Town of West Brookfield

Municipal Vulnerability Preparedness

Summary of Findings - June 2021

Photo Credit: Louise Garwood

Last revised 06/28/21

CMRPC
Central Massachusetts Regional Planning Commission

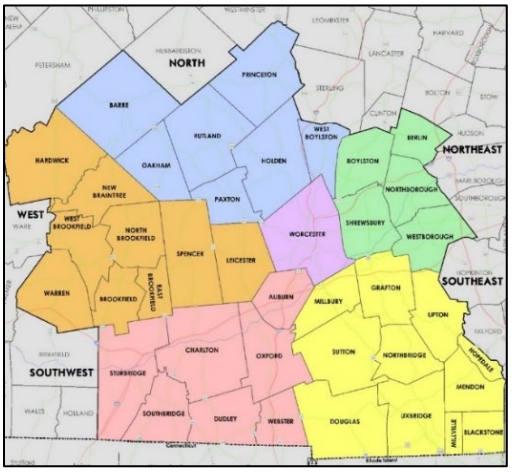
CMRPC Mission

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 Development & Planning.



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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 West 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.

Figure 1 Governor Baker signing legislation H. 4835, which included $75 million for MVP program funding. Source: 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 West Brookfield by the Central Massachusetts Regional Planning Commission (CMRPC). Support from the West Brookfield 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 West Brookfield's Core Team for their time and hard work in participating in this project. These include, but are not limited to:

Barbara Portal, Lake Wickaboag Preservation Association (LWPA), Co-Lead

Dave Brown, Lake Wickaboag Preservation Association (LWPA), Co-Lead

Jim Daley, Highway Department

Tom O'Donnell, Police Chief

Becky Acerra, Executive Secretary

MJ Haesche, Architect/Health Department/Planning Department

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

Ian McElwee, Associate Planner, CMRPC

Peter Peloquin, Associate Planner, CMRPC

Danielle Marini, Assistant Environmental Planner, CMRPC

Mary Hannah Smith, Associate Environmental and Resiliency Planner, CMRPC

Andrew Loew, Project Manager, CMRPC

Matt Franz, GIS Analyst, CMRPC

Andrew Smith, Regional Coordinator, EOEEA

WEST BROOKFIELD: A PROFILE

The Town of West Brookfield, Massachusetts, was incorporated in 1848.[1] It is located on MA-09, on the western edge of Worcester County in central Massachusetts, approximately 23 miles away from Worcester City.[2] The Town of New Braintree borders in the north, North Brookfield borders in the northeast, Brookfield borders in the southeast, and Warren borders in the southwest.

With an estimated population of about 1,479 residents as of 2019, the small town's population has decreased by 11% since 2010. 97.7% of town residents are white, with about 2.3% of the population belonging to another race. 1.5% of the town's population is Latino. The median age of the population of West Brookfield is 54.1 years. 12.6% of residents under the age of 18, and 28.1% are over 65. The median household income is $51,680, compared to $81,215 for all Massachusetts residents, with 3.8% of the population living below the poverty line.[3] West Brookfield has no designated Environmental Justice populations, according to the EEA.

The Town of West Brookfield is a classic New England community rich in history, extending well before the town's incorporation in 1848. The town lies on the ancestral land of the Nipmuc people, and one of the largest indigenous people's villages was historically located at the southern boundary of Lake Wickaboag.[4][5] In the 1660s, English settlers obtained rights to land in and around West Brookfield and established the Quaboag Plantation, an agricultural settlement along the banks of the Quaboag River.[6] The plantation disbanded during King Philip's war in 1675. Still, white settlers continued to move to the area, and this population growth eventually led to the incorporation of West Brookfield and neighboring towns.[7] The Quaboag Plantation, an Old Indian Cemetery from the 18th and 19th centuries, and Fort Gilbert are among the many historical tourist sites found in West Brookfield.[8] The town center is also a nationally recognized historic district, including historic buildings like the Town Hall.[9] Today, the town is known for its historic sites, pastoral scenery, and small-town atmosphere.[10]

A Board of Selectmen governs West Brookfield, and numerous town departments and volunteer boards contribute to a caring and engaged community for all residents. The Lake Wickaboag Preservation Association also actively works to provide programs that maintain the ecological health and water quality of the lake and the town.[11]

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[1] (West Brookfield Historical Commission, n.d.)
[2] (Worcester Regional Chamber of Commerce, 2018)
[3] (United States Census Bureau, 2019)
[4] (Nipmuc Nation Tribal Council Inc., n.d.)
[5] (West Brookfield Historical Commission, n.d.)
[6] (West Brookfield Historical Commission, 2010)
[7] (West Brookfield Historical Commission, n.d.)
[8] (West Brookfield Historical Commission, n.d.)
[9] (West Brookfield Historic Commission, n.d.)
[10] (Hurwitz, 2017)
[11] (Lake Wickaboag Preservation Association, n.d.)

WORKSHOP SUMMARY

The Town of West Brookfield contracted with the Central Massachusetts Regional Planning Commission (CMRPC) on November 18, 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 West Brookfield. A small group of town officials and Board Members convened on November 20, 2020, to form the 'Core Team' that, together with CMRPC staff, organized and planned the CRB Workshop over three meetings.

The Town of West Brookfield's CRB workshop was scheduled to be held virtually over the course of three separate meetings. Core Team and CMRPC planned the first meeting to last two hours. CMRPC's facilitator dedicated the first quarter-hour to familiarizing participants with all of ZOOM's functions and introductions. After a brief introduction to the MVP program, the remaining time was devoted to the CRB process -- identifying town features and their locations, ownership, and classification as a vulnerability or strength. The remaining two meetings were reserved to complete the CRB matrix and develop a list of actionable items that could improve resiliency throughout the Town of West Brookfield.

The virtual workshops were held on March 4th, 11th, and 18th from 7:00-9:00 PM. The Core Team and CMRPC staff pre-recorded all presentations, allowing participants to view them in preparation for the workshop. Upon completing the Core Team introduction videos, MVP program overview presentation, Climate Projections presentation, Hazards presentation, and Matrix & Nature-Based solutions presentation, the Core Team and CMRPC developed the workshop invitation. The invitation included links to each pre-recorded presentation, table maps, an excerpt from the West Brookfield Hazard Mitigation Plan, a two-page MVP program overview, a CRB Workbook, a how-to-use-ZOOM information page, an 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 before the workshop.

Core Team and Project Team

Name	Affiliation	Role
Barbara Portal	Lake Wickaboag Preservation Association (LWPA)	Project co-leader
Dave Brown	LWPA Member	Project co-leader
Jim Daley	Highway Department	Core Team
Tom O'Donnell	Police Chief	Core Team
Becky Acerra	Executive Secretary	Core Team
MJ Haesche	Architect/Health Dept/Planning Dept	Core Team
Ian McElwee	CMRPC	Project Lead
Dani Marini	CMRPC	Project Support
Peter Peloquin	CMRPC	Project Support
Mary Hannah Smith	CMRPC	Project Support

Workshop Invitees and Participants

Name	Organization	Attended
Anne Gobi	MA State Senator	Y
James McFarland	Brookhaven Lake	Y
Brett Kustigian	Superintendant, Quaboag Regional School District	Y
Alexandra McNitt	Dir South Central Chamber of Commerce	Y
MaryBeth Czaja	LWPA & Manufacturing Co-Owner	Y
Rachel O'Donnell	Safe Routes to School	Y
Al Collings	LWPA	Y
Abigail Birch	Brookhaven Lake	Y
Melvin Dorman	Earth Removal/ BOH Chair	Y
Marc Astrella	Quaboag Regional Schools Head of Facilities	Y
Jim DiMaio	Tree Warden	Y
Karen Phillips	Senior Center Director	Y
Louise Garwood	Landscape Designer, Farmer's Market, Historical Commission	Y
Rich Lapierre	Fire Captain	Y
Danny Santos	Sportsman Club/Fire Department	Y
Clayton Edwards	Fire Chief	Y
Mark O'Donnell	Boat Club	Y
Matt Koziol	Agricultural Commission and local cattle farmer	Y
Wes Cassavant/Andy Tombar	Water Department	Y
Donald Berthiaume	MA House Rep	Y
Brita Dempsey	MA Envirothon	N
Craig Carter	Master plan and other	N
Rebecca Cornell	Master plan team	N
Keith Davies	Blue Trails	N
Brianna Green	Army Corps of Engineers	N
Zachery Koziol	Army Corps of Engineers	N
Tim Morrel	Former Planning Board	N

Wesley Slobody	Former Planning Board	N
Lucas McDirmard	Anne Gobi's Office	N
Carl Hartwick	National Grid Community Relations	N
Heidi Ricci	Director, MA Audubon	N
Cynthia Henshaw	Director, East Quabbin Land Trust	N
Jim Lagacy	Mass Wildlife	N
Steve Garwood	Cidery Mill Owner Operator	N
Paul Lussier	Builder, Boy Scout/Eagle Scout Leader & Former Conservation Commission	N
David Mazzarese	Conservation Commission	N
Tom Flannery	DCR Lakes and Ponds	N
Jim Straub	DCR Lakes and Ponds	N
A Gouveia	Rock House, Trustee, Public Relations	N
Richard Rossman	Historical Society	N
Lester Paquette	Board of Water Commissioner	N
Robert Benson	Board of Water Commissioner	N
Barry Nadon	Board of Water Commissioner	N
Bob Datz	Environmental Studies	N
Holly Takorian	Library	N
Dave Healey	Water Department	N

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

- Overview of the MVP program
- Overview of the CRB process
- A summary of climate change projections, impacts, and mitigation strategies
- A detailed profile of natural hazards in the Town of West 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 West Brookfield. There was an agreement between the Core Team and all participants that--in no particular order-- drought, wind events, flooding, and winter storms have the most significant effects and potential impacts on the Town. After identifying these hazards, workshop attendees proceeded to work through the CRB matrix and mapping exercise in three small groups facilitated by CMRPC staff. Table facilitators guided stakeholders through examining the Town's infrastructural, societal, and environmental features to identify stakeholders' concerns regarding natural and climate-related hazards.

The group then reconvened seven days later to build upon the first day's work. The second session's goal was to continue identifying Town features and list ideas for actions that could reduce or mitigate climate change's projected impacts. One week later, the group used the final

CRB meeting to complete the matrix. Once attendees had completed the matrix, a table reporter from each small group announced a summary of their group's findings.

Upon completing the three virtual workshop meetings, CMRPC compiled all information from the completed CRB matrices into a survey. The survey was then distributed to all workshop attendees from March 29, 2021, through May 4, 2021. 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. The survey results were used to prioritize action ideas and organize the Summary of Findings Report.

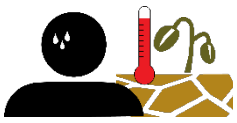
Twenty-six (26) stakeholders attended the virtual CRB Workshop, including representatives from town and state government, emergency services, the MVP Core team, municipal department heads, the Wickaboag Lake Preservation Association, the school district, the local business community, and concerned citizens of West Brookfield.

A public listening session to discuss MVP results and recommendations for future actions was held in person on June 9, 2021. The listening session was properly promoted across several avenues, with a combined thirteen (13) residents including all three selectmen in attendance. Between the workshop and listening session, a total of thirty (30) people participated in the MVP process.

Top Hazards

Following the presentations at the beginning of the workshop, a full-group discussion was held to determine the top four hazards for breakout groups to assess solutions further. 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**, **drought**, **winter storms**, and **wind events**.

In 2016 and 2020, West Brookfield 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 disrupted the Town, causing localized flooding, power outages, severe property damage and calling upon mutual aid agreements. With climate change, all of these natural events are expected to increase in severity and frequency.

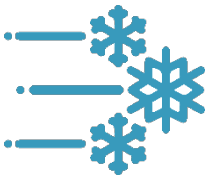


Drought

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.

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.

Flooding. While West Brookfield has not experienced major flooding in recent years, much of the town's development is clustered around water bodies, including Wickaboag Pond (hereafter referred to as Lake Wickaboag), the Quaboag River, and various other small brooks. Due to topography and the number of water bodies, a significant portion of the Town's area lies within a regulated floodplain. One-hundred and twenty-nine buildings, with an assessed value of $32 million, are estimated to lie within official FEMA flood zones and have an annual risk of flooding between .2 and 1%. Roads and developed areas outside of the FEMA flood zones in West Brookfield have also been known to flood due to inadequate drainage, local topography, or other reasons. Areas with known drainage issues include sections of Main Street, Front Street, Wigwam Road, and Snow 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 property and infrastructure.

Drought. Drought could lead to water shortages that will impact the entire town, regardless of whether residents and businesses are on town water or have private wells. Due to the impact of prolonged droughts and extreme heat, wildfires may become more frequent, and forests and wooded areas may become more combustible. As of 2007, an estimated 65.6% of land in West Brookfield was forested, and between 2004 and 2018 there have been at least 11 wildfire incidents with at least 18 acres burned.[12] While part of the town is located within the public water area and any wildfires that occur within this zone can be easily controlled by the fire department, much of the town's forested area lies outside this zone and has an elevated risk for uncontrolled burning.

Wind Events. Heavy wind events are a serious concern. The Town and the surrounding area have experienced a recent uptick in storms with hurricane-level winds and tornado-like micro bursts. 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 these hazards affect West Brookfield at different times of the year. Flexibility and year-round preparedness by town officials are needed to ensure citizens' safety across all the different hazard situations that climate change will exacerbate.

The hazards identified by West Brookfield are based on data provided by the Massachusetts Climate Clearinghouse and watershed-specific data from the Northeast Climate Adaptation Science Center at the University of Massachusetts at Amherst. For the Chicopee River Basin, where West Brookfield is located, projections show an expected increase in precipitation overall, with the most significant increase during winter. The number of days with more than 2"

[12] (Town of West Brookfield; Central Massachusetts Regional Planning Commission, 2016)

of rainfall, potentially leading to inland flooding, is also expected to increase. 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.

Current Concerns and Challenges Presented by Hazards and Climate Change

CMRPC, the MVP planning provider, had the unique advantage of preparing West Brookfield's Hazard Mitigation Plan (HMP), which was adopted by the Town's Board of Selectmen in January 2017 and received FEMA approval in February 2017. The recent HMP process and pre-workshop MVP Core Team meetings helped identify past climate-related events that significantly impacted West Brookfield. Disaster events of concern included:

- Microburst (2020)
- Frequent major winter storms (2013, 2015)
- Tropical storms (Irene, Sandy)
- Infestations of invasive and otherwise undesirable species (aquatic invasive species, ticks).
- Wildfires (multiple instances between 2014 and 2018)
- Extended periods of drought (2016, 2020)
- Lake flooding (2005)

Future challenges linked to climate change, which were highlighted in the presentations and breakout groups, included:

- An increase in hot and warm days and a decrease in cold days could result in a greater need for cooling and less need for heating. West Brookfield residents will need to adapt to these temperature changes and potentially invest in new equipment like air conditioning systems to cope with extreme heat.
- Increased temperatures may also impact the water cycle, leading to more intense rain events. Higher precipitation rates could lead to more frequent and severe flooding in areas outside of designated flood zones, defined using historical data.
- Heavy precipitation could overwhelm West Brookfield's stormwater drainage infrastructure. Nutrients in the stormwater run-off from roads and farms could lead to eutrophication of local water bodies.
- Intense storms with high winds and precipitation are already a problem for West Brookfield. More frequent or more severe storms could cause tree damage leading to power outages and road closures, high peak river flows and potential flooding, and erosion of riverbanks.
- More frequent and severe droughts will challenge water supplies and increase risks from wildfire. Drought conditions could also exacerbate water quality problems by concentrating contaminants in local wells.

- Ecological changes resulting from environmental shifts like rising temperatures can challenge native species and cause non-native or invasive plant and animal species to thrive. Increasing numbers of disease-carrying pests (e.g., ticks and mosquitoes) may result from these broader environmental changes, challenging public health. Other pests may damage native tree species and compound the impact of other hazards like intense storms.

VULNERABLE AREAS

The following locations in West Brookfield were identified by workshop participants during the discussion as vulnerable to climate change-related hazards.

VULNERABLE AREAS

- Lake Wickaboag
- Waterways
- Properties within the floodplain

Lake Wickaboag faces ongoing water quality problems, including sedimentation, seasonal algae blooms, contamination from septic tanks, and non-point source pollution. The lake and surrounding wetlands are a biodiverse wildlife habitat, and workshop participants rated it as the most valuable natural and economic resource in West Brookfield. Water quality problems negatively impact the residences lining the lakeshore, as well as the broader community, since West Brookfield's public drinking water aquifer lies partially beneath the lake and the lake is used for recreation purposes with boating and the town beach. Changes to precipitation, including drought, could further disrupt the lake's ecology.

Waterways in West Brookfield, including the Quaboag River and various brooks and streams, were perceived as vulnerable to water quality problems caused by stormwater runoff. Small streams and brooks receive West Brookfield's stormwater, which is predominantly unfiltered and includes sediment, pollutants, and trash. In addition, many waterways are interconnected, so pollution problems are broadly spread across various areas in town. For example, Sucker Brook and Mill Brook flow from New Braintree into Lake Wickaboag and may carry contaminants into the Lake from upstream, which ultimately drain into the Quaboag River. The Quaboag River also collects unfiltered runoff from roadways, including pollutants, pesticides, and trash. One workshop table noted that agricultural runoff from orchards along Route 9 might also be entering the river.

Properties within the floodplain are vulnerable to flooding. West Brookfield has a broad area around the Quaboag River and Coys Brook near the town's center that FEMA has assigned a 1% annual flood risk. Many buildings in this commercial and industrial section of town are included in the floodplain, including the town's senior center and the Highway Department's garage. West Brookfield also has a flood zone around Lake Wickaboag, which includes many of the residential lakeside lots. Workshop participants considered the wide floodplain to be a town asset because it allows stormwater to spread out gradually. However, they were also worried about future property damage should West Brookfield fail to protect town wetlands or disruption to the floodplain's normal functioning.

Specific Categories of Concerns and Challenges

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

Infrastructure Concerns:

Dams throughout West Brookfield were noted as potential hazards. The Wright Mill Brook Dam in nearby Warren is inoperable and limits options for the release of water from Wickaboag Dam, which lies upstream. Dams on Lake Wickaboag, Sucker Brook, and Brookhaven Lake are not currently causing problems for the town, but workshop participants want to ensure ongoing maintenance continues to prevent future dam failures.

Roadways across West Brookfield have poor drainage or are in low-lying areas. Areas that have previously flooded with stormwater include parts of Shea Road, Route 57, Route 9 near Brookhaven Lake, Front Street, Milk Street, Ware Street, Long Hill Road, and New Braintree Road. Multiple workshop groups noted that culverts under public roadways are being clogged or are old and degraded, leading to roadway flooding and the proliferation of vector-borne disease.

INFRASTRUCTURE

- Dams
- Roadways
- Private roads and bridges
- Buildings near Quaboag River
- Emergency preparedness
- Public safety facility
- Wells
- Rail hazards
- Government communications
- Power outages

Private roads and bridges may be vulnerable to wash out during severe storms and lack proper stormwater management. Road and bridge washouts during future emergencies could prevent residents from evacuating and challenge the ability of first responders to access certain properties. The lack of stormwater management, especially on private roads near Lake Wickaboag, has led to sedimentation and damage to the aquatic environment. This infrastructure is owned and maintained by private landowners, and the town has very little control over their construction or maintenance. The expense of infrastructure construction may deter or prevent some landowners from making necessary improvements to their roadways, and the Town also has very limited funding to assist them.

Town-owned buildings near the Quaboag River, including the Senior Center and Highway Department Garage lie within the town's current 500-year FEMA plain. Services provided or

coordinated by West Brookfield's Senior Center and the Highway Department could play an essential role in future hazard mitigation and recovery efforts. If their buildings flood, these agencies may be unable to assist the town and instead require town assistance and funding to recover. The Quaboag Historical Society Museum, operated by a non-profit, is also located in this vulnerable location.

West Brookfield should revisit the town's **emergency preparedness** planning to ensure community resilience. The evacuation plan needs to be updated, and shelter plans should be reviewed. CRB participants also highlighted the need for increased public education and awareness of local emergency plans to help residents understand where to go and what to bring with them if they are forced to evacuate. In addition, multiple workshop tables noted the lack of adequate backup power at key town buildings. While the high school, an officially designated shelter, has a backup generator, other facilities like the Town Hall lack adequate backup power systems. Lastly, West Brookfield needs to address known problems with signing up residents for the CodeRED communications system. CRB participants felt that this public alerting system would be a future town strength, but it was slow to catch on in part due to the broken sign-up link on the town's website. As CodeRED is a critical component in West Brookfield's emergency communications strategy, signing up more households for the system is crucial for building community resilience.

West Brookfield does not have an **appropriate space for the town's police and fire departments**. For example, the Town Hall currently houses the police department, equipped with an underpowered generator. Without adequate emergency power and space to operate or store equipment, first responders face an even more challenging task of responding to climate-related natural hazards.

Workshop participants saw **public and private wells** as vulnerable to both drought and flooding. West Brookfield has a public water distribution system, which serves the center of town, buildings along route 9, and residences surrounding Lake Wickaboag. Water is drawn from several wells. One CRB workshop table noted that Well #1, located near the dam on the southern edge of Lake Wickaboag, could be vulnerable to future flooding. They also pointed out that Well #2 is no longer in compliance with Mass DEP drinking water regulations as of February 2021 due to high iron and manganese levels. The Water Department is also aware of elevated amounts of sodium in groundwater, though workshop participants felt that the town needed to devote more resources to tracking this issue. In general, workshop participants were concerned that drought could lower the water table and further concentrate minerals or contaminants in well water. They also highlighted the risk of flooding, which could contaminate drinking water. Landowners outside of the drinking water system who operate private wells across town face similar challenges. Additionally, some private wells are relatively shallow and may go dry or recharge more slowly than the town's wells. Other private wells are near the old dump site and would be vulnerable to contamination if the pollution plume were ever to expand or shift.

Rail hazards like derailment were noted by multiple groups at the CRB workshop. The town rail line follows the Quaboag River across the southern part of town and crosses the River just

south of Lake Wickaboag. Workshop participants were concerned about the impact of rail traffic on the wetlands and river, the height of the rail bridge crossing the Quaboag, and the potential impacts of a major disaster like a derailment.

Government communication issues were perceived as a factor that could hamper local resilience. The town website was seen as the most significant communication challenge by all groups at the CRB workshop. Participants noted that the website design does not work well on certain devices, includes broken links like one for CodeRED sign-up, and is not maintained or updated with enough frequency. Inter- and intragovernmental communication is also a hurdle for West Brookfield. Workshop participants commented on the perceived lack of transparency and coordination between town boards, which prevents integrated planning and regulatory decision-making. For example, public works projects are exempt from the town's standard Stormwater Authority review process, which was seen as a regulatory loophole that could negatively impact the town's environment. Additionally, participants thought that West Brookfield could improve coordination with other levels of governance, such as state agencies, to keep bylaws aligned with best practices and in compliance with state requirements.

Like many towns in Massachusetts, West Brookfield experiences **power outages** caused by tree damage during storms. The New Braintree Road neighborhood and the Ragged Hill neighborhood were specified as areas of particular concern, but workshop participants also expressed that this is a town-wide problem. Cable and electric lines are above ground in West Brookfield and are difficult for the town to protect. Workshop participants supported the performance of the town's tree warden, who has already trimmed, removed, or replaced many trees. However, outages still occur, and West Brookfield should expect climate change to exacerbate this problem by increasing the severity of storms and damaging tree health.

Societal Concerns:

SOCIETAL

- Seniors
- Other climate-vulnerable populations
- Access to emergency healthcare
- Impacts of future migration

Workshop participants identified the town's **senior population** as having greater vulnerability to climate-related hazards. The Quaboag Nursing Home, which can house up to 320 seniors, backs onto Coy Brook, and some of the property may lie within the town's current 100-year flood zone. Workshop participants noted that the facility has a weak relationship with the town government. They noted that the facility has its own emergency/evacuation plan but were unsure whether the nursing home has any emergency needs that they need the town's help to address. The Brookhaven Rest Home is another long-term care facility for seniors with 40-50 beds. Workshop participants noted that this facility has a strong relationship with the town and has its own backup generator. Quaboag on the Common is a rehabilitation and skilled nursing facility catering to seniors in West Brookfield, though workshop participants did not know many other details about this facility. The West Brookfield Housing Authority property also houses low-income seniors and disabled residents, along with low-income families. The Housing Authority property is adjacent to Coys Brook and is partially surrounded by the current 100-year flood zone. Workshop participants were unsure whether this facility has generators or a substantive emergency plan that includes climate-related hazards like extreme heat or extreme flooding that could exceed the existing 100- and 500-year flood zones. Other seniors live in residential housing throughout the town. They may have higher vulnerability to climate hazards for reasons including poor health, lack of transportation, lack of internet access, unwillingness to leave their homes during weather events, concern over leaving pets during evacuations, limited incomes that could prevent necessary home maintenance or amenities like air conditioning, and lack of access to backup power.

West Brookfield does not have any officially designated environmental justice communities. Beyond seniors, **other climate-vulnerable populations** in West Brookfield include low-income residents and disabled residents. Low-income residents may have fewer resources to complete home maintenance to prepare for or recover from natural hazards. They are also limited in their housing choice as West Brookfield has minimal regulated affordable units (Section 8 eligible), so this community is dispersed throughout the town, with a small transient population gathered at the Copper Lantern Motel. Lack of access to private vehicles or public transportation alternatives limits the mobility of some low-income and disabled residents and increases their vulnerability to natural hazards. CRB workshop participants noted that the needs of the low-income community are somewhat unknown, so further outreach to this community would be a starting point for cultivating community resilience. West Brookfield also has several mobile home communities. Workshop participants observed that these communities consist primarily of prefabricated homes rather than trailer homes but could be less resilient than traditional construction to high wind events, flooding, or high temperatures.

The closest hospital to West Brookfield was formerly in Ware but is in the process of phasing out services and will close by 2023, so **access to emergency healthcare** is another community resiliency challenge. The town is served by a non-profit EMS service that was well-regarded by workshop participants but needs additional Advanced Life Support training and is handicapped by the long distances to hospitals, which are in Worcester, Springfield and Southbridge.

One table at the CRB workshop also expressed concern about the **impacts of future migration** from coastal communities into West Brookfield. Future migration was perceived as a potential threat to the town's farm land because housing construction and other forms of development could replace current agricultural land uses. However, the broader community and state impacts of such a large-scale migration scenario were not explored further during the CRB workshop.

Environmental Concerns:

The most frequently cited environmental concern at West Brookfield's CRB workshop was **non-point source pollution and runoff.** This type of pollution has many different origins and negatively impacts aquatic environments across the town. Workshop participants identified the following sources of freshwater contaminants:

- Fertilizer runoff from lawns surrounding Lake Wickaboag and others rivers and waterways.
- Stormwater drainage from roads carrying trash and chemical residue into waterways.
- Potential drainage from farms along route 9 carrying pesticides and animal feed or waste into waterways.
- Septic tanks.

ENVIRONMENTAL

- Non-point source pollution and runoff
- Invasive plants
- Wildfire risk
- Wildlife
- Solar farms
- Brownfields

Workshop participants also pointed out that drought conditions are exacerbating this issue. Droughts may harden the soil and make water more difficult to absorb, causing more water to flow into waterways. The consequences of runoff include sedimentation and cyanobacteria algal blooms in Lake Wickaboag, which then drains into the Quaboag River. While there are active environmental campaigns focused on protecting Lake Wickaboag, the Quaboag River is less actively managed. Therefore, improving the river's water quality may present a more significant challenge for West Brookfield than mitigating environmental problems in the lake. Wetland ecosystems and smaller waterways in West Brookfield also face runoff-related issues, such as trash and pollution.

Invasive plants are a problem for West Brookfield's aquatic and terrestrial ecosystems. CRB workshop participants commented that bittersweet vines contribute to ecological changes in woodlands by killing trees and competing for resources with native species. Similarly,

phragmites growth is clogging waterways and displacing other wetlands plants. Also, invasive weeds including milfoil and other aquatic plants are a challenge for Lake Wickaboag and are treated annually during the summer. Rising temperatures and changes to precipitation patterns may induce further changes in West Brookfield's local ecosystems.

Wildfire risk was another concern for West Brookfield. Storm damage and recent droughts have led to some accumulation of dead trees in forested areas. The Town's lack of resources for adequate forest management has also contributed to extensive dead wood and brush build-up throughout the vast areas of forest in West Brookfield. Also, a large geographic area on the outskirts of town is not connected to town water. However, the town has been actively working on providing water sources for firefighting in rural areas by installing dry hydrants and identifying new draw points.

Wildlife living on land and in West Brookfield's lakes, streams, and wetlands will likely be challenged by climate change and habitat encroachment in the coming decades. Workshop participants linked the water quality challenges identified earlier in this section to oxygenation and pH changes, which could cause cascading problems in aquatic ecosystems, impacting fish, waterfowl, and many other creatures. Other participants noted that there has been an increasing number of notable wildlife and human interactions like black bears in residential areas. As a relatively rural town with plentiful open space, workshop participants felt that West Brookfield residents need to learn how to share space with many different species. Continued development, combined with potential changes to wildlife populations could lead to encroachment on wildlife habitat, which could negatively impact wildlife. Beavers are one species that is very common in West Brookfield, and their growing population and continuous dam building have caused roads to flood in the past. Workshop participants noted dams near Saw Mill Farm and past flooding along Shea Road. Fortunately, West Brookfield officials are used to beavers and regularly use beaver deceivers to control the local impacts of beaver dams. However, changes to beaver populations or changes to precipitation that increase dam water levels could cause future challenges for the town.

While solar energy may be an essential power source for West Brookfield in the future, CRB workshop participants were concerned about the potential impact of **solar farms** on the local environment. Workshop participants were worried that large installations could lead to erosion, deforestation, and stormwater drainage problems in the near-term. In the long-term, participants were concerned that chemicals could leach or off-gas from panels and battery back-up systems as solar installations age or are decommissioned. They identified the Beeman Road solar farms as an example of these problems in town. Another participant wanted to know whether these installations were resilient to high winds.

Brownfields were also an environmental concern for CRB workshop participants. West Brookfield's old town dump site is a regulated brownfield site. Toxic discharge from this site is monitored, but workshop participants were concerned that climate change could cause shifts to groundwater that could cause the contamination plume to shift and leak into drinking water.

One CRB workshop table also wanted to determine whether the former Quaboag Corset Factory site is leaching any pollutants, though it is not officially classified as a brownfield site.

Current Strengths and Assets

West Brookfield has taken some steps to address natural hazards and climate change over recent years. Workshop attendees identified the following topics as strengths or assets that will aid in West Brookfield's climate resilience.

Infrastructure Strengths:

The town's **power outage mitigation** work was rated as a community strength. The tree warden has done an excellent job trimming, removing, and replacing street trees that threaten power lines. The town, led by the tree warden, also successfully removed invasive maple trees across West Brookfield and replaced them with more resilient native species. The town also has maintained a good working relationship with National Grid, which facilitates outage mitigation.

While **solar farms** were identified as an environmental challenge for West Brookfield, they were also considered a potential town strength because of their important role in the transition to green energy sources. The town's plentiful open space means that there are many potential sites for large solar installations. While solar can negatively impact the local environment, large installations can be a cost-effective and environmentally friendly green energy option when sited and installed responsibly.

INFRASTRUCTURE

- Power outage mitigation
- Solar farms
- Federally maintained dams and dikes
- Drinking water distribution system
- Publicly owned buildings
- Town whistle
- Historic Town Common and Town Hall

The federally maintained **dam on Lake Wickaboag and dikes along Route 9** were perceived as well-managed by workshop participants. They perform their primary function of containing water, require minimal maintenance from the town, and are expected to perform well into the future, assuming that routine maintenance and inspections continue.

West Brookfield's **drinking water distribution system** was rated as a town strength because it provides centralized water access to many of the town's residents. While the town must address the water quality issues identified in earlier sections of this report, having the water distribution infrastructure in place may facilitate future development in the areas of town that can access this system.

Publicly owned buildings, including the Quaboag Regional High School, West Brookfield Elementary School, Town Hall, and Senior Center, were designated as assets for their town's overall emergency preparedness. The high school located in Warren is the current official shelter and has an adequate generator. The elementary school recently received some building upgrades and could be another shelter option for West Brookfield if equipped with a backup

power source. Workshop participants also thought that the Town Hall and Senior Center could be effective warming centers during severe winter storms, though these facilities are not equipped as overnight shelters. West Brookfield's access to a geographically dispersed array of public facilities that could double as emergency shelters is an asset to the town's overall emergency plan, as long as these facilities are adequately maintained and provided with necessary shelter equipment.

West Brookfield has a functioning **town whistle**, which provides a useful communication option during severe weather. The town has used this tool as a warning for emergency scenarios and can activate it as a backup system if radio systems fail. The whistle was rated as another positive component of West Brookfield's emergency preparedness.

Societal Strengths:

SOCIETAL

- Senior community
- Informal communication channels
- Schools
- Agriculture

West Brookfield's **senior community** supplies the town with knowledge and experience that could benefit the town as they navigate climate change. The town has some essential features that cater to this population, such as the senior center, the hub for senior activities in West Brookfield. Due to the three senior care facilities in the town center, the availability of senior care was also seen as a strength. West Brookfield has also integrated senior needs into the fire department's standard response to severe storms and outages. The Council on Aging maintains a list of home-bound seniors and seniors who need specialized health equipment like ventilators. This list has been shared with the Fire Department, who check on each individual to ensure they are safe and able to weather the storm.

While workshop participants were critical of some aspects of town communications, they considered **informal communication channels** to be a local strength. Due to the tight network of community relationships, information spreads quickly by word of mouth. In addition, many residents are also active on social media. Consequently, the police department, fire department, and LWPA all have active social media accounts, which they use to disperse important messages quickly throughout the community.

Local **schools** are an important magnet for community activity in West Brookfield. The town's elementary school has a strong community of children and parents, and the school building is a useful meeting place for local activities. Also, the Quaboag Regional High School has been a good source of volunteer labor for West Brookfield, despite the school's location in neighboring Warren.

CRB workshop participants considered the prevalence of local **agriculture** to be a defining part of West Brookfield's town character. Farms in town provide an important local food source and

have helped support neighboring communities during Covid, demonstrating their value as a local resiliency asset. West Brookfield hosts a seasonal weekly farmer's market in the town center. However, given the many pressures on local farmers, including climate change, workshop participants thought that the town should find new ways to help local farmers market their goods and preserve agricultural land.

The **Town Common and historic Town Hall** are valued aspects of West Brookfield's identity. Both locations are important gathering places that bring community members together. Workshop participants said that the town is known for their Town Common in particular, which contributes to West Brookfield's traditional New England small-town aesthetic. The Town Common hosts town events like the local farmers market, flea markets, and the annual Asparagus Festival, as well as more informal gatherings like musical performances. The Town Hall was built in 1859 and renovated most recently in 1997, and the building houses many of the town's offices.[13]

Environmental Strengths:

Forest covers much of West Brookfield's land area. This land cover was considered an asset to the town's climate resilience for two reasons. First, the trees stabilize local soil and help minimize erosion caused by precipitation and wind. Second, the trees and other forest plants capture and store carbon. Workshop participants also valued the forest environment for the habitat it provides to numerous wildlife species.

ENVIRONMENTAL

- Forest
- Wetlands
- Lake Wickaboag
- Protected land
- Brookhaven Lake

Wetlands in West Brookfield were also classified as a climate resilience asset. The wetlands in the Quaboag River floodplain were specifically mentioned at the workshop as a form of natural flood control, and wetlands in other areas of town may perform the same ecosystem service. Workshop participants observed that there is currently a strong conservation effort in town to protect the town's existing wetlands, though more work may need to be done to fix past mistakes.

Lake Wickaboag was rated by one workshop participant as the number one most valuable natural resource in West Brookfield. The lake is home to wetlands that help with natural flood control, biodiverse wildlife habitat, and recreational opportunities for the town's residents.

West Brookfield has large areas of **protected land**, which preserve the open space and wildlife habitats that residents value. Preserved land includes the Rock House Reservation, the West Brookfield State Forest, the Quaboag Wildlife Management Area, the Whortleberry Hill Wildlife Management Area, the Coy Hill Wildlife Management Area, the Pynchon's Grist Mill Site, the

[13] (West Brookfield Historical Commission, n.d.)

West Brookfield Common, the Lamberton Brook Flood Control Site, the West Brookfield Sportsman's Club, lands protected by Chapter 61 restrictions, and individual conservation restrictions managed by the East Quabbin Land Trust and Trustees of Reservations.[14] The town does not have a current Open Space and Recreation Plan.

Brookhaven Lake was classified as an environmental asset for West Brookfield. This lake is fed by Pierce Brook and is surrounded by residential buildings. CRB workshop attendees valued the lake for its wildlife habitat and noted that the waters and surrounding environment are home to beavers, protected bird species and bears. The lake shore also hosts wild asparagus growth.

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 summarized from the matrix, which can be found in Appendix B of this document.

Infrastructure Actions

Ensuring a **safe and plentiful town water supply** will be an important job for West Brookfield in the future as climate change alters precipitation patterns. To this end, workshop participants proposed an assessment of water system's existing conditions and projections of future capacity based on various climate and community development scenarios. However, the town also needs to invest in fixes for the town's various water quality problems, such as getting Well #2 back online. To prevent future contamination issues, the town should consider a water treatment plant upgrade and conduct a vulnerability assessment focused on wells and sources of point-based pollution.

To address the likelihood of future flooding due to West Brookfield's wide flood plain and the likelihood of future storms with heavy amounts of precipitation, workshop attendees suggested several forms of **proactive flood mitigation**. To address roadway flooding, West Brookfield should

INFRASTRUCTURE

- Safe and plentiful town water supply
- Proactive flood mitigation
- Controlling wastewater
- Improving drainage and maintenance on private roads
- Regulate large-scale solar installations
- Prevent power outages
- Address wildfire risk
- Improving town communication
- Make town buildings more resilient
- Emergency preparedness
- Railroad safety

[14] (Executive Office of Energy and Environmental Affairs (EOEEA), 2020)

replace culverts known to flood, and assess whether other culverts will need replacement should stormwater volumes increase. Going forward, when the town installs drainage infrastructure to manage runoff, the town should also consider green infrastructure options. In developed areas around town, West Brookfield should explore whether properties could retain and absorb more water on-site, to avoid excess stormwater draining into waterways and inundating areas downstream. The town should also ensure that new construction is prevented in both the current 100 and 500-year FEMA flood zones, as well as other areas that might flood in future due to increasingly severe floods. Additionally, West Brookfield should continue to address known hazards from the 2017 Hazard Mitigation Plan Update, and coordinate with dam owners in town to ensure that necessary maintenance and upgrades occur.

CRB workshop participants were unhappy about the negative environmental impacts of non-point source pollution, and identified **controlling wastewater** as a way to improve the local environment. Nutrients leaching from septic tanks are a water quality challenge for West Brookfield, and the town does not have a public wastewater treatment system. To address septic leaching in the near term, CRB workshop attendees wanted to see the town designate funding, and identify new funding sources, to help those who need septic tank replacements but are unable to afford them. To address the long-term climate risks, the town should conduct an assessment to see if any private septic tanks are in "high hazard" areas, so that owners know to relocate their tanks the next time that they need replacement. CRB workshop attendees also thought that the town should investigate the feasibility of creating a shared wastewater treatment facility with neighboring towns, as well as assess the viability of managing private septic systems for a fee on behalf of homeowners that have severely degraded or mismanaged systems.

Improving drainage and maintenance on private roads was another key element of reducing non-point source pollutants. As a first step in addressing this issue, the town should identify private roads with significant environmental or public safety impacts and use this list to prioritize future town efforts to address this problem. However, because many of these roads are privately owned, the town cannot require owners to address problems that the town identifies. While the town could adopt bylaw changes to enforce certain engineering standards on these roads, CRB workshop participants focused their suggestions on educating owners and encouraging them to take voluntary action. One suggestion was for the town to provide education resources like trainings on how to design and maintain private roads, which could also include information about the environmental impact of poor roadway design. The town should also explore options for funding to subsidize culverts additions on some private roads. Another idea was to acquire land adjacent to private roads and use it to build a better drainage system or incorporate rain gardens or swales to capture runoff. This idea was specifically proposed to address drainage issues at the end of Council Grove Road but could be applied to any road with severe drainage problems where the owner is unwilling or unable to act on their own. Lastly, the town should consider a vulnerability assessment of private bridges to future increases in water levels caused by climate change. While this assessment will not address the

town's water quality challenges, any bridge improvements made due to this assessment could directly improve West Brookfield's community climate resilience.

The potential for stormwater runoff and erosion caused by improper solar installations was also perceived as a threat to the town's environment. Participants at the CRB workshop thought that West Brookfield should **regulate large-scale solar installations** more closely to prevent negative environmental impacts. Specifically, the town should improve enforcement of existing bylaws and explore bylaw updates that would strengthen regulations. West Brookfield should collect data on erosion, or other environmental impacts, caused by existing solar arrays in town and use this as the basis for future regulatory updates.

While the town has already taken proactive steps to **prevent power outages** caused by downed trees, CRB workshop participants felt that there is still more work to be done. The town could conduct a study in consultation with National Grid to identify high risk and high impact areas for power outages. The findings of the study could then be used to inform shelter planning and determine the need for additional backup power sources. Workshop attendees also wanted to see the town continue to partner with National Grid on tree trimming. Additionally, West Brookfield could create a street tree inventory to aid the tree warden's maintenance work. The inventory could include details like location, species, and planting date. The town could also update its bylaws to encourage or require the use of climate-resilient native tree species in new development, to avoid future problems with invasive species or sick trees that are unable to withstand future climate conditions.

To **address wildfire risk**, participants at the CRB workshop supported the fire department's recent project to identify locations for new dry hydrants in rural areas and wanted to see the town install new dry hydrants as appropriate. However, since future droughts may make dry hydrant water sources unreliable, the town should also explore other climate-resilient solutions to mitigate fire risk in neighborhoods unconnected to the town's water system. One idea proposed at the meeting was to update town subdivision regulations to require cisterns or a similar stormwater collection system in all future developments unconnected to town water.

Improving town communication with the public and between various departments could impact many aspects of West Brookfield's town governance and make any other resilience-building activity more likely to succeed. CRB workshop participants came up with a suite of ideas to address this goal. Most immediately, the town government could assign a staff member to be responsible for fixing known problems with the website like the CodeRED link, as well as maintaining information on the site on an ongoing basis. Workshop participants thought that the town could also consider changes to governance processes to ensure compliance with town bylaws and regulations. West Brookfield could consider reviewing interdepartmental processes for project reviews or permitting to ensure that approval processes are straightforward, timely, and enforce the environmental protections enshrined in Town Bylaws. Workshop participants also considered developing an educational guidebook to teach new volunteer board members about their responsibilities, and the many overlaps between state and local regulations. Finally, to improve communication with the public, workshop participants

suggested establishing a formal phone-tree, to leverage town residents' individual communication networks.

CRB workshop attendees also wanted to see West Brookfield **make town buildings more resilient** to climate hazards. One idea proposed at the workshop was to improve drainage in the town center around the senior center and town hall to reduce flood risk from stormwater. To fund resiliency measures and maintenance at the historic town hall, workshop participants proposed that the town adopt the Community Preservation Act. Participants also wanted to see West Brookfield form a capital investment campaign to fund a new building for the fire and police departments. They felt that a modern public safety center would contribute to the entire community's climate resilience by enabling first responders to focus on emergency response during major hazards, rather than having to deal with problems like radio and power outages within their own headquarters.

Better emergency preparedness through planning, public education, and equipment purchases would help West Brookfield address known emergency management shortcomings. Ideas proposed at the CRB workshop include:

<u>Planning</u>

- A review and update of the regional shelter plan if needed, to ensure it accounts for climate-related hazards and the likelihood that these events will increase in frequency and severity.
- An investigation into whether and how the Town could utilize the school system communication/alert infrastructure more broadly.
- Designation of the elementary school as an alternative warming center.

<u>Public education</u>

- Conducting general outreach on how to prepare for disasters or potential evacuation.
- Producing materials on what residents can and cannot bring with them to shelters.
- Creating an education campaign to improve citizen knowledge of shelter locations and emergency systems to prepare for future, potentially new, types of emergencies (i.e. tornados).

<u>Equipment purchases</u>

- Purchase of an information board near the town common (similar to North Brookfield's) to broadcast important messages.
- Pursuit of funding for radio upgrades for public safety officials.
- Pursuit of funding to purchase backup power sources, including generators or green alternatives, for critical town departments and buildings including the fire department, police department, and town hall.
- Purchase of a backup power source for the elementary school to expand local shelter options.

Railroad safety and emergency response planning could mitigate the risk to the Quaboag River and surround wetlands from a major rail accident. CRB workshop participants recommended that the town form a coalition with neighboring communities to discuss rail hazard mitigation along the entire line and engage with the railway company.

Societal Actions

CRB workshop participants thought of many actions that the town could take to **improve the emergency preparedness of vulnerable populations** to climate hazards, such as senior citizens and low-income residents. To start with, the town should conduct outreach to facilities that focus their services on these populations. This includes opening a dialogue with the long-term care facilities and West Brookfield Housing Authority about their emergency plans. It also extends to maintaining the town's strong relationship with the Brookhaven Rest Home and building ties with the other care facilities. The West Brookfield Community Emergency Response Team (CERT) was designated as the most relevant town body to take responsibility for these tasks. West Brookfield Council on Aging should also continue to maintain the "storm list" of vulnerable residents, which the fire department uses to conduct check-ins after storms or power outages. To supplement this system, the town should consider organizing a neighbor-to-neighbor check-in system, as well as ensuring that alternative communication systems like cable access are utilized during emergencies to reach residents who are unable to use the phone or internet. CRB participants also thought that the town should conduct outreach to mobile home parks to assess whether there are any emergency preparedness needs that are specific to mobile home residents, and to ensure that park owners have an appropriate emergency plan on-hand. Additionally, the town should conduct outreach to low-income residents of West Brookfield through existing organizations like food pantries. Workshop participants also proposed exploring new options for low to moderate income affordable housing and conducting a zoning review to ensure that existing regulations do not discourage new affordable units.

SOCIETAL

- Improve the emergency preparedness of vulnerable populations
- Support the agricultural community

To offset environmental and economic pressures felt by local farmers, West Brookfield should find new ways to **support the agricultural community**. Workshop participants thought the town could partner with Central Mass Grown and the Agricultural Commission to provide information about West Brookfield farms for the town website. The town could also shift the farmer's market day from Wednesday to Saturday to potentially improve attendance. Lastly, the town should work with local farmers to find new ways to support them and highlight their products. CRB workshop participants felt that agriculture was a core component of West Brookfield's community identity, so the town should do what it can to ensure local farmers continue to prosper.

Environmental Actions

Reflecting their importance to workshop participants and the greater West Brookfield community, many environmental action ideas focused on **preserving and protecting Lake Wickaboag and other waterbodies**. Most ideas focused on Lake Wickaboag, where water quality challenges are easily observed, and where some environmental restoration projects are already underway. Ideas to improve the Lake's water quality include:

ENVIRONMENTAL

- Preserve and protect Lake Wickaboag and other water bodies
- Teach residents how to protect natural ecosystems
- Protect local wildlife
- Mosquito and tick control
- Monitor Old Dump Site brownfield
- Control illegal dumping

- Education of residents around Lake Wickaboag on stormwater pollution, and the impact of fertilizers, roadways, landscaping practices, and other resident behaviors on the lake.
- More comprehensive testing and monitoring of the lake to assess specific water quality issues and identify appropriate solutions.
- Continuing to perform aquatic weed control.
- Working with the lake community to identify ways to reduce fertilizer usage, to prevent excess nutrients from draining into the lake.
- Identifying examples of "best practice" landscaping and stormwater managements areas in lake community or create demonstration areas.
- Conducting a comprehensive stormwater and septic tank assessment in lake neighborhoods to identify problem areas.
- Considering regulatory updates to enforce water quality protection.

CRB workshop participants also identified actions that West Brookfield could take to mitigate water quality issues in other local surface waters. Participants wanted to continue water quality testing in Sucker Brook and Mill Brook, which lie upstream from Lake Wickaboag. Better data in these areas could be leveraged to develop a larger grant funded project to address contamination issues that also impact the lake. Additionally, workshop participants wanted to start a testing program to determine the extent of water quality issues in the Quaboag River, and explore watershed partnerships and resources.

CRB participants also wanted West Brookfield to proactively **teach residents how to protect natural ecosystems**. The town could partner with local land trusts and environmental organizations to educate landowners about conservation restrictions and best practices for forestry management. The town could also educate all residents on the importance of wetlands for flood control. This education campaign could emphasize that preserving wetlands is the responsibility of homeowners but doing so is in their best interest because it helps mitigate

flooding. West Brookfield is fortunate to have multiple nongovernmental organizations with a vested interest in the environment, wildlife, and land conservation. Workshop participants wanted to see the town develop a stronger network with these community groups, including the East Quabbin Land Trust, the Trustees of Reservations, and the Wickaboag Sportsmen Club. Workshop participants also wanted to see the town elevate the work of local conservation organizations by providing information about local open space on the town's website.

CRB workshop participants wanted the town to find ways to **protect local wildlife** to mitigate the disruptive impacts of development and climate change on certain species. One specific idea was to study whether habitat is being actively lost in West Brookfield, and if so, develop an action plan to mitigate it. Another idea was to expand local education on normal versus abnormal interactions with wildlife, and guide residents on how to prevent unsafe interactions for humans and animals. Lastly, participants suggested options for protecting pollinator species, like building pollinator gardens or conducting selective mowing (with sheep) in public green spaces. These pollinator-friendly landscapes would be paired with informational content on why pollinators are important to natural environments and agriculture.

Prioritizing **mosquito and tick control** was suggested by workshop attendees to address the town's vulnerability to vector-borne diseases like Eastern Equine Encephalitis, Zika, West Nile Virus, and Lyme Disease. Workshop participants did not favor aerial spraying as a mosquito control option and proposed other alternatives. These included wetlands maintenance, eliminating unnatural forms of nesting areas such as water pooling in old tires, building bat houses near wetlands, and conducting outreach to community members about how they can manage their property to reduce pest populations. Workshop participants also wanted to identify other alternatives to pesticide spraying beyond those listed above.

Workshop participants were concerned that climate change could shift the contamination area of the **Old Dump Site brownfield** and consequently wanted to see additional study of this brownfield area to occur in the future. This assessment should determine whether Bradish Brook, which is within the contaminated area, may be carrying toxic waste to other waterbodies including Lake Wickaboag. Additionally, the old dump site assessment area should be expanded to include surrounding wells, which are currently outside the known contamination area, but might be impacted in the future. West Brookfield should also verify the brownfield status of the Old Corset Factory site with the Massachusetts Department of Environmental Protection.

Various strategies to **control illegal dumping** was another important environmental action for West Brookfield. Some ideas were focused on public education such as creating signage on how to report dumping and exploring creative ways to reuse common and difficult to recycle items like tires (ex. plant pots, curb bump outs, etc.). Others focused on actions the town could take to facilitate better waste management, including creating a town-wide trash management plan, and potentially establishing collection dates for large items like mattresses.

TOP RECOMMENDATIONS

Following the three-day virtual workshop, CMRPC placed these actions in an online survey so that participants could prioritize their top recommendations. Some priority actions were grouped with similar ideas to streamline the survey process. A total of five workshop participants answered survey questions on:

- What hazards they were most concerned with
- Whether an action was high, medium, or low priority
- Whether an action was a short, long, or ongoing project
- Which actions they would like to see West Brookfield complete.

Readers can find a copy of the survey questions and the survey results in the Appendix at the end of this document.

Respondents were relatively evenly divided on the hazard of most concern for West Brookfield. Participants ranked flooding and winter storms equally as the town's top hazard, following by wind events, and lastly drought/heat/wildfire.

Participants elected that the following actions are the top priority actions for West Brookfield:

Infrastructure

- Re-write stormwater bylaw to include special considerations for solar arrays AND/OR develop a conservation bylaw AND/OR conduct detailed assessment of stormwater drainage across town to inform bylaw updates, determine needs for new stormwater system and develop ideas for future nature-based projects to improve drainage.
- Conduct education and outreach program to private road owners around lake to address maintenance issues and stormwater runoff issues leading to sedimentation and pollution of lake.
- Conduct assessment of existing condition of town drinking water supply as well as future system capacity needs based on climate impacts and future development scenarios AND/OR upgrade treatment plant AND/OR resolve town well #2 issues with contaminants, water supply/drought, flood, and pollution issues.

Societal

- Improve town communication through: improving town website AND/OR adding an information board near town common (similar to N. Brookfield's) AND/OR improving transparency between boards AND/OR pursuing funding for town radio system upgrades AND/OR fix CodeRed link on town's website AND/OR fix cable access for residents without a cell phone or computer.

Improving town communications was the top societal priority action according to 100% of respondents. One comment included in a survey response reiterated the importance of this action item, saying:

> *"Success of resilience development will be contingent on communication and transparency between committees and boards, and timely outreach from those Board[s] to Town members…."*

Environmental

- Mitigate stormwater run-off and water quality issues in lake with education program for lake residents on runoff issues AND/OR demonstration rain garden on town land AND/OR education program best practices for shoreline landscaping AND/OR promote alternative fertilizer solutions that don't lead to pollution.
- Develop a holistic solid waste management plan to mitigate dumping, litter, road damage from trash pick-up, and dumping AND/OR educate town residents/create posters on how to report dumping issues AND/OR organize town collection days for large waste to prevent dumping AND/OR explore creative recycling options (like using tires for plant pots or curb bump outs.
- Study impacts of erosion from solar arrays AND/OR update bylaws to address erosion and unwanted chemicals caused by solar projects AND/OR strengthen solar bylaws to increase regulation of solar projects.
- Partner with local organizations/land trusts to educate residents about conservation restrictions and best forest management practices AND/OR find ways to better support the work that local land trusts/conservation organizations are already doing AND/OR provide town website space to highlight land trusts/conservation organization work.

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APPENDIX:

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