TOWN OF STURBRIDGE

Municipal Vulnerability Preparedness Summary of Findings

October 2020

CMRPC
Central Massachusetts Regional Planning Commission

Executive Office of Energy and Environmental Affairs

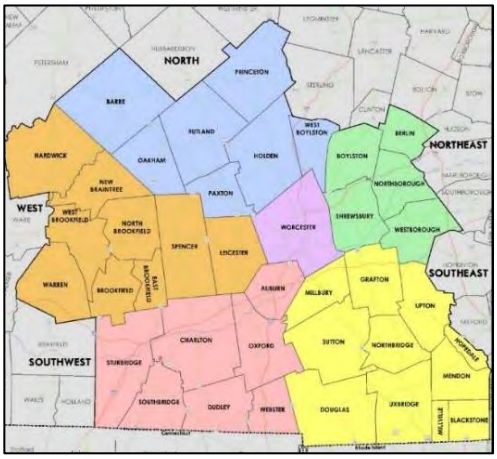
CMRPC Mission

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. CMPRC's programs include Transportation, Regional Services, Geographic Information Systems (GIS), and Community Planning.



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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 Sturbridge 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

ACKNOWLEDGEMENTS

The Municipal Vulnerability Preparedness (MVP) program and Community Resiliency Building Workshop was funded by the Executive Office of Energy and Environmental Affairs. This Summary of Findings and CRB Workshop were prepared for the community of Sturbridge by the Central Massachusetts Regional Planning Commission (CMRPC). Support from the Sturbridge Board of Selectmen and the town officials was much appreciated, especially for allowing the workshop and listening session to take place virtually.

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

David DeMings, Emergency Management, Project lead

Earl Dessert, Chief of Police

Jeff Bridges, Town Administrator

Jean Bubon, Town Planner

Rebecca Gendreau, Conservation Agent

Butch Jackson, DPW Director

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

Peter Peloquin, Associate Planner, CMRPC

Mimi Kaplan, Associate Planner, CMRPC

Dani Marini, Assistant Planner, CMRPC

Matt Franz, Project Manager, CMRPC

Andrew Smith, Regional Coordinator, EOEEA

STURBRIDGE: A PROFILE

The Town of Sturbridge, Massachusetts was incorporated in 1738. Sturbridge is located along Interstate 84, Interstate 90 (Mass Pike), Route 20 and Route 131, 20 miles southwest of the City of Worcester and is largely a bedroom community. Most of Sturbridge lies within the Quinebaug River Basin, except for the extreme northern edge which lies within the Chicopee River Basin. Sturbridge is bordered by Holland and Brimfield on the west, Charlton and Southbridge on the east, Connecticut on the south, and Brookfield and East Brookfield on the north. Sturbridge has a total area of 39 square miles and a population of 9,420 (2015 American Community Survey). Sturbridge is a demographically growing community, with population growth increasing. According to the Central Massachusetts Regional Planning Commission's (CMRPC) Long Range Transportation Plan, Mobility 2040, the Town of Sturbridge is expected to experience increasing population growth over the next 25 years.

The number of residents has grown from 7,775 in the 1990 US Census to 7,837 in 2000 to the currently (2018) estimated 9,640. Approximately 94.4% of the residents identify as White. The median age of town residents is 42.6, with 25.6% of the population under 19 and 15.6% of the population over 65. The median household income for this community is $83,806, with 4.4% of the community below the poverty line.

Sturbridge, uniquely known for its historic charm with its historic district and Old Sturbridge Village attractions, promotes community involvement to continually engage town residents and visitors. The Senior Center and Joshua Hyde Public Library host weekly youth, adult, and senior programming, while the town's various recreational facilities host youth and adult seasonal athletic programs and leisure activities. Sturbridge is affiliated with the Tantasqua Union 61 School District and is home to Burgess Elementary School.

WORKSHOP SUMMARY

The Town of Sturbridge contracted with the Central Massachusetts Regional Planning Commission (CMRPC) in February 2020 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 Sturbridge. A small group of town officials and Board Members convened on February 24, 2020 to form the 'Core Team' which, together with CMRPC staff, organized and planned the CRB Workshop over the course of three meetings.

The Town of Sturbridge's CRB workshop was scheduled to be held on April 7, 2020 at the Publick House. On March 23, 2020, Governor Baker ordered all non-essential businesses to cease in person operation through April 7, 2020. The Core Team decided to reschedule and revisit the meetings and workshop date as events unfolded. On March 31, 2020, Governor Baker ordered all non-essential businesses to remain closed and gatherings of not more than 10 people to remain in effect through May 4, 2020. On April 28, 2020 that order was extended to May 18, 2020. During this time of uncertainty, Sturbridge's Core Team continued to discuss possible alternatives in the case no extension was granted. Once extensions were granted, the Core Team decide to put the project on hold while still checking in monthly via email.

Sturbridge's Core Team and the staff at CMRPC reconvened on August 12, 2020 and began to create a virtual workshop. The virtual workshop would be conducted in a similar format as an in-person workshop with some slight differences. It was decided that the workshop would be held virtually on ZOOM. The workshop would take place over the course of three separate meetings. The first meeting would be held for two and a quarter hours. The first quarter hour would be dedicated to familiarizing all participants with all of ZOOM's functions and introductions. The remaining two hours would be dedicated to a brief overview, identifying features, location, ownership and vulnerabilities and strengths. The remaining two meetings were reserved for completion of the prior meetings work and to develop actionable items to improve resiliency throughout the Town of Sturbridge.

The virtual workshop was held on October 14th, 28th, and November 4, 2020 from 5:45PM-8PM. To prepare participants for the workshop all presentations were pre-recorded by the Core Team and the staff at CMRPC. Upon completion of the Core Team intro videos, MVP program overview presentation, Climate Projections presentation, Hazards presentation and Matrix/ Nature Based solutions presentation, the invitation was put together. The invitation was complete with links to each presentation, table maps, excerpt from the Sturbridge Hazard Mitigation Plan, two-page MVP program overview, CRB Workbook, how to use ZOOM information, Online mapping tool and an agenda with ZOOM log-in information for each of the three 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 Sturbridge 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 five presentations:

- Town introduction
- 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 Sturbridge, including the top four hazards perceived by the core team.

During the first virtual workshop meeting date, the group discussed the top four hazards that affect Sturbridge. There was agreement between the Core Team and all participants that--in no particular order-- ***flooding, wind events, winter storms*** and ***drought/heat*** 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 three small groups 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.

Core Team and Project Team

Name	Affiliation	Role
David DeMings	Town of Sturbridge	Project Lead
Earl Dessert	Town of Sturbridge	Core Team
Jeff Bridges	Town of Sturbridge	Core Team
Jean Bubon	Town of Sturbridge	Core Team
Rebecca Gendreau	Town of Sturbridge	Core Team
Butch Jackson	Town of Sturbridge	Core Team
Peter Peloquin	CMRPC	Staff Lead
Mimi Kaplan	CMRPC	Staff Assistant

Workshop Participants

Name	Affiliation	Attended	Table #
Charles Blanchard	Planning Board	Y	A
Paul Guerun	Burgess Elementary School	Y	A
Kelly Vosnakis	Human Health Risk Assessment	Y	A
Kristen Jerome	MEMA	Y	A
Andrew Smith	MVP Regional Coordinator	Y	A
David DeMings	Emergency Management	Y	A
Rebecca Gendreau	Conservation Agent	Y	A
Chris McClure	McClure Engineering	Y	B
John Degnan	Resident	Y	B
Dan Purtell	Bethlehem Church	Y	B
Jean Bubon	Town Planner	Y	B
Earl Dessert	Police Chief	Y	B
Jeff Bridges	Town Administrator	Y	B
Justin Homes	Old Sturbridge Village	Y	B
Tamsin Lucy	Resident	Y	C
Jeneé Lacy	Admin Assistant to Planning	Y	C
Sean Pain	Sturbridge Police	Y	C
Butch Jackson	DPW Director	Y	C
Leslie Wong	Senior Center Director	Y	C
Peter Peloquin	CMRPC	Y	All
Andrew Loew	CMRPC	Y	C
Sarah Adams	CMRPC	Y	A
Ian McElwee	CMRPC	Y	B
Matt Franz	CMRPC	Y	All
Zack Blais	CMRPC	Y	B

The group then reconvened two weeks 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. One week later the group used the remaining time to complete the matrix. Once the group had completed the matrix, the groups gave a summary of findings by the table reporters.

Upon completion of the three workshop meetings, CMRPC compiled all information from the matrix into survey form. The survey was then distributed to all attendees of the workshop from November 10, 2020, through November 23, 2020. The attendees' participation in the survey helped to prioritize what they believed to be the top project in the infrastructure, society, and environmental categories. Participants also voted for their top five actionable items. Results of the survey were used to prioritize and organize the matrix and report.

Twenty-seven (27) stakeholders attended the virtual CRB Workshop, including the MVP Core team, representatives from town government, emergency services, Municipal Department Heads, Conservation Commission, Planning Board, agriculture, churches, local business, engineering firms and concerned citizens of Sturbridge.

A public listening session to discuss MVP results and recommendations for future actions was held in-person on Wednesday, May 26th from 5:00 – 6:00 pm at the Senior Center located on 480 Main Street. The listening session was properly promoted across several avenues, with a combined number of six (6) people in attendance. Between the two meetings, a total of thirty-three (33) people participated in the MVP process.

Top Hazards

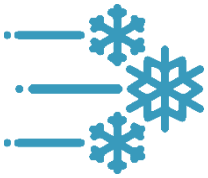
Following the presentations at the beginning of the workshop, a full-group discussion was held for approximately fifteen minutes to determine the top four hazards for breakout groups to further assess solutions. Taking climate change projections, critical infrastructure, and other considerations into account, workshop participants chose to focus on the four following hazards: ***winter storms, flooding, drought/extreme heat, wind events.***

Drought/Extreme Heat

Projected increases in 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.

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.



Winter Storms

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.

Wind Events

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.

In 2016 and 2020, Sturbridge experienced extreme droughts along with the majority 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. 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, particularly along Route 20.

Winter Storms. 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 Temperatures. 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.

High Wind. 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 Quinebaug River Basin, where Sturbridge is 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 in the winter. Higher wind in the summer and storm severity increases with warmer temperatures.

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, winter storms, flooding, drought, and wind/severe storms as the primary hazards facing Sturbridge. All the participants agreed that these four hazards were the most relevant for Sturbridge.

The town's bylaws and emergency management systems were described as strengths, along with the open space and water resources. Relationships between the town and local churches and business were considered to be an overall strength for the town. Dams, culverts, and bridges were also considered vulnerable safety hazards. Town water supply was considered vulnerable to a variety of runoff contamination risks. The possibility of incorporating nature-based solutions and an incentive program to improve stormwater drainage was discussed.

Another feature that was widely seen as a hazard to the Town is invasive plants and pests. Gypsy moths have damaged a number of trees in Town and put the power grid at risk. Other vulnerable areas mentioned were issues of overall tree health and tree maintenance systems, senior populations, and Old Sturbridge Village. There was extensive concern about the need for upgraded emergency communications and increased public engagement. Recommendations included upgrading emergency communications systems and performing a radio service study to identify coverage dead zones.

There was agreement that the watershed and water supply should be assessed, and that additional water wells should be established. Backup generators and alternative sources of power for the pump stations, senior housing facilities, and Town facilities should be secured to maintain access to these critical services in times of inclement storm events. Many asked for greater public education regarding stormwater management, wetlands, rainwater collection, and invasive species management.

All three tables identified specific vulnerable locations that are already in need of attention and will likely face worsening impacts due to climate change. These include forested areas, Old Sturbridge Village, runoff contamination, senior residents, and dams.

Current Concerns and Challenges Presented by Hazards and Climate Change

CMRPC, the MVP planning provider, had the unique advantage of preparing Sturbridge's Hazard Mitigation Plan (HMP), which was adopted by the Town's Board of Selectmen and approved by FEMA in September 2019. Meetings with the MVP Core Team prior to the workshop as well as the HMP 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), tornados (2011), tropical storms (Irene, Sandy), infestations of invasive and otherwise undesirable species (Asian Longhorn Beetle, gypsy moths, aquatic invasive species, ticks), and extended periods of drought (2015 to 2016). Sturbridge has adequate public water coverage and maintains four well sources. Advisedly, it will be important for the town to maintain a backup and response plan in the event that one or more wells is damaged by drought or storm and cannot be replenished at the prescribed rate of use.

At the workshop, CMRPC staff presented downscaled climate change data provided by Massachusetts's Executive Office of Energy and Environment Affairs (EOEEA) and the Northeast Climate Science Center at the University of Massachusetts, Amherst. Sturbridge lies mostly in the Quinebaug 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 over 90 degrees will increase 8 to 29 days annually; days below freezing will fall between 19 to 38 days 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 Sturbridge area.

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

- Issues associated with climate change will exacerbate problems that are already apparent, and that the town lacks the resources to address comprehensively. These include 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 – particularly along Route 20 near Yankee Candle.

- 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 and especially the overhead transmission lines owned and maintained by National Grid. Tree damage will occur from intense windstorms such as recent storms including 2011 tornado 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.

VULNERABLE AREAS

The areas in Sturbridge identified by workshop participants during discussion as vulnerable to the hazards discussed include:

VULNERABLE AREAS

- Forested Areas
- Old Sturbridge Village
- Runoff Contamination
- Senior Residents
- Dams

Forested areas throughout town are vulnerable to increasing pressures from heat, drought, and invasive insect species. The aging tree population is of concern for the overall health of the forested area covering most of the Town. Roadside trees are also a vulnerability due to a lack of a sustainable tree trimming programs, or remove and replace programs.

Old Sturbridge Village has been identified as a vulnerable area for a number of reasons. Local dam flooding, frequent beaver activity, and negative winter storm impact to Old Sturbridge Village were concerns of many in attendance. In addition, Old Sturbridge Village brings in an influx of tourists to the area that do not have access to emergency notifications or information.

Runoff Contamination was identified at many water and wetland resources throughout Town. Walker Pond, South Pond, Cedar Lake, Big Alum Pond, and Long Pond have all had the presence of E. Coli, and the Quinebaug River experienced contamination from nearby sewers.

Senior Residents were considered vulnerable by all groups during the breakout sessions. High concentrations of senior citizens living in condensed areas were viewed as a risk in the event of evacuation. A lack of backup power was concerning for many due to the projected longer period of higher temperatures. In addition to better emergency planning, the availability of transportation for, and communications with, the senior population during these times is considered to be a key aspect of resiliency that needs upgrading and rethinking.

Town-wide Dams were of concern to many in attendance as a number of dams in town are designated as High Hazard, Significant Hazard, or are at-risk. Dams in particular to be concerned with are East Brimfield Lake Dam, Hamilton Rod & Gun Club Dam, Cedar Pond Dam, Alum Pond Dam, Old Mill Pond Dam, and the Recreation Pond Dam.

Specific Categories of Concerns and Challenges

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

Infrastructure Concerns

INFRASTRUCTURE

- Dams and Culverts
- Municipal Facilities
- Water Infrastructure
- Access

Dams and Culverts

There are 23 dams in Sturbridge according to the Massachusetts Office of Dam Safety. Of those, one dam is considered High Hazard, eight are a Significant Hazard and six are Low Hazard. Dams designated as High Hazard are those where failure or improper operation will likely cause loss of life and serious damage to homes, industrial or commercial facilities, important public utilities, main highways, or railroads. Those that are designated as Significant Hazard indicate that failure or improper operation may cause loss of life and damage to homes, industrial or commercial facilities, secondary highways or railroads, or cause interruption to use or service of relatively important facilities. Participants specifically noted the East Brimfield Lake Dam, Hamilton Rod & Gun Club Dam, Cedar Pond Dam, Alum Pond Dam, Old Mill Pond Dam, and the Recreation Pond Dam as vulnerabilities that require attention. The East Brimfield Lake Dam owned and managed by the Army Corps of Engineers is rated as a High Hazard. It is located in the western part of Town off of Route 20. The Hamilton Rod & Gun Club Dam is privately owned and rated a Low Hazard. Despite the Low Hazard rating, participants still expressed their concern over the flooding along Hamilton Road and Interstate 90. Cedar Pond Dam is owned by the Town of Sturbridge. It is located in the center of Town at Cedar Pond and is designated as a Significant Hazard. Alum Pond Dam, also owned by the Town of Sturbridge, is designated a Significant Hazard, and is located off Mt. Dan Road along Big Alum Pond. The Old Mill Pond Dam is privately owned and is rated a Significant Hazard. And the Recreation Pond Dam is privately owned and designated as a Significant Hazard. It is located at the Westville Recreation Area along Westville Lake.

There was also concern about the condition of culverts town wide. Many of the culverts are either in poor condition or are undersized. Participants noted areas along Route 20 of particular concern. The culvert near Yankee Candle has been a source of flooding along Route 20 and could cause the daycare nearby to flood. With an increase in the frequency and duration of rain events, these flooding risks will only increase as the climate changes.

Municipal Facilities

The Town of Sturbridge is fortunate to have a number of facilities in town that provide many critical services. As climate-related disasters increase, the community will continue to rely on these facilities as command centers, as potential shelters, and for equipment storage. However,

many of these facilities require upgrades or improvements. The Sturbridge Highway Department, located at the New Boston Road Ext., is in a low-lying area with poor drainage. It also has a flat roof that poses risks from heavy snow. The Public Safety Complex, located at 346 Main Street, is surrounded by wetlands creating an Exterior flooding concern. This building is old, has a flat roof, and needs to be replaced or expanded. In addition, the Senior Center, Town Hall, Center Office Building, Joshua Hyde Public Library, and the Public Works Department all lack sufficient generators, putting these buildings at risk of service interruption in the event of power outages.

Water Infrastructure

Though Sturbridge has four water wells and a wastewater plant with no issues, many participants noted the water infrastructure in Town as a vulnerability. Some of the water wells in Town are being contaminated by salt from roadway runoff. Salt contamination can lead to high sodium levels in drinking water, leading to potential health risks. There is a water tower located on the top of a hill above Old Sturbridge Village that could serve as a backup water supply, however, it will cause flooding damage downhill should that water be released. In addition, three major pump stations, including one along Route 20, do not have automatic generators. Without backup generators, the pump stations will be at increased risk of flooding in the event of power outages. And the fire hydrant systems are old. The Fire Department is diligent with their maintenance of the fire hydrant system, but it requires updating.

Access

Another vulnerable area identified by participants during the workshop include access to roadways, power, and communication. The Town of Sturbridge may have access to many transportation routes, but holiday and rush hour traffic leave Interstate 90, Interstate 84, Route 20, Route 15, Hall Road, and Farquhar Road congested and difficult to travel through. In times of emergency, this could make it difficult to evacuate or for first responders to assist residents. A lack of public transportation contributes to this congestion.

In addition to congestion limiting access to roadways, street trees also pose a risk. Storms and wind events will blow down dead and dying street trees. These downed trees can block roadways or bring down power lines creating power outages. National Grid trims trees near power lines, but there is not a Town-coordinated tree trimming effort, leaving a majority of trees vulnerable. An increase in wind and storm events will only exacerbate this problem, leaving the Town with decreased access to power.

The Town's emergency communication systems can also experience limited access. Bad cell service, radio dead zones lend to a lack of communication infrastructure in Town. Tantasqua Regional High School is a notable zone with poor cell coverage.

Societal Concerns

SOCIETAL

Senior Residents

Communication

Tourism

Senior Residents

Despite having a number of senior housing facilities, participants felt that senior residents in Town are most vulnerable to changes in climate. Older residents will feel the effects of climate change more than other residents in Town. They are more vulnerable to extreme temperatures that will accompany drought and hot days. In addition, older residents are more susceptible to disease, particularly EEE and other insect-borne diseases, which will only increase with the changing climate. Many local senior residents do not have access to a vehicle and may live alone. These residents will be more vulnerable in times of emergency when evacuation is necessary due to their reduced ability to mobilize quickly. They also often require access to medical equipment, leaving them more susceptible to power outages. In Sturbridge, there are a few different facilities that provide senior housing. Crescent Gate, located at 7 Crescent Way, is a 55+ retirement community. Similarly, Sturbridge Retirement Cooperative is a 55 and over mobile home community, in addition to Autumn Ridge. Heritage Green, while not specifically senior housing facilities, do provide affordable housing opportunities for some seniors in Town. High concentrations of senior residents in these areas, especially in the event of major storms, was concerning to workshop participants.

Communication

The Town of Sturbridge has improved their internet presence over the years, but their newspaper and radio communication outreach is lacking. And with limitations in radio and cell coverage, there are frequent issues with the current communication system. There was a desire from participants to educate residents on how to access information via the internet or radio, and to find alternative methods of information distribution, especially during times of disaster.

Tourism

Old Sturbridge Village, flea markets, the major routes in Town, and other events bring many tourists to the Town of Sturbridge. These events and attractions in Town bring an increase in the population that contributes to congestion and communication issues. Tourists are vulnerable in the event of disasters because they lack knowledge of evacuation routes, emergency preparedness plans, or sheltering options. Old Sturbridge Village was a notable area of concern with concerns of local dam flooding, beaver activity, and winter storm impact.

Environmental Concerns

ENVIRONMENTAL

- Beavers
- Invasive Species
- Runoff Contamination
- Forest Management

Beavers

As a keystone species, Beavers are critical to the survival of their ecosystem and the other species in that system. Their dams create wetlands which increase plant and bird habitat, improve water quality, and can mitigate the effects of both drought and flooding conditions. However, uncontrolled beaver activity, or beaver activity in vulnerable areas, can pose flooding risks. Participants noted that the Town of Sturbridge struggles with beaver population control and has many areas with overactive beavers. There is a large beaver dam behind Empire Village in the area along Route 20 to Cooper Road. This dam has caused flooding issues that are encroaching onto resident's yards. Other beaver dams were noted at Big Alum Pond and near Cricket Drive. If the beaver dams become too large, the flooding could spill over into the roads, causing runoff and restricting roadway access.

Invasive Species

Changes in climate will bring about a shift in flora and fauna for the region. Plants and animals that have adapted to warmer and drier climates will increase in Massachusetts, and native species that are better adapted to colder weather will decrease. When a non-native species invades an area, it can often outcompete the native species. Without a predator to manage population numbers, invasive species can dominate an ecosystem quickly. This is especially detrimental to forest ecosystems. Participants noted that gypsy moths and Emerald Ash Borer are invasive insect concerns. While these insects typically do not have direct harmful effects to humans, they do have disastrous effects on native tree species in Massachusetts. Trees that are infected by gypsy moths are much more vulnerable to damage during intense storm events as well as drought.

In addition, the warming climate and increased periods of flood and drought increase, will worsen the risk of insect-borne diseases, especially EEE and Lyme disease. Mosquitoes carry EEE and West Nile Virus (WNV). They tend to lay their eggs in and around standing water, so populations of mosquitoes will likely increase in times of flooding. Mosquitoes are also more aggressive on hot, dry days, and will feed more frequently during those periods, causing greater instances of contracting those diseases. 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.

Runoff Contamination

The Town of Sturbridge has a plethora of water resources that provide many benefits from recreation to drinking water. However, participants noted that many of the lakes and ponds in Town have struggled with water quality and contamination issues. Walker Pond, South Pond, Cedar Lake, Big Alum Pond, and Long Pond have all had the presence of E. Coli in the past. Cedar pond's E. Coli issues stem from insufficient water flow. Walker Pond has had sodium contamination coming off of Interstate 90. And the Quinebaug River has experienced contamination from sewers nearby during major flooding events. The wetland resource areas in Town also experience contamination. Drought has reduced the water quality of wetlands, bringing silt and debris into these areas, and disrupting habitats. Also, as the frequency of drought and flooding increases, these lakes, ponds, and wetlands will continue to face habitat degradation and contamination.

Forest Management

Many workshop participants discussed their concern regarding forest management in Town. Drought, wind events, and invasive species can lead to increased fire load and risk of wildfires. Also, with an increase in temperatures, numbers of consecutive hot days, and drought, more wildfires will consequently be an ongoing hazard. Participants noted the number of wind events that have caused debris to fall in forests and along trails, limiting access to the trail systems.

Current Strengths and Assets

Sturbridge has taken some steps to address natural hazards and climate change over recent years. The following topics were identified by workshop attendees as strengths or assets that will aid in Sturbridge's climate resilience.

Infrastructure Strengths

INFRASTRUCTURE

Bylaws/Regulations

Public Safety

Utilities and Services

Bylaws and Regulations

The Town of Sturbridge has curated a collection of thorough bylaws and regulations to help guide and manage the actions of its residents. First, the Sturbridge Wetland Bylaw was created to preserve wetland areas in the Town, and to protect water resources and land areas influenced by wetlands. The Local Wetland Bylaw is considered an MVP strength because it sets town-wide regulations to protect crucial natural resource values. These include protecting public and private water sources, ground water, maintaining flood control, erosion control, preventing storm damage, increasing water quality, controlling pollution, and protecting fisheries, wildlife, and rare species' habitats (2018 Town of Sturbridge General Bylaws, Chapter 3 "Environmental," Section 3.50 "Wetland Protection", pg. 35).

Sturbridge also has instituted a Local Forest Management Bylaw to maintain both individual tree and forest health. The forest management bylaw also recommends all tree harvesters follow the regulations of the Massachusetts Forestry Best Management Practices Manual. This handbook outlines guidance for how to effectively harvest wood while minimizing ecological impact on the forest, and therefore minimizing impact on clean water, clean air, and carbon sequestration of the forest. The Best Management Practices provides counsel on how to use heavy equipment without disturbing soil, combat nonpoint source pollution, and overall minimize the volume of runoff water carrying sediment into nearby wetlands (Massachusetts Forestry, Best Management Practices Manual, 2013, pg. 1). These regulations serve as strengths to the Town by keeping nutrients in forest soils, not nearby water ways, to protect water quality and aquatic life, and maintain forest prosperity.

The third infrastructure bylaw that should be highlighted is the Local Stormwater Bylaw. This bylaw institutes the Stormwater Management Program (SWMP). The SWMP aims to maintain efficient excess water drainage throughout the Town by educating the public on behavior that contributes to pollution, locating and stopping illicit discharges to the sewer system, and minimizing stormwater pollution sources from municipal properties (Stormwater Management Plan (attachment), Town of Sturbridge, 2018, pg. 2). Efficient regulations for stormwater management is a strength for Sturbridge because it helps ensure that anything that enters the storm sewer system is effectively treated before it is discharged into local waterbodies

(Sturbridge.gov, Stormwater Management). This increases town safety by making swimming, fishing, and harvesting of drinking water safer for the residents of the town.

Public Safety

Emergency management and public safety are critical for a prosperous community. In order to constantly keep citizens informed and safe, Sturbridge participates in the CodeRED program. This program allows any resident to be notified by local emergency response teams in an emergency, such as evacuation, bioterrorism, boil water notices, and missing child reports. Upon creating an account with CodeRED, citizens of Sturbridge can get direct notifications to their mobile or home phones in the event of an emergency (CodeRED, Town of Sturbridge MA).

Sturbridge also has a Public Safety Complex, providing the town with Sturbridge fire and police departments to keep citizens safe during emergencies. The Public Safety Complex is located at 346 Main Street in Sturbridge (Sturbridge Public Safety Complex). In addition, the Sturbridge Department of Public Works (DPW) can also be considered a strength; efficiently building and maintaining government entities for the town. Some of the department's biggest responsibilities are dealing with problems with Town roads, snow and ice removal, storm water management, leaves and brush management, and building permits. The DPW is located at 1 New Boston Rd. Ext. (Town of Sturbridge, Public Works).

In terms of emergency management, Sturbridge is also part of a reliable system of regional collaboration, allowing the Town to rely on neighboring resources if needed. Sturbridge is included in the Tri-EPIC Regional Emergency Planning Committee (REPC), a program that provides emergency trainings and resources to all of its members. Brimfield, Sturbridge, Southbridge, Charlton, Dudley, Webster, and Oxford are all collaborating members of this committee. Along with the Tri-EPIC REPC, Sturbridge also collaborates with the Towns of Brimfield, Brookfield, Holland, and Wales, designating their Tantasqua High School as the regional emergency shelter. Also, the Burgess Elementary School in Sturbridge, serves as the Town's first responder/medical supply distribution shelter. These connections with regional Towns provide Sturbridge residents with safety during an emergency.

Utilities and Services

The Town of Sturbridge's water and sewer system is considered a fundamental strength of the Town. Sturbridge has four water wells that have not had any issues, providing safe, clean, and reliable water to the town. Also, the Sturbridge wastewater plant is under capacity, at only about half capacity. This proves beneficial to the town, with no potential for sewage overflow or similar issues. Sturbridge also has a reliable water tower, located above Old Sturbridge Village. Although old, the fire hydrant system is effective, maintained regularly with flushing to prevent rusting.

Seamless transportation is another of Sturbridge's strengths. Route 20, Route 131, I-90, and I-84 each provide great access points for the Town of Sturbridge. These major roads are safe and

convenient for large trucks coming from New York into New England. These points of transportation also serve as efficient emergency evacuation routes for the town.

Society Strengths

SOCIETAL

Community Organizations

Municipal Presence

Community Organizations

Sturbridge is home to the Community Food Collaborative, which donates food to neighboring town's food parish. This collaborative works to combat hunger and spreads kindness throughout town. Sturbridge also provides shopping centers such as the Center at Hobbs Brook, to provide residents with local access to food and other near-by necessities. The Center at Hobbs Brook also just installed solar panels behind their plaza, reducing the carbon footprint while increasing the sustainability and longevity of the shopping center. Serving as a popular tourist attraction for the town, Old Sturbridge Village also contributes to the well-being of town residents by boosting the economy in Sturbridge.

Sturbridge has an array of wonderful senior housing for the senior citizens of the town. The Crescent Gate and Autumn Ridge senior housing campuses provide a safe, kind, and close-by home for the elderly. The Town also has positive relationships with those at the Sturbridge Retirement Cooperative, a "55 and over" Mobile Home community. Located at 1 Kelly Road in Town, the Sturbridge Retirement CO-OP helps provide the town's residents with an affordable "little piece of heaven" (Sturbridge Retirement CO-OP, About Us). The Town of Sturbridge also has a strong rental community in town, offering residents with the option to rent a home. The Heritage Green rental community is considered a societal strength because it presents housing options for all income levels and people in different stages of life.

Providing resources and benefits for people of all abilities is crucial to any flourishing society. Sturbridge is home to the Center of Hope, a day habilitation program for those with mental and physical disabilities. Sturbridge also provides resources for people with disabilities through the Venture Community Services (VCS), another day habilitation program. In addition, on the weekends, the VCS space also becomes Bay Path, a college campus. Finally, a part of the Evangelical Lutheran Church in America, the Bethlehem Lutheran Church is located in Sturbridge (Bethlehem Lutheran Church), Federated Church, Life Song Church, St. Anne St. Patrick Parish and the Sturbridge Worship center. Providing community events and online worship, the church benefits the town by bonding society together and providing a place for many residents to practice their faith.

Municipal Presence

Sturbridge serves the societal needs of their community through a receptive and effective Town Government. With strong inter-department communication, the Town makes sure to represent the interest of Sturbridge residents on a daily basis. The Town maintains direct and effective

public outreach through a strong internet presence. The Town uses their schools as a resource for utilization of youth/student engagement. The Senior Center is also consistently represented and advocated for in Town meetings and other municipal gatherings. Sturbridge residents who volunteer for the Town also lift up the community throughout the year. For example, the Trails Committee has a large volunteer base that builds, maintains, cleans, and educates the public on the town as a whole.

Environmental Strengths

ENVIRONMENTAL

Open Space

Water Resources

Open Space

As part of the Sturbridge Trails Committee, the Trail Assessment Management System works to preserve the beauty and accessibility of local walking trails for the utilization of the town (Trails Committee). Sturbridge also holds a strong partnership with Opacum Land Trust, a regional land preservation organization formed over 20 years ago that includes 13 towns in southcentral Massachusetts. Opacum's goal is to protect natural and cultural resources across the central region of the state by forging collaboration between towns (Opacum Land Trust).

Along with the Land Trust, Sturbridge has strong relationships across both state and federal landowners. State-owned land is controlled by the Division of Fisheries and Wildlife (DFW). The DFW controls a total of about 1,500 acres of land in town, mainly small areas of land scattered throughout Sturbridge. The DFW also owns larger wildlife management areas such as Breakneck Brook, Leadmine, McKinstry Wildlife Management Area, and many others (Town of Sturbridge Open Space and Recreation Plan, 2018, Section 5, pg. 104). Along with the State, Sturbridge also has a strong relationship with the US Army Corps of Engineers (USACOE). Within the New England District, the ACOE uses federal power to provide environmental remediation, intercept flood risk, manage natural resources, and much more (USACOE, Mission). The ACOE impacts Sturbridge mainly by regulating safety during recreational activities at the town lakes, such as Westville Lake (USACOE, News Releases).

Water Resources

Water access is a fundamental right and necessity for any community. Water in Sturbridge is protected by many wetland areas across the town. Wetlands provide benefits to the town by providing natural water quality improvement, flood protection, as well as opportunities for town enjoyment and recreation (EPA, Wetlands and People). Sturbridge also has many beautiful lakes and ponds, such as Cedar Lake, Big Alum Lake, and many other smaller freshwater bodies. The ponds help give the character of the town and provide residents with recreational benefits.

Recommendations to Improve Resilience

Workshop attendees at each table 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 all three tables at the Sturbridge MVP Workshop. The completed Matrix for each table can be found in the Appendix at the end of this document.

Infrastructure Actions

Upgrading existing facilities within town will be critical in building resilience. The Town of Sturbridge should perform a feasibility study to upgrade, replace, or relocate the existing public safety complex. It was also recommended that the Town should ensure that public safety agencies are adequately staffed and funded. Back-up generators and alternative power supplies should be acquired for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.

INFRASTRUCTURE

- Upgrade Facility Management
- Improve Stormwater Management
- Evaluate Access

Improving stormwater management and water resources throughout Town was viewed as a major priority. A flooding and drainage assessment of culverts, dams, bridges, and stormwater management should be performed. Dams and bridges should be evaluated to maintain safety and proper functioning. Culverts should be mapped, and a plan should be developed to enlarge culverts to address increased flooding concerns. Incorporating nature-based solutions to improve drainage will aid the Town in building resilience. A watershed, water supply, and water table assessment that addresses the vulnerabilities of the water supply and the need for additional wells should be performed.

With increased flooding, storm events, and other crises become more prevalent, **providing and maintaining access** to critical resources and services was identified as a major concern. A radio service study should also be performed to identify vulnerable spots in Town that do not receive coverage. Portable radios should be replaced, and alternative technology should be explored to improve radio usage throughout Town. A traffic study with an emphasis on walkability should also be performed. This study should identify important access routes in the region and develop a plan with surrounding communities to keep these access routes open. Signage should be installed throughout Town to help identify shelter locations and evacuation routes.

Societal Actions

SOCIETAL

- Improve Public Safety
- Foster Partnerships
- Expand Communication

With the increasing threat of natural disasters and major storm events, **improving public safety** was seen as a priority town wide. Establishing an emergency transportation plan to move vulnerable populations to shelters via busses was discussed. A central Homeland Security Council and development of a Continuity of Operations Plan (COOP) for disaster and emergency events should be considered. And the Town should determine the feasibility of constructing a community center that could act as an indoor recreation facility during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.

Investing in and fostering **partnerships with surrounding communities, organizations, and businesses** was also discussed in order to build more unity and support. Utilizing partnerships with community organizations, such as the Community Food Collaborative, the Center of Hope, churches, etc., was discussed to enhance community outreach and volunteer opportunities, expand access to food, and to address homelessness. Establishing a partnership with grocery stores to ensure food and water service during disasters was also recommended.

Noted as a societal concern, **expanding public awareness, education, and communication** was viewed as a critical need. The Town should establish a series of educational campaigns to improve public knowledge and awareness of wetlands, stormwater management, low impact development, rainwater collection, radio and internet use, and invasive plant management. A communication plan should be established that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative methods of delivering information during power outages. The development of an inter-response communication system could aid in these efforts.

Environmental Actions

ENVIRONMENTAL

- Resource Protection
- Open Space Improvements
- Forest Management

Although, Participants felt that **natural resource protection and management** was strong, the Town of Sturbridge should seek to establish relationships and coordinate efforts with professionals to address a variety of environmental concerns. Continued Coordination with lake associations was recommended to address lake management and water quality issues. It was also suggested that the Town should work with the DCR Service Forester or the UMASS Co-op extension service to

combat gypsy moths and other invasive pests. Sustainable alternatives and nature-based solutions should be researched to limit beaver activity in areas of Town vulnerable to flooding. And water storage methods should be explored to protect from the threat of drought.

Conservation land, trails, and lakes and ponds were thought of as strengths of the town. However, Sturbridge could benefit from additional **improvements to open space resources**. It was recommended that the Town acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump. In addition, it was suggested that the Town improve the trail assessment management system. Outreach, volunteers, and state grant funding should be utilized to accomplish these improvements.

Invasive species and tree health were a major environmental concern, and as such, participants felt that **enhanced forestry management** is needed. A tree inventory assessment should be performed to identify dead or dying trees. Through this assessment, a tree management plan should be developed to ensure regular cutting and maintenance of street trees. In addition, a debris management plan should be developed to create fire breaks and keep wildfire risks low in forested areas. And an invasive species management plan should be created to prevent widespread invasives. Utilization of state forestry grants could aid in the development of these plans. A tree removal and replacement program that utilizes the planting of understory trees that are drought and pest resistant should be developed as well.

Top Recommendations

Following the three-day virtual workshop, these actions were placed in a survey on Survey Monkey 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 Sturbridge 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

- Tree Inventory Assessment
- Radio Service Study
- Town-wide Flooding and Drainage Assessment
- Establish a Central Homeland Security Council

The majority of participants indicated that they were most concerned with the possibility of increased wind events as the climate changes. Increases in wind events could lead to more tree damage and power outages. Consequently, as tree health was discussed at all tables during the workshop, the top priority recommendation with a total of ten votes was to **perform a tree inventory assessment** to identify dead or dying trees. The next priority action with eight total votes was to **implement a radio service study** to identify vulnerable zones in Town that do not

receive radio coverage. Other highly favored recommendations include a **town-wide flooding and drainage assessment**, **establishment of a central Homeland Security Council**, and **creation of an emergency transportation plan** for vulnerable populations. These actions received six votes each.

At the end of the three-day virtual workshop, Peter Peloquin thanked attendees for giving their time and attention, and commended the town for their willingness and flexibility to utilize a virtual platform giving the current public health conditions. The top recommendations on the following page were compiled based on those actions reported out voted on by participants. Actions are organized by priority and project type.

Category	Key
Infrastructural	
Societal	
Environmental	

Hazard	Key
Severe Storms/Flooding	
Winter Storms	
Wind	
Drought	
Wildfires	

PROJECT TYPE	CATEGORY	ISSUE	RECOMMENDED ACTIONS	HAZARDS
HIGH PRIORITY				
Resource Protection		Forest Management	Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.	
Access and Outreach		Communication	Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.	
Water Management		Stormwater	Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.	
Disaster Preparedness		Planning	Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.	
		Transportation	Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.	
MEDIUM PRIORITY				
Infrastructure Improvements		Alternative Energy	Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.	
		Public Safety Complex	Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.	
		Community Center	Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.	
Resource Protection		Natural Resources	Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.	
		Trail Improvements	Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.	
Access and Outreach		Transportation	Traffic Study with emphasis on walkability. Identify important access routes in the region and develop a plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.	
		Education	Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.	
		Partners	Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.	
		Communication	Develop an inter-response communication system.	
Water Management		Water Supply	Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.	
LOW PRIORITY				
Infrastructure Improvements		Growth	Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.	
Disaster Preparedness		Communication	Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.	
		Historic Sites	Include the Publick House Historic Inn on regional emergency plans.	
Resource Protection		Beavers	Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).	
		Street Trees	Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.	
		Open Space	Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.	
Access and Outreach		Food	Establish a partnership with grocery stores to ensure food and water service during Disasters.	
		Parking	Parking Assessment exploring sustainable parking options that improve drainage and cooling.	
		Partners	Maintain relationships and communication with the gas companies.	
Water Management		Drought	Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.	

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 Finds 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 Hopedale 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.

CITATION

Town of Sturbridge (2021) Community Resilience Building Workshop Summary of Findings. Central Massachusetts Regional Planning Commission. Sturbridge, Massachusetts.

APPENDIX

I. Agendas and Sign-In Sheets
II. Workshop Meeting Materials
    a. Invitation
    b. Maps
    c. Table Matrix
    d. Survey
    e. Hazard Mitigation Excerpt
III. Workshop Presentation
IV. Listening Session Presentation

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Sturbridge Municipal Vulnerability Preparedness (MVP)
Meeting #1

Date/Time: **February 24, 2020, 8AM**
Location: **Public Safety Complex, 346 Main St, Sturbridge, MA 01566**

AGENDA

- Introductions
- MVP Program Background
- Roles & Responsibilities
    - Town
        - Assemble Core Team (participates in prep meetings, workshop and listening session)
        - Identify stakeholders to invite to workshop and lead invitation/RSVP process
        - 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 total)
    - Pre-Workshop meeting/Call
    - CRB Workshop
    - Listening Session (Must be held before May 31st)
- Workshop Agenda/Structure
    - Welcome speaker(s) (Town)
    - Content speakers (CMRPC)
    - Table facilitators (generally Town or other local stakeholders; CMRPC will assist)
    - Four Focus Hazards
    - Scribes (generally students/seniors)
    - Food (can be funded through grant)
- Nuts and bolts
    - Workshop location options
    - Estimated date
- Other/next meeting

Municipal Vulnerability Preparedness (MVP)

Program Information

In September 2016, Governor Charlie Baker signed Executive Order 569, instructing state government to provide assistance to cities and towns in Massachusetts to complete climate change vulnerability assessments and resiliency planning.

The Municipal Vulnerability Preparedness grant program (MVP) provides support for cities and towns to begin the process of planning for resiliency. The MVP program provides support for communities to address the challenges of climate change, and to prioritize climate adaptation practices actions at the local level in order to create a safer and more resilient future.

The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans. MVP-certified providers across the state have been trained to provide technical assistance in completing the assessments and resiliency plan using the Community Resilience Building Framework. Municipalities work with a MVP-certified provider through a community-led process to identify key climate-related hazards, vulnerabilities and strengths, develop adaptation actions, and prioritize next steps.

The MVP Program is led by a Project Coordinator from the community with a Core Team of town staff and volunteers representing town planning departments, emergency managers, conservation commissioners, economic councils, the business community, and other key stakeholders who care about the future health and resilience of the community.

The MVP program helps communities to:

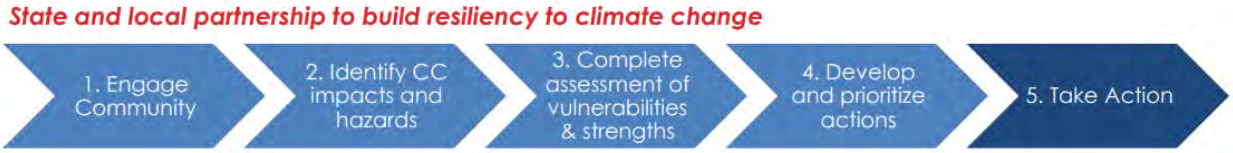
- Define extreme weather and natural and climate related hazards
- Identify existing and future vulnerabilities and strengths
- Develop and prioritize actions for the community
- Identify opportunities to build resiliency and reduce risk

Results of the workshops and planning efforts will be incorporated into existing local plans, grant applications, budgets, and policies in order to ensure that resilience is a community priority. One area of focus will be using the findings to inform Master Plans, Hazard Mitigation Plans, Open Space Plans, and other comprehensive planning processes.

Upon successful completion of the program, communities will be designated as a "*Municipal Vulnerability Preparedness (MVP) Program Community"* and are eligible for MVP Action Grant funding and other opportunities.

All MVP-certified communities will acquire priority status for follow-up state grant funding.

Flip page to learn more about MVP grant opportunities →



Municipal Vulnerability Preparedness (MVP)

Program Information

The MVP Program offers two grant programs for municipalities or groups of municipalities to either
1) conduct community resilience-building workshops and develop resiliency plans, OR
2) for communities that have already completed the MVP process, to implement priority projects.

MVP PLANNING GRANTS

To participate in the MVP program, communities first apply for Planning Grants, *which are used to complete a community-based workshop and prioritize next steps to address climate change impacts.* Applications may be for single communities or may be regional, with a single community serving as the fiscal agent. Municipalities with no current local hazard mitigation plan (HMP), or those with plans expiring in 2019 or 2020 are eligible for additional funding to complete or update a full draft of the HMP for MEMA review. Please note that an in-kind match is required for the MVP Planning Grant. All projects are required to provide quarterly reporting as well as a Final Report. All proposals must provide the following:

- A signed letter of support from the chair of the board of selectmen, mayor, a town administrator, or similar city or town official
- A short statement of the community's commitment to taking on this grant and planning for the impacts of climate change in the city or town
- The name of a qualified employee of the municipality, committee member or volunteer who can serve as the local project manager and point of contact for the grant
- A summary of community support and any project partners and letters of support from all relevant local boards, departments, commissions, businesses, organizations and other partners
- A description of any ongoing planning efforts such as local hazard mitigation plans, open space plans, master plans, etc.
- A description of the community's need to address climate change, expected impacts, and any ongoing climate-change related projects within the community or region
- If the community wishes to expand the scope of the planning grant provide a description of the additional work you intend to complete.

MVP ACTION GRANTS

Already a MVP Community? Apply for an Action Grant to implement priority projects identified at your community workshop and in your resiliency plan. *MVP Action Grants are available only to designated "MVP Communities" to implement key priorities and projects identified through the MVP planning process.* The MVP Action Grants allow municipalities to implement crucial measures to prepare for the effects of climate change while strengthening community engagement and collaboration among town departments.

Applicants may request up to $2,000,000 in funding and awards are expected to range from $25,000–$2,000,000. Regional proposals may request up to $5,000,000. Note that exceptions may be made at EEA's discretion. These projects include follow-up vulnerability assessments, design studies, local bylaws and ordinances, redesigns and retrofits, natural infrastructure and storm protection, and education and outreach. Projects should be proactive, and applicants should clearly demonstrate how the projects have been redesigned, re-evaluated, or reconsidered to better respond to changing climate conditions and to incorporate new climate change data. Projects that propose nature-based solutions or strategies that rely on green infrastructure or conservation and enhancement of natural systems to improve community resilience will receive higher scores.

Please note that a 25% in-kind/cash match is required for the MVP Action Grant.

MUNICIPAL STAFF COMMITMENT

The municipality must provide sufficient staff time (estimated at 120-200 hours) to assure completion of this planning exercise and community engagement:

- Paperwork; selecting and contracting vendor
- Help establish a core team within the town or region to steer the project
- Help identify and complete outreach to critical stakeholders, partners and town officials for workshop(s) and public listening session(s)
- Help coordinate, schedule, send invitations and attend planning meetings and workshop(s) and listening session(s)
- Find sufficient volunteers to serve as scribes during the workshop(s)
- Help coordinate staff interviews with key experts to collect information prior to the workshop(s)
- Provide MVP provider access to relevant planning documents, budget information, and other information on as needed useful to conducting the planning exercise, including access to;
- With MVP Provider, complete and send 3 progress reports to EEA with information on progress and spending to date, and submit final deliverables and invoice
- With consultant support as budget allows, complete at least one public listening session to engage the broader public in a discussion of the workshop results and completed report
- Continue municipal outreach and engagement, using the completed report to inform existing planning and project activities

MVP PROVIDER COMMITMENT

The MVP state certified provider must provide sufficient time (estimated at 120-240 hours) to complete the following tasks:

- Meet with Municipal Project Manager to set out project scope, timeline, and compile list of data needs; help with stakeholder mapping; and, set schedule for workshop(s)
- Meet with Community Core team 2-3x to help plan for workshop(s) and collect information
- Conduct several interviews with key municipal staff
- Prepare materials for workshop including:
  - Basemaps of town with critical layers
  - Climate change data relevant to the town and summary of potential impacts
  - Relevant planning documents and other existing town information about current hazards
  - Risk matrix
- Serve as the lead facilitator during workshop(s) and bring 4-5 facilitators (or as many breakout groups planned) to assist as table facilitators.
- Designate town leads or skilled volunteers to be scribes at each table
- Document all workshop outcomes and prepare final risk matrix and summary reports
- Work with town to submit all materials to Commonwealth

Common Pitfalls to Avoid

- Be prepared to know what's already been done in the municipality
  - Read any Master Plans, Hazard Mitigation Plans, etc. to know the top hazards and be ready to address these.
- Provide reminders that the goal is to identify action items and to prioritize them to assist the community in taking first steps towards resilience
  - Encourage groups to move actions from conceptual to shovel-ready or implantation ready
- Make sure facilitators take time to fully explain any mapping resources provided at the workshop tables
  - E.g., Hurricane SLOSH maps, geospatial climate projections, nature-based solution, etc.
- Who shows up to the workshop hugely shapes the outcome
  - Assure a broad cross-section of the community stakeholders are represented at the workshops
  - Facilitators should ensure all voices are heard
- The CRB framework is facilitation heavy
  - Please ensure that the workshop is appropriately staffed with enough table facilitators and pre-appointed scribes for each table

Participate in Sturbridge's Municipal Vulnerability Preparedness (MVP) Program

Given events like Hurricane Irene 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 join me at a free, full-day, Community Resilience Building Workshops focused on preparing and protecting the Town of Sturbridge.

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

Municipal Vulnerability Preparedness (MVP) Program Workshops

Day, DATE

8AM Coffee and Registration, Workshop 8:30AM - 4:30PM

Location

Lunch will be provided

The Town of Sturbridge is collaborating with EOEEA and CMRPC to offer this timely one-day workshop which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across Sturbridge. 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

More information about Sturbridge's MVP Award is attached to this letter.

We would appreciate your participation in this timely workshop.

Please RSVP by DATE

If you have any questions about the program, please contact NAME, TITLE, (PHONE/EMAIL) or NAME, TITLE, (PHONE/EMAIL).

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

Sincerely,

Name, Title

MR/ MS	First Name	Last Name	Department	Street Address	RSVP Y/N	Attended
			Highway Dept.			
			Admin. Secretary			
			Adult Day care facility			
			Agricultural Committee			
			Animal Shelter			
			Army Corp. Engineering			
			Board of Health Member			
			Board of Selectmen Member			
			Boys and Girls Club			
			Building Inspector			
			CERT Teams			
			Chamber of Commerce			
			Conservation Commission			
			Council on Aging			
			Cultural Council			
			DCR			
			Department of Dam Safety			
			Diversity Group			
			Economic Development			
			Emergency Management Director			
			EOEEA- MVP Regional Coordinators			
			Fire Chief			
			Golf Course			
			Housing Authority			
			Lake/River Association			
			Land Trust Members			
			Library			
			Local business			
			Local Construction Co.			
			Local Engineering Firms			
			Local Farmers			
			Local Non-Profits			
			Local Realtors Associations			
			MA Fish & Wildlife			
			Mass Audubon			
			Mass Dot			
			MBTA/WRTA			
			Natural Gas Provider			
			Neighboring Town MVP Core Team Member			
			Neighboring Town MVP Core Team Member			
			Neighboring Town MVP Core Team Member			
			Neighboring Town MVP Core Team Member			
			Neighboring Town MVP Core Team Member			
			Other Muni. Employees			
			Planning Board Member			
			Police Chief			
			Power Company			
			Rail Road			
			Rail Trail			
			Recreation Committee			
			School Superintendent			
			Senior Center			
			Sewer Department			
			State Rep.			
			Storm Water Committee			
			Sudbury Valley Trusties			
			Sustainable Group			
			Town Manager			
			Utility Company			
			Veterans Rep.			
			Waste Transfer Provider			
			Water Dept.			
			Youth Commission			

Town of Sturbridge

Municipal Vulnerability Preparedness

DAY/DATE

8:30am – 4:30pm; Registration at 8:00 am

Location

Address

Workshop Objective

- 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

Workshop Agenda

8:00am – 8:30am Registration, Networking & Coffee
8:30am – 10pm:

- Welcome and Overview (Town)
- CRB Overview Presentation
  - Peter Peloquin, CMRPC
- Climate Change Projections and Impacts
  - TBD, CMRPC
- Profile of Natural Hazards
  - TBD, CMRPC

10am – 12pm:

- Breakout Groups – Identify Hazards, Local Features, Strengths & Vulnerabilities

12pm -1pm Lunch

1pm – 4:30pm:

- Breakout Groups – Identify & Prioritize Actions
- Table Reports and Priority vote
- Closing Remarks and Wrap up

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

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

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

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

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

Governor Baker, Lieutenant Governor Polito, and EEA Secretary Theoharides announced MVP FY20 awards in New Bedford, February 5, 2020

FY20 MVP Planning Grant Awardees

Congratulations to the FY20 MVP Planning Grant recipients! The following municipalities have been awarded funding to complete a community resiliency planning process in addition to an expanded scope or hazard mitigation plan (if requested and funded). With these 38 new municipalities enrolled in our program, MVP municipal participation in the state has increased to 82%. The official press release can be found here.

Applicant	Region	Total Award
Abington	Greater Boston	$17,000
Acushnet	Southeast	$15,000
Berlin	Central	$20,000
Bernardston	Greater Connecticut River Valley	$20,000
Billerica	Northeast	$39,000
Bolton	Central	$15,000
Boxborough	Northeast	$15,000
Dracut	Northeast	$44,000
East Bridgewater	Southeast	$15,000
Georgetown	Northeast	$47,000
Hatfield	Greater Connecticut River Valley	$20,000

Haverhill	Northeast	$70,600
Hubbardston	Greater Connecticut River Valley	$20,000
Lowell	Northeast	$77,550
Lunenburg	Central	$15,000
New Marlborough	Berkshires & Hilltowns	$20,000
New Salem	Greater Connecticut River Valley	$27,000
North Andover	Northeast	$35,000
North Brookfield	Greater Connecticut River Valley	$25,000
Northfield & Warwick	Greater Connecticut River Valley	$39,000
Pembroke	Southeast	$29,500
Princeton	Central	$20,000
Randolph	Greater Boston	$40,000
Reading	Northeast	$21,000
Rowe	Berkshires & Hilltowns	$20,000
Rowley	Northeast	$15,000
Sharon	Greater Boston	$22,000
Shutesbury	Greater Connecticut River Valley	$27,000
Southampton	Greater Connecticut River Valley	$22,000
Sterling	Central	$15,000
Stoneham	Greater Boston	$36,000
Sturbridge	Greater Connecticut River Valley	$15,000
Topsfield	Northeast	$27,000
Townsend	Central	$22,000
Westfield	Greater Connecticut River Valley	$32,000
Westminster	Central	$22,000
Winchendon	Greater Connecticut River Valley	$36,400
TOTAL (38)		**$1,018,050**

FY20 MVP Action Grant Awardees

The Executive Office of Energy and Environmental Affairs received 111 applications from cities and towns throughout the Commonwealth in response to the FY20 Municipal Vulnerability Preparedness Action Grants. Of the applications, 54 have received Action Grant funding, representing 52 unique cities and towns or regional groups. The following municipalities have been awarded during this round. Congratulations to our newest round of Action Grant awardees! The official press release can be found **here**.

Applicant	Project Title	Recommended amount to fund
Acton	53 River Street Dam Removal	$112,500

Adams & Mohawk Trail Woodland Partnership	Mohawk Trail Woodland Partnership Regional Adaptation & Resilience Project	$1,489,956
Amesbury	Open Space and Recreation Plan Update	$37,500
Amherst	Climate Action, Adaptation and Resilience Plan	$100,000
Auburn	Develop Protection Measures for Vulnerable Drinking Water Supply Areas and Evaluate Green Bridge Design	$145,452
Beverly	Climate Action and Resilience Plan	$100,000
Boxford, Topsfield, & Ipswich	Increasing regional flood resiliency through re-designing culverts in the Howlett Brook Watershed	$45,866
Brookline	Urban Forest Climate Resiliency Master Plan	$112,500
Canton	Climate Change Vulnerability and Resiliency Assessment Study	$337,500
Chelmsford	Dunshire Drive Culvert Replacement & Deep Brook Stream Restoration: Phase I	$83,545
Chelsea & Everett	Island End River Flood Resilience Project	$454,555
Deerfield	Flood Resiliency Through Green Infrastructure in Deerfield	$572,250
Easton	Wetland Restoration- Removal of Abandoned Structures	$177,620
Erving	Wheelock Culvert Repair/Replacement and Data Redundancy	$64,000
Fall River	Water Supply Risk & Resilience Assessment (RRA) and Distribution System	$115,725
Framingham	Walnut Street Neighborhood Flood Mitigation & City Stormwater Utility Feasibility Studies	$206,850
Gosnold	Cuttyhunk Land Conservation Project	$1,400,000
Harvard	Community Climate Action & Land Stewardship Plan	$70,860
Holliston	Sustainability & Resiliency Action Plan	$100,000
Holyoke	Impervious Surface Mapping for Resiliency Planning and Implementation	$93,850
Hull	Assessment of Shoreline Resiliency Alternatives for Marginal Road	$25,373
Ipswich	Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements	$18,945
Lynn	Strawberry Brook Resilient Stormwater Management and Implementation Plan	$112,500
Manchester-by-the-Sea	Sawmill Brook Central Pond Restoration Project Phase 2: Permitting and Final Design	$72,385
Medford	Equity-Centered Process for Climate Action and Adaptation Planning Suitability Assessment for Equitable, Community-Driven Resilience Hubs	$36,136 $65,259
Melrose	City Hall Parking Lot Green Infrastructure Project	$70,313
Monson	Energy Resiliency for Town Hall-EOC-Police HQ Facility	$75,000
Monterey	Enhancing Flood Resiliency through Culvert Improvements along the Konkapot River in Monterey Town Center	$57,893
Nahant	Increasing the Resiliency of Short Beach on Nahant to Sea Level Rise: Access Point Restoration and Modification Plan	$35,565
New Bedford & Fairhaven	New Bedford Harbor MC-FRM Evaluation and Resilience Design Guideline Development	$58,662
Newbury	Controlling Flooding and Addressing Future Climate Impacts through the Replacement of the Orchard Street Culvert	$126,324
Newbury & Newburyport	Plum Island Cost/Benefit Analysis	$217,451
Newburyport	Resilient Critical Infrastructure: Adapting a Wastewater Treatment Facility, Underground Electric Lines and Public Rail Trail to Future Sea Level Rise and Storm Surge	$71,160
Northampton	Restoring the Pine Grove Golf Course for Climate Resiliency	$225,000

Oak Bluffs, Aquinnah, Chilmark, West Tisbury, Tisbury, & Edgartown	Development of an Island-Wide Specific Adaptation Strategy	$54,000
Palmer	RT 181 Culvert Replacement & Culvert Infrastructure Assessment Comprehensive Master Plan	$26,000 $112,500
Peabody	Resilient North River Canal Corridor– Phase 2	$365,014
Pelham	Pelham Severe Weather Mitigation Project	$140,000
Pittsfield	Mill Street (Tel-Electric) Dam Removal Project	$99,000
Plainfield	Transportation Infrastructure Improvement, Inventory, and Prioritization Plan	$33,550
Quincy	Coastal Flood Mitigation Storm Drainage Improvements - Phase 1: Engineering & Public Outreach	$164,046
Salem	Ocean Ave. West Pump Station Flood Mitigation – Preliminary Design	$174,750
Sheffield, New Marlborough, & Sandisfield-	Rural Dirt Road Resilience: Assessment, Pilot Study, and Recommendations Report	$123,972
Shirley	Microgrid Feasibility Study	$63,272
Somerville, Boston, Chelsea, Everett, Winthrop, & Revere	Critical Regional Infrastructure and Social Vulnerability in the Lower Mystic Watershed	$389,995
Swampscott	Beach Access Resiliency and Accessibility Improvements	$375,521
Uxbridge	Integrated Vector-borne Disease Control Program	$256,926
Waltham	Resilient Stormwater Management and Implementation Plan	$217,370
Weston	Climate Action & Resiliency Plan	$100,000
Woburn	Shaker Glen Restoration and Flood Mitigation	$145,445
Worcester	Worcester Senior Center Parking Lot – Nature-Based Solutions	$466,140
Yarmouth	Energy Resiliency for Mission-Critical Facilities	$150,000
Total Municipalities or Regions (52)	**Total Projects (54)**	**$10,545,996**

MVP Project Highlights

FY19 Planning Grant:

MVP Roadshow comes to life in Great Barrington

Great Barrington completed their Community Resilience Building (CRB) workshop in November where the action item of engaging with their diverse community continued to float to the top among all participants as a priority in building climate resiliency. With this directive, the core team decided that it was important to involve as many voices as possible in the "listening session" portion of the program. To do this, they are working with their vendor to digest and translate the matrices generated by the community into a visual format that can be understood by many in a short period of time. This visual format will be brought to a variety of locations including the hospital, town hall, health clinic, high school, food co-op, library, farmers market, food pantry and

CMRPC
Central Massachusetts Regional Planning Commission

Meeting Name: MVP Meeting #1 **Community: Sturbridge** **Location: Public Safety Complex**
Date: February 24 ,2020 **Meeting Time: 8AM**

Participant Name	Organization	Title	E-Mail
Mimi Kaplan	CMRPC	Associate Planner	mKaplan@cmrpc.org
Kevin Filchak	Sturb. EM.	EM Coordinator	Kevin.Filchak@sturbridgepd.com
Thomas Ford	STURBRIDGE PD/EMD		TFORD@STURBRIDGE.GOV
Jean Buloon	Sturbridge	Town Planner	jbuloon@sturbridge.gov
Jeff Bridges	Sturbridge	Town Administrator	JBridges@Sturbridge.gov
BUTCH JACKSON	STURBRIDGE DPW	DIRECTOR	BJACKSON@STURBRIDGE.GOV
Becky Gendreau	Sturbridge Conservation	Conservation Agent	rgendreau@sturbridge.gov
PETE PELOQUIN	CMRPC		

1 Mercantile Street – Suite 520
Worcester, MA 01608
508.756.7717 P
508.792.6818 F
www.cmrpc.org

Sturbridge Municipal Vulnerability Preparedness (MVP)
Meeting #2

Date/Time: **Wednesday, March 18, 2020, 8:30AM**
Location: **Conference Call, Center Office, 301 Main St, Sturbridge, MA 01566**

AGENDA

- Introductions
- COVID19 rescheduling/update
- Core Team Timeline
  - Core Team Meeting #2 today (three total)
  - Pre-Workshop meeting/Call **TBD**
  - CRB Workshop ~~**Tuesday, April 7, 2020 8AM- 4:30PM**~~ **Need to reschedule**
  - Listening Session **Monday, May 18, 2020 5:15 – 6:15PM (Possible Back up date)**
- Workshop Agenda/Structure
- Workshop roles & responsibilities for CMRPC & Town
  - Welcome speaker(s) (Town)
  - Content speakers (CMRPC)
  - Table facilitators (Town w/ CMRPC support)
  - Table reporters (Town)
  - Scribes (Town)
- Workshop Nuts and bolts
  - Location- **Publick House**
  - Outreach plan(s)
    - Invitations
    - Confirmed guests
  - Logistics and IT situation
  - Table set up
  - Food vendor
- Presentations and maps to be developed
  - MVP Program; Climate Change Data; Profile of Local Hazards
  - Base Map; potential reference maps
    - Zoning, Dams, Evacuation Routes and Shelters, Land Use, Water/Sewer Systems, other
- Match Documentation
- Other/next meeting

CMRPC
Central Massachusetts Regional Planning Commission

Meeting Name: MVP Meeting #2 **Community: Sturbridge** **Location: Conference Call**

Date: March 18, 2020 **Meeting Time: 8:30AM**

Participant Name	Organization	Title	E-Mail
KEVEN F	STURBRIDGE	EMA	
BUTCH JACKSON	STURBRIDGE	DPW	
MIMI KAPLAN	CMRPC		
PETE	CMRPC		
TOM FORD	STURBRIDGE	P.D CHIEF	
JEAN BUBON	STURBRIDGE	PLANNER	

1 Mercantile Street – Suite 520
Worcester, MA 01608
508.756.7717 P
508.792.6818 F
www.cmrpc.org

Sturbridge Municipal Vulnerability Preparedness (MVP)
Meeting #3

Date/Time: **August 12, 2020, 10AM**
Location: **ZOOM**

AGENDA

1) Introductions
2) COVID19 rescheduling/update
3) Core Team Timeline
   a) Core Team Meeting #3 today (three total)
   b) Pre-Workshop meeting
   c) CRB Workshop
   d) Listening Session
4) Workshop Nuts and bolts
   a) Virtual/In-Person
   b) Outreach plan(s)
      i) Town POC
      ii) Invitations
      iii) Confirmed guests List W/Table Numbers
   c) Logistics and IT situation
5) Workshop Agenda/Structure
   a) Four Natural Hazards
   b) Dates/Times
6) Workshop roles & responsibilities for CMRPC & Town
   a) Town Introduction Video
   b) Content speakers (CMRPC)
      i) MVP Program; Climate Change Data; Profile of Local Hazards (CMRPC)
   c) Table facilitators (Core Team w/ CMRPC support)
   d) Table reporters (Town)
   e) Scribes (Town)
7) Table Maps
   a) Virtual Base Map; potential reference maps
      i) Zoning, Dams, Evacuation Routes and Shelters, Land Use, Water/Sewer Systems, other
8) Match Documentation
9) Other/next meeting

STURBRIDGE CORE TEAM MEETING

8-12-20 ZOOM

EARL DESSERT, CHIEF PD
JEAN BUBON, TOWN PLANNER
BECKY GENDREAU, CONCOM
MIMI KAPLEN, CMRPC
DAVID DEMINGS, EMD
BUTCH JACKSON, DPW
JEFF BRIDGES, TOWN ADMIN.
PETE PELOQUIN, CMRPC

Community Resiliency Building Workshop

Town of Sturbridge
Municipal Vulnerability Preparedness
Day 1- Wednesday, October 14, 2020
6 pm – 8 pm; Check-in at 5:45 pm

Meeting Link (Click to Join):
https://us02web.zoom.us/j/81317715543?pwd=dGtXdXVhM2hQNHlDZWRoN0lMN0lBQT09

Meeting ID: 813 1771 5543 **Passcode** 564411

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

Workshop Materials: https://www.dropbox.com/sh/2cui68dnth0rnvn/AABhpCDKkIS35Cvzy-LcEEBLa?dl=0

Workshop Agenda

5:45 *pm – 6 pm:*
- Login & Familiarize with Zoom

6 pm – 6:15 pm:
- Welcome & Overview
- Questions & Answers

6:15 pm – 7:40 pm:
- Breakout Groups
  - Identify Hazards & Local Features
  - Discuss Strengths & Vulnerabilities

7:40-8 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;
- Edit online map with important hazards and features

Homework

- Review Features, vulnerabilities, and strengths in matrix
- Brainstorm actions to address vulnerabilities

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

Community Resiliency Building Workshop

Town of Sturbridge
Municipal Vulnerability Preparedness
Day 2- Wednesday, October 28, 2020
6 pm – 8 pm; Check-in at 5:45 pm

Meeting Link (Click to Join):
https://us02web.zoom.us/j/85037267716?pwd=ZXdwM3FONUZDWWJLeS9tQmRGMnVBdz09

Meeting ID: 850 3726 7716 **Passcode:** 878659

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

Workshop Materials: https://www.dropbox.com/sh/2cui68dnth0rnvn/AABhpCDKkIS35Cvzy-LcEEBLa?dl=0

Workshop Agenda

5:45 *pm – 6 pm:*
- Login & Familiarize with Zoom

6 pm – 6:15 pm:
- Welcome & Recap from Day 1
- Questions & Answers

6:15 pm – 7:40 pm:
- Breakout Groups
  - Identify Actions to Reduce Risks and Build Resilience
  - Prioritize Actions by Urgency and Timing

7:40-8 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
- Brainstorm additional actions to address vulnerabilities
- Attend Day 3 Workshop

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

Community Resiliency Building Workshop

Town of Sturbridge
Municipal Vulnerability Preparedness
Day 3- Wednesday, November 4, 2020
6 pm – 8 pm; Check-in at 5:45 pm

Meeting Link (Click to Join):
https://us02web.zoom.us/j/88258800958?pwd=SXZLMlRLSDV4ejBXbGJUMElSSm83QT09

Meeting ID: 882 5880 0958 **Passcode:** 204764

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

Workshop Materials: **https://www.dropbox.com/sh/2cui68dnth0rnvn/AABhpCDKkIS35Cvzy-LcEEBLa?dl=0**

Workshop Agenda

5:45 *pm – 6 pm:*
- Login & Familiarize with Zoom

6 pm – 6:15 pm:
- Welcome & Recap from Day 1 & 2
- Questions & Answers

6:15 pm – 7:30 pm:
- Breakout Groups
  - Identify Additional Strengths & Vulnerabilities
  - Identify Additional Actions to Reduce Risks and Build Resilience

7:30-8 pm:
- Reconvene as Large Group
- Table Remarks
- Closing Remarks & Wrap Up

Day 3: Workshop Objectives

- Review vulnerabilities and strengths identified on Day 1
- Review potential actions identified on Day 2
- Develop and prioritize additional opportunities for the Town to reduce risks

Homework

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

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

Executive Office of Energy and Environmental Affairs

C M R P C
Central Massachusetts Regional Planning Commission

Sturbridge MVP Workshop Sign-in Sheet						
NAME	**Representing/Group**	**EMAIL**	**Table**	**Attended Day 1**	**Attended Day 2**	**Attended Day 3**
Charles Blanchard	Planning Board	chasblanchard@msn.com	a	x	x	x
Paul Guerun	Burgess	guerinp@tantasqua.org	a	x	x	x
Kelly Vosnakis	human health Risk assesment	kellyvosnakis@gmail.com	a	x	x	x
kristen Jerome		kristen.jerome@state.ma.us	a		x	x
Andrew Smith		andrew.b.smith@state.ma.us	a	x	x	x
david demings	EMC	david.demings@sturbridgepd.com	a	x		x
rebecca gendreau	conservation	rgendreau@sturbridge.gov	a	x	x	x
Chris McClure	McClure Engineering	chris@mcclureengineers.com	b	x	x	
John Degnan		degnan@rocketmail.com	b	x	x	x
Dan Purtell	bethlehem Church	pastordan@bethlehemsturbridge.	b	x	x	
Jean Bubon		jbubon@sturbridge.gov	b	x	x	x
Earl Dessert	SPD/EM	edessert@town.sturbridge.ma.us	b	x	x	x
jeff bridges	TA	jbridges@sturbridge.gov	b	x	x	x
Justin Homes	Old Sturbridge Village	osvsupervisor@gmail.com	b	x	x	
tamsin lucy	public	abritinusa@gmail.com	c		x	
Jeneé Lacy			c	x		x
Sean Pain	SPD/EM	sean.pain@sturbridgepd.com	c	x	x	x
larry bateman	SPD	Larry.Bateman@sturbridgepd.com	c			
Butch jackson		bjackson@town.sturbridge.ma.us	c	x	x	x
james.towns	SFD	james.towns@sturbridgefd.com	c			
leslie wong	Sr. Citz	lwong@sturbridge.gov	c	x	x	x

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

The Town of Sturbridge is collaborating with EOEEA and CMRPC to offer a three-part virtual workshop on ***October 14th, 28th and November 4th* from 6PM – 8PM** which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across Sturbridge. Follow the instructions below in order to help make your community more climate resilient! If you have any questions about the program, please contact ***David DeMings, Sturbridge Emergency Management*** at david.demings@sturbridgepd.com or ***Peter Peloquin, Associate Planner, CMRPC*** ppeloquin@cmrpc.org We look forward to seeing you virtually at our workshop!

Step 1. Discover Sturbridge'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:

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 the Community Resiliency Building (CRB) workshop process.

MVP Program Overview:

CRB Workbook:

Step 3. Watch the MVP Presentations Prior to Workshop

The following links contain 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 Sturbridge may face in the future. Please take some time to **review each of these presentations before October 7th**.

Town Introduction

MVP Program Info

Climate Projections

Natural Hazards

Completing the Matrix

Step 4. Familiarize Yourself with the Matrix and Mapping Tools

During the virtual 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 an online map with our ideas. The following three documents will show you an example of a completed matrix, will guide you through using the online mapping tool, and will give you a set of pre-made maps that already display various features, hazards, and resources in Sturbridge.

Complete Matrix Example

Online Mapping Tool

Reference Maps

Step 5. Attend the Workshop!

The 3-day workshop will be held on ***October 14th, 28th and November 4th from 6PM-8PM*** 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.

October 14, 2020	**Agenda Day 1**	**Zoom Link Day 1**
October 21, 2020	**Agenda Day 2**	**Zoom Link Day 2**
November 4, 2020	**Agenda Day 3**	**Zoom Link Day 3**

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.

Learn More

DRAFT

Sturbridge MVP Workshop Invite List

Name	Representing/Group	Phone	Email	Invitation of Interest	Invite Confirmed	Table Assignment
Charles Blanchard	Planning Board		chasblanchard@msn.com	yes	yes	a
Paul Guerun	Burgess		guerinp@tantasqua.org	yes	yes	a
Kelly Vosnakis	human health Risk assesment		kellyvosnakis@gmail.com	yes	yes	a
kristen Jerome			kristen.jerome@state.ma.us	yes	yes	a
Andrew Smith			andrew.b.smith@state.ma.us	yes	yes	a
david demings	EMC		david.demings@sturbridgepd.com	yes	yes	a
rebecca gendreau	conservation		rgendreau@sturbridge.gov	yes	yes	a
Chris McClure	McClure Engineering		chris@mcclureengineers.com	yes	yes	b
John Degnan			degnan@rocketmail.com	yes	yes	b
Dan Purtell	bethlehem Church		pastordan@bethlehemsturbridge.	yes	yes	b
Jean Bubon			jbubon@sturbridge.gov	yes	yes	b
Earl Dessert	SPD/EM		edessert@town.sturbridge.ma.us	yes	yes	b
jeff bridges	TA		jbridges@sturbridge.gov	yes	yes	b
Justin Homes	Old Sturbridge Village		osvsupervisor@gmail.com	yes	yes	b
tamsin lucy	public		abritinusa@gmail.com	yes	yes	c
Jeneé Lacy				no	yes	c
Sean Pain	SPD/EM		sean.pain@sturbridgepd.com	yes	yes	c
larry bateman	SPD		Larry.Bateman@sturbridgepd.com	yes	yes	c
Butch jackson			bjackson@town.sturbridge.ma.us	yes	yes	c
james.towns	SFD		james.towns@sturbridgefd.com	yes	yes	c
leslie wong	Sr. Citz		lwong@sturbridge.gov	yes	yes	c
Brad King	OSV		bking@osv.org	yes	no	N/A
James Donahue	OSV		jdonahue@osv.org	yes	no	N/A
Cindy Howard	Center of Hope		choward@thecenterofhope.org	yes	no	N/A
Dan Gonya	Table 3		dgonya@table3restaurantgroup.com	yes	no	N/A
Michael Glik	Publik House		mglick@publickhouse.com	yes	no	N/A
Michael Harrington	Publik House		mharrington@publickhouse.com	yes	no	N/A
Phillip Moreau	Pine Lake		philip@rvmsllc.net	yes	no	N/A
Mary Berry	Sturbridge Retirement Co-Op		office@sturbridgecoop.net	yes	no	N/A
Pam Welcome	Heritage Green PM	508-347-2200		yes	no	N/A
Jim & Maddi Robator	Autumn Ridge PM	508-347-9149		yes	no	N/A
Howie Fife	Opacum Land Trust		hfifejr@aim.com	yes	no	N/A
Glen Colburn	Opacum Land Trust		gdcolburn@comcast.net	yes	no	N/A
David Faist	CMG Environmental		dfaist@cmgenv.com	yes	no	N/A
Leonard Jalbert	Jalbert Engineering		lsjalbert@jalbertengineering.com	yes	no	N/A
Eric Morse	Morse Engineering and Construction		eric.morse@mecindustries.com	yes	no	N/A
Ed Neal	Housing Partnership		eneal@nealaw.net	yes	no	N/A
Mike Hyland	Venture		myhalnad@venturecs.org	no	no	N/A

G&F Industries	John Argitis		johnja@gandf.us	yes	no	N/A
Alexandra McNitt	Chamber of Commerce Director		alexandra_mcnitt@cmschamber.org	yes	no	N/A
Todd Smola	State Representative		Rep.ToddSmola@Hou.State.MA.US	yes	no	N/A
Ann Gobi	State Senator		Anne.Gobi@masenate.gov	yes	no	N/A
Matt Zimmerman	Life Song Church		matt.zimmerman@lifesongonline.org	yes	no	N/A
Jeffery Zukowski	MEMA		jeffrey.zukowski@state.ma.us	yes	no	N/A
edward goodwin	conservation		edgoodwin@etgcard.com	yes	no	N/A
steve haltermane	conservation		shalterman@outlook.com	yes	no	N/A
andrew golas	Chartlon TA		Andrew.Golas@townofcharlton.net	yes	no	N/A
paul Dell`Aquila	spencer town planner		pdellaquila@spencerma.gov	yes	no	N/A
clarence snyder	brookfield board		csnyder@brookfieldma.us	yes	no	N/A
terri gough	Tri-Epic charlton		terri.gough@townofcharlton.net	yes	no	N/A
Todd Olanyk	Fish / Wildlife	508-835-3607	Todd.olanyk@mass.gov	yes	no	N/A

Municipal Vulnerability Preparedness (MVP) Workshop: Sturbridge

Reference Map: Table Map

Legend

- Town Boundary
- Town Halls
- EOC
- Local Police
- State Police
- County Sheriff
- Fire Station
- Schools (Pre-K through High School)

Dams

- High Hazard
- Significant Hazard
- Low Hazard
- N/A
- Major Road
- Local Road
- Active Service Railroads
- Water Bodies
- Streams
- MassDEP Wetlands
- High Slope (15% and above)

FEMA National Flood Hazard Layer (DFIRM)

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

CIH (Points)

- Vulnerable Critical Infrastructure
- Non-vulnerable Critical Infrastructure
- Hazard
- Vulnerable Critical Infrastructure
- Non-vulnerable Critical Infrastructure
- Hazard
- Vulnerable Critical Infrastructure
- Hazard

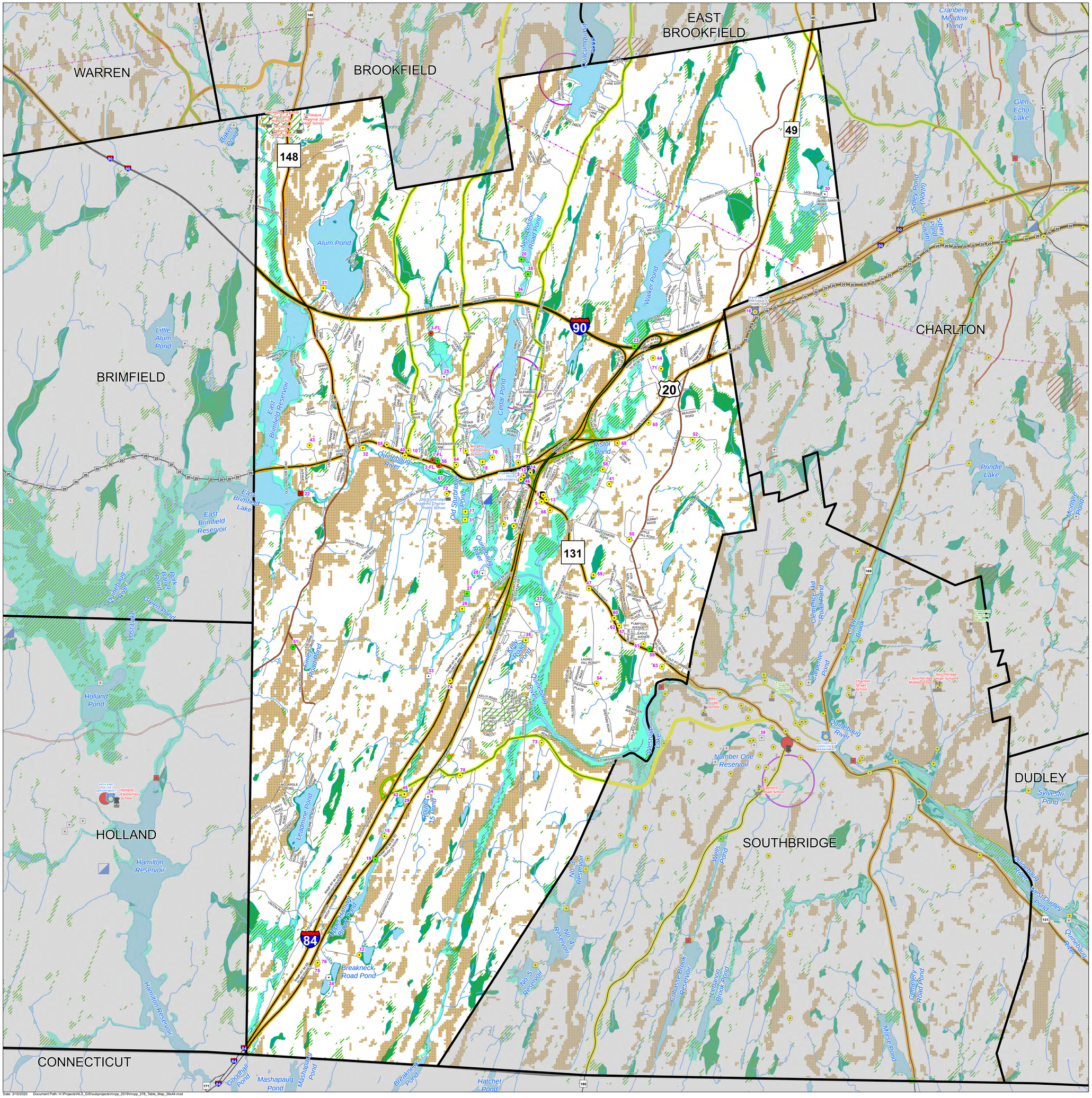
CMRPC
Central Massachusetts Regional Planning Commission

0 0.125 0.25 0.5 0.75 1 Miles

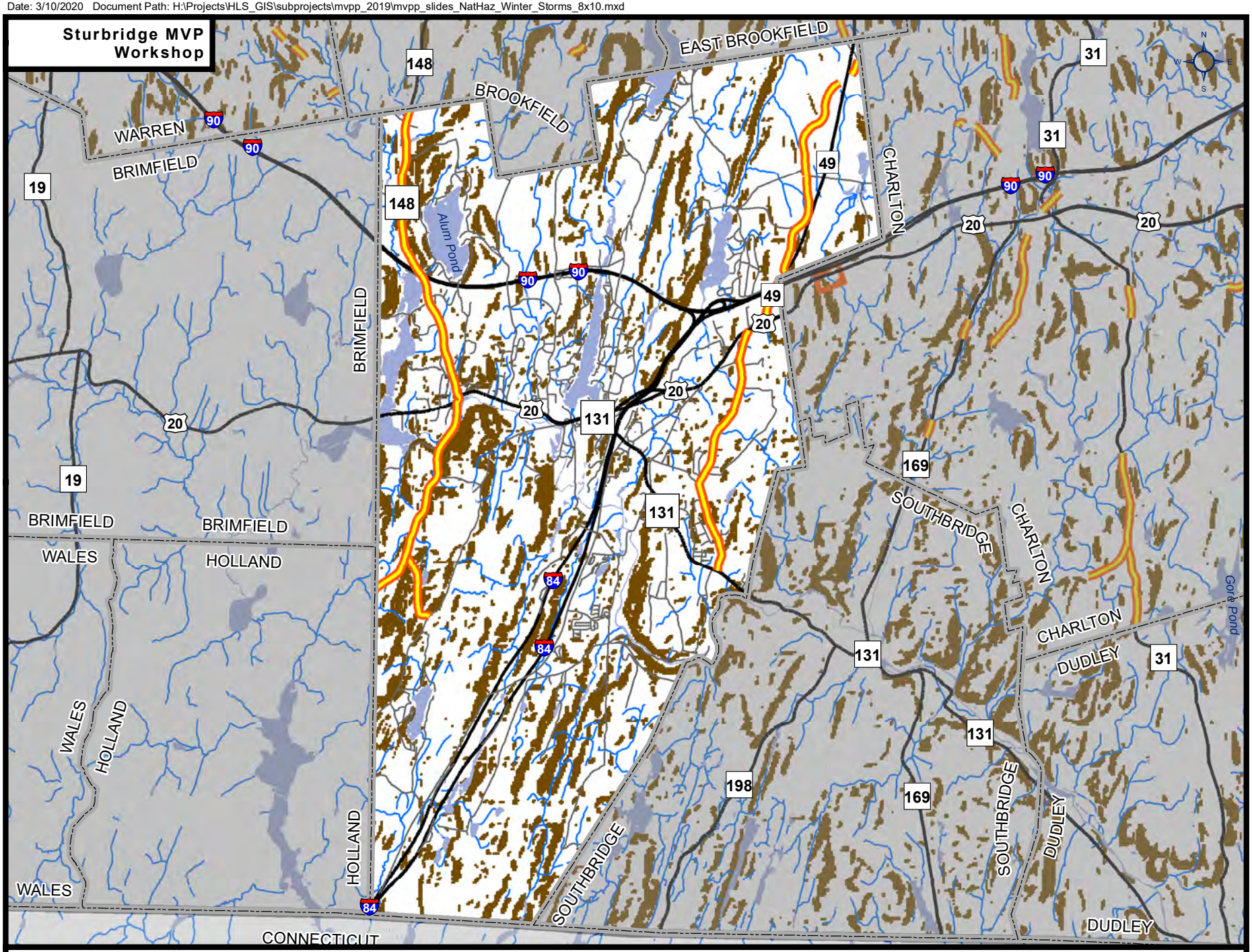
N W E S

Flooding data source: FEMA's Digital Flood Insurance Rate maps(DFIRM).
Other data sources include: MassGIS, MassDOT, and CMRPC
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 intrepreting positional accuracy.

Produced by the Central Massachusetts Regional Planning Commission.
1 Mercantile Street, Suite 520, Worcester, MA 01608

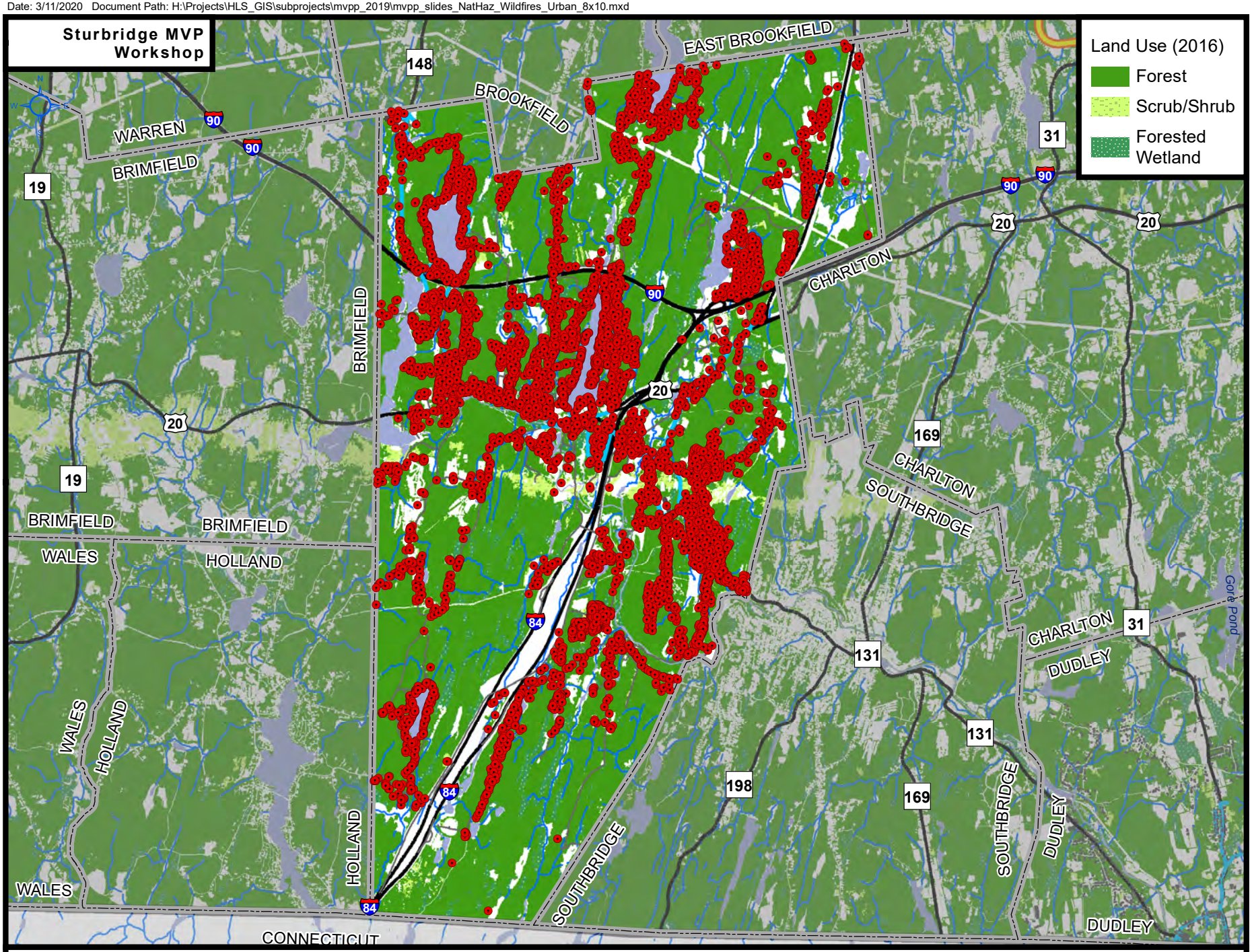


Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Winter_Storms_8x10.mxd



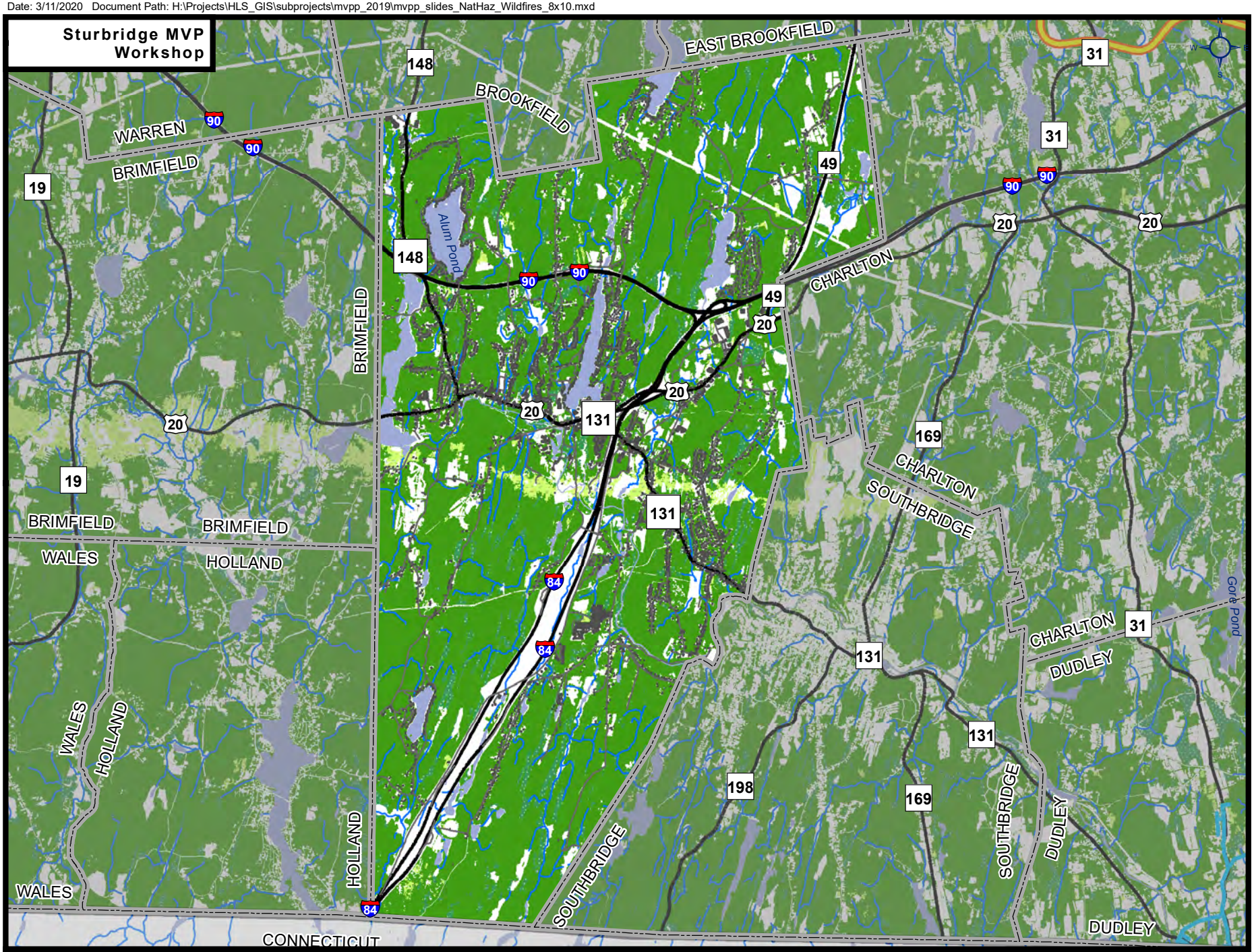
Source: Data provided by the Town of Sturbridge, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

Date: 3/11/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Wildfires_Urban_8x10.mxd



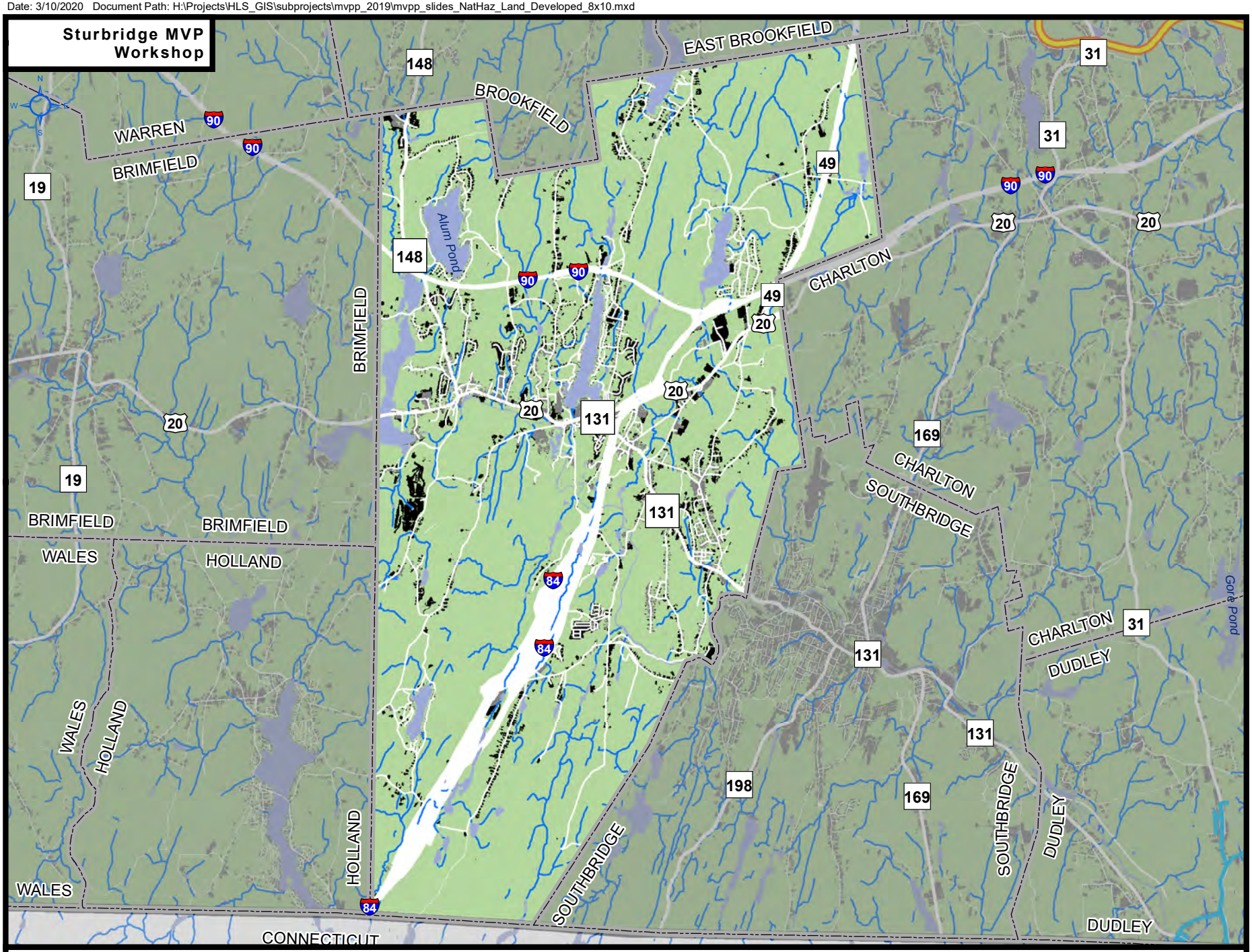
Source: Data provided by the Town of Sturbridge, CMRPC, Mass Audubon, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

Date: 3/11/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Wildfires_8x10.mxd



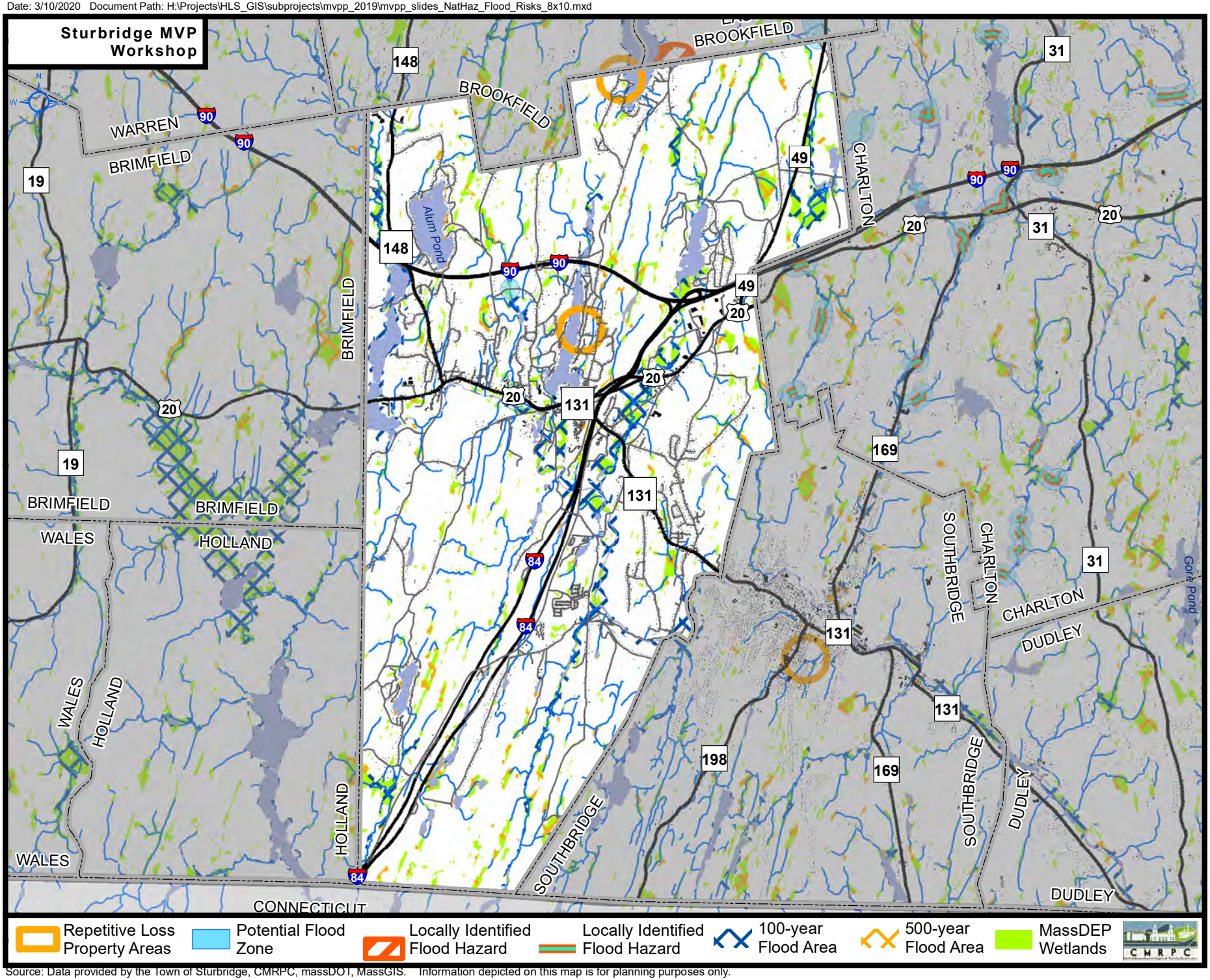
Source: Data provided by the Town of Sturbridge, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Land_Developed_8x10.mxd



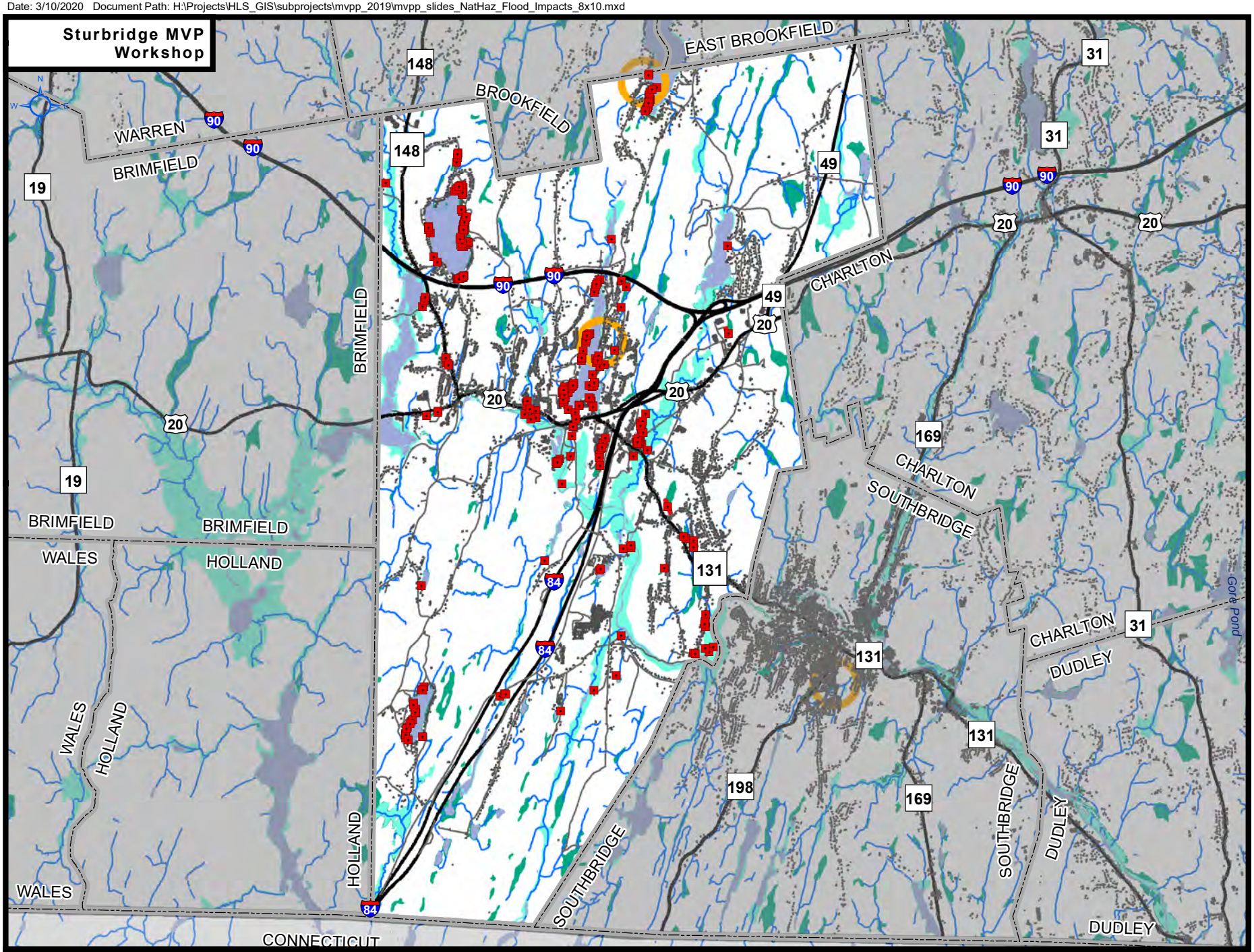
Source: Data provided by the Town of Sturbridge, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Flood_Risks_8x10.mxd



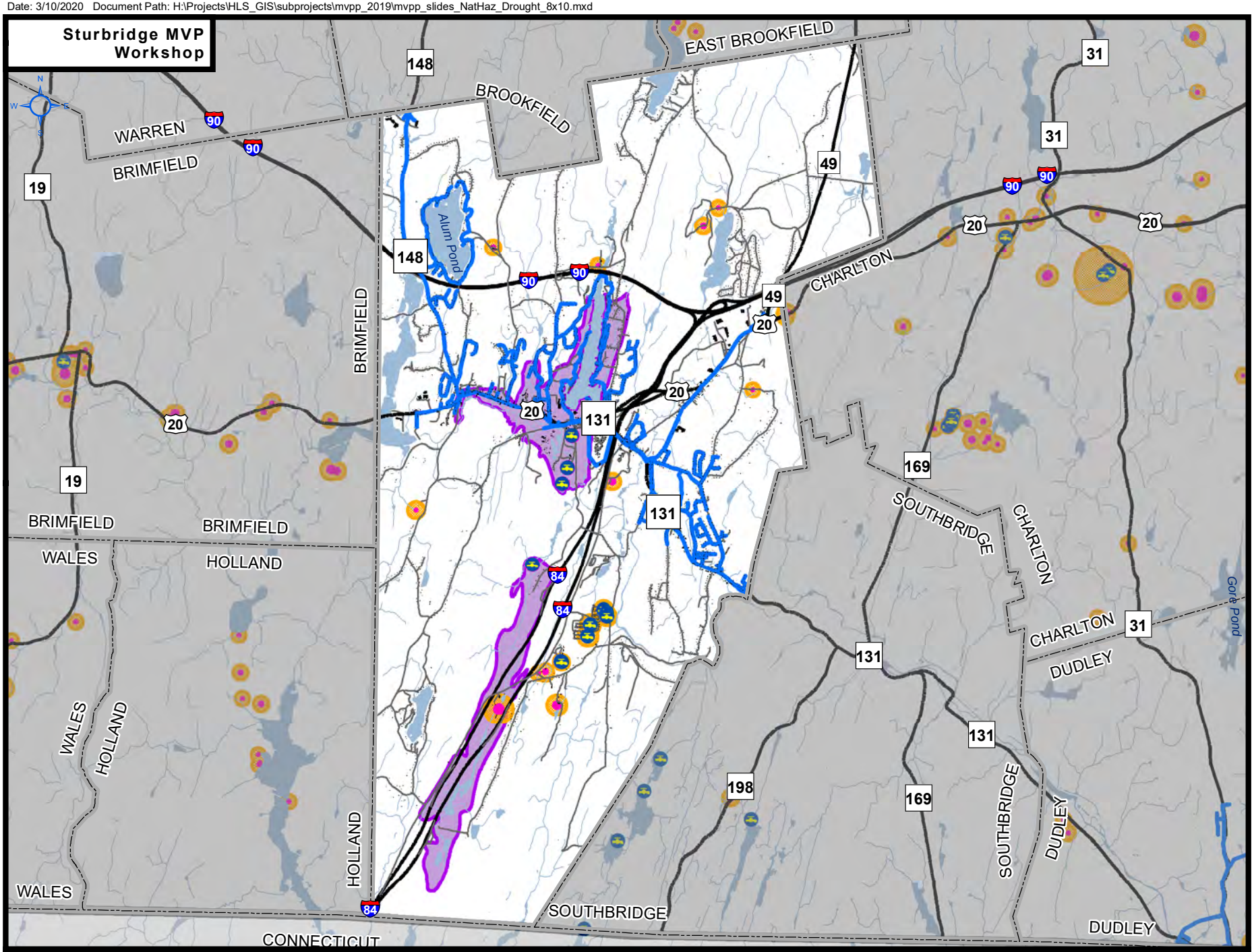
Source: Data provided by the Town of Sturbridge, CMRPC, massDOT, MassGIS. Information depicted on this map is for planning purposes only.

Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Flood_Impacts_8x10.mxd



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

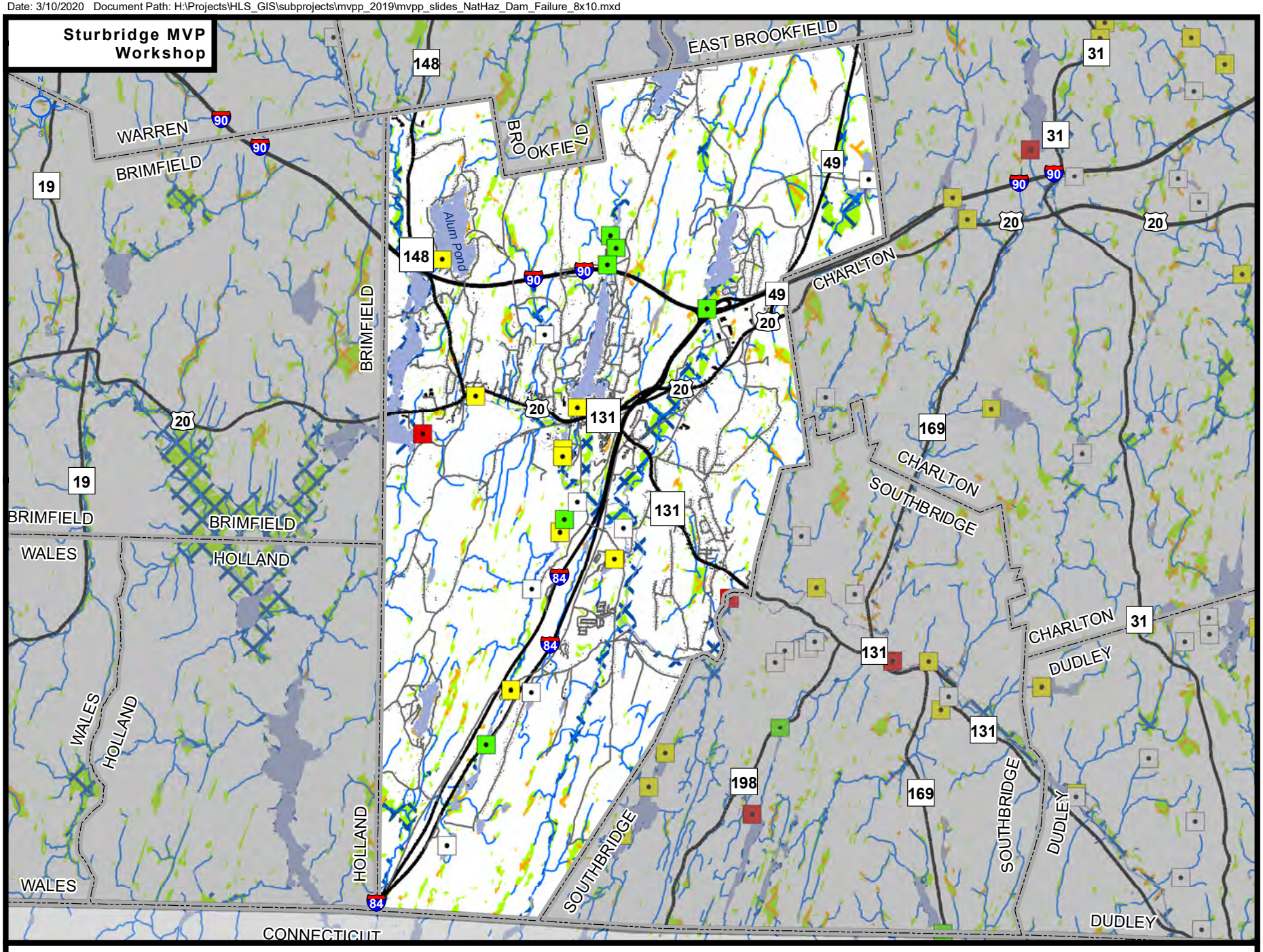
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Drought_8x10.mxd



Public Water Supply (MassDEP) DEP Approved Zone I IWPA DEP Approved Zone II Water Line

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

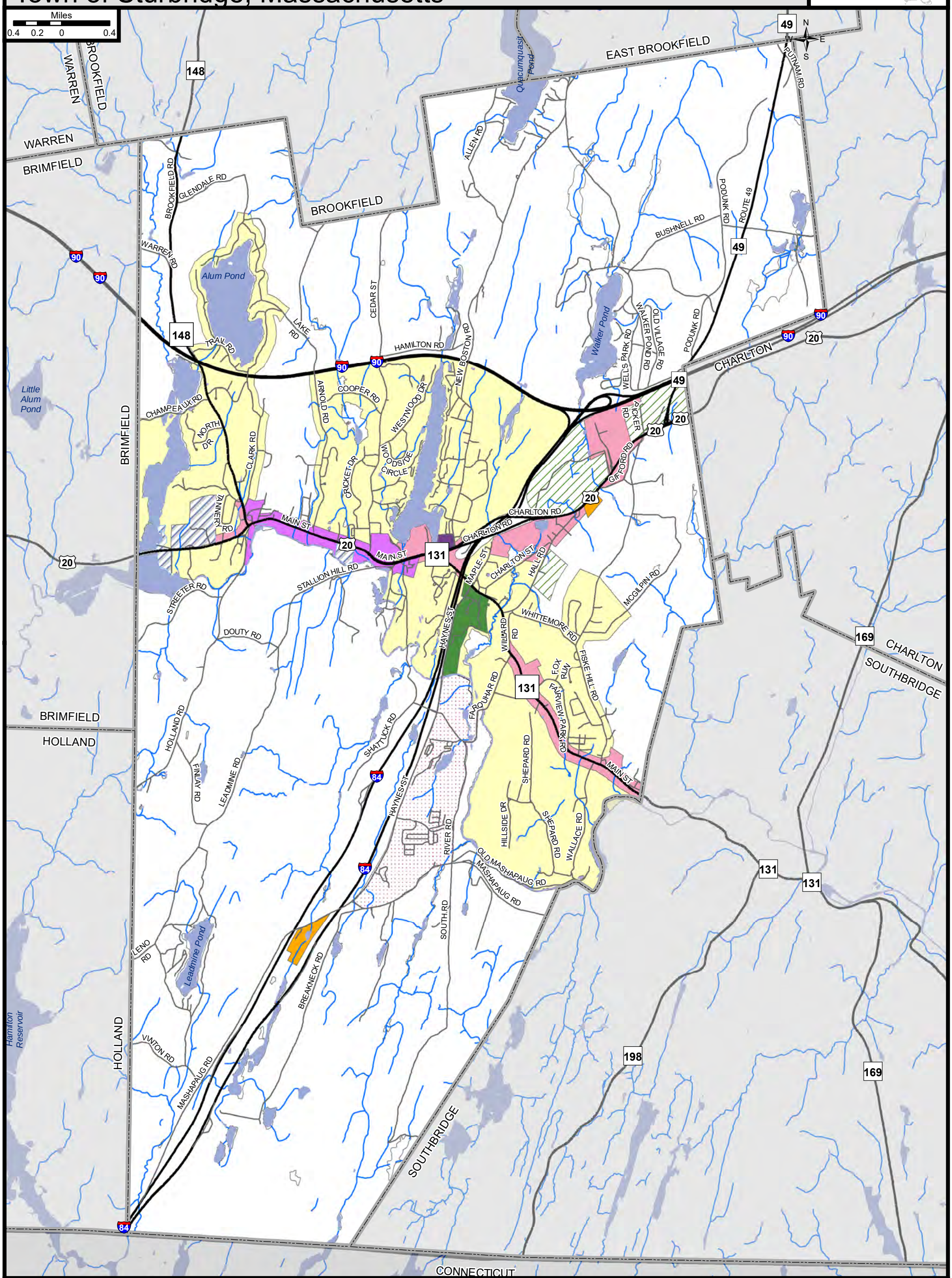
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_slides_NatHaz_Dam_Failure_8x10.mxd



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

Reference Map: Zoning

Town of Sturbridge, Massachusetts



Zoning Districts

- Commercial District
- Commercial II District
- Commercial Tourist District
- Village Gateway District
- General Industrial District
- Historic Commercial District
- Industrial Park
- Rural Residential
- Special Use District
- Suburban Residential District

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

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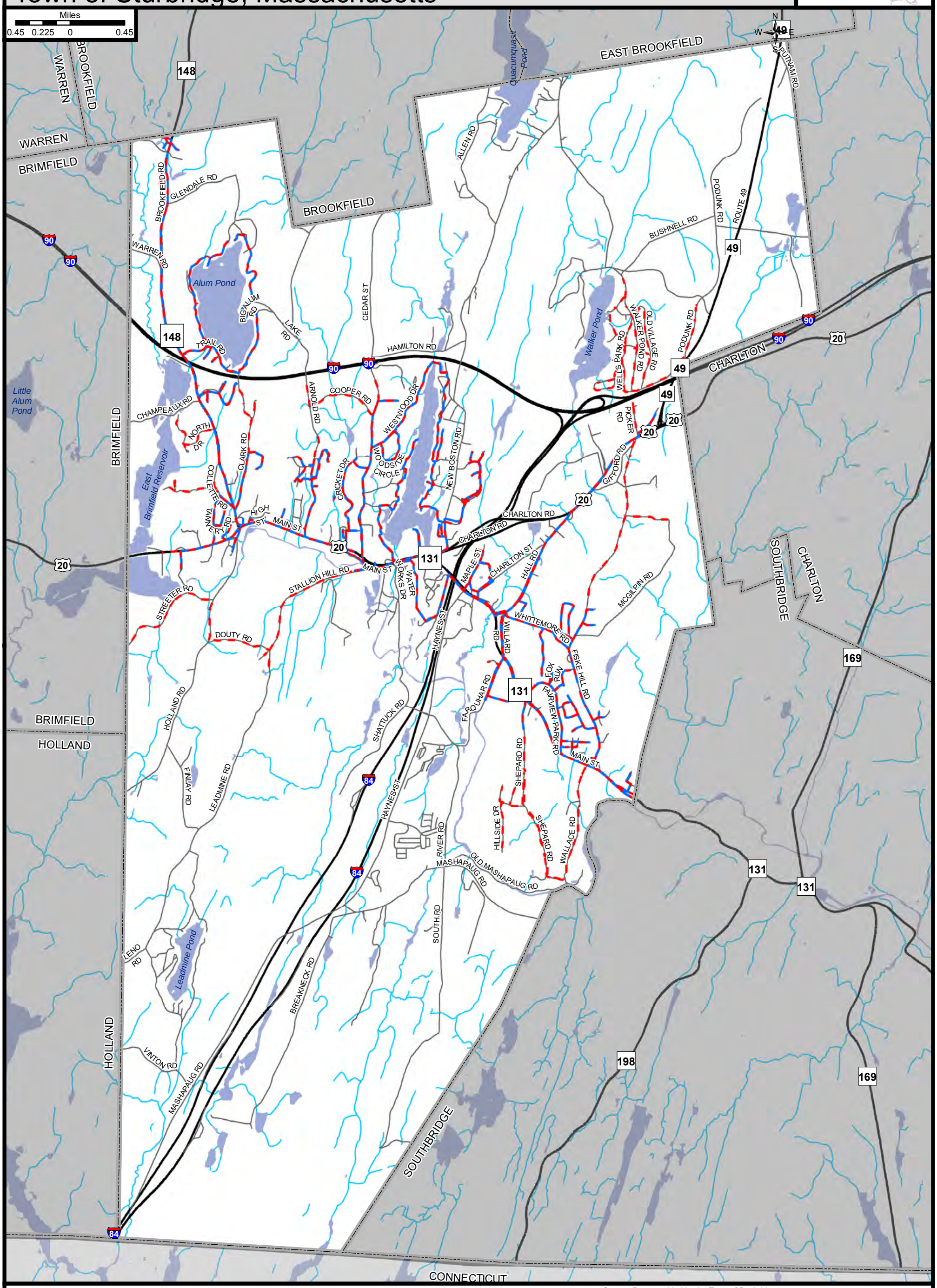
Municipal Vulnerability Preparedness (MVP) Workshop

Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Zoning_11x17.mxd

Reference Map: Utility Infrastructure

Town of Sturbridge, Massachusetts



Town Boundary
Water Bodies
Major Road
Local Road
Sewer Line
Water Lines

Source: Data provided by the Town of Sturbridge, 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 intrepreting positional accuracy.

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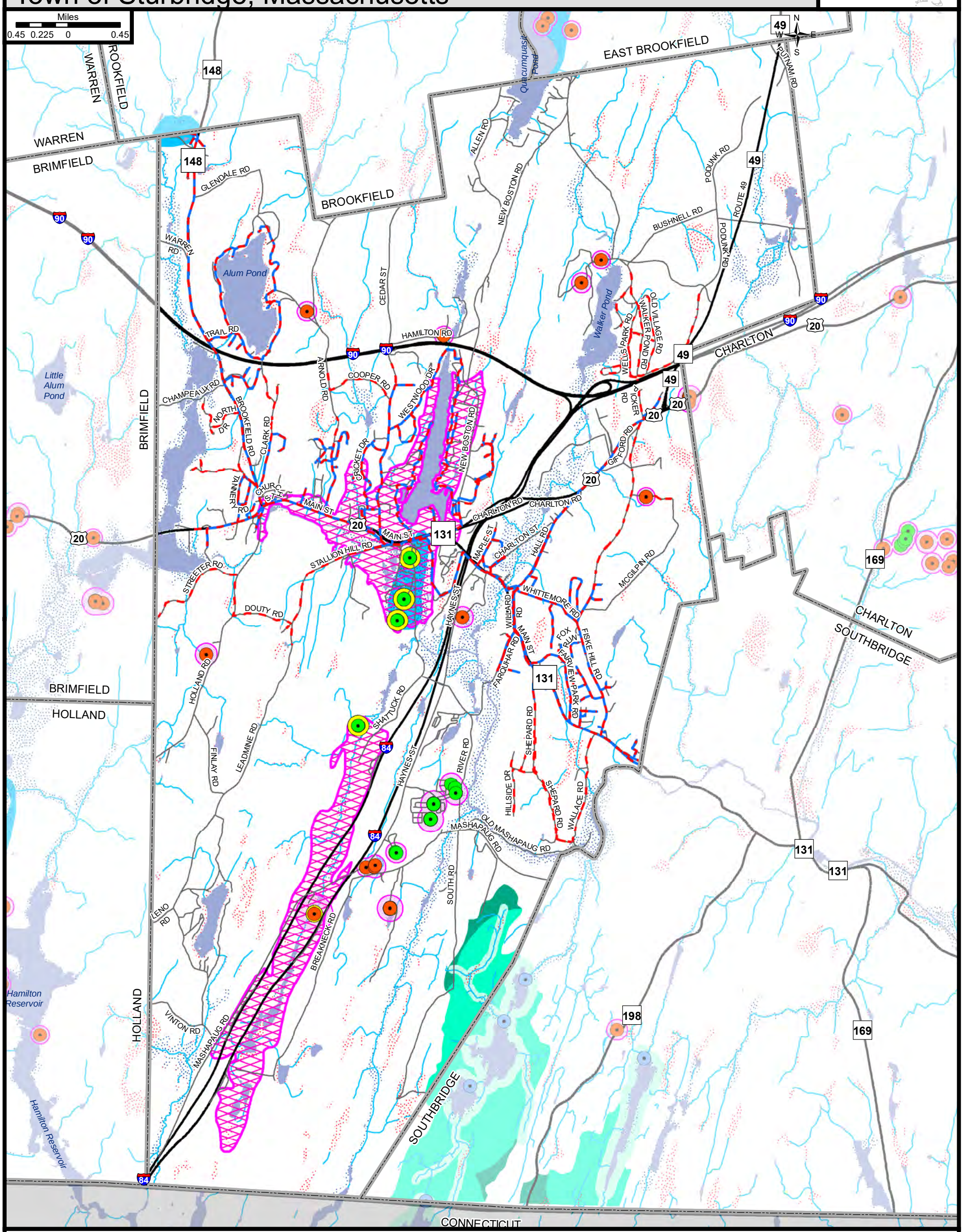
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Water_Sewer_11x17.mxd

Reference Map: Water Resources

Town of Sturbridge, Massachusetts



massDEP Public Water Supplies

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

- DEP Approved Zone I
- Approved Wellhead Protection Areas (Zone II)
- Interim Wellhead Protection Areas
- Aquifer

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

- Sewer Line
- Water Lines

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

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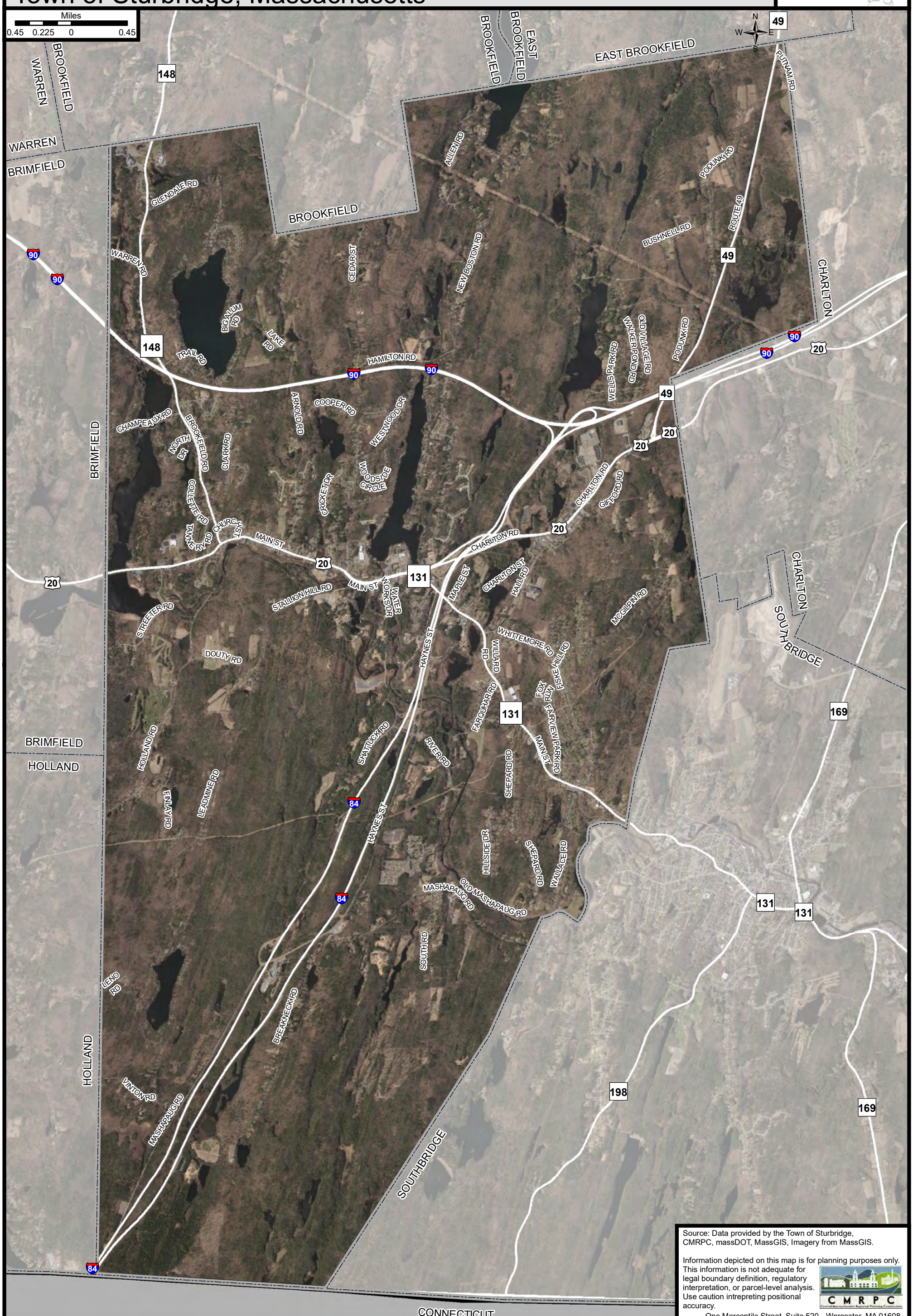
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Water_Res_11x17.mxd

Reference Map: Orthophoto (2019)

Town of Sturbridge, Massachusetts



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

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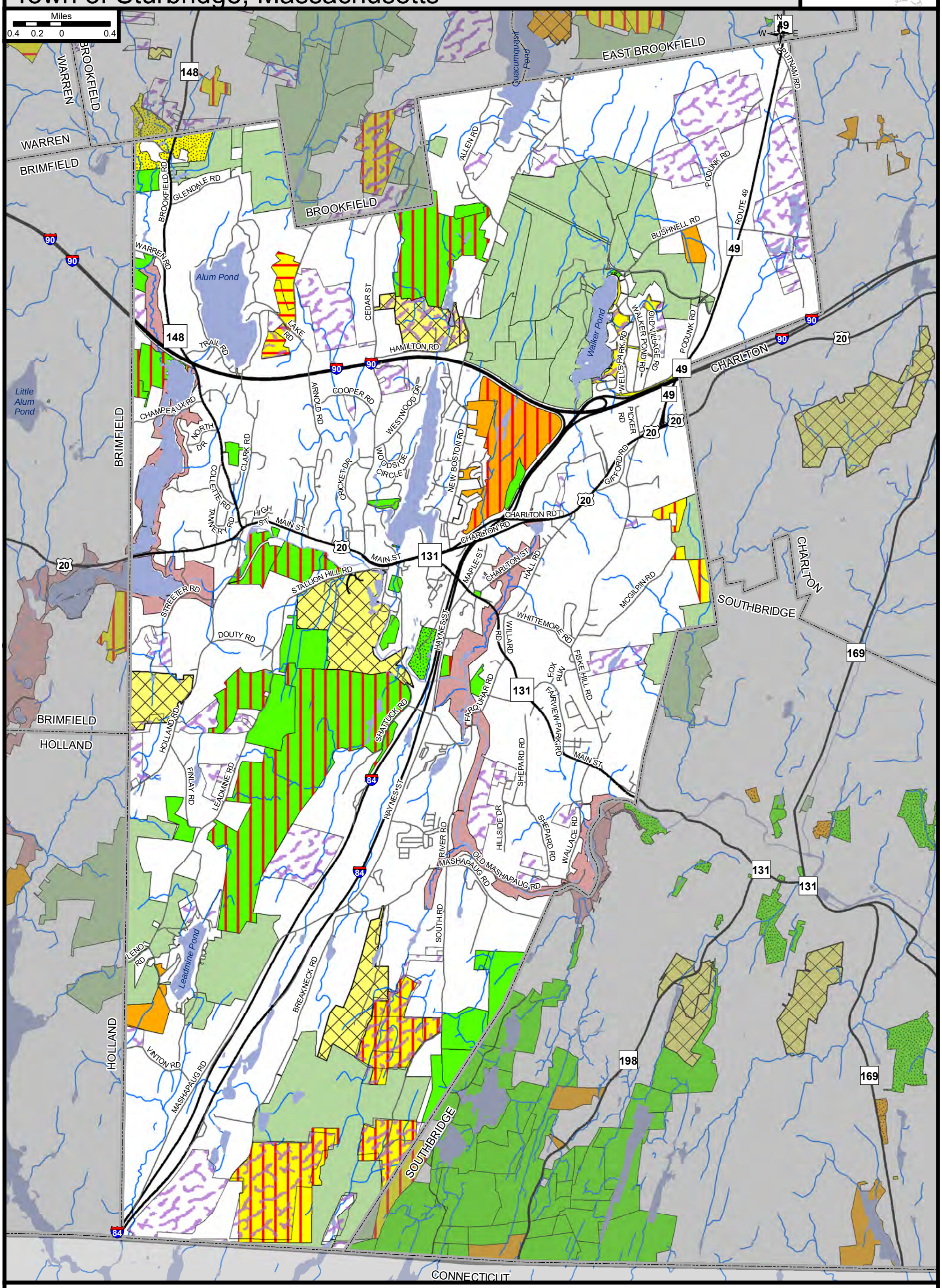
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Ortho_11x17.mxd

Reference Map: Open Space

Town of Sturbridge, Massachusetts



Town Boundary
Water Bodies
Major Road
Local Road

Open Space Ownership
Federal
State
Municipal
Private
Non-Profit

Level of Protection
Perpetuity*
None
Limited

Chapter Land (61, 61A, 61B)
Conservation Restriction
Agricultural Preservation Restriction

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

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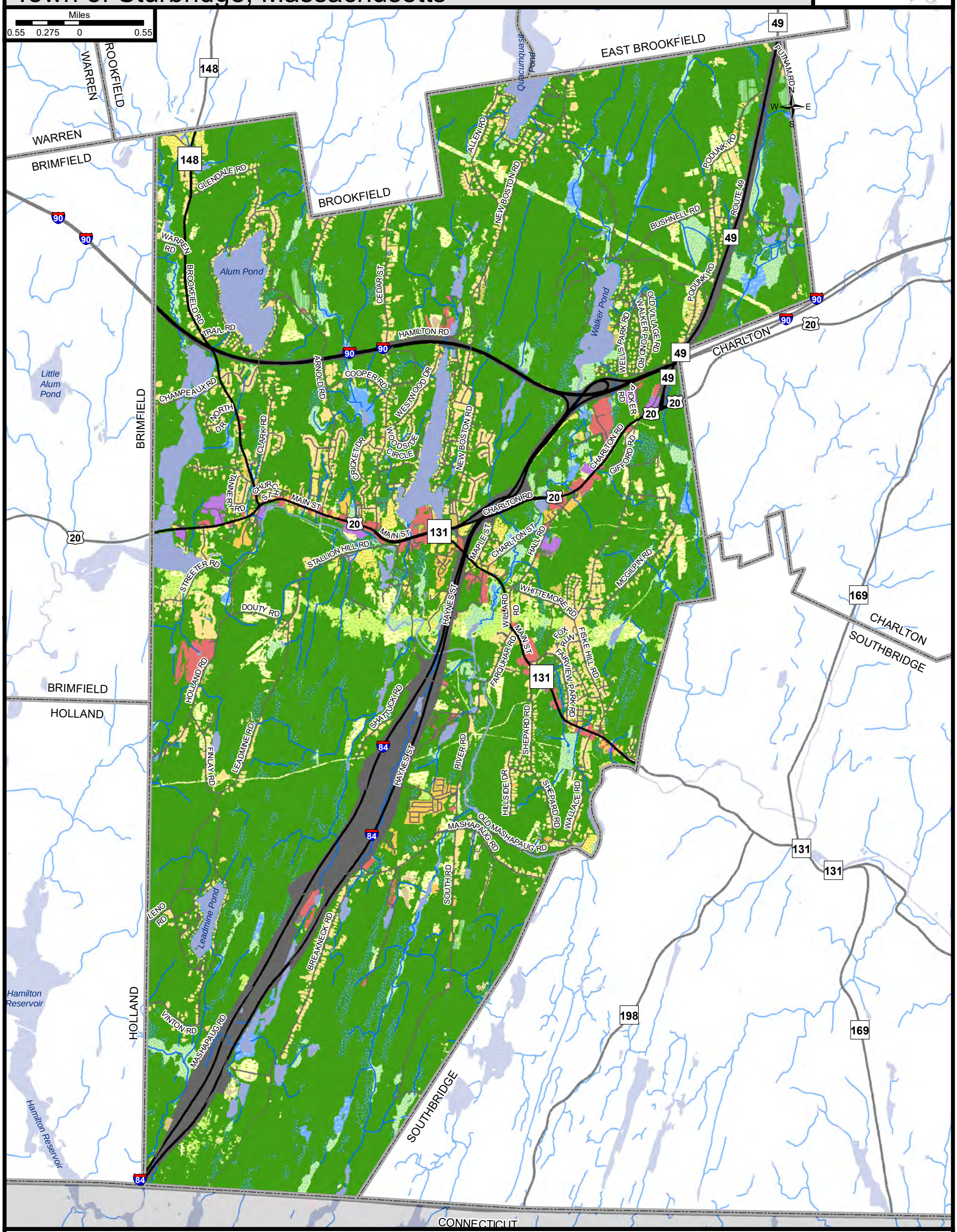
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Open_Space_11x17.mxd

Reference Map: Land Use (2016)

Town of Sturbridge, Massachusetts



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

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

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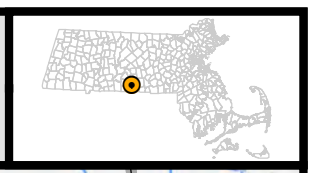
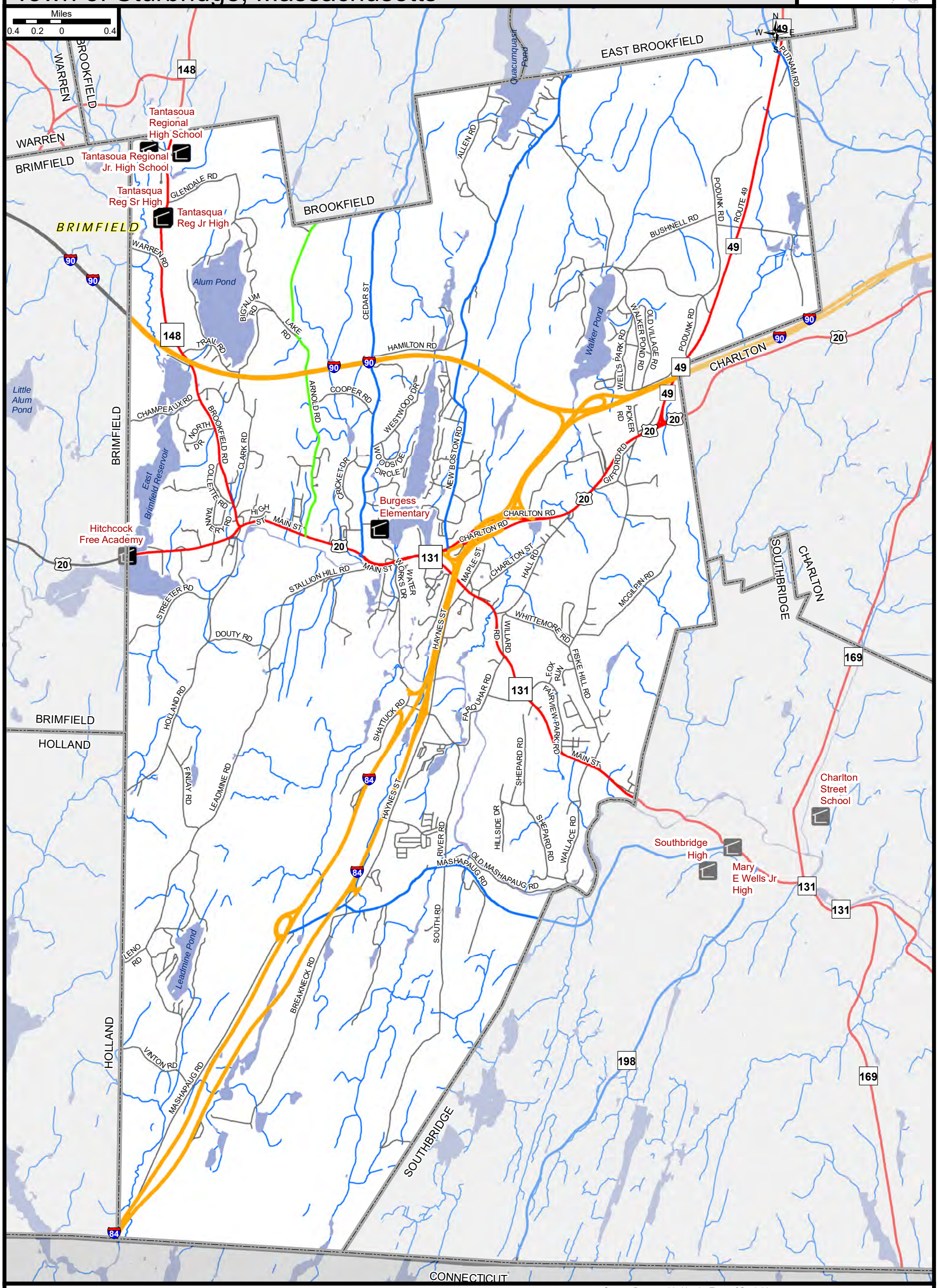
Date: 3/10/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Landuse_2016_11x17.mxd

Reference Map: Evacuation Routes & Shelters

Town of Sturbridge, Massachusetts





Legend

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

Evacuation Routes

- Highway
- Secondary
- Primary
- Tertiary

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

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Central Massachusetts Regional Planning Commission
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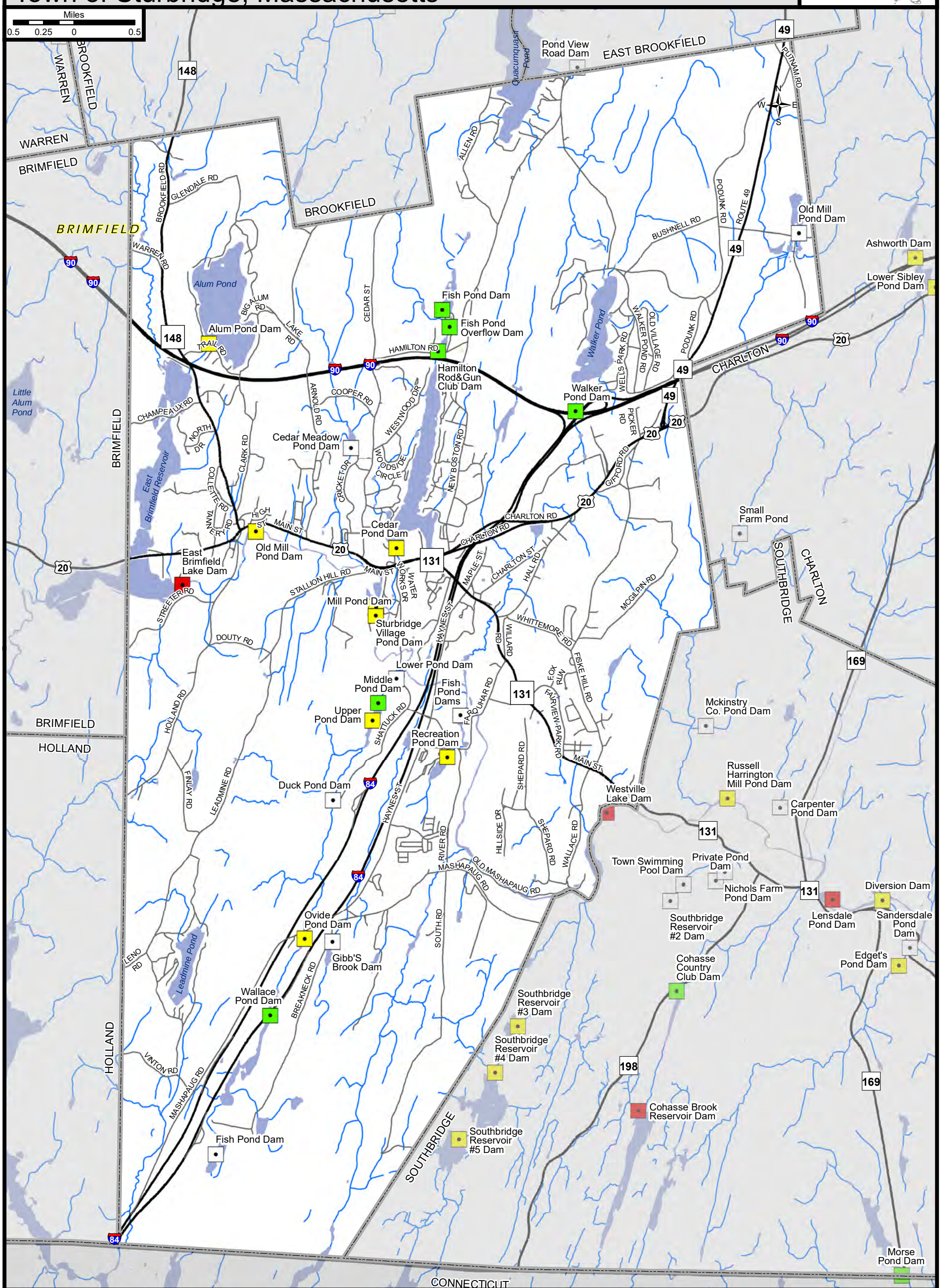
Municipal Vulnerability Preparedness (MVP) Workshop

Date: 1/29/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Evac_Routes_11x17.mxd

Reference Map: Dams

Town of Sturbridge, Massachusetts



Municipal Vulnerability Preparedness (MVP) Workshop

Date: 1/29/2020 Document Path: H:\Projects\HLS_GIS\subprojects\mvpp_2019\mvpp_ref_Dams_11x17.mxd

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

Sturbridge Table 1

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

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

Features	Location	Ownership	V or S					Priority H - M - L	Time Short Long Ongoing
Infrastructural									
Undersized culverts -	Town-wide		V	Town-wide culvert assessment. **Expand study to include stormwater infrastructure and traffic**. Combine with below (general drainage improvements)				High	Short (perhap
General drainage improvements along roadways		State, local and private	V	Look at ways to improve drainage with more nature-based solutions, evaluate development regulations to encourage/require LID					
Beaver Dams	Main Street, Cricket Drive		V	Higher risk beaver dams have been addressed with flood management strategies					
Holiday / rush hour traffic congestion	Intersection of I90 / Rt. 84		V	Traffic study/level of service study - need a townwide evaluation					
Holiday / rush hour traffic congestion	Main Street / Rt. 20 / Rt. 15 /		V	Traffic study/level of service study, want to encourage walkability perhaps limited by wetlands					
Evacuation route coordination with surrounding towns			S/V	Work with surrounding towns to create a plan, prioritize routes that should be kept open and access for first responders. How does the town communicate with locals or strangers in an emergency?					
Dams (3 dams)	Hamilton Rd, I90, Rt. 20	Rod and Gun Club	S/V						
Dams	Along Quinebaug	Town (at Mill Yard)	V						
E Brimfield Lake Dam (high risk)			V						
Power outages (mostly related to downed trees)			V						
Emergency shelter (Burgess is first responder / medical supply distribution shelter and Tantasqua is regional)			S						
Communication infrastructure (particularly to Tantasqua)			V	Radio dead zones - regional issue. School has poor cell coverage - explore technology that would allow radios to be used in school buildings					
Lack of Public Transit			V	Exploring providing transit for seniors, could help alleviate stress on downtown parking. Revisit trolley?					
Public Works staff (some smaller towns in District can't plow in snow event)			V	Will having remote school/work alleviate some of this problem?					
Regional collaboration for emergency responder training / response			S/V	Regional collaboration with Brookfield, Wales, Holland, Brimfield, Dudley, Oxford, Southbridge, Webster, hospital and Amory - all fall under TriEpic Regional Planning for Emergency Response training. Establish a relationship with central Homeland Security Council.					
Local Wetlands Bylaw with additional protections			S	Consider including air quality? Educate people, esp. private developers, on importance of wetlands and ways they can be protected - low impact development guide.					
Local Forest Management Bylaw			S						
Local Stormwater Bylaw			S						
Municipal staff manpower to assist people with compliance of local bylaws			V	Explore working with a consultant or developers to help ensure compliance					
Public Safety Complex / DPW			S/V	Flooding concern - building is surrounded by wetlands				High priority in Master	
Limited indoor rec facilities (vector borne illness concern)			V						

Code Red			S			
Parking areas				Explore ways that parking areas could be cooler/soak up more rain and could improve downstream impacts. Building a new parking lot downtown - could we use pervious surfaces?		
Water Supply - some wells are being contaminated by salt from roads			V	Assessment of watershed and water supply vulnerabilities to consider impacts of future drought and potential need for new wells or new water supply to homes.		
Societal						
Senior Housing - loses power in storm events	River Road	Private	V	Explore frequency & cause of power loss (tree maintenance issue or infrastructure problem?). Microgrid to improve power supply (solar?) Consider coordinating a plan to move this population to shelters in event of		
OFS and Public House (largest employers)			V	Include Public House into emergency planning on a regional scale.		
Students / Schools			S	Exploring/Bolstering education opportunities around rainwater collection and storage, using the collection system at Burgess.		
Tourists / visitor communication (huge increase in population during flea market / other events)			V	Confirm with PD if there are communication plans for large events - adapt process PD is currently using. Town already has an Emergency Response Committee that thinks through these scenarios		
Senior Center/School partnership to provide food during pandemic.			S	Expand partnership (with help from other schools) to provide food to more people. Combine with Community Food Collaborative?		
Communication between town departments			S			
Community Center				Explore a community center as a place for kids to play during EEE outbreaks, for seniors to cool off in hot summer months, shelter for emergencies, vaccine distribution site etc.		
Community Food Collaborative (donates food to a neighboring town's food parish)				Consider water storage methods to protect gardens in drought		
Environmental						
Water bodies (lakes) and contamination			V	On-ground assessment of water resources and their vulnerabilities (stormwater, etc.). How will vulnerabilities increase with more precipitation		
Beaver population control			V			
Lots of protected land, great partnership with State and with ACOE			S	Strong partnerships with Land Trust, private landowners, state. Work with partners to develop management plans for those properties that consider climate change and wildlife corridors between conserved areas.		
Gypsy moths + damaged trees		Town-owned trees	V	See below. Some funding was already allocated to take down trees, follow up with Tree Warden on where this stands and the replacement process (what is the best species to replace these trees with?). Build relationship with DCR Service Forester or UMASS Co-op extension service to learn more about early warning signs and anticipate gyspy moth influxes. Confirm if there are existing resources for private landowners on the town website on how to deal with gypsy moths.		
Forest management (for drought and power line concerns)			V	Look at management practices and consider implementing forced cutting plans. Create a plan to protect roads and power. Consider a study of trees damaged by gyspy moths - this data might already exist. What		
Wetland resource areas			S/V			
Groundwater supplies most drinking water for the Town			V	Explore ways to better recharge systems as precipitation increases to prevent vulnerabilities from drought		
Lots of summer cottages (and development pressure) on the lakes			S/V			
Dams with habitat impacts			V			
Homes with wells and private drinking water supplies			V			
BoH COVID response			S			
Vector borne illness			V	Are there next steps to control mosquitos? Sturbridge is part of a regional mosquito control group.		

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

Sturbridge Table 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.)

Features	Location	Ownership	V or S	Description	Winter Storms	Flooding	Drought	Wind/Severe Storms	Priority H - M - L	Time Short Long Ongoing
Infrastructural										
Power lines/tree trimming	Town-wide	National Grid/Pub	V	On the other side of the road from where National Grid trims	Formulate a tree harvesting program in coordination with the Tree Warden					
Dams	Town-wide	Multiple	V/S	Cedar Lake, Hamilton, Big Allum Lake, Westville, Old Mill Pond, Army Corps Dam	Evaluate dams to determine if they are still necessary for impoundment					
Culvert	Near Yankee Candle	State	V	Has been a source of flooding on Route 20, can cause daycare nearby to flood	Complete mapping of culverts and evaluate to determine proper size for stormwater runoff, create a culvert plan for upsizing culverts					
Stormwater Management	Town-wide	Multiple	V/S	Several water routes run parallel to Main Street, sewer pumps in low lying areas can become inundated, older areas can become inundated with stormwater management	Complete mapping of stormwater management system and evaluate older system areas and determine where low impact development can be best implemented, perhaps bioswales and other NBS along Route 15. Find a way to entice homeowners to control stormwater runoff on their properties through incentives, education, and infrastructure grants.					
Water Tower	Above Old Sturbridge Village	Town	V/S	On top of a hill and could cause a lot of problems to properties downhill should water be released						
Communications	Town-wide	Local	V/S	Current system is horrible and can sometimes go out, issues with communications at the schools (shelters) and Heritage Green	Implement a brand new system of inter-response communications					
Fire Hydrant Systems	Town-wide	Local	V/S	System is old but is maintained every year, flushing, keeps from rusting	Installation of dry hydrants around lakes, create a plan to replace or expand hydrants in town to ensure that there's adequate coverage.					
Major Routes	Town-wide	State/Federal	V/S	(I-90/I-84/Route 20/Route 40) Great access points for the town, evacuation routes,	Install evacuation route signs throughout town and find a way to manage traffic on local roads during excess traffic. Add signs to direct people to shelters. Address the capacity on the side					
Natural Gas Pipelines	Main Corridors	Private	V/S	High pressure natural gas lines	Maintain relationships with gas companies					
Emergency Management/Public Safety	Town-wide	Local	V/S	The building is old and needs to be replaced/expanded. Officers can get tied up	Replace building					
Societal										
Crescent Gate at Sturbridge/Autumn Ridge/ senior housing		Privately	S	Issues if power goes out and many are 'electrically dependent' some units are 40b	Install generators to ensure that emergency paths in main building at crescent gate have power. Install generators at Autumn Ridge so residents can shelter in place.					
Sturbridge Retirement Cooperative		Privately	S	Mobile home complex with challenges	Ensure that the Sturbridge retirement cooperative community room has a generator					
Heritage Green		Privately	S	Rental community						
Tourist Attractions	Old Sturbridge Village	Privately	S	Winter Storms impact Old Sturbridge Village a lot, a local dam can flood over,	Work with Sturbridge Village to monitor area around the village and how the environment outside of the Village can effect the Village. Identify flooding and tornado data around OSV.					
Center of Hope	26 Main Street	Private	S	Day Habilitation for individuals with mental and physical disabilities	Accessibility for individuals to get out of these centers in natural disasters; use these centers to post/educate the community on what to do/where to look for hazard updates; group homes and individual homes on site (private/state-owned) pre-alerts.					
Venture Community Services	Technology Park Road	Private	S	Day Habilitation for individuals with mental and physical disabilities, becomes a college on the weekends (Bay Path)	Accessibility for individuals to get out of these centers in natural disasters; use these centers to post/educate the community on what to do/where to look for hazard updates; group homes (private/state-owned) pre-alerts.					
Center at Hobbs Brook	Charlton Road	Private	S	Shopping Center (food and other) and is on a brook that floods. They installed solar						
Shaws Plaza	178 Main Street	Private	S	Shopping Center (food and other and pharmacy)						
Communications	Town-wide	Local	V/S	Current system is horrible and can sometimes go out, issues with	Implement a brand new system of inter-response communications					
Public Outreach	Town-wide	local	V/S	Strong internet presence; newspaper and radio outreach is not appropriate enough	Educate individuals how to access information via internet or radio; find alternatives or new ways to send out information locally; reverse 911 possibility; improve emergency broadcast					

Pandemic	Town-Wide	Local	V	system can be better prepared for pandemic-related issues; food scarcity	Work with local grocery stores to ensure water/food service during disaster events;					
Staff Time, Staff Resources, Volunteering Opportunities	Town-Wide	Local	V/S	The town's capacity for staff time and resources to coordinate or complete prioritized projects/needs	Consider staff time and resources when prioritizing projects, coordination's, other programs; expand on volunteering opportunities through grants, etc.					
Trails Committee	Town-wide	Local	S	Trails committee has a huge volunteer base that builds, maintains, cleans, and educate						
Environmental										
Tree Trimming	Town wide	National Grid/Private/Pub	V	On the other side of the road from where National Grid trims	Formulate a tree harvesting program in coordination with the Tree Warden					
Lakes and ponds	Town wide		V/S	Cedar Lake and Big Allum Lake in particular, some are great ponds and other are smaller private ponds.	Monitor levels of lakes and ponds; educate individuals on importance of healthy stormwater practices; coordinate with Lake associations to provide outreach and help with what they are doing;					
Beaver Pond	Behind Empire Village	Public	V	Huge beaver pond from Rt 20 to Cooper Road and has caused problems with floods	Capture beaver and install beaver deceiver devices; address beaver control issue on a case by case basis					
Debris			V	Debris laying around in open areas could result in wildfires	Implement a debris management plan to tackle debris collection, work with the state fire Marshalls to create fire breaks in town near residential areas					
Invasive Species/Gypsy Moth	Town-wide	Local	V	Goes along with tree trimming, but the town has done a good job with cutting down infected trees	Monitor condition of trees and potential to re-plant trees to provide benefits like urban tree canopy; Urban Tree Canopy Replacement Program grants; apply methods to deter invasive or other species, like beavers;					
Wetland Resource Areas				The town has a lot of wetlands and with drought can bring a lot of silt and debris	Educate residents about their importance and ways to protect them, see stormwater management					
Trails System	Town-wide	Public/State	S	Wind can bring debris down on the trail but overall has been well maintained	continue trail workdays and improve upon; recruit new volunteers for trail workdays; improve upon trail asset mgmt. system to continue marking and monitoring assets.					

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

Sturbridge Table 3
H-**M**-**L** priority for action over the **S**hort or **L**ong term (and **O**ngoing)
V = Vulnerability **S** = Strength

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

Features	Location	Ownership	V or S	Flooding	Drought/Heat	Winter Storms	Severe Storms	Priority H - M - L	Time Short Long Ongoing
Infrastructural									
DPW Building (low-lying area)				Low lying area so we must relocate it (FARTHER from water- long term), or better drainage around it (short term)		Flat roof poses risk from heavy snow- explore options in funding for a solution		M	L
Pump Stations/Sewer Water	Route 20 by Cedar Pond Dam			Try to get automatic generators for three pump stations w/o them (concerning major pump station on Route 20- Need to do a study to reroute water around it- enlarge the culver on Route 20 (state owned)				M	S
Dams	Cedar Pond Dam, Old Mill Pond Dam, Big Alum Dam; Cooper Road Dam(between Cedar & Arnold RD)	Town-Owned		Cedar Lake, Old Mill Road (possible **removal** for Old Mill dam)				M	O
Roadways	Champeaux Road (bridge being rebuilt through state); Condo areas			Sturbridge hills condo, A lot of water pooled on Route 20 in front of Boardwalk maybe due to plugged catch basins, Continue catch basin maintenance -Coordination with Mass DOT to replace culvert		Alan Road, Holland Road freeze over to a sheet of ice - (look at internal treatment options)		M	O
Cisterns/Dry hydrants		Private			Review local bylaws in regard to rural fire protection requirements			L	L
Electrical Network/Tree Obstructions	Town-wide	Public/Private	V			Many areas get hit repeatedly at the same time, trees falling cutting off electrical service. Continue working with utility and expand local capacity. Additional money in that budget.		H	S
Town Building Generators	Lack of sufficient generators at: **Senior Center, Town Hall, Center Office Building, Library, DPW**				Lacking generators- pursue resources for generators			H	S
Emergency Community Shelter during emergency event	Tantasqua School; Senior Center (for cooling issues)		V		Review sheltering plans with other participating communities and develop a formal sheltering plan if necessary - sheltering is advertised over social media many people (seniors) sign up			H	O
Water/Sewage - 4 water wells no issues, wastewater plant is under capacity (1/2 capacity)	Town-Wide	Private- Veolia	S						
Emergency Communication System (service dead spots, DPW shares with bus company, portables for police, bad cell service, lack of communication infrastructure) we win!	Town-Wide	Public	V	Total system overhaul- replacing portable radios, getting funding to replace radios, study to find vulnerable spots in town to see how much will cost, currently cannot communicate with state police, budget for radios, communication between local and state officials for how to best correct that				H	S
EOC space issues/outdated infrastructure	Police Station	Public	V	A study/review of possible police station advancement options or relocate EOC				H	S
Societal									
Senior Populations	Heritage Green (family & seniors, low-income); Autumn Ride (senior, low-income); Crescent Green; mobile home park (Sturbridge cooperative, i.e.)	Private (Windgate Mgmt./And Welcome)	V	Community room cannot hold entire population of seniors, potentially building a new senior center for the growth of senior population- nowhere for seniors to go in emergency, temporary housing options				M	L

Are You Okay? Program; Code Red program (will determine name)	Town-Wide	Public	S	Continue to enhance community outreach, do landlines reach people?				**L**	**O**
Lack of Housing - senior housing, long-term rental, emergency housing (housing all together for different types of families)	Town-Wide		V	Continue to coordinate housing development policies w hazard communication and climate change in mind				**M**	**L**
Town Agency Work Power/Resources- Understaffing	Town-Wide		V	Make sure public safety agencies are adequately funded and staffed				**H**	**S**
Bethlehem Church		Public	S/V	Continue to coordinate on opportunities for use of the space				**H/M**	**L**
Homelessness	Town-Wide		V	Set a plan with other church's and community members and set resources together, Southbridge - transitional housing - shelter for a month, children and families				**H/M**	**O**
Bylaws/Regulations	Town-Wide		S/V	Reviewing local bylaws and regulations with regard to nature-based solutions (are you permitted to put in certain drainage infrastructure?)				**M**	**O/L**
Disaster Communications	Within Town Departments	Public	V	Consider developing a COOP (continuity of operations plan)				**H**	**S**
Sewage Movement/Administrative Issues	With Southbridge	Public	S/V	investigate options for getting land for sewage pump				H	S/Medium
Travel/Tourism (gateway projection of the town)	I-84 area for example		V						
Bylaws to regulate Landscape/Plantings	Town-Wide	Public	S						
Evacuation Routes	Route 15	Private						**H**	**S**
Environmental									
Tree/Forestry Mgmt. Plan/Tree Decay	Town-Wide	Public/Private	V	Tree management plan- knowing year to year which areas need to be better managed, inventory where the trees are, what species, trimming, etc. -Private trees? Incorporated in the planning phase, and state land, DCR, army corps -bucket truck and training someone- or sharing equipment with another town -other necessary equipment = another chipper				H	S
Trails & Open Space	Town-Wide	Public	S	Continue to explore opportunities for trails -explore opportunities for open space property acquisition					
Development Patterns (dispersed)- growing areas of town outside of water/sewer (no infrastructure near) susceptible to droughts	Town-Wide	Pub/Private	V	Getting water over to Walker Pond and McGilpin Rd- **feasibility study**- what would it cost for users -Drought management plan					
Lakes- water quality - E. Coli (Cedar Lake) Quinebaug River - sewer contamination in the event of the plant failure or major flooding event	Walker pond, South pond, Cedar lake (has sewer but has E. Coli issue due to the Cove - insufficient water flow), Big Alum, lead mine, Long pond (boat access)	Public access, Private o	V	Lake associations meet to institute education programs etc.				H	S
Beaver dams- large amount- Cooper road, another off of Route 20, Big Alum (private)	Town-wide	Pub/Private	V	Continue to monitor and trap as needed					
Gypsy moths- we have removed dead trees	Town-Wide	Pub/Private	V	Part of the tree study, some kind of prevention program for gypsy moths -Pest management program- long horn beetle, ash borer, gypsy moth					
Walker pond- well sodium contamination coming from turnpike: either tunnel under or bridge over (nothing has happened yet)			V						
McGilpin Road- contamination from Southbridge landfill	Local		V	Pursue funding for resources to implement connecting to Sturbridge water system					
Rising water table (level at which you reach standing water after digging down- point where ground becomes saturated with water)- rising water level of rivers, causing rise in water table	Town-Wide		V	Rising sea level- causes rising rivers- causes rising water table -Change in the water table due to climate change- how does that effect water in town? Impact on septic systems? Underground utilities? Especially in low-lying areas and water-front properties -**Feasibility study** involving anything with septic, any new development with septic, low-lying areas				H	S

STURBRIDGE
MASSACHUSETTS

Sturbridge Municipal Vulnerability Preparedness Program

Top Priority Actions Survey

Thank you for participating in Sturbridge's MVP Virtual Workshop! All of the presentations, background information, and the matrix that you helped to fill out during the workshop can be accessed at the following link: https://www.dropbox.com/sh/2cui68dnth0rnvn/AABhpCDKkIS35Cvzy-LcEEBLa?dl=0xc

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 Sturbridge should take in order to become more resilient. Please take some time to review those materials in the link above and complete the survey by Friday, November 20, 2020. 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):

Flooding

Drought

Wind

Winter Storms

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
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.			

	High	Medium	Low
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.			
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.			
Parking Assessment exploring sustainable parking options that improve drainage and cooling.			

	High	Medium	Low
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.			
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.			

	High	Medium	Low
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.			
Maintain relationships and communication with the gas companies.			
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.			

	High	Medium	Low
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.			
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.			
Develop an inter-response communication system.			

	High	Medium	Low
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.			
Include the Publick House Historic Inn on regional emergency plans.			

	High	Medium	Low
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.			
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.			

	High	Medium	Low
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.			
Establish a partnership with grocery stores to ensure food and water service during disasters.			

	High	Medium	Low
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.			
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).			

	High	Medium	Low
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.			
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.			
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.			
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.			

	High	Medium	Low
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.			

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
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.	●	●	●

	Short	Long	Ongoing
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.			
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.			
Parking Assessment exploring sustainable parking options that improve drainage and cooling.			

	Short	Long	Ongoing
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.			
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.			

	Short	Long	Ongoing
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.			
Maintain relationships and communication with the gas companies.			
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.			

	Short	Long	Ongoing
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.			
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.			
Develop an inter-response communication system.			

	Short	Long	Ongoing
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.			
Include the Publick House Historic Inn on regional emergency plans.			

	Short	Long	Ongoing
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.			
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.			

	Short	Long	Ongoing
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.			
Establish a partnership with grocery stores to ensure food and water service during disasters.			

	Short	Long	Ongoing
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.			
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).			

	Short	Long	Ongoing
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.			
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.			
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.			
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.			

	Short	Long	Ongoing
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.			

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

- Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.
- Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.
- Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.
- Parking Assessment exploring sustainable parking options that improve drainage and cooling.
- Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.
- Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.
- Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.
- Maintain relationships and communication with the gas companies.

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

- Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.
- Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.
- Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.
- Develop an inter-response communication system.
- Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.
- Include the Publick House Historic Inn on regional emergency plans.
- Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.
- Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.
- Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.
- Establish a partnership with grocery stores to ensure food and water service during disasters.

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

- Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.
- Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).
- Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.
- Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.
- Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.
- Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.
- Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.

7. Please vote for TWO additional top priority actions that you believe Sturbridge 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
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.		

	Vote 1	Vote 2
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.		
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.		
Parking Assessment exploring sustainable parking options that improve drainage and cooling.		

	Vote 1	Vote 2
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.		
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.		

	Vote 1	Vote 2
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.		
Maintain relationships and communication with the gas companies.		
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.		

	Vote 1	Vote 2
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.		
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.		
Develop an inter-response communication system.		

	Vote 1	Vote 2
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.		
Include the Publick House Historic Inn on regional emergency plans.		

	Vote 1	Vote 2
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.		
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.		

	Vote 1	Vote 2
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.		
Establish a partnership with grocery stores to ensure food and water service during disasters.		

	Vote 1	Vote 2
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.		
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).		

	Vote 1	Vote 2
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.		
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.		
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.		
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.		

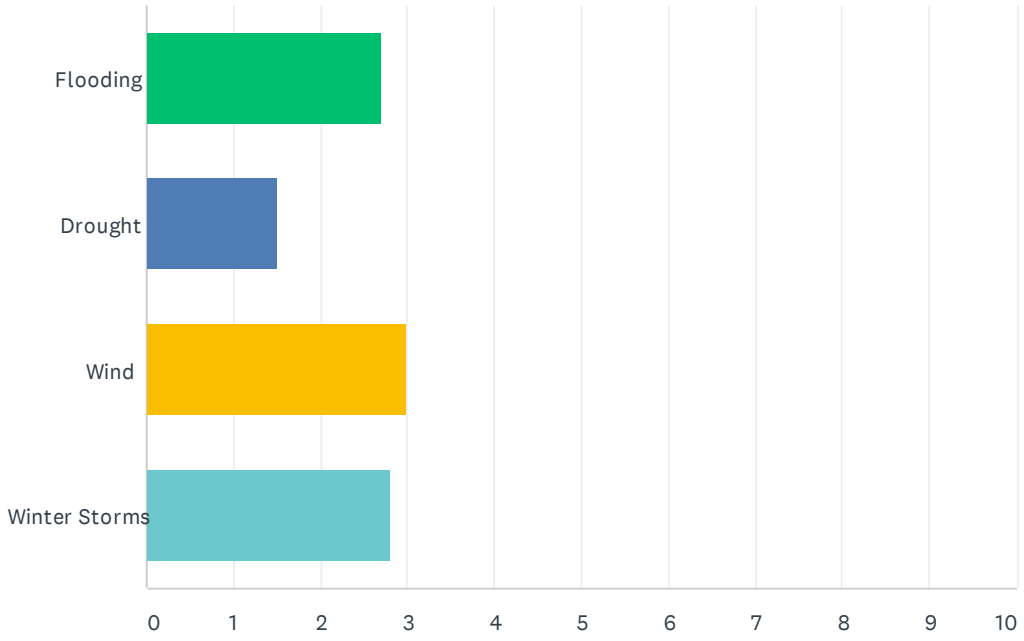
	Vote 1	Vote 2
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.		

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 Sturbridge'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):

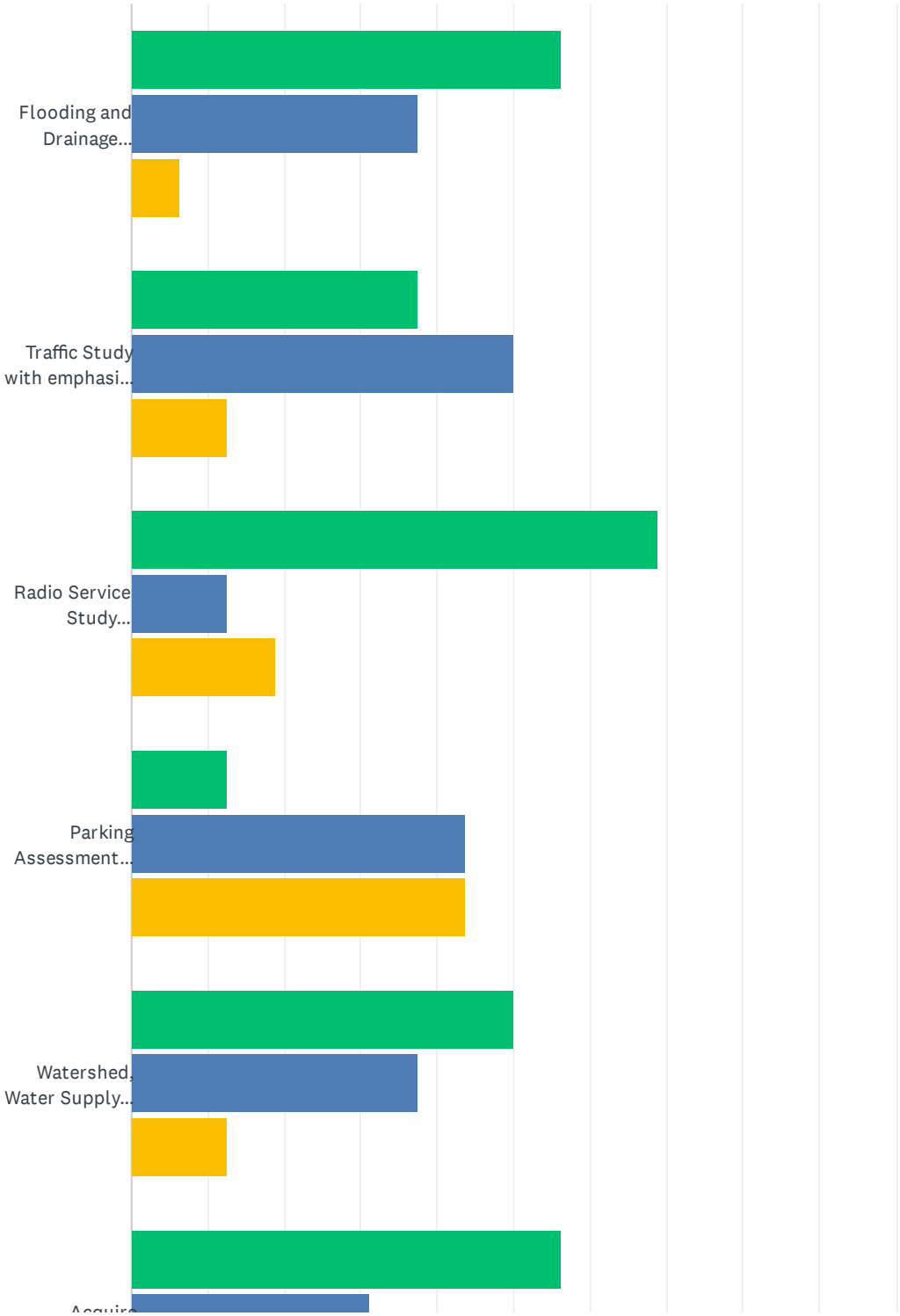
Answered: 16 Skipped: 0

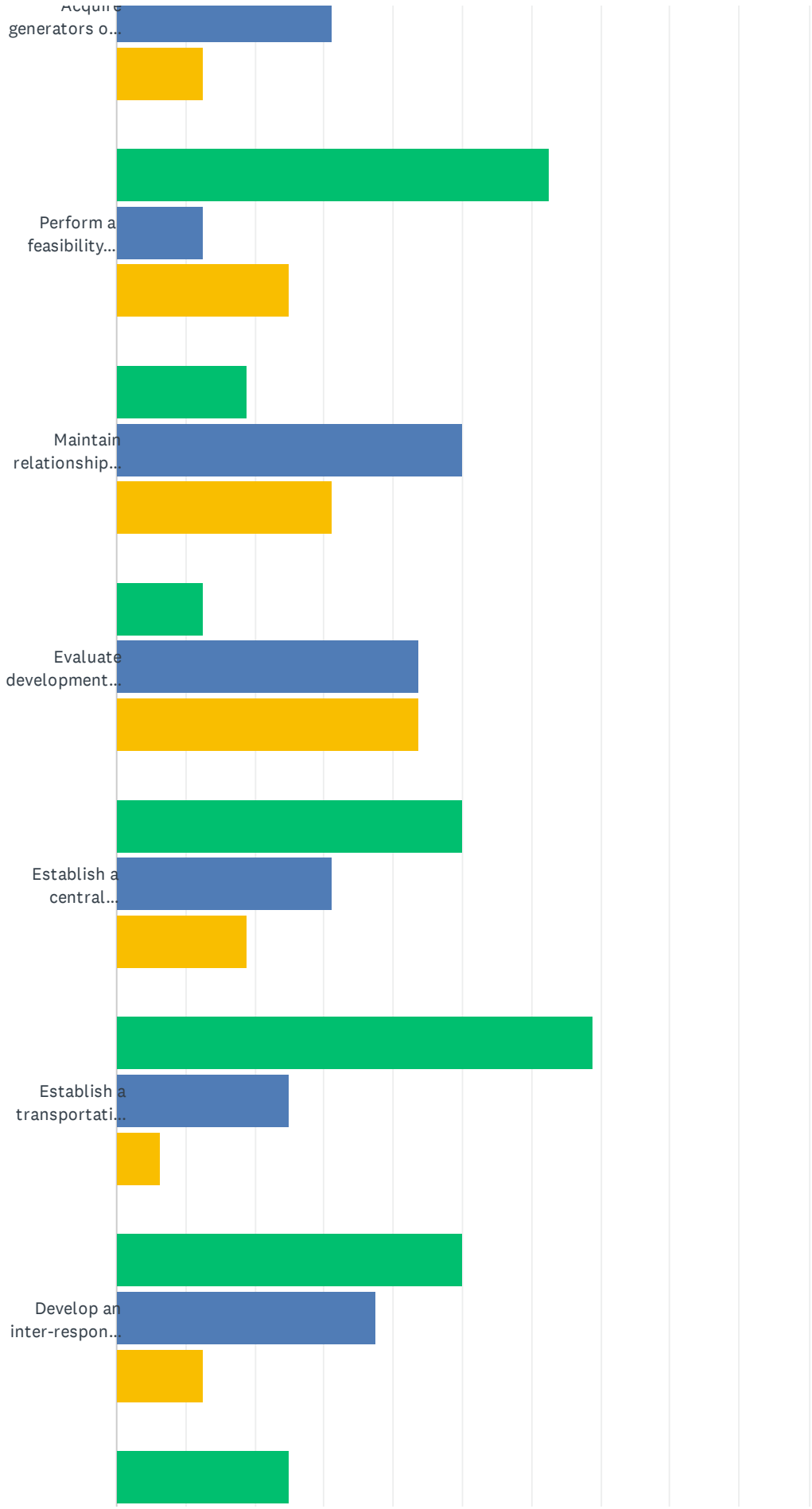


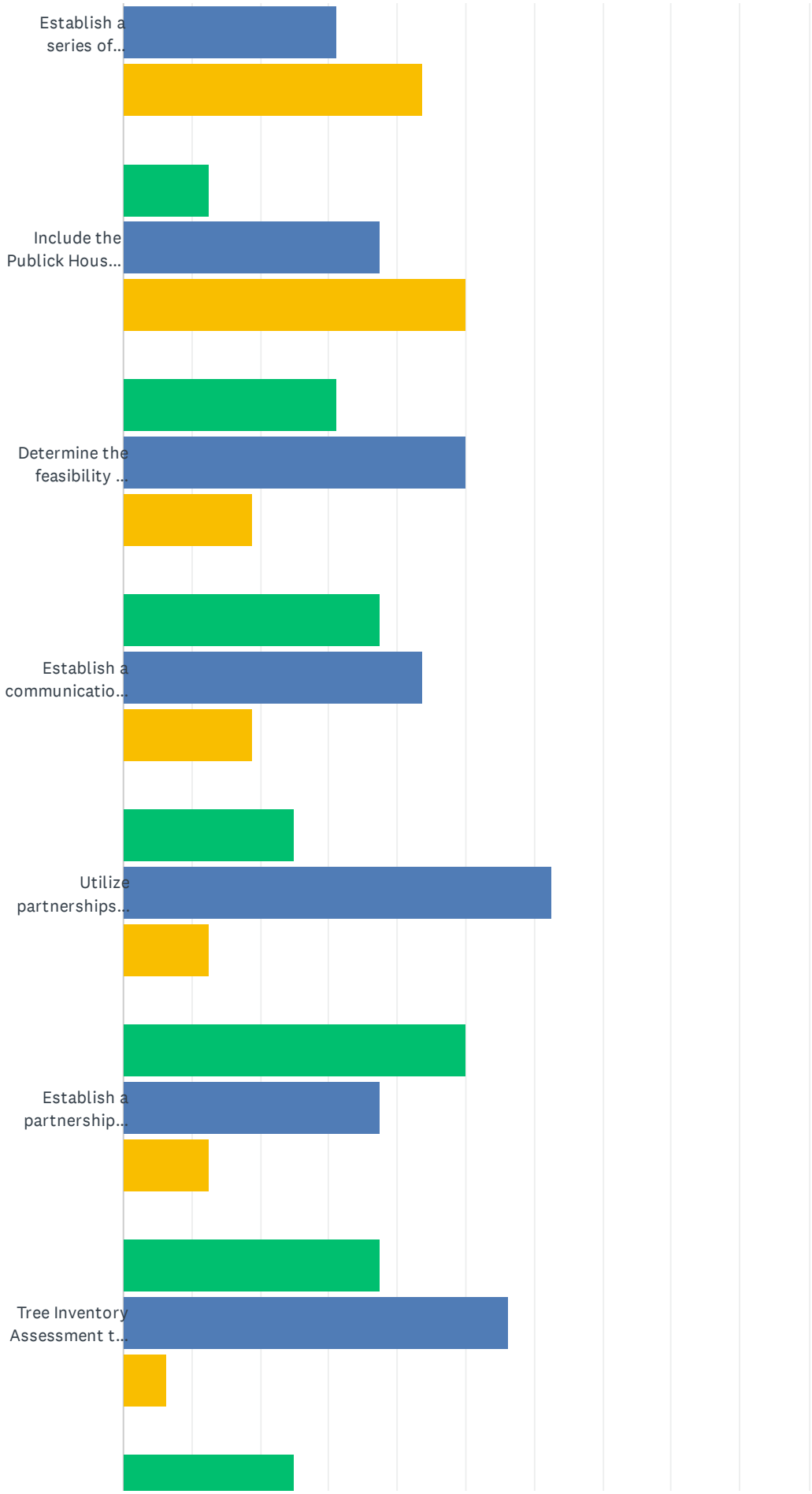
	1	2	3	4	TOTAL	SCORE
Flooding	31.25% 5	18.75% 3	37.50% 6	12.50% 2	16	2.69
Drought	6.25% 1	0.00% 0	31.25% 5	62.50% 10	16	1.50
Wind	31.25% 5	50.00% 8	6.25% 1	12.50% 2	16	3.00
Winter Storms	31.25% 5	31.25% 5	25.00% 4	12.50% 2	16	2.81

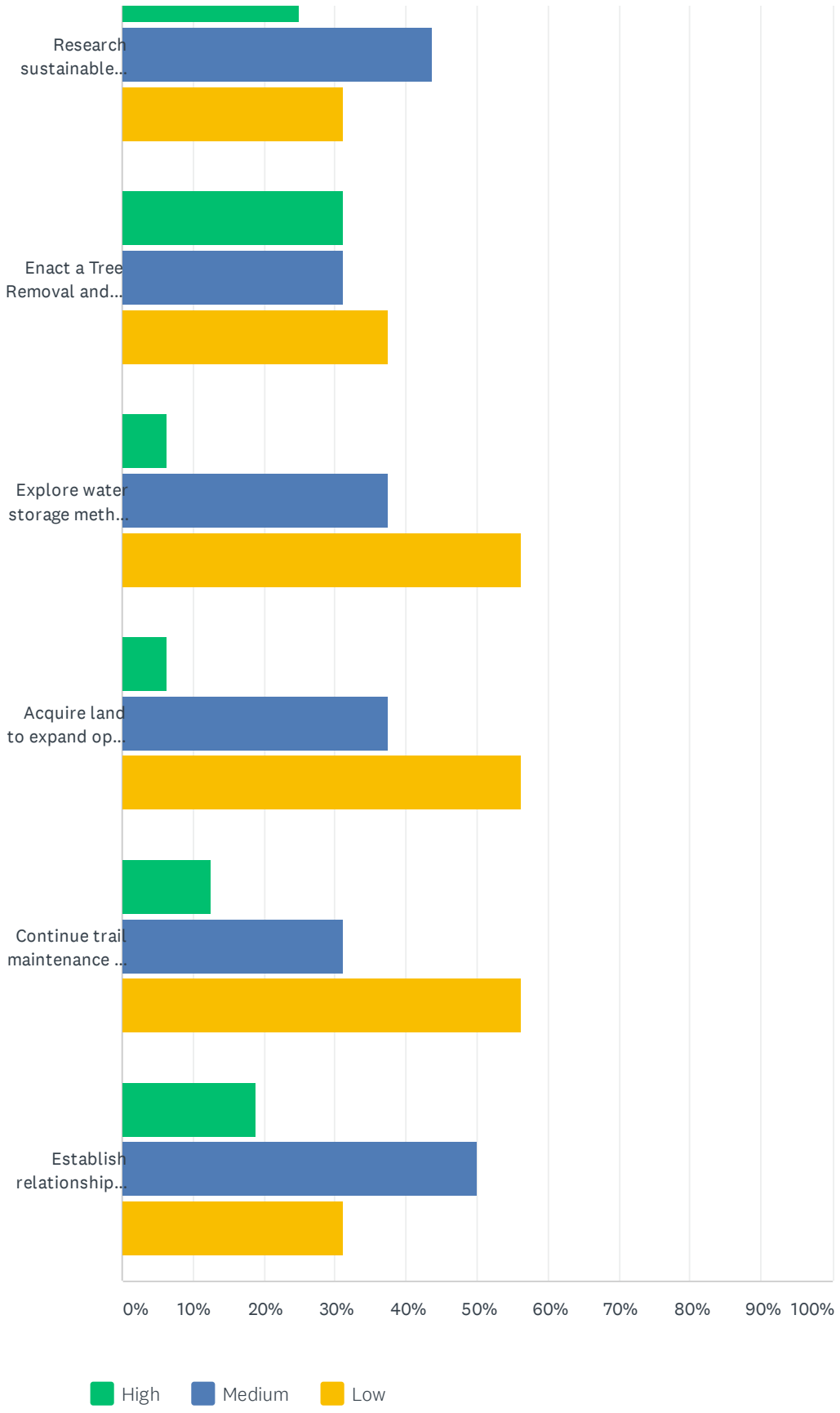
Q2 Please vote on whether the following actions are High, Medium, or Low priorities. High priority actions are necessary to meet existing requirements or are needed to help prepare for/prevent a potential hazard. Low priority action items will help the town build resilience, but are not immediately necessary.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

Answered: 16 Skipped: 0




Acquire generators o...
Perform a feasibility...
Maintain relationship...
Evaluate development...
Establish a central...
Establish a transportati...
Develop an inter-respon...


Establish a series of...
Include the Publick Hous...
Determine the feasibility ...
Establish a communicatio...
Utilize partnerships...
Establish a partnership...
Tree Inventory Assessment t...

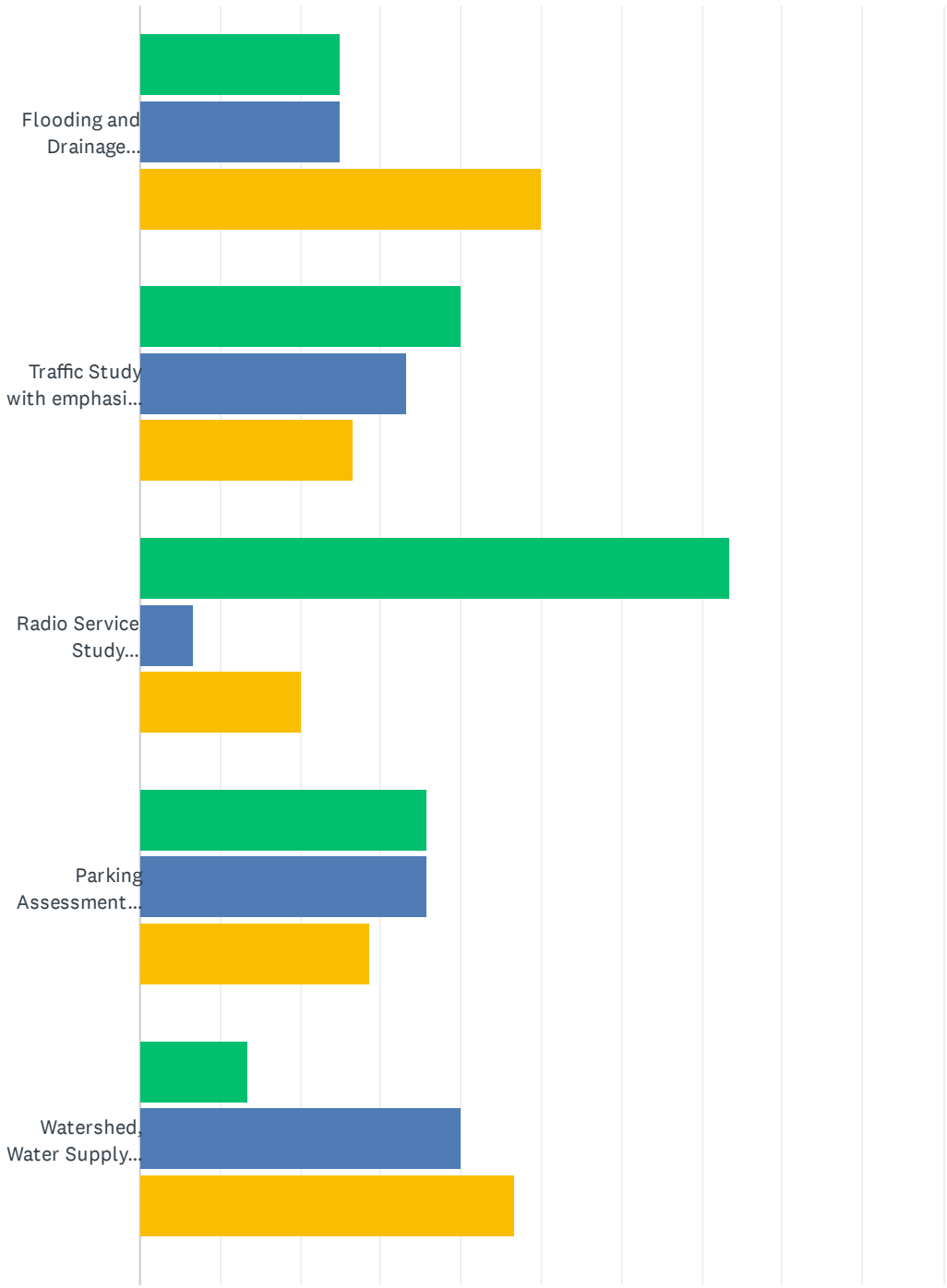

Research sustainable...
Enact a Tree Removal and...
Explore water storage meth...
Acquire land to expand op...
Continue trail maintenance ...
Establish relationship...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
High
Medium
Low

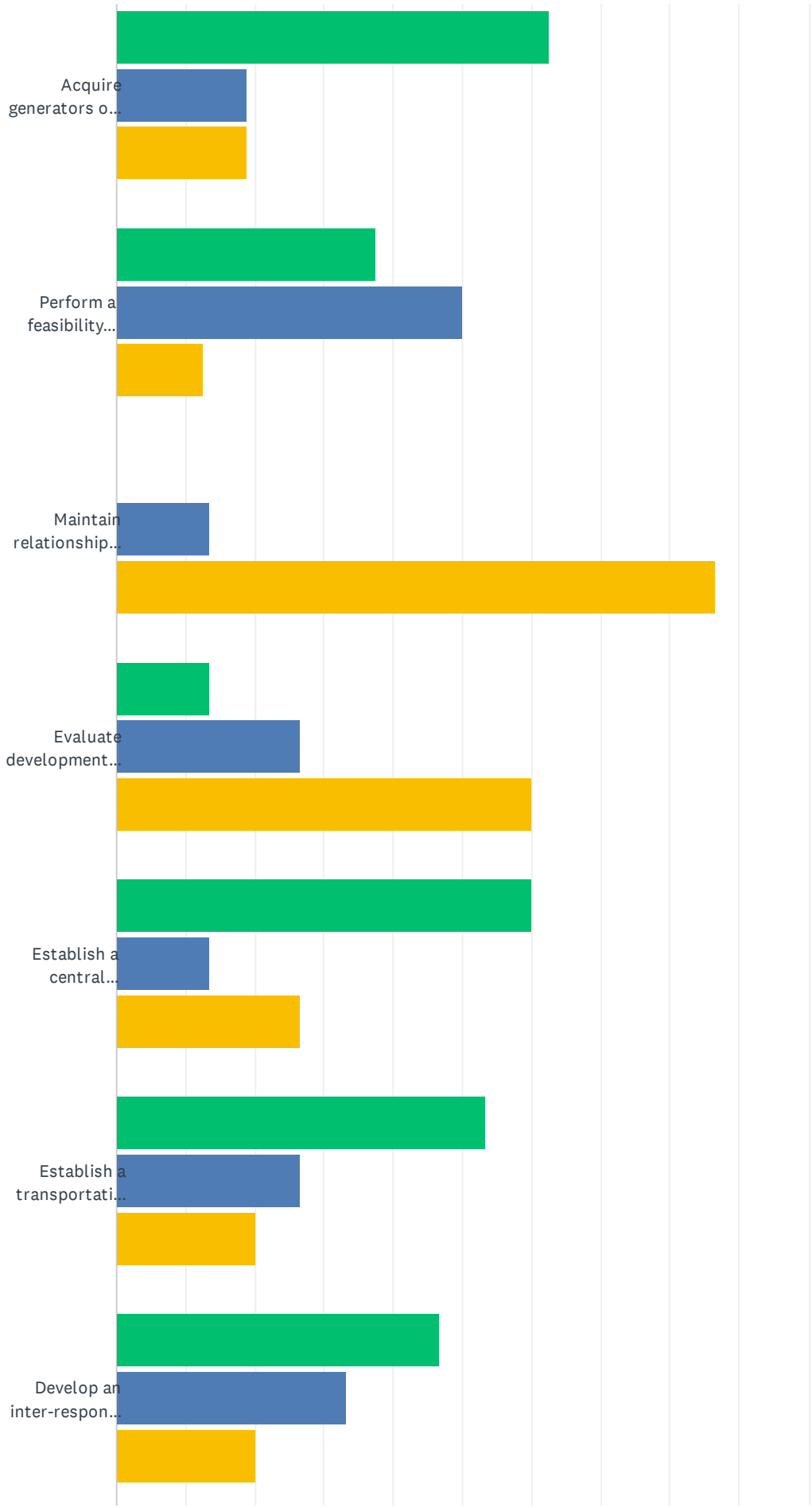
	HIGH	MEDIUM	LOW	TOTAL
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.	56.25% 9	37.50% 6	6.25% 1	16
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.	37.50% 6	50.00% 8	12.50% 2	16
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.	68.75% 11	12.50% 2	18.75% 3	16
Parking Assessment exploring sustainable parking options that improve drainage and cooling.	12.50% 2	43.75% 7	43.75% 7	16
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.	50.00% 8	37.50% 6	12.50% 2	16
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.	56.25% 9	31.25% 5	12.50% 2	16
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.	62.50% 10	12.50% 2	25.00% 4	16
Maintain relationships and communication with the gas companies.	18.75% 3	50.00% 8	31.25% 5	16
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.	12.50% 2	43.75% 7	43.75% 7	16
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.	50.00% 8	31.25% 5	18.75% 3	16
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.	68.75% 11	25.00% 4	6.25% 1	16
Develop an inter-response communication system.	50.00% 8	37.50% 6	12.50% 2	16
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.	25.00% 4	31.25% 5	43.75% 7	16
Include the Publick House Historic Inn on regional emergency plans.	12.50% 2	37.50% 6	50.00% 8	16
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.	31.25% 5	50.00% 8	18.75% 3	16
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.	37.50% 6	43.75% 7	18.75% 3	16
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.	25.00% 4	62.50% 10	12.50% 2	16

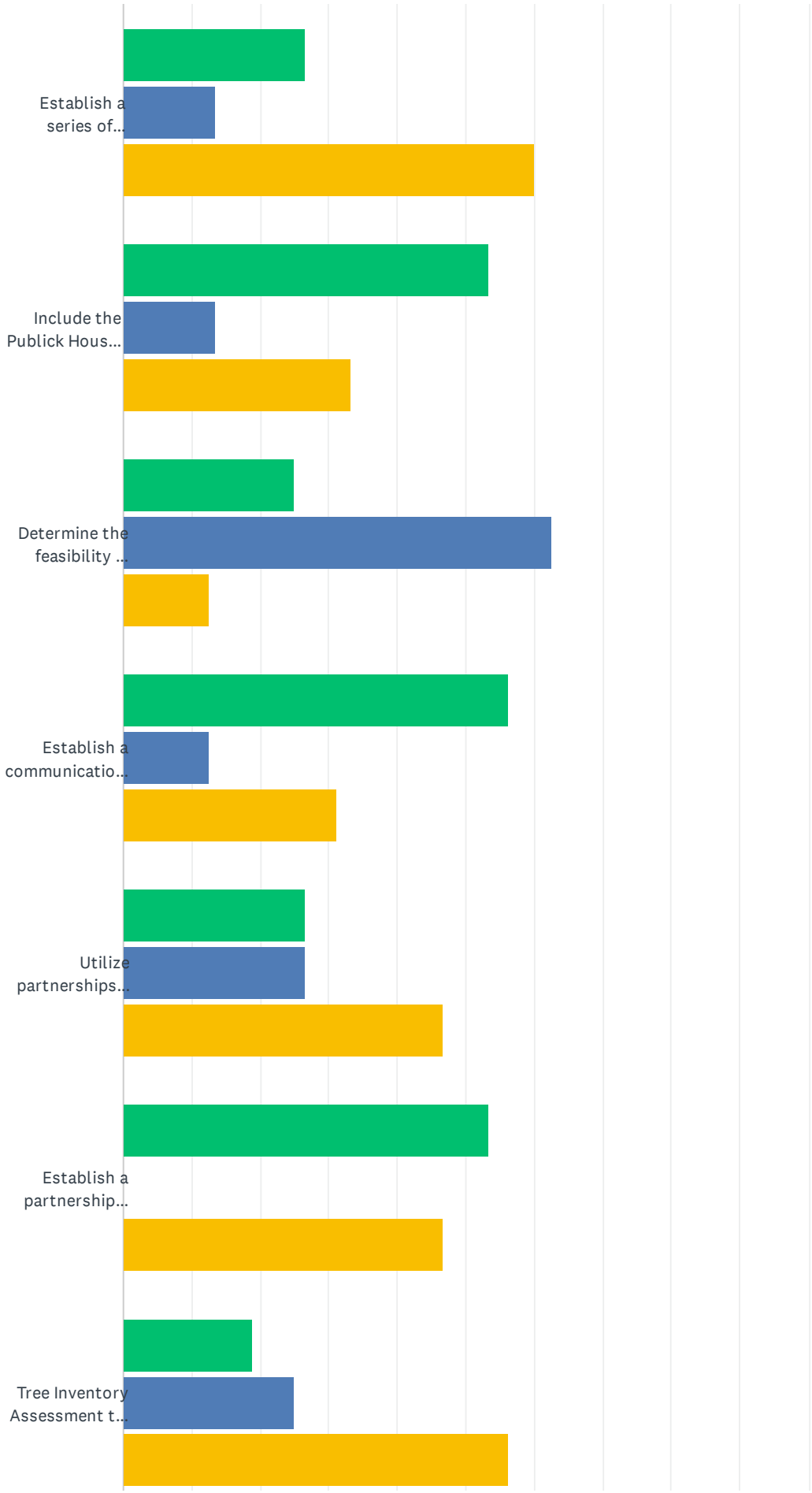
Establish a partnership with grocery stores to ensure food and water service during disasters.	50.00% 8	37.50% 6	12.50% 2	16
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.	37.50% 6	56.25% 9	6.25% 1	16
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).	25.00% 4	43.75% 7	31.25% 5	16
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.	31.25% 5	31.25% 5	37.50% 6	16
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.	6.25% 1	37.50% 6	56.25% 9	16
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.	6.25% 1	37.50% 6	56.25% 9	16
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.	12.50% 2	31.25% 5	56.25% 9	16
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.	18.75% 3	50.00% 8	31.25% 5	16

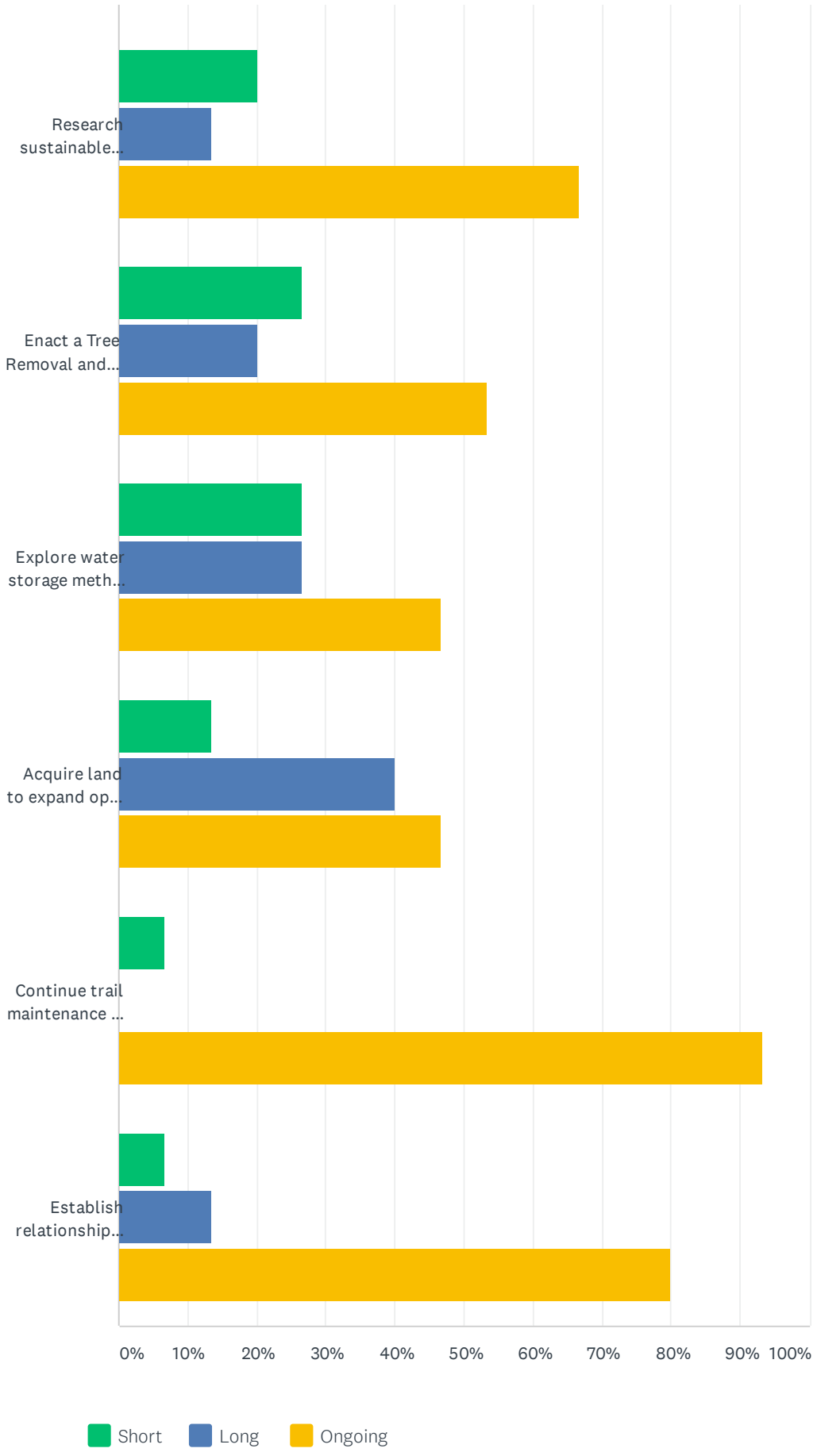
Q3 Please vote on whether the following actions are Short, Long, or Ongoing projects. Short term projects are straightforward and can be completed within two years. Long term projects take a longer time to complete, may require initial studies or public engagement strategies, and tend to be more complex.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

Answered: 16 Skipped: 0




Acquire generators o...
Perform a feasibility...
Maintain relationship...
Evaluate development...
Establish a central...
Establish a transportati...
Develop an inter-respon...


Establish a series of...
Include the Publick Hous...
Determine the feasibility ...
Establish a communicatio...
Utilize partnerships...
Establish a partnership...
Tree Inventory Assessment t...

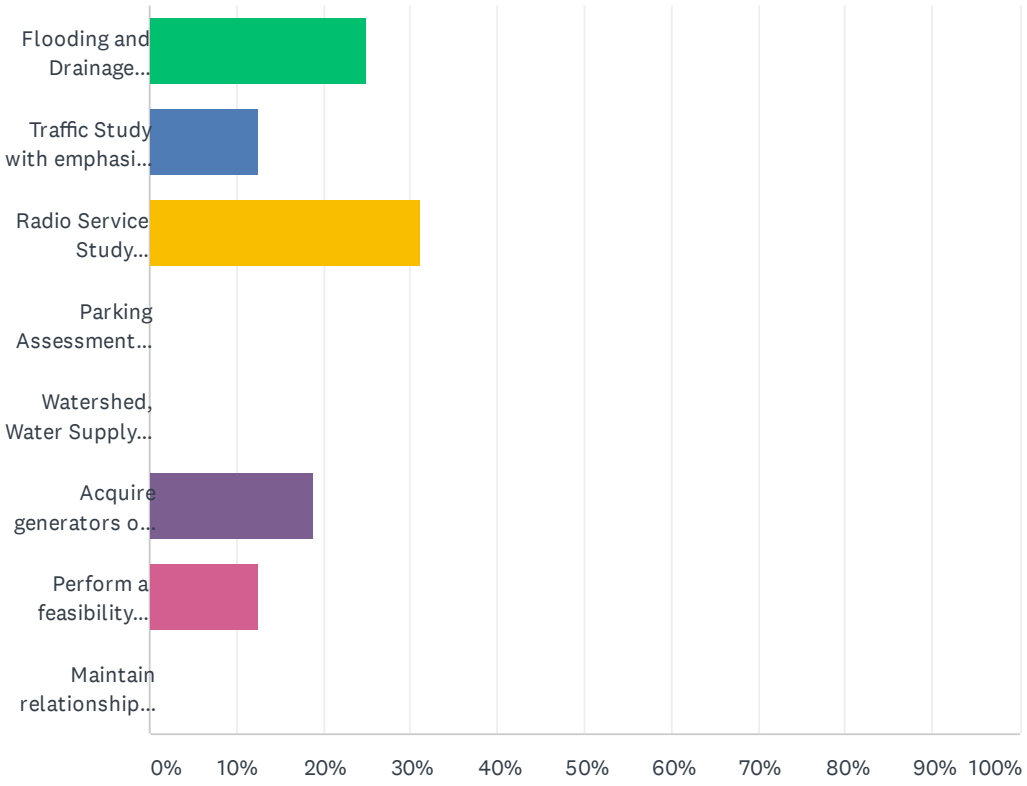

Research sustainable...
Enact a Tree Removal and...
Explore water storage meth...
Acquire land to expand op...
Continue trail maintenance ...
Establish relationship...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Short
Long
Ongoing

	SHORT	LONG	ONGOING	TOTAL
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.	25.00% 4	25.00% 4	50.00% 8	16
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.	40.00% 6	33.33% 5	26.67% 4	15
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.	73.33% 11	6.67% 1	20.00% 3	15
Parking Assessment exploring sustainable parking options that improve drainage and cooling.	35.71% 5	35.71% 5	28.57% 4	14
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.	13.33% 2	40.00% 6	46.67% 7	15
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.	62.50% 10	18.75% 3	18.75% 3	16
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.	37.50% 6	50.00% 8	12.50% 2	16
Maintain relationships and communication with the gas companies.	0.00% 0	13.33% 2	86.67% 13	15
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.	13.33% 2	26.67% 4	60.00% 9	15
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.	60.00% 9	13.33% 2	26.67% 4	15
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.	53.33% 8	26.67% 4	20.00% 3	15
Develop an inter-response communication system.	46.67% 7	33.33% 5	20.00% 3	15
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.	26.67% 4	13.33% 2	60.00% 9	15
Include the Publick House Historic Inn on regional emergency plans.	53.33% 8	13.33% 2	33.33% 5	15
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.	25.00% 4	62.50% 10	12.50% 2	16
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.	56.25% 9	12.50% 2	31.25% 5	16
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.	26.67% 4	26.67% 4	46.67% 7	15

Establish a partnership with grocery stores to ensure food and water service during disasters.	53.33% 8	0.00% 0	46.67% 7	15
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.	18.75% 3	25.00% 4	56.25% 9	16
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).	20.00% 3	13.33% 2	66.67% 10	15
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.	26.67% 4	20.00% 3	53.33% 8	15
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.	26.67% 4	26.67% 4	46.67% 7	15
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.	13.33% 2	40.00% 6	46.67% 7	15
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.	6.67% 1	0.00% 0	93.33% 14	15
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.	6.67% 1	13.33% 2	80.00% 12	15

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

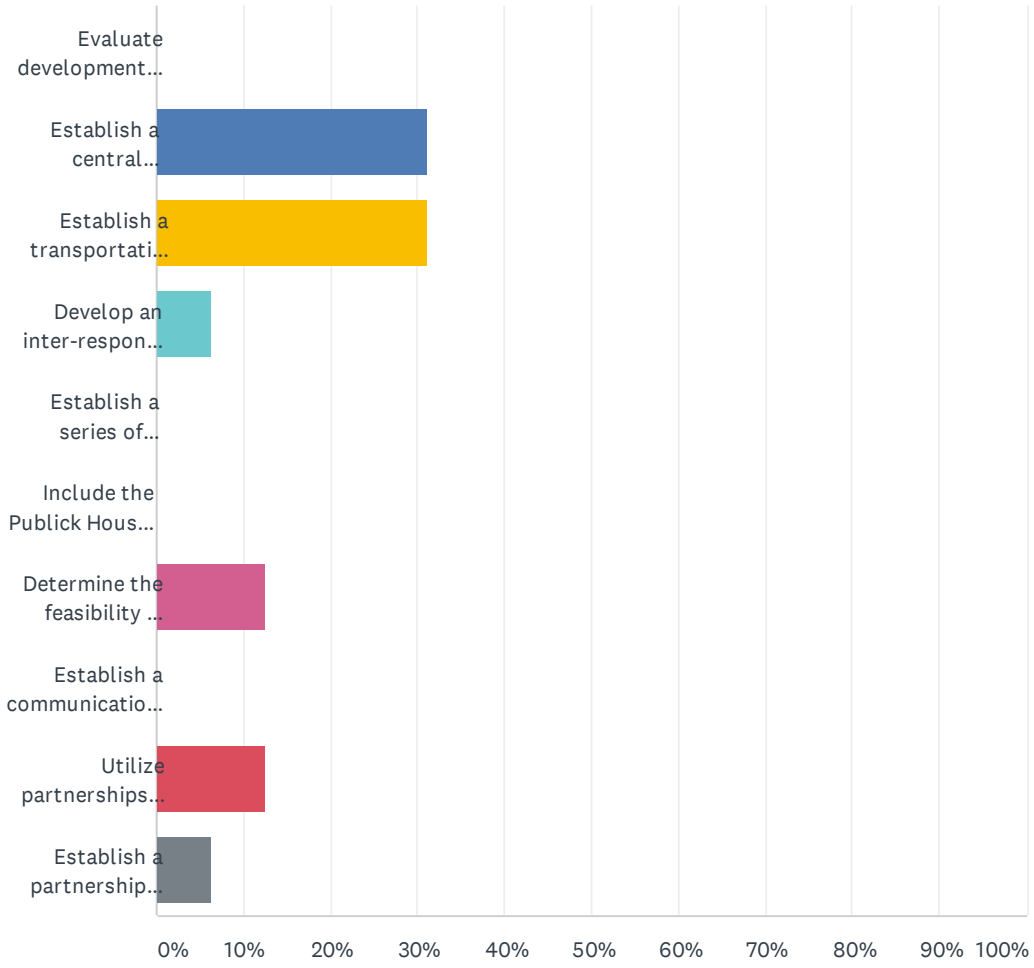
Answered: 16 Skipped: 0



ANSWER CHOICES	RESPONSES	
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.	25.00%	4
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.	12.50%	2
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.	31.25%	5
Parking Assessment exploring sustainable parking options that improve drainage and cooling.	0.00%	0
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.	0.00%	0
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.	18.75%	3
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.	12.50%	2
Maintain relationships and communication with the gas companies.	0.00%	0
TOTAL		16

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

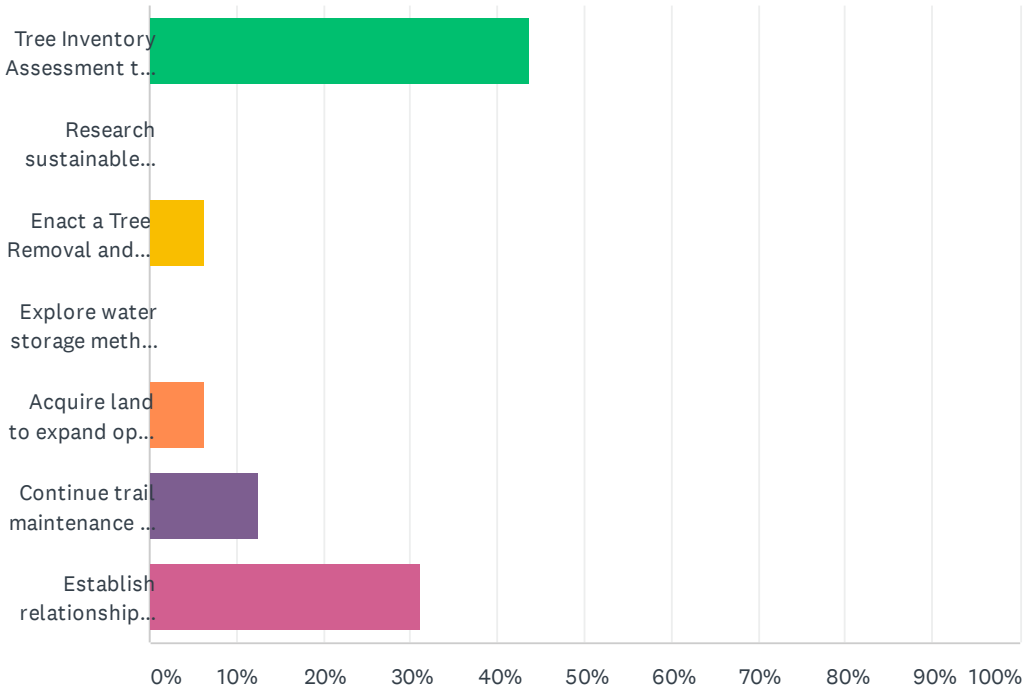
Answered: 16 Skipped: 0



ANSWER CHOICES	RESPONSES	
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.	0.00%	0
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.	31.25%	5
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.	31.25%	5
Develop an inter-response communication system.	6.25%	1
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.	0.00%	0
Include the Publick House Historic Inn on regional emergency plans.	0.00%	0
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.	12.50%	2
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.	0.00%	0
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.	12.50%	2
Establish a partnership with grocery stores to ensure food and water service during disasters.	6.25%	1
TOTAL		16

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

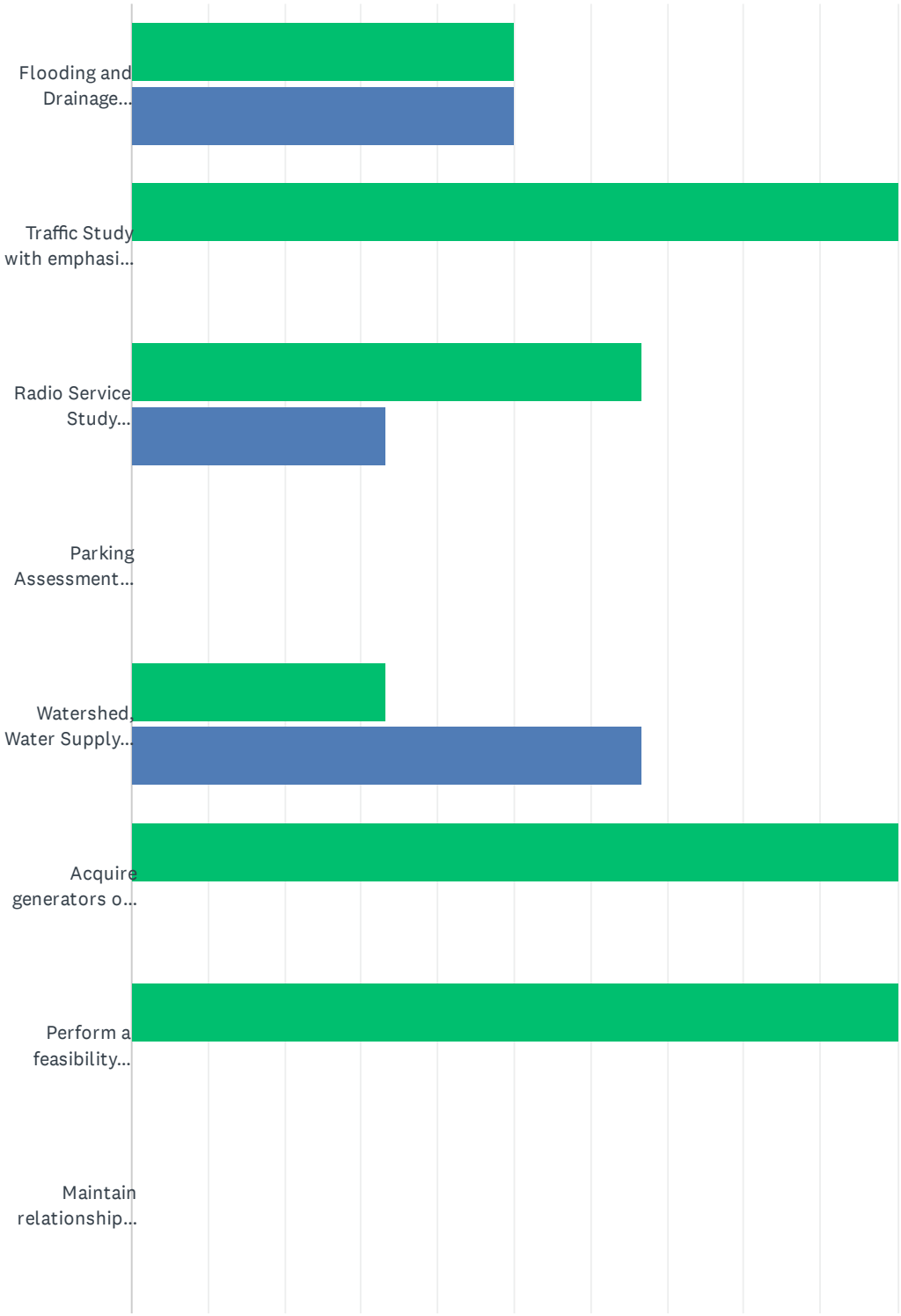
Answered: 16 Skipped: 0

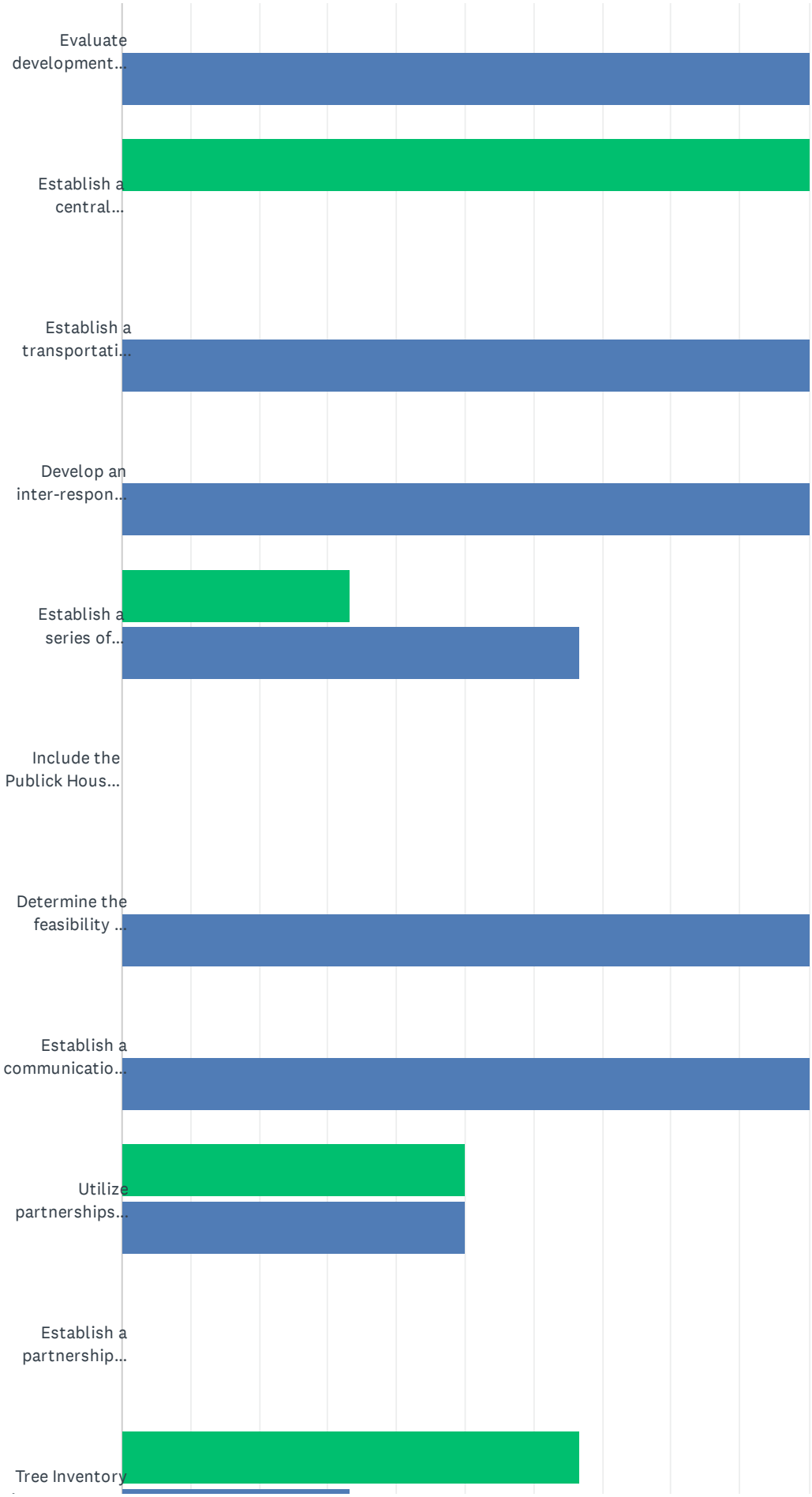


ANSWER CHOICES	RESPONSES	
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.	43.75%	7
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).	0.00%	0
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.	6.25%	1
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.	0.00%	0
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.	6.25%	1
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.	12.50%	2
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.	31.25%	5
TOTAL		16

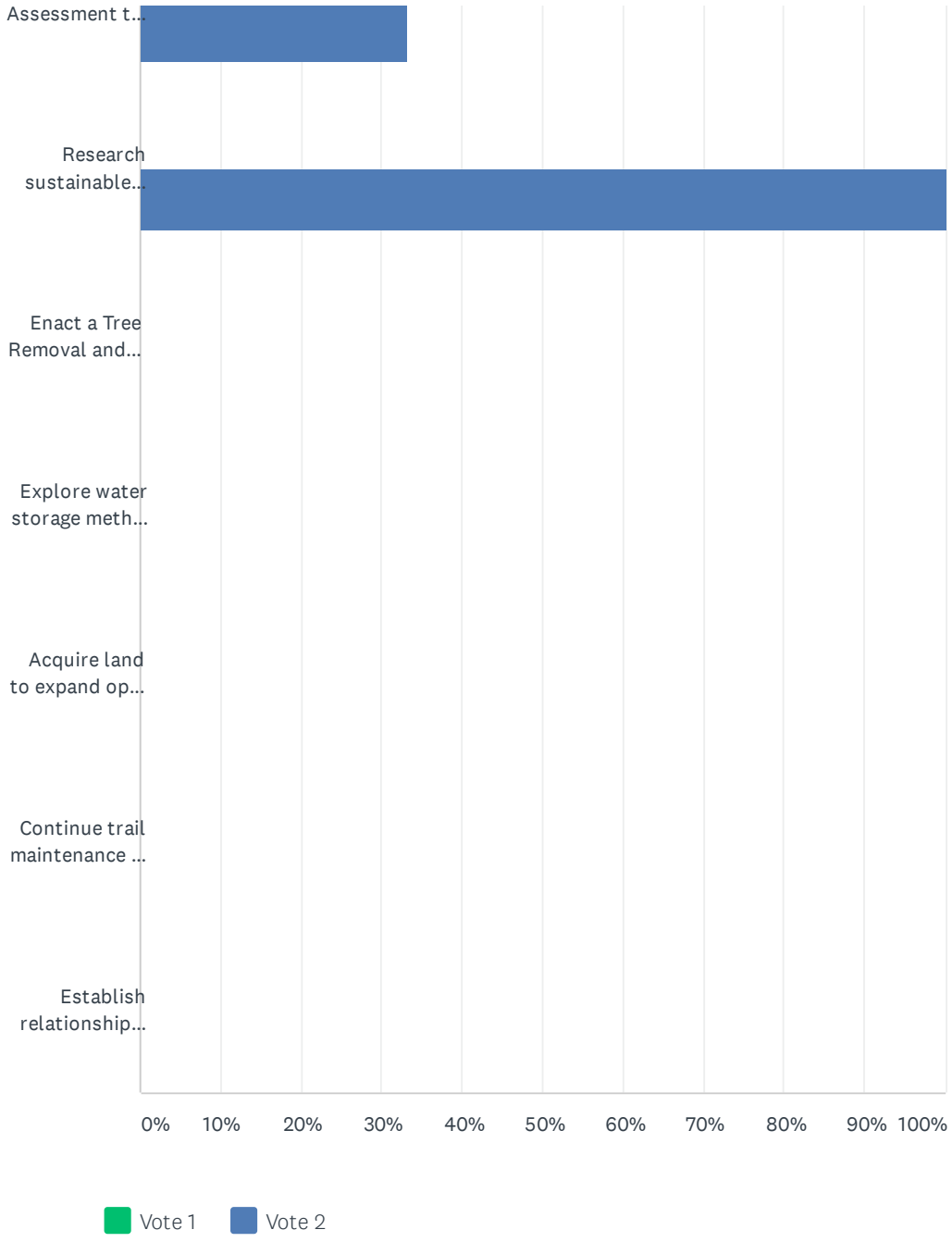
Q7 Please vote for TWO additional top priority actions that you believe Sturbridge should complete in order to build resilience. You may select actions from any category (Infrastructural, Societal, and Environmental), but do not select any actions that you already selected in the previous questions.

Answered: 16 Skipped: 0




Evaluate development...
Establish a central...
Establish a transportati...
Develop an inter-respon...
Establish a series of...
Include the Publick Hous...
Determine the feasibility ...
Establish a communicatio...
Utilize partnerships...
Establish a partnership...
Tree Inventory

Sturbridge Municipal Vulnerability Preparedness Program



	VOTE 1	VOTE 2	TOTAL
Flooding and Drainage Assessment with focus on culverts, dams, bridges, and stormwater management. Evaluate dams and bridges to maintain safety and proper functioning. Map culverts and develop a culvert upsizing plan to address increased flooding concerns. Incorporate nature-based solutions to improve drainage and develop an incentive program to improve stormwater runoff. Identify vulnerable flooding areas throughout town and coordinate efforts with MassDOT.	50.00% 1	50.00% 1	2
Traffic Study with emphasis on walkability. Identify important access routes in the region and develop plan with surrounding communities to keep these access routes open. Install signage identifying shelter locations and evacuation routes throughout town.	100.00% 2	0.00% 0	2
Radio Service Study identifying vulnerable spots in town that do not receive coverage. Replace portable radios, explore technology that will improve radio usage throughout town, and apply for funding to aid in these efforts.	66.67% 2	33.33% 1	3
Parking Assessment exploring sustainable parking options that improve drainage and cooling.	0.00% 0	0.00% 0	0
Watershed, Water Supply, and Water Table Assessment that addresses the vulnerabilities of the water supply and the need for additional wells. Install dry hydrants around lakes and develop a plan to replace or expand existing hydrants in town.	33.33% 1	66.67% 2	3
Acquire generators or alternative power supplies for buildings and infrastructure most vulnerable to power outages, such as at the pump stations, Crescent Gate, Autumn Ridge, and the Sturbridge Retirement Cooperative.	100.00% 2	0.00% 0	2
Perform a feasibility study to upgrade, replace, or relocate the public safety complex. Ensure that public safety agencies are adequately funded and staffed.	100.00% 3	0.00% 0	3
Maintain relationships and communication with the gas companies.	0.00% 0	0.00% 0	0
Evaluate development regulations and adjust where needed. Encourage and require Low Impact Development (LID) and allow for nature-based solutions within the bylaws. Work with a consultant to ensure compliance of the bylaws.	0.00% 0	100.00% 1	1
Establish a central Homeland Security Council and develop a Continuity of Operations Plan (COOP) for disaster and emergency events.	100.00% 1	0.00% 0	1
Establish a transportation plan for emergencies to move vulnerable populations (senior/disabled residents) to shelters via busses. Consider utilizing a trolley system to aid in transit options.	0.00% 0	100.00% 1	1
Develop an inter-response communication system.	0.00% 0	100.00% 1	1
Establish a series of educational campaigns to improve public knowledge and awareness of the following topics: 1) Wetlands, their importance, and how they can be protected; 2) Stormwater management with a guide on Low Impact Development; 3) Rainwater collection and storage; 4) How to access information via the internet or radio; and 5) Invasive pest and plant management.	33.33% 1	66.67% 2	3
Include the Publick House Historic Inn on regional emergency plans.	0.00% 0	0.00% 0	0
Determine the feasibility of constructing a community center that could act as an indoor place to play during EEE outbreaks, a cooling location for seniors, a vaccine distribution center, and as a shelter during emergencies.	0.00% 0	100.00% 2	2
Establish a communication plan that addresses large events, improves the emergency broadcast station and siren usage, and finds alternative ways to send out information during power outages.	0.00% 0	100.00% 1	1
Utilize partnerships with community organizations (schools, Senior Center, churches, Community Food Collaborative, Center of Hope, Venture Community Services, etc.) to enhance community outreach and volunteer opportunities, to expand access to food, and to address homelessness.	50.00% 1	50.00% 1	2
Establish a partnership with grocery stores to ensure food and water service during disasters.	0.00% 0	0.00% 0	0
Tree Inventory Assessment to identify dead or dying trees. Through the assessment, develop a Tree Management Plan to ensure regular cutting and maintenance of street trees, a Debris Management	66.67% 2	33.33% 1	3

Plan to create fire breaks and keep wildfire risks low in forested areas, and an Invasive Species Management Plan to prevent widespread invasives. Utilize state forestry grants to develop these plans.			
Research sustainable alternatives to limit beaver activity in areas of town vulnerable to flooding (beaver deceivers).	0.00% 0	100.00% 1	1
Enact a Tree Removal and Replacement Program that utilizes the planting of understory trees that are drought and pest resistant.	0.00% 0	0.00% 0	0
Explore water storage methods to protect gardens in droughts. Install and utilize a rainwater collection system at Burgess Elementary School.	0.00% 0	0.00% 0	0
Acquire land to expand open space and recreation opportunities, to improve flood storage, and to install a sewage pump.	0.00% 0	0.00% 0	0
Continue trail maintenance and improve the trail assessment management system. Utilize outreach, volunteers, and state grant funding to accomplish these improvements.	0.00% 0	0.00% 0	0
Establish relationships and coordinate efforts with professionals to address environmental concerns. Coordinate with Lake associations to address lake management and water quality issues. Work with the DCR Service Forester or the UMASS Co-op extension service to combat gypsy moths and other invasive pests. And consult with private landowners to develop management plans that address climate change and wildlife corridors.	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: 7 Skipped: 9

#	RESPONSES	DATE
1	Reduce motor vehicle emissions.	11/21/2020 12:17 PM
2	N/A	11/21/2020 7:34 AM
3	Nothing to add.	11/20/2020 4:13 PM
4	Given the pandemic and Sturbridge's great response, we need to build upon the success and address the concerns. This was part of our group's discussions.	11/18/2020 1:20 PM
5	n/a	11/17/2020 3:49 PM
6	Connecting with /reaching out to residents about why it is important that the town engage in these plans and that the residents have an important part to play.	11/17/2020 12:01 PM
7	Expand emergency planning efforts to increase local preparedness and resilience. Add an emergency planner to the Planning Department staff.	11/17/2020 10:33 AM

Sturbridge Hazard Mitigation Plan Update

[Last Revised – October 9, 2019]

A Sturbridge business affected by the June 2, 2011 tornado

Adopted by the Board of Selectmen

September 16, 2019

Prepared by the **Central Massachusetts Regional Planning Commission** 1 Mercantile Street, Suite 520
Worcester, MA 01608
www.cmrpc.org

&

Local Hazard Mitigation Team
Town of Sturbridge, Massachusetts

Acknowledgements

temperature increases, the number of extremely hot and record heat days has also increased: the number of days with temperatures of 90°F and higher throughout the Northeast has doubled during the past 45 years. As noted in the table elsewhere in this section, the number of days exceeding 90 degrees is expected to surge several times over, presenting a health risk to young children, the elderly, and to persons with various health conditions. Overall, the risk of extreme temperatures to people and property can be expected to increase.

5.0 CRITICAL FACILITIES & VULNERABLE POPULATIONS

Critical Infrastructure provides the essential services to the Town of Sturbridge and serve as the backbone to the town's security and health. The systems and networks that make up the infrastructure would be disrupted by a natural disaster and would impact response to the disaster and safety of the town.

A Critical Facility is defined as a building, structure, or location which:

- Is vital to the hazard response effort.
- Maintains an existing level of protection from hazards for the community.
- Would create a secondary disaster if a hazard were to impact it.

5.1 Critical Facilities within Sturbridge

The Critical Facilities List for the Town of Sturbridge has been identified utilizing several sources, and the knowledge and expertise of the team:

- Sturbridge's Comprehensive Emergency Management Plan
- MassGIS data
- Critical infrastructure mapping undertaken by CMRPC under contract with the Central Region Homeland Security Advisory Council, which is charged by the Executive Office of Public Safety and Security to administer and coordinate the State Homeland Security Grant for central Massachusetts.

Sturbridge's Hazard Mitigation Team has broken up this list of facilities into four categories:

- Emergency Response Facilities needed in the event of a disaster
- Non-Emergency Response Facilities that have been identified by the Team as non-essential. These are not required in an emergency response event, but are considered essential for the everyday operation of Sturbridge
- Dams
- Facilities/Populations that the Team wishes to protect in the event of a disaster

Critical infrastructure and facilities are mapped in Appendix A.

Category 1 – Emergency Response Facilities

The Town of Sturbridge has identified the Emergency Response Facilities and Services as the highest priority in regards to protection from natural and man-made hazards.

1. **Emergency Operations Center**

Public Safety Complex	346 Main Street, Sturbridge, MA

2. **Police Station**

Police Department	346 Main Street, Sturbridge, MA

3. **Fire Station**

Fire Department	346 Main Street, Sturbridge, MA

4. **Public Works Department**

Public Works Garage	69 New Boston Road, Sturbridge, MA
Water Department	20 Waterworks Drive, Sturbridge, MA

5. **Primary Evacuation Routes**

US-20
I-90
I-84
Route 131
Route 148

Category 2 – Non-Emergency Response Facilities

The town has identified these facilities as non-emergency facilities; however, they are considered essential for the everyday operation of Sturbridge.

1. **Water Supply**

Water Department	20 Waterworks Drive, Sturbridge, MA
Water Department – Well #4	44 Shattuck Road, Sturbridge, MA
Wastewater Pollution Control	1 New Boston Road Ext, Sturbridge, MA

2. Town Facilities

Town Hall	308 Main Street, Sturbridge, MA
Joshua Hyde Public library	306 Main Street, Sturbridge, MA
Center Office Building	301 Main Street, Sturbridge, MA
Sturbridge Senior Center	480 Main Street, Fiskdale, MA

Category 3 – Dams

A list of dams in Sturbridge is included in Chapter 4 under Dam Failure.

Category 4 – Facilities/Populations to Protect

1. **Special Needs Population/Elderly Housing/Assisted Living**

Autumn Ridge Apartments	Crescent Way, Sturbridge, MA
Sturbridge Mobile Retirement Park	Kelly Road, Sturbridge, Ma

2. **Public Buildings/Areas**

Old Sturbridge Village	Old Sturbridge Village Rd. Sturbridge, MA
Westville Recreation Area	Breakneck Road, Sturbridge, MA
Town Hall	308 Main Street, Sturbridge, MA
Joshua Hyde Public library	306 Main Street, Sturbridge, MA
Center Office Building	301 Main Street, Sturbridge, Ma

3. **Schools/Daycare**

(Please note: The EMD has a list of current daycare facilities but these can change locations and addresses frequently, so this list should be revisited periodically.)

Tantasqua Regional Vocational School	319 Brookfield Road, Sturbridge, MA
Tantasqua Junior High School	320 Brookfield Road, Sturbridge, MA
Burgess Elementary School	45 Burgess Road, Sturbridge, MA
Old Sturbridge Academy	2 Old Sturbridge Village Rd Sturbridge, MA

4. **Historic Buildings/Sites**

According to the Massachusetts Cultural Resources Information System (MACRIS) online database accessed in March 2018, within Sturbridge there are 7 Areas, approximately 194 Buildings, 2 Objects, 2 Burial Grounds and 9 Structures listed on the National Register of Historic Places, and two National Historic Landmarks. It should be noted that MACRIS records are not up to date, and therefore do not reflect the total number of resources that are no longer extant.

5. Employment Centers

Based on data obtained from the Massachusetts Executive Office of Labor and Workforce Development (EOLWD), the following table shows the largest employers in Sturbridge:

Table 6

Largest Employers in Sturbridge -2017		
Company	**Location**	**No. of Employees**
OFS Fitel LLC	Hall Road	250-499
Publick House Historic Inn	Main Street	250-499
Arland Tool & Mfg. Inc.	Main Street	100-249
Burgess Elementary School	Burgess School Road	100-249
Cracker Barrel Old Country Store	Charlton Road	100-249
Harrington Hospital	Main Street #4	100-249
Shaw's Supermarket	Main Street	100-249
Sturbridge Host Hotel & Conference Center	Main Street	100-249
Super Stop & Shop	Charlton Road	100-249
Walmart	Charlton Road	100-249

Source: EOLWD

6. Environmental Justice and Vulnerable Populations

The US Environmental Protection Agency defines Environmental Justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Within the context of natural hazards and their mitigation, potential EJ concerns may arise from income-related factors, discrimination (overt or institutional), cultural isolation and barriers, language isolation, lack of transportation access, and disability (especially among the elderly).

In 2015, as part of its Mobility 2040 long range transportation plan, CMRPC identified disproportionate concentrations of EJ and other vulnerable populations at the US Census block group level throughout Central Massachusetts. Thresholds used in this identification process included various metrics from the 2010 Census and 2013 American Community Survey:

- Lower income households (median income below $50,259/year); or
- Minority residents (20.3% or more of population); or
- Hispanic or Latino residents (14.0% or more of population); or
- Language isolated households (9.45% or more of population); or
- Zero vehicle households (12.75% or more of population); or
- Households with persons 75+ years of age (18.8% or more of population); or

In Sturbridge, there are two sections within the town identified as a Vulnerable Population area due to its higher concentrations of households with population of 75 years of age or more. Effective communication regarding hazard mitigation to these populations should occur through active outreach efforts with the public, the academic community, other agencies, and non-federal governmental entities, to anticipate, understand, and resolve specific issues of concern. The town should provide resources and assistance to threatened neighborhoods and vulnerable populations to enhance their resilience during and after a disaster.

More information regarding the identification of Environmental Justice and Vulnerable populations in the Central Massachusetts region can be found online.

7. Development

In recent years, the Town of Sturbridge has had some new development. All new development is encouraged to integrate culvert repairs or replacement as needed and to install underground utilities when appropriate. With the exceptions of a proposed mill redevelopment on Holland Road and the infrastructure improvements to the old Yogi Bear Campground on Route 15, the town is not expecting any major development in the foreseeable future. However, with proposed updates to certain zoning corridors and the exploration of grants for major roadways, this may change.

Generally, development is limited to isolated single new dwellings. The Sturbridge Planning Board, Conservation Commission, Zoning Board of Appeals and the Board of Selectmen are all tasked with monitoring development in different capacities and mitigating hazards are considered when appropriate. Future developments are limited in hazard prone areas through Sturbridge's Zoning Bylaws, the Wetlands Policy and the Subdivision Control Bylaws.

6.0 EXISTING PROTECTION

The Town of Sturbridge currently makes use of most available locally-controlled tools to mitigate the consequences of natural hazards: zoning regulations, planning, and physical improvements. The Town does participate in federal programs such as StormReady certification and Community Rating System, and it does plan to research the utility of more public awareness and education programs as a result of this planning process.

Sturbridge has most of the no-cost or low-cost hazard mitigation capabilities in place. Land use zoning, subdivision regulations and an array of specific policies and regulations that include hazard mitigation best practices, such as limitations on development in floodplains, stormwater management, tree maintenance, etc. Sturbridge also has appropriate staff dedicated to hazard mitigation-related work for a community of its size, including an Emergency Management Director, a professionally run Department of Public Works, a Facilities Director, and a Tree Warden. Sturbridge has several relevant plans in place, including a Comprehensive Emergency Management Plan, and it is working now to update aspects of its Master Plan. Not only does Sturbridge have these capabilities in place, but they are also deployed for hazard mitigation, as appropriate. The town also has very committed and dedicated volunteers who serve on Boards, Commissions and Committees and in other volunteer positions. The town collaborates closely with surrounding communities through its Local Emergency Planning Committee and has opted in to fire protection mutual aid agreements through MEMA.

Sturbridge is also an active member community of the Central Massachusetts Regional Planning Commission (CMRPC) and can take advantage of no cost local technical assistance as needed provided by the professional planning staff at CMRPC.

The table below describes existing mitigation protections in Sturbridge. It includes a brief description of each activity as well as a subjective evaluation of its effectiveness and of any need for modifications.

Town of Sturbridge
Mitigation Strategies

OVERALL GOAL: Facilitate activity within the Town of Sturbridge that reduces the loss, and risk of loss, to persons and property

Mitigation Strategy Description	Hazard(s) Addressed	Who? Agencies involved	Potential Funding Sources	Priority Political & economic viability: High/Med/Low	Impact Mitigation impact: High/Med/Low	Estimated Cost High ($100k+)/ Med ($50k-100k)/ Low (<$50k)	Timeline Time needed to complete
A. Structure & Infrastructure Strategies							
Continue to keep Stallion Hill Rd. culverts free of debris evaluate as needed.	FL, SS, ST	DPW, Highway, Mass DOT	Local, State	High	High	Low	Ongoing
Continue to work with MassDot on drainage improvements on Route 20 near Yankee Peddler	FL, SS, ST	DPW, MassDot, Highway, State	Local, State	High	High	High	1-2 Years
Continue to evaluate Cooper Rd and Hamilton Rd. to improve drainage issues.	FL, SS, ST	Highway, State	Local, State	High	High	Medium	1-2 Years
Continue to work with MassDot on Empire Village/Route 20 road and drainage improvements.	FL, SS, ST	DPW, MassDot, Highway, State	Local, State	High	High	High	1-2 Years
Work with appropriate officials to remove beavers and dams from the following areas, Stallion Hill Rd, Cooper Rd dam., Route 20 near Yankee Peddler and Empire Village.	FL, SS, ST	State	Local, State	High	High	Medium	1-2 Years
Continue to identify Gypsy Moth effected areas and investigate opportunities for removal.	FL, SS, ST, WF, HU	State	Local, State, Federal	High	High	Medium	1-2 Years

Study feasibility of renovating DPW building to reinforce roof. Potential for collapse during heavy snow fall.	SS,	DPW, State	Local, State	High	Medium	High	1-2 Years
Sweep streets at least once per year to increase stormwater management capacity; capture and dispose of appropriately.	FL, SS, ST	Highway	Local	High	High	Low	Ongoing
Properly clean (at least annually, or more often as may be required) all stormwater structures and basins. Work with the state to ensure state infrastructure is maintained	FL, SS, ST	Highway, State	Local, State	High	High	Low	Ongoing
Develop strategy to remove high hazard trees, develop an inventory of hazard trees along the roadway	All	Highway, Tree Warden	Local	Medium	High	Medium	1-2 Years
Work with the state to ensure dams are well maintained and funding sources available to repair and maintain the dams.	DF	Highway, State	Local, State	High	High	Low	Ongoing
B. Preparedness, Coordination & Response Action Strategies							
Continue to improve upon vegetative debris management program to reduce debris and thereby mitigate risk of stormwater flooding, riverine flooding, winter storm damage, etc., such as through the Central Massachusetts Mosquito Control Project.	WF, FL, SS, ST	DPW, Highway	Local, State	Medium	Medium	Medium-High	1 Year
Continue to pursue grants whenever possible for hazard mitigation projects, maintain the staff grant writer.	All	Grant Writer	Local, State Federal	Medium	Medium	Medium-High	Ongoing
Continue good working relationship with the utility companies to improve mitigation of threats, and improve communication during events;	SS, ST, HU	TA, EMD, Highway	Local, State	High	High	Low	Ongoing

Develop a means for sharing information on a regional basis about successful hazard mitigation planning and programs. Create a feedback loop to improve pre-disaster planning by establishing a formal post-disaster assessment process.	All	EMD, TA	Local, State Federal	Medium	Medium	Low	1-2 Years
Implement a Unified Incident Command program in place	All	EMD, TA	Local	High	High	Low	Ongoing
Continue to improve hazard warning systems, including Code RED, cell phone alerts and social media posts	All	EMD	Local, State	High	High	Low	Ongoing
C. Education & Awareness Strategies							
Educate all segments of the community in order to combat complacency and foster individual responsibility for mitigating disaster impacts	All	EMD	Local, State	High	High	Low	Ongoing
Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts	All	EMD	Local, State, Federal	High	High	Low	Ongoing
D. Local Planning & Regulatory Strategies							
Continue to actively enforce and comply with State Building Code Requirements.	All	BI	Local	High	High	Low	Ongoing
Continue to actively enforce and comply with the Massachusetts Wetlands Protection and the town wetlands bylaw	All	CC	Local	High	High	Low	Ongoing

Continue communication/coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of hazard mitigation	All	EMD, TA	Local	High	High	Low	Ongoing
Find funding to review and update the regional and local hazard mitigation plans on a five-year cycle.	All	EMD, TA	Local, State, Federal	High	High	Low	1 Year
Incorporate hazard mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.	All	All	Local, State	High	High	Low	Ongoing
Integrate hazard mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).	All	Highway, State	Local, State, Federal	High	High	Low-High	Ongoing
Continue the annual Capital Improvement Program to develop an ongoing five-year plan potential projects	All	All	Local	Medium	Medium	Low	Ongoing
Coordinate with stakeholders, such as the Lake Association, Army Corp. of Engineers, Quinebaug Watershed, to collaborate in identifying hazard mitigation projects.	All	TA	Local	Medium	Medium	Low	Ongoing
Work with CMRPC on evacuation planning & re-routing post-disaster	All	TA, EMD, CMRPC	Local, State, Federal	Medium	Medium	Low	1-2 Years
Incorporate disaster mitigation concerns into the MEPA review process.	All	CC, State	Local, State	Medium	Medium	Low	Ongoing

Continue to integrate hazard mitigation concerns into subdivision, site plan review, 40B reviews, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects—even if the impacts cross town lines.	All	CC, PB, ZBA	Local	High	High	Low	Ongoing
Inventory shelter/emergency resources. Identify what services are available at the different shelters (e.g. food preparation, potable water, back-up electrical power, heat, showers, etc.) and whether the location of different shelters will be impacted by different hazards (i.e. whether flooding will make the shelter inaccessible to some residents). This would help ensure that suitable shelters are available for different types of natural hazards	All	EMD	Local	High	Medium	Low	1 Year

'Hazards Addressed' abbreviations:

DF	Dam Failure	DR	Drought
EQ	Earthquake	FL	Flooding
HU	Hurricane	OT	Other
SS	Severe Snowstorm/Ice storm/Nor'easter	ST	Severe Thunderstorm/Wind/Tornado
WF	Wildfire/Brushfire	XT	Extreme Temperatures

TOWN OF STURBRIDGE

Municipal Vulnerability Preparedness (MVP)

Community Resilience Building

Virtual Workshop

October 14, 28 and November 4, 2020

6PM-8PM

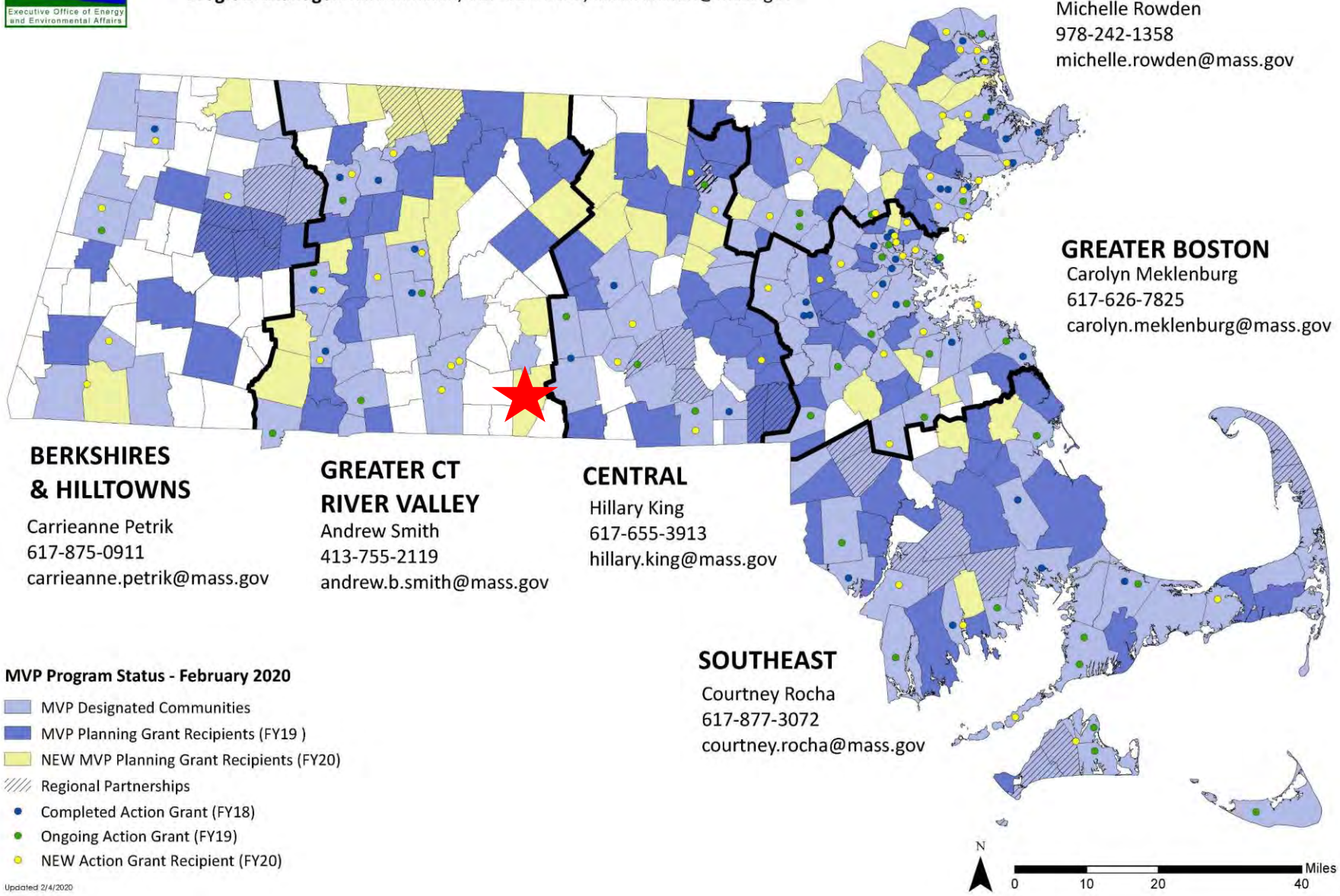
MUNICIPAL VULNERABILITY PREPAREDNESS (MVP)

- 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

Municipal Vulnerability Preparedness (MVP) Program

Program Manager: Kara Runsten, 617-626-7826, kara.runsten@mass.gov



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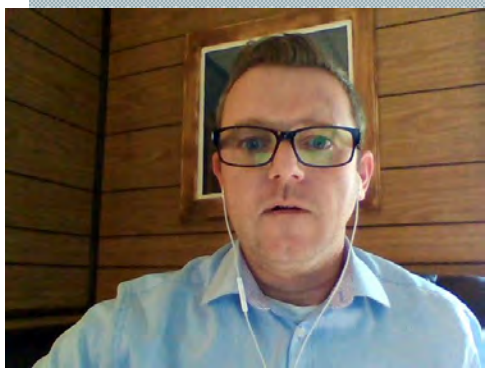
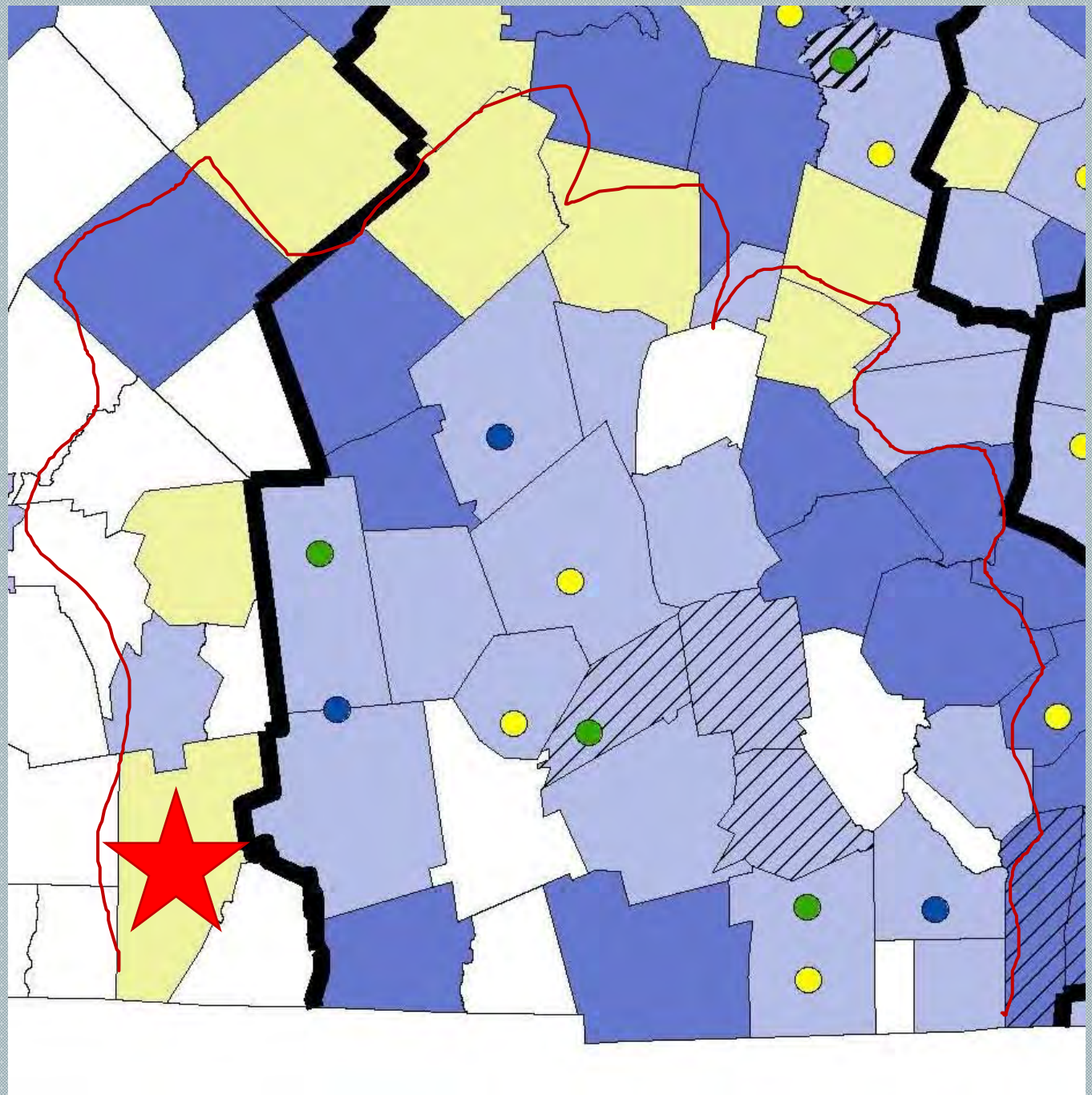
MVP Program Status - February 2020

- MVP Designated Communities
- MVP Planning Grant Recipients (FY19)
- NEW MVP Planning Grant Recipients (FY20)
- Regional Partnerships
- Completed Action Grant (FY18)
- Ongoing Action Grant (FY19)
- NEW Action Grant Recipient (FY20)

Updated 2/4/2020





MVP Program Status - February 2020

- MVP Designated Communities
- MVP Planning Grant Recipients (FY19)
- NEW MVP Planning Grant Recipients (FY20)
- Regional Partnerships
- Completed Action Grant (FY18)
- Ongoing Action Grant (FY19)
- NEW Action Grant Recipient (FY20)

Updated 2/4/2020

HOW THE TOWN GOT HERE?

- Awarded Planning Grant
- Core Team Meeting
- COVID-19 Adaptation
- Invitation from Core Team

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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

THE MATRIX

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.com

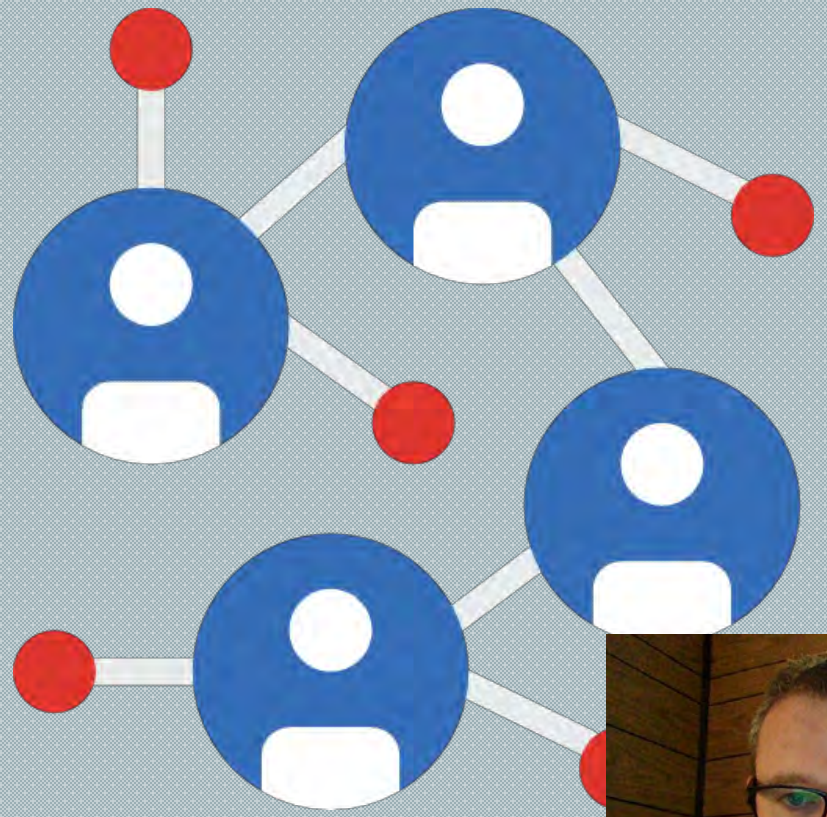
H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

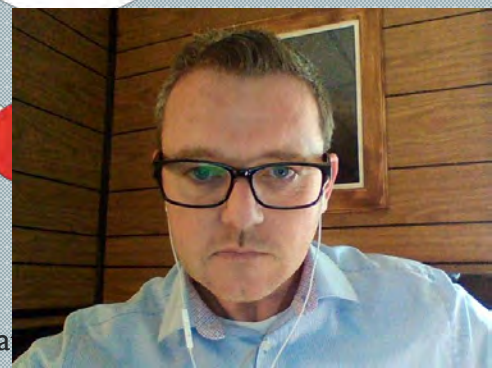
Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

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

BREAKOUT GROUPS

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





Icon made Prettyicons from Fla

TABLE ROLES AND RESPONSIBILITIES

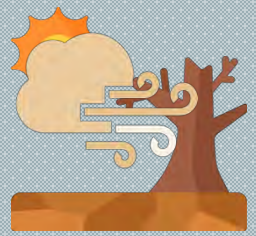
- Table Facilitator directs the discussion and keeps the dialogue moving
- Scribes filling in matrix
- Participants- All of you
- CMRPC resource person
- Table spokesperson for Report Out (Day 3)

HAZARD IDENTIFICATION

- **Flooding**
  - Riverine
  - Street

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

- **Tornadoes**



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

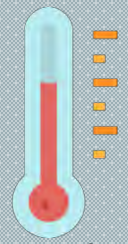
- **Tsunami**

- **Hurricanes/ Nor'easters**

- **Wild Fires**

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

- **Earthquakes**



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

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PRIMARY TOPIC AREAS

- Infrastructure

- Society

- Environment

NEXT STEPS

- Watch all presentation
- Attend the virtual workshop
- Complete the survey after the workshop
- Report development
- Public "Listening" session with Members of the Public and Board of Selectmen Early 2021
- Develop resources and Implement actions.

1. Engage Community
2. Identify CC Impacts & Hazards
3. Complete Assessment of Vulnerabilities & Strengths
4. Develop & Prioritize Actions

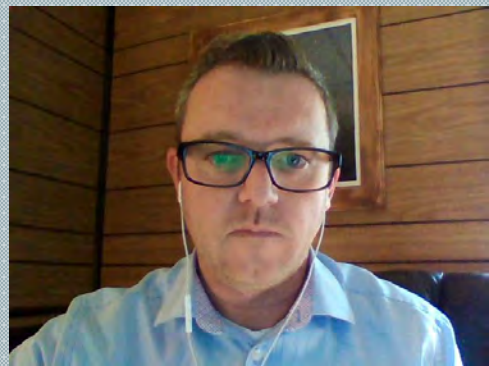
ACTION GRANTS

- Next round expected in spring 2021
- Up to $2 million for an individual community
- Up to $5 million for regional projects
- One year grant cycle (typically) July 1st- June 30th
- 25% Match - Cash or In-kind (Non-State Funds)

www.mass.gov/municipal-vulnerability-preparedness-mvp-program

www.communityresiliencebuilding.com

QUESTIONS OR COMMENTS



CONTACT US

- Sturbridge Core Team Leader –
  - David DeMings, david.demings@sturbridgepd.com
- CMRPC Project Leaders –
  - Peter Peloquin, ppeloquin@cmrpc.org
  - Mimi Kaplan , mkaplan@cmrpc.org
- Executive Office of Energy and Environmental Affairs –
  - Andrew Smith, andrew.b.smith@state.ma.us

THANK YOU

TOWN OF STURBRIDGE

Municipal Vulnerability Preparedness (MVP)

Community Resilience Building Workshop

October 14th, 28th and November 4, 2020

Wednesdays 6 - 8PM

THE MATRIX

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

STEP ONE: HAZARD IDENTIFICATION

What are the Top Four Natural Hazards in Sturbridge?

1. Engage Community
2. Identify CC Impacts & Hazards
3. Complete Assessment of Vulnerabilities & Strengths
4. Develop & Prioritize Actions

STEP ONE: HAZARD IDENTIFICATION

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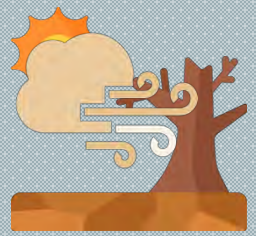

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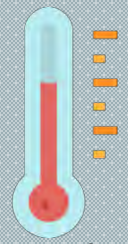

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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Top 4 Hazards

Features	Location	Ownership	V or S					Priority H-M-L	Time Short Long Ongoing
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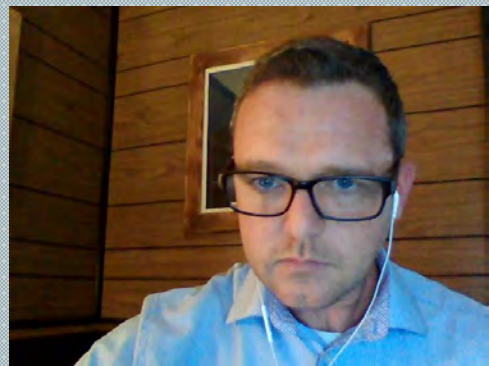
PRIMARY TOPIC AREAS

- Infrastructure

- Society

- Environment



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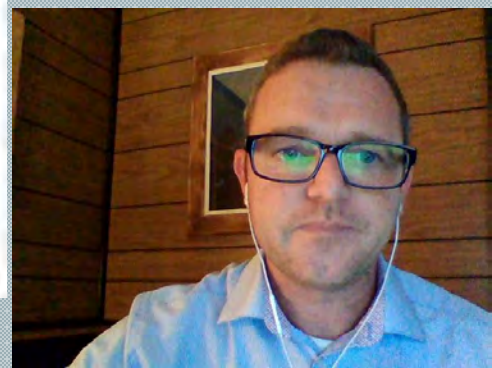

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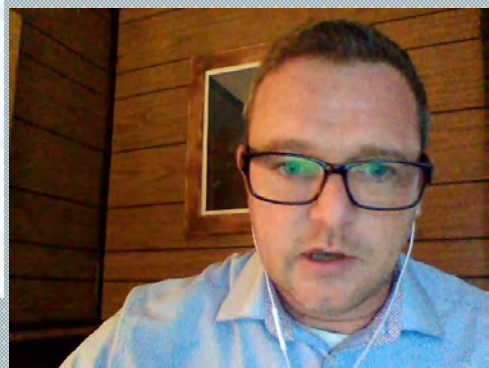

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Estimated Location

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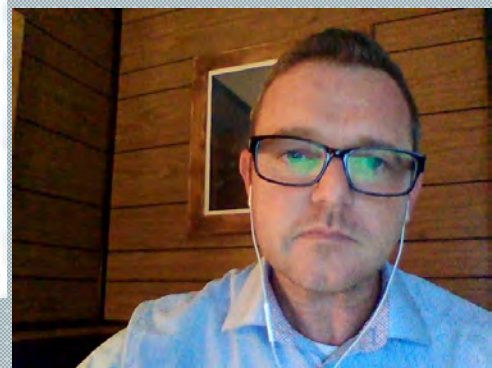
Estimated Location

Public? Private? State?



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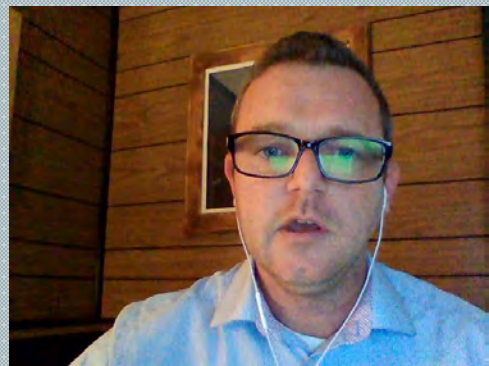
Wetlands									

Estimated Location

Public? Private? State?

Vulnerability or Strength

DAY 1 COMPLETE



STEP TWO: COMPLETED

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Dam									
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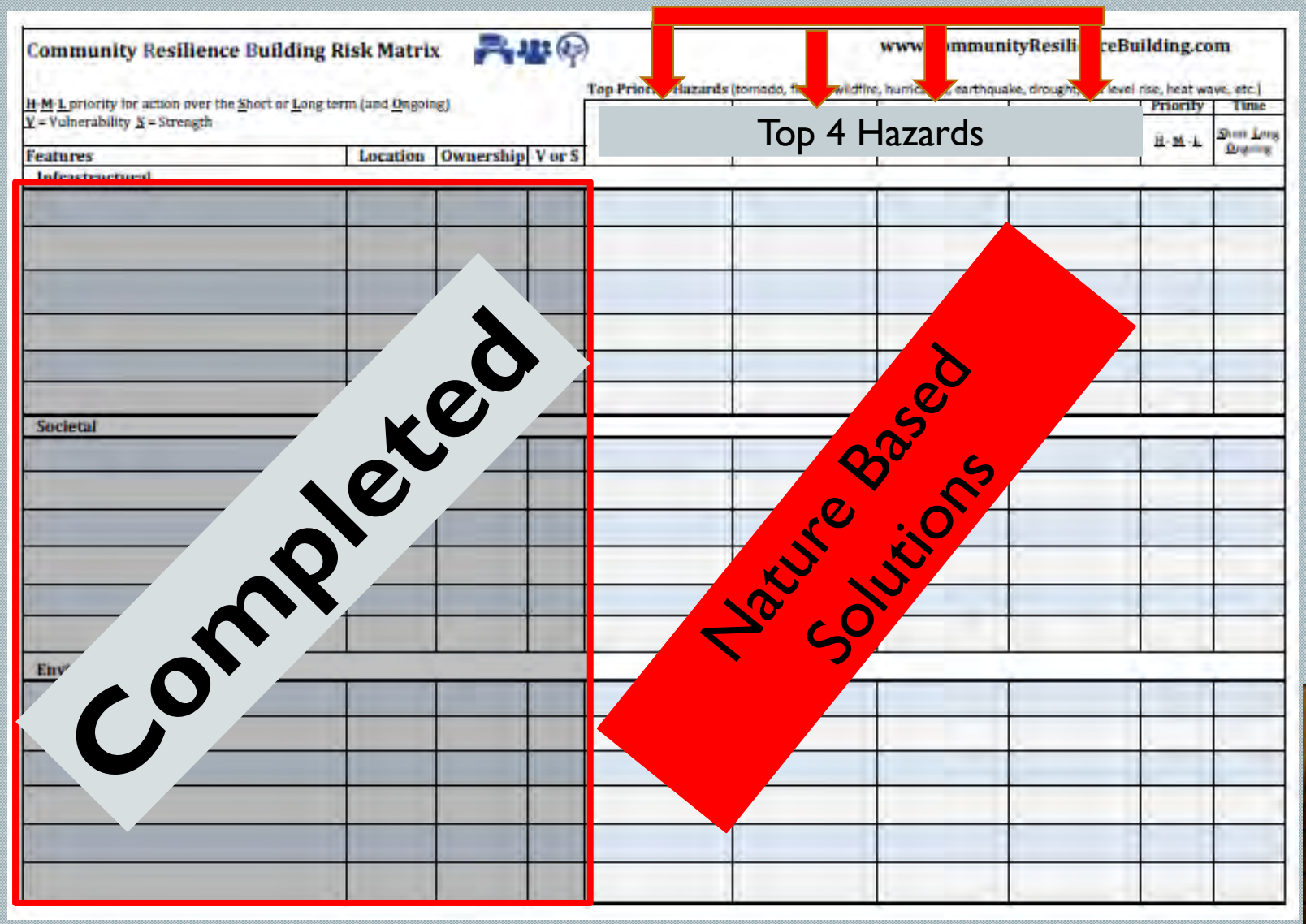
Senior Housing									
Environmental									
Wetlands									

Estimated Location

Public? Private? State?

Vulnerability or Strength

STEP THREE: ACTIONS, PRIORITY AND TIMELINE



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

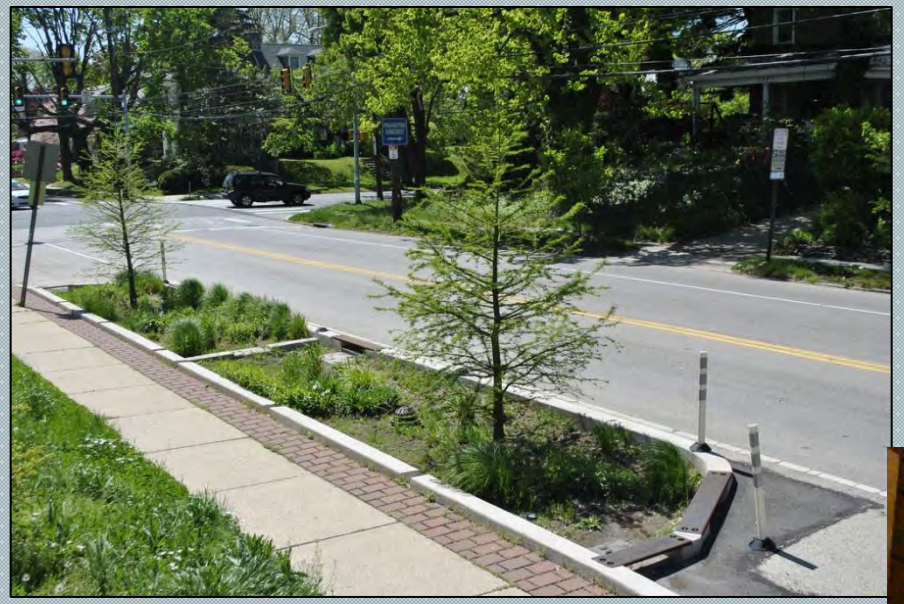
International Union for Conservation of Nature (IUCN)

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

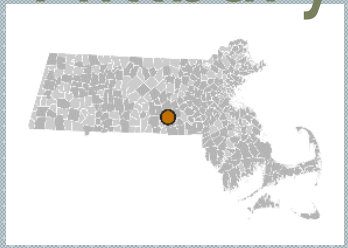


Contained bioswale or planter box

Example Action Grant Projects

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

Millbury

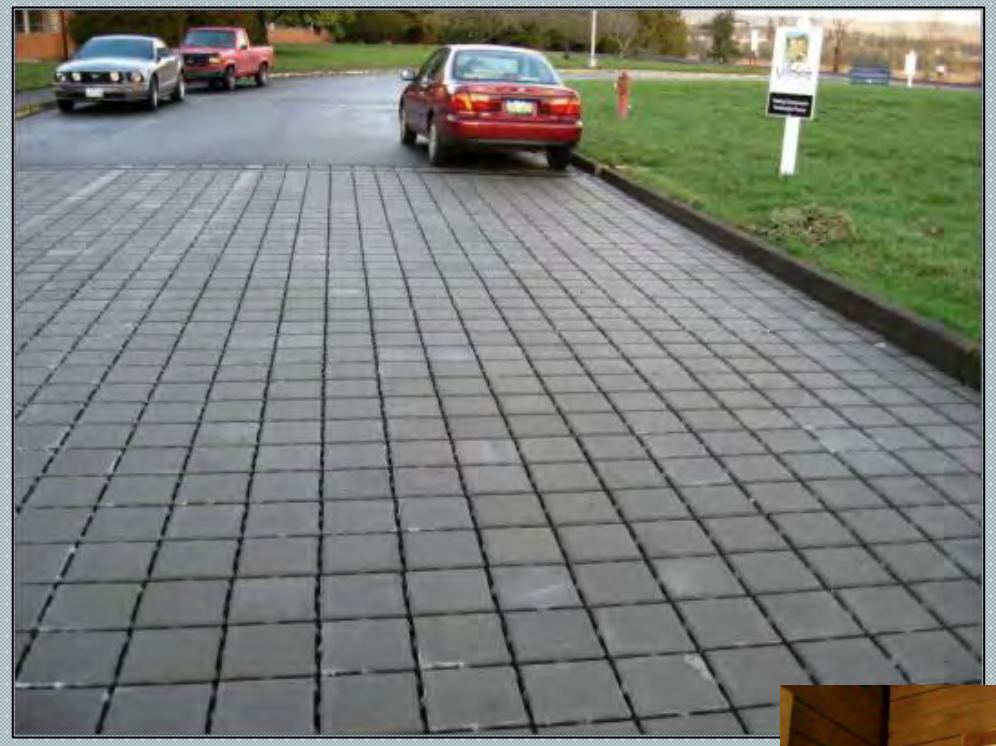


Designing green infrastructure like stormwater planters, bioretention bump outs, rain gardens, and other measures like porous pavers and pervious pavement to reduce heat island effects and stormwater runoff into the Blackstone River.

Nature-based solutions

MORE EXAMPLES OF LOW IMPACT DEVELOPMENT AND GREEN INFRASTRUCTURE

Green Parking Lots

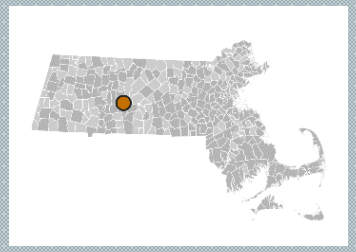


Permeable Paving

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

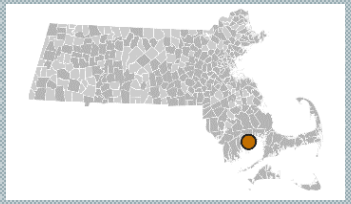
Nature Based Culvert

Mass Audubon

Example Action Grant Projects

Land Acquisition for Resilience

Mattapoisett



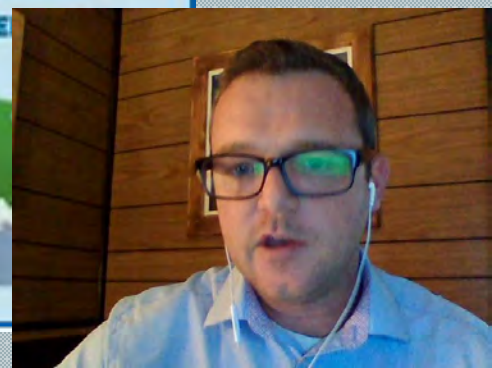
Purchasing 120 acres of forest, streams, freshwater wetlands and coastal salt marsh as conservation land to prevent development in vulnerable areas

Data Utilization

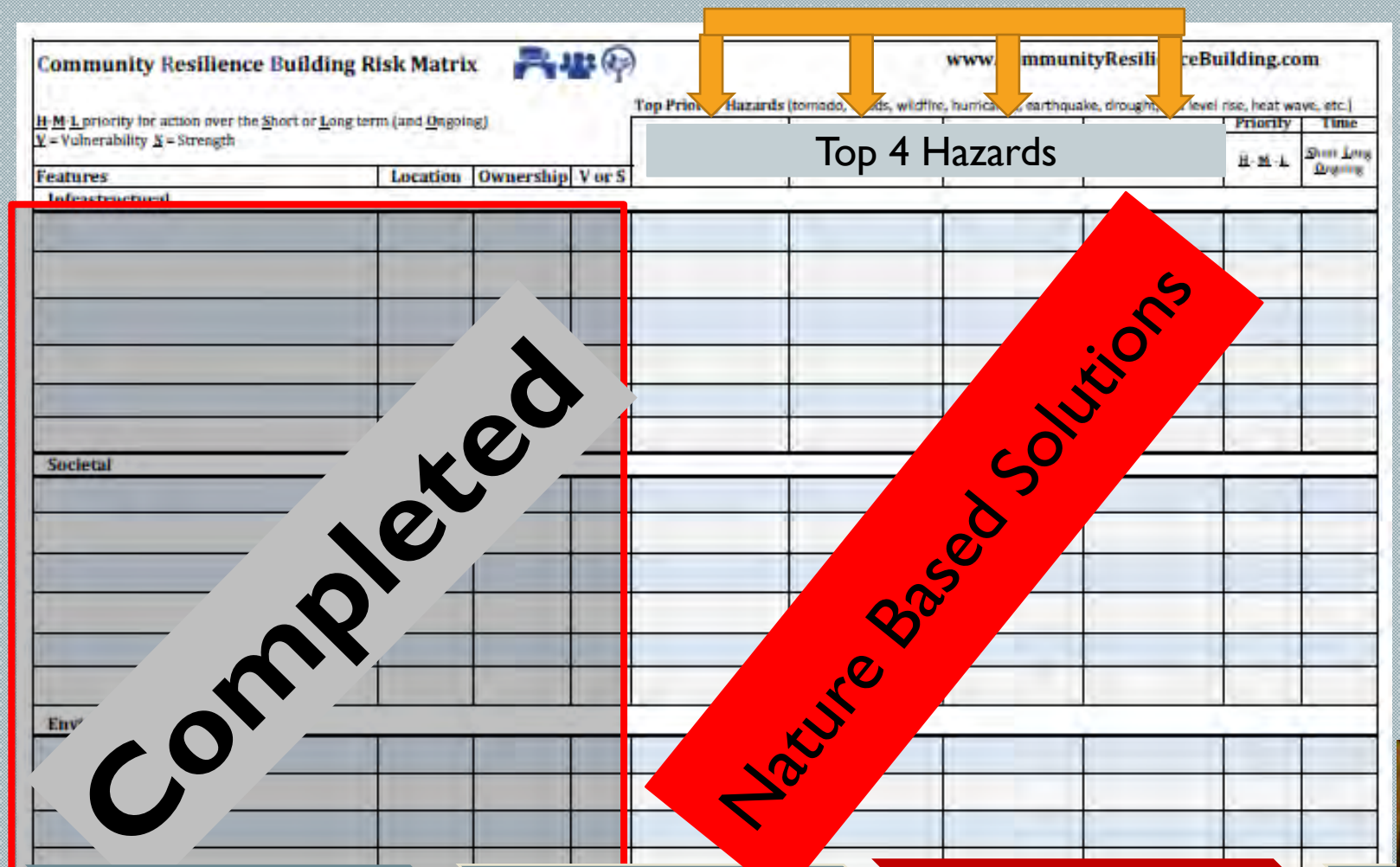
Proactive

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



1. Engage Community

2. Identify CC Impacts & Hazards

3. Complete Assessment of Vulnerabilities & Strengths

4. Develop & Prioritize Actions

REPORT OUTS

What did your table find?

SUMMARY DISCUSSION

- Areas of agreement
- Areas of unique perspectives

TIME TO VOTE

- A survey will be created from all information listed in the matrix
- Prioritize each project
- Vote for your projects of interest

NEXT STEPS

- Complete the survey
- Report development
- Public "Listening" session with Members of the Public and Board of Selectmen February 2021
- Develop resources and Implement actions
- Apply for Action Grants

1. Engage Community
2. Identify CC Impacts & Hazards
3. Complete Assessment of Vulnerabilities & Strengths
4. Develop & Prioritize Actions

QUESTIONS OR COMMENTS

CONTACT US

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THANK YOU

CMRPC
Central Massachusetts Regional Planning Commission

CLIMATE PROJECTIONS AND IMPACTS

1. Engage Community
2. Identify CC Impacts & Hazards
3. Complete Assessment of Vulnerabilities & Strengths
4. Develop & Prioritize Actions
5. Take Action

CMRPC
Central Massachusetts Regional Planning Commission

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

CMRPC
Central Massachusetts Regional Planning Commission

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**

CMRPC
Central Massachusetts Regional Planning Commission

NORTHEAST CLIMATE SCIENCE CENTER UMASS AMHERST

NECASC
Northeast Climate Adaptation Science Center

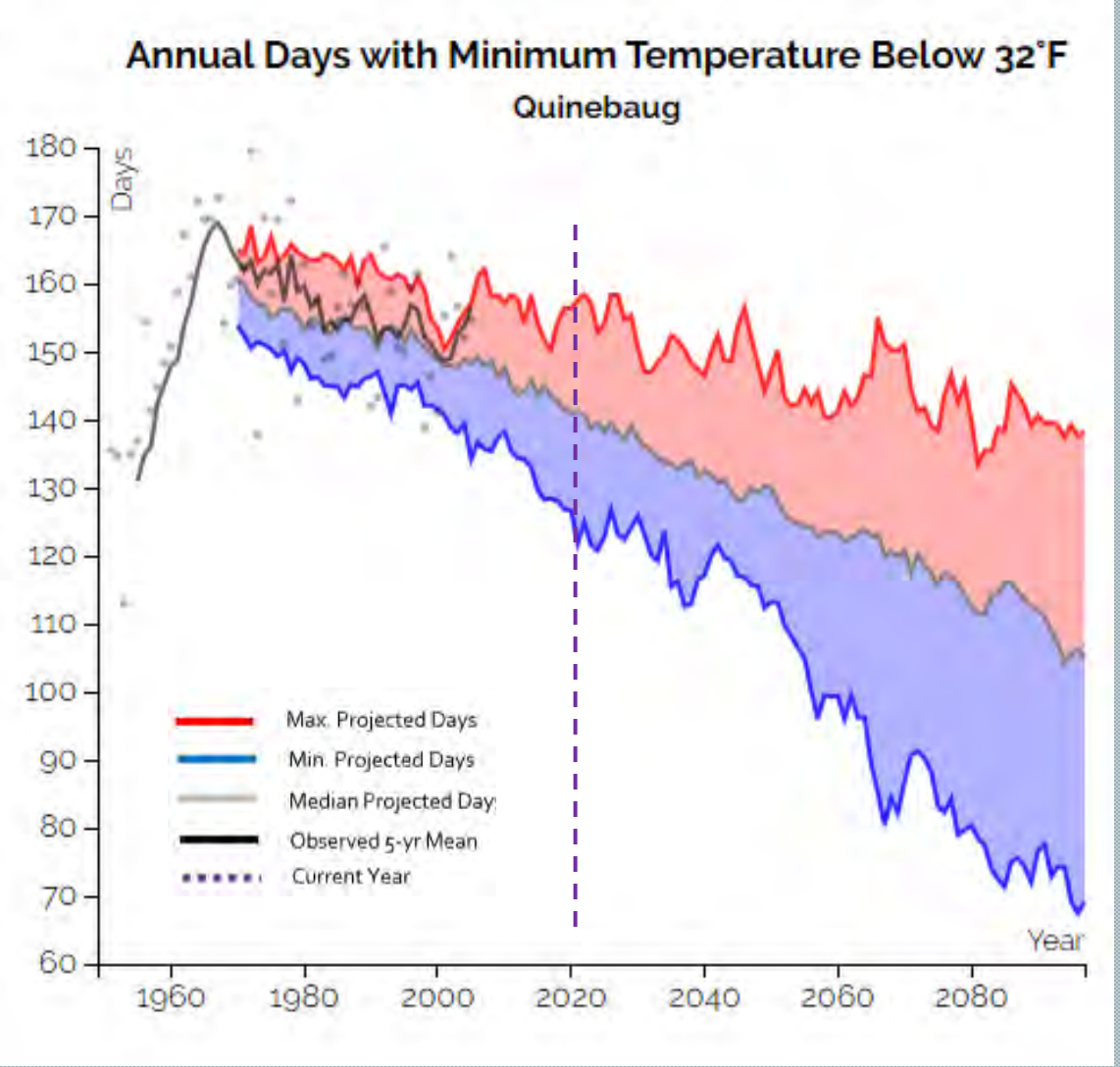
- NECASC downscaled climate projections for major drainage basins
- Climate Models from the IPCC Fifth Assessment Report
- Historical Data 1971-2000
- Medium and High Emission Scenarios were Chosen (RCP 4.5 and 8.5)
    - Medium Scenario Assumes Emissions Peak at Mid-Century
    - High Scenario Assumes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

QUINEBAUG RIVER BASIN

Central Massachusetts Regional Planning Commission

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

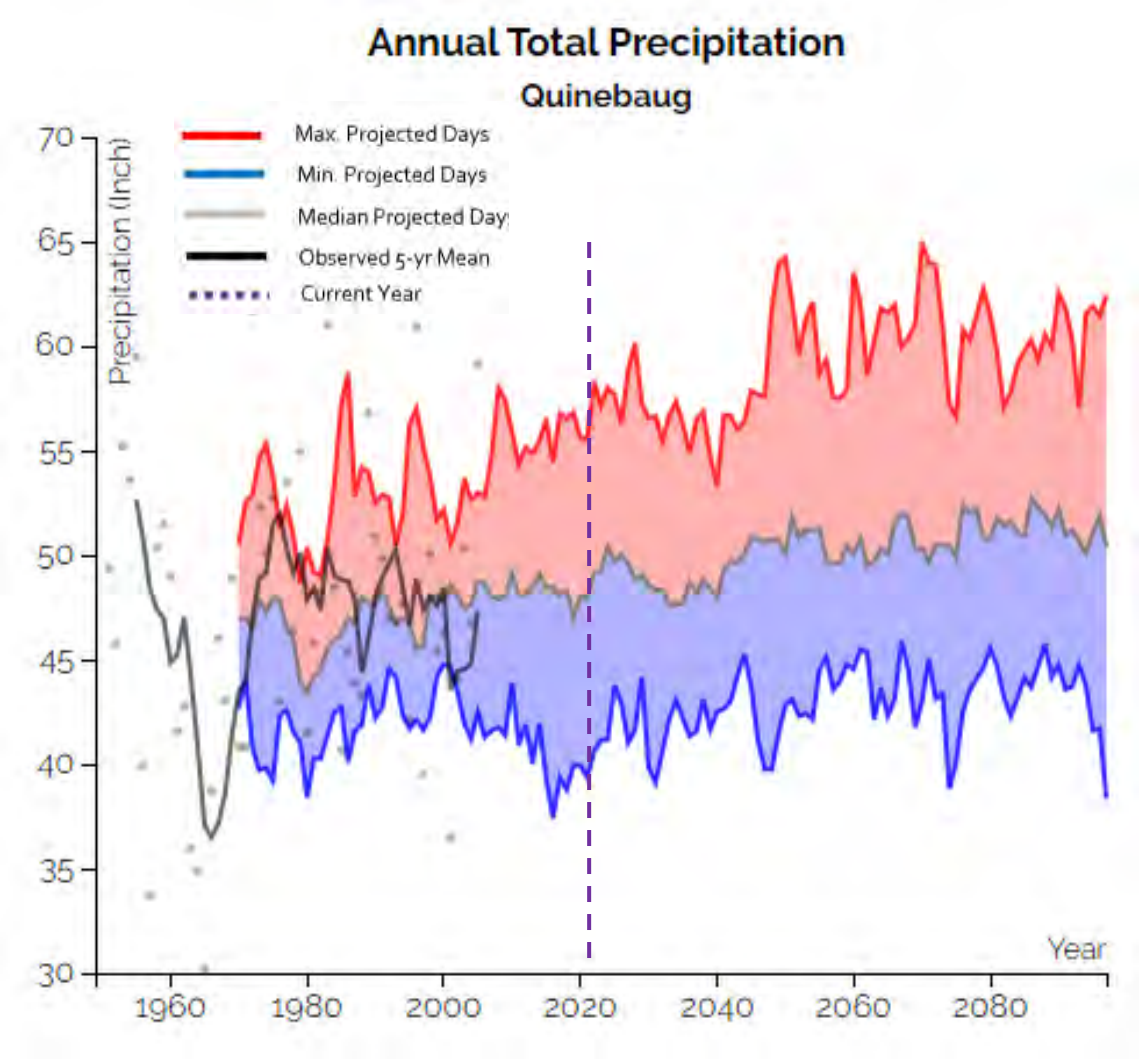


CMRPC
Central Massachusetts Regional Planning Commission

HEAVY RAINFALL AND FLOODING

Seasonal

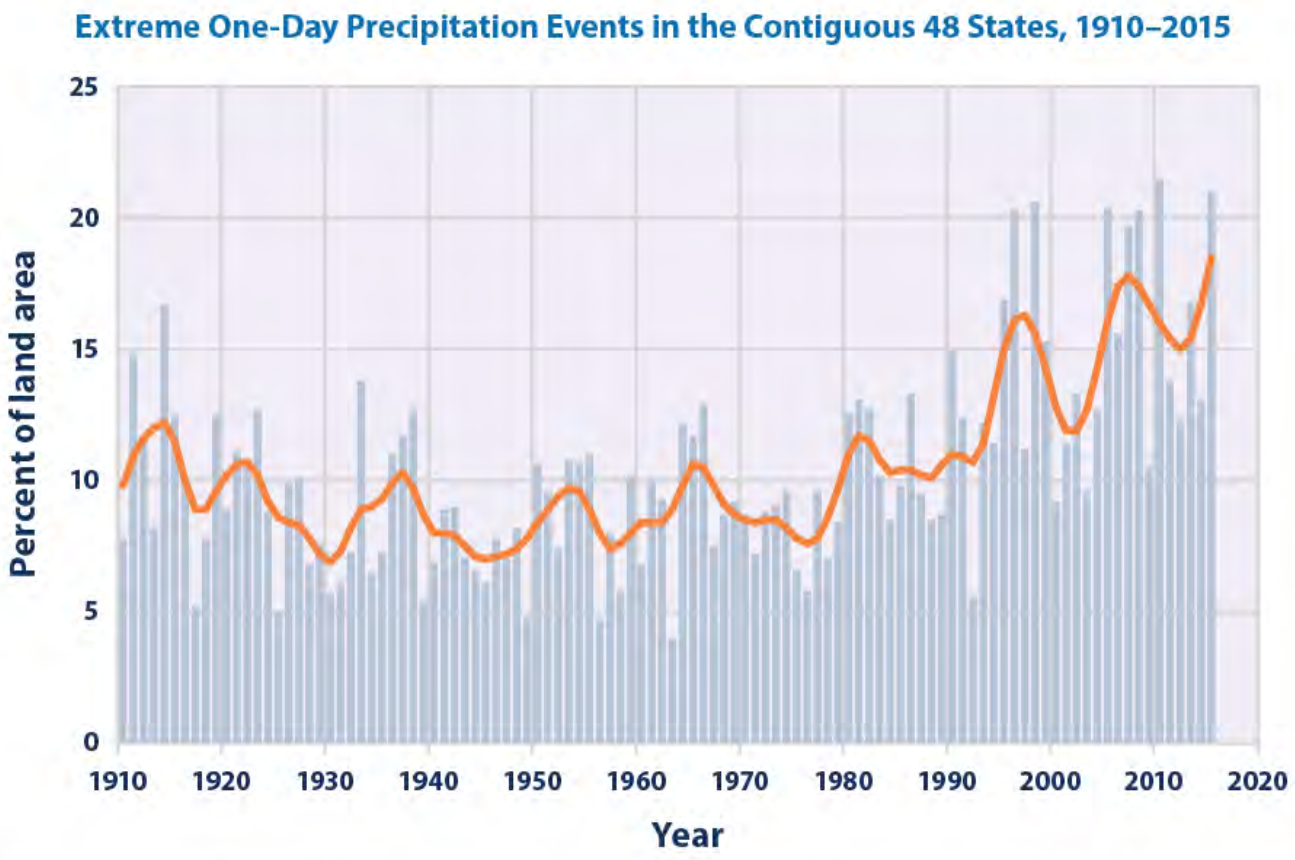
- **Winter** – Largest increase expected, up to .6 to 3.9 inches by end of century
- **Spring** – Expected increase of .2 to 2.8 inches by end of century
- **Summer** – Possible decrease of 1.2 inches to increase of 2.0 inches by end of century
- **Fall** – Possible decrease of 1.7 inches to increase of 1.5 inches by end of century



CMRPC
Central Massachusetts Regional Planning Commission

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



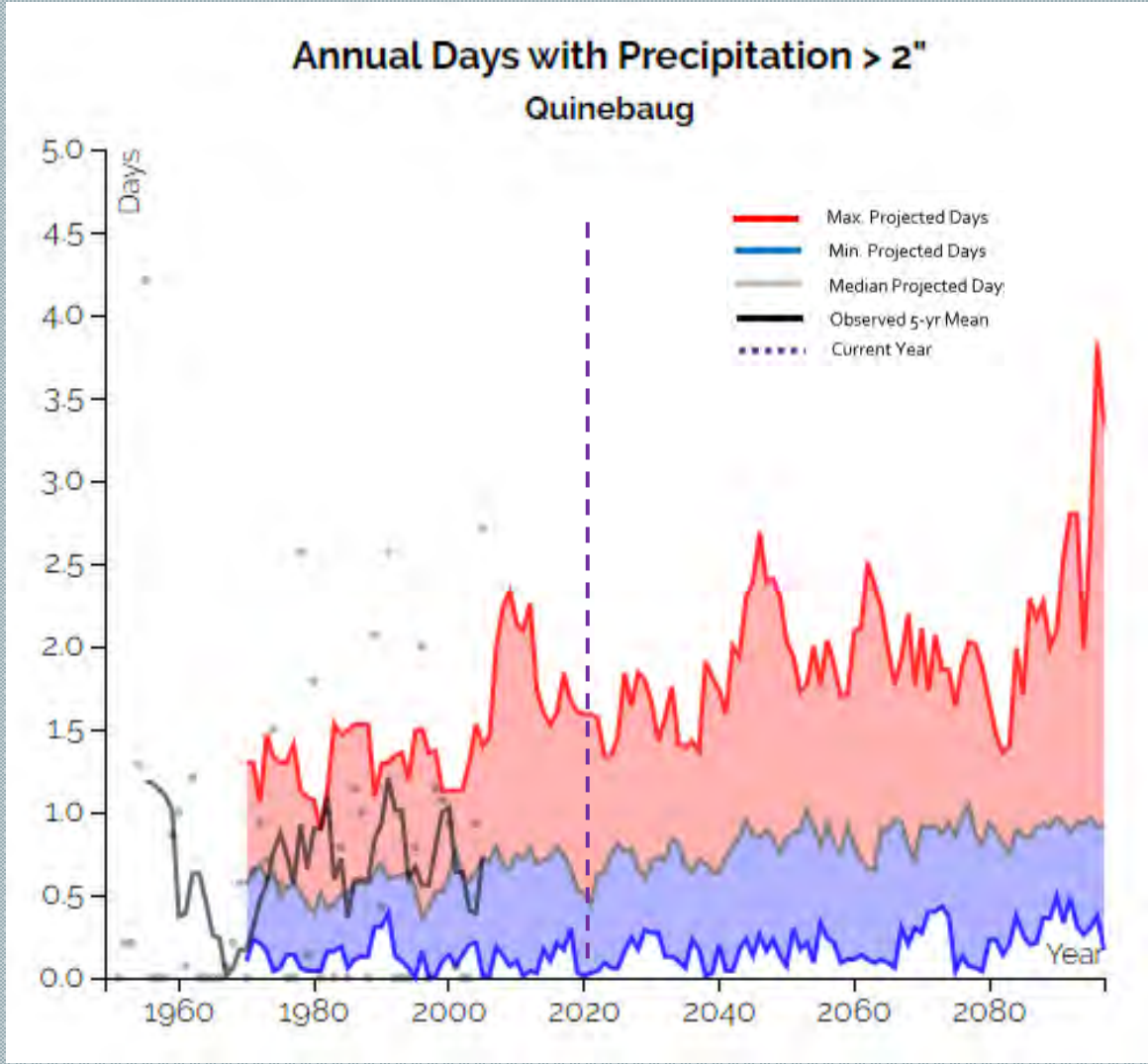
Data source: NOAA (National Oceanic and Atmospheric Administration). 2016. U.S. Climate Extremes Index. Accessed January 2016. www.ncdc.noaa.gov/extremes/cei.

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

HEAVY RAINFALL AND FLOODING

Extreme Precipitation

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



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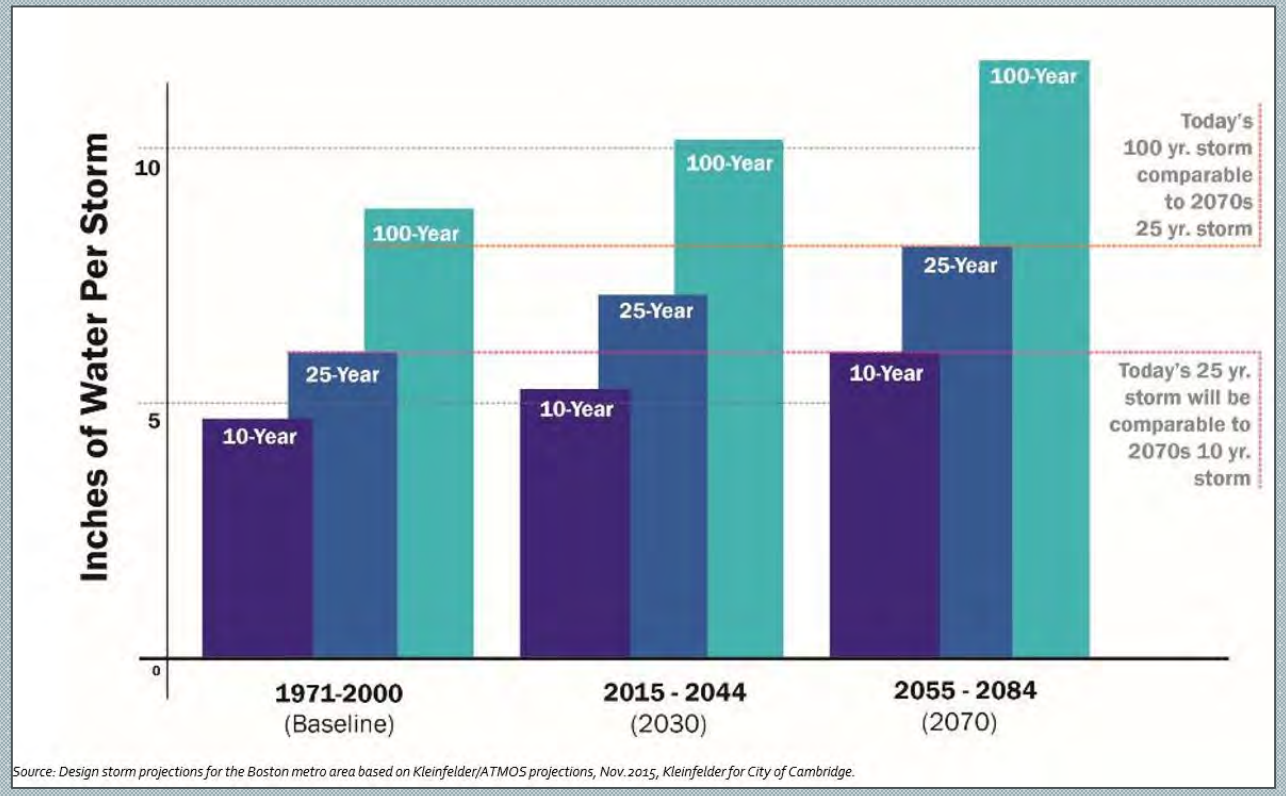
HEAVY RAINFALL AND FLOODING



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

Icon made by photo3idea_studio from Flaticon.com

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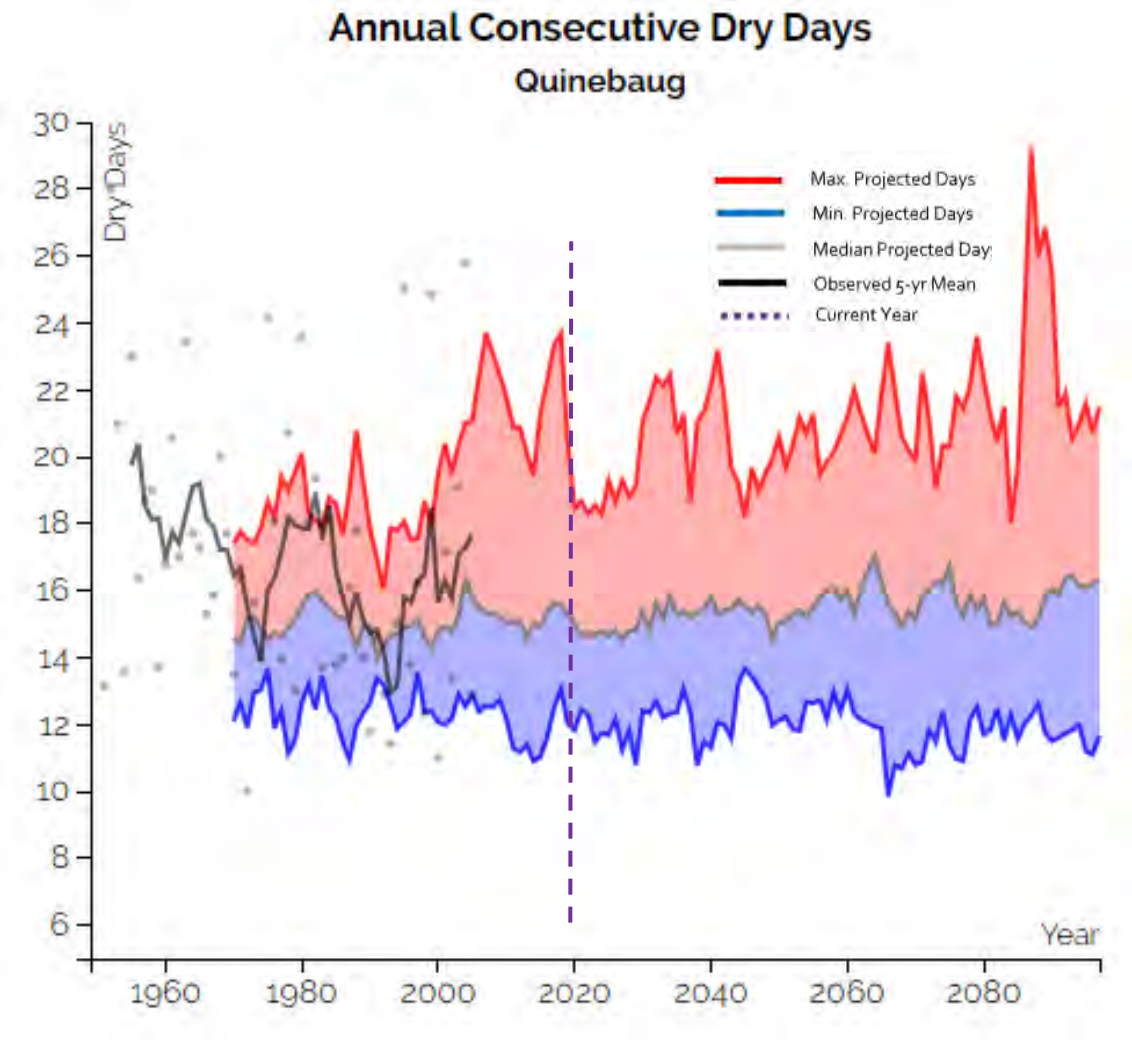
IMPACTS OF INCREASED PRECIPITATION

- 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



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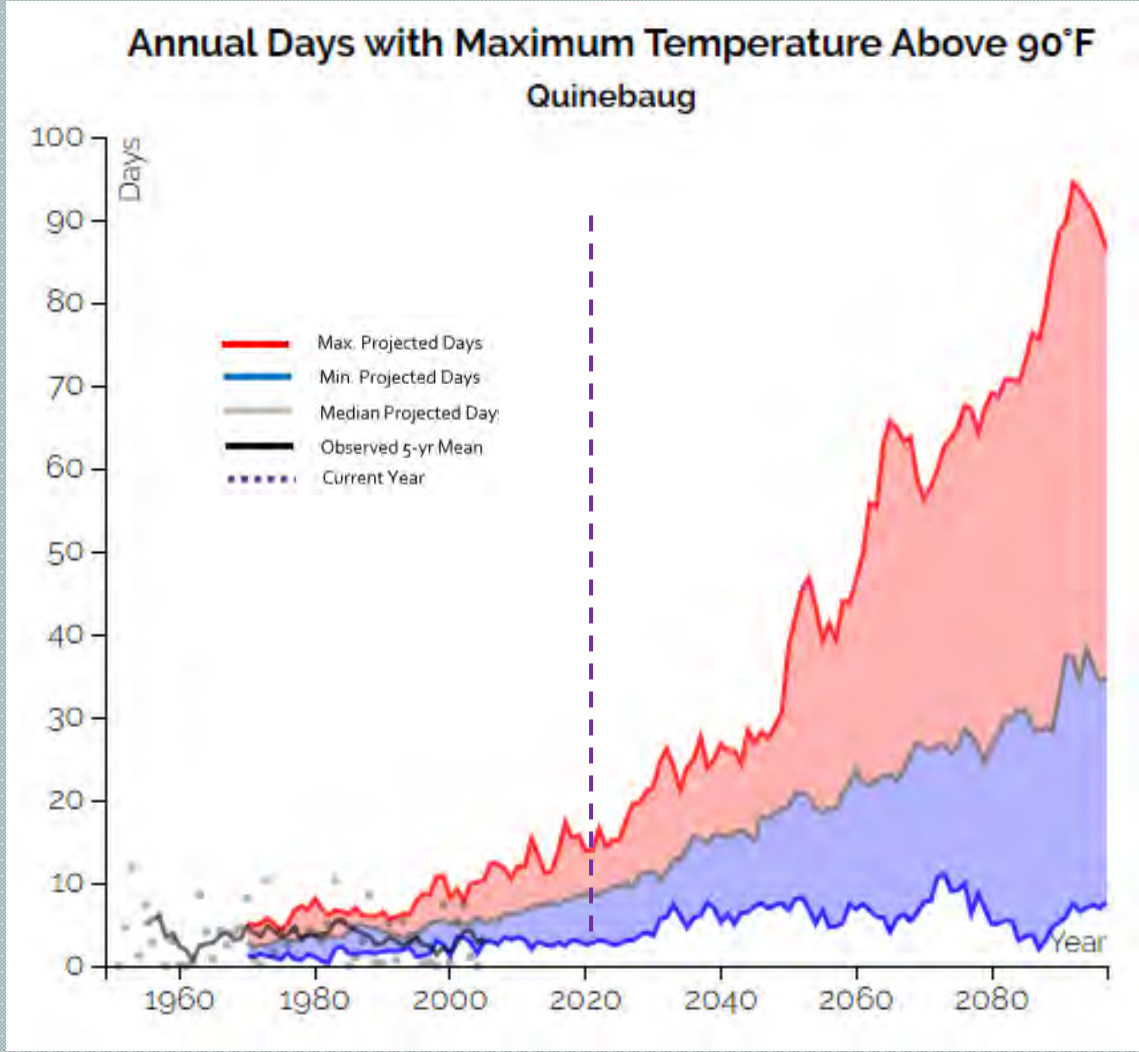
HEAT PROJECTIONS

- Projected increase of 8 to 29 days annually over 90°F by mid century
- Projected increase of 11 to 69 days annually over 90°F by end of century



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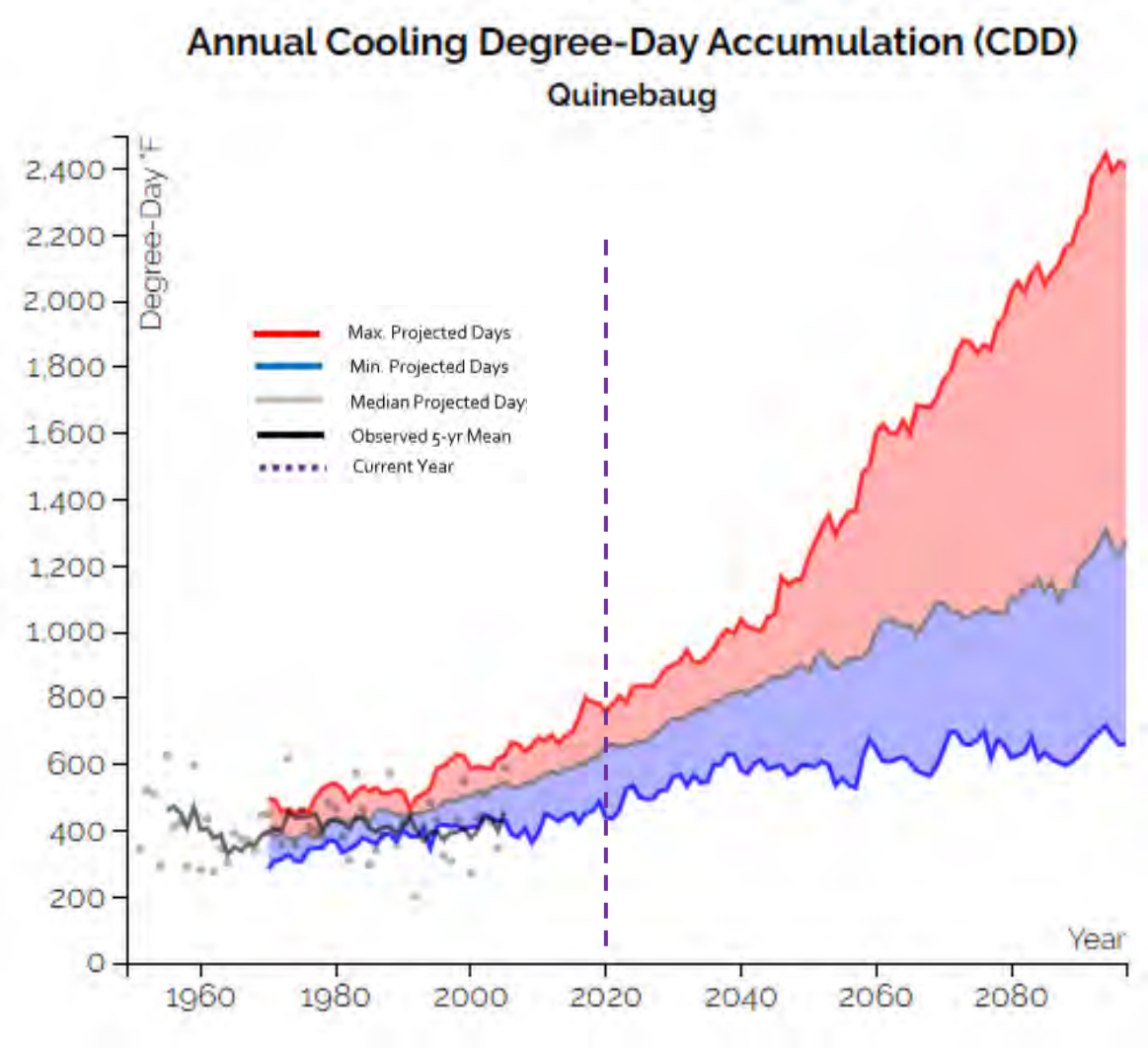
HEAT PROJECTIONS

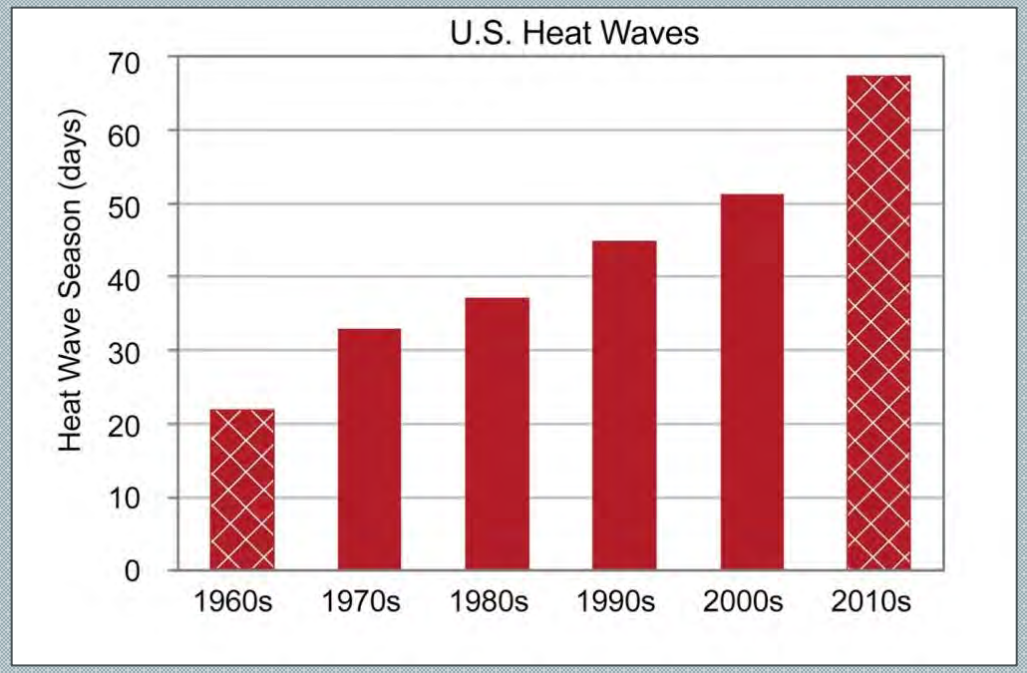
- Projected decrease in heating degree-days and increase in cooling-degree days
- More days above 65˚F means fewer days needed to heat buildings and more days needed to cool buildings.
- Winter
  - 7-19% decrease in HDD by mid century
- Spring
  - 10-24% decrease in HDD by mid century
- Fall
  - 20-33% decrease in HDD by mid century

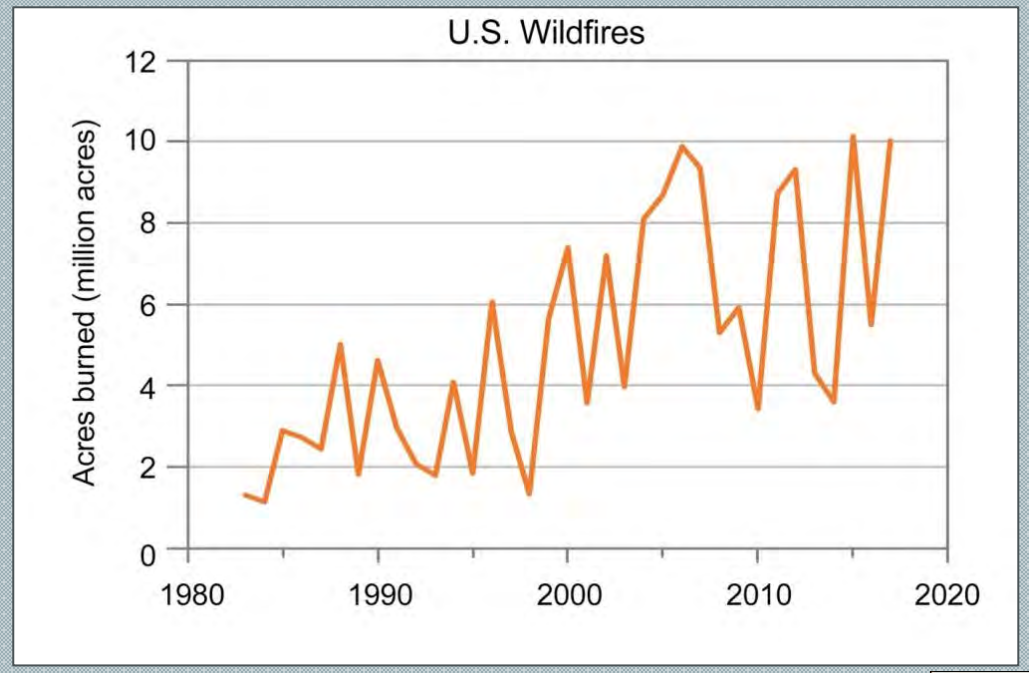


HEAT AND WILDFIRE

Nation-Wide Data

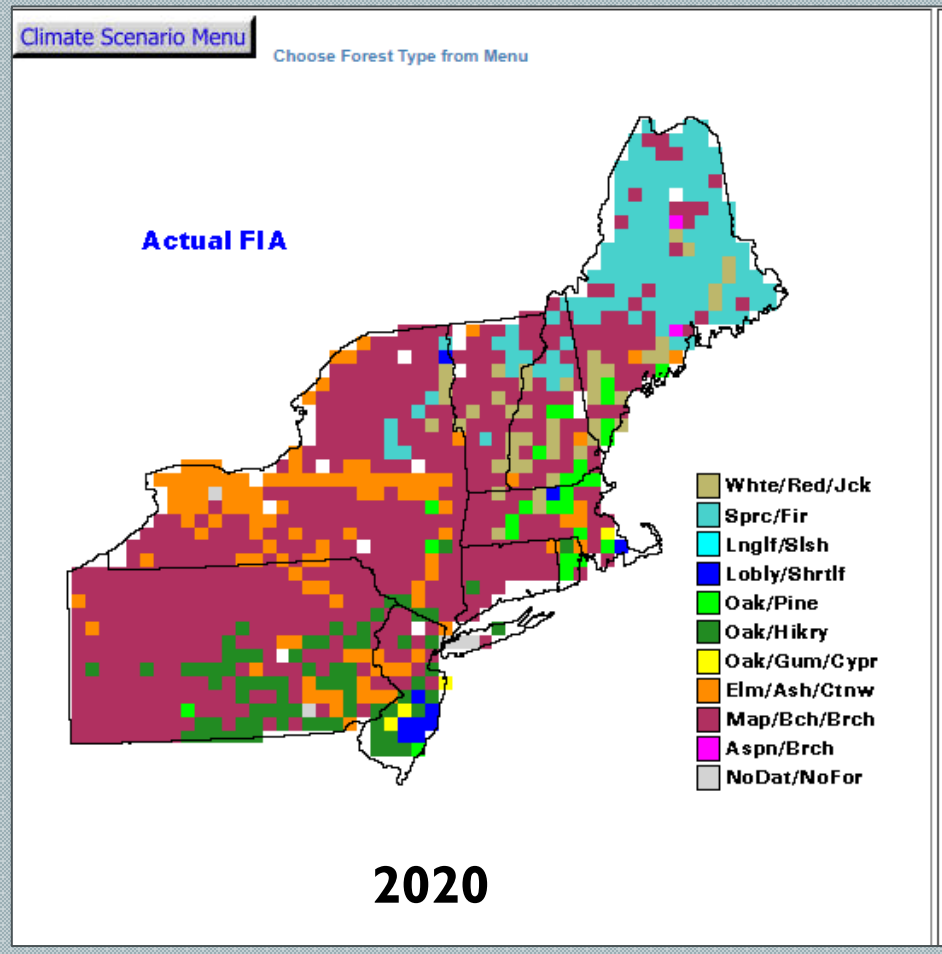
As the number and length of heat waves increase, so will the incidence of wildfires.

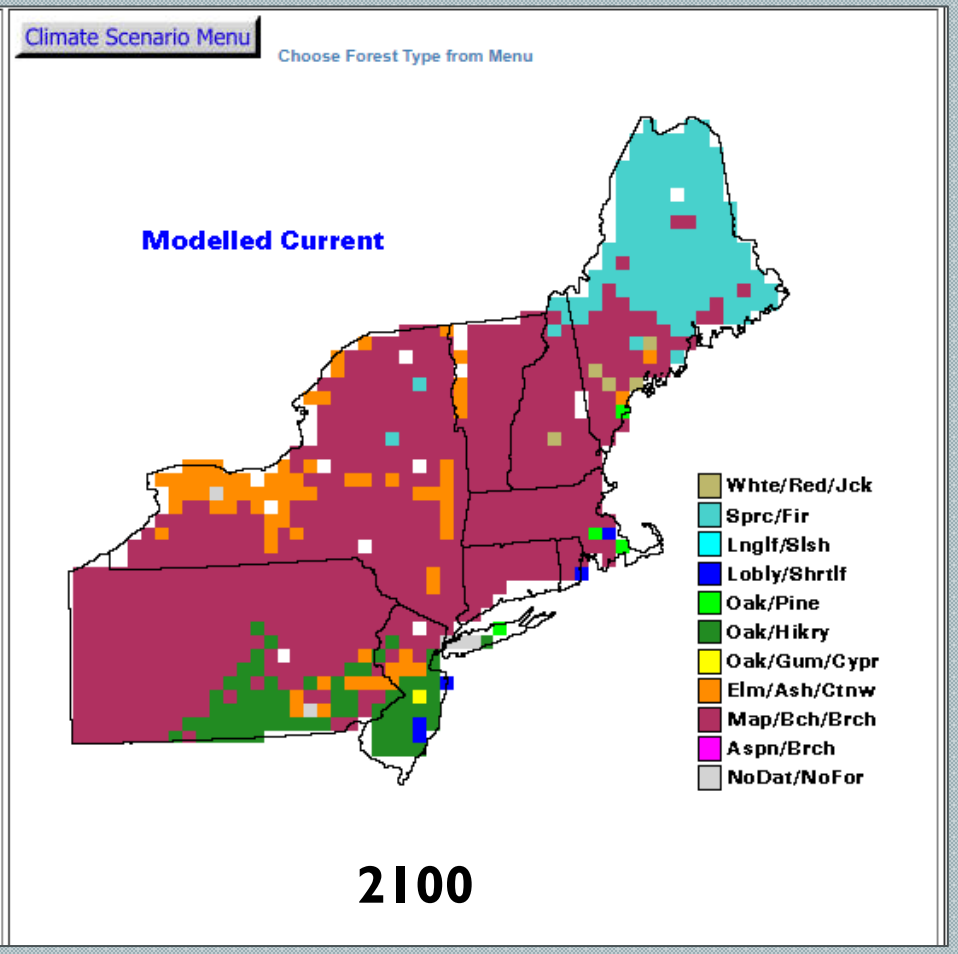




HEAT IMPACTS ON THE ENVIRONMENT

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





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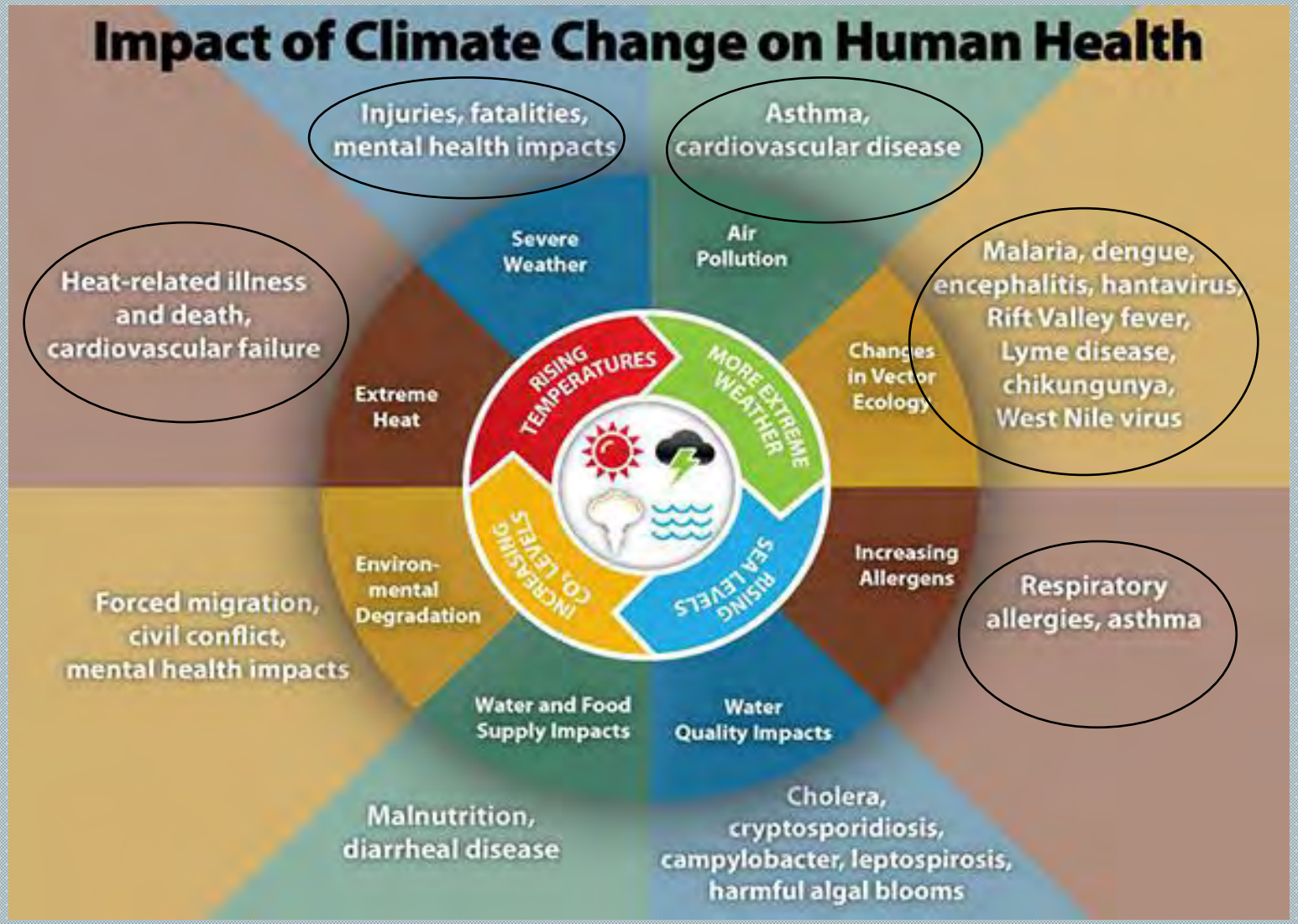
HEAT IMPACTS ON SOCIETY



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

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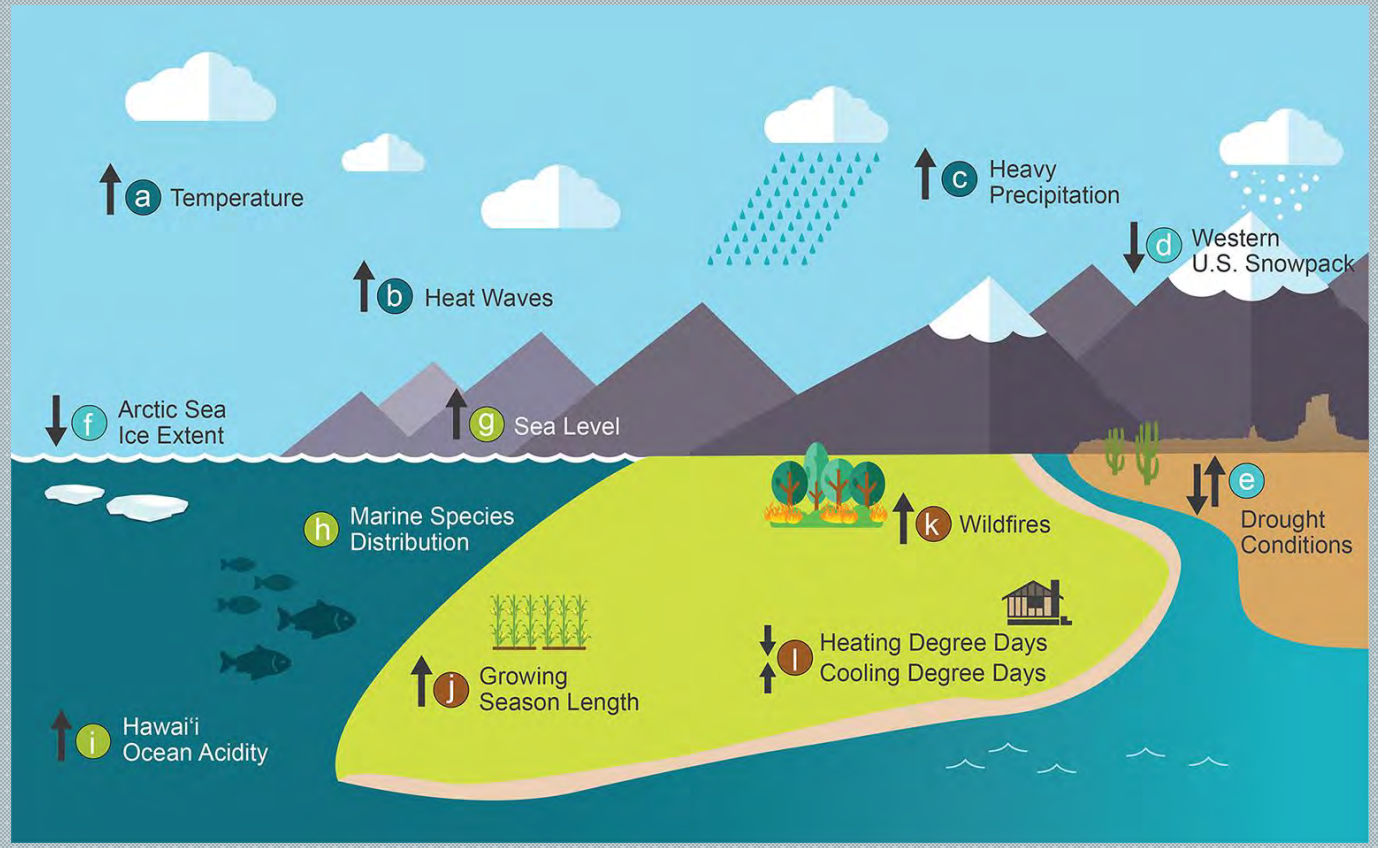
QUESTIONS OR COMMENTS?



mkaplan@cmprc.org

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TOWN OF STURBRIDGE

Municipal Vulnerability Preparedness (MVP)

Virtual Community Resilience Building Workshop

October 14, 28 and November 4, 2020

Day 1 October 14th

C M R P C
Central Massachusetts Regional Planning Commission

Community Resiliency Building Workshop

Town of Sturbridge

Municipal Vulnerability Preparedness

Day 1- Wednesday, October 14, 2020

6 pm – 8 pm; Check-in at 5:45 pm

Meeting Link (Click to Join):
https://us02web.zoom.us/j/81317715543?pwd=dGtXdXVhM2hQNHIDZWRoN0IMN0IBQT09

Meeting ID: 813 1771 5543 **Passcode** 564411

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

Workshop Materials: https://www.dropbox.com/sh/2cui68dnth0rmvn/AABhpCDKkI535Cvzy-LcEEBLa?dl=0

Workshop Agenda

5:45 pm – 6 pm:
- Login & Familiarize with Zoom

6 pm – 6:15 pm:
- Welcome & Overview
- Questions & Answers

6:15 pm – 7:40 pm:
- Breakout Groups
  - Identify Hazards & Local Features
  - Discuss Strengths & Vulnerabilities

7:40-8 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;
- Edit online map with important hazards and features

Homework

- Review Features, vulnerabilities, and strengths in matrix
- Brainstorm actions to address vulnerabilities

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

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

The Town of Sturbridge is collaborating with EOEEA and CMRPC to offer a three-part virtual workshop on ***October 14th, 28th and November 4th* from 6PM – 8PM** which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across Sturbridge. Follow the instructions below in order to help make your community more climate resilient! If you have any questions about the program, please contact ***David DeMings, Sturbridge Emergency Management*** at david.demings@sturbridgepd.com or ***Peter Peloquin, Associate Planner, CMRPC*** ppeloquin@cmrpc.org We look forward to seeing you virtually at our workshop!

Step 1. Discover Sturbridge'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:

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 the Community Resiliency Building (CRB) workshop process.

MVP Program Overview:
CRB Workbook:

Step 3. Watch the MVP Presentations Prior to Workshop

The following links contain 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 Sturbridge may face in the future. Please take some time to review each of these presentations before October 7th.

Town Introduction
MVP Program Info
Climate Projections
Natural Hazards
Completing the Matrix

Step 4. Familiarize Yourself with the Matrix and Mapping Tools

During the virtual 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 an online map with our ideas. The following three documents will show you an example of a completed matrix, will guide you through using the online mapping tool, and will give you a set of pre-made maps that already display various features, hazards, and resources in Sturbridge.

Complete Matrix Example
Online Mapping Tool
Reference Maps

Step 5. Attend the Workshop!

The 3-day workshop will be held on ***October 14th, 28th and November 4th from 6PM-8PM*** 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.

October 14, 2020	Agenda Day 1	Zoom Link Day 1
October 21, 2020	Agenda Day 2	Zoom Link Day 2
November 4, 2020	Agenda Day 3	Zoom Link Day 3

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.

Learn More

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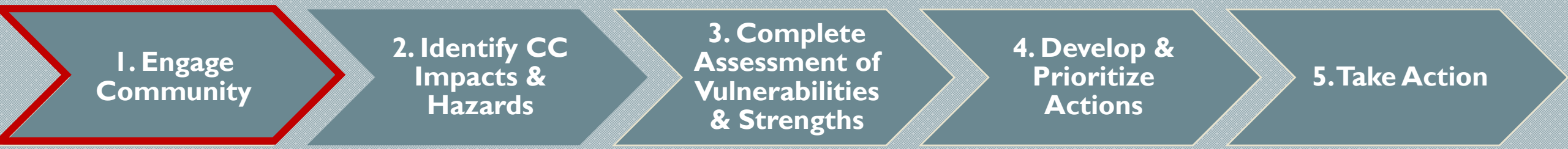
MUNICIPAL VULNERABILITY PREPAREDNESS (MVP)

- 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



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.

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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

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THE MATRIX

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.)

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

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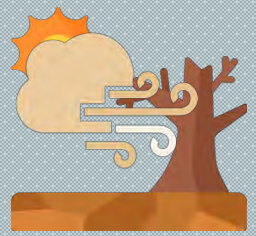
STEP ONE: HAZARD IDENTIFICATION

- **Flooding**
  - Riverine
  - Street

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

- **Tornadoes**



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

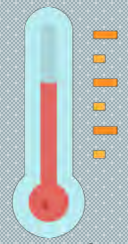
- **Tsunami**

- **Hurricanes/ Nor'easters**

- **Wild Fires**

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

- **Earthquakes**



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

Icons made by freepik, goodware, smashicons, those icons, icongeek26 and iconicar from Flaticon.com

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STEP ONE: HAZARD IDENTIFICATION

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Top 4 Hazards

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

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PRIMARY TOPIC AREAS

- Infrastructure

- Society

- Environment

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.com

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Top 4 Hazards

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

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

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Dam									
Societal									
Senior Housing									
Environmental									
Wetlands									

Estimated Location

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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Infrastructural									
Dam									
Societal									
Senior Housing									
Environmental									
Wetlands									

Estimated Location

Public? Private? State?

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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Environmental									
Wetlands									

Estimated Location

Public? Private? State?

Vulnerability or Strength

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BREAK OUT GROUP: FIRST MEETING

- Step 1- Fill in top 4 Natural Hazards
  - *Drought/ Wind Events/ Flooding/Winter Storms*
- 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

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QUESTIONS???

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TIME TO GET TO WORK

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NEXT STEPS

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Community Resiliency Building Workshop

Town of Sturbridge

Municipal Vulnerability Preparedness

Day 2- Wednesday, October 28, 2020

6 pm – 8 pm; Check-in at 5:45 pm

Meeting Link (Click to Join):
https://us02web.zoom.us/j/85037267716?pwd=ZXdwM3FONUZDWWJLeS9tQmRGMnVBdz09

Meeting ID: 850 3726 7716 **Passcode:** 878659

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

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

7:40-8 pm:
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- 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
- Brainstorm additional actions to address vulnerabilities
- Attend Day 3 Workshop

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

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QUESTIONS

ppeloquin@cmrpc.org

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TOWN OF STURBRIDGE

Municipal Vulnerability Preparedness (MVP)

Virtual Community Resilience Building Workshop

October 14, 28 and November 4, 2020

Day Two October 28th

C M R P C
Central Massachusetts Regional Planning Commission

Community Resiliency Building Workshop

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Infrastructural									
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STEP THREE: ACTIONS, PRIORITY AND TIMELINE

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Top 4 Hazards

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

Completed

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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)

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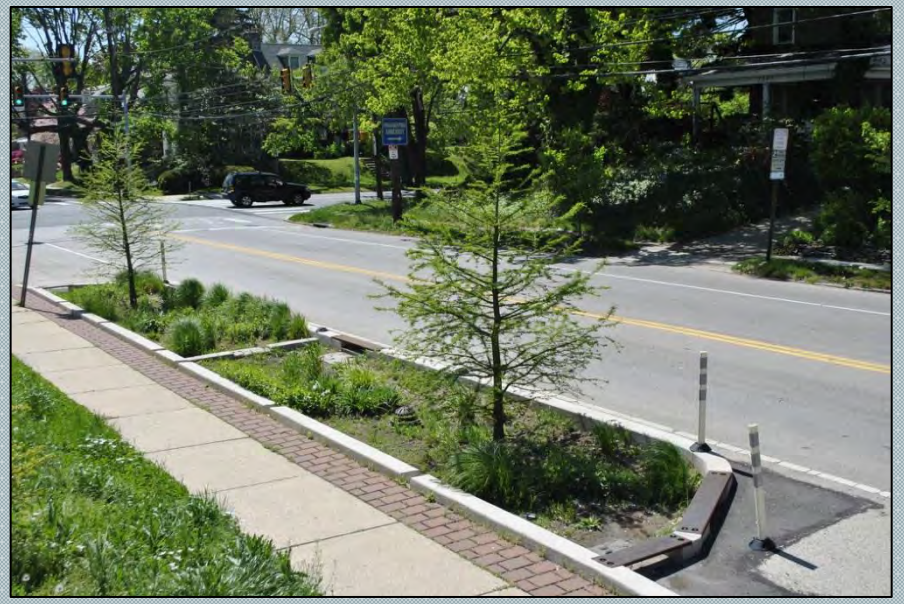
NATURE BASED SOLUTIONS (LID)

- 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

Mass Audubon

Shaping the Future of Your Community

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MORE EXAMPLES OF LOW IMPACT DEVELOPMENT AND GREEN INFRASTRUCTURE

Green Parking Lots

Permeable Paving

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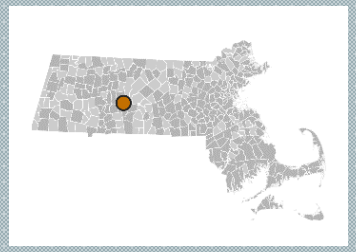
Example Action Grant Projects

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

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INFRASTRUCTURE PROJECTS

Traditional Culvert

Nature Based Culvert

Mass Audubon

Shaping the Future of Your Community

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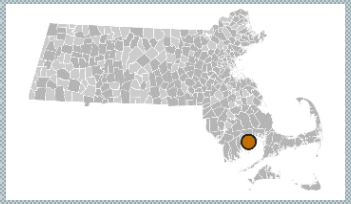
Example Action Grant Projects

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

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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, PRIORITY AND TIMELINE

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

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Top 4 Hazards

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Infrastructural									
Societal									
Environ									

Completed

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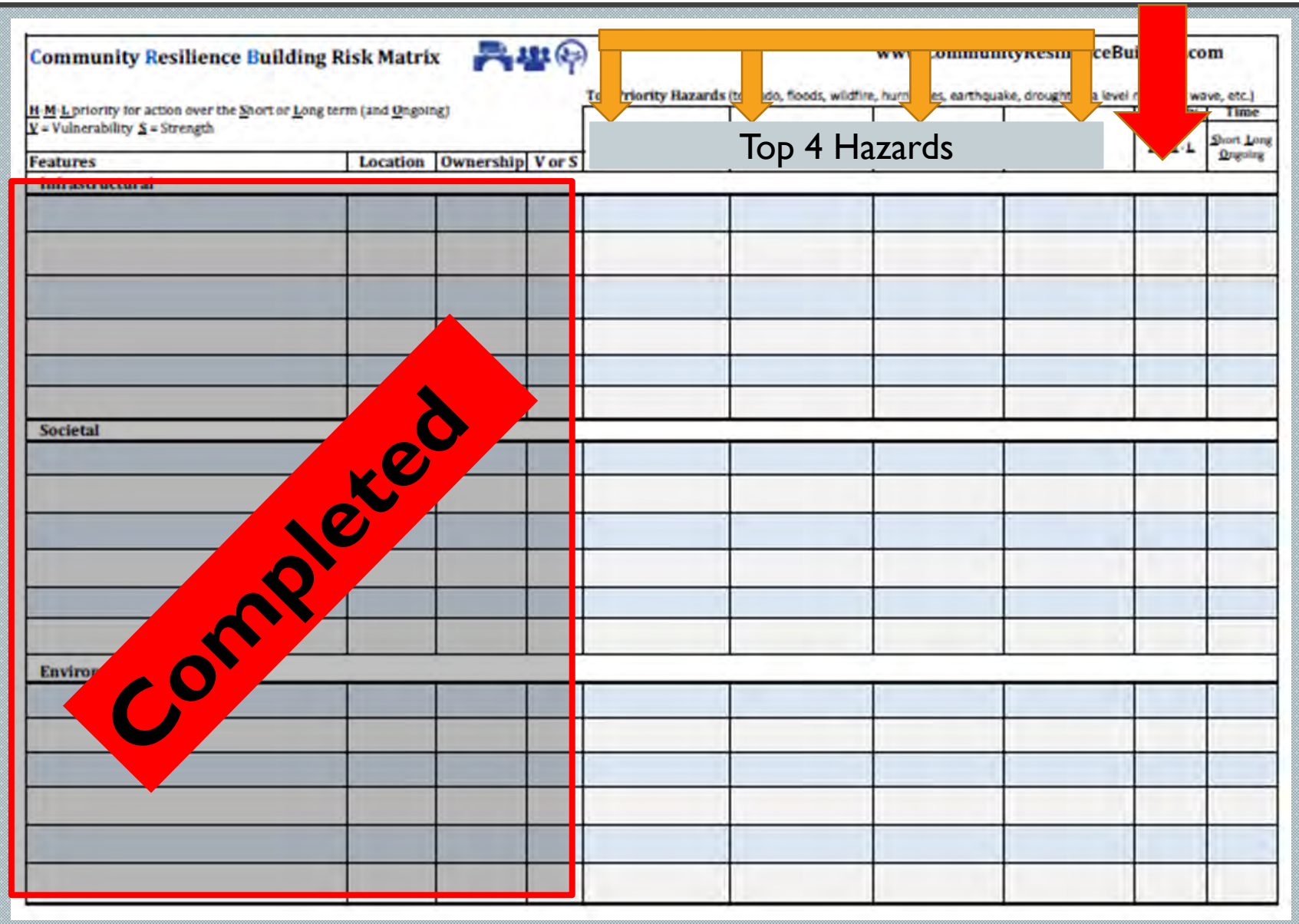
STEP THREE: ACTIONS, PRIORITY AND TIMELINE



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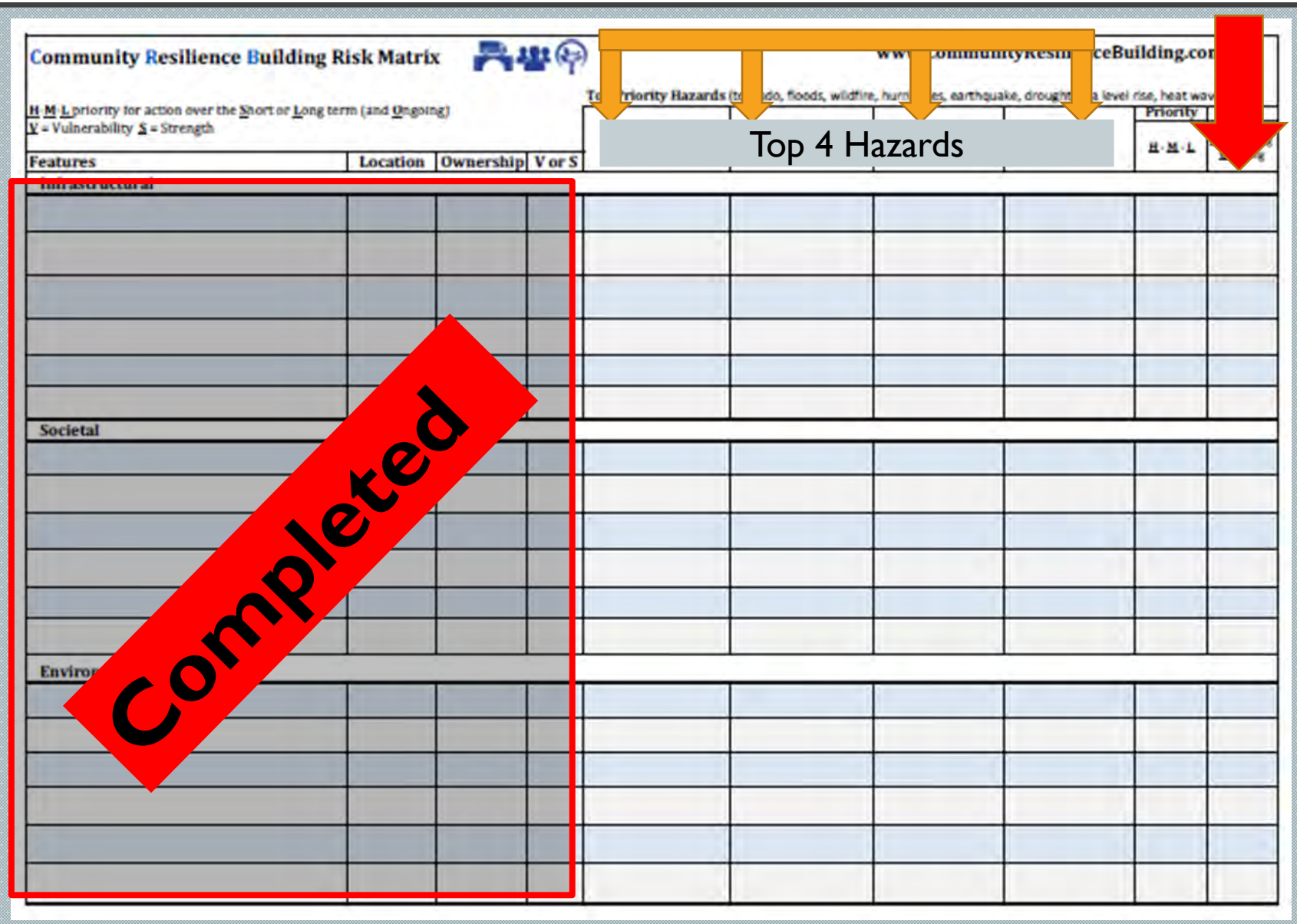
STEP THREE: ACTIONS, PRIORITY AND TIMELINE



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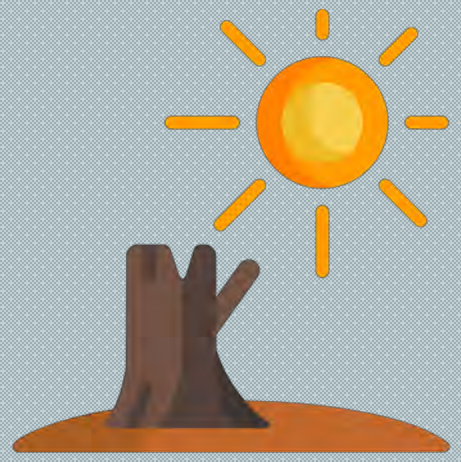
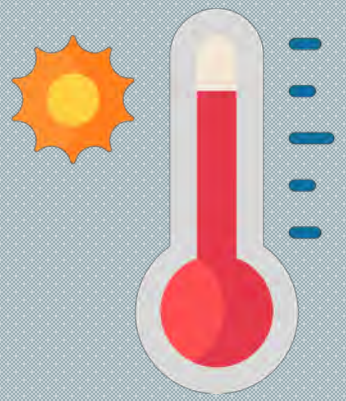
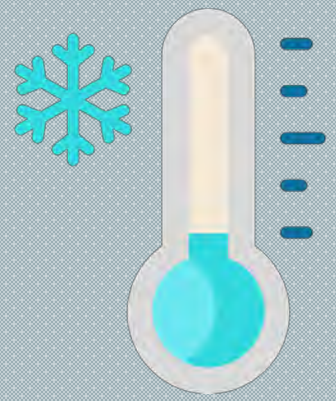
QUESTIONS







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TIME TO GET TO WORK

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THANK YOU

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TOWN OF STURBRIDGE

Municipal Vulnerability Preparedness (MVP)

Virtual Community Resilience Building Workshop

October 14, 28 and November 4, 2020

Day Three November 4th

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REPORT OUTS

What did your table find?

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SUMMARY DISCUSSION

- Areas of agreement
- Areas of unique perspectives

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TIME TO VOTE

- A survey will be created after this meeting
- Vote for your top five projects
- Prioritize Project

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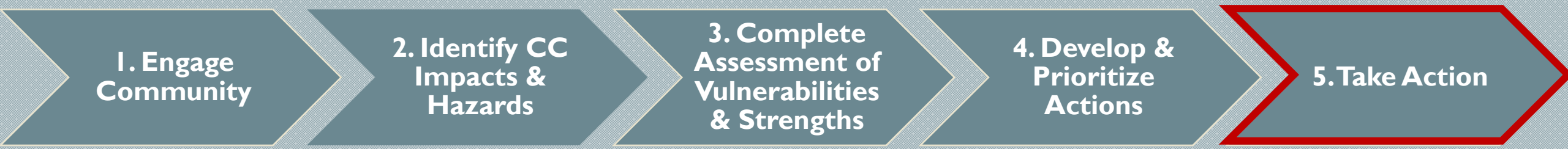
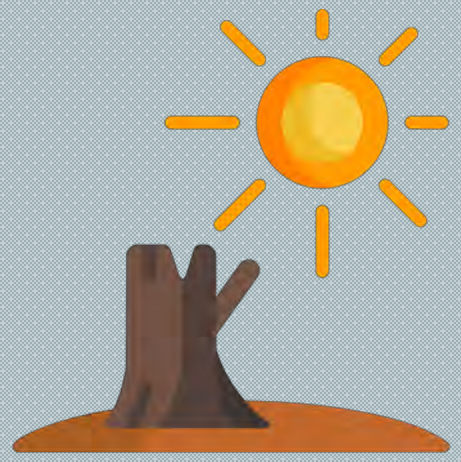
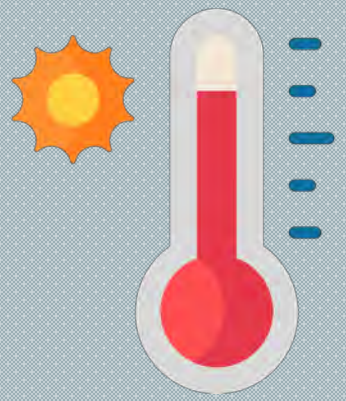
NEXT STEPS

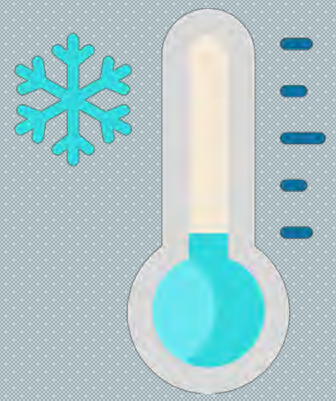
- Vote in survey
- Report development
- Public "Listening" session with Members of the Public and Board of Selectmen Date TBD
- Develop resources and Implement actions through Action Grants



QUESTIONS







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CONTACT US

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  - DeMings, David david.demings@sturbridgepd.com
  - CMRPC Project Leaders –
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  - Mimi Kaplan , mkaplan@cmrpc.org
- Executive Office of Energy and Environmental Affairs –
  - Andrew Smith, andrew.b.smith@state.ma.us

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THANK YOU

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YOU ARE INVITED TO ATTEND THE:

Town of Sturbridge

Municipal Vulnerability Preparedness Program

PUBLIC LISTENING SESSION

WEDNESDAY, MAY 26, 2021
STURBRIDGE SENIOR CENTER
5:00 – 6:00 PM

THE MUNICIPAL VULNERABILITY PREPAREDNESS (MVP) CORE TEAM WILL BE HOLDING THIS PUBLIC LISTENING SESSION ON MAY 26TH FROM 5:00 TO 6:00 PM AT THE SENIOR CENTER LOCATED AT 480 MAIN STREET. LEARN MORE AND PROVIDE COMMENTS REGARDING STURBRIDGE'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.

This event is funded through a grant from the Massachusetts Executive Office of Energy and Environmental Affairs

MUNICIPAL VULNERABILITY PREPAREDNESS (MVP) PROGRAM

Public Listening Session

Sturbridge, MA

May 26, 2021

5:00 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

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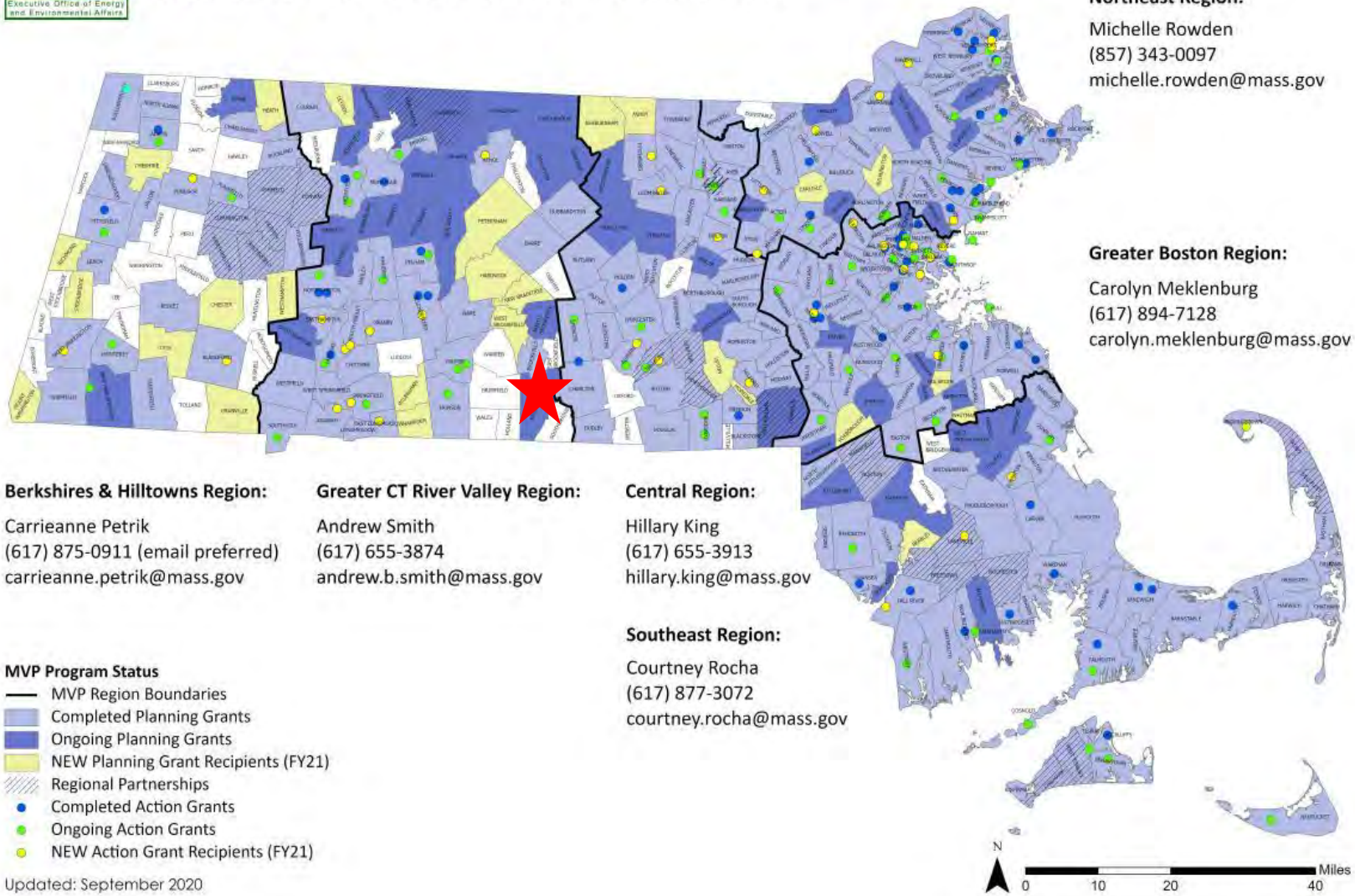
Municipal Vulnerability Preparedness (MVP) Program

Program Manager: Kara Runsten, (617) 312-1594, kara.runsten@mass.gov



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Carolyn Meklenburg
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carolyn.meklenburg@mass.gov

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Carrieanne Petrik
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Greater CT River Valley Region:

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Central Region:

Hillary King
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hillary.king@mass.gov

Southeast Region:

Courtney Rocha
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courtney.rocha@mass.gov

MVP Program Status

- MVP Region Boundaries
- Completed Planning Grants
- Ongoing Planning Grants
- NEW Planning Grant Recipients (FY21)
- Regional Partnerships
- Completed Action Grants
- Ongoing Action Grants
- NEW Action Grant Recipients (FY21)

Updated: September 2020

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COMMUNITY RESILIENCE BUILDING (CRB) PROCESS

- Community-driven process led by the project coordinator (David DeMings) and Core Team members
- Sturbridge's 6-member Core Team met 4 times in February 2020, March 2020, August 2020, October 2020
- Invitation-only workshop was held virtually on October 14th, 28th, and November 4th
- 27 attendees, including local officials, board and committee members, business, schools and non-profit groups
- Listening session (today) is open to the public

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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

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PRIMARY TOPIC AREAS

- Infrastructure

- Society

- Environment

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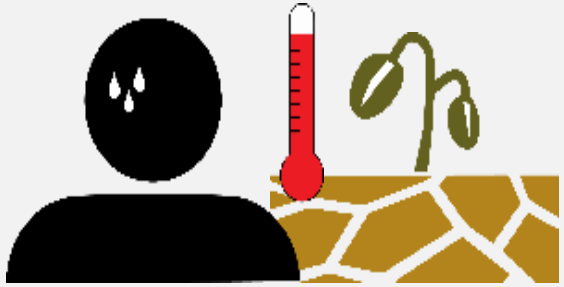
STEP ONE: IDENTIFY TOP 4 HAZARDS

DROUGHT/EXTREME HEAT



FLOODING

WINTER STORMS

WIND EVENTS

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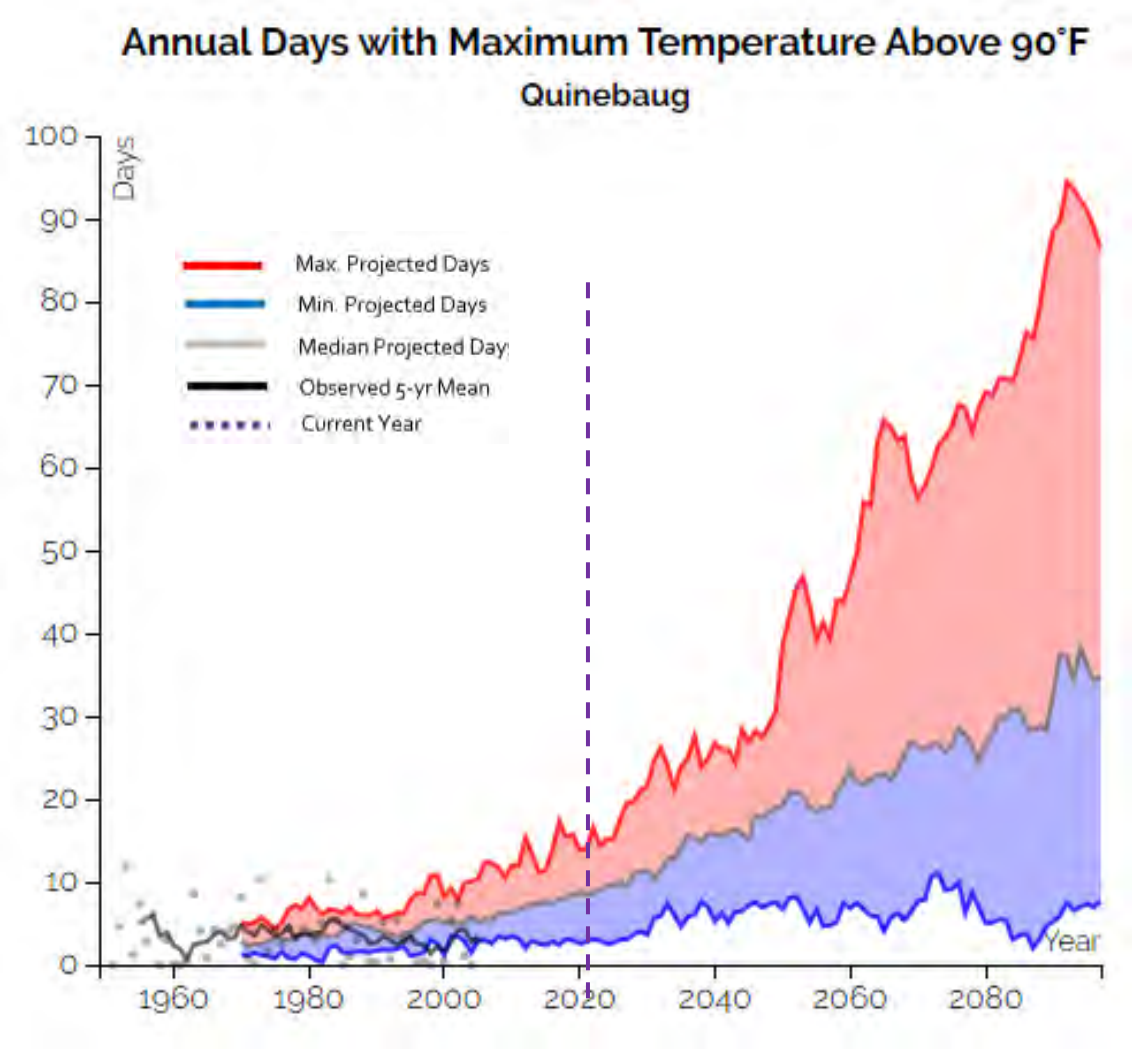
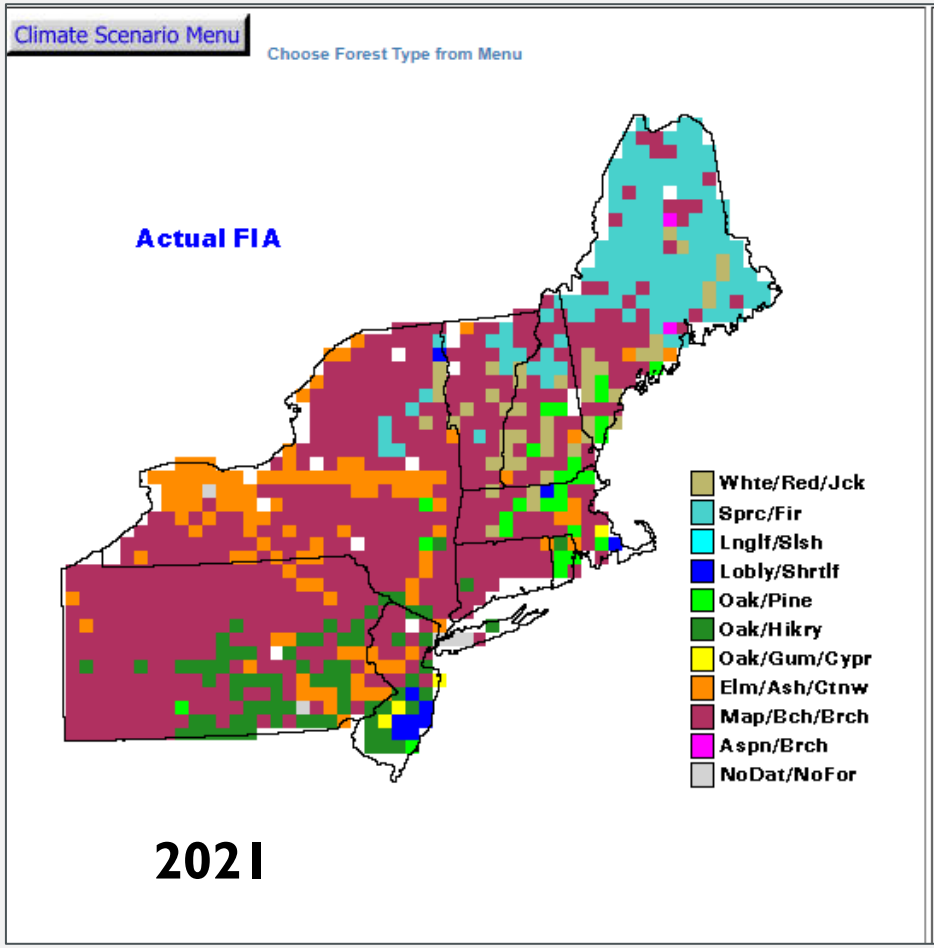
HEAT PROJECTIONS

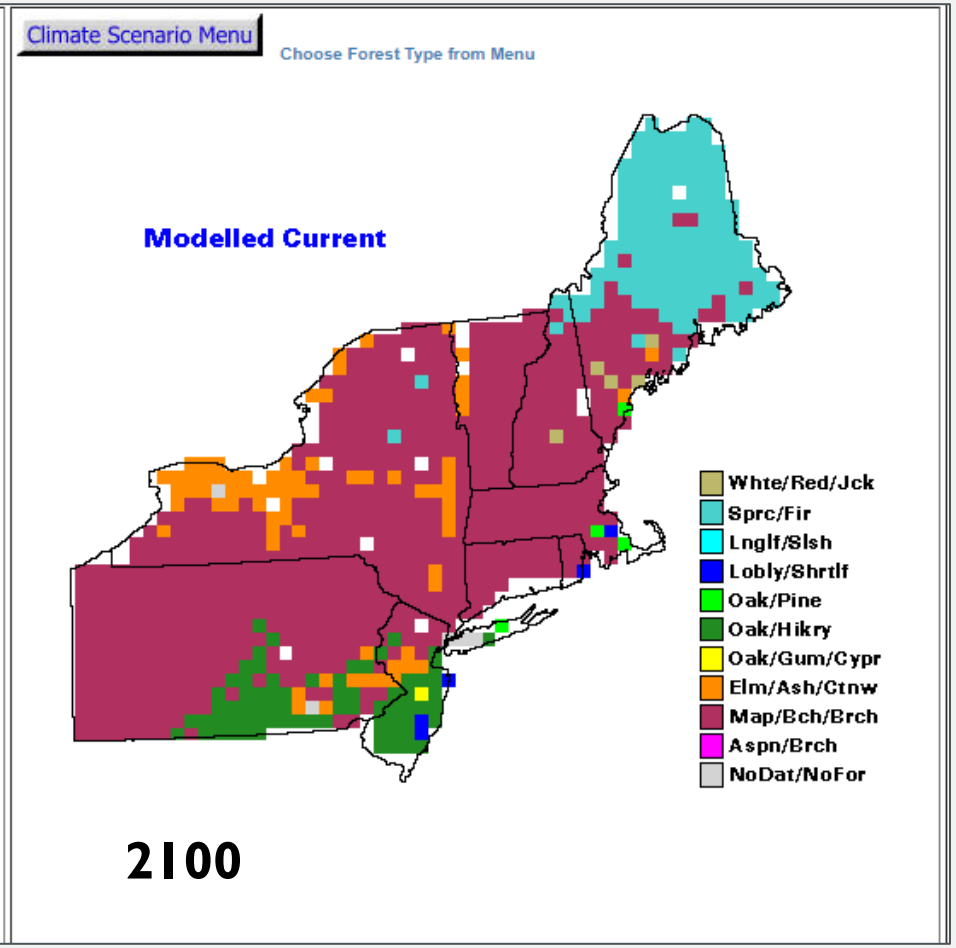
- Projected increase of 8 to 29 days annually over 90°F by mid century

- Projected increase of 11 to 69 days annually over 90°F by end of century



HEAT IMPACTS ON THE ENVIRONMENT



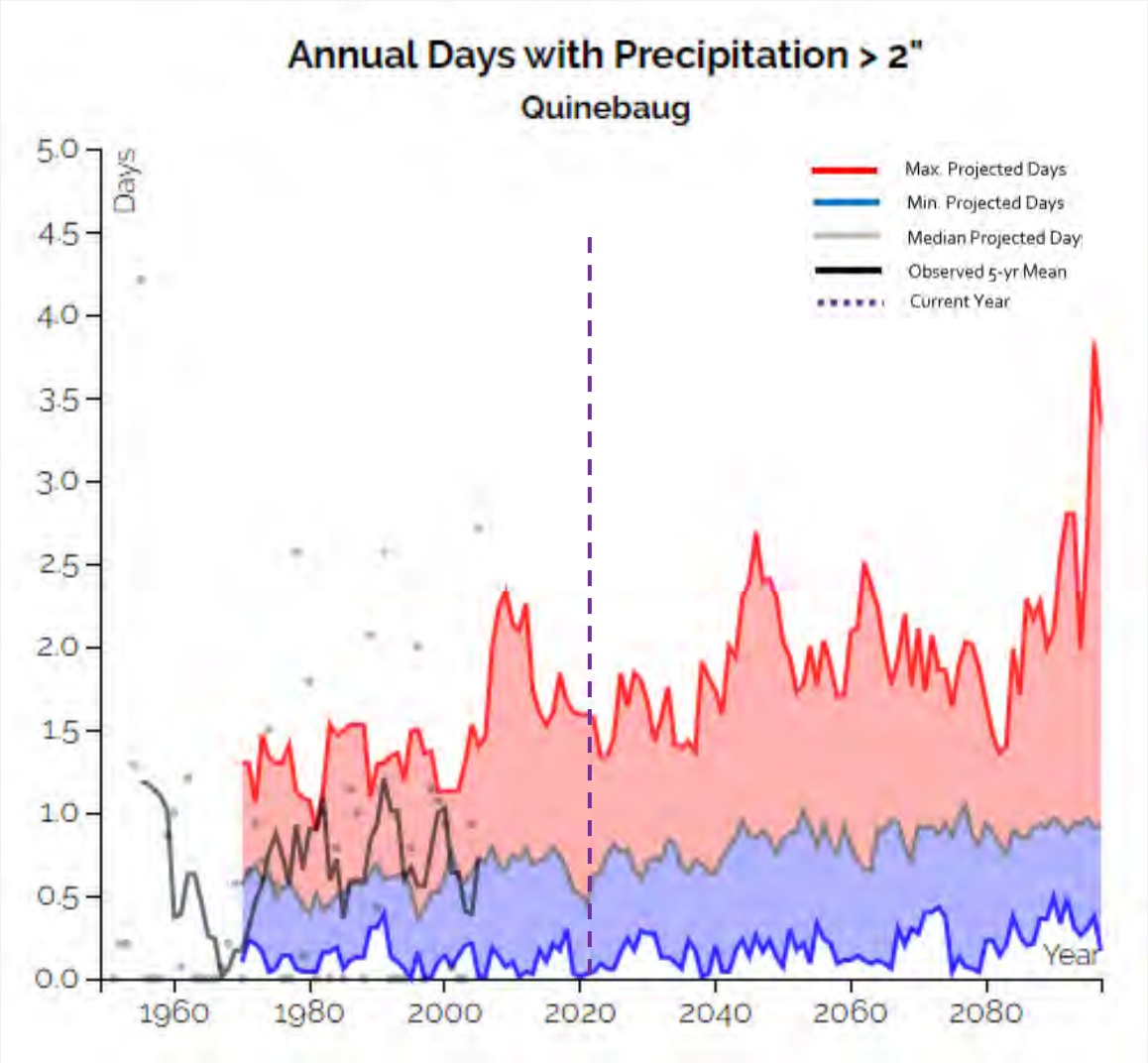


- Species expected to move north
- Diversity of species will likely decrease
- Likely increase in invasive species

HEAVY RAINFALL AND FLOODING

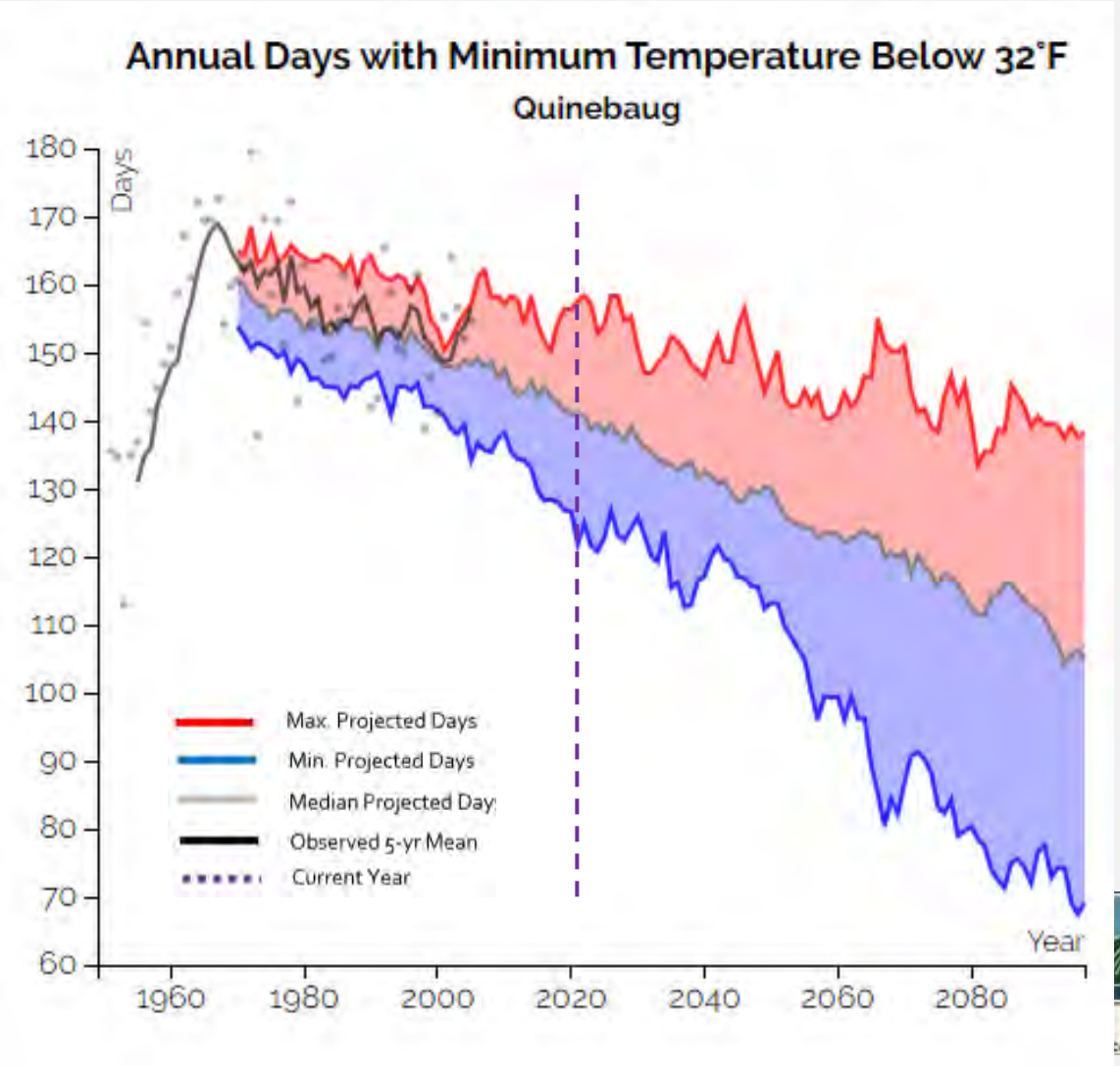
Extreme Precipitation

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



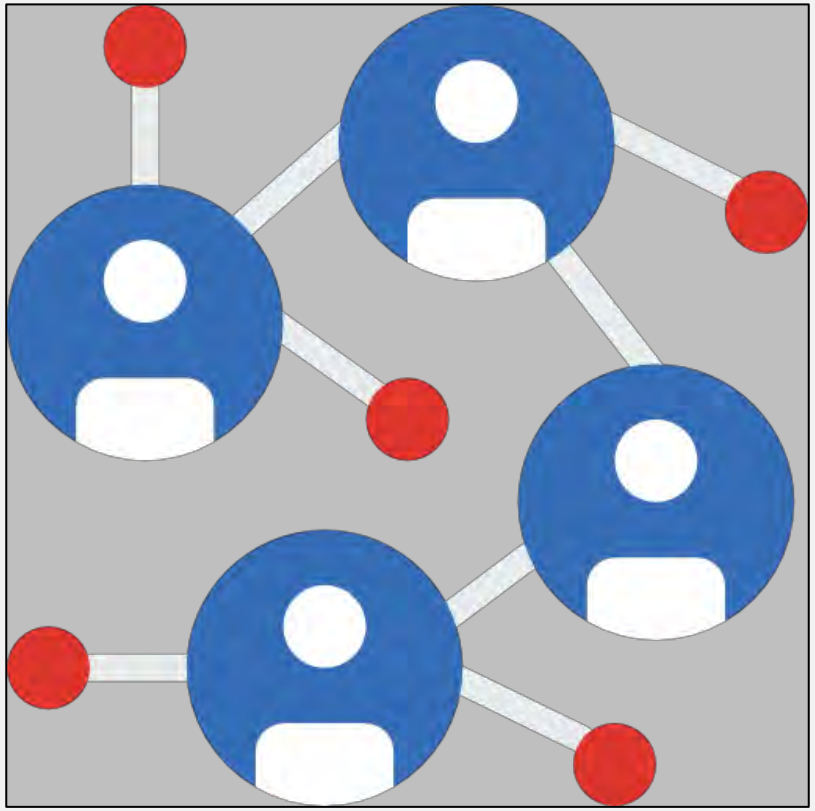
WINTER STORMS

- 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



BREAKOUT GROUPS

- 3 Breakout groups of 6-7 individuals
- 4 Focus Hazards
- 3 Focus Sections
- Tools and Resources
  - Matrix, Maps, & Each Other



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THE MATRIX

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.)

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

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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

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

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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

Top 4 Hazards

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

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

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Top 4 Hazards

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

Estimated Location

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STEP TWO: WHAT, WHERE, WHO AND VULNERABILITIES

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Top 4 Hazards

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								H-M-L	Short Long Ongoing
Infrastructural									
Dam									
Societal									
Senior Housing									
Environmental									
Wetlands									

Estimated Location

Public? Private? State?

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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.)

Top 4 Hazards

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

Estimated Location

Public? Private? State?

Vulnerability or Strength

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STEP THREE: ACTIONS, PRIORITY AND TIMELINE

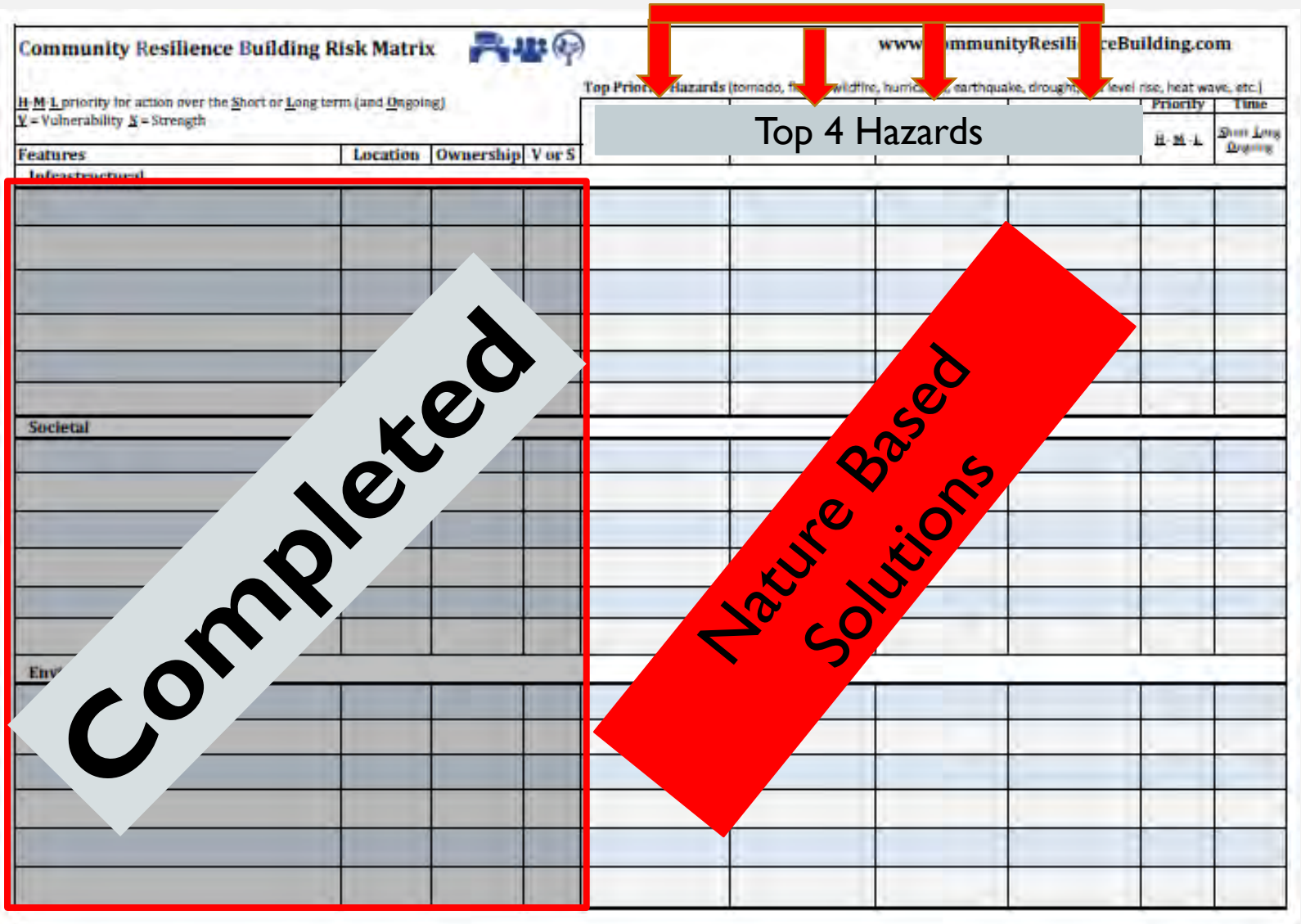

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TABLE SUMMARIES

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org

Sturbridge Table 1

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

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

Features	Location	Ownership	V or S	Flooding	Drought/Heat	Winter Storms	Wind	Priority H - M - L	Time Short Long Ongoing
Infrastructural									
Undersized culverts -	Town-wide		V	Town-wide culvert assessment. **Expand study to include stormwater infrastructure and traffic.** Combine with below (general drainage improvements)				High	Short (perhaps has begun - confirm with DPW)
General drainage improvements along roadways		State, local and private	V	Look at ways to improve drainage with more nature-based solutions, evaluate development regulations to encourage/require LID					
Beaver Dams	Main Street, Cricket Drive		V	Higher risk beaver dams have been addressed with flood management strategies					
Holiday / rush hour traffic congestion	Intersection of I90 / Rt. 84		V	Traffic study/level of service study - need a townwide evaluation					
Holiday / rush hour traffic congestion	Main Street / Rt. 20 / Rt. 15 /		V	Traffic study/level of service study, want to encourage walkability perhaps limited by wetlands					
Evacuation route coordination with surrounding towns			S/V	Work with surrounding towns to create a plan, prioritize routes that should be kept open and access for first responders. How does the town communicate with locals or strangers in an					
Dams (3 dams)	Hamilton Rd, I90, Rt. 20	Rod and Gun Club	S/V						
Dams	Along Quinebaug	Town (at Mill Yard)	V						
E Brimfield Lake Dam (high risk)			V						
Power outages (mostly related to downed trees)			V						
Emergency shelter (Burgess is first responder / medical supply distribution shelter and Tantasqua is regional)			S						
Communication infrastructure (particularly to Tantasqua)			V	Radio dead zones - regional issue. School has poor cell coverage - explore technology that would allow radios to be used in school buildings					
Lack of Public Transit			V	Exploring providing transit for seniors, could help alleviate stress on downtown parking. Revisit trolley?					
Public Works staff (some smaller towns in District can't plow in snow event)			V	Will having remote school/work alleviate some of this problem?					
Regional collaboration for emergency responder training / response			S/V	Regional collaboration with Brookfield, Wales, Holland, Brimfield, Dudley, Oxford, Southbridge, Webster, hospital and amory - all fall under TriEpic Regional Planning for Emergency Response training. Establish a relationship with central Homeland Security Council.					
Local Wetlands Bylaw with additional protections			S	Consider including air quality? Educate people, esp private developers, on importance of wetlands and ways they can be protected - low impact development guide.					
Local Forest Management Bylaw			S						
Local Stormwater Bylaw			S						
Municipal staff manpower to assist people with									

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GROUP VOTE

STURBRIDGE
MASSACHUSETTS

Sturbridge Municipal Vulnerability Preparedness Program

Top Priority Actions Survey

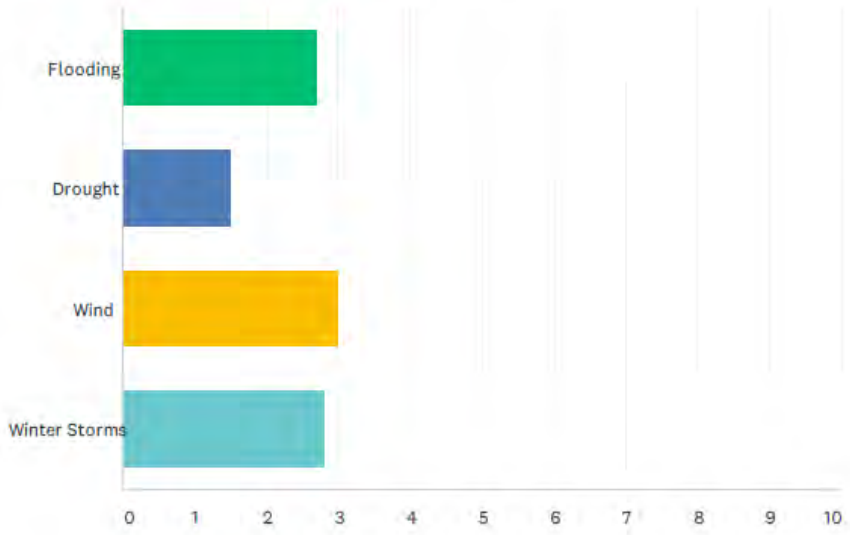
Thank you for participating in Sturbridge's MVP Virtual Workshop! All of the presentations, background information, and the matrix that you helped to fill out during the workshop can be accessed at the following link: https://www.dropbox.com/sh/2cui68dnth0rnvn/AABhpCDKkIS35Cvzy-LcEEBLa?dl=0xc

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 Sturbridge should take in order to become more resilient. Please take some time to review those materials in the link above and complete the survey by Friday, November 20, 2020. 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!

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

Answered: 16 Skipped: 0



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WHAT DID THE GROUP FIND?

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INFRASTRUCTURE CONCERNS

Dams and Culverts

Water Infrastructure

Access

Municipal Facilities

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INFRASTRUCTURE STRENGTHS

Bylaws & Regulations

Public Safety

Utilities & Services

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INFRASTRUCTURE ACTIONS

HIGH PRIORITY

Upgrade Facility Management

Improve Stormwater Management

Evaluate Access

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SOCIETAL CONCERNS

Senior Residents

Communication

Tourism

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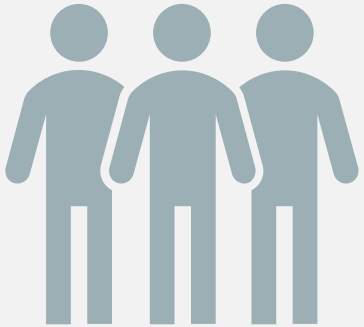
SOCIETAL STRENGTHS



Community Organizations

Municipal Presence

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SOCIETAL ACTIONS

HIGH PRIORITY

Improve Public Safety

Foster Partnerships

Expand Communication

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ENVIRONMENTAL CONCERNS

Beavers

Invasive Species

Runoff Contamination

Forest Management

ENVIRONMENTAL STRENGTHS

Open Space

Water Resources

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ENVIRONMENTAL ACTIONS

HIGH PRIORITY

Resource Protection

Open Space Improvements

Forest Management

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NEXT STEPS FOR STURBRIDGE

- Finalize draft report with assistance from CMRPC
- Final report submitted to EOEEA by June 30, 2021
- Sturbridge receives "MVP Community" certification
- Annual reporting by Core Team
- Develop and apply for MVP Action Grants

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ACTION GRANTS

- Action Grants were launched this Spring
- Up to $2 million for an individual community
- Up to $5 million for regional projects
- One year grant cycle (typically) July 1st- June 30th
- 25% Match - Cash or In-kind (Non-State Funds)

www.mass.gov/municipal-vulnerability-preparedness-mvp-program

www.communityresiliencebuilding.com

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Questions and Comments

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CONTACT

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Thank you

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