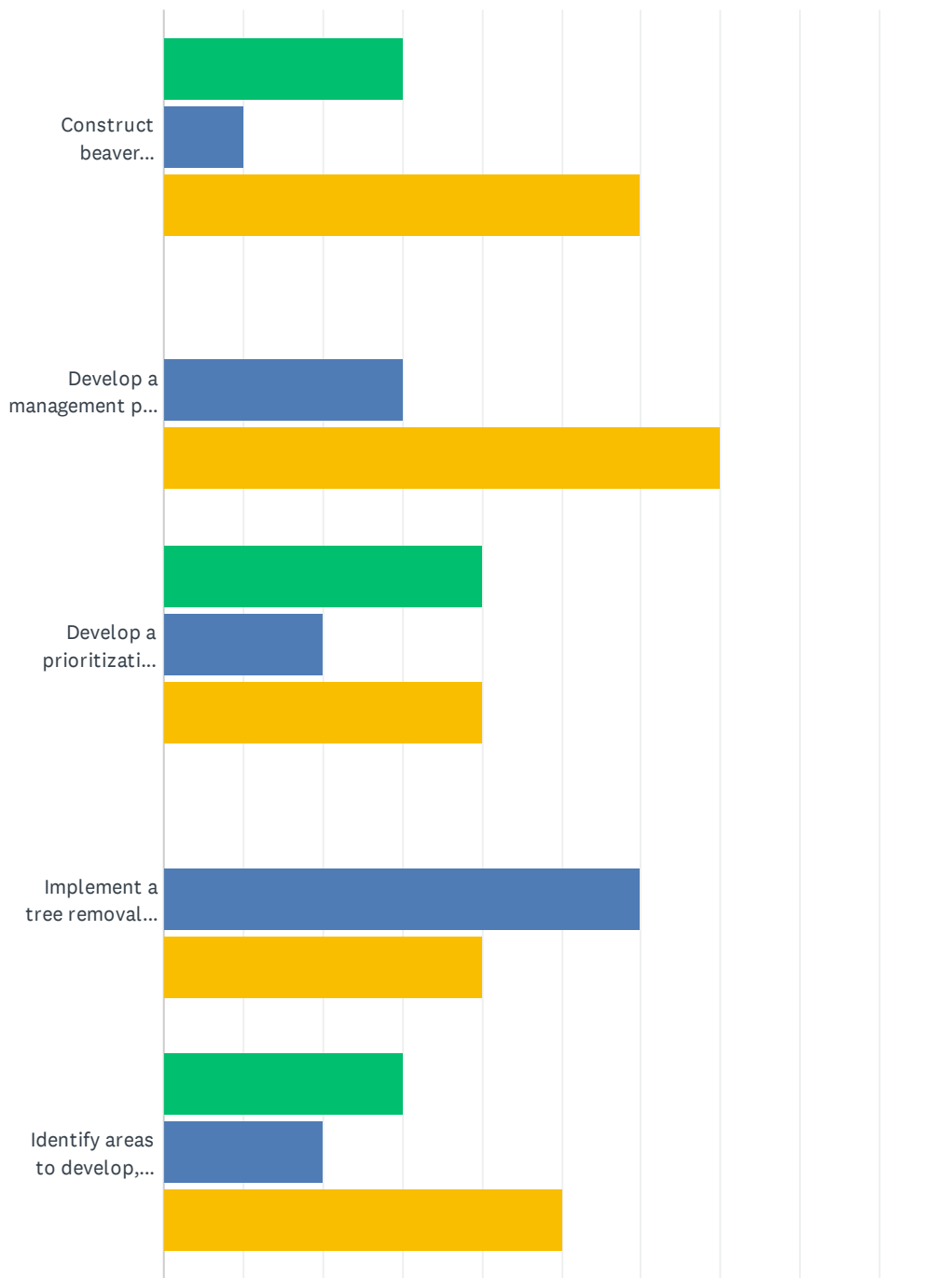
	HIGH	MEDIUM	LOW	TOTAL
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	40.00% 4	50.00% 5	10.00% 1	10
Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	10.00% 1	60.00% 6	30.00% 3	10
Develop a prioritization plan for acquiring and/or protecting open space parcels.	50.00% 5	10.00% 1	40.00% 4	10
Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	30.00% 3	70.00% 7	0.00% 0	10
Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	10.00% 1	60.00% 6	30.00% 3	10
Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	50.00% 5	40.00% 4	10.00% 1	10
Develop and implement a climate-action plan with an agricultural focus.	10.00% 1	40.00% 4	50.00% 5	10
Create a community garden.	10.00% 1	30.00% 3	60.00% 6	10
Construct bioswales at Morningside Park to improve drainage issues.	10.00% 1	60.00% 6	30.00% 3	10
Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	80.00% 8	20.00% 2	0.00% 0	10
Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.	30.00% 3	50.00% 5	20.00% 2	10
Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.	10.00% 1	50.00% 5	40.00% 4	10
Align repaving efforts with water system and stormwater system upgrades.	60.00% 6	40.00% 4	0.00% 0	10
Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.	66.67% 6	11.11% 1	22.22% 2	9
Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.	77.78% 7	22.22% 2	0.00% 0	9
Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.	40.00% 4	30.00% 3	30.00% 3	10
Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.	50.00% 5	40.00% 4	10.00% 1	10
Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.	20.00% 2	60.00% 6	20.00% 2	10
Explore options for alternative energy sources, renewable energy, and/or greywater systems.	40.00% 4	20.00% 2	40.00% 4	10
Explore alternatives to reduce salt use on roadways.	20.00% 2	40.00% 4	40.00% 4	10
Review and update Wetlands Protection Bylaw.	20.00% 2	80.00% 8	0.00% 0	10
Identify needs and resources to improve the Town's potential shelter locations.	55.56% 5	22.22% 2	22.22% 2	9

## Boylston Municipal Vulnerability Preparedness Program

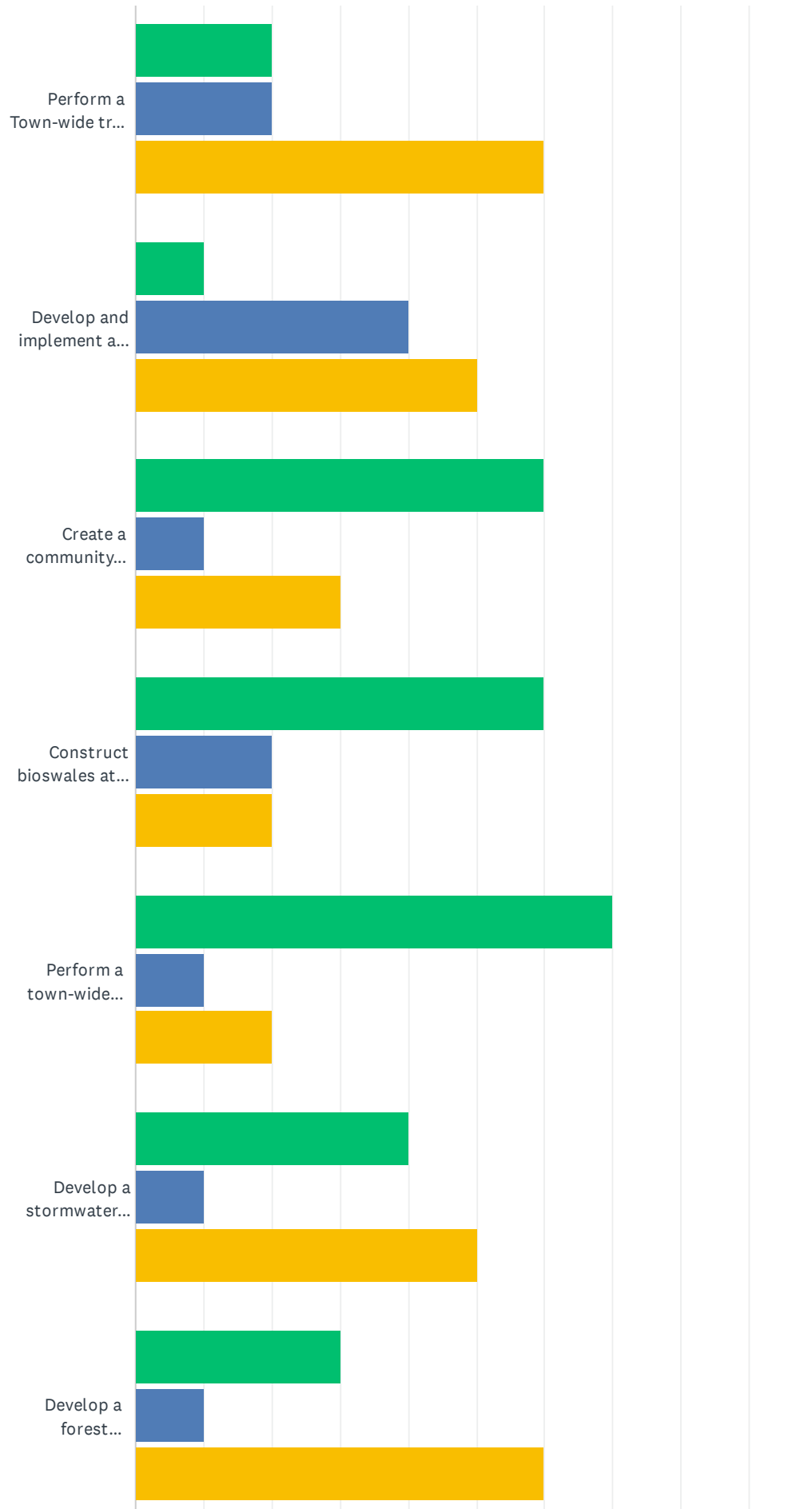
Increase awareness of and engagement with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.	37.50% 3	25.00% 2	37.50% 3	8
Work with WRTA to expand public transportation service in Town.	0.00% 0	44.44% 4	55.56% 5	9
Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	30.00% 3	60.00% 6	10.00% 1	10
Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.	40.00% 4	30.00% 3	30.00% 3	10
Perform an inventory assessment of the Old Burial Grounds historic cemetery.	33.33% 3	11.11% 1	55.56% 5	9
Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..	30.00% 3	60.00% 6	10.00% 1	10

**Q3 Please vote on whether the following actions are Short, Long, or Ongoing projects. Short-term projects are straightforward and can be completed within two years. Long-term projects take a longer time to complete, may require initial studies or public engagement strategies, and tend to be more complex. Ongoing projects are never truly completed. They require continuous action from year to year in order to maintain resilience.**

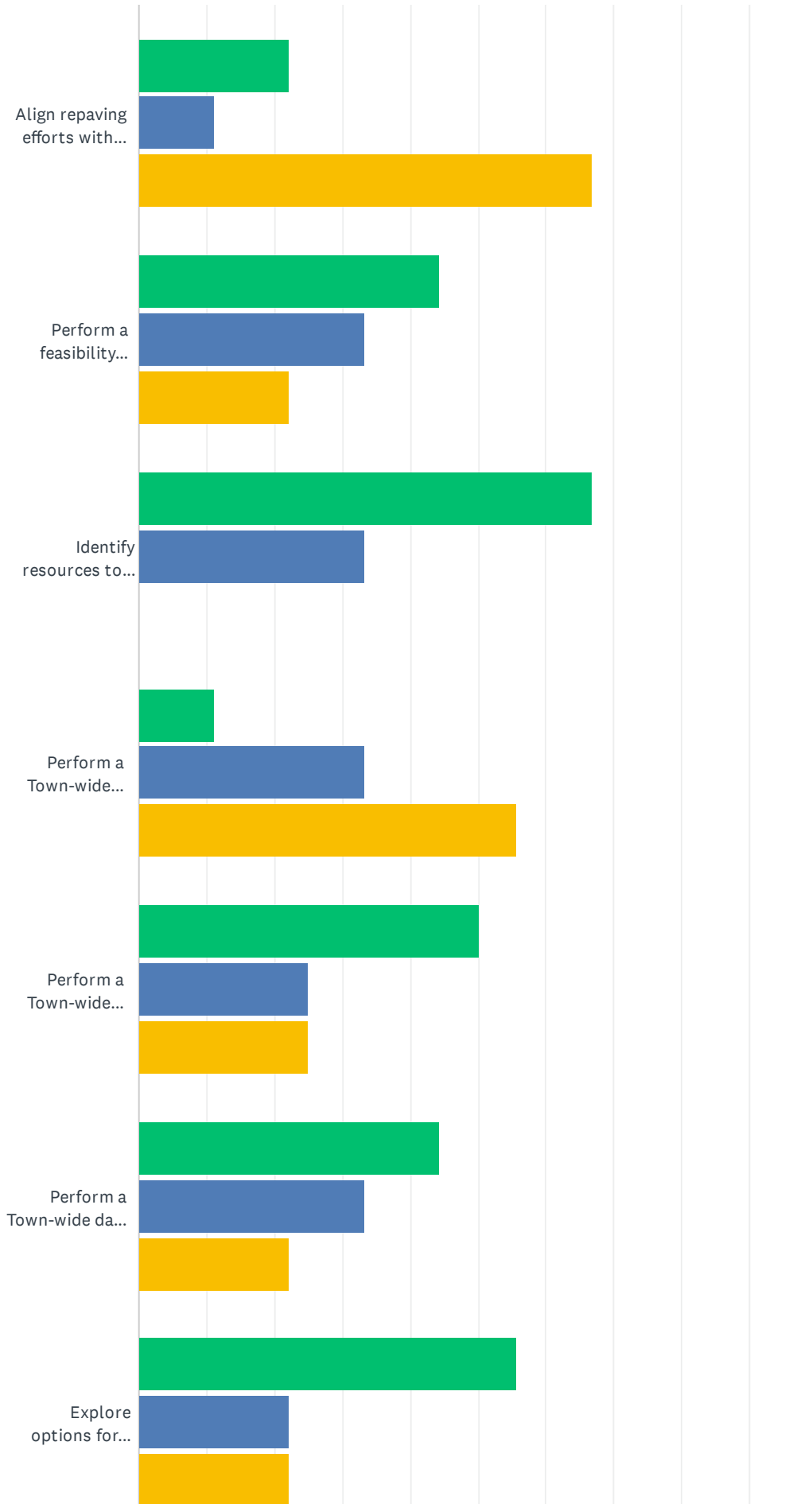
Answered: 10 Skipped: 0



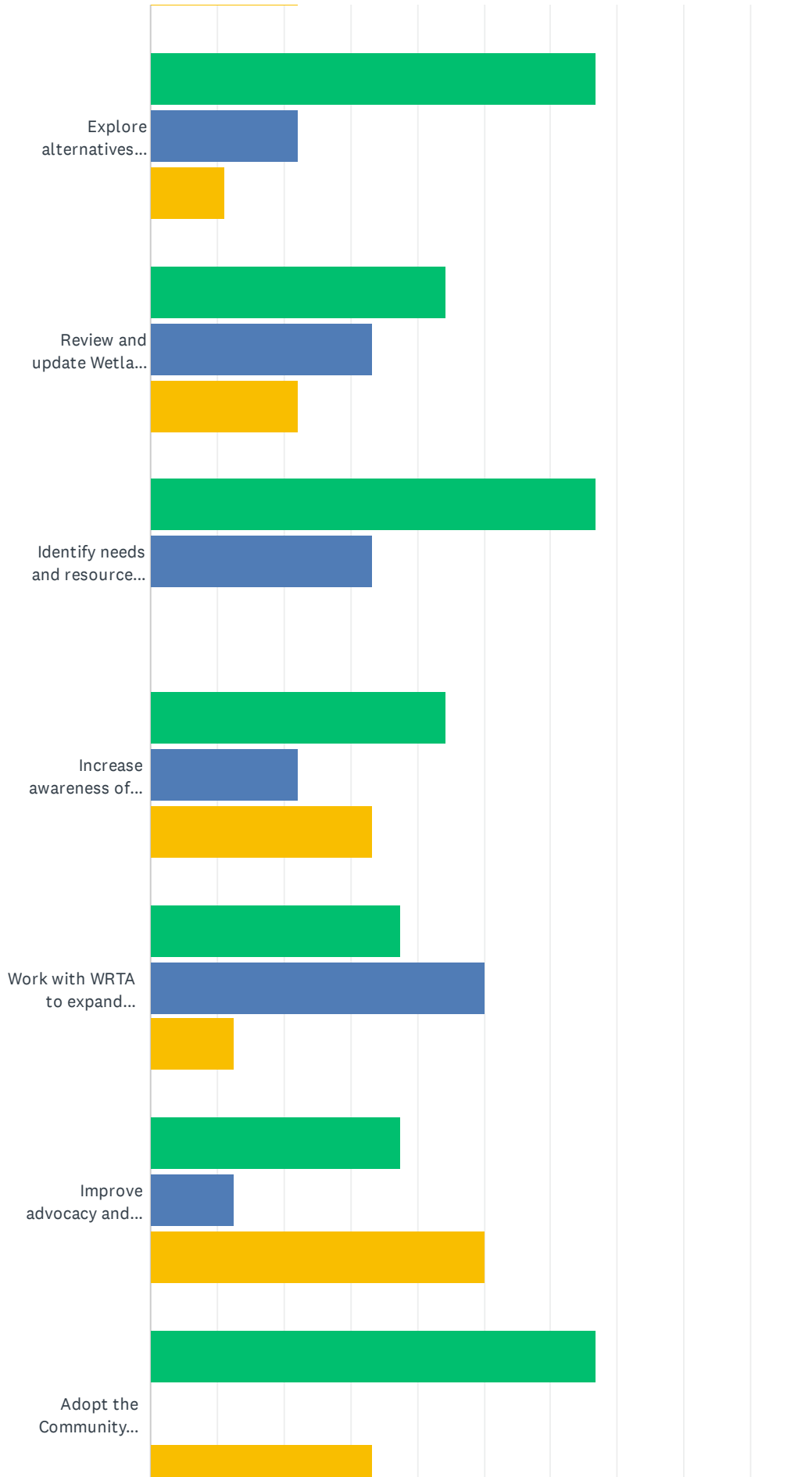
# Boylston Municipal Vulnerability Preparedness Program



# Boylston Municipal Vulnerability Preparedness Program

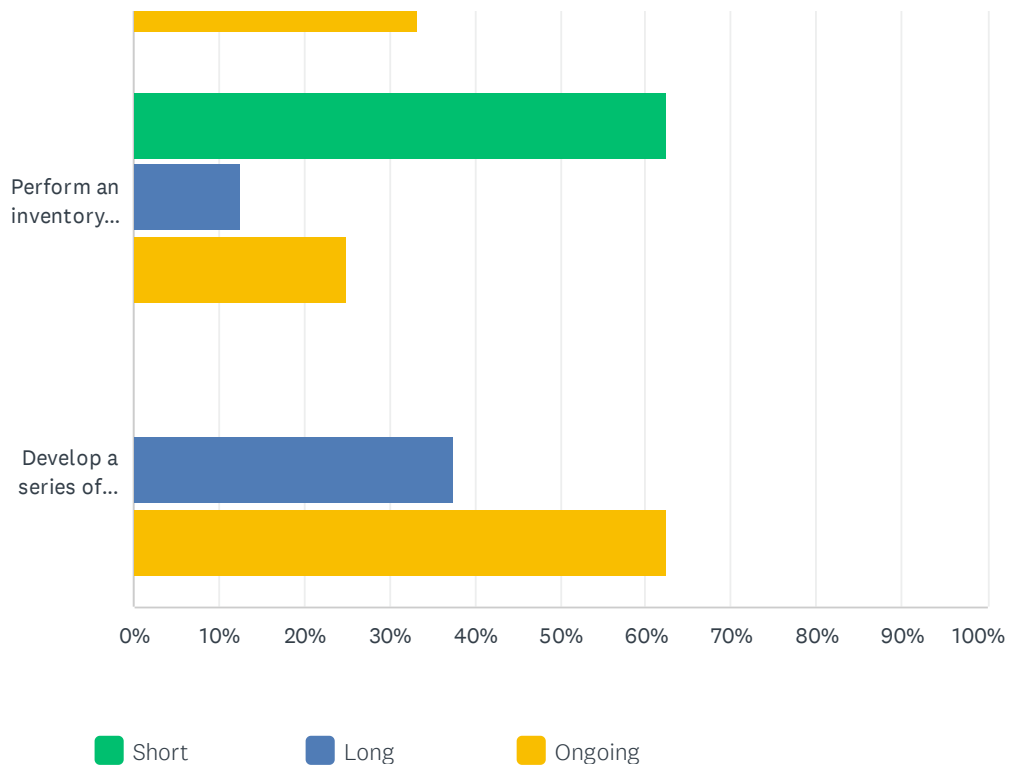


# Boylston Municipal Vulnerability Preparedness Program





## Boylston Municipal Vulnerability Preparedness Program



# Boylston Municipal Vulnerability Preparedness Program

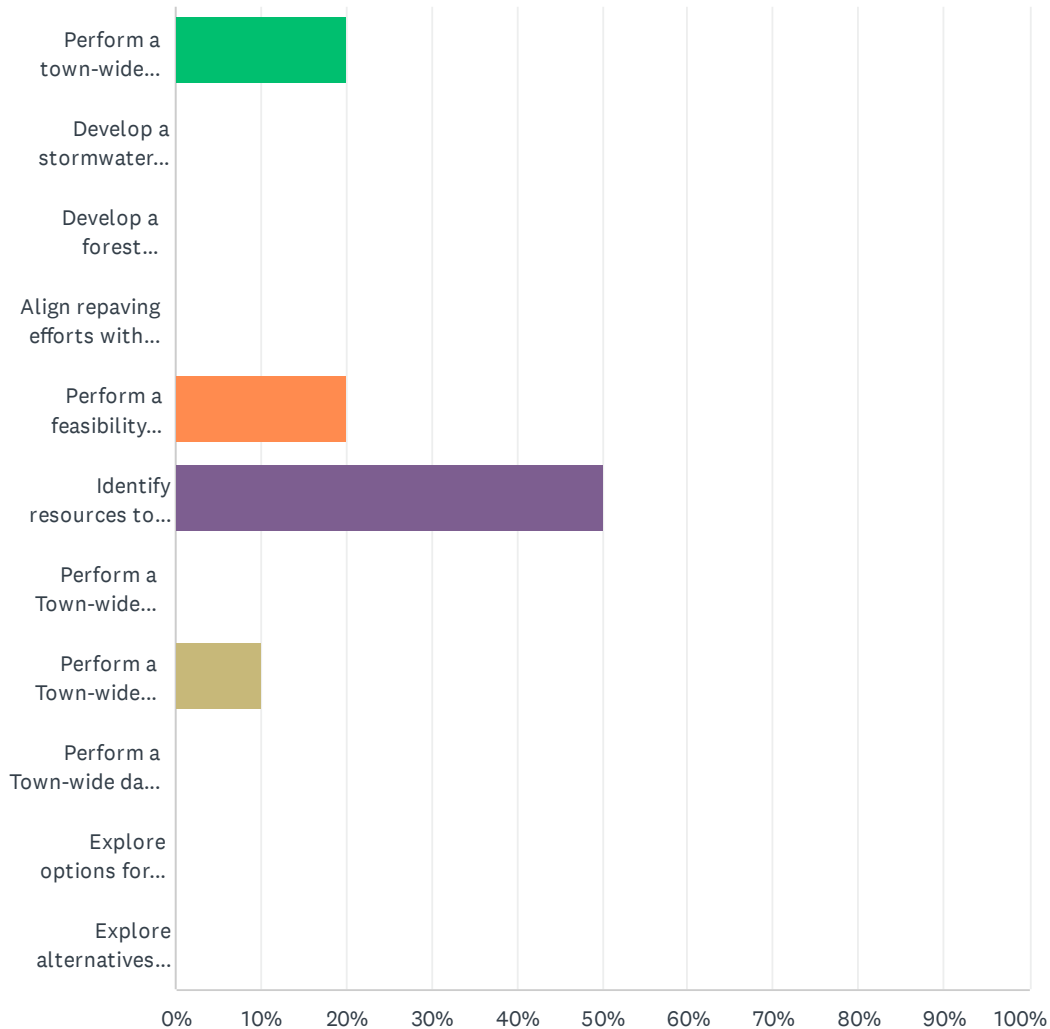
	SHORT	LONG	ONGOING	TOTAL
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	30.00% 3	10.00% 1	60.00% 6	10
Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	0.00% 0	30.00% 3	70.00% 7	10
Develop a prioritization plan for acquiring and/or protecting open space parcels.	40.00% 4	20.00% 2	40.00% 4	10
Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	0.00% 0	60.00% 6	40.00% 4	10
Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	30.00% 3	20.00% 2	50.00% 5	10
Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	20.00% 2	20.00% 2	60.00% 6	10
Develop and implement a climate-action plan with an agricultural focus.	10.00% 1	40.00% 4	50.00% 5	10
Create a community garden.	60.00% 6	10.00% 1	30.00% 3	10
Construct bioswales at Morningside Park to improve drainage issues.	60.00% 6	20.00% 2	20.00% 2	10
Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	70.00% 7	10.00% 1	20.00% 2	10
Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.	40.00% 4	10.00% 1	50.00% 5	10
Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.	30.00% 3	10.00% 1	60.00% 6	10
Align repaving efforts with water system and stormwater system upgrades.	22.22% 2	11.11% 1	66.67% 6	9
Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.	44.44% 4	33.33% 3	22.22% 2	9
Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.	66.67% 6	33.33% 3	0.00% 0	9
Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.	11.11% 1	33.33% 3	55.56% 5	9
Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.	50.00% 4	25.00% 2	25.00% 2	8
Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.	44.44% 4	33.33% 3	22.22% 2	9
Explore options for alternative energy sources, renewable energy, and/or greywater systems.	55.56% 5	22.22% 2	22.22% 2	9
Explore alternatives to reduce salt use on roadways.	66.67% 6	22.22% 2	11.11% 1	9
Review and update Wetlands Protection Bylaw.	44.44% 4	33.33% 3	22.22% 2	9
Identify needs and resources to improve the Town's potential shelter locations.	66.67% 6	33.33% 3	0.00% 0	9

## Boylston Municipal Vulnerability Preparedness Program

Increase awareness of and engagement with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.	44.44% 4	22.22% 2	33.33% 3	9
Work with WRTA to expand public transportation service in Town.	37.50% 3	50.00% 4	12.50% 1	8
Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	37.50% 3	12.50% 1	50.00% 4	8
Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.	66.67% 6	0.00% 0	33.33% 3	9
Perform an inventory assessment of the Old Burial Grounds historic cemetery.	62.50% 5	12.50% 1	25.00% 2	8
Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..	0.00% 0	37.50% 3	62.50% 5	8

## Q4 Please vote for what you believe is the top priority INFRASTRUCTURAL action from the list below.

Answered: 10 Skipped: 0

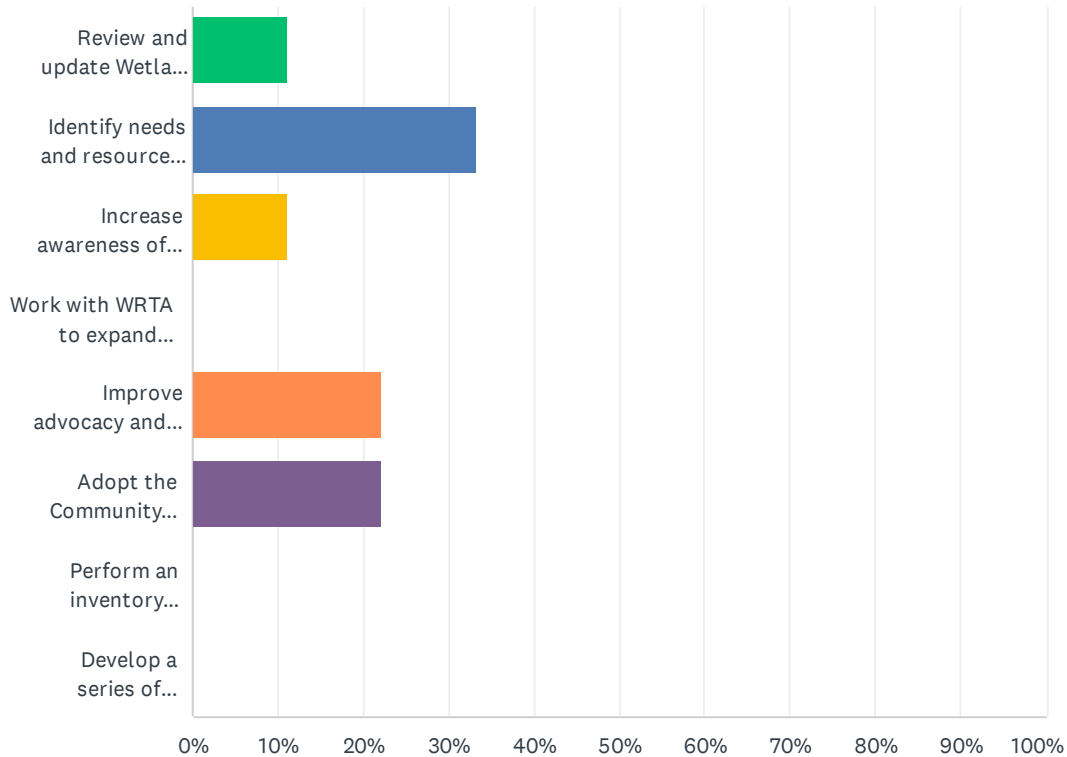


# Boylston Municipal Vulnerability Preparedness Program

ANSWER CHOICES	RESPONSES	
Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	20.00%	2
Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.	0.00%	0
Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.	0.00%	0
Align repaving efforts with water system and stormwater system upgrades.	0.00%	0
Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.	20.00%	2
Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.	50.00%	5
Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.	0.00%	0
Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.	10.00%	1
Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.	0.00%	0
Explore options for alternative energy sources, renewable energy, and/or greywater systems.	0.00%	0
Explore alternatives to reduce salt use on roadways.	0.00%	0
TOTAL		10

## Q5 Please vote for what you believe is the top priority SOCIETAL action from the list below:

Answered: 9 Skipped: 1

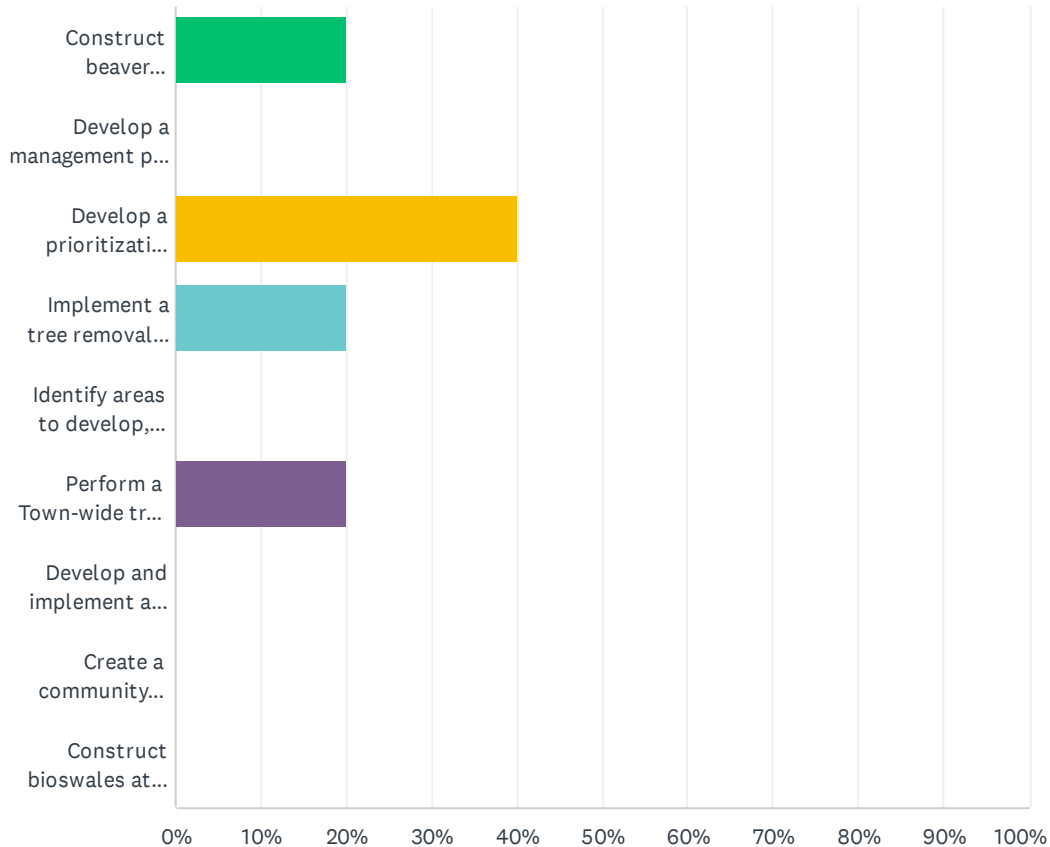


ANSWER CHOICES	RESPONSES	
Review and update Wetlands Protection Bylaw.	11.11%	1
Identify needs and resources to improve the Town's potential shelter locations.	33.33%	3
Increase awareness of and engagement with the recently launched paramedicine program. Identify funding opportunities to continue to support this program.	11.11%	1
Work with WRTA to expand public transportation service in Town.	0.00%	0
Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	22.22%	2
Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.	22.22%	2
Perform an inventory assessment of the Old Burial Grounds historic cemetery.	0.00%	0
Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..	0.00%	0
<b>TOTAL</b>		<b>9</b>



## Q6 Please vote for what you believe is the top priority ENVIRONMENTAL action from the list below:

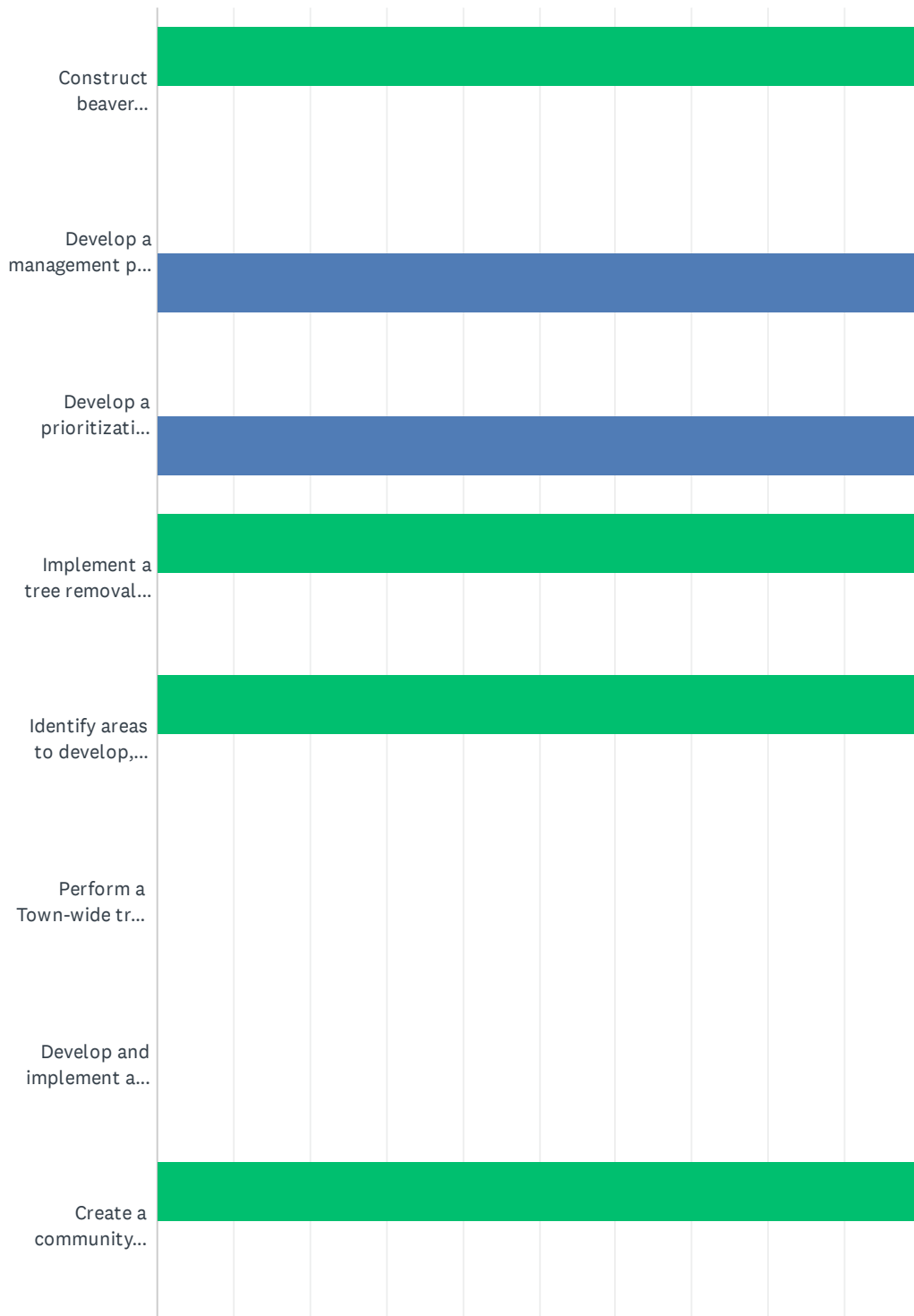
Answered: 10 Skipped: 0



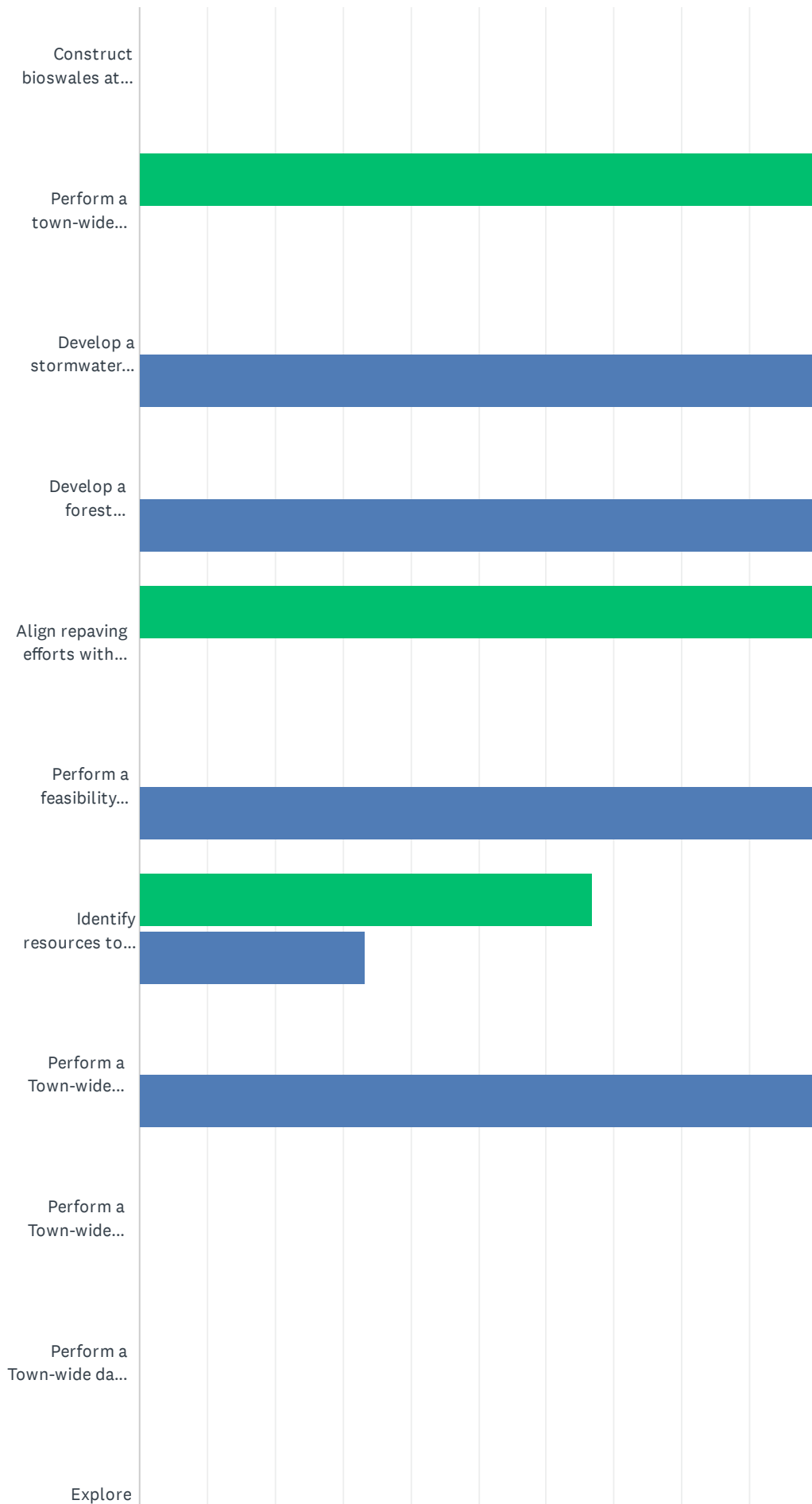
ANSWER CHOICES	RESPONSES	
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	20.00%	2
Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	0.00%	0
Develop a prioritization plan for acquiring and/or protecting open space parcels.	40.00%	4
Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	20.00%	2
Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	0.00%	0
Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	20.00%	2
Develop and implement a climate-action plan with an agricultural focus.	0.00%	0
Create a community garden.	0.00%	0
Construct bioswales at Morningside Park to improve drainage issues.	0.00%	0
<b>TOTAL</b>		<b>10</b>

**Q7 Please vote for TWO additional top priority actions that you believe Boylston should complete in order to build resilience. You may select actions from any category (Infrastructural, Societal, and Environmental), but do not select any actions that you already selected in the previous questions.**

Answered: 10 Skipped: 0



## Boylston Municipal Vulnerability Preparedness Program



## Boylston Municipal Vulnerability Preparedness Program





# Boylston Municipal Vulnerability Preparedness Program

	VOTE 1	VOTE 2	TOTAL
Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.	100.00% 1	0.00% 0	1
Develop a management plan for Rocky Pond to remove invasive species and improve water quality.	0.00% 0	100.00% 1	1
Develop a prioritization plan for acquiring and/or protecting open space parcels.	0.00% 0	100.00% 1	1
Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.	100.00% 1	0.00% 0	1
Identify areas to develop, expand, or connect trail systems. Utilize trail mapping services provided by CMRPC.	100.00% 1	0.00% 0	1
Perform a Town-wide tree inventory assessment, identifying dead, dying, or pest impacted street trees.	0.00% 0	0.00% 0	0
Develop and implement a climate-action plan with an agricultural focus.	0.00% 0	0.00% 0	0
Create a community garden.	100.00% 1	0.00% 0	1
Construct bioswales at Morningside Park to improve drainage issues.	0.00% 0	0.00% 0	0
Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.	100.00% 1	0.00% 0	1
Develop a stormwater management plan, and review/update the zoning bylaws to improve stormwater management, such as by create regulations on leaf debris removal and/or creating a stormwater utility fee.	0.00% 0	100.00% 1	1
Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.	0.00% 0	100.00% 2	2
Align repaving efforts with water system and stormwater system upgrades.	100.00% 1	0.00% 0	1
Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.	0.00% 0	100.00% 2	2
Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.	66.67% 2	33.33% 1	3
Perform a Town-wide assessment of septic systems to determine age, leakage, and potential failing septic areas.	0.00% 0	100.00% 1	1
Perform a Town-wide assessment of municipal water wells and conduct water quality testing. Investigate expanding the water system to aid with fire fighting across town. Digitize and implement the Worcester Polytechnic Institute (WPI) report regarding the water system improvements.	0.00% 0	0.00% 0	0
Perform a Town-wide dam assessment and feasibility study. Explore funding opportunities for removal where applicable, such as at Spruce Pond Dam.	0.00% 0	0.00% 0	0
Explore options for alternative energy sources, renewable energy, and/or greywater systems.	0.00% 0	0.00% 0	0
Explore alternatives to reduce salt use on roadways.	0.00% 0	0.00% 0	0
Review and update Wetlands Protection Bylaw.	0.00% 0	0.00% 0	0
Identify needs and resources to improve the Town's potential shelter locations.	100.00% 1	0.00% 0	1
Increase awareness of and engagement with the recently launched paramedicine program. Identify	0.00%	0.00%	



## Boylston Municipal Vulnerability Preparedness Program

funding opportunities to continue to support this program.	0	0	0
Work with WRTA to expand public transportation service in Town.	0.00% 0	0.00% 0	0
Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.	0.00% 0	100.00% 1	1
Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.	100.00% 1	0.00% 0	1
Perform an inventory assessment of the Old Burial Grounds historic cemetery.	0.00% 0	0.00% 0	0
Develop a series of education and outreach campaigns regarding drought resilience, water usage, pesticide use, proper leaf disposal, and low impact development benefits..	0.00% 0	0.00% 0	0

## Q8 Please describe any other actions that were not listed in this survey that the town should take to improve resilience.

Answered: 4 Skipped: 6

#	RESPONSES	DATE
1	The town needs to continue to seek grant funding opportunities whenever possible to mitigate the financial impact that any of the above actions will have on town residents. The town has a high senior population who will not be able to absorb any large tax increases that would be needed to fund many of these initiatives.	4/19/2022 8:39 AM
2	Explore grant opportunities, possible state funds to address immediate needs and prioritize most feasible actions	4/17/2022 6:03 PM
3	It was Avery thorough start. Great job Dani.	4/16/2022 7:57 PM
4	Since some of these things are currently being implemented and/or long term in-process activities, get the study contractors up to date with the current town teams.	4/15/2022 9:19 PM

Boylston Table #2


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

[illegible]

# Community Resilience Building Risk Matrix



## TABLE # 2

www.CommunityResilienceBuilding.org

### Boylston #2

**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, etc.)

H-M-Lpriority for action over the Short or Long term (and Ongoing) V = Vulnerability S = Strength					Winter Storms (ice, snow)	Severe Storms (wind events, tornadoes)	Flooding (inland and coastal)	Extreme Heat/Drought	Priority	Time
									H - M - L	Short Long Ongoing
Features	Location	Ownership	V or S	Description						
Infrastructural										
Drainage & culverts	Route 70 culverts (French Brook)	State, town, subdivision HOAs for maintenance	V	Drainage may not be sized appropriately for frequency of 100 year floods. Back-up South of high school could be due to Beaver activity. People are nervous about home flooding	culvert assessment utilizing CMRPC and DER grants, create a stormwater management plan					
Beaver Activity	Route 70	State, town	V/S	affecting culverts. Styles Road culverts are not big enough, beaver activity has increased. Cross Street. Beaver plan in place for new development around FedEx facility. Beavers can potential to take out power lines and block roads during storms. Diamond Hill Ave, oak trees affected by gypsy moths. Could affect light department. Highway dept. limited budget (10-	utilize beaver deceivers					
Dead trees	Route 70	State	V	New locations having hard time finding locations for septic tanks- easily developed sites have already been developed	town-wide tree inventory, map or tag concerning trees, establish replanting program with native drought/pest resistant species; forest management plan					
Septic	Oak Hill Lane subdivision; FedEx facility and surrounding parcels set to	Private	V	6 dams in Boylston, Wachusett dam moved from high hazard to good condition- potential to flood Rt 70 and 62 if overflowed on Clinton line (no public infrastructure would be affected) Office of dam safety required trees moved, moved to good condition	Board of Health monitoring					
Dams	Rocky Pond, Camp Harrington Pond (Rt 70 & 140), Millroad Circle (Sewall Pond to Newton Pond)	Private & State for Wachusett	V/S	Good supply, good quality, old infrastructure. 2 wells on Rt 70 may be vulnerable to salt- potential to reduce salt use on Route 12. Half of town on water district, half on individual wells. Vulnerable wells near roadways from road salt. Vulnerability with nitrate levels for wells that have subdivisions nearby- need to change behavior. No plans to expand public water	Spruce Pond Dam - possible removal - look into public perception of removal					
Water System	(on map)	Water District & private wells	V/S	very good department. Receptive to issues such as tree limb repairs. Work closely with Highway department to take down issue trees & get ahead before winter storms.	Implement WPI plan - find it!; look at expanding public water system for fire safety					
Municipal Light Department	town wide			Stiles road flooding would be dangerous for resident access in/out- current beaver problem there on low point. Current plan has been working for road maintenance. Roadways are in decent shape. Central Street in need of paving, will be costly. Highway super does great job of seeing which roads need to be fixed next on ability to go around through town roads that are much smaller and would have worse impact from storms. Previous experience of closed roads on route 70 have happened- need 4 wheel drive. Access to Clinton Hospital is crucial. Cross on hill, not worried about flooding. Higher winds on hill. Forest fire would be hazard from nearby forest. Older building, high school might be better suited as shelter	Ch. 90 for Central Street; align repaving with water system and stormwater improvement projects					
Rt 70 Evacuation Route (N->S)										
Municipal Office Complex		town			Identify resources to make structurally sound, get generator					

Designated shelter		town		older high school used to have fallout shelter, unsure if there is one in new building. Newest community building in town. Does have showers and kitchen. Is there generator power for town events, used by fire department and community members. Has kitchen. No separate power for showers	review HMP		
Town House		town					
Highway Department Facility		town	S	new building			
Fire Station		town	V	older building (1950s), needs to be upgraded. Not flooding concern.	needs to be replaces - support feasibility study with MVP funding for green infrastructure/renewable energy components of the public safety facility		
Elementary School				recently rebuilt, in good shape. Potential as shelter? Has kitchen and gym. Water level would need to rise 15-20 feet for elements to be			
<b>Societal</b>							
Senior population				1 group of seniors living in Sunbanke? Village. First responders know how to get there. Town van covers full town, town owned, option for transportation. 9 person van plus driver. Certain areas of Boylston are close-knit, others are separated with fewer neighbors = concern for elderly population, does everyone have contact in town			
Emergency Communications				Council on aging working with fire department to complete home visits, paramedicine in-home care system will start in a few weeks to establish relationships. Receive updated lists of all seniors in town (in progress). Lock boxes in	Outreach in the future to add to list; look for additional grant funding for paramedicine program		
Senior communities	Sunbanke, Lilimare, Compass Point (seaside)						
Stormwater bylaw	town wide	town	S	stormwater regulations allow low impact development, in good place to regulate new developments. New regulation draft for buffers and updating stormwater bylaw. State updating stormwater regulations NOAA 141	promote and educate on low impact development; review and update zoning bylaws		
Conservation Commission	town wide	town	S	good resource			
Growth Management Strategy				Master Plan will be completed around June. Just finished Housing Production Plan- touch base w			
Emergency Services	2019 upgrade communications, system is 30-50 years old. FCC hold on licenses in		S/V	5 person full time EMS/fire department. Fire trucks are outdated, fire department keeps them in great condition but they need to be updated. If damaged in emergency would not be able to replace. Call/response times are good			
Emergency Communication Infrastructure			V	2019 upgrade communications, system is 30-50 years old. FCC hold on licenses in 2019, now tripled in cost due to supply chain. Need 2 new towers (current deadspots in town). Officers need to use cell phones to call dispatch because	Identify resources to improve radio coverage - if able to regionalize, funding can be applied through the Homeland Security council; explore alternative energy uses		
Country Roads in neighborhoods	green street, warren street, rocky pond, boulder way (private)		V	Older country roads, narrow, vulnerable during storms, little drainage or curbing, open swales. Stiles Road			
Lions Club			S	very active			
Senior Citizens Society			S	good at communicating information			
Public Library							
Cemetery			V	low and close to res., one way dead end road get			
Grange Club			S				

Environmental							
Parks & Rec							
Parks	School street park, sky hill road (side of cemetery, greenwood street in Morningdale (little league and	DCR, Summer Star, SVT, Greater Worcester, Town	S/V	beautiful town, lots of open space & community opportunities. Pest problems with moths, ticks, asian longhorn beetle. Water issues at morningdale park- baseball field always wet and needs better drainage to account for hill. Pout pond drainage issues	explore LID options - bioswales; community outreach signs on basins to discourage leaf dumping		
Invasive Plant Species	town wide	varies	V	Newton Pond problem with invasives- milfoil	develop an invasive species management plan for Rocky Pond - minimize nutrients from neighbors through outreach program		
Forest Health	town wide	DCR, varies	V	Gypsy moths trouble with oak trees, north end of town (rt 70). Forest fairly healthy, lots of brush as fire hazard. DCR will manage forest, attempting to create diverse forest with different age classes to reduce impact of invasive species and storms, different cuts and			
Deer population	town wide, Tower Hill/around res	varies	V	DCR opened area for hunting and moths due to impact of deer browse. Concern that easier	continue collaboration with the DCR		
Woolly Adelgid	town wide forests	varies	V	could have kept woolly adelgids from advancing north, will change due to weather	create a forest management plan		
Watershed Protection Act	res and tributaries within watershed	DCR & private	S	protects tributaries in res, primary (limits alteration 200 ft from res) and secondary (200-400 ft from tributary limits) protection zones with exemptions. Strength from town standpoint	continue collaboration with DCR, reduce salt use and look at alternatives to salt us		
Reservoir			S/V	Strength as protected area, strength as attraction, weakness for taxes- land use. Not currently used as potable water source- could impact wells positively during drought seasons. Water is huge asset in community.			
Water Infrastructure	(on map)	water district	S/V	older pipes in need of fixing. Frequency of failed pipes will increase as water table increases. Cast iron mains. No known issues with water tanks, one was replaced 3 years ago. Unsure of age of			
Town Waterways	Sewall Pond, Newton Pond	TBD	S/V	filed for weed control. Lake Quinsig commission worked with Newton Pond. Strength in intersection of watersheds, upstream of lake quinsig and other waterways. Potential dam			
Wetlands	(on map)	varies	S/V	Active conservation commission, worked with developers to limit disturbances with regards to setbacks. Worked to put parcels in conservation trust (Summer star) from back taxes. No budget to purchase open land, but open to donations and transfers of land. Lots of wetland & vernal	review wetlands protection bylaw with Stefanie Covino		
Protected Open Space	(on map)		V	Just completed OSRP last year. One goal is to come up with priority list of open space parcels to protect (note for us next week!!!) Compared to other towns, lots of land covered by DCR but	identify a priority list of open space parcels to protect and/or acquire; adopt the CPA - outreach program to educate the public on the benefits of CPA		
				Powerline land great as ecosystem for birds and butterfly species. Potential for rec			
Hazardous Waste Sites		varied		No superfund sites- current sites on hazardous waste lists have either temporary or permanent plans.			
Stormwater Structures	town maps	Public/Private	S/V	rules and regs began ~50 years ago through DEP regs. HOA agreements. Some places where we			
Mill Circle	Mill Road			Historic Mill			
Historic structures	(early 1700s), town hall historic			Historical society (registers historic structures through state), 2 historic districts			





Meeting Name: MVP Workshop  
Day 2

Community: Boylston

Location: Town House

Date: 4/6/22

Meeting Time: 6:00 PM

Participant Name	Organization	Title	E-Mail
Dani Marini	CMRPC	Planner	dmarini@cmrpc.org
Paul Dell'Aquila	Boylston	Town Planner	townplanner@boylstonma.gov
Bill Moulton	DCR	Reg. Eng.	bill.moulton@mass.gov
Andrew Loew	CMRPC	Proj. Mgr.	aloew@cmrpc.org
Arthur Resca	MassDOT	Maintenance D3	Arthur.Resca@Dot.State.ma
Hillary King	EEA	MVP Coordinator	hillary.king@mass.gov
Chip Burkhardt	Boylston	Conservation	chipburkhardt@yahoo.com
Jimmy Ricciardi	Boylston	Self	Jim@RicciardiBrosInc.com
Joe Flanagan	Boylston Fire	Fire Chief	jflanagan@boylston-ma.gov
Stef Covino	Blackstone Watershed & Colls to	Proj. Mgr.	scovino@clarku.edu
Meg Kilwayne	State Representative		Meghan.Kilwayne@state.ma.gov



## Community Resilience Building Risk Matrix

BOYLSTON MYP#2

H M L priority for action

V = Vulnerability S = Strength

Features	Location	Ownership	Ward	Description	Notes
<b>Infrastructure</b>					
Drainage & culverts	Route 70 culverts (Fresh Brook)	State, town, subdivision (MA for maintenance)	V	Drainage may not be sized appropriately for frequency of rain per road. Much of town is on hills - drainage is a concern. Road is in good shape. Road is in good shape. Road is in good shape.	Drainage is a concern. Road is in good shape. Road is in good shape. Road is in good shape.
Beaver Activity	Route 70	State, town	V/S	Beaver activity - State Road culvert - not big enough. Beaver activity - State Road culvert - not big enough. Beaver activity - State Road culvert - not big enough.	Beaver activity - State Road culvert - not big enough. Beaver activity - State Road culvert - not big enough. Beaver activity - State Road culvert - not big enough.
Dead trees	Route 70	State	V	potential to take on power lines and trees - road during storm. Potential to take on power lines and trees - road during storm. Potential to take on power lines and trees - road during storm.	potential to take on power lines and trees - road during storm. Potential to take on power lines and trees - road during storm. Potential to take on power lines and trees - road during storm.
Septic	Old Mill Lane subdivision, Ted's facility and surrounding parcels set to develop	Private	V	New location being found for Ted's facility location for septic tanks. New location being found for Ted's facility location for septic tanks. New location being found for Ted's facility location for septic tanks.	New location being found for Ted's facility location for septic tanks. New location being found for Ted's facility location for septic tanks. New location being found for Ted's facility location for septic tanks.
Dams	Rocky Pond, Camp Harrington Pond (Rt 70 & 140), Millroad Circle (Sewall Pond) to Newton Pond	Private & State for Wachusett	V/S	5 dams in Boylston. Wachusett dam moved from top to good condition. Wachusett dam moved from top to good condition. Wachusett dam moved from top to good condition.	5 dams in Boylston. Wachusett dam moved from top to good condition. Wachusett dam moved from top to good condition. Wachusett dam moved from top to good condition.
Water System	(on map)	Water District & private wells	V/S	Good supply, good quality, old infrastructure. Good supply, good quality, old infrastructure. Good supply, good quality, old infrastructure.	Good supply, good quality, old infrastructure. Good supply, good quality, old infrastructure. Good supply, good quality, old infrastructure.
Municipal Light Department	town wide			very good department. Reception to issue with fire line repairs. Very good department. Reception to issue with fire line repairs. Very good department. Reception to issue with fire line repairs.	very good department. Reception to issue with fire line repairs. Very good department. Reception to issue with fire line repairs. Very good department. Reception to issue with fire line repairs.
Roadways				Stiles road flooding would be dangerous for residents access school. Current issue - problem from on the point. Current issue - problem from on the point. Current issue - problem from on the point.	Stiles road flooding would be dangerous for residents access school. Current issue - problem from on the point. Current issue - problem from on the point. Current issue - problem from on the point.
Rt 70 Evacuation Route (N->S)				ability to go around through town roads that are much smaller and would have some impact from storms. Previous experience of closed roads on route. Previous experience of closed roads on route. Previous experience of closed roads on route.	ability to go around through town roads that are much smaller and would have some impact from storms. Previous experience of closed roads on route. Previous experience of closed roads on route. Previous experience of closed roads on route.
Municipal Office Complex		town		on hill, not worried about flooding. Higher winds on hill. Tower fire would be hazard from nearby forest. Older building, high school might be better suited as shelter.	on hill, not worried about flooding. Higher winds on hill. Tower fire would be hazard from nearby forest. Older building, high school might be better suited as shelter.
Designated shelter		town		older high school used to have fallout shelter, unsure if there is one in new building. Newest community building in town. Does have showers and kitchen. Is there generator power at high school?	older high school used to have fallout shelter, unsure if there is one in new building. Newest community building in town. Does have showers and kitchen. Is there generator power at high school?
Town House		town		hold town events, used by non-profits and community members. Has kitchen. No generator power or shelter.	hold town events, used by non-profits and community members. Has kitchen. No generator power or shelter.
Highway Department Facility		town	S	new building	new building
Fire Station		town	V	older building (1960s), needs to be upgraded. Not flooding concern.	older building (1960s), needs to be upgraded. Not flooding concern.
Elementary School				recently rebuilt, in good shape. Potential as shelter? Has kitchen and gym. Water level would need to rise 15-20 feet for elementary to flood, on a hill. Some issues recently fixed with roof.	recently rebuilt, in good shape. Potential as shelter? Has kitchen and gym. Water level would need to rise 15-20 feet for elementary to flood, on a hill. Some issues recently fixed with roof.
<b>Societal</b>					
Senior population				1 group of seniors living in Sunbanke? Village. First responders know how to get there. Town van covers full town, town owned, option for transportation. 9 person van plus driver. Certain areas of Boylston are close-knit, others are separated with fewer neighbors - concern for elderly population, does everyone have contact in town.	1 group of seniors living in Sunbanke? Village. First responders know how to get there. Town van covers full town, town owned, option for transportation. 9 person van plus driver. Certain areas of Boylston are close-knit, others are separated with fewer neighbors - concern for elderly population, does everyone have contact in town.
Emergency Communications				Council on aging working with fire department to complete home visits, paramedicine in-home care system will start in a few weeks to establish relationships. Receive updated list of all seniors in town (in progress). Lock boxes in certain parts of town (like Sunbanke) and agreements for fire department to enter home for certain residents. Sheriff department initiative for residents to improve house numbers. Use code red.	Council on aging working with fire department to complete home visits, paramedicine in-home care system will start in a few weeks to establish relationships. Receive updated list of all seniors in town (in progress). Lock boxes in certain parts of town (like Sunbanke) and agreements for fire department to enter home for certain residents. Sheriff department initiative for residents to improve house numbers. Use code red.
Senior communities	Sunbanke, Lillmare, Compass Point (portion)				Sunbanke, Lillmare, Compass Point (portion)
Stormwater bylaw	town wide	town	S	stormwater regulations allow low impact development, in good place to regulate new developments. New regulation draft for buffers and updating stormwater bylaw. State updating stormwater regulations NOAH 14+	stormwater regulations allow low impact development, in good place to regulate new developments. New regulation draft for buffers and updating stormwater bylaw. State updating stormwater regulations NOAH 14+
Conservation Commission	town wide	town	S	good resource	good resource
Growth Management Strategy				Master Plan will be completed around June. Just finished Housing Production Plan - touch base w Emily	Master Plan will be completed around June. Just finished Housing Production Plan - touch base w Emily
Emergency Services	2019 upgrade communications, system is 30-50 years old. FCC hold on licenses in 2019, now tripled in cost. Need 2 new towers (current deadspots in town). Officers need to use cell phones to call dispatch because radios are dead. Financial block.		S/V	5 person full time EMS/fire department. Fire trucks are outdated, fire department keeps them in great condition but they need to be updated. If damaged in emergency would not be able to replace. Call/response times are good compared to state regulations. Worcester, West Boylston, Sterling, Shrewsbury connected to calls for paramedic services. 4 emergency rooms in 10 minute radius. station unmanned from 11 pm-6am, longer call times for those hours. Harder to get parts for trucks. Older station as well, could use larger garage doors.	5 person full time EMS/fire department. Fire trucks are outdated, fire department keeps them in great condition but they need to be updated. If damaged in emergency would not be able to replace. Call/response times are good compared to state regulations. Worcester, West Boylston, Sterling, Shrewsbury connected to calls for paramedic services. 4 emergency rooms in 10 minute radius. station unmanned from 11 pm-6am, longer call times for those hours. Harder to get parts for trucks. Older station as well, could use larger garage doors.
Emergency Communication Infrastructure			V	2019 upgrade communications, system is 30-50 years old. FCC hold on licenses in 2019, now tripled in cost due to supply chain. Need 2 new towers (current deadspots in town). Officers need to use cell phones to call dispatch because radios are dead. Financial block.	2019 upgrade communications, system is 30-50 years old. FCC hold on licenses in 2019, now tripled in cost due to supply chain. Need 2 new towers (current deadspots in town). Officers need to use cell phones to call dispatch because radios are dead. Financial block.
Country Roads in neighborhoods	green street, warren street, rocky pond, boulder way (private)		V	Older country roads, narrow, vulnerable during storms, little drainage or curbing, open swales.	Older country roads, narrow, vulnerable during storms, little drainage or curbing, open swales.
Lions Club			S	very active	very active
Senior Citizens Society			S	good at communicating information	good at communicating information
Public Library			V	low and close to res., one way dead end road gets swampy	low and close to res., one way dead end road gets swampy
Cemetery			S		
Grange Club					
<b>Environmental</b>					
Parks & Rec					
Parks	School street park, sky hill road (side of cemetery, greenwood street in Morningdale (little league and minor league), fields at high school (plus running track and practice fields), Tower Hill	DCR, Summer Star, SVT, Greater Worcester, Town	S/V	beautiful town, lots of open space & community opportunities. Pest problems with moths, ticks, asian longhorn beetle. Water issues at morningdale park - baseball field always wet and needs better drainage to account for hill. Pout pond drainage issues	beautiful town, lots of open space & community opportunities. Pest problems with moths, ticks, asian longhorn beetle. Water issues at morningdale park - baseball field always wet and needs better drainage to account for hill. Pout pond drainage issues
Invasive Plant Species	town wide	varies	V	Newton Pond problem with invasives- milfoil	Newton Pond problem with invasives- milfoil
Forest Health	town wide	DCR, varies	V	Gypsy moths trouble with oak trees, north end of town (rt 70). Forest fairly healthy, lots of brush as fire hazard. DCR will manage forest, attempting to create diverse forest with different age classes to reduce impact of invasive species and storms, different cuts and trimmings to support good forest health. In portion that is town/private owned, no thinning plan other than asian longhorn beetle initiative (trees cleared out have now grown back). Forest is relatively healthy- spongy moth in drought years but good diversity and should be able to rebound. Abundance of forests great to avoid heat islands	Gypsy moths trouble with oak trees, north end of town (rt 70). Forest fairly healthy, lots of brush as fire hazard. DCR will manage forest, attempting to create diverse forest with different age classes to reduce impact of invasive species and storms, different cuts and trimmings to support good forest health. In portion that is town/private owned, no thinning plan other than asian longhorn beetle initiative (trees cleared out have now grown back). Forest is relatively healthy- spongy moth in drought years but good diversity and should be able to rebound. Abundance of forests great to avoid heat islands
Deer population	town wide, Tower Hill/around res	varies	V	DCR opened land for hunting around res due to impact of deer browse. Concern that easier winters will also increase deer population. Tower hill has put up deer fence	DCR opened land for hunting around res due to impact of deer browse. Concern that easier winters will also increase deer population. Tower hill has put up deer fence
Woolly Adelgid	town wide forests	varies	V	Cold has kept woolly adelgid hemlocks from advancing north, will change due to weather changes	Cold has kept woolly adelgid hemlocks from advancing north, will change due to weather changes
Watershed Protection Act	res and tributaries within watershed	DCR & private	S	protects tributaries in res, primary (limits alteration 200 ft from res) and secondary (200-400 ft from tributary limits) protection zones with exemptions. Strength from town standpoint	protects tributaries in res, primary (limits alteration 200 ft from res) and secondary (200-400 ft from tributary limits) protection zones with exemptions. Strength from town standpoint
Reservoir			S/V	Strength as protected area, strength as attraction, weakness for taxes- land use. Not currently used as potable water source- could impact wells positively during drought seasons. Water is huge asset in community.	Strength as protected area, strength as attraction, weakness for taxes- land use. Not currently used as potable water source- could impact wells positively during drought seasons. Water is huge asset in community.
Water Infrastructure	(on map)	water district	S/V	older pipes in need of fixing. Frequency of failed pipes will increase as water table increases. Cast iron mains. No known issues with water tanks, one was replaced 3 years ago. Unsure of age of pump station, good job maintaining. Need more hydrants and water sources for neighborhoods out of water district, some small ponds designated as draw points and trucks that hold water	older pipes in need of fixing. Frequency of failed pipes will increase as water table increases. Cast iron mains. No known issues with water tanks, one was replaced 3 years ago. Unsure of age of pump station, good job maintaining. Need more hydrants and water sources for neighborhoods out of water district, some small ponds designated as draw points and trucks that hold water
Town Waterways	Sewall Pond, Newton Pond	TBD	S/V	filed for weed control. Lake Quinsig commission worked with Newton Pond. Strength in intersection of watersheds, upstream of lake quinsig and other waterways. Potential dam issues	filed for weed control. Lake Quinsig commission worked with Newton Pond. Strength in intersection of watersheds, upstream of lake quinsig and other waterways. Potential dam issues
Wetlands	(on map)	varies	S/V	Active conservation commission, worked with developers to limit disturbances with regards to setbacks. Worked to put parcels in conservation trust (Summer star) from back taxes. No budget to purchase open land, but open to donations and transfers of land. Lots of wetland & vernal pools in Boylston- can provide great habitat & drought protection. Good capacity for stormwater storage because less development over floodplains in the past.	Active conservation commission, worked with developers to limit disturbances with regards to setbacks. Worked to put parcels in conservation trust (Summer star) from back taxes. No budget to purchase open land, but open to donations and transfers of land. Lots of wetland & vernal pools in Boylston- can provide great habitat & drought protection. Good capacity for stormwater storage because less development over floodplains in the past.
Protected Open Space	(on map)		V	Just completed OSAP last year. One goal is to come up with priority list of open space parcels to protect (note for us next week!!!) Compared to other towns, lots of land covered by DCR but other lands that are not yet protected and can be developed.	Just completed OSAP last year. One goal is to come up with priority list of open space parcels to protect (note for us next week!!!) Compared to other towns, lots of land covered by DCR but other lands that are not yet protected and can be developed.
Land-based Waste Sites		varies		Potential land great as ecosystem for birds and butterfly species. Potential for res.	Potential land great as ecosystem for birds and butterfly species. Potential for res.
Stormwater Structures	(on map)	Public/Private	S/V	No operational sites. Current sites on hazardous waste lists have either temporary or permanent plans.	No operational sites. Current sites on hazardous waste lists have either temporary or permanent plans.
Old Circle	Old Road			Are private structures maintained? Stormwater rules and regs began 30 years ago through DEP regs. HSA agreements. Some places where we need more infrastructure (Mill Road lacks drainage infrastructure). No stormwater fees, put funding in place with then town manager. DCR partner for sampling stormwater running toward res.	Are private structures maintained? Stormwater rules and regs began 30 years ago through DEP regs. HSA agreements. Some places where we need more infrastructure (Mill Road lacks drainage infrastructure). No stormwater fees, put funding in place with then town manager. DCR partner for sampling stormwater running toward res.
Historic Structures	Historic buildings (1800s), town hall (1800s), building, 1800			Historic buildings (1800s), town hall (1800s), building, 1800	Historic buildings (1800s), town hall (1800s), building, 1800



**YOU ARE INVITED TO ATTEND THE:**

# Town of Boylston

**MUNICIPAL VULNERABILITY PREPAREDNESS**



## **Where:**

Boylston Town Hall  
Board of Selectmen Chambers  
221 Main Street

## **When:**

Monday  
May 23, 2022  
6:30 PM

**The Municipal Vulnerability Preparedness (MVP) Core Team will be holding a Public Listening Session on Monday, May 23rd at 6:30 PM as part of a Board of Selectmen meeting. Learn more and provide comments regarding Boylston's outcomes from the recently held Community Resilience Building Workshop.**

MVP provides support for communities to begin the process of planning for climate resilience and prioritizing adaptation and hazard mitigation actions. Communities that complete the MVP certification program are eligible for Action Grant funding and other opportunities. For more information, please contact the Central Massachusetts Regional Planning Commission at [dmarini@cmrpc.org](mailto:dmarini@cmrpc.org).



# MUNICIPAL VULNERABILITY PREPAREDNESS (MVP) PROGRAM

## Public Listening Session

Boylston, MA

May 23, 2022

6:30 PM



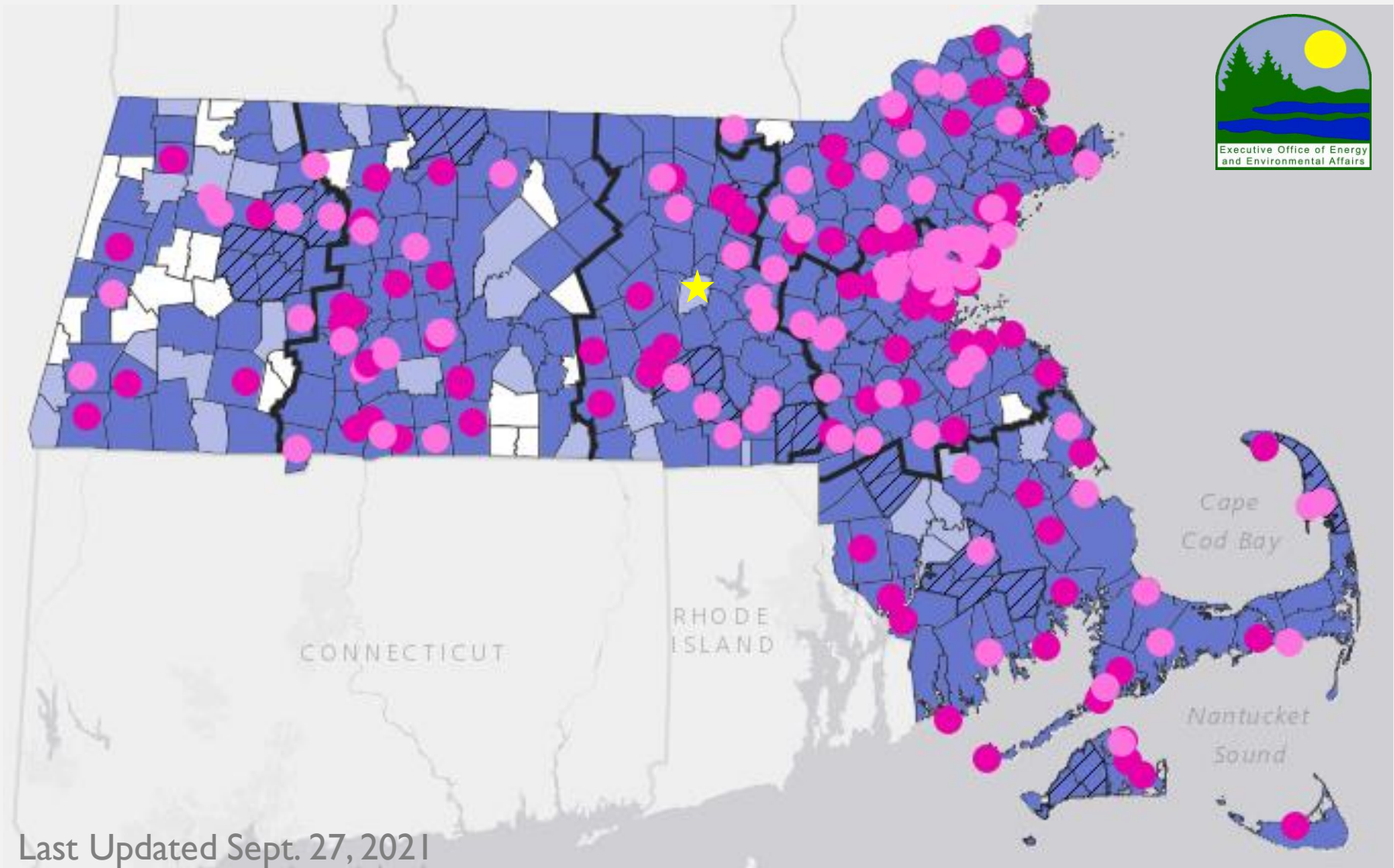
## **MUNICIPAL VULNERABILITY PREPAREDNESS (MVP)**

- State grant program to support cities and towns to begin the process of planning for climate resiliency.
- MVP Planning Process includes CRB Workshop, Report, Listening Session, and Annual Reporting
- Communities who complete the MVP Planning Process become certified as an MVP Community
- Designated communities become eligible for MVP Action Grant funding



# Municipal Vulnerability Preparedness (MVP) Grant Programs

## Planning Grants and Action Grants



Legend

MVP Action Grants

Completed

In-progress

MVP\_region\_boundaries

MVP regional partnerships

MVP Planning Grant municipalities

Achieved MVP designation

In-progress



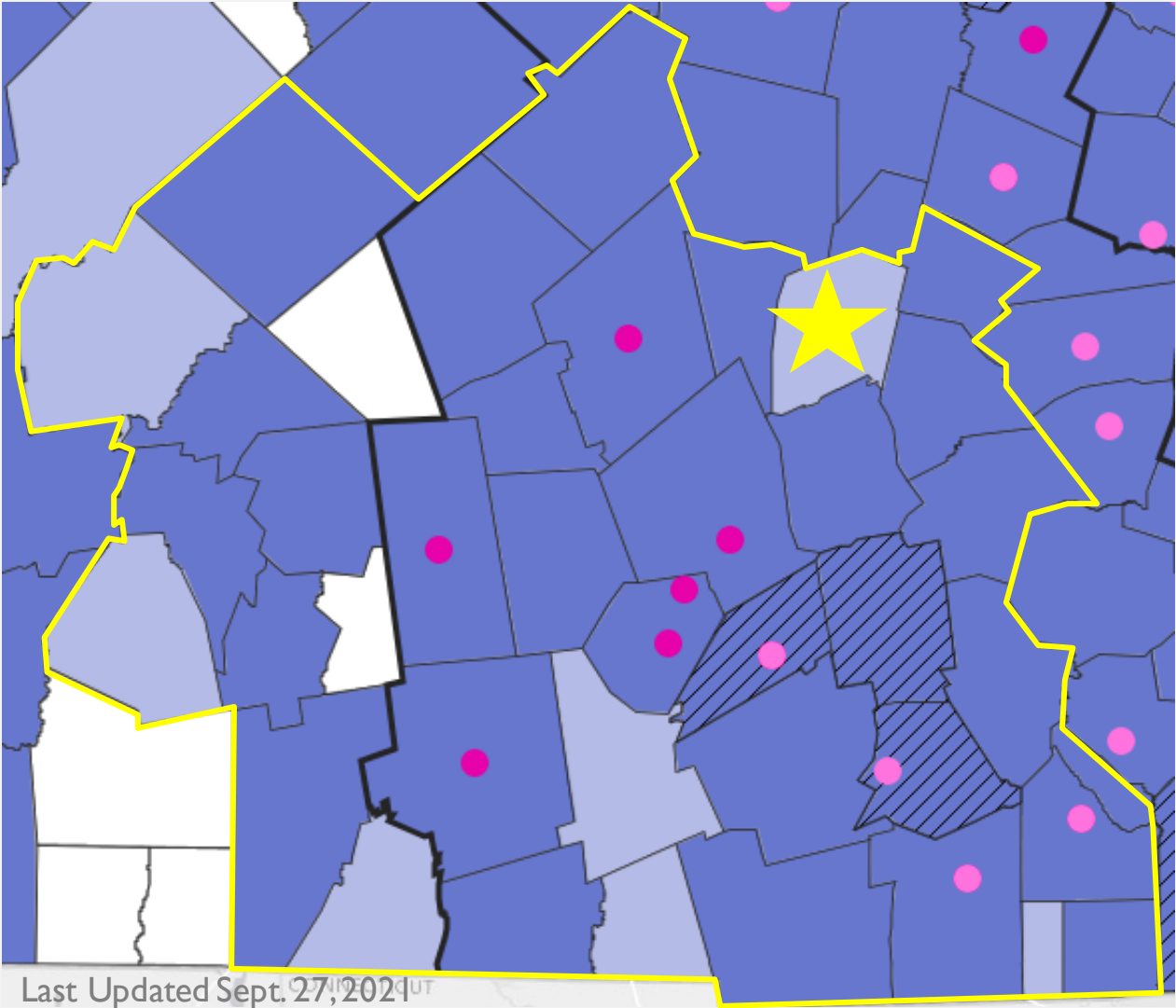
Last Updated Sept. 27, 2021

Source: Massachusetts Executive Office of Energy and Environmental Affairs beta Climate Grant Viewer



# Municipal Vulnerability Preparedness (MVP) Grant Programs

## Central Massachusetts Planning Grants and Action Grants



### Legend

#### MVP Action Grants

- Completed
- In-progress

#### MVP\_region\_boundaries

#### CMRPC region boundary

#### MVP regional partnerships

#### MVP Planning Grant municipalities

- Achieved MVP designation
- In-progress

**MVP Program Manager  
for Central Region:**  
Hillary King  
(617) 655-3913  
[Hillary.king@mass.gov](mailto:Hillary.king@mass.gov)



## COMMUNITY RESILIENCE BUILDING (CRB) PROCESS

- Community-driven process led by the project coordinators (April Steward and Paul Dell'Aquila) and Core Team members
- Boylston's 8-member Core Team met 5 times in January, February, and March
- Invitation-only workshop was held virtually on March 30th and hybrid on April 6th
- 25 attendees, including local officials, board and committee members, business, schools and non-profit groups
- Listening session (today) is open to the public

## CRB WORKSHOP OBJECTIVES

- Define extreme weather and climate-related hazards
- Identify current and future vulnerabilities and strengths
- Develop and prioritize actions for the community and broader stakeholder networks, and
- Identify opportunities for the community to advance actions to reduce risks and build resilience

## PRIMARY TOPIC AREAS



- Infrastructure



- Society



- Environment

# STEP ONE: IDENTIFY TOP 4 HAZARDS

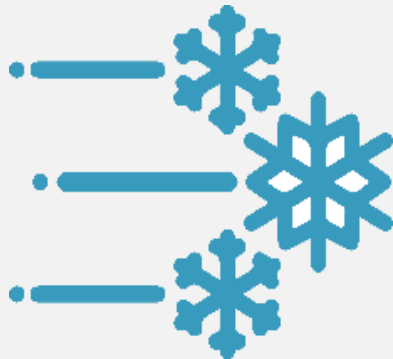
DROUGHT/EXTREME HEAT  
(WILDFIRES & INVASIVES)



FLOODING  
(INLAND & COASTAL)



WINTER STORMS  
(SNOW & ICE)

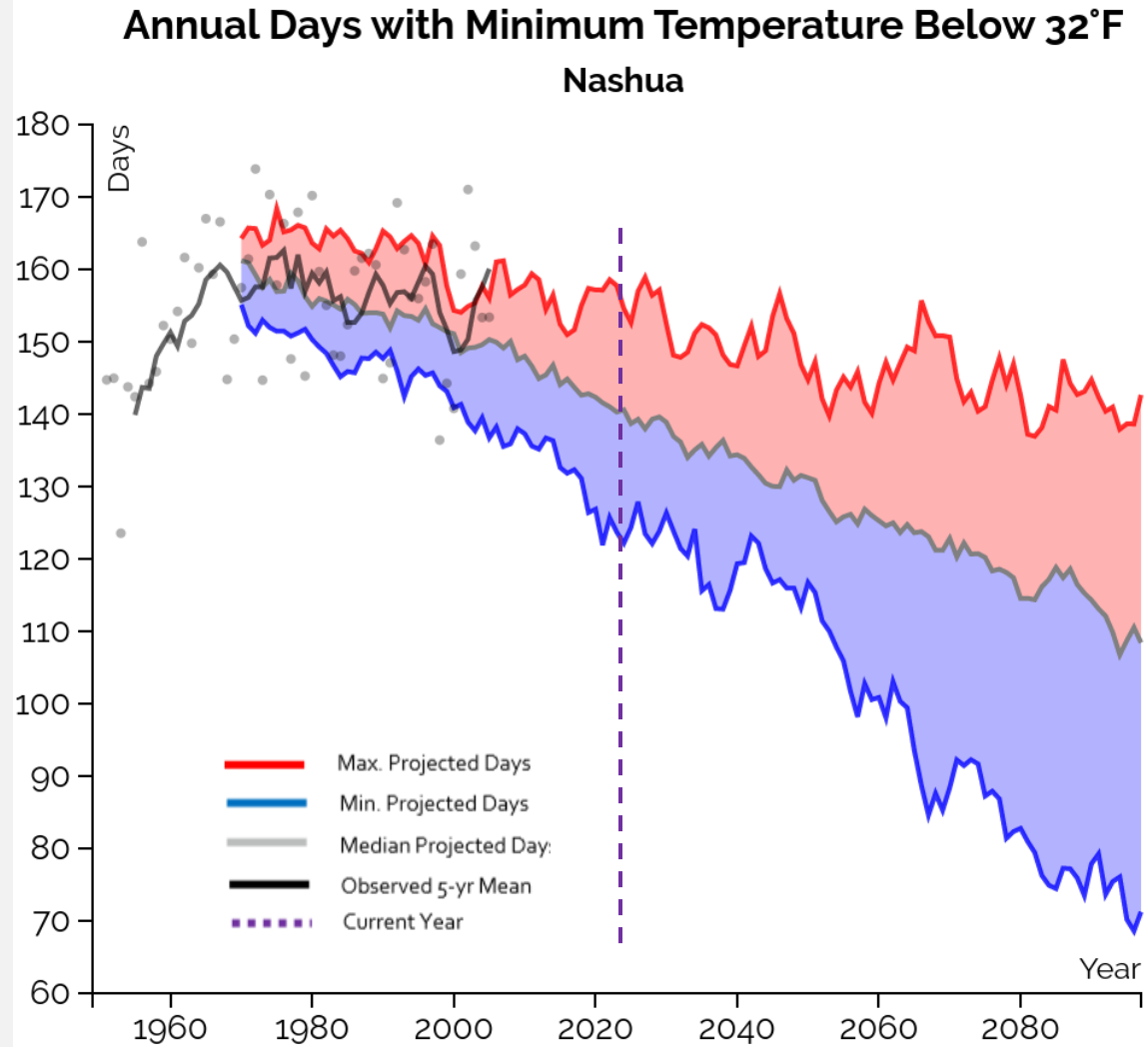


SEVERE STORMS  
(WIND & TORNADO)



# WINTER STORMS

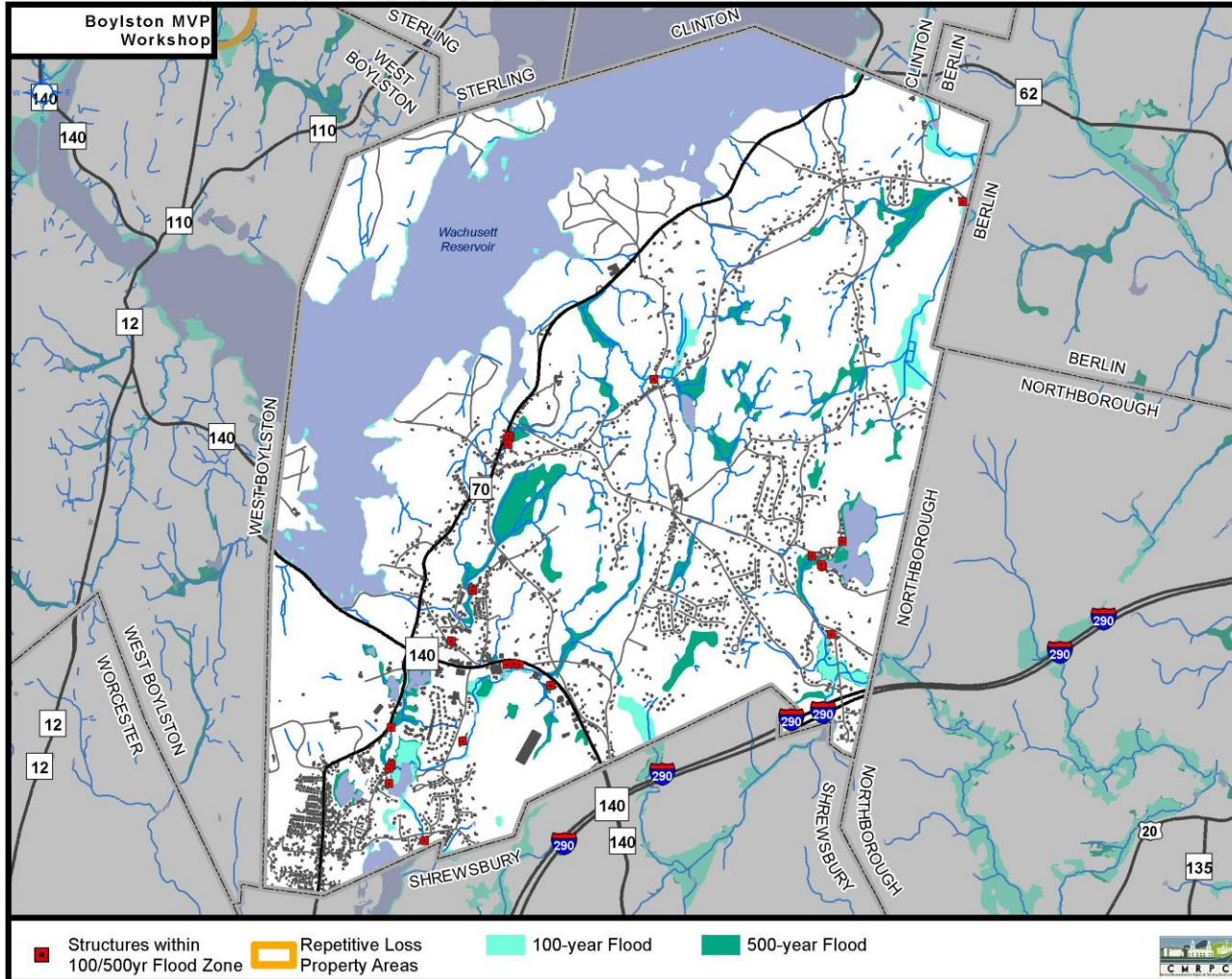
- Annual days below freezing will decrease
- Rising temps → more winter precipitation to fall as rain or freezing rain
- Lower snowfall accumulation
- Winter - Highest projected increase in precipitation
- Storms that do occur may be worse
  - proximity to Atlantic Ocean increases risk of large storm events



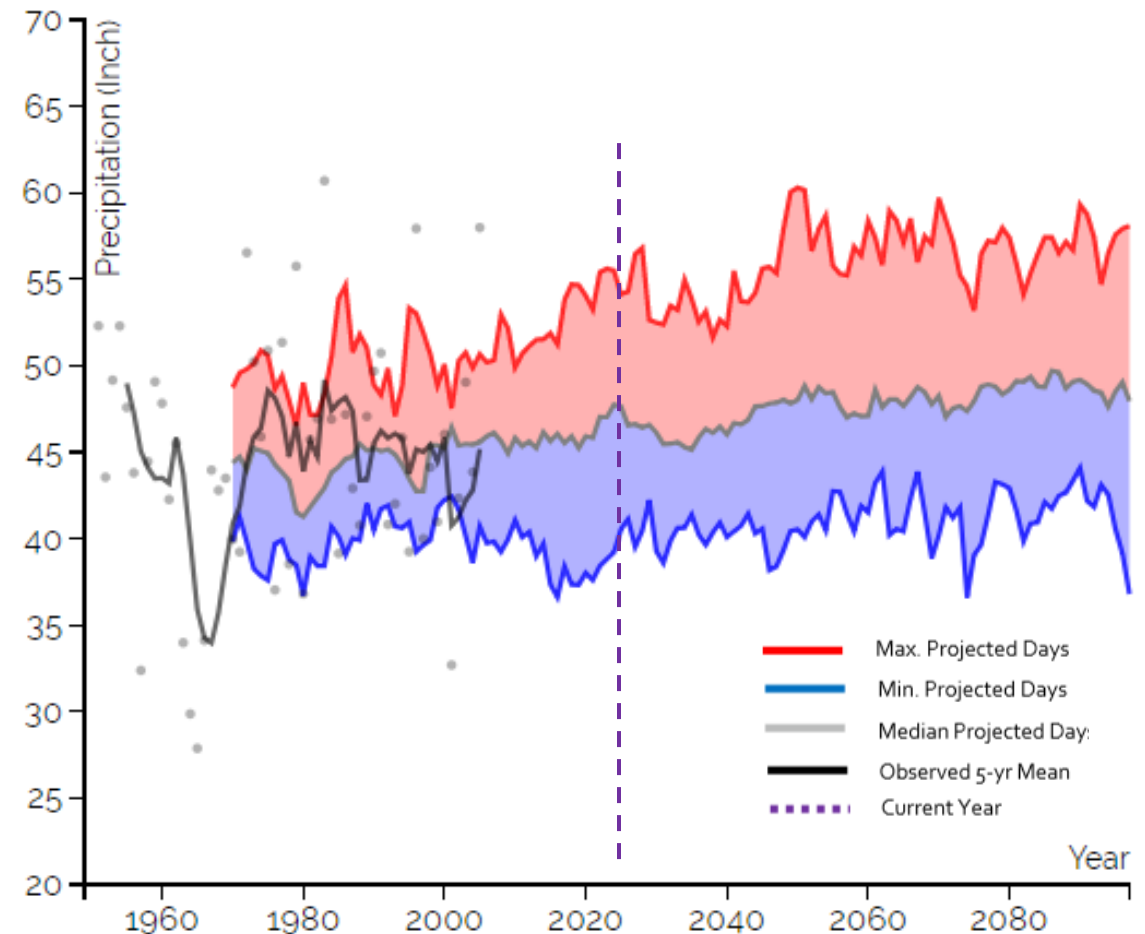


# HEAVY RAINFALL AND FLOODING IMPACTS

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_Nat-Haz\_Flood\_Impacts\_8x10.mxd

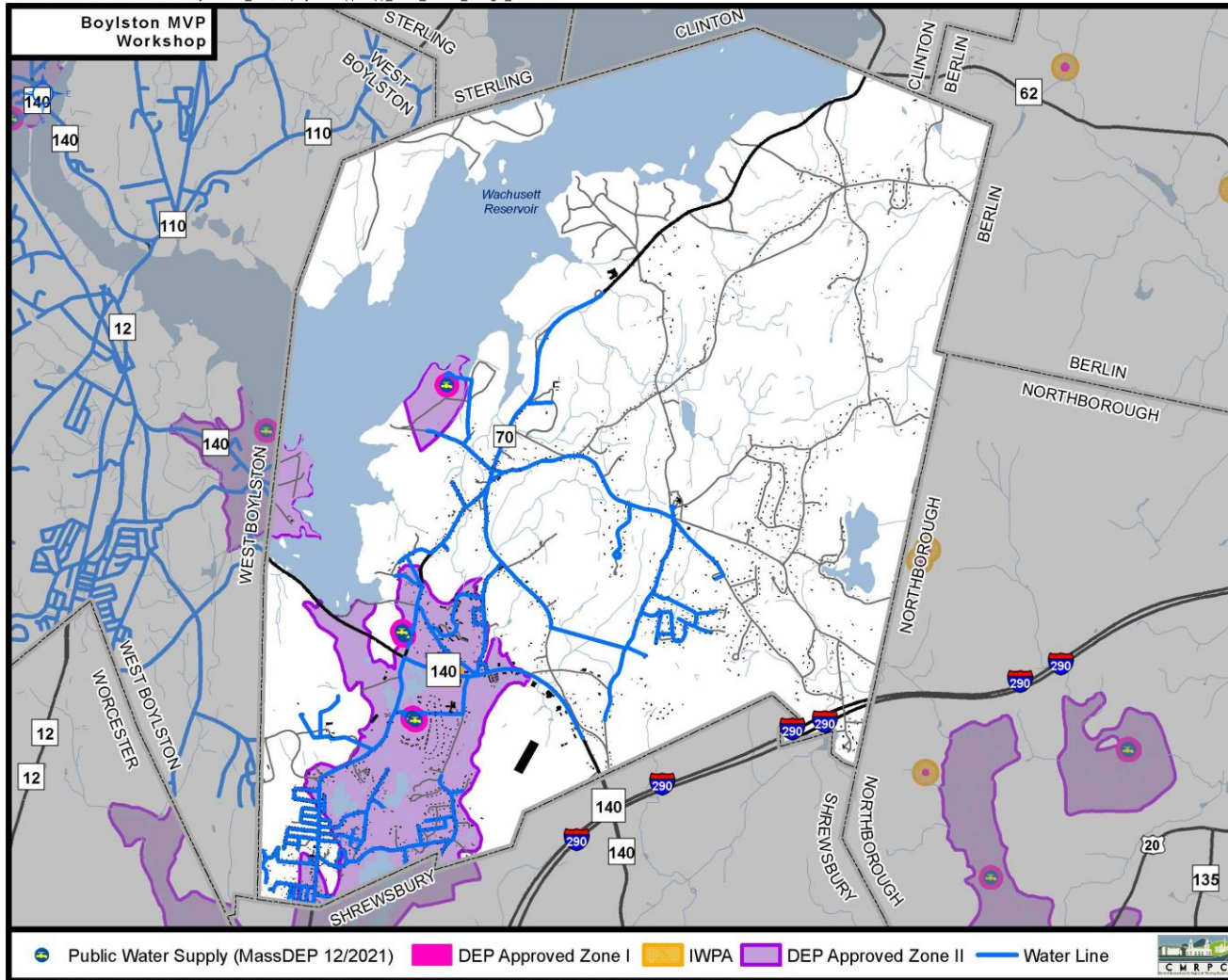


## Annual Total Precipitation Nashua

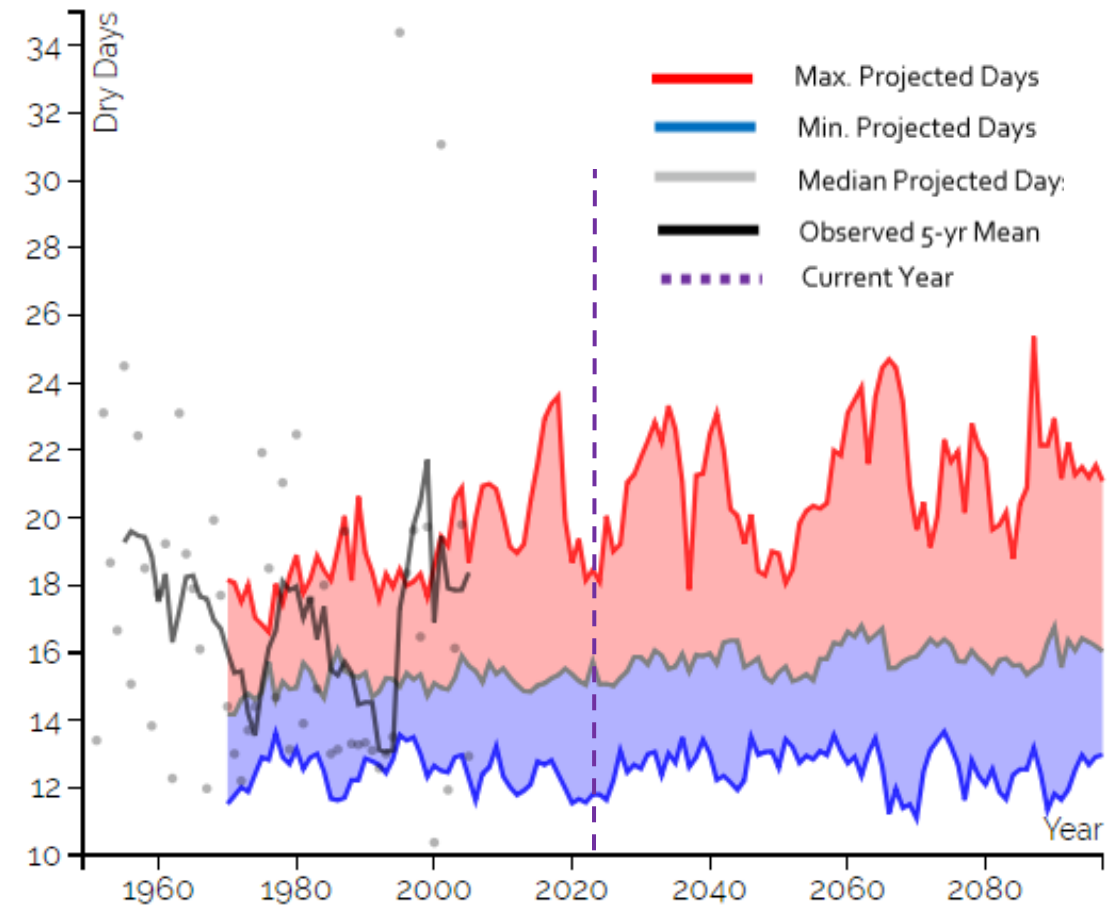


# DROUGHT IMPACTS

Date: 3/4/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Drought\_8x10.mxd



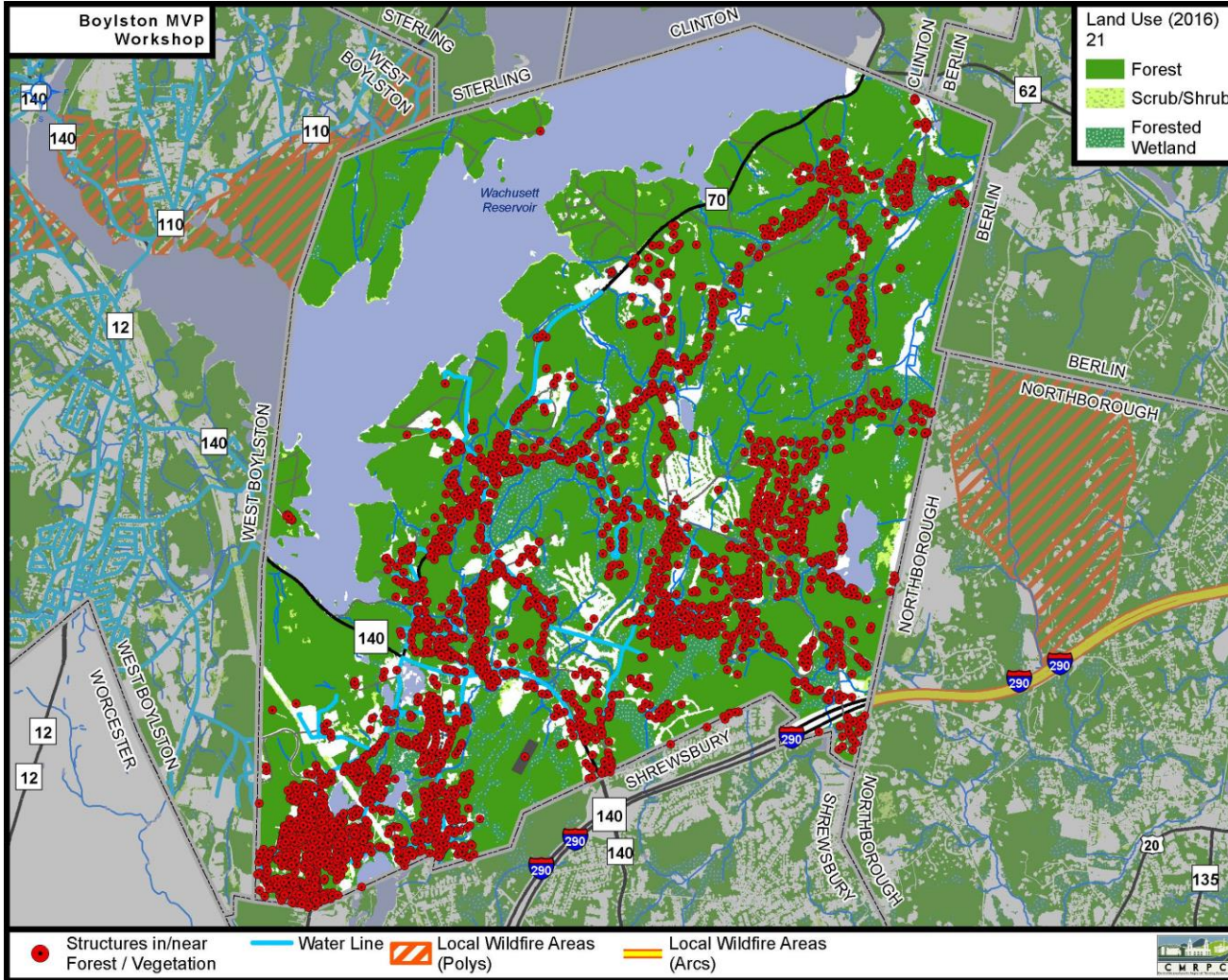
## Annual Consecutive Dry Days Nashua





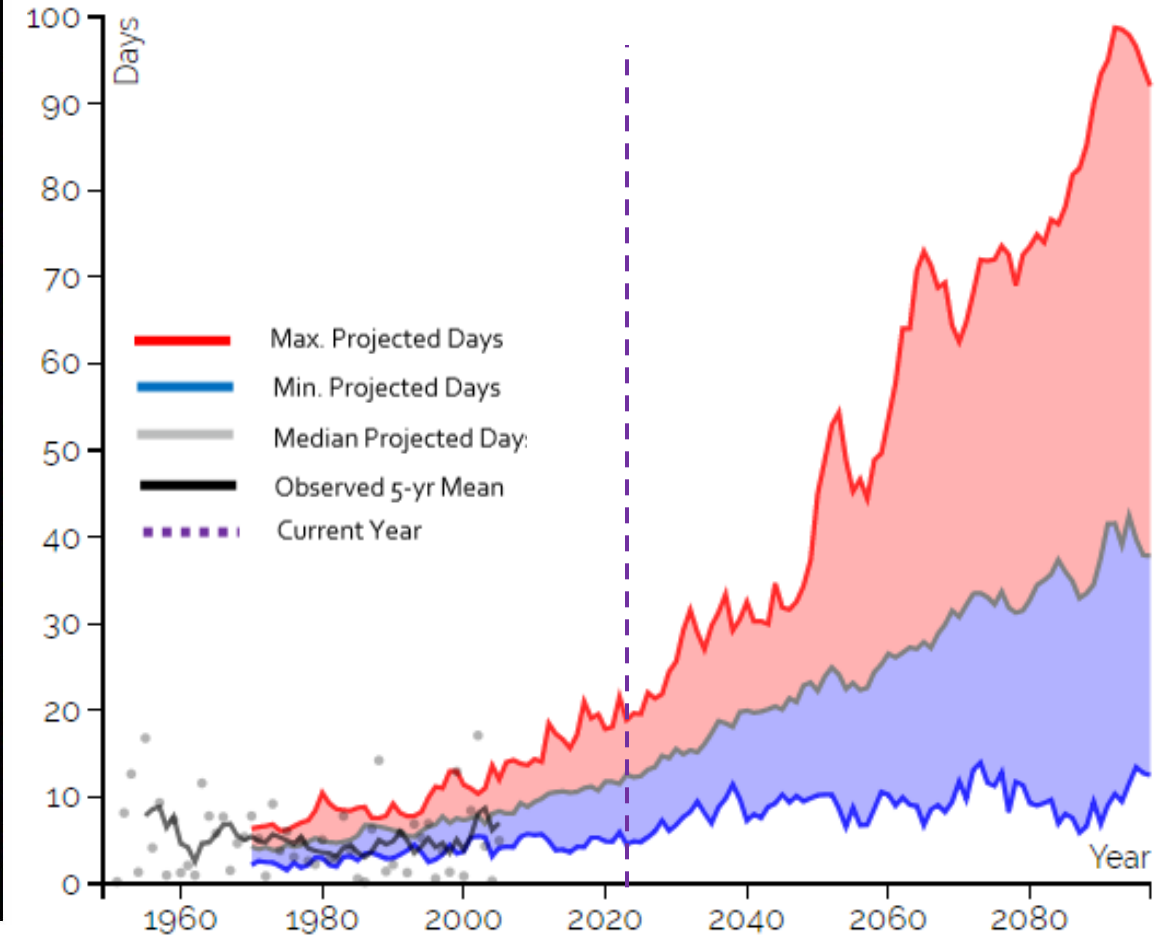
# HEAT IMPACTS

Date: 3/7/2022 Document Path: H:\Projects\HLS\_GIS\subprojects\mvpp\mvpp\_slides\_NatHaz\_Wildfires\_Urban\_8x10.mxd

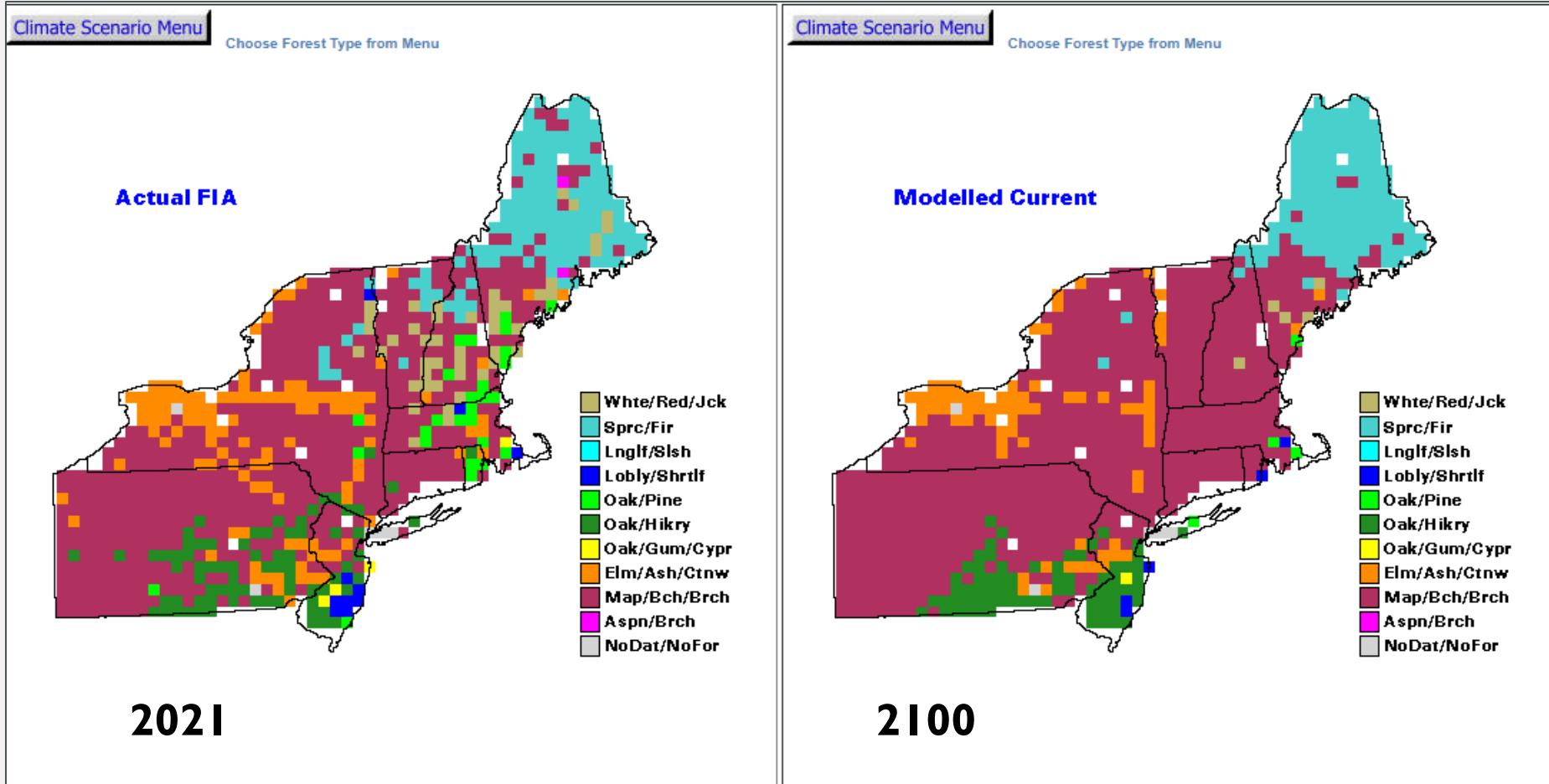


Source: Data provided by the town of Boylston, CMRPC, Mass Audubon, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

## Annual Days with Maximum Temperature Above 90°F Nashua



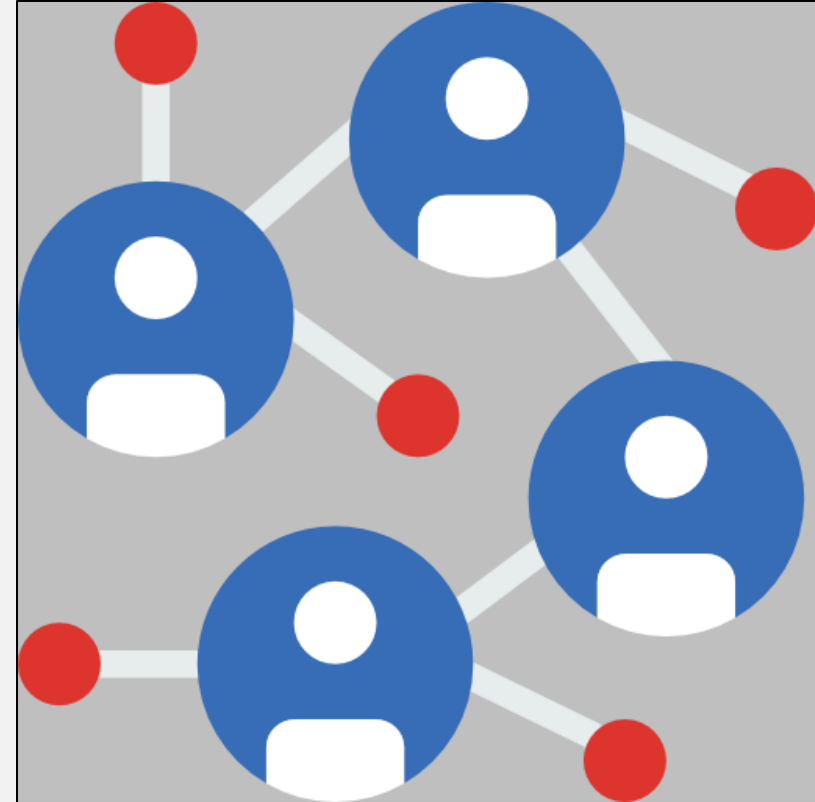
# HEAT IMPACTS ON THE ENVIRONMENT



- Species expected to move north
- Diversity of species will likely decrease
- Likely increase in invasive species

# BREAKOUT GROUPS

- 2 Breakout groups of 10 individuals
- 4 Focus Hazards
- 3 Focus Sections
- Tools and Resources
  - Matrix, Maps, HMP & Each Other




Icon made Prettyicons from Flaticon.com

# THE MATRIX

Community Resilience Building Risk Matrix				www.CommunityResilienceBuilding.com					
<p><b>H-M-L</b> priority for action over the <u>Short</u> or <u>Long</u> term (and <u>Ongoing</u>)</p> <p><b>V</b> = Vulnerability <b>S</b> = Strength</p>				<p><b>Top Priority Hazards</b> (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)</p>				Priority	Time
Features	Location	Ownership	V or S					H-M-L	Short Long Ongoing
<b>Infrastructural</b>									
<b>Societal</b>									
<b>Environmental</b>									



# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES


**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

**H-M-L** priority for action over the Short or Long term (and Ongoing)  
**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	Top 4 Hazards				Priority		Time	
								H-M-L	Short Long Ongoing		
<b>Infrastructural</b>											
<b>Societal</b>											
<b>Environmental</b>											

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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**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	Top 4 Hazards				Priority	Time
								H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									


# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES



Community Resilience Building Risk Matrix				www.CommunityResilienceBuilding.com					
<small>H-M-L priority for action over the Short or Long term (e.g.)</small> <small>V = Vulnerability S = Strength</small>				<small>Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)</small>					
Features	Location	Ownership	V or S	Top 4 Hazards				Priority	Time
								H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									

Estimated Location

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

**H-M-L** priority for action over the Short or Long term (and Ongoing)  
**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	Top 4 Hazards				Priority	Time
								H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									

**Estimated Location**

**Public? Private? State?**

# STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

**Community Resilience Building Risk Matrix**  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

**H-M-L** priority for action over the Short or Long term (and Ongoing)  
**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	Top 4 Hazards				Priority	Time
								H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
Dam									
<b>Societal</b>									
Senior Housing									
<b>Environmental</b>									
Wetlands									


**Vulnerability or Strength**

**Estimated Location**

**Public? Private? State?**



# STEP THREE: ACTIONS, PRIORITY AND TIMELINE

Community Resilience Building Risk Matrix  [www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)

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

Features	Location	Ownership	V or S	Top Prior Hazards (tornado, flood, wildfire, hurricane, earthquake, drought, sea level rise, heat wave, etc.)	Priority	Time
				Top 4 Hazards	H-M-L	Short Long Ongoing
Infrastructure						
Societal						
Environmental						

**Completed**

**Nature Based Solutions**



# TABLE SUMMARIES

## Community Resilience Building Risk Matrix



## TABLE # 2

www.CommunityResilienceBuilding.org

### Boylston #2

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

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

Features	Location	Ownership	V or S	Description	Winter Storms (ice, snow)	Severe Storms (wind events, tornadoes)	Flooding (inland and coastal)	Extreme Heat/Drought	Priority H - M - L	Time Short Long Ongoing
<b>Infrastructural</b>										
Drainage & culverts	Route 70 culverts (French Brook)	State, town, subdivision HOAs for maintenance	V	Drainage may not be sized appropriately for frequency of 100 year floods. Back-up South of high school could be due to Beaver activity. People are nervous about home flooding	culvert and dam analyses; identify culvert locations;					
Beaver Activity	Route 70	State, town	V/S	affecting culverts. Styles Road culverts are not big enough, beaver activity has increased. Cross Street. Beaver plan in place for new development around FedEx facility. Beavers can help wetlands and hydration in forests as we move forward; issues in brooks and ponds in town, property owners adjacent to streams;	town-wide beaver management program; mitigation measures to remove blockages/structural damages fr					
Dead trees	Route 70	State	V	potential to take out power lines and block roads during storms. Diamond Hill Ave, oak trees affected by gypsy moths. Could affect light department. Highway dept. limited budget (10-15k) to take down trees for the year. MassDOT has contract to remove dead trees with certain buffers from electric wires	work with umass amherst forestry dept; forest mgmt plan (where did Worcester \$ come from for there plan?); youth initiatives; boylston version of what Worcester Tree Initiative; towerhill planting-type program?; tree stewardship; DCR help - flow mapping, water quality testing, etc.,;					
septic	Oak Hill Lane subdivision; FedEx facility and surrounding parcels set to develop.	Private	V	New locations having hard time finding locations for septic tanks- easily developed sites have already been developed	grants for surveying failing septic areas, Title V upgrades; septic loan program; update septic systems old buildings;					
Dams	Rocky Pond, Camp Harrington Pond (Rt 70 & 140), Millroad Circle (Sewall Pond to Newton Pond)	Private & State for Wachusett	V/S	6 dams in Boylston, Wachusett dam moved from high hazard to good condition- potential to flood Rt 70 and 62 if overflowed on Clinton line (no public infrastructure would be affected) Office of dam safety required trees moved, moved to good condition	dam assessments					
Water System	(on map)	Water District & private wells	V/S	Good supply, good quality, old infrastructure. 2 wells on Rt 70 may be vulnerable to salt- potential to reduce salt use on Route 12. Half of town on water district, half on individual wells. Vulnerable wells near roadways from road salt. Vulnerability with nitrate levels for wells that have subdivisions nearby- need to change behavior. No plans to expand public water	analyses/assessment for municipal wells in town in flood/wetland areas; water quality testing (Blackstone					
Municipal Light Department	town wide			very good department. Receptive to issues such as tree limb repairs. Work closely with Highway department to take down issue trees & get ahead before winter storms.	solar installation; work with town on dead trees and removal					
Roadways				Stiles road flooding would be dangerous for resident access in/out- current beaver problem there on low point. Current plan has been working for road maintenance. Roadways are in decent shape. Central Street in need of paving, will be costly. Highway super does great job of seeing which roads	chapter 90 funds; need more funding from state; arpa funding; identify projects;					



## GROUP VOTE

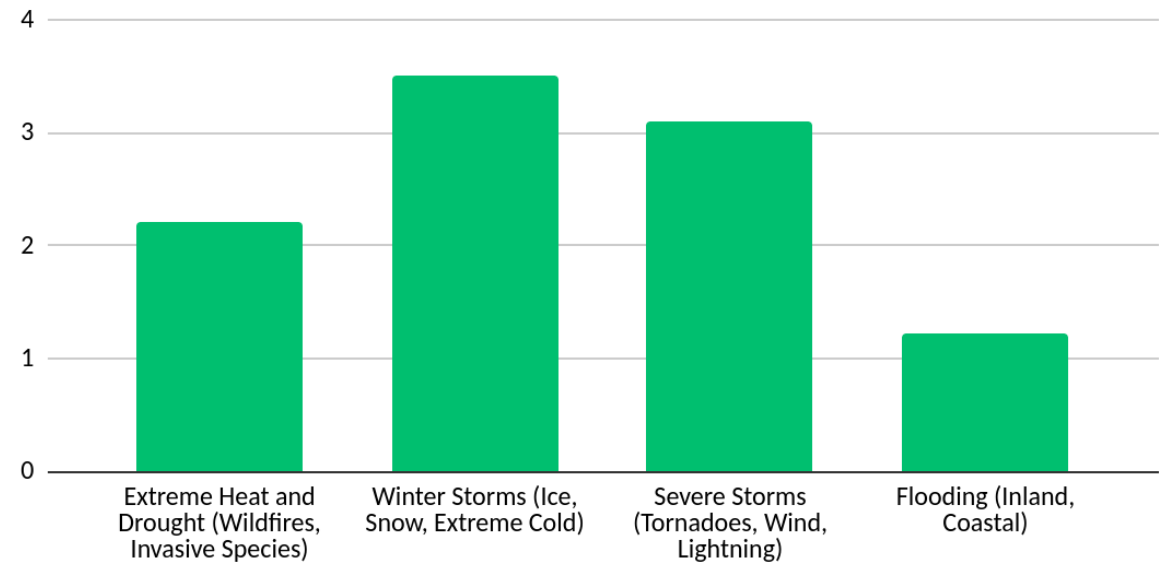
### Boylston Municipal Vulnerability Preparedness Program

#### Top Priority Actions Survey

Thank you for participating in Boylston's MVP Workshop! Based on the action items that you came up with during the workshop, we have developed the survey below. This survey will help us identify the top priority actions that Boylston should take in order to become more resilient. Please complete the survey by **Wednesday, April 27, 2022**. The results of this survey will be described in the report and discussed during the listening session.

Thank you in advance for your help with this next step!

Please rank the following hazards in order from most concern (1) to least concern (4):



WHAT DID THE GROUP FIND?

# INFRASTRUCTURE CONCERNS



Culverts



Roadways



Utility Systems

# INFRASTRUCTURE STRENGTHS



Stormwater  
Management



Municipal Facilities



Water Supply

# INFRASTRUCTURE ACTIONS

## HIGH PRIORITY



Identify resources to improve radio coverage and explore regionalization potential to be eligible for more funding opportunities.



Perform a feasibility study for the relocation and construction of a fire, police, and senior community center facility. Utilize a climate resilient design for this facility.



Perform a town-wide culvert assessment to identify the location and functionality of existing culverts. Utilize CMRPC services and DER grants to aid in this effort.



Develop a forest management plan to reduce the fire load. Continue to collaborate with DCR on forestry management and hunting practices.



# SOCIETAL CONCERNS



Emergency  
Preparedness



At-Risk Populations



Access

# SOCIETAL STRENGTHS



Town Boards and  
Departments



Local Organizations  
& Groups



Planning and Policies

# SOCIETAL ACTIONS

## HIGH PRIORITY



Identify needs and resources to improve the Town's potential shelter locations.

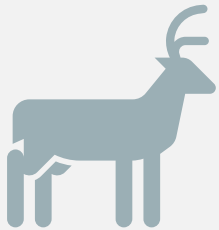


Improve advocacy and resilience through continued collaboration with local stakeholders, surrounding communities, regional organizations, and state organizations/State Representatives.



Adopt the Community Preservation Act. Develop an education campaign to help with adoption by promoting the benefits of the CPA program.

# ENVIRONMENTAL CONCERNS



Nuisance Species

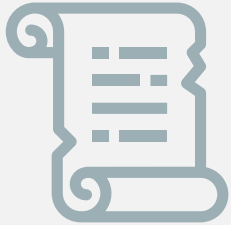


Invasive Species



Water Quality and  
Condition

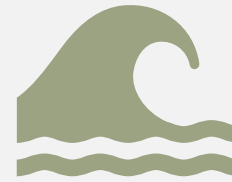
# ENVIRONMENTAL STRENGTHS



Environmental  
Policy



Forests and Parks



Water Resources

# ENVIRONMENTAL ACTIONS

## HIGH PRIORITY



Develop a prioritization plan for acquiring and/or protecting open space parcels.



Construct beaver deceivers in areas with high beaver activity to prevent damming that leads to flooding risks.



Implement a tree removal and planting program, utilizing native, drought-resistant, and pest-resistant tree species.



## NEXT STEPS FOR BOYLSTON



Finalize draft report with assistance from CMRPC



Final report submitted to EOEEA by June 30, 2022



Boylston receives “MVP Community” certification



Annual reporting by Core Team



Develop and apply for MVP Action Grants

# ACTION GRANTS

Action Grants were launched this Spring

Up to \$3 million for an individual community

Up to \$5 million for regional projects

One year grant cycle (typically) July 1<sup>st</sup>- June 30<sup>th</sup>

25% Match - Cash or In-kind (Non-State Funds)

[www.mass.gov/municipal-vulnerability-preparedness-mvp-program](http://www.mass.gov/municipal-vulnerability-preparedness-mvp-program)

<https://resilientma.org/mvp/>



# Questions and Comments?

# CONTACT

Dani Marini, [dmarini@cmrpc.org](mailto:dmarini@cmrpc.org)

Environmental Planner

Central Massachusetts Regional Planning Commission



# Thank you!







Meeting Name: Boylston MVP Listening Session

Community: Boylston

Location:

Date: May 23, 2022

Meeting Time: 6:30 PM

Participant Name	Organization	Title	E-Mail
Ali Kennedy	Boylston T.Hall	Admin Assistant	AMACK@Boylston-ma.gov
Matt Mecum	Boylston	Selectman	mmecum@boylston-ma.gov
James Ungerswamy	Boylston	Selectman	NAU13VBALL@aol.com
Seth Ridinger	Boylston	Selectman	
April Steward	Boylston	Town Administrator	asteward@boylston-ma.gov
STEPHEN MADDAUS	BOYLSTON	TOWN COUNSEL	
Steven Mero	Boylston	Hwy Supt	smero@boylston-ma.gov
Timothy Gothing	Boylston	COA Coordinator	coa@boylston-ma.gov
Dennis Coguer	Boylston	COA Chairperson	
Karen Scott Carter	Boylston	Taxpayer	
Lucy Carter	"	"	
Patricia Bartram	Boylston Historical Commission - candidate	Resident	pkbartram@gmail.com



Elaine Jones resident  
Jonesela48@yahoo.com

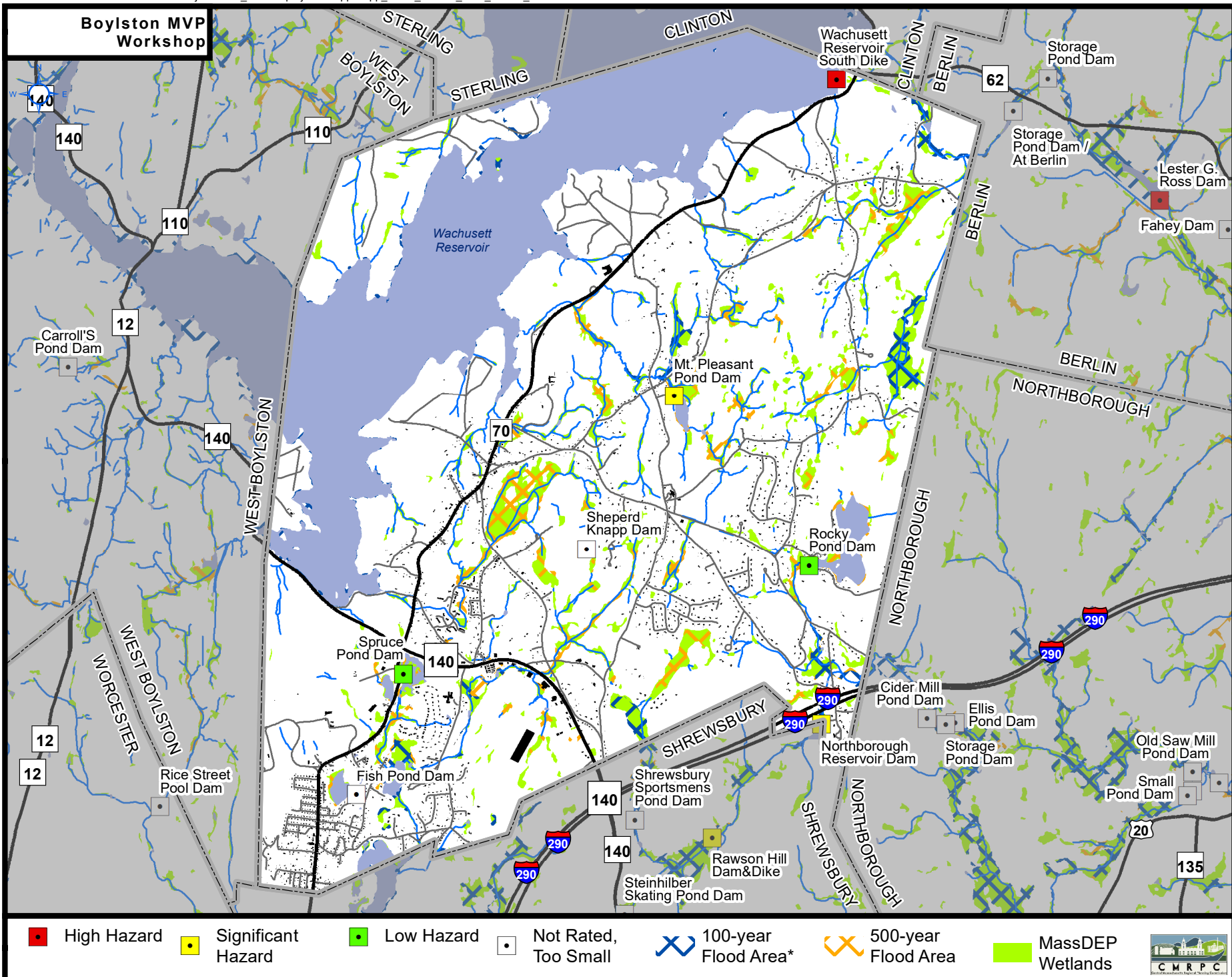
Sue Szczkowski resident

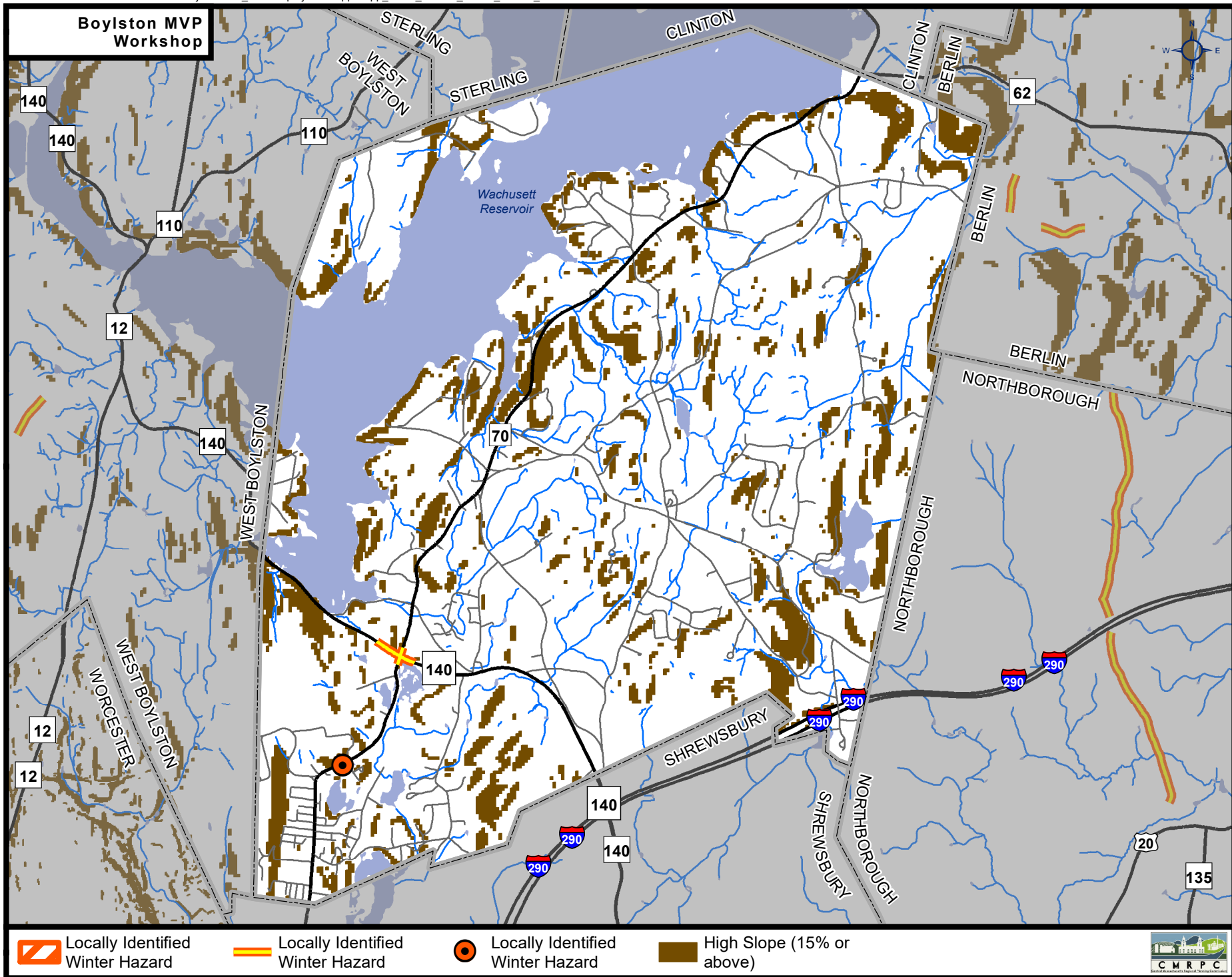
Paul Dell'Aquila Tom Plann

~~Tom Plann~~ @townplann@  
boylston-mc.gov

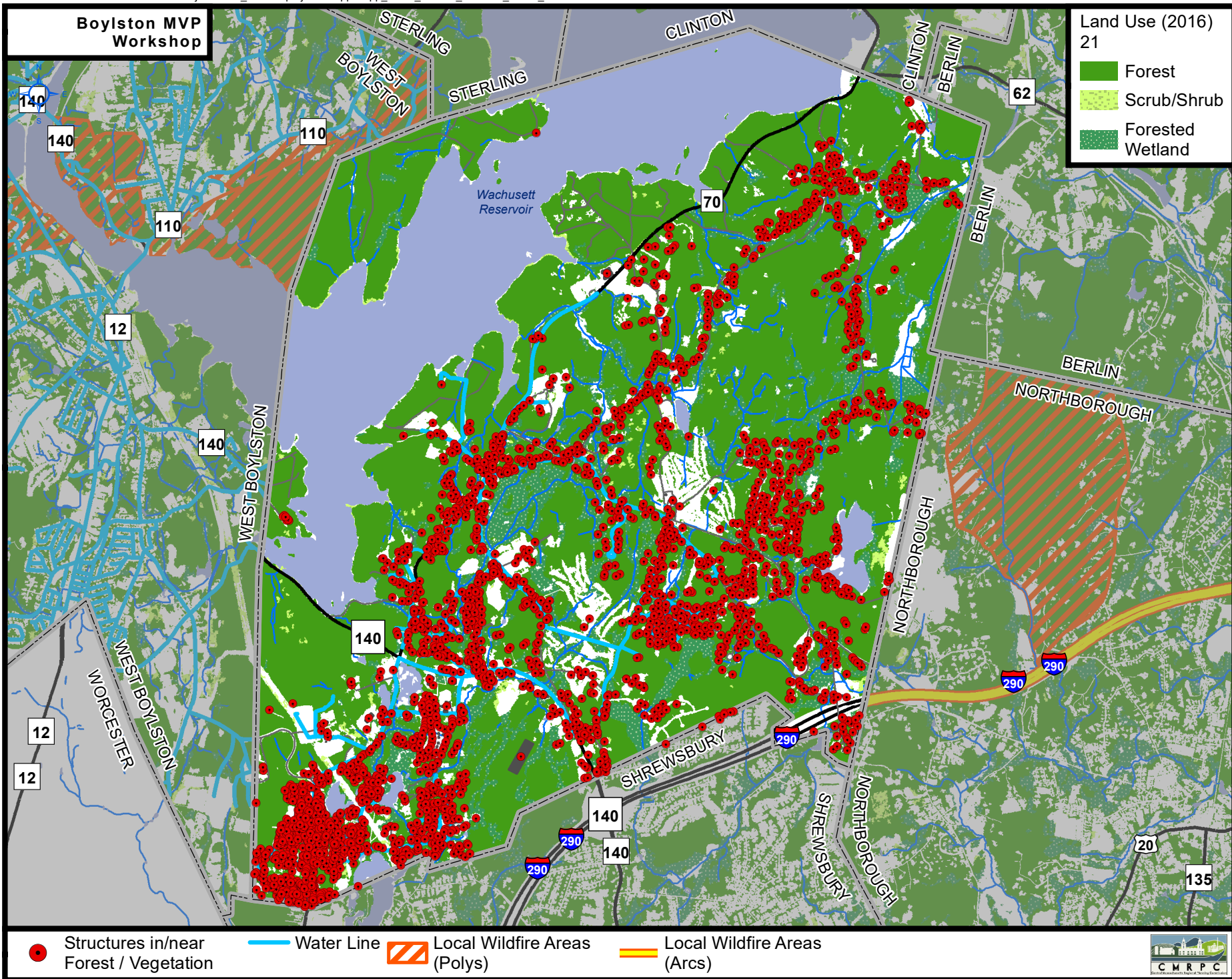


## Boylston MVP Workshop

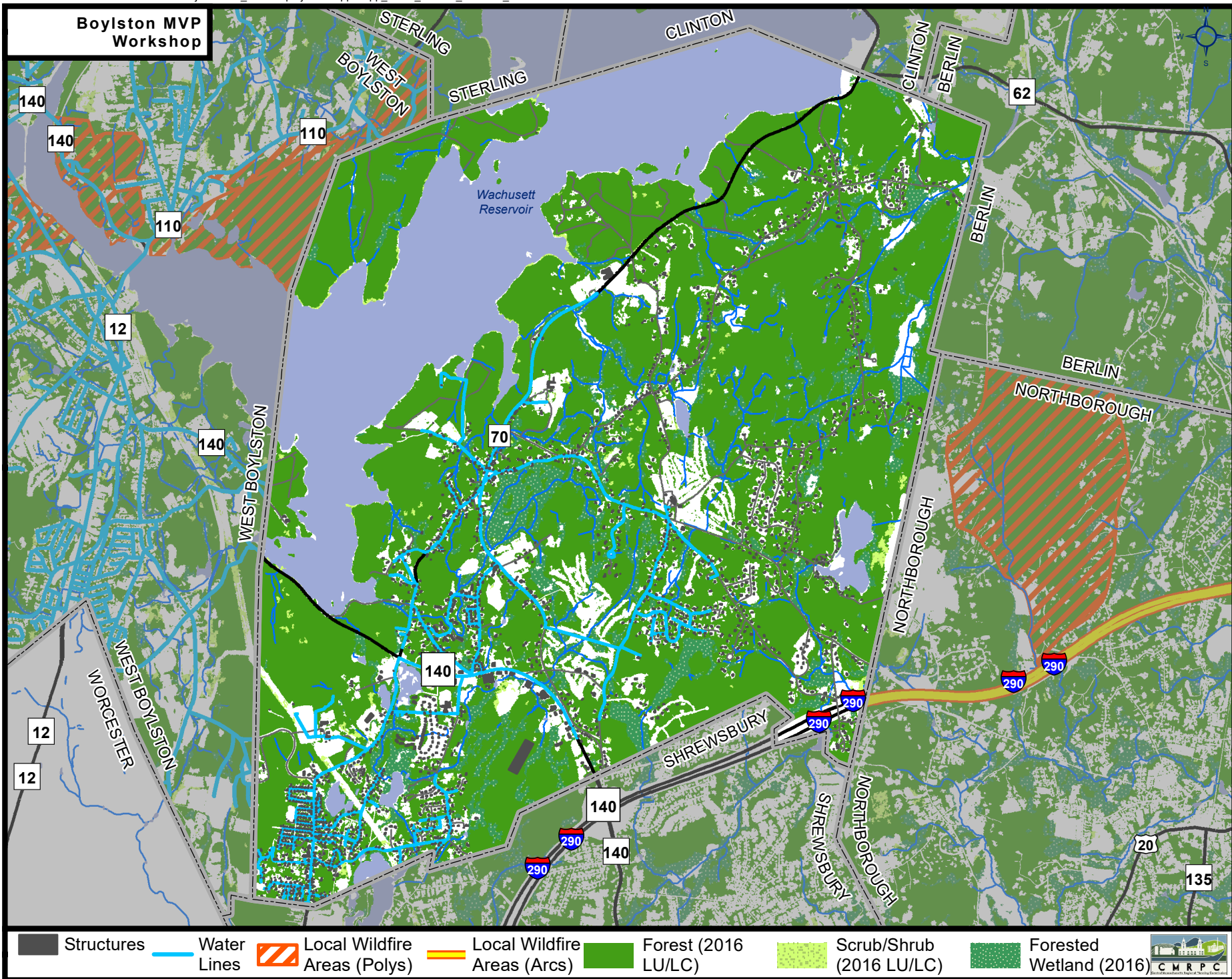




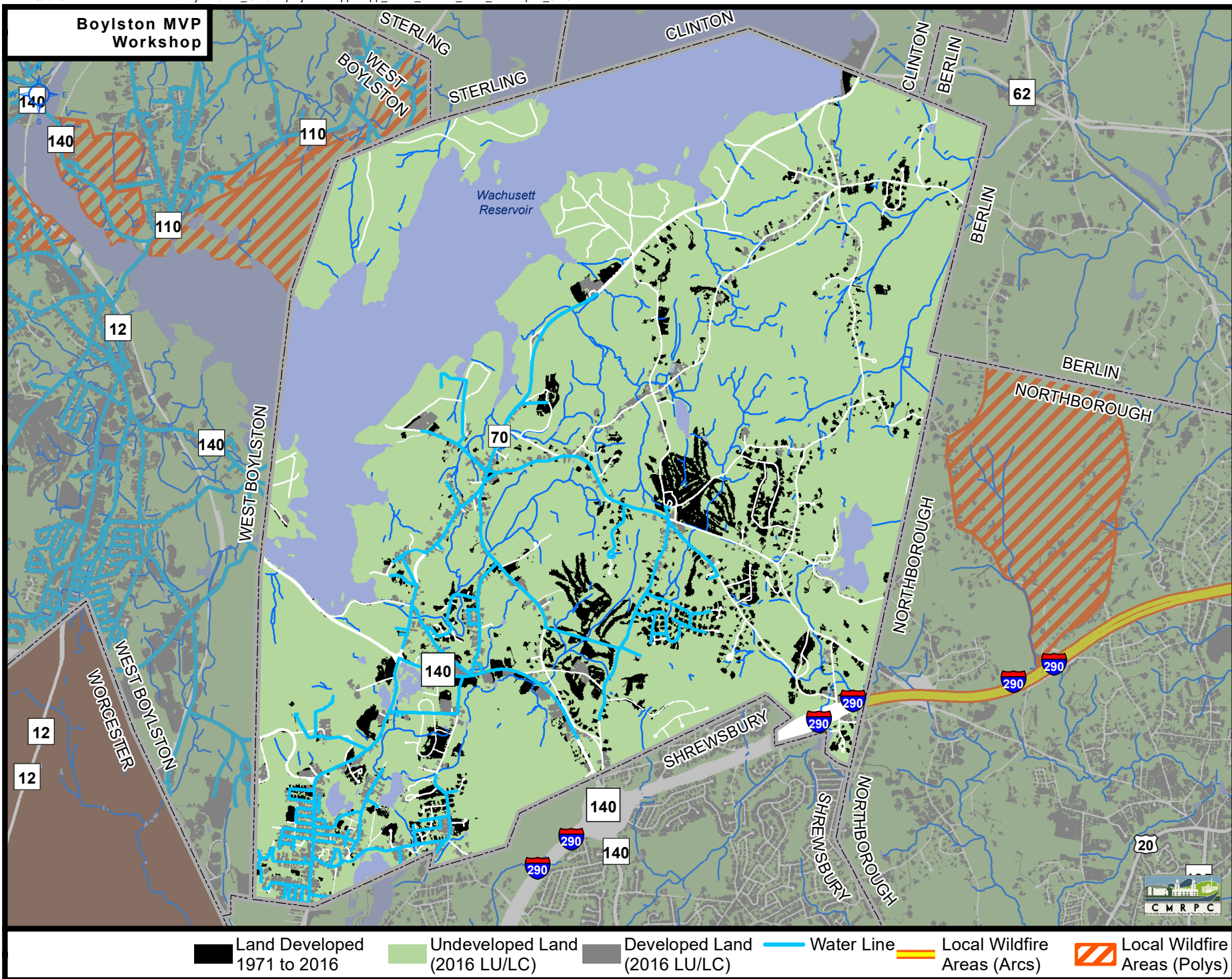




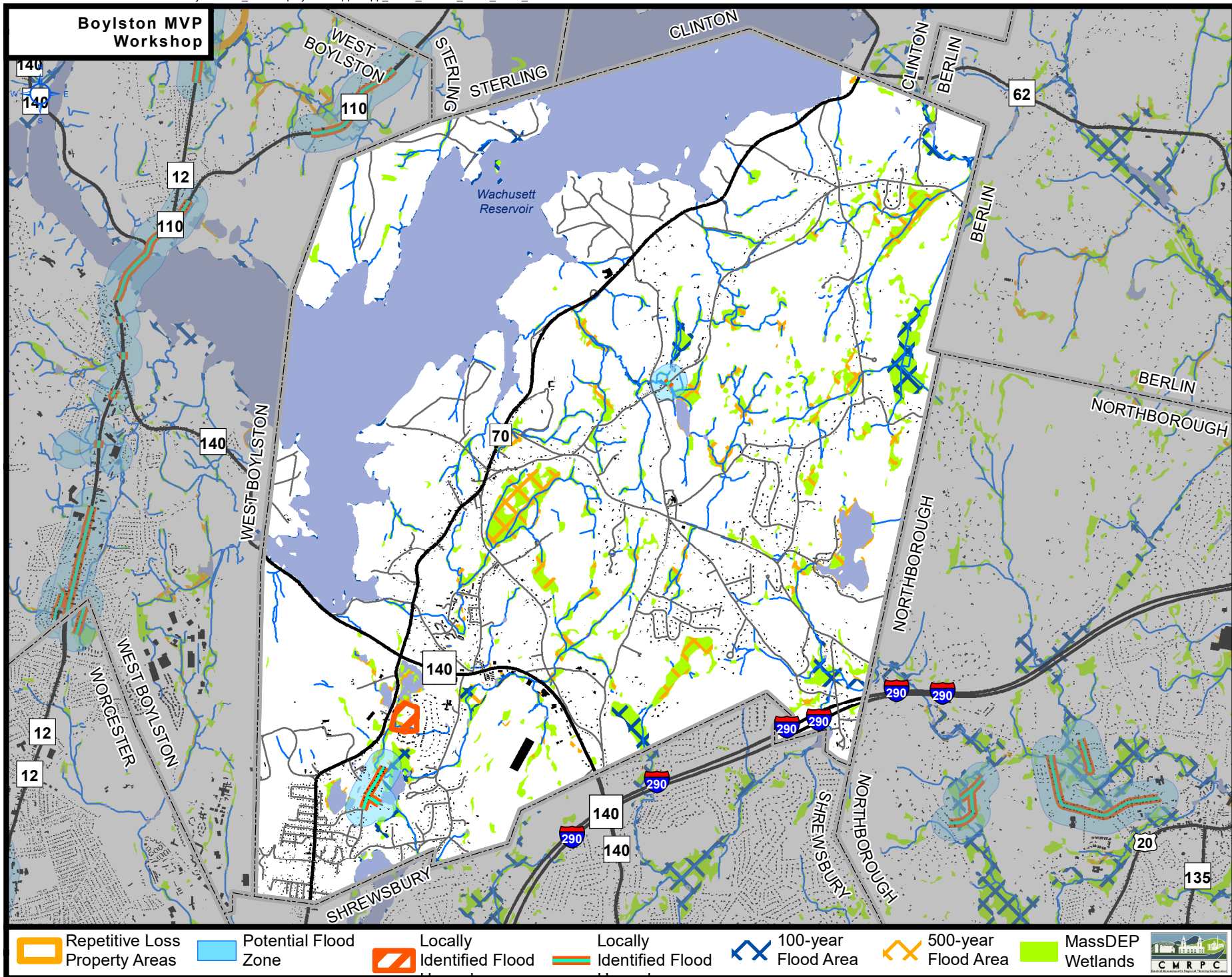




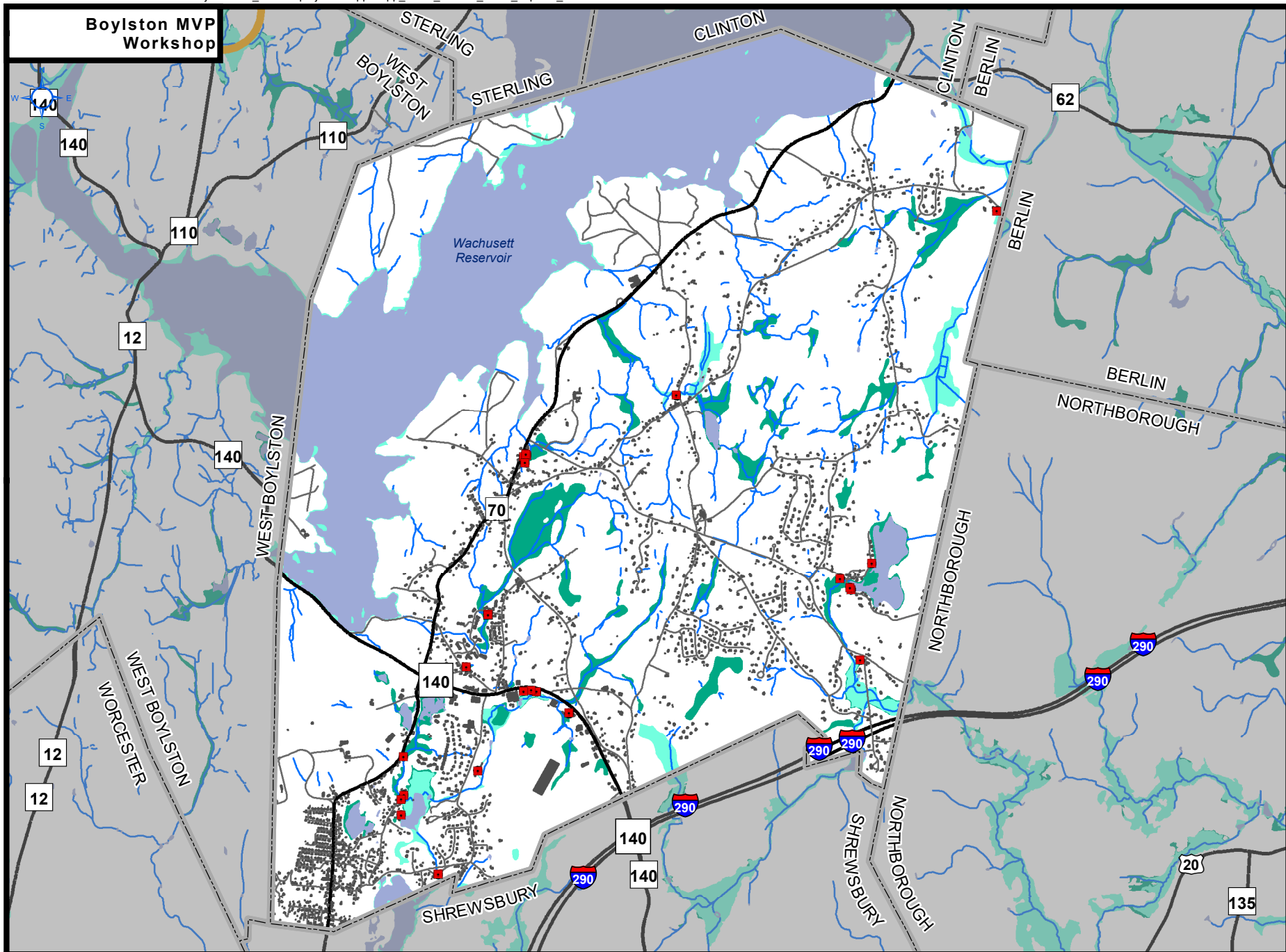






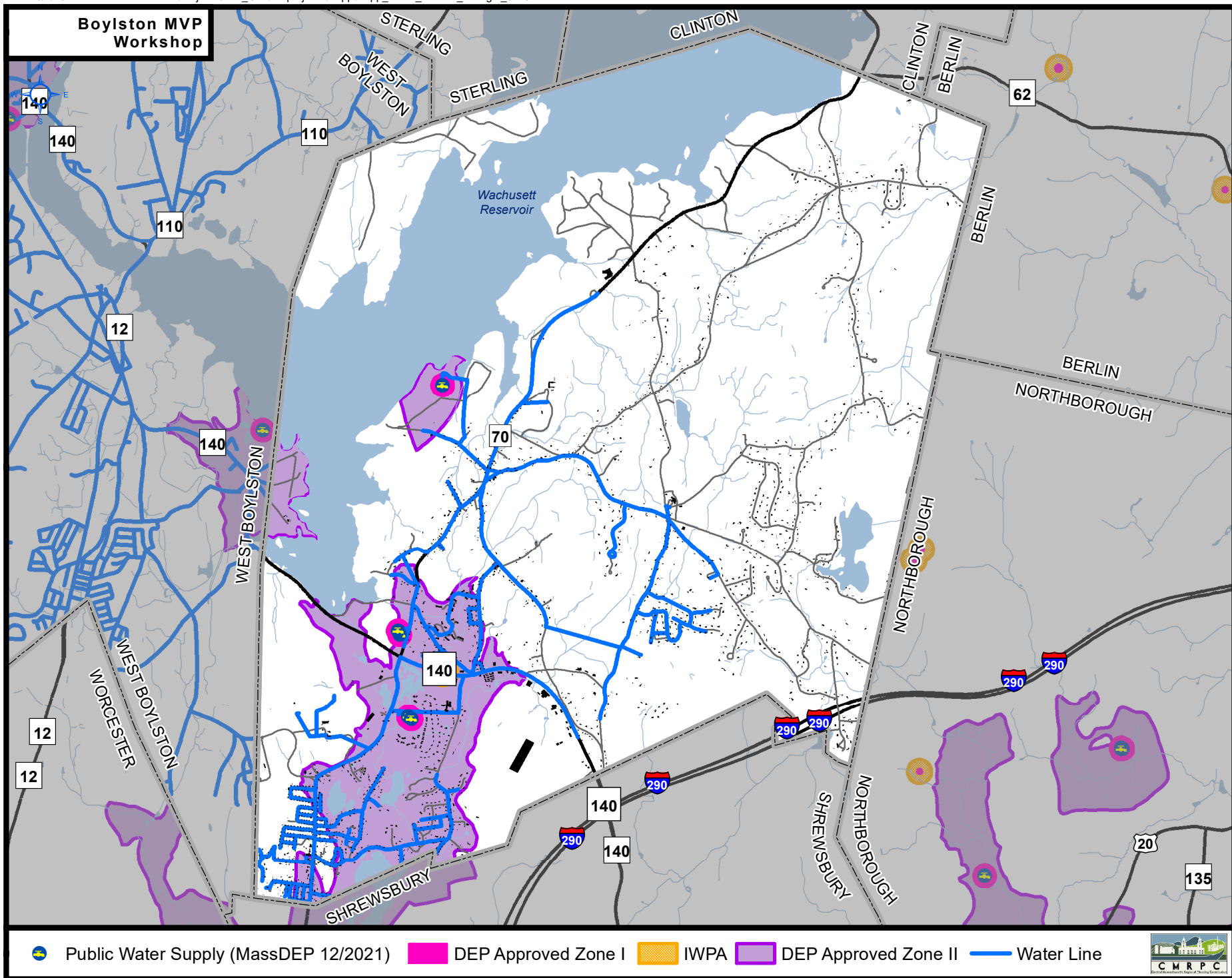


# Boylston MVP Workshop



- Structures within 100/500yr Flood Zone
- Repetitive Loss Property Areas
- 100-year Flood
- 500-year Flood

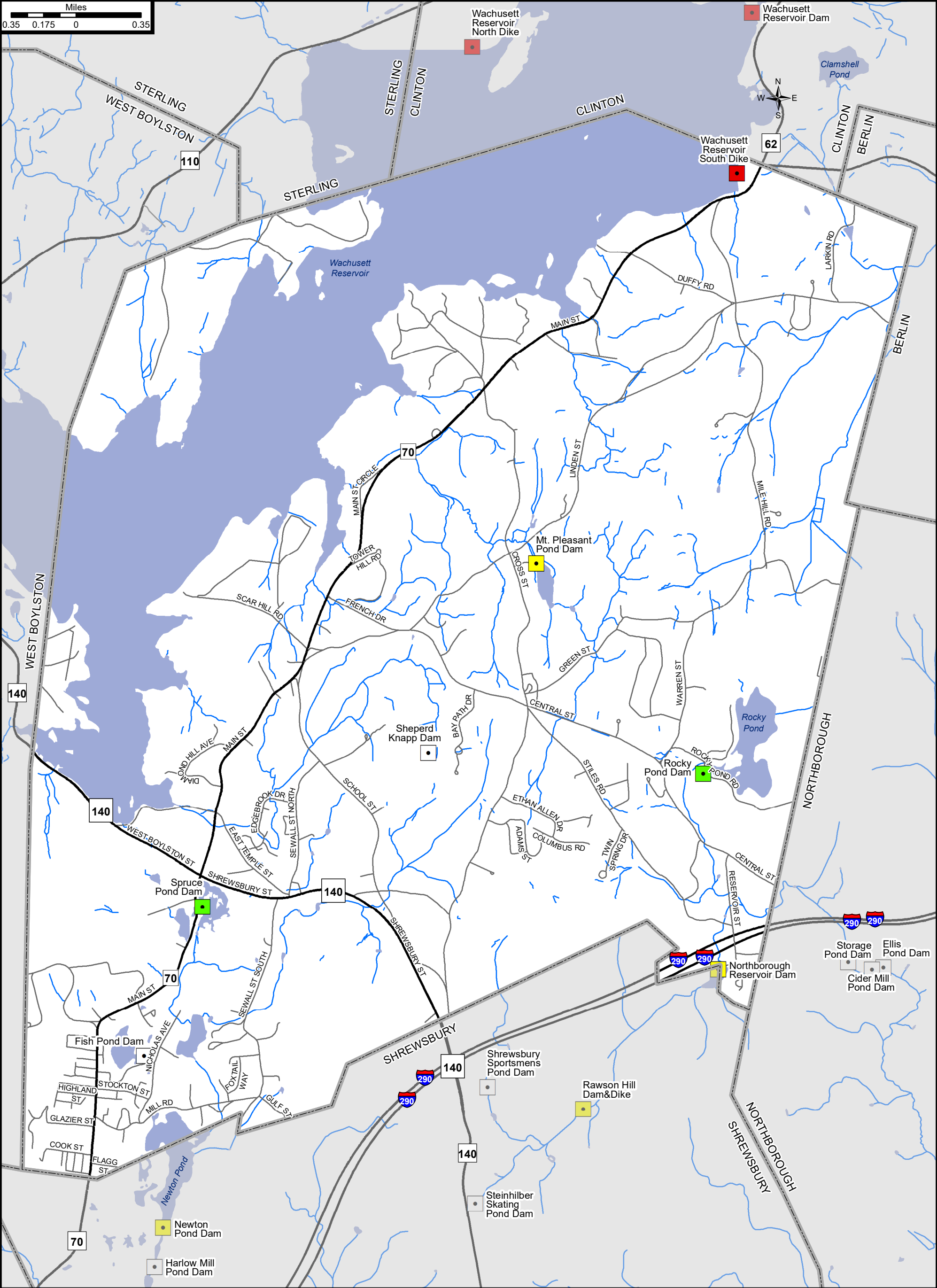
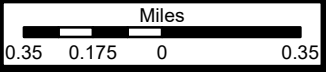






# Reference Map: Dams (2012)

Town of Boylston, Massachusetts



**Legend**

- Town Boundary
- Water Bodies
- Major Road
- Local Road

**Dams**

- High Hazard
- Significant Hazard
- Low Hazard
- Not Rated, Too Small

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS.

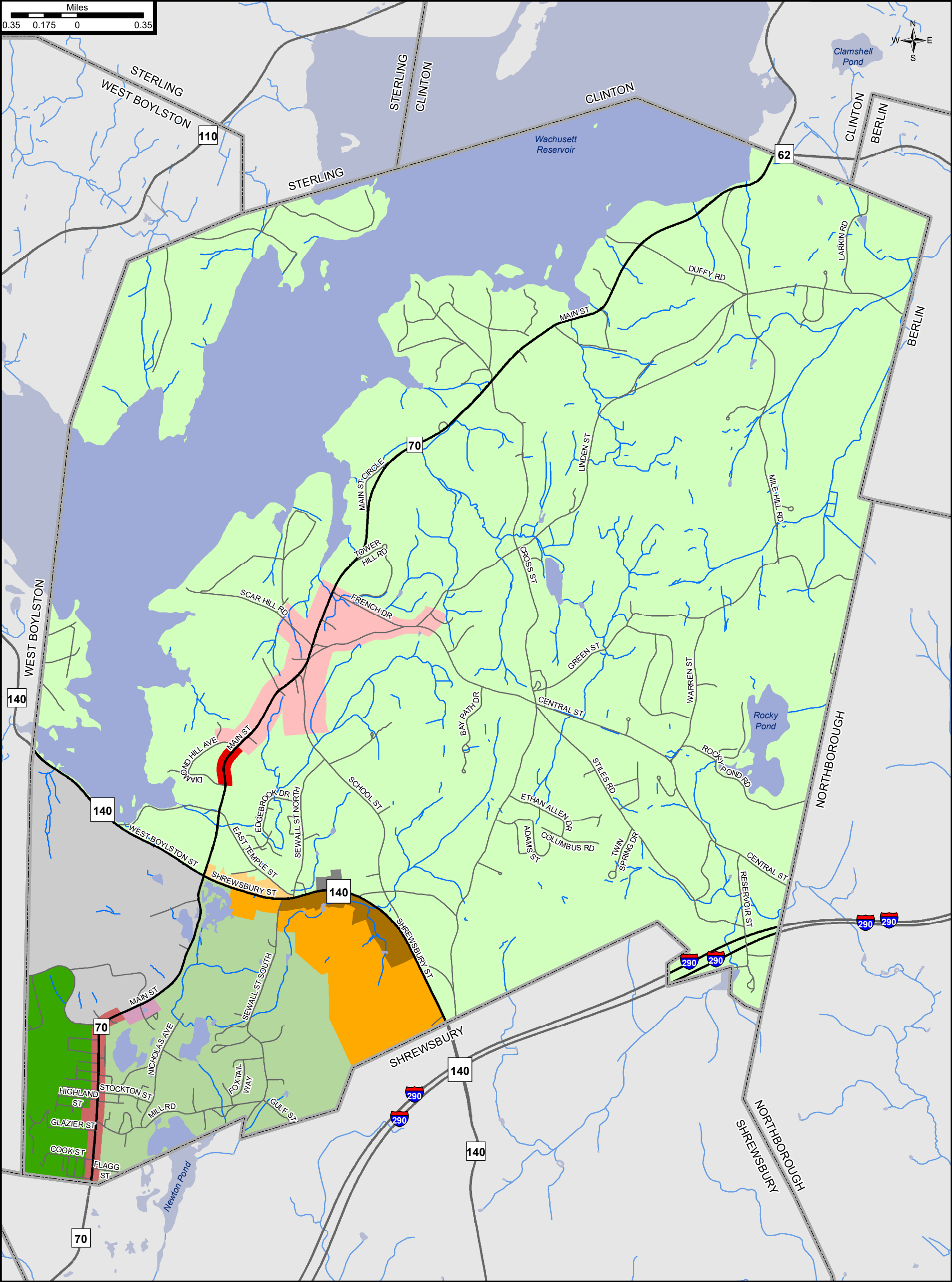
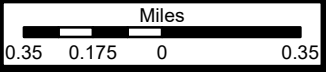
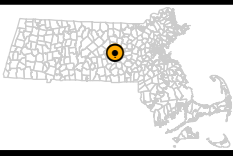
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## Municipal Vulnerability Preparedness (MVP) Workshop

# Reference Map: Zoning


## Town of Boylston, Massachusetts



- |                   |                               |                      |
|-------------------|-------------------------------|----------------------|
| Commercial        | Neighborhood Business         | Mixed Use Industrial |
| Village Business  | Flexible Business Development | General Residential  |
| Highway Business  | Route 140 Business            | Residential          |
| Heritage District | Industrial Park               | Rural Residential    |

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS.

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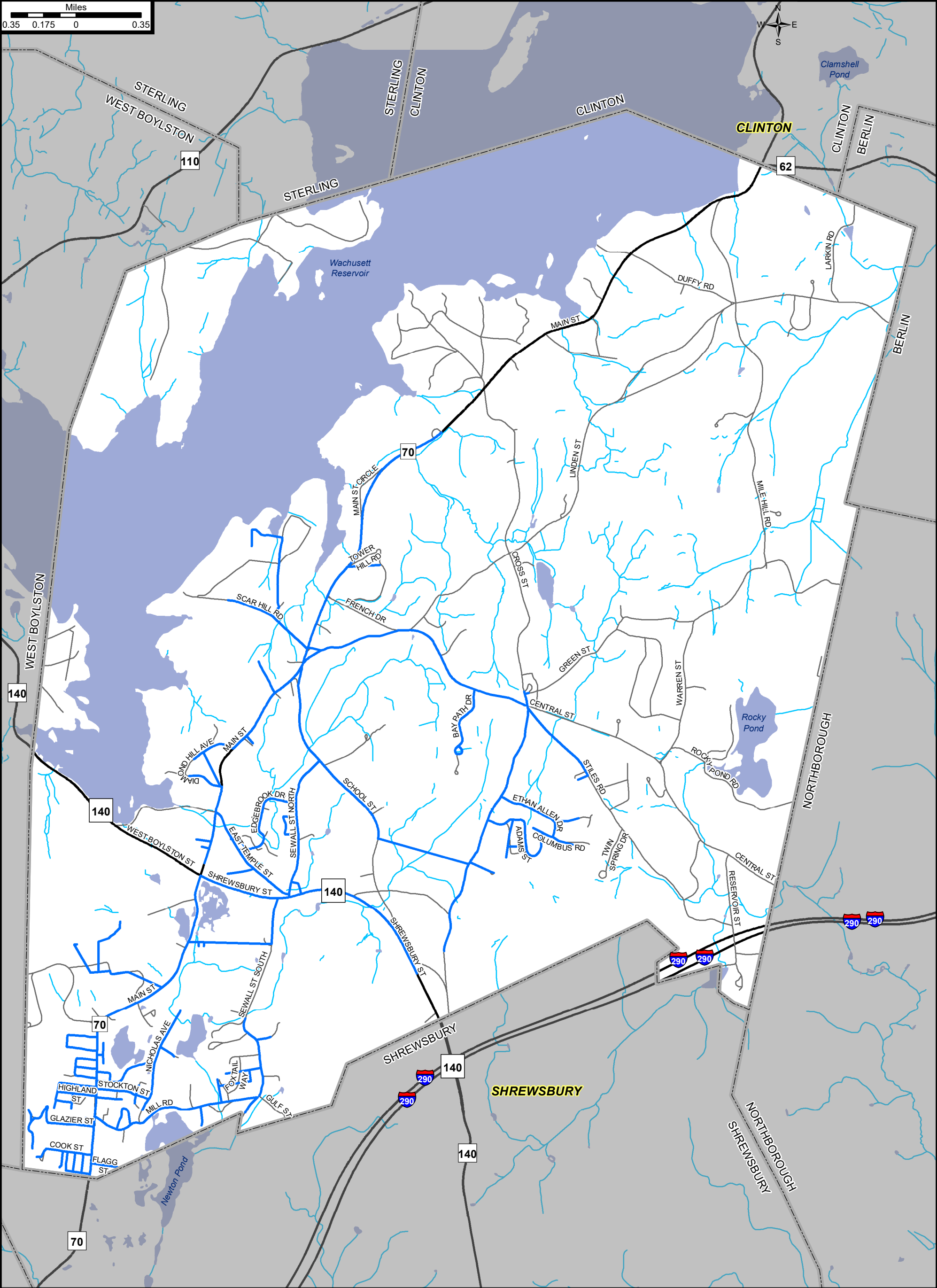
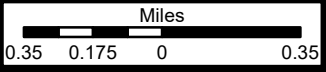
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# Municipal Vulnerability Preparedness (MVP) Workshop



# Reference Map: Utility Infrastructure

## Town of Boylston, Massachusetts



- Town Boundary
- Major Road
- Local Road
- Water Bodies
- Water Line

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS.

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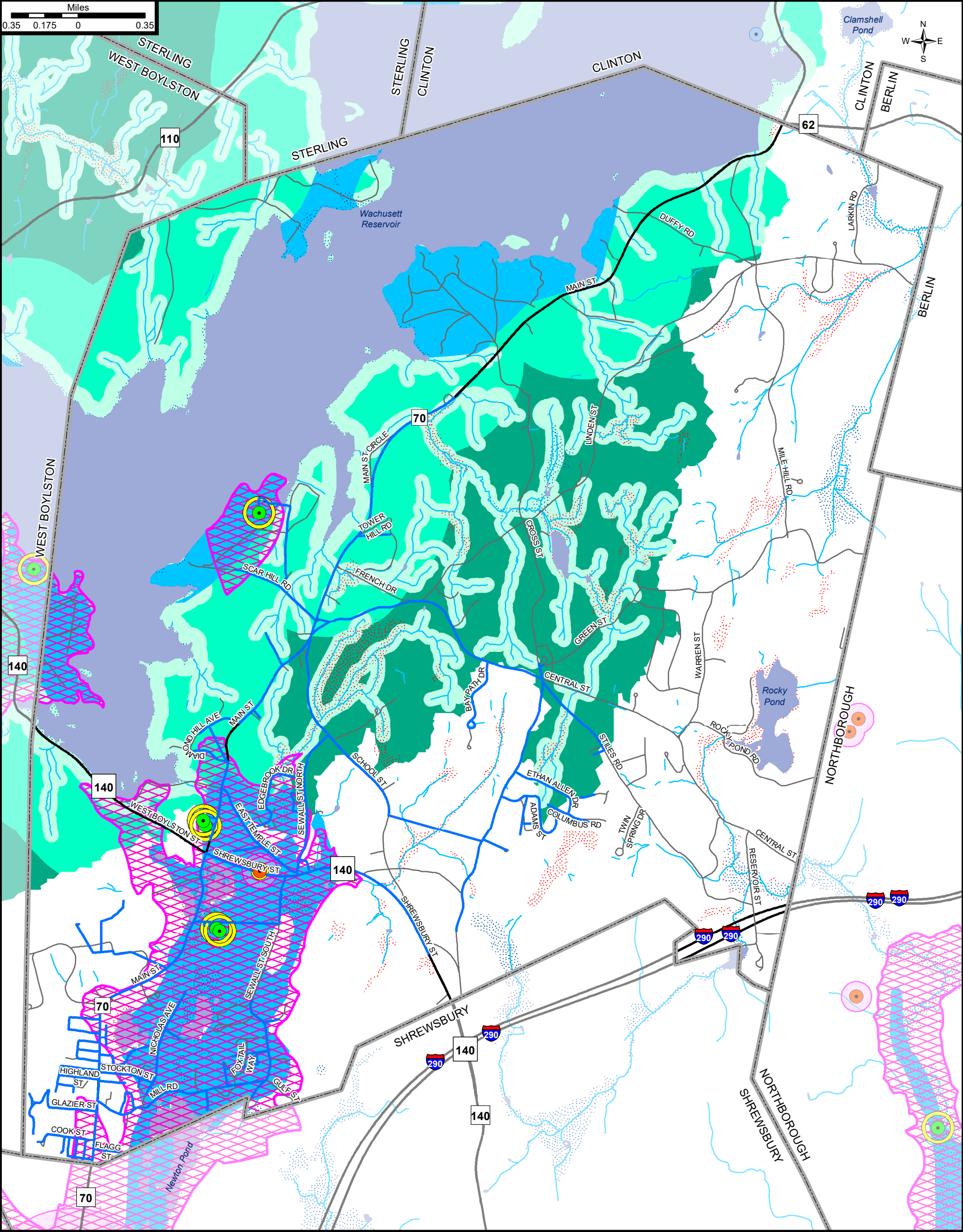
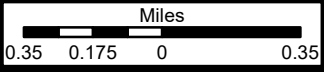
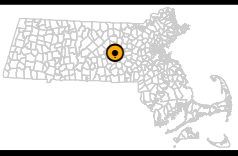


# Municipal Vulnerability Preparedness (MVP) Workshop



# Reference Map: Water Resources

## Town of Boylston, Massachusetts



Water Line

massDEP Public Water Supplies (8/2021)

- Community Groundwater Source
- Non-Community Groundwater Source
- Surface Water Intake
- Emergency Surface Water

DEP Approved Zone I (8/2021)

- Approved Wellhead Protection Areas (Zone II) (8/2021)
- Interim Wellhead Protection Areas (8/2021)

Aquifer (Low, Med, High)

FEMA National Flood Hazard Layer (DFIRM Data) or FEMA Q3 Flood Zones (Pre-DFIRM)

- 100-year Flood Area
- 500-year Flood Area

Surface Water Supply Protection Area

- Zone A
- Zone B
- Zone C

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS.

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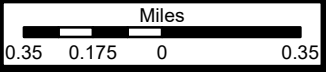
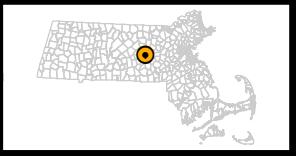
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# Municipal Vulnerability Preparedness (MVP) Workshop




# Reference Map: Orthophoto (2021)

Town of Boylston, Massachusetts



Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS, Imagery from MassGIS.

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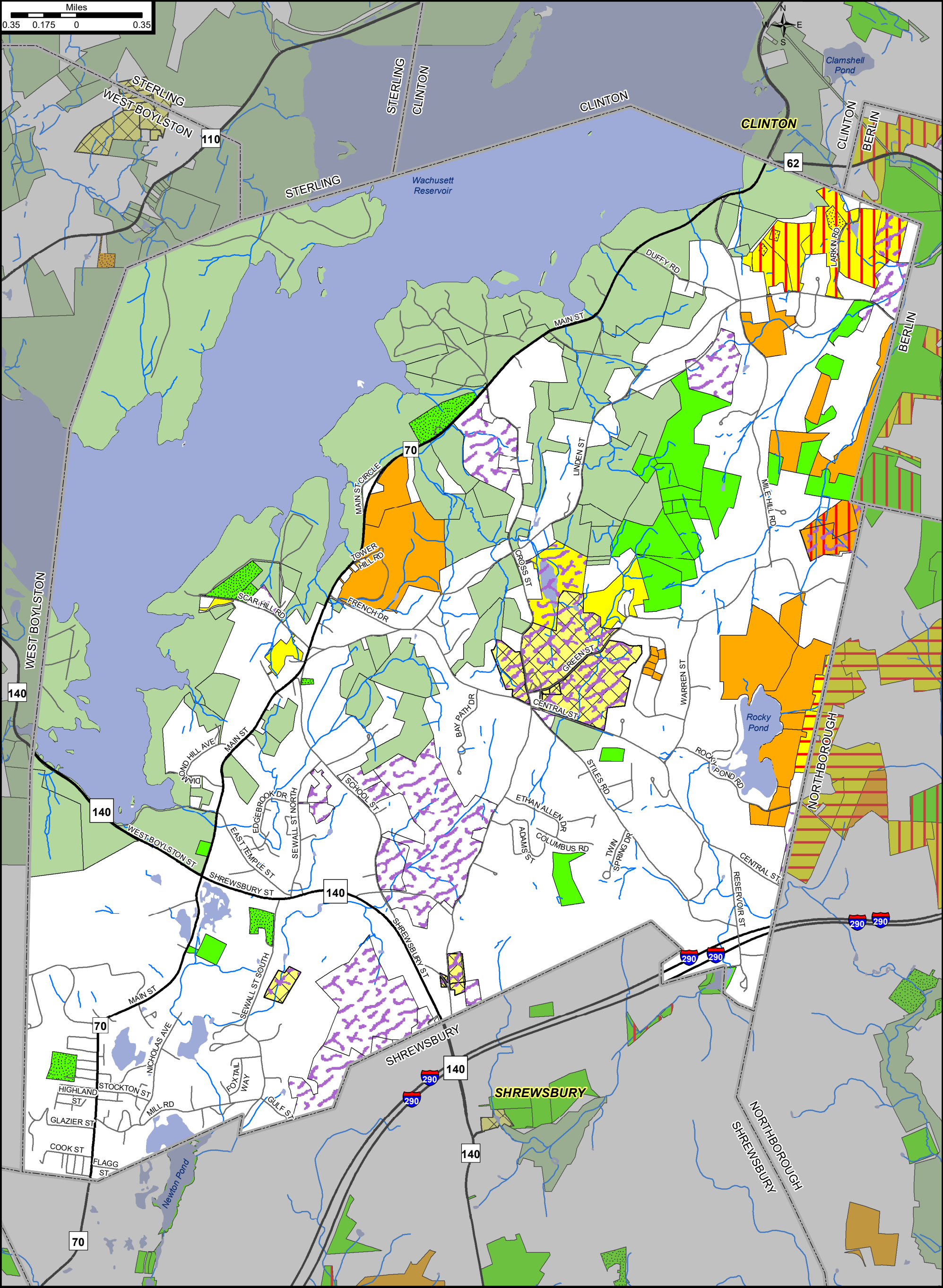
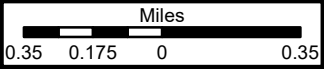
## Municipal Vulnerability Preparedness (MVP) Workshop



# Reference Map: Open Space


## Town of Boylston, Massachusetts

Open Space data provided by MassGIS. Current as of 12/2021. Chapter Land data provided by Town.



- |               |                      |             |                                       |
|---------------|----------------------|-------------|---------------------------------------|
| Town Boundary | Open Space Ownership | Level of    | Chapter Land (61, 61A, 61B)           |
| Water Bodies  | Federal              | Perpetuity* | Conservation                          |
| Major Road    | State                | None        | Agricultural Preservation Restriction |
| Local Road    | Municipal            | Limited     |                                       |
|               | Private              |             |                                       |
|               | Non-Profit           |             |                                       |

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.



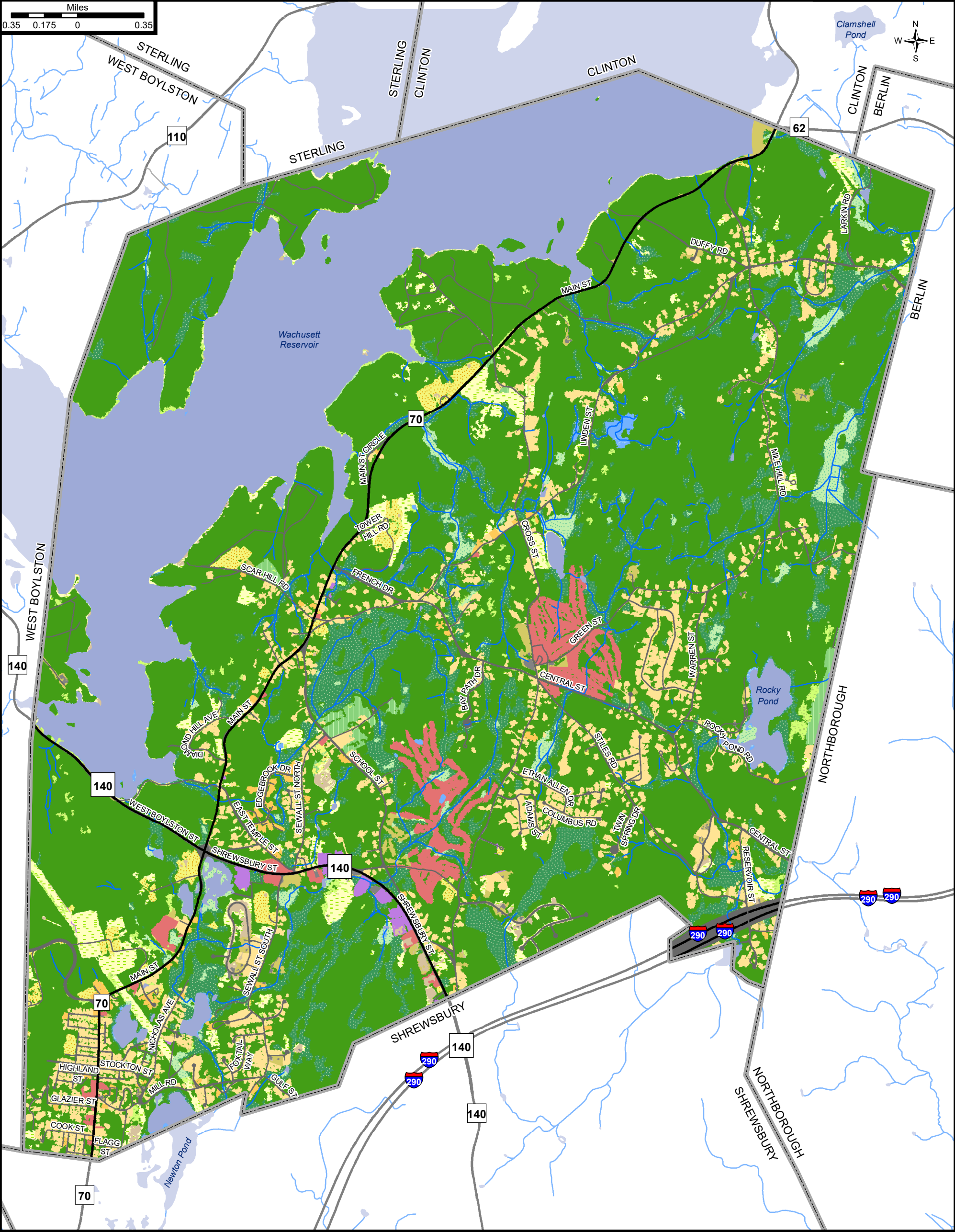
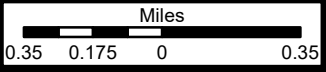
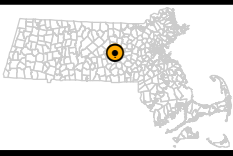
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# Municipal Vulnerability Preparedness (MVP) Workshop



# Reference Map: Land Use (2016)

## Town of Boylston, Massachusetts



Residential	Mixed Use - Other	Forest	Non-forested Wetland	Unconsolidated Shore	Developed Open Space
Residential - Multi-Family	Urban Public/Institutional	Scrub/Shrub	Saltwater Wetland	Aquatic Bed	Right-of-way
Commercial	Pasture/Hay	Bare Land	Water	Other Impervious	Cranberry bog
Industrial	Cultivated	Forested Wetland			Orchard
					Nursery
					Misc

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS.

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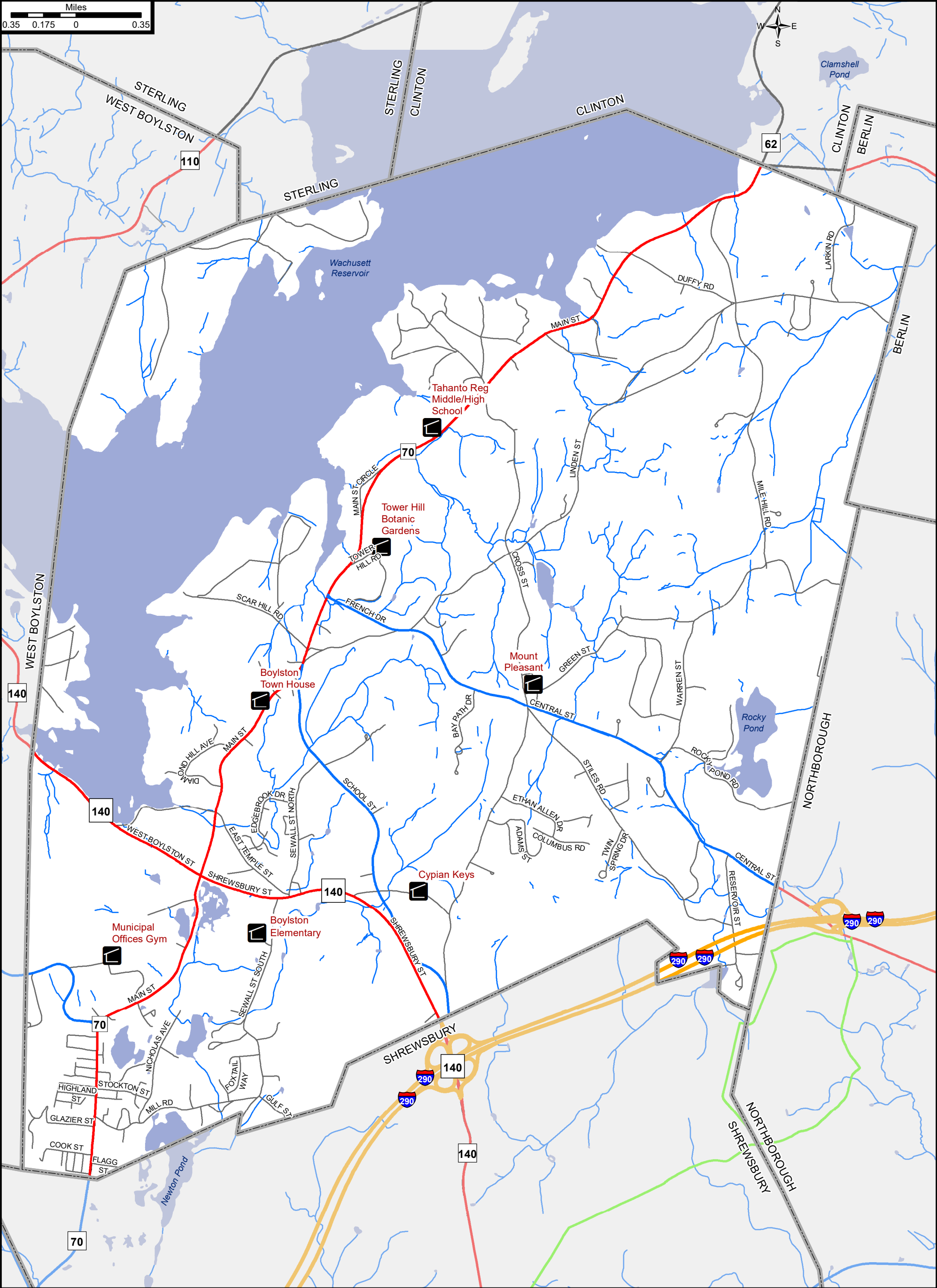
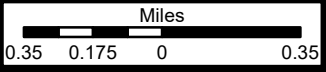
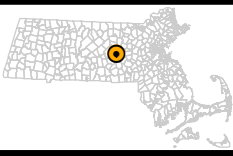
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# Municipal Vulnerability Preparedness (MVP) Workshop



# Reference Map: Evacuation Routes & Shelters

## Town of Boylston, Massachusetts



- Legend**
- Town Boundary
  - Major Road
  - Shelter
  - Water Bodies
  - Local Road

- Evacuation Routes**
- Highway
  - Primary
  - Secondary
  - Tertiary

Source: Data provided by the Town of Boylston, CMRPC, massDOT, MassGIS.

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# Municipal Vulnerability Preparedness (MVP) Workshop