

Town of North Brookfield



Municipal Vulnerability Preparedness Summary of Findings April 2021



CMRPC MISSION

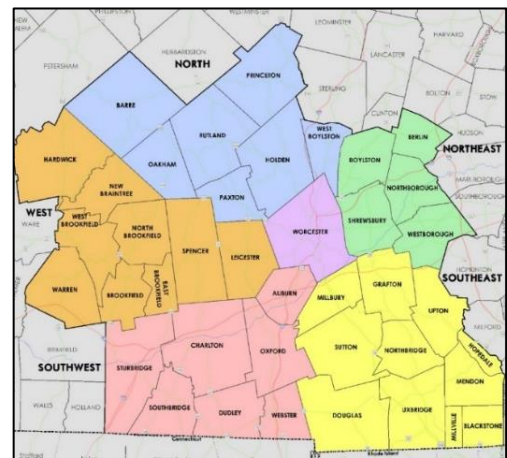
The Central Massachusetts Regional Planning Commission is a regional partnership serving the planning and development interests of 40 member communities in southern Worcester County in Massachusetts. Our primary mission is to improve the quality of life for those who live and work in our region.

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



OUR HISTORY AND PROGRESS

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



FEDERAL TITLE VI/NONDISCRIMINATION PROTECTIONS

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

STATE NONDISCRIMINATION PROTECTIONS

The CMMPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c272§§ 92a, 98, 98a, prohibiting making any distinction, discrimination, or restriction in admission to or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability or ancestry. Likewise, CMMPO complies with the Governor's Executive Order 526, section 4, requiring all programs, activities and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

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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 North Brookfield 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 Workshop was funded by the Executive Office of Energy and Environmental Affairs. This Summary of Findings and virtual CRB Workshop were prepared for the community of North Brookfield by the Central Massachusetts Regional Planning Commission (CMRPC). Support from the North Brookfield Board of Selectmen and the town officials was much appreciated, especially for allowing the workshop and listening session to take place virtually during unprecedented times.

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

Ashley Barre, Administrative Assistant, Project lead

Ann Hicks, Local Committees (Former Conservation Agent)

Joseph Holway, Fire Chief

Jim Nyberg, Sewer Department

Dawn Thistle, Library Director

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

Pete Peloquin, Associate Planner, CMRPC

Kerrie Salwa, Principal Planner, CMRPC

Dani Marini, Assistant Environmental Planner, CMRPC

Matt Franz, GISP - GIS Analyst, CMRPC

Faye Rhault, Intern, CMRPC

Andrew Smith, MVP Regional Coordinator, Greater Connecticut River Valley, EOEEA

NORTH BROOKFIELD: A PROFILE

The Town of North Brookfield, Massachusetts was incorporated in 1812. North Brookfield is located on Route 67, 19 miles west of the City of Worcester and is largely a bedroom community. All of North Brookfield lies within the Chicopee River Basin. North Brookfield is bordered by West Brookfield on the west, Spencer on the east, Brookfield and East Brookfield on the south, and New Braintree on the north. North Brookfield has a total area of 21.47 square miles and a population of 2,226. According to the Central Massachusetts Regional Planning Commission's (CMRPC) Long Range Transportation Plan, Mobility 2040, the Town of North Brookfield is expected to experience minimal population growth, compared to the region, over the next 25 years.

The number of residents has declined from 4,683 in the 2000 US Census to 4680 in 2010 to the currently (2018) estimated 4808. North Brookfield is a largely white community, with some 97.6% of residents identifying within that group. Mixed Race American are the largest minority group, at 1.72%. Similarly, to the state age distribution, North Brookfield has a median age of 41.1, with 27.2% of the population under the age of 19 and 12.9% of the population over the age of 65. The median household income resides at \$68,654, with 6.32% of the community living below the poverty line.

North Brookfield actively involves its community through various youth and adult programming at the North Brookfield Senior Center, Haston Free Public Library, and provides recreational outlets at the North Brookfield Town Forest Park and Lake Lashaway Beach. The town is home to the North Brookfield Elementary, Junior High School, and Senior High School.

WORKSHOP SUMMARY

The Town of North Brookfield contracted with the Central Massachusetts Regional Planning Commission (CMRPC) on February 11, 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 North Brookfield. A small group of town officials and local residences convened on March 9, 2020 to form the 'Core Team' which, together with CMRPC staff, organized and planned the CRB Workshop over the course of three meetings.

Participate in North Brookfield'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, two-day, Community Resilience Building Virtual Workshop focused on preparing and protecting the Town of North Brookfield.

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

Municipal Vulnerability Preparedness (MVP) Program Workshops

Day 1: Monday, May 4, 2020
9:30AM Registration, Workshop 9:30AM - 11:30AM
Meeting Link: <https://us02zoom.us/j/824242131>
Meeting ID: 877 430 7113
Call in Number: 1-646-578-8656

Day 2: Wednesday, May 6, 2020
1:00PM Registration, Workshop 2:00PM - 4:00PM
Meeting Link: <https://us02zoom.us/j/824242131>
Meeting ID: 877 430 7113
Call in Number: 1-646-578-8656

The Town of North Brookfield is collaborating with EOEEA and CMRPC to offer this timely two-day workshop which will bring together community members to comprehensively identify and prioritize steps to reduce risk and improve resilience across North Brookfield. The workshops are typically held in person, but due to social distancing measures, we will be conducting the workshop virtually over Zoom. This workshop will help develop and advance comprehensive community resilience planning, hazard mitigation, and adaptation efforts.

The workshops objectives are:

- 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 detailed information about North Brookfield's MVP Workshop can be found in the link below:

Virtual Workshop Toolkit:
<https://www.dogdom.com/northbrookfield/mvp/virtual-workshop-toolkit.pdf>

North Brookfield MVP Dropbox:
https://www.dogdom.com/uk/vp6vshibersvAAAgpGmFDrCv3XN_T4S8t4dUo

If you have any questions about the program, please contact Ashley Barre, Administrative Assistant to the Board of Selectmen, selectmen@northbrookfield.net, 508-867-0200.

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

Sincerely,
Ashley Barre, Administrative Assistant to the Board of Selectmen

Workshop Invitees and Participants

Name	Affiliation	Attended	Table #
Diane Nichols	COA	N	
Ashley Barre	Administrative Assistant to the Board of Selectmen	Y	1
Ann Hicks	Boards and Committees (former ConComm)	Y	1
Jim Nyberg	Sewer Superintendent	Y	1
Dawn Thistle	Library Director	Y	1
Joe Holway	Fire Chief	Y	1
John Turner	Planning Board and Conservation Commission	Y	1
Andrew Smith	MVP Regional Coordinator	Y	1
Cynthia Henshaw	Executive Director, East Quabbin Land Trust	Y	1
Becky Ikehara		Y	1
Sue Lewandowski	NB Cares, Hearts for Heat, Emergency Management	Y	1
Trish Miller		Y	1
Sgt. Chris Donais	NBEMA Director/Police Sergeant	N	
Kevin Valeri	Water Commissioner and Hannaford Employee	N	
Troy Brown	Electrician	N	
Jeff Samuelson	Contractor	N	
Bill King	Planning Board	N	
Tara Hayes	Town Clerk	N	
John Tripp	Selectmen, Planning Board, Rail Trail	N	
Danny Roman	Playground	N	
Rich Lind	Superintendent of Schools	N	
Sheila Leblanc	Schools	N	
Holly Kularski	VSO	N	
John Couture	Building Inspector	N	
Sheila Orsi	Downtown Development Committee	N	
Glenna Stocks	NB Helps and DDC	N	
Margaret (Peg) Bodine		N	
Harbour Fraser Hodder		N	
David Maher		N	
Scott Norrie		N	
Ellen Smith		N	
Tom Skowron		N	
Betty Wuelfing		N	
Shirley Cummings		N	
Jan Moran		N	
Nancy Nykeil	Retired Town Accountant	N	
Paulette Adams		N	

Brandon Avery	Town Historian and Historical Museum Director	N	
Christine Morrison		N	
Ross Hubacz		N	
Dale Kiley	Board of Selectmen	N	
Jason Petraitis	Board of Selectmen	N	
Anne Adams	NB Emergency Management	N	
David Maher	Valley View School	N	
Kenneth Prestwich	Biology professor at Holy Cross and wildlife researcher	N	
Catherine Langtimm	Biology professor at Holy Cross and wildlife researcher	N	
Trevor Bruso	Board of Health	N	
John Alphin	Board of Health	N	
Bob LaFlamme	business owner, boy scout leader	N	
Bob Locatelli	Conservation Commission, Board of Health and formerly Finance	N	

Core Team and Project Team

Name	Affiliation	Role
Ashley Barre	North Brookfield	Admin Assistant, Project lead
Joe Holway	North Brookfield	Fire Chief
Anne Hicks	North Brookfield	Local Committees
Dawn Thistle	North Brookfield	Library Director
Jim Nyberg	North Brookfield	Superintendent Water/Sewer
Peter Peloquin	CMRPC	Project lead
Kerrie	CMRPC	

The Town of North Brookfield’s CRB workshop was scheduled to be held on April 16, 2020 at the North Brookfield Senior Center. On March 23, 2020, Governor Baker ordered all non-essential businesses to cease in person operation through April 7, 2020. The Core Team had a regularly scheduled meeting on the same day of the announcement and it was decided to keep the date as scheduled. 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 through May 18, 2020.

During this time of uncertainty, North Brookfield’s Core Team continued to meet to discuss possible alternatives in the case no extension was granted. North Brookfield’s Core Team and the staff at CMRPC worked diligently 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 half hours. The first half 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 item to improve resiliency throughout the Town of North Brookfield.

The virtual workshop was scheduled to be held on May 4, 2020 from 8:30AM – 11AM, May 6th from 2PM-4PM, and May 11th from 9AM-11AM. To prepare participants for the workshop all presentations were to be 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 North Brookfield 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 North Brookfield and develop strategies to enhance the town's resiliency related to climate change. Following the CRB work plan process, CMRPC facilitators and planners pre-recorded three presentations:

- Overview of the CRB process and the MVP program.
- A summary of climate change projections, impacts and mitigation strategies
- A detailed profile of natural hazards in the Town of North Brookfield, 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 North Brookfield. After some discussion by the group, there was final agreement between the Core Team and all participants that--in no particular order-- ***flooding, wind events, winter storms*** and ***extreme temperatures*** have the greatest effects and potential effects 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 one small group to examine the resources throughout the Town and to identify the town's most serious concerns regarding natural and climate-related hazards that threaten their community. Later that day the Executive Office of Energy and Environmental Affairs (EEA) announced a one-time approval to extend current MVP Planning Grants with a new contract end date of June 30, 2021. The Core Team decided that they had put in a great amount of effort and would continue with the virtual workshop as planned, while applying for the extension to ensure all deadlines were meet.

The group then reconvened two days later to build upon the first day's work. The goal of the second session was to continue to identify features and identify actionable items to reduce or mitigate the projected impacts of climate change. The group needed more time to complete the matrix and the third day was utilized to complete the matrix. Once the group had completely filled out the matrix, the group gave a summary of findings by the table reporter.

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. The attendees took the survey to prioritize and vote for what they believed to be the top project in the infrastructure, society and environmental categories. Results of the survey were used to prioritize and organize the matrix and report.

Eleven (11) people attended the CRB Workshop, including representatives from Town government, emergency services, the MVP Core team, Municipal Department Heads, Conservation Commission, North Brookfield Library and concerned citizens of North Brookfield.

A public listening session to discuss MVP results and recommendations for future actions was held on October 13, 2020 prior to a regularly scheduled Board of Selectmen's Meeting. The listening session and Board of Selectmen's meetings were properly promoted across several avenues, with a combined four (4) residents including all three selectmen in attendance. Between the two meetings, a total of fifteen (15) people participated in the MVP process.

Top Hazards

Following the overview 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. They are presented in no particular order: **flooding, extreme temperatures, winter storms, and wind events.**

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



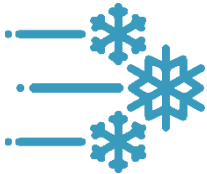
EXTREME TEMPERATURES

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



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.



HIGH WIND

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

Flooding.

Extreme weather in recent years demonstrates how the various hazards impact the town. There have been numerous flooding events over the years, and this threat is only going to increase as the frequency of storm events continues to increase. Specific areas with critical infrastructure have been shown to be prone to flooding, thereby creating a variety of safety concerns. Areas with frequent drainage issues include West Brookfield Road, at undersized culverts throughout town including on Ward Street, and near areas with beaver activity, such as along Bigelow Road and Tucker Road.

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.

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 Chicopee River Basin, where North Brookfield 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.



Horse Pond Dam

SUMMARY OF FINDINGS

Overall, the virtual workshop was received positively by all in attendance. Following the presentations, participants were asked if they agreed with the core team’s identification of flooding, wind events, winter storms and extreme temperatures as the primary hazards facing North Brookfield. All the participants agreed that these four hazards were the most relevant for North Brookfield.

North Brookfield’s Highway Department, cultural and social service facilities, and the North Brookfield Emergency Management Agency were described as strengths, along with the numerous natural resource areas. While vulnerable to development and in need of further protection, wetland areas were considered to be an overall strength for the town because of their high-quality habitat. With the majority of participants expressing concern for increased flooding risks, dams, culverts, and bridges were viewed as vulnerabilities in need of assessment and repair. And communication and public engagement were also considered to be a vulnerability with room to increase information sharing and participation in town projects.



Huston Free Public Library, photo courtesy of Dawn Thistle, Library Director.

Another area that was widely seen as underutilized was the Haston Free Public Library. The library is publicly owned and located in the Town's center. The library provides multiple free services and programs to the Town's population. It was noted that the majority of services and programming is received and attended by the town's senior population. There was extensive conversation about the potential to utilize the library for community engagement, climate education, public meeting space and town information to be distributed through the library. The library experiences problems with limited access to the building during and after heavy snowfalls due to the limited parking area and buildup of plowed snow.

There was agreement that the Town's water and sewer pumping stations needed to be replaced or upgraded and outfitted with alternate power sources to provide for the expansion of both water and sewer throughout the town. Many asked for greater public education regarding water use, including promoting efficient home appliances, requiring annual inspections of septic tanks, and installing permeable pavements. It was observed that municipal facilities were a prime place for installing solar panels.

The group identified specific vulnerable locations that are already in need of attention and will likely face worsening impacts due to climate change. These include culverts throughout the town especially the Ward Street culvert, town-wide bridges, sidewalks and street tress, municipal buildings with flat roofs, and Doane Pond and Man-O-Name dams.

CURRENT CONCERNS AND CHALLENGES PRESENTED BY HAZARDS AND CLIMATE CHANGE

CMRPC, the MVP planning provider, had the unique advantage of preparing North Brookfield'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 information from the Hazard Mitigation Plan helped to identify past climate-related events that significantly impacted the Town. Disaster events of concern included frequent major winter storms (as in 2015 and 2018), ice storms (2008), severe rain events (2005, 2010, 2016), tropical storms (Irene, Sandy), infestations of invasive and otherwise undesirable species (Asian Longhorn Beetle, gypsy moths, aquatic invasive species, ticks), and extended periods of drought (2015 to 2016). The majority of North Brookfield is provided with public water coverage from the Horse Pond Reservoir. Advisedly, it will be important for the town to maintain a backup and response plan in the event that the reservoir is damaged by drought or storm and cannot be replenished at the prescribed rate of use.

Prior to 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. North Brookfield lies mostly in the Chicopee 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 from 9 to 30 days annually; days below freezing

will fall from 19 to 38 days annually; annual precipitation will increase from 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 Barre area.



Downed power lines during 2019 wind storm

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 the town lacks the resources to address comprehensively – flooding and storm water management, vulnerable roads, ecological damage, and vulnerable populations, all within the context of a small community.
- An increase in hot and warm days and decrease in cold days will mean increased need for cooling and less need for heating, especially among vulnerable groups such as children and seniors. This concern was elevated because of the Town’s relatively limited formal shelter capacity and the lack of backup power at the Senior Center, an important resource for many of the town’s senior population and other residents.
- Increased temperatures can also be expected to cause changes in the water cycle, leading to more intense rain events. Increased precipitation rates will lead to more frequent and severe flooding in areas outside of designated flood zones defined using historical data.
- Increased storm intensity will likely cause more tree damage leading to power outages and road closures, higher peak river flows requiring new approaches to storm water management, and increased erosion of river and brook banks and nearby infrastructure. Severe storms will still likely damage and impact the power lines throughout the town and especially the overhead transmission lines owned and maintained by National Grid. Tree damage will occur from intense wind storms such as recent tornadoes or from heavy snow and ice storms.

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

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

VULNERABLE AREAS

The locations in North Brookfield identified by workshop participants during discussion as vulnerable to the hazards discussed include areas adjacent to water bodies, forested areas, roadways that frequently flood, and neighborhoods that are dense and difficult to access in case of emergency.

Town-wide Dams were of concern to many in attendance, especially the Doane Pond Dam and Man-O-Name Dam, both dams mentioned are in need of repairs and were thought to be ideal dams to study for removal, improvements or replacement. Doane Pond Dam has breached in the past. Man-O-Name Dam is in need of repairs and has been deemed a Significant Hazard by the Massachusetts Office of Dam Safety. The dam presents absentee ownership challenges as the current owner is residing in Rhode Island. North Brookfield is concerned that a breach of this dam would cause catastrophic problems to the Town of West Brookfield a short distance downstream.

Localized flooding was identified along Ward St., Slab City Rd., Gilbert St., St. Clair Ave., Grove St., Tucker St., Town Farm Rd. and Spring St. Higher density rainfall events coupled with undersized culverts and beaver dams are a major contributing factor.

Wetland areas in the North West section of town, Murphy Road and Collins Road area are concerning due to the lack of a local wetland’s bylaw.

VULNERABLE AREAS

- Town-wide dams
- Localized flooding
- Wetland areas
- Forested areas

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 approximately 59% of the town, according to the Hazard Mitigation Plan. Roadside trees are also a vulnerability due to a lack of a sustainable tree trimming programs and remove and replace program.

SPECIFIC CATEGORIES OF CONCERNS AND CHALLENGES

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

Infrastructure Concerns



Dams

The Town of North Brookfield owns Horse Pond Dam and Doane Pond Dam, both are listed as significant hazards in the town’s Hazard Mitigation Plan. There are also five private or state-owned dams throughout North Brookfield. The most concerning dams were Doane Pond Dam and Man-O-Name Dam. Doane Pond Dam is owned by the Water Department and is in the northern section of town along Route 148. The dam is in need of repairs to prevent a

INFRASTRUCTURE

- Dams
- Culverts
- Bridges
- Municipal Facilities
- Sidewalks and Road ways



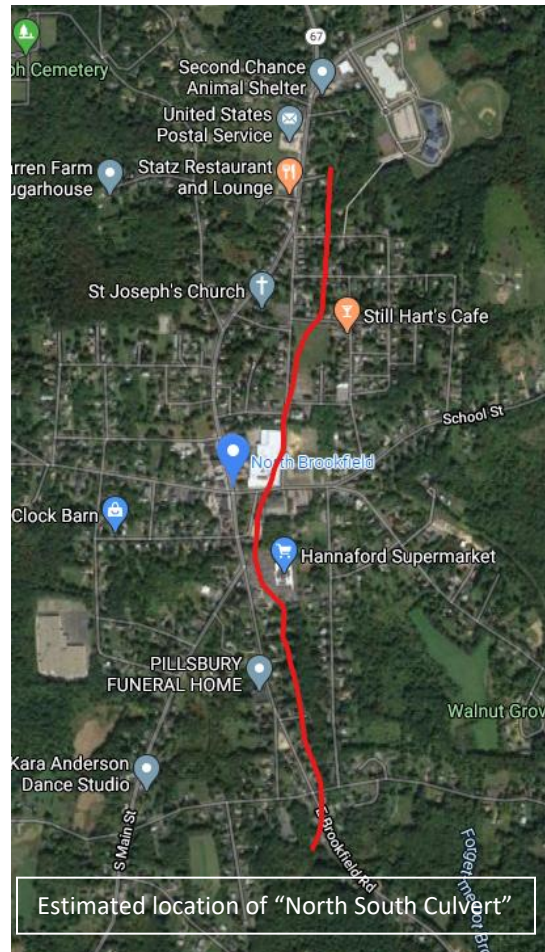
Doane Pond Dam, as seen from Google Maps Street View

second breach. During the hurricane of 1938, the dam breached causing the loss of one life and washed away the sand filtration system. Prior to the damage of the hurricane of 1938, Doane Pond was used as a public water source, but the filtration system was never repaired or permitted and is currently not considered a permitted source of water. It is said to be still hooked into the system in an approved emergency situation.

Man-O-Name dam is privately owned by an out-of-state absentee owner. This dam has been deemed a Significant Hazard by the Massachusetts Office of Dam Safety. The dam is owned by a private party in Rhode Island and is surrounded by Audubon Society property. Downstream water flows to West Brookfield, and a breach of the dam could pose risks to the Audubon property and West Brookfield.

Culverts

Undersized culverts are becoming a larger problem town-wide. Ward St. was identified as an undersized and problematic culvert. The “North South” culvert as it was referred to has been a problem for many years. It is estimated that the culvert begins in the area of Conroy Ave. and runs behind the houses on Grove St., under the Vibram building, through the Hannaford’s parking, lot behind the houses along East Brookfield Rd, eventually crossing the road and continuing through and behind properties along East Brookfield road. The culvert is made up of many different sizes and materials including stones, brick, concrete and pipes. Outside of the issues cause by rain fall, the location of the culvert is still somewhat unknown. The Highway Department continues to find access points to the culvert. Access points have become overgrown and causing silt build up restricting flow through the culvert causing roads and basements to flood during rain events. Discussion of the possibility of “day lighting” appropriate parts of the culvert were discussed during the workshop.



Bridges

Bridges located throughout the Town were identified as vulnerable to intense rain events. The Bennett’s Hill, Bigelow Hollow, Five Mile, and Coys Brook along Route 67 bridge were all identified as potentially problematic bridges and are currently experiencing some levels of erosion. An in depth look at the inspection reports is needed and further assessments and/or repairs should be completed on an as needed basis.

Municipal Facilities

An increase in the number of climate change-related disasters could damage the town’s infrastructure and endanger all those who live in North Brookfield. The community will need buildings and command centers that can effectively store equipment to maintain potential shelters and important departments and services. Additionally, all municipal buildings should be equipped with lightning rods to deflect lightning strikes, and be ADA compliant to provide for

residents with mobility issues thereby providing access for everyone to these municipal services and safe shelters.

According to attendees, North Brookfield's municipal buildings, school buildings and first responder sites require generator upgrades and/or tie-in's in order to produce the backup power and heating/cooling required to serve as potential shelters and continued operation. This limits their use in effectively reacting to severe weather events caused by climate change. Without these upgrades these buildings could be of little use during future natural disasters. (At present, the North Brookfield High School is the town's only designated emergency shelter.)

As these shelters could be required year-round, the town must ensure that each is equipped with the tools to respond to all severe weather events and is ready to host residents regardless of the reason.

The Town's municipal buildings are also susceptible to snow loading. According to the group, the Highway Department, Fire Station, Town Hall and Senior Center all have flat roofs. Frequent snow build up can cause damage and leaking to a roof.

Roadside drainage

Drainage ditches along West Brookfield Rd. are becoming full of dirt and no longer operate properly. During rain events, the ditches fill up with water and eventually spill into the road creating unsafe driving conditions and localized flooding. Roadside drainage is problematic throughout the Town's road system. The Highway Department is diligent in its efforts to keep roadside drainage free of debris, but limited staff and equipment make it difficult to keep up with the aging infrastructures that are in place.

Sidewalks and Roadways

Dead and dying trees were identified as risks for damaging utility wires or obstructing roadways if they fall due to windstorms. There is a need for implementation of a tree planting and replacement program along the roadside in order to lessen the risks of these trees falling. Shade trees and places of rest are limited throughout North Brookfield's sidewalk system, and a replacement program could increase shaded and cool areas throughout town.

Other vulnerabilities to roadways include poor drainage. West Brookfield Road was identified as a particular area of interest as the sides of the road get flooded with water. This creates dirt build up and a dam effect, resulting in dangerous conditions when driving.

Societal Concerns



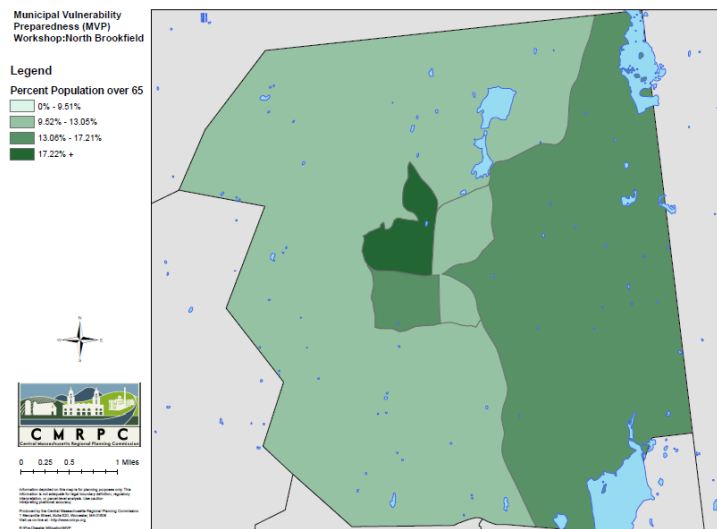
Vulnerable Populations

The town has several vulnerable populations that need to be considered when planning for climate resiliency. Many local seniors do not have access to a vehicle and live alone. Environmental risks faced by everyone could be even more hazardous to these individuals, and destructive events such as flooding, storms, ice and longer periods of higher temperatures will require more immediate attention for seniors than other residents. This concentration of vulnerable parties in a potentially dangerous area will require town and emergency response officials to periodically review and update management and evacuation procedures for the community, especially as flooding and wildfires become more common.

SOCIETAL

- Vulnerable Populations
- Communications
- Public Engagement

North Brookfield's homeless population is also of great concern when discussing climate resiliency. The number of homeless peoples in North Brookfield is difficult to determine. Many of North Brookfield's homeless people are transient and/or "couch-surfing¹." This creates concern regarding needs assessment and information sharing during climate related events. The need to better understand the total number of this population and how to better serve the population was discussed during the workshop.



Communication

During the workshop, multiple aspects of communication were discussed. The overall consensus was that communication was both a vulnerability and a strength. The Town's CodeRed system was thought of as a strength, but there were many vulnerabilities with the system. Participation within the system is low, not all participants are set up to receive the proper notifications and/or are not confident in the operation of digital devices. Participants on landline will not receive notification when away from the landline. Language options were also considered to be lacking and incorporating the Russian language was discussed. A campaign for CodeRed education and sign-up was discussed.

Communication between Boards and Committees was considered to be an area to improve upon. Boards and Committees meet regularly as individual groups to move their respective work

¹ To stay temporarily in a series of other people's homes, making use of improvised sleeping arrangements.

forward. Unfortunately, that work is often not shared as widely as it could be. There has been an effort to hold a quarterly meeting of all Boards and Committees to give an update to the Selectmen on current and future projects and to share information with all other Boards and Committees in attendance. Attendees at the workshop believe this quarterly meeting should continue and ways to improve upon information sharing should be investigated. The pool of community members who volunteers on Committees has become smaller. Members of the community who volunteer for committees are stretching their time and resources thin. This makes it difficult to hold regular meetings with all Boards and Committees.

Public Engagement

North Brookfield's pool of volunteers are extremely active, yet limited in numbers. Community service groups such as North Brookfield Cares, once held a strong presence in town. Over time the community slowly disengaged with the group and new members are becoming harder and harder to find. Throughout the town, public knowledge of local meetings, events and voter turnout is low. Information for meeting and events are posted on websites, public bulletin boards and in the window of the Town Offices, yet there is still limited public engagement. This is concerning to attendees of the workshop. They are concerned that without public engagement, residents will have little knowledge about what is going on in town, and will not have an understanding of important hazard, fire safety, or climate preparedness knowledge.

Environmental Concerns



Wetlands and Water Resources

Participants noted that their wetlands and water resources are in need of protection. Currently, North Brookfield does not have a Wetlands Protection Bylaw, leaving important natural resources vulnerable to development.

The Five Mile River was listed as another vulnerable water resource. It is located on the southeast side of town, stretching ten miles between North Brookfield and Spencer. Participants reported that in addition to development pressures, the river fills with invasive plant species. While the Town sprays for the invasives every year, the invasive plants continue to come back. In fact, the river is so overrun with invasive species, that they have travelled downstream and infested Lake Lashaway.

Horse Pond Reservoir was also mentioned as an important water resource that needs improvement. The Horse Pond Reservoir is North Brookfield's main source of water. The land surrounding the reservoir has no protection zone and is vulnerable to pollutants from roads and nearby farms. With no alternative water supply, there could be negative implications if the reservoir is contaminated from road runoff.

ENVIRONMENTAL

- Wetlands and Water Resources
- Forest Management
- Invasive and Nuisance Species

Forest Management

During the workshop, participants discussed the vulnerability of the Town's forest management practices. North Brookfield consists of 8,699 acres, or 62%, of forests. And between 2005 and 2017, there were 80 incidents of fire, with 45.45 acres burned. With an increase in temperatures and numbers of consecutive hot days, drought and wildfires will be an ongoing hazard. It was stated that there is a need to educate the community on fire safety and its importance to help lessen this risk. Additionally, fire loads in forests need to be reduced through debris and invasive species removal, and the most vulnerable areas need to be identified. The Bell Hill Reservoir, located between Bell Road and Route 67, was identified as a particularly vulnerable forested area for its high fire load and proximity to the water treatment plant. Saint Joseph's Cemetery was also mentioned as another forested area of concern in need of fire load reduction.

Invasive and Nuisance Species

There was discussion on the presence of invasive and nuisance species throughout North Brookfield. As the climate continues to change, the region will experience a shift in flora and fauna. Plants and animals that have adapted to warmer and drier climates will increase, and native species that are better adapted to cooler weather will decrease. Invasive species can often outcompete native species due to a lack of predators to manage population numbers. Participants reported invasive species as a widespread issue throughout North Brookfield, but noted Lake Lashaway, the Five Mile River, and forests across town as particularly vulnerable areas.

Attendees also noted a large presence of beavers in their many forested wetlands. Beaver populations have grown in recent years due to a lack of natural predators and an abundance of resources. Beaver dams can often cause a backup of stream water that may impact communities downstream or could flood nearby roadways. With more powerful and more frequent storms, risks of increased flooding if these dams break are of even greater concern. Two areas of particular concern are Tucker Road and Bigelow Road. Participants noted beaver activity at Coys Brook along Tucker Road and Old West Brookfield Road. The brook has flooded in the past due to beaver activity, and though the beavers have been removed, they continue coming back. The pond along Bigelow Road has also been growing due to beaver dam activity. If the dam gives way, it will flood Bigelow Road and take out the horse barn across the street. In Massachusetts, regulations mostly protect beavers and beaver dams from human interference. This makes it difficult to trap beavers or breach dams outside of the trapping season.

CURRENT STRENGTHS AND ASSETS

North Brookfield 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 North Brookfield's climate resilience.

Infrastructure Strengths



Municipal Buildings

Though some municipal buildings are aging, each building is able to provide services to the community. The Town Offices is host to town government, veterans' services, and a multitude of other local services. The Senior Center and Library are staples in the community providing services needed on a daily basis. Communication among these centers is recognized as paramount and is executed at a high level to keep both employees, residents and surrounding communities informed. The current systems that are in place, such as social media, are great starting points and have the potential to grow.

INFRASTRUCTURE

- Municipal Buildings
- Public Safety
- Schools
- Communications

Public Safety

The town's emergency responders are highly trained and have the ability to quickly and safely respond to most events. The town is equipped to handle almost any situation related to the changing climate and has the ability to call upon local mutual aid when needed. In the case of a significant catastrophic event, North Brookfield also has the ability to call upon the region's resources for specialized equipment.

The Highway Department, though housed in an aging building and lacking equipment, responds to storms of all types. The Highway Department proactively removes debris from culverts, roadside drainage and streams to prevent flooding in rain events. During and after storms the department actively removes debris from roads, culverts and drainage systems to prevent any further issues that may arise. The department is also responsible for ice and snow removal among many other tasks.

Schools

The North Brookfield school system is not only home to education. The schools are equipped with back-up generators and serve as the Town's shelter and regional distribution point. The schools are in the beginning stages of installing solar canopies in the parking lot. The elementary school is also home for North Brookfield Emergency Management Agency (NBEMA). NBEMA is a group of volunteers who plan with and assist local first responders and the Highway Department for all man-made and climate related events.

Communications

The Town utilizes multiple communications systems to share information with the community. The website is regularly updated, E-alerts are sent out with appropriate information, public notices and events are distributed through the website and public bulletin boards. Public safety utilizes the Code Red system notifying the public during all man-made and weather events.

Societal Strengths



Cultural and Social Facilities

North Brookfield's places of worship provide services to members of the community. They also serve as networking and information sharing facilities. Many of the places of worship are prepared to assist the town and its residences during times of crises.

SOCIETAL

- Cultural and Social Services Facilities
- Emergency Management

Shelters

The North Brookfield High School serves as the large-scale sheltering site and Regional distribution center. The Senior Center and Library building also serve roles as heating and cooling stations.

Library

The Haston Free Public Library is the town's information center. The library provides programming of all types including conservation and environmental issues. The library staff provides outreach to the local senior population including home delivery services. The senior population is also the largest clientele of the library and its services. Future programming will look to build upon past environmental programming and look to incorporate ways to reach the broader population of North Brookfield.

Emergency Management

North Brookfield's Emergency Management Agency (NBEMA) is a highly engaged, active and trained group of CERT volunteers who assist in the preparation, protection and response to natural hazards that impact the Town. NBEMA is housed in the basement of the elementary school and is considered to be an advanced emergency management center. NBEMA is equipped and trained to assist with all hazards both man-made and natural that may impact the town and surrounding area.

Environmental Strengths



Wetlands and Water Resources

While North Brookfield does not have a Wetlands Protection Bylaw, wetlands and water resources are still viewed as strengths to the town. Important wetland areas lie in the northwest area of town, along Murphy Road, King Road, Downy Road, and Collins Road near the New Braintree border. All of these wetlands are healthy and provide important habitats.

ENVIRONMENTAL

- Wetlands and Water Resources
- Town Forest

The Five Mile River is another important feature of the town. It is a 10.1-mile river that stretches from North Brookfield to Spencer and flows into Lake Lashaway. A large aquifer is underneath the river and has the potential to be an additional water supply resource. The Coys Brook Corridor is a third important water resources that participants discussed. Located on the western part of town, the corridor provides important habitat for Wood turtles.

Town Forest

The Town Forest lies on both sides of West Brookfield Road and has had many improvements in recent years. North Brookfield's Town Park Committee and the East Quabbin Land Trust constructed trails and fixed the picnic area. These trails have been well used by residents for recreation, and the forest provides good wildlife habitat. There is also a linkage opportunity with Coys Brook Corridor. Connecting to the corridor to the west could provide more habitat for the Wood turtle and could expand ecosystem services.

RECOMMENDATIONS TO IMPROVE RESILIENCE

On Day 2 and 3 of the workshop, attendees 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 matrix, which can be found in Appendix B of this document.

Infrastructure Actions



Performing a **dam repair assessment at the Doane Pond Dam** will be critical in building resilience, especially as flooding and storm events increase. Assessing the Doane Pond Dam is necessary to prevent a second breach and should be easier to do since the Water Department owns the dam. The Man-O-Name Dam is also in need of repairs and should be evaluated as well.

INFRASTRUCTURE

- Doane Pond Dam Assessment
- Identify Critical Linkages
- Incorporate Green Infrastructure and Nature-Based Solutions

The University of Massachusetts Critical Linkages project should be utilized to **identify undersized culverts** and to improve wildlife corridors. It was recommended to replace undersized culverts town-wide as they restrict fish migration upstream and can cause flooding risks. Participants noted that these culverts are difficult to identify in the field, so utilizing the UMass Critical Linkages projects was suggested as a way to aid this effort.

Incorporating green infrastructure and nature-based solutions into the West Side Plan was suggested in order to improve drainage and divert water off the Housing Authority parking lot. The poor drainage at the Housing Authority parking lot results in frequent flooding and icing in front of the property. This creates hazards for senior and disabled persons trying to access the Housing Authority. These hazardous conditions will only increase as the climate continues to change. Nature-based solutions should be considered at other flood-risk areas in town, such as along West Brookfield Road.

Societal Actions



With the prevalence of a lack of information sharing throughout town, a **Communication Coordinator should be appointed** as tasked with spreading important information. The Communication Coordinator will stay up to date with what is happening around town and will distribute that information to different groups and committees.

SOCIETAL

- Appoint a Communication Coordinator
- Organize Joint Committee
- Utilize Community Groups

Along with a Communication Coordinator, the town should also **organize a Joint Committee** to meet with the Board of Selectmen on a quarterly basis. By organizing a Joint Committee, communication will increase between the various boards and committees in town, and they can be informed of and collaborate with the projects going on in town.

In addition to a lack of communication between boards and committees in town, there is also a lack of communication with the general public. The town **should utilize different community groups** to help spread information to the public. Churches, the Senior Center, the Creative Life Center, the Library, and other businesses and organizations in town were listed as key community groups that could help spread information on town projects, hazard and emergencies, and preparedness and preventative measures.

Environmental Actions



Participants felt that natural resource protection in town was lacking. It was suggested to **enact a Wetlands Protection Bylaw** and/or Natural Resource Zoning to better protect important environmental features. Several key wetland areas and water resources, such as the Five Mile River, are vulnerable to development pressures and runoff pollution and would benefit from additional protections.

As forest management was viewed as a vulnerability, it was recommended that the town **perform habitat evaluations** in forests throughout North Brookfield. These evaluations should note areas of flooding, drought, fire risks, and invasive species. The Bell Hill Reservoir and St. Joseph's Cemetery are good candidates for habitat evaluations as both were identified as vulnerable forest areas.

A unique idea that was discussed was the idea of constructing a multi-use dry hydrant. This dry hydrant would have trails surrounding it, educational signage, and would be ADA compliance, providing a wide range of recreational opportunities. Additionally, the dry hydrant could be utilized to provide access to water for firefighting efforts. The area near the Hillsville Road and Kittredge Road intersection and the area near Hines Bridge were noted as potential suitable locations.

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 North Brookfield complete. A copy of the survey questions and the survey results can be found in the Appendix at the end of this document.

The majority of participants, about 57%, indicated that they were most concerned with flooding

ENVIRONMENTAL




- Enact a Wetlands Protection Bylaw
- Perform Habitat Evaluations
- Construct a Multi-Use Dry Hydrant






TOP RECOMMENDATIONS















































- Perform Town-wide Watershed Assessment
- Enact Bylaws to Promote Preservation
- Create a Tree Trimming and Replacement Program
- Repair and Replace Existing Culverts
- Increase Participation with the Code RED System















hazards as the climate continues to change. Consequently, the top priority recommendation with five votes is to **perform a town-wide watershed assessment**, identifying causes of flooding and problem areas, expanding the water system, and prioritizing dams and culverts to be repaired. Also receiving five votes, the next priority recommendation that participants favored is the **enact bylaws that promote preservation of natural areas**, especially as the town faces increased development pressures from residents moving away from heat islands in Boston. Other actions that participants prioritized include **enacting a tree trimming and replacement program** to manage street trees, to **repair and replace existing culverts with nature-friendly designs**, and to **increase participation with the Code RED** system through educational programs, signage, and mailings.

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 Action	Hazard
High Priority				
Stormwater Management	 	Watershed	Perform a town-wide watershed assessment, identifying causes of flooding and problem areas, expanding the water system, and prioritizing dams and culverts to be repaired	 
		Culverts	Repair and replace existing culverts with nature-friendly designs or day-light culverts	
Policy Updates	  	Development Pressure	Enact bylaws to promote preservation of natural areas as the town faces increased development pressure from residents moving away from heat islands in Boston	   
Tree/Forest Management	 	Street Trees	Enact a tree trimming/removal and replacement program to manage street trees	  
Emergency Communication	 	CodeRED	Increase participation with the Code RED system through educational programs, signage, and mailings	   
Medium Priority				
Education and Outreach	 	Community Education	Utilize the library to promote educational materials and programs in town	     
		Schools/Youth	Develop an ecological curriculum with the schools to promote the importance of conservation and protecting natural resources	
		Senior Population	Create and distribute informational materials to the senior population	
Communication		Inter-Town	Organize a joint committee to meet with the Board of Selectmen on a quarterly basis in order to increase communication between the various committees in town	   
		Community	Appoint a Communication Coordinator who will stay up to date with what is happening around town and distribute that information to different groups and committees	
Tree/Forest Management		Funding	Apply for forestry grants to secure funding for forest management, preventative cutting, and other habitat assessments	  
		Management Plans	Develop forest management plans on private and public lands	
Stormwater Management	 	Dams	Perform a dam repair assessment study of Doane Pond Dam	    
		Streams	Perform a stream crossing assessment	
		West Side Plan	Incorporate green infrastructure and nature-based solutions into the West Side Plan to improve drainage and divert water off the Housing Authority parking lot	
		Drainage	Install curb cuts or swales in order to improve drainage along roadways	
		Critical Linkages	Use the UMass Critical Linkages assessment to identify undersized culverts and improve wildlife corridors	

Water Supply Protection		Water Conservation	Develop a green/purple water system in order to conserve water (cannot drink water, but can be used to water plants, etc.)	
Policy Updates		Natural Resource Protection	Enact a Wetlands Protection Bylaw and/or Natural Resource Zoning in order to better protect important environmental features	
Low Priority				
Stormwater Management	 	Community Garden	Install a community garden at the Town Common to improve flooding and increase access	
		Beavers	Investigate the beaver dam located off of Bigelow Road	
Education and Outreach		Wildfire	Develop an education initiative to promote fire safety and encourage reducing the fire load	
Tree/Forest Management	  	DCR	Collaborate with the DCR to perform controlled burns in forests throughout North Brookfield	 
		Vulnerable Ares	Perform habitat evaluations in forests throughout North Brookfield to note areas of flooding, drought, fire risks, and invasive species	
		Wildfire	Construct multi-use dry hydrants with trails, educational signage, and ADA compliance, that provide access to water for firefighting efforts	