Town of New Ashford
Hazard Mitigation Plan
and
Municipal Vulnerability Preparedness Report

January 2023

ACKNOWLEDGEMENTS/CITATION

The New Ashford Select Board extends special thanks to the
New Ashford Hazard Mitigation Planning/MVP Committee
as follows:

Keith Lacasse, Highway Superintendent
Jacob Jayko, Selectboard
Ken McInerney Selectboard
Mark Phelps, Selectboard

Commonwealth Municipal Consulting, LLC
Doreen DeFazio, Executive Director
Robert Polsinelli, Director of Policy
Sophie Protano, Sustainability Specialist

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PLANNING PROCESS

INTRODUCTION

PURPOSE

The Town of New Ashford's Hazard Mitigation Plan and Municipal Vulnerability Preparedness Plan (hereafter, "plan") was established to meet the goals laid out by the community and meet all requirements set forth by the Federal Emergency Management Agency (FEMA), the Massachusetts Emergency Management Agency (MEMA), and the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). The purposes of a community developing and following a combined Plan are to reduce the risk posed by natural hazards and increase resilience to the effects of climate change. To achieve these purposes, the community assessed the risk posed by each hazard, factoring in the effects of climate change, and decided on proactive actions that can be taken to decrease their risk. Taking this approach can reduce or eliminate the long-term risks by completing those actions.

To have an approved Hazard Mitigation Plan (HMP), it must meet all FEMA requirements and represent New Ashford's commitment to reducing risk and taking proactive action to reduce the impact of natural hazards on the planning community. FEMA coordinates with MEMA to review and approve plans. Having an approved HMP allows a community to access FEMA's hazard mitigation project grants.

To receive designation as a Municipal Vulnerability Preparedness (MVP) Community and access to MVP Action Grants, the Town of New Ashford has integrated the local effects of climate change into this Plan. The completion of the Community Resilience Workshop (CRB) and EEA approval of this report will make New Ashford eligible for MVP Action Grants and assist in the efforts to increase resilience to climate change within the community.

Guiding Principles for Plan Development[1]:

- *Focus on the mitigation strategy*. The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*. In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- *This is your community's plan*. To have value, the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the plan in a way that best serves your community's purpose and people.

[1] Federal Emergency Management Agency. (2013). *Local Mitigation Planning Handbook*, I-2.

This plan is the result of a collaborative effort between the Town of New Ashford's core team, stakeholders, and neighboring communities.

BACKGROUND

The Town of New Ashford completed its last HMP in 2015 in partnership with The Berkshire Regional Planning Commission (BRPC). This HMP was an addendum to the 2012 Berkshire County Regional Plan, and New Ashford joined a handful of other municipalities in joining the regional plan at that time. That addendum was voted for adoption in 2015, but FEMA's approval was dated 2013, coinciding with the regional plan's approval. For that reason, the date used when referencing New Ashford's prior HMP will be 2013. Additionally, the Town had not previously planned for climate resilience despite feeling the impact of climate change through increased temperatures, drought, and extreme precipitation events. While the Town was exploring options to plan for hazards and climate resilience, it became aware of an opportunity to complete both plans within one project through EEA's MVP Planning Grant. New Ashford applied for the grant in Winter 2021-22.

Funding for this Plan was made available by a grant through the Massachusetts Executive Office of Energy and Environmental Affairs. This combined grant provided funding for New Ashford to hire an MVP-approved consultant to work with the municipality and other stakeholders to plan and prepare this combined plan.

OVERVIEW

With 250 people, New Ashford is the 345th most populated city in the state of Massachusetts out of 351 cities. In 2020, the median household income of New Ashford households was $71,250. The density of the Town is approximately 18.2 people per square.

HMP/MVP COMMITTEE/CORE TEAM

MEMBERS

Name	Title	Affiliation	MVP role
Jason Jayko	Selectboard	Town of New Ashford	Local Project Lead
Ken McInerney	Selectboard	Town of New Ashford	Core Team Member
Mark Phelps	Selectboard	Town of New Ashford	Core Team Member
Frank Speth	Emergency Manager/Fire Chief	Town of New Ashford	Core Team Member
Lori Jayko	Treasurer	Town of New Ashford	Core Team Member
Keith Lacasse	Road Commissioner	Town of New Ashford	Core Team Member
Doreen DeFazio	Planning Consultant	Commonwealth Municipal Consulting	Lead Facilitator
Robert Polsinelli	Planning Consultant	Commonwealth Municipal Consulting	Facilitator
Sophie Protano	Planning Consultant	Commonwealth Municipal Consulting	Core Team Member

***Table 1**. Members of the New Ashford HMP/MVP Committee/Core Team*

GOALS

According to FEMA, the goals of a hazard mitigation plan strategy should include:

1. Organizing the Planning Process and Resources
2. Assess Risks
3. Develop a Mitigation Strategy
4. Adopt and Implement a Plan

The Town of New Ashford adopted this strategy by following the guidelines of implementing a local plan through Core Team meetings, discussions, and site visits on risk assessment and goals. The intention of these goals was the reduction of loss of life and property by proactively determining the risk of natural disasters and, in this report's case, also included the risk of climate vulnerability and adaptation of resources for a more sustainable future.

TASKS

The Town formed a Core Team to meet and review the existing plans and policies. The team discussed the Town's infrastructure and prioritized a list of areas that were concerns with regard to hazards for emergency responders as well as Town leaders. These meetings took place

between May 2022 and August 2022 and were prior to the Community Resilience Building (CRB) Workshop.

In September 2022, the Town held a CRB Workshop that involved members of the Core Team as well as additional local representatives. The Workshop was held at New Ashford Town Hall and consisted of large and small group discussions following the *Community Resilience Building Workshop Guide*[2].

PARTICIPATION BY STAKEHOLDERS

A variety of stakeholders were invited to participate in New Ashford's HMP/MVP planning process to meet FEMA and EEA requirements and, more importantly, to seek their insight, support, and cooperation. A complete list of those invited to participate in the plan development process is included in Appendix E, but a brief overview of the various groups and categories of stakeholders is provided below.

LOCAL AND REGIONAL AGENCIES

New Ashford is a small community, so Town officials sometimes hold more than one position within the local government. This means a core group of volunteers are responsible for most of the Town's operations. There are also a few paid employees that contribute to the Town's ongoing functions, including a Highway Superintendent and a Town Clerk. Members of these groups formed the core planning group.

Beyond the local officials and employees, the Town can access support from regional agencies, particularly the Berkshire Regional Planning Commission (BRPC), that can provide support directly for planning activities if requested as well as regional assistance including grant access and awareness, resource sharing and coordination, or additional planning activities. Additionally, utilities operate regionally in this part of the State, and the electric supply agency, Eversource, works with the community on tree trimming activities near power lines.

WORKSHOP

On September 9, 2022, New Ashford hosted a Community Resilience Building Workshop led by Commonwealth Municipal Consulting, LLC, a State-approved MVP vendor. Members of New Ashford's Selectboard, Highway Department, Conservation Committee, Fire Department, and Emergency Management Department attended the event.

AGENCIES THAT CAN REGULATE DEVELOPMENT

The Town's Planning Board is the primary agency that regulates development within the Town.

[2] Community Resiliency Building. (n.d.). Retrieved from https://www.communityresiliencebuilding.com/_files/ugd/29a871_ed557c1fca834ca898961d7705dfef03.pdf

The Planning Board was apprised of this plan's development and updated on progress during the planning process. New Ashford can also access support for its development activities from the BRPC.

There is a substantial amount of forested area in New Ashford, and the Massachusetts Department of Conservation and Recreation (DCR) has authority over most of that area. DCR was contacted during the planning process but opted not to attend any planning meetings or the Workshop. However, they indicated their willingness to answer any questions or discuss any concerns that were outcomes of the planning process.

PUBLIC, BUSINESS, AND NEIGHBORING COMMUNITIES

To solicit feedback from the citizens of New Ashford, the Town conducted several outreach activities as part of the plan development process.

The first opportunity was a survey offered in August 2022 during the early stages of plan development to obtain direct feedback from citizens. The Select Board notified citizens directly by email of the survey. The notice was distributed to email addresses previously provided to the Town for the purpose of receiving public notices. The email invited participants to complete an online survey through a link. Mailing surveys to households directly was considered but rejected based on historical response patterns. The survey consisted of multiple choice and open-ended response questions asking opinions about hazards and vulnerabilities in Town as well as perceptions of the Town's ability to deal with hazard related emergencies.

To obtain more detailed information from climate vulnerable populations within Town, a second survey was linked to the end of the main survey. Participants who believed they met one or more of the criteria to be considered in a climate vulnerable population were asked a series of additional questions related to their experiences and opinions about the intersection of hazards with that or those conditions.

In addition to the surveys, a public comment opportunity was provided on August 29, 2022, prior to a Select Board meeting. Citizens were notified of this opportunity by email and online posting of the details on the Town's website. In keeping with State guidance on public meetings due to COVID-19, both in-person and remote participation were possible to accommodate the widest number of responders. Citizens were invited to submit questions in advance or to join the meeting to ask them directly. During the meeting, the consultants from Commonwealth Municipal Consulting, LLC provided a brief overview of the HMP/MVP process and the completed work to date. They also answered questions from the public.

There was a second public comment session where the public was encouraged to review the plan before its final revisions. The methods to notify the Town's citizens were the same for this opportunity as they had been for the initial public comment session.

Local businesses are limited in number. They include a parts distribution agency and two motels that rely on seasonal customers coming to ski at nearby Jiminy Peak or to take in the spectrum of colors in the Fall.

New Ashford currently relies on neighboring communities for some services and has intermunicipal agreements for mutual aid and support. New Ashford's Fire Department is supported by neighboring communities through a mutual aid agreement. New Ashford does not have its own Police Department. Instead, the Town has an agreement with the State Police for those services.

LOCAL PROFILE AND PLANNING CONTEXT

COMMUNITY SETTING

DEMOGRAPHICS

The Town is largely composed of White, Non-Latino people (91.6%). The remaining people are categorized as being 5.2% of two or more races and 3.6% some other background. 76.9% of the Town's people live in owner-occupied homes, and the remaining 23.1% rent. 11.1% earn less than 150% of the Federal Poverty Level (FPL) annually[3]. Most of those individuals are over the age of 65. The median age of a New Ashford resident is 53.8 years.

This section will describe the aging characteristics further.

DEVELOPMENT

There are 104 estimated households that are occupied in New Ashford. Of those homes, 80 are owner occupied and the remaining 24 are occupied by renters[4]. The median home value is $296,400. The private property value of the Town of New Ashford is therefore estimated at $30,825,600.

This section will describe any development trends since the last HMP at a minimum, noting if there has not been any development.

ZONING

[Need zoning laws or more information on r-40 districts, 61 A, state zones and overlay districts. Any mixed use?]

[3] U.S. Census Bureau. (n.d.). *Poverty status in the last 12 months, 2020 American Community Survey 5-year estimates*. Retrieved from https://data.census.gov/table?g=0600000US2500344385&tid=ACSST5Y2020.S1701

[4] U.S. Census Bureau. (n.d.). *Households and families, 2020 American Community Survey 5-year estimates*. Retrieved from https://data.census.gov/table?g=0600000US2500344385&tid=ACSST5Y2020.S1101

National Flood Insurance Program Participation

The NFIP is a federal program created by Congress to mitigate future flood losses nationwide through sound, community-enforced building, and zoning ordinances and to provide access to affordable, federally backed flood insurance protection for property owners. The NFIP is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government that states that if a community will adopt and enforce a New Ashford floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses.[5]

INFRASTRUCTURE

Critical Facilities

A list of the critical facilities within the community is shown in ***Table 2***. The Town of New Ashford has very few municipal buildings and utilizes the Town Hall and Fire Station for numerous purposes. None of the facilities are within the flood prone areas but would all be vulnerable to the hazards that could impact the entire town.

Type	Name	Address
Fire	Fire Station	4 Ingraham Road
Health Services	Fire Station	4 Ingraham Road
Staging Areas/Data Center	Town Hall	188 Mallery Road
Public Works	Town Hall	188 Mallery Road
Emergency Operations Center (EOC)	Fire Station	4 Ingraham Road
Cell Tower		Brodie Mountain
Fire Tower/Repeater		Brodie Mountain
Sand/Salt Shed		Cemetery Rd

Table 2. *Critical Facilities in New Ashford, MA*

Additionally, there are several hotels in Town that host skiers, hikers, and other visitors coming to enjoy the beautiful scenery. These include the Springs Motel and New Ashford Motor Inn, both located on Route 7. There is also a large motorcycle parts distribution center located in Town, one of the few employers in New Ashford.

Public water/sewer service [Need to confirm this]

[5] Institute for County Government. (n.d.). Retrieved on October 28, 2022, from https://flicg.org/national-flood-insurance-program/

There is no public water service. Residents rely on local wells for their water supplies.

Schools

There is no public school system within the municipality. School-aged children are educated through the Mount Greylock Regional Public School District at schools in neighboring towns.

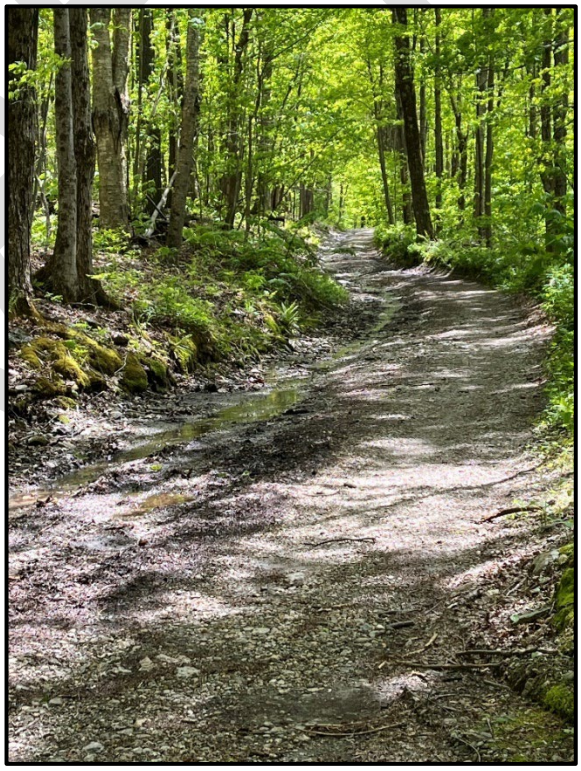
Transportation (roads, highways, rail, public transport)

There is one major U.S. route that passes through the center of Town (U.S. Route 7), and it is the main road through the community. Most of the other roads in Town are gravel roads, and some of those are closed during winter months. Erosion and washout are common along portions of the gravel roads.

There is no rail service, although there is nearby rail through Amtrack and CSX in the neighboring City of Pittsfield. The Town does not have a public transportation system. The nearest national airport is Albany International Airport in Albany, NY.

NATURAL RESOURCES

The largest natural resource in New Ashford is the forested area. Approximately 91% of Town is forested, providing a substantial tree canopy for the community. Much of the forest area is located on Mt. Greylock, Brodie Mountain, and Saddle Ball Mountain. Mt. Greylock is also home to the Mt. Greylock State Reservation many nature trails.



New Ashford also has several small waterways. The longest waterway is the Green River that runs north and south through Town. Several small brooks are tributaries to the Green River, including Thompson Brook and Mitchell Brook. There are also two ponds that connect to the Green river at Ingraham Road.

IMPACTS OF CLIMATE CHANGE

New Ashford, like other cities and towns throughout the Commonwealth, has seen in increase in climate hazards throughout the past few decades, and particularly, in the past few years. Extreme temperature changes have caused more likely scenarios of drought or excess precipitation, both

causing concern for the community and region. These threats have affected how New Ashford plans municipal budgets, highway staff, and their routine activities. These climate changes are also increasing natural threats from downed trees, increased power outages, and most importantly, increasing risks to the health and wellbeing of the residents.

SUMMARY OF COMMUNITY RESILIENCE BUILDING (CRB) WORKSHOP FINDINGS

CRB WORKSHOP

Leading up to the Workshop, the Core Team worked with input from Town officials to identify some of the top ongoing concerns and challenges for New Ashford. CMC took this information and researched previous planning and went on local site visits to understand the area's infrastructural, societal, and environmental hazards.

Prior to the CRB Workshop, core meetings involved discussing projects in Town including culverts, roadways, as well as how to get key stakeholders and underrepresented groups involved in the discussion. New Ashford utilized surveys to collect input from as diverse a group of community residents and stakeholders as possible given time and resources available.

The central objective of the workshop was to first review regional weather events from the past and climate change data and projections, then collect local data from attendees to help:

1. Define top local natural and climate-related hazards of concern;
2. Identify existing and future strengthen and vulnerabilities;
3. Develop prioritized actions for the Community; and
4. Identify immediate opportunities to collaboratively advance actions to increase resilience.

During the workshop, CMC presented participants with a summary of this research including climate change data for the State and the Town, survey results, and top hazards. Following the Community Resilience Building Workshop Guide, small breakout groups then completed individual matrices and reported their top 3-4 priority actions when the whole group reconvened. These actions were developed by the workshop participants to reduce the impact of natural hazards and to build resiliency. The lead facilitator then moderated a whole group activity to combine the ideas into a comprehensive list of possible actions. Each participant then voted for their top three actions. The votes were tallied and announced. The Lead Facilitator sought and obtained consensus from the participants in supporting the final list of priority actions and understood that they also did not want to lose track of all the other important actions that were identified.

TOP HAZARDS/VULNERABLE AREAS

To facilitate the discussion of climate change resilience, stakeholders identified the top four hazards to New Ashford before discussing vulnerabilities and strengths. The natural hazards for the Town of New Ashford are:

- flooding/ice jam,
- severe storms (including thunderstorms, wind, hail, and lightning),
- tornado,
- landslide,
- earthquake,
- wildfire/brushfire,
- extreme temperatures & drought,
- winter storms (blizzard/snow/ice storm),
- hurricane/tropical storm, and
- dam failure.

The top four hazards were identified as:

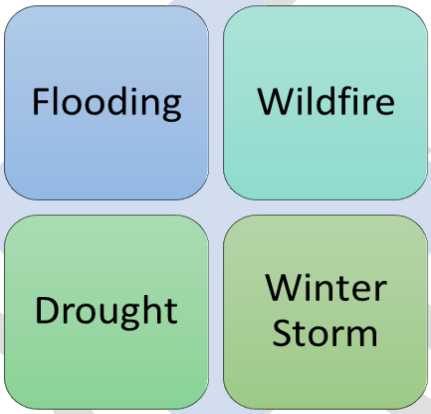


***Figure 1**. Top four hazards to New Ashford*

AREAS OF CONCERN

The Core Team and CRB Workshop participants consistently discussed several areas of concern. The most often referenced concern was the aging and, in many cases, deteriorating culverts in Town. The other primary concern was the lack of a secondary water source for the Fire Department.

Perhaps less urgent but no less critical, a major societal concern is the limited number of volunteers performing official Town functions. There is also a large proportion of people over 65 in these roles. Fewer younger people have been stepping into official roles, including the local volunteer Fire Department. This creates a situation where the Town may be left without a sufficient number of experienced or interested officials in the next decade. Additionally, seniors, even those who are self-reliant, are at greater risk from natural hazards, presenting additional challenges in planning for and responding to emergency situations. The Town also does not currently have an emergency communication/notification system.

The condition of the forested area covering most of the Town is an ongoing concern. Dying and dead trees increase annually, increasing the risk of wildfires while decreasing the Town's tree canopy. Additionally, beaver activity complicates drainage systems at best, and creates localized flooding events at worst.

The remote nature of the Town is the final variable to understand in assessing the Town's vulnerabilities. The police and EMT services are not located in New Ashford. This increases response times, potentially losing critical minutes during an emergency. And, while the Fire Department is local, its reliance on a diminishing number of volunteers has a similar effect. Mutual aid ensures support, but, as above, critical time is lost while the emergency responders travel to New Ashford from surrounding communities.

CURRENT CONCERNS AND CHALLENGES

Overall, New Ashford is expected to be similarly or less impacted by climate change than most of Massachusetts. Average temperatures are expected to continue to rise, resulting in fewer days below freezing, the loss of growing green days, and substantially more days over 90 degrees. The

Town is also predicted to have more annual precipitation, extreme precipitation, and, simultaneously, consecutive dry days.

Based on the existing challenges due to natural hazards, the expected increase in extreme precipitation, annual precipitation, and consecutive dry days are all particularly concerning to the Town.

Extreme precipitation events already regularly impact New Ashford. These events **[WE NEED 2 OR 3 EXAMPLES FROM THE TOWN]** result in falling trees as well as overburdened culverts with localized flooding. The falling trees interrupt power and telecommunications, and the localized flooding cuts off evacuation routes, slows emergency responders, and further deteriorates the affected roadways. These events also increase the chances of a beaver dam breaching, as it did in **[DATE/YEAR]**.

The increase in annual precipitation will also make trees along the powerlines more vulnerable to falling by increasing the amount of time the ground is softened by water. It will also increase the forces exerted on the Town's public, private, and beaver dams.

Finally, the expected increase in both temperature and consecutive dry days will increase the wildfire and brushfire risk. The increased risk is because the downed trees in forested areas will be drier and more susceptible to fire. The tree canopy will continue to decrease under these circumstances, too, resulting in more dead trees to fuel a fire and the faster spread of fire with less healthy green trees to slow its advance.

SPECIFIC CATEGORIES OF CONCERNS AND CHALLENGES

Infrastructure

Many of the concerns expressed prior to and during the CRB Workshop were about culverts. There are many water run-off areas near roads, as well as a few brooks and ponds in lower lying areas that all present challenges to channeling water to prevent back-ups or localized flooding. Beaver activity in several ponds and in some wetlands increases the risk as well as adds another layer of difficulty in managing the water flow through the Town. The culverts of the greatest concern are on Ingraham Rd, Beach Hill Rd, Bauer Rd, and Mt. Greylock Rd.

The second area of concern was the Town's lack of an adequate water supply for use as a water source for the Fire Department during emergency situations. The Fire Department has access to a few bodies of standing water, but during periods of drought or in the event of a major fire the available water supply is likely to be inadequate. Similarly, dry hydrants are a recurrent issue.

Electric power is supplied to the Town from Eversource. New Ashford is located at the end of a main supply line, though, so there is no redundancy. If a main line goes down, the Town goes without power until a repair is made. Being at the end of the supply line

and comprising relatively few customers often means that those repairs are low priorities for Eversource.

Societal

The Core Team discussed several societal challenges. Most of the discussion focused on the lack of a Town-wide public notification system. In the event of a natural disaster, public officials would have limited methods available to provide emergency instructions, information, or updates to residents. Second, a large proportion of the citizens are aged 65 or older. All the residents of New Ashford are known to be hearty, independent, and self-reliant, including those of advanced years. Those 65 and older are considered to be a Climate Vulnerable Population because they are at risk of greater impacted by natural hazards.

The final topic of concern was about the Town's Fire Department. The Fire Department has a local Fire Chief, but the rest of the Department is made up of volunteers. This situation poses several concerns. First, the volunteers may not be in New Ashford when needed. Some of the volunteers live or work in neighboring communities, especially given the lack of business opportunities in Town, so they cannot always respond in a timely manner. Second, the number of volunteers has been consistently decreasing over time. This is affected by the Town getting older, but it is also due to a decreased interest in volunteering for Town service. Finally, like many other positions within the Town, the age of many members of the volunteer Fire Department are advanced.

Environmental

Environmental vulnerabilities in New Ashford have clear connections to both natural hazards and climate change. The Emerald Ash Borer has arrived from the Midwest after years of migration from the Midwest. Approximately half the trees on Mt. Greylock are Ash, and the borer is aggressive and thorough. As it continues to spread, the expectation is infection and loss of approximately half the trees in New Ashford. The resulting loss of tree canopy decreases the Town's resilience to increasing temperatures and precipitation, and the dead wood increases the potential of widespread wildfires. Any additional species that targets the forests in the area will compound this effect.

The existing trees in Town also pose a risk to the electric and telecommunication lines across Town. Trees near powerlines are not well maintained, so trees that are infected, dying, or uprooting due to soft ground during extreme or prolonged precipitation pose an ongoing threat. Twenty-seven trees were identified by the Town and Eversource as requiring removal early in 2022 and are still awaiting removal late in 2022.

The beaver population also continues to increase, resulting in more and larger beaver dams. These dams increase the danger of localized flooding by altering the natural water flow and drainage in the immediate area. When those dams are breached by severe storms of extreme precipitation, the resulting sudden, uncontrolled water overwhelms culverts resulting in localized flooding.

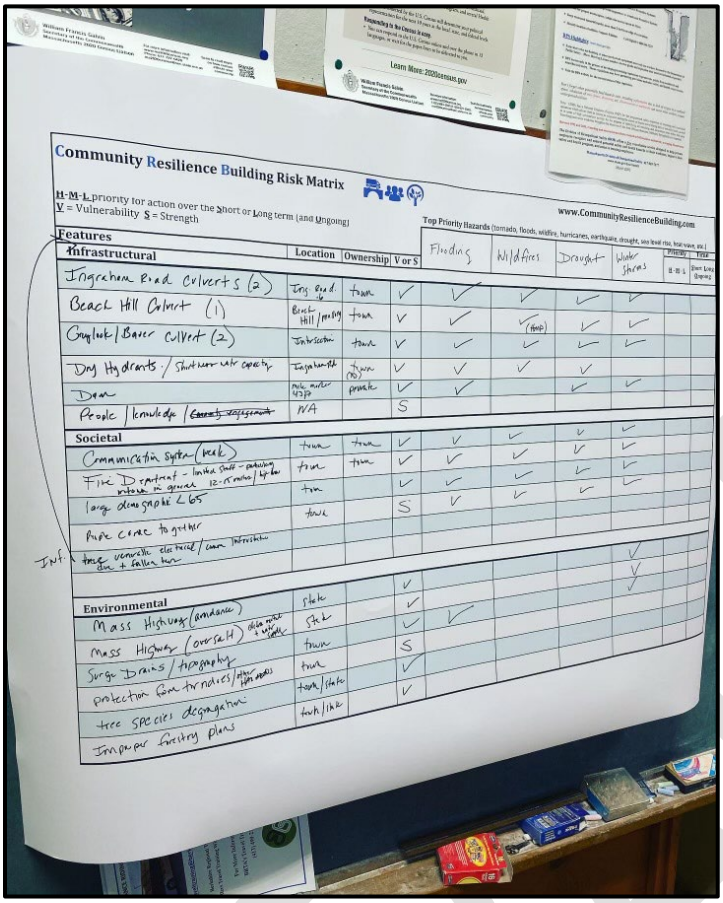
Another environmental concern relates to winter storms and the elevation of New Ashford relative to surrounding Towns and, more especially, the Regional DOT Headquarters in South Williamstown. Winter storms are common in the area, but the changeover from rain to snow can happen in New Ashford while it is raining in surrounding communities. The result is that snow removal and road treatments do not happen when needed, leaving Route 7, the main road running through New Ashford, unsafe for travel. Alternately, when the rain/snow line has dropped and the entire area is experiencing snow, the amount of salt used on Route 7 in New Ashford is high. The resulting runoff affects both the water supply as well as the vegetation in the surrounding areas.

Last but certainly not least, the topography of the Town paired with aging surge drains and culverts, creates ample opportunities for localized flooding during periods of extreme precipitation.

CURRENT STRENGTHS AND ASSETS

The Town functions and operations are managed by a dedicated core group of individuals. Most of these individuals hold multiple roles and/or have been volunteering for extended periods of time. They are also keepers of the Town's history and evolution. They can as easily talk about people and events from generations past as they can recall detailed information about major events, repairs, and upgrades to the Town's infrastructure. These people will continue to be invaluable resources to share lessons previously learned as well as leaders to mitigate the impact of future climate change.

Within Town, there is a strong sense of community and mutual support. When a disaster or emergency occurs, those who can help respond. Neighbors help each other when and however they can during emergencies or other disasters. Given the lack of volunteers for official positions, though, the Fire Chief has been engaging in ongoing recruitment efforts to expand the size of the department.



Because the Town is limited in numbers and resources, mutual aid agreements are a necessary asset to ensure necessary services. These agreements cover services like firefighting as well as emergency support. Similarly, New Ashford also has agreements with the Massachusetts State Police for police services and contracts privately for ambulance services.

The Town has also recently ensured all homes have access to internet service. This service is a valuable asset for emergency communication as long as the service lines are not impacted by the natural hazard event. Most of the Town currently has cell service, but there are known gaps in coverage. The Town shared that the Town Hall is a designated shelter and has an emergency generator.

TOP RECOMMENDATIONS AND STRATEGIES TO IMPROVE RESILIENCE

The top actions discussed in the CRB workshop were:

1. *Upsize Culverts on Ingraham Road*. This project would consist of a feasibility study, engineer design and construction. The areas on both sides of Ingraham Road have wetlands as well as residential homes, and the Town will need to determine how to protect the land, as well as keep the road accessible for Fire Operations/Emergency use during the implementation. The culverts that are currently existing are not functioning with the amount of water that is on the (east??) side of the road, draining to the (west?) This area, known as Ingraham Road, goes into the Town of Lanesboro and there may be opportunity for maintenance in both communities to protect this throughway to both communities.

2. *Emergency Water Supply*. Identify a solution for an emergency water supply for Fire Protection. This project may include a feasibility study, a hydrant study, hydrant access, locations for underground storage tankers, a place for a man-made pond, or other ideas to have a second water supply source in the Town. With the number of trees and the threat of wildfires, the Town does not have enough resources and the town is in higher risk for climate hazards. The current town reservoir is 9.5 miles in both directions to protect land or building in a fire disaster.

3. *Diseased Tree Removal and Plan for Protecting Existing Forestry*. As mentioned in the winter storm hazard section, storms take down trees, which in turn impacts resident safety and access. The electrical, communication system, access and infrastructure are all at risk. Approximately 50% of trees are diseased, which have caused an increase in power outages due to downed dead trees. From the municipality side, the town would also like to invest in a liquid tanker as an alternative to rock salt, to help protect the trees along the roadways that are treated during winter storms. This project could also be conceived as a regional project, as all Berkshire communities are impacted by this issue.

4. *Recruitment/Retention and marketing and education for the Fire Department and First Responders*. The New Ashford Fire Department, with their large need for fire protection in an area with the climate threat of wildfires as well as for other critical responders in emergency situations, does not have the funds to properly recruit and retain an on-call Fire Department that meets the Town's needs. Many volunteers are out of Town during the work week, leaving mutual aid and one water supply as the source of protection. The Town would like to mitigate response time and bring better trainings and education to the community at large on fire safety.

5. *Code Red/Emergency Management Communication*. The Town needs to enhance their emergency communication system to alert all residents in case of an emergency. The alerts could include warnings about climate disasters or hazards such as winter storms, tornadoes, or wildfires as a way to protect residents by notifying them before a severe weather event or directing them to emergency shelters or services after.

6. *Equipment for Fire Department to Fight Large Fires.* The Town needs funding for additional equipment to respond to forest fires and large-scale fires. Much of the forested area in New Ashford is state and federally controlled, so the municipality relies on the assistance of these parties for maintenance and protection of that land.

7. *Feasibility Study of Dams*. The Town would like to perform a feasibility study on all dams, incorporating an upstream and downstream solution for water supply, particularly in terms of beaver damage and flooding. This could be incorporated into a regional study.

8. *Upsize Beach Hill and Greylock/Bauer Culverts*. Both culverts need upgrades. Although Ingraham Road's culverts are the priority, the Town sees the need to upgrade all three of these culverts in Town for safe roadways/infrastructure.

HAZARD IDENTIFICATION AND RISK ASSESSMENT

INTRODUCTION

To begin the risk assessment for New Ashford, the Core Team reviewed the environmental hazards included in the Town's 2013 HMP. The Core Team discussed whether the same hazards remain relevant and if any other hazards should be added to the assessment. Additionally, the Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) [6] was used as a source for other potential hazards to include in this HMP. The Core Team agreed that the previous list of hazards remained relevant for New Ashford, and no additional hazards were included. Further, Core team members were invited to rank those hazards by their frequency of occurrence, area of impact (location) and severity of impact. Those results were used as a primary source of information for the risk assessment.

In addition to the discussions during Core Team meetings concerning the hazards, an online hazard survey was made available to the public that included the opportunity to rank the agreed-upon hazards as well as to add additional hazards if necessary. The public was notified of the option of completing this survey through the Town's Selectboard via an email notification system. The anonymous responses were collected using Google Forms, and the data were reviewed and factored into the final risk assessment.

An additional survey was also made available for Climate Vulnerable (CV) Populations living in Town. The primary hazard survey concluded with a brief definition of Climate Vulnerable Populations and a link to a secondary CV survey. Respondents were invited to use the link if they belong to the CV population in New Ashford. The CV survey sought their impressions of prior experiences and expectations of future experiences in dealing with emergency situations due to natural hazards in New Ashford. It included questions about how belonging to a CV population might change their experience when compared to other residents that are not a part of a CV population. Responses for this survey were also collected on Google Forms and used in completing the risk assessment.

NATURAL HAZARD RISK ASSESSMENT METHODOLOGY

The relevant hazards were reviewed based on the historical data available, the previous HMP, the SHMCAP, and the feedback and experiences of the members of Town that contributed to the risk assessment. To determine the risk posed by each hazard, information was gathered concerning

[6] Massachusetts Emergency Management Agency. (2013). *Commonwealth of Massachusetts State Hazard Mitigation Plan*. Massachusetts Department of Conservation and Recreation. Retrieved from https://resilientma.mass.gov/shmcap-portal/index.html#/

the description of the hazard, the location affected, the extent, previous occurrences, and the probability of future events. The vulnerability of the Town to each hazard was then determined based on the area of impact, frequency of occurrence, and magnitude or severity of the hazard.

HAZARD DESCRIPTION

The natural hazards for the Town of New Ashford are flooding/ice jam, severe storms (including thunderstorms, wind, hail, and lightning), tornado, landslide, earthquake, wildfire/brushfire, extreme temperatures & drought, winter storms (blizzard/snow/ice storm), hurricane/tropical storm, and dam failure. Many hazards will have a similar impact or can be interrelated within the community. For example, a flooding event may result from a severe storm or winter storm that brings heavy precipitation.

LOCATION

The location is a statement of the area impacted by the hazard. Three categories were used during the risk assessment.

Rank	Approximate Size of Area of Town Affected
Low	Less than half of Town
Medium	Half to 75% of Town
High	More than 75% of Town

EXTENT

The extent of the hazard is measured based on existing measures of strength, magnitude, or severity. Each hazard category's scale is unique to that hazard. The measure of extent is done retroactively, meaning after the natural hazard event has taken place

PREVIOUS OCCURRENCES

Data for previous occurrences were collected from NOAA or other authorities that collect and share historic weather-related data. Core team members and survey responses were then reviewed to detail how significant events affected the Town or to provide information on events not reflected in the source data.

PROBABILITY OF FUTURE OCCURRENCES

Trends in historic data were used to project the likely probability of future events for hazards. Additionally, projections from ReslientMA.org were also reviewed to account for the impact of climate change on future trends. To conduct the risk assessment, the following categories were used:

Rank	Annual Probability of Future Events (estimated)
Low	Less than 25% chance
Medium	26% - 75% chance
High	76% - 100% chance

IMPACT

The impact of each hazard was categorized. Impact incorporates the extent measure, but it makes a prediction about the expected effect on the Town in the event of a future natural hazard event. The impact is expressed in dollars; buildings, critical facilities, and infrastructure; and/or land use/development trends as applicable.

Rank	Anticipated dollar amount of damage in the event of hazard event
Low	Less than $800,000
Medium	$800,000 - $1,000,000
High	More than $1,000,000

VULNERABILITY

The vulnerability posed by each hazard was determined by factoring the location, probability of future events, and the assessed impact of the hazard on the community. A final rating was assigned according to the following scale:

Rank	Vulnerability posed by hazard
1	High risk
2	Medium risk
3	Low risk

The ranking applied to each hazard is not derived from a specific formula. Instead, it is a judgement made by reviewing all the available data and relating that information to the discussions with the Core Team and CRB Workshop participants. While not quantitative, the ranking reflects the concerns of the Town through the lens of historical data and climate change projections.

Hazard	Location	Probability of Future Events	Impact	Vulnerability
Flooding/Ice Jam (G – General, L – Localized)	Low (*both*)	Low (*G*) High (*L*)	High (*G*) Low (*L*)	Medium (both)
Severe storms (thunderstorms, wind, hail, lightning)	High	High	Low	Medium
Tornado	Low	Low	High	Medium
Landslide	Low	Low	Low	Low
Earthquake	High	Low	Low	Low
Wildfire/Brushfire	High	Medium	High	High
Extreme Temperatures & Drought	High	High	Medium	High
Winter Storms (blizzards/snow/ice storms)	High	Medium	Medium	High
Hurricanes & Tropical Storms	High	Low	Low	Medium
Dam Failure	Low	Low	Low	Low

***Table 3**. Hazard risk assessment summary*

FLOODING/ICE JAM

DESCRIPTION

Flooding occurs when a large quantity of water pools or collects in areas outside of water bodies. In New Ashford, flooding is often the result of natural weather events including sustained precipitation, extreme precipitation, or excessive run-off from quick spring thaws. Another contributor to flooding is the failure of a man-made or beaver dam that results in a sudden release of water that overwhelms water bodies downstream. Also, interruptions in natural or normal water flows due to blockages or redirection of the water flow often result in flooding. These events can be caused by river or brook redirection as part of development, undersized or blocked culverts, or the formation of beaver dams.

Ice jams are another possible cause of flooding. Ice jams are formed when cold temperatures freeze water on top of rivers, usually forming in clumps. These clamps slow the flow of the river, potentially leading to damming situations. When an ice jam quickly releases retained water, flooding can occur downstream.

FEMA produces maps that outline the predicted floodplains in the event of storms of varying degrees. A floodplain is an area, usually located along or downstream of natural waterways, that will be underwater given a surge or rise in the water level. These maps are referred to as FIRM, standing for Flood Insurance Rate Map, and are used by FEMA to set rates for properties as part of the National Flood Insurance Program (NFIP). These maps are also useful for planning activities at the state and local level as they can predict facilities that will likely be affected during various flooding scenarios.

***Figure 2**. Floodplain map of New Ashford. The green horizontal stripes indicate 100-year flood zone*[7]

Floodplains are important areas because they are part of the natural flood management system. Specifically, the floodplain will absorb excess water into its soil and then release it back as groundwater and surface water over time, helping to restore the original water boundaries. The soil in the floodplain is also naturally fertile, in part due to the flooding cycle. Flooding events leave deposits of sediment that provide nutrients to the soil. These areas, therefore, became popular areas to inhabit because the soil was good for agricultural use and the flowing water was used to power mills. Unfortunately, development in floodplains has two undesired outcomes. First, the floodplain floods regardless of development. Structures located in floodplains risk damage or loss, as well as a danger to the health and safety of people in those structures during a flooding event. Second, development in floodplains by definition means alterations to the floodplain and/or the adjoining waterway. Alterations of these types increases the risk of flooding and decreases the effectiveness of the floodplain. Therefore, as development in these areas increases, so does the risk and severity of flooding events.

LOCATION

[7] Resilient MA. (n.d.). *Climate Change Clearinghouse for the Commonwealth: Map Viewer*. Retrieved from https://resilientma.mass.gov/map/

Flooding in New Ashford has historically been localized. The localized flooding occurs as a result of an extreme precipitation event, the failure of a beaver dam or ice jam resulting in a sudden rush of water that overwhelms existing drainage systems, or due to blockage of the existing drainage systems. Areas most prone to localized flooding are near culverts. All the culverts in New Ashford were constructed to an expired standard. As the annual precipitation and number and intensity of extreme precipitation events has increased over time, the effectiveness of the culverts has decreased. Additionally, some of the culverts are aging and, therefore, have become less effective. These culverts represent the weak points in the Town's flood mitigation and waterway management system.

Because of the limited waterways and geography of the community, a widespread or riverine flooding within Town is unlikely in any given year. FEMA has identified areas along the Green River as being within the 100-year floodplain. This area also follows along Route 7 as it runs north and south through town. Given the proximity to the river and the roadway, the floodplain is, unsurprisingly, developed. The location ranking for flooding in new Ashford is, therefore, **low**.

EXTENT

Flooding events in New Ashford can be classified as either riverine or localized. Riverine flooding occurs during sustained storms where ongoing precipitation raises water levels beyond their channels causing water to enter the floodplain. The risk of these events can be increased in Spring months if the precipitation is compounded by runoff from melting snow and ice in the mountains. A large dam failure can also cause conventional flooding, but there are no public dams in New Ashford. Riverine flooding takes days or weeks to resolve and affects larger areas of Town.

Localized flooding occurs in a specific area and results from different citations than conventional flooding. These events include the failure of a beaver dam, a blocked or undersized culvert, or a short, high-precipitation weather event that overwhelms existing drainage capabilities.

PREVIOUS OCCURRENCES

New Ashford has experienced several localized flooding events of note. One of the most significant flooding events in New Ashford occurred in June of 2000. Summer storms caused flash flooding that washed out a bridge on Beach Hill. This bridge was washed out twice, but it has been replaced.

Another notable event occurred on Ingraham Road close to its intersection with Route. 7. Immediately to the south of the road, the Green River and a contributory with two ponds flow toward the road. There are then two small culverts that allow the respective water ways to flow under Ingraham Road. On the north side of the road, these two separate waterways join and then continue to flow north as the Green River. Also of note, the beaver population in the ponds routinely builds dams.

In [20XX], a beaver dam in one of the ponds south of Ingraham Road failed during a period of heavy precipitation. The sudden release of water overwhelmed the culvert running under the road, flooded the road, and flooded a private residence north of Ingraham Road. The remnants of Tropical Storm Henri in 2021 also caused localized flooding to the same areas when the same existing culverts were overwhelmed. This area has routinely flooded, albeit less significantly, during less severe storms, too.

Other areas in Town that are prone to localized flooding include **[ARE THERE OTHER AREAS THAT FLOOD REGULARLY?]**. Localized flooding events occur approximately annually. Additionally, the unpaved roads in New Ashford, including Greylock Road, Bauer Road, and Rockwell Road, are prone to washout during periods of heavy precipitation. Like other flooding events, the road washout is particularly common when culverts running under the roads become blocked forcing water onto the roadway. It should also be noted that the maintenance and clearing of culverts in neighboring towns along these shared roads can also impact the road within New Ashford.

Table 4 contains the NOAA's recorded flooding events from 1996 to present for New Ashford and its neighboring communities.

Location	Begin Date	End Date	Flood Type	Property Damage (Dollars)	Flood Cause
BERKSHIRE COUNTY (COUNTYWIDE)	9/16/1999	9/17/1999	Flash Flood	$250,000	N/A
NEW ASHFORD	6/25/2000	6/25/2000	Flash Flood	$37,000	N/A
LANESBOROUGH	6/25/2000	6/25/2000	Flash Flood	$28,000	N/A
CHESHIRE	6/25/2000	6/25/2000	Flash Flood	$14,000	N/A
LANESBOROUGH	8/3/2000	8/3/2000	Flash Flood	$15,000	N/A
CHESHIRE	12/17/2000	12/17/2000	Flash Flood	$0	N/A
WILLIAMSTOWN	7/29/2009	7/29/2009	Flash Flood	$0	Heavy Rain
WILLIAMSTOWN	5/29/2013	5/29/2013	Flash Flood	$0	Heavy Rain
WILLIAMSTOWN	5/29/2013	5/29/2013	Flash Flood	$0	Heavy Rain
GREYLOCK	5/29/2013	5/29/2013	Flash Flood	$0	Heavy Rain
WILLIAMSTOWN	5/29/2013	5/29/2013	Flash Flood	$0	Heavy Rain
WILLIAMSTOWN	8/9/2013	8/9/2013	Flash Flood	$0	Heavy Rain

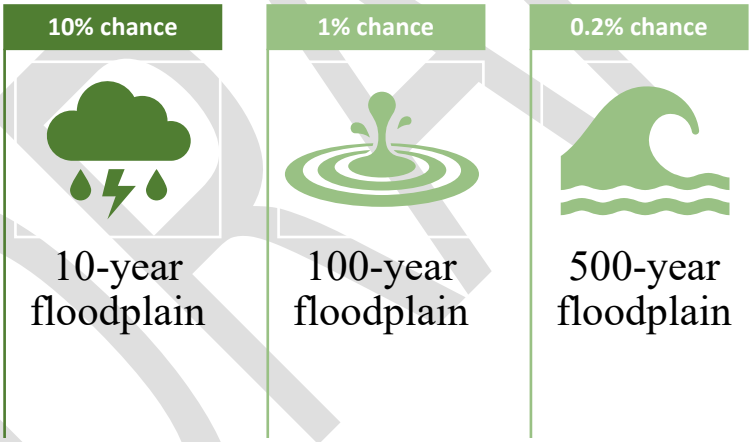
CHESHIRE HARBOR	6/25/2014	6/25/2014	Flash Flood	$0	Heavy Rain
HANCOCK	7/28/2014	7/28/2014	Flash Flood	$277,000	Heavy Rain
CHESHIRE	1/12/2018		Flash Flood	$0	Ice Jam
TOTAL	**15 Events**			**$621,000**	

***Table 4**. Flooding events in New Ashford and neighboring communities*[8]

PROBABILITY OF FUTURE EVENTS

FEMA defines floodplains in terms of the frequency that water will reach an area. A 10-year floodplain has a 10% chance of flooding annually. A 100-year floodplain will flood approximately once every 100 years, translating to a 1% chance annually. Flood waters will reach a 500-year floodplain once every 500 years, meaning there is 0.2% chance of occurrence annually. FEMA's current FIRM for New Ashford only includes a 100-year floodplain, so the risk of riverine flooding in New Ashford is approximately 1% annually. Even with predicted increases in extreme precipitation events and annual rainfall, the riverine flooding potential in Town is **low**.

Floodplain categories are based on the annual chance of flooding



[8] National Centers for Environmental Information. (n.d.). *Storm Events Database*. Retrieved August 2, 2022, from https://www.ncdc.noaa.gov/stormevents

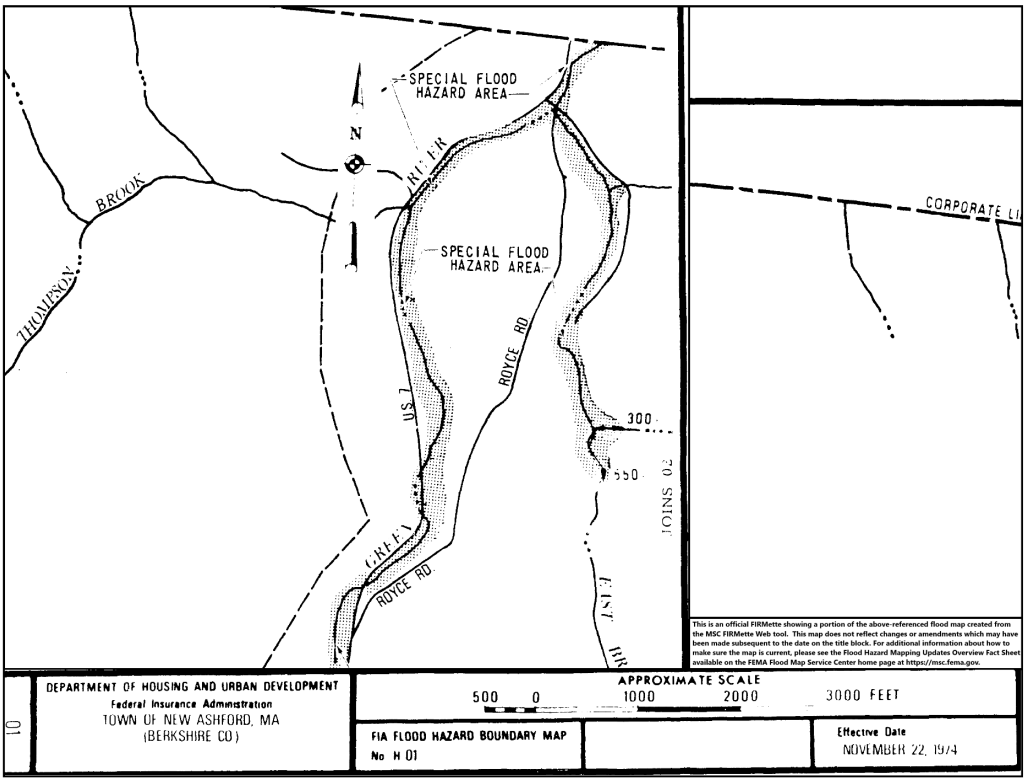


***Figure 3**. FEMA Flood Hazard Boundary Map (1974). This is the current FIRM used by FEMA for New Ashford. It was reaffirmed in 1996, and the only modifications were three LOMCs.*

In any given year, localized or flash flooding is a more probable occurrence. New Ashford makes ongoing efforts to clear culverts, manage beaver dams, and maintain other natural drainage, but the limited resources and remote nature of critical features can hamper these efforts. As noted previously, when an extreme precipitation event or failure of a beaver dam occurs, the drainage systems can be easily overwhelmed. These events result in localized flooding as the overflow fills relative low points in the immediate area. Allowing for the number of beaver dams and culverts in Town and the expected increase in extreme precipitation events, the risk of localized flooding each year is **high**.

IMPACT

The impact of any flooding event depends on the location and the amount of water involved. A 100-year flood of the Green River would be the largest flooding event in New Ashford.

Currently, there are 12 dwellings in New Ashford's 100-year floodplain representing 11.5% of the dwellings in Town. Assuming damage to 50% of structures in that area and, based on the estimated private property value of the Town of New Ashford of $30,825,600, the monetary risk of a riverine flooding event is calculated as 30% of 15% of the total value, or $1,772,472.

Smaller, localized flooding events would affect fewer dwellings. It is estimated that 1% (1/104) of dwellings would be affected, with similar damage to the dwelling (50%). This results in up to $154,128 in damages. These estimates do not include the value of damage to infrastructure like roads, culverts or bridges that could also be impacted by flooding events.

Based on these values, the impact of a riverine flooding event in New Ashford is **high** and the impact of a localized flood is **low**.

VULNERABILITY

Based on the calculated factors above, the vulnerability of New Ashford to flooding is **medium**.

***Figure 4**. (left) Floodplain map with an overlay of impervious surfaces (indicated in gray, red, and purple) showing developed land (e.g., dwellings, roads) that decrease water infiltration into the ground.*[9]

SEVERE STORMS (THUNDERSTORMS, WIND, HAIL, LIGHTNING)

DESCRIPTION

A storm is produced by a cumulonimbus cloud and accompanied by lightning and thunder. Any thunderstorm that is over 40 mph or produces hail is considered a severe thunderstorm. When a thunderstorm produces winds greater than 55 mph, it is considered a tornado. Traditionally, thunderstorms are associated with warm, humid air in the summer months, usually toward the end of a humid afternoon.

[9] Resilient MA. (n.d.). *Climate Change Clearinghouse for the Commonwealth: Map Viewer*. Retrieved from https://resilientma.mass.gov/map/

LOCATION

According to NOAA, severe storms are measured by affecting more than 10 percent of the area. Although a high risk is rare and implies a dangerous situation and the possibility of a major severe weather outbreak. Typically, thunderstorms and windstorms move through an entire region, which indicates a greater impact of the Town. Due to the topography of New Ashford, some higher ground areas could be more impacted by severe storm damage, but any severe thunderstorm or wind event will affect the entire Town. Therefore, the affected location would be **high**.

EXTENT

The TS scale rates thunderstorms from a weak TS1 to a dangerous TS5. Average rate of rainfall, maximum wind speeds, hail size, lightning frequency, tornado potential and capacity for damage are factors in determining the scale rating.

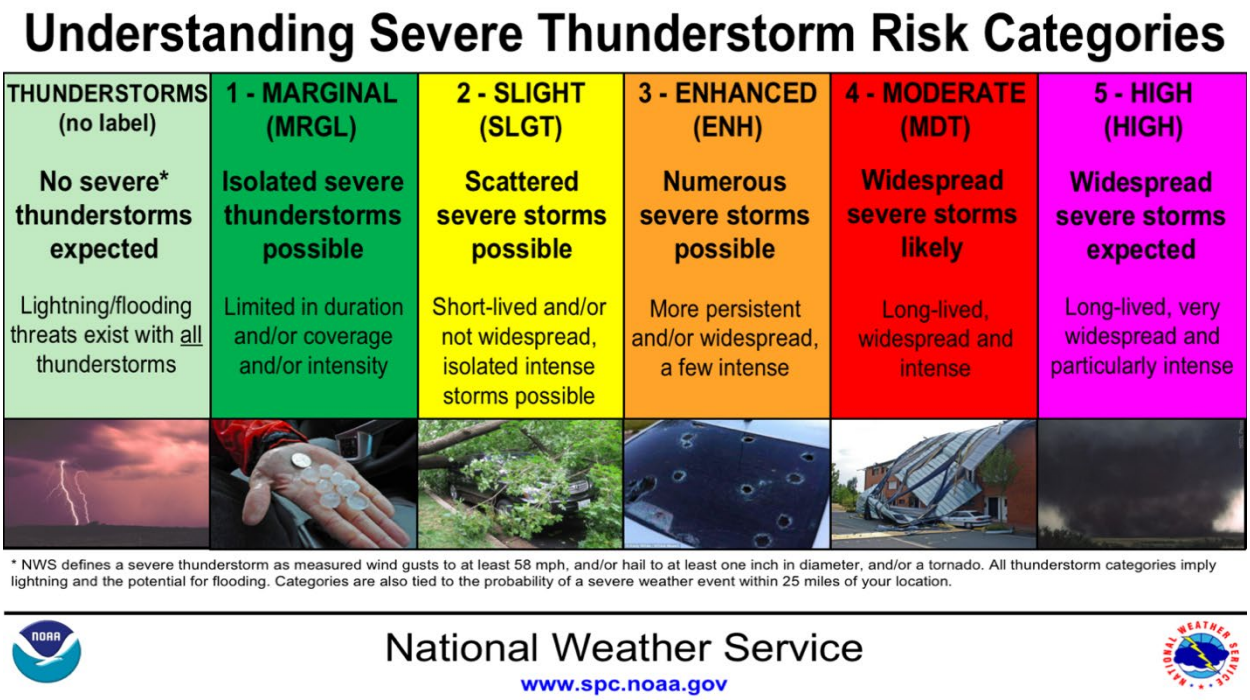


***Figure 5**. Understanding severe thunderstorm risk categories*[10]

PREVIOUS OCCURRENCES

According to NOAA, there were 44 events were reported between 09/01/2021 and 08/31/2022 (365 days) in the Berkshire Region. A summary of the events is reported in ***Table 5*** below:

[10] National Weather Service. (1970). *Storm prediction center: SPC products*. National Oceanic and Atmospheric Administration. Retrieved on October 26, 2022, from https://www.spc.noaa.gov/misc/about.html

Number of County/Zone areas affected:	**1**
Number of Days with Event:	**11**
Number of Days with Event and Death:	**1**
Number of Days with Event and Death or Injury:	**1**
Number of Days with Event and Property Damage:	**1**
Number of Days with Event and Crop Damage:	**2**
Number of Event Types reported:	**1**

***Table 5**. Thunderstorm wind summary, Berkshire County*

Location	Date	Type	Magnitude	Deaths	Property Damage	Crop Damage
Pittsfield	09/08/21	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Dalton	10/16/21	Thunderstorm/Wind	78 kts. EG	0	0.00K	0.00K
Risingdale	10/16/21	Thunderstorm/Wind	45 kts. EG	0	0.00K	1.00K
Windsor	10/16/21	Thunderstorm/Wind	55 kts. EG	0	0.00K	0.00K
Bonny Rigg Corners	11/12/21	Thunderstorm/Wind	45 kts. EG	0	1.00K	0.00K
Cheshire	12/11/21	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Hancock	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Adams	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Adams	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Lenox	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Adams	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Dalton	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Pittsfield	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Interlaken	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Pittsfield Airport	03/07/22	Thunderstorm/Wind	56 kts. MG	0	0.00K	0.00K
Stockbridge	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Stockbridge	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Sheffield	03/07/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Richmond Furnace	05/16/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Gr. Barrington Airport	05/16/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K

Sheffield	05/16/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Monterey	05/16/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Becket	05/16/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Washington	05/16/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Farnams	05/22/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Williamsville	05/22/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Lee	05/22/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Becket	05/22/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Richmond Furnace	07/12/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
West Stockbridge	07/12/22	Thunderstorm/Wind	50 kts. EG	1	0.00K	0.00K
West Stockbridge	07/12/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Lenox	07/12/22	Thunderstorm/Wind	73 kts. EG	0	0.00K	0.00K
Stockbridge	07/12/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Great Barrington	07/12/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
East Otis	07/12/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Otis	07/12/22	Thunderstorm/Wind	55 kts. MG	0	0.00K	0.00K
East Otis	07/12/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Lanesborough	07/24/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Lenox Dale	07/24/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Lanesborough	07/24/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Glendale	08/04/22	Thunderstorm/Wind	40 kts. EG	0	0.00K	1.00K
Pittsfield Airport	08/04/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Stevens Corner	08/26/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
West Stockbridge	08/26/22	Thunderstorm/Wind	50 kts. EG	0	0.00K	0.00K
Totals:	**44**			**1**	**1.00K**	**2.00K**

***Table 6**. Severe thunderstorm and wind events from 9/1/21 - 8/31/22*[11]

[11] USA.com. (n.d.). Retrieved on November 29, 2002, from http://www.usa.com/hampden-county-ma-natural-disasters-extremes.htm

PROBABILITY OF FUTURE EVENTS

Per the SHMCAP, there are approximately 10 to 30 days of thunderstorm activity in the state each year, and 10 – 40% of those storms are likely to be severe. Using the highest end of the range, New Ashford can expect up to 12 severe thunderstorms per year. Therefore, the probability of a severe thunderstorm in New Ashford each year is 100%, or **high**.

IMPACT

Most buildings in town do not meet the requirements of Design Wind Speed Codes, so the resulting damage to those structures would be greater compared to the expected damage of structures built to that standard. Although the Town has limited developed areas, the potential risk of downed trees, power outages, and fires should be taken into consideration in forest areas of the municipality.

To approximate the potential impact to property and people that could be affected by severe thunderstorms or wind, the total value of property and crop damage for the recorded severe thunderstorms reported by NOAA (see ***Table 6***) was divided by the number of severe thunderstorms. This provides an average cost of damage per storm. Multiplying that the number of storms anticipated each year, New Ashford can expect damages of less than $1000 annually. The impact ranking would, therefore, be **low**.

VULNERABILITY

Based on the assessment of these hazards, New Ashford has a vulnerability ranking of **medium** from severe thunderstorms and winds.

TORNADO

DESCRIPTION

According to The National Weather Service, tornadoes are rotating columns of air that extend from cumulus clouds to ground level. The wind speeds associated with the rotation can reach speeds over 200 miles per hour. Our collectively shared image of a tornado is made of water droplets and other particulates (i.e., dirt and debris) that is caught in the rotating column or funnel. Tornadoes are most common in the summer months, and, in Massachusetts, they are most prevalent in the central part of the state. Tornadoes are violent and destructive, typically destroying everything along their path.

LOCATION

It is difficult to predict the specific location a tornado will form. While anything the tornado contacts is likely to be devastated, the damage is typically limited to the tornado's path and area immediately adjacent. Damage beyond that area tends to be limited because the wind speeds

quickly decrease outside the funnel. Therefore, any damage would be the result of materials ejected from the funnel or from precipitation associated with the storm. Therefore, the impact on location is **low** with an estimated 10% of structures affected.

EXTENT

Tornadoes have been classified using the Fujita Scale (F Scale) or Enhanced Fujita Scale (EF-Scale). The F Scale rates a tornado based on a damage assessment of the area affected by a tornado. The wind speed ranges associated with an F Scale rating are estimated based on the damage caused by the tornado.

F Scale	Character	Estimated winds	Description
Zero (F0)	Weak	40-72 mph	**Light Damage.** Some damage to chimneys; branches broken off trees, shallow-rooted trees uprooted, sign boards damaged.
One (F1)	Weak	73-112 mph	**Moderate damage.** Roof surfaces peeled off; mobile homes pushed foundations or overturned; moving autos pushed off road.
Two (F2)	Strong	113-157 mph	**Considerable damage.** Roofs torn from frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light objects become projectiles.
Three (F3)	Strong	158-206 mph	**Severe damage.** Roofs and some walls torn from well- constructed houses; trains overturned; most trees in forested area uprooted; heavy cars lifted and thrown.
Four (F4)	Violent	207-260 mph	**Devastating damage.** Well- constructed houses leveled; structures with weak foundation blown some distance; cars thrown; large missiles generated.
Five (F5)	Violent	260-318 mph	**Incredible damage.** Strong frame houses lifted off foundations, carried considerable distances, and disintegrated; auto-sized missiles airborne for several hundred feet or more; trees debarked.

***Table** 7. Tornado F Scale overview* [12]

Alternatively, the EF Scale is based on the velocity of their winds. The EF Scale rating system still uses damage to estimate the wind speeds, but the calculated wind speed is then used to rate the tornado. Ratings for tornadoes were completed using the F Scale until 2007 when the EF Scale was adopted as the new standard.

[12] National Weather Service. (n.d.) *The Fujita Scale*. National Oceanic and Atmospheric Administration. Retrieved on October 26, 2022, from https://www.weather.gov/oun/efscale

EF Rating	Wind Speeds	Expected Damage	
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.	
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.	
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.	
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.	
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.	
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.	

***Table 8**. Tornado EF Scale overview* [13]

PREVIOUS OCCURRENCES

Occurrences of tornadoes in Berkshire County are not frequent, averaging approximately just over 2 tornadoes per decade since the 1950s. In New Ashford, specifically, an EF1 tornado touched down in July 2014. No recorded deaths, injuries, or damage were recorded during this event. ***Table 9***, below, contains the recorded tornadoes for Berkshire County.

Date	F Scale	Reported Deaths	Reported Injuries	Damage to Property (dollars)
7/12/1955	F2	0	0	$0
9/7/1958	F0	0	0	$2,500
10/3/1963	F1	0	0	$2,500
3/1/1966	F2	0	0	$25,000
8/11/1966	F2	0	0	$25,000
6/18/1970	F1	0	0	$250,000
8/28/1973	F4	4	36	$25,000,000

[13] National Weather Service. (n.d.) *Explanation of EF Scale Ratings*. National Oceanic and Atmospheric Administration. Retrieved on October 26, 2022, from https://www.weather.gov/images/hun/stormsurveys/2011-04-27/EF-Ratings_large.jpg

7/13/1975	F2	0	0	$25,000
7/27/1978	F0	0	0	$250
7/11/1984	F1	0	0	$25,000
5/29/1995	F4	3	24	$250
7/3/1997	F1	0	0	$15,000
7/3/1997	F2	0	0	$1,500,000
7/3/1997	F2	0	0	$1,500,000
7/3/1997	F1	0	0	$50,000
8/20/2004	F0	0	0	$25,000
6/29/2005	F0	0	0	$0
7/27/2014	EF1	0	0	$0
8/2/2020	EF0	0	0	$9,000
Total	**19**	**7**	**60**	**$28,2229,500**

Table 9. *Tornadoes reported in Berkshire County*[14]

PROBABILITY OF FUTURE EVENTS

The Tornado Index, calculated by USA.com, indicates the likelihood of a tornado based on historical occurrences. The index for Berkshire County is higher than the Massachusetts index, but lower than the national average.

Tornado Index for Berkshire County	
Berkshire County	113.44
Massachusetts	87.60
United States	136.45

Table 10. *Tornado Index for Berkshire County*[15]

[14] National Centers for Environmental Information. (n.d.). *Storm Events Database*. Retrieved August 2, 2022, from https://www.ncdc.noaa.gov/stormevents

[15] USA.com (n.d.). *Berkshire County Natural Disasters and Weather Extremes*. Retrieved on October 27, 2022, from http://www.usa.com/berkshire-county-ma-natural-disasters-extremes.htm#TornadoIndex

Given the historical data, the likelihood of a tornado in New Ashford is approximately once every 70 years or 1.4% annually. Increasing temperatures and extreme storm events may increase the likelihood of tornadoes beyond the expected expiration of this plan, but, even allowing for an increase, the probability of a tornado touching down in New Ashford annually is **low**.

IMPACT

Tornadoes are most likely to occur on hill tops or along river corridors, and New Ashford contains both. Although an unlikely occurrence, the risk of a tornado touching down in the developed part of Town along the Green River versus an unpopulated area is equivalent. Even if a tornado moves along the Green River, the dispersed nature of the dwellings as well as the narrow focus and short lifespan of a tornado would limit its impact to only a few, or 5%, of homes.

Given the prior rankings of tornadoes in Berkshire County, an EF1 - EF2 strength tornado is the most likely to occur. Homes and other structures in the area are not built to withstand wind speeds associated with tornadoes. Therefore, an EF1 or EF-2 tornado would cause moderate damage to any structures it comes into contact with, destroying roofs, blowing out windows, and moving homes off their foundations. This level of damage would equate to approximately 50% of each dwelling's value.

Given the low location ranking of 10% and significant damage (50% of their value) to those structures, the calculated impact on the Town in the event of a tornado is $1,541,280. Despite the focused and intense nature of a tornado, the limited development across the Town decreases the impact of a tornado. Therefore, the impact of a tornado in New Ashford is ranked as **high**.

VULNERABILITY

Given the low probability of tornadoes and the limited area of impact, the vulnerability of New Ashford to tornadoes is assessed as **medium**.

LANDSLIDE

DESCRIPTION

According to NOAA, a landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of "mass wasting," which denotes any down-slope movement of soil and rock under the direct influence of gravity. The term "landslide" encompasses five modes of slope movement: falls, topples, slides, spreads, and flows. These are further subdivided by the type of geologic material (bedrock, debris, or earth). Debris flows (commonly referred to as mudflows or mudslides) and rock falls are examples of common landslide types.

LOCATION

The issue that makes predicting when and where landslides will occur is that the earth's materials are multifaceted. Regions with steeper slopes are more prone to landslides, but in the Berkshire region of Massachusetts, the strength of the earth's materials minimizes the risk relative to regions that have volcanic activity, changes in water, extensive earthquake activity, or a large population mass in an area.

If New Ashford were to have a landslide event, it would affect only a small area of Town. It is possible that a landslide could cause road closures or damage to a small location of town, but it is as likely that the damage would be limited to the forested area beyond the inhabited parts of Town. Because of limited area involved, the location ranking for landslides is **low**.

EXTENT

FEMA uses a risk equation behind the Risk Index includes three components: a *natural hazards component* (**Expected Annual Loss**), a *consequence enhancing component* (**Social Vulnerability**), and a *consequence reduction component*(**Community Resilience**). The datasets supporting the natural hazards and consequence reduction components have been standardized using a **min-max normalization approach**. The dataset supporting the consequence enhancing component was acquired in a normalized format, allowing for easy incorporation into the National Risk Index risk calculation.

PREVIOUS OCCURRENCES

New Ashford does not have any recorded landslides to date. There have been a couple of notable landslides in Massachusetts over the course of the last decade, but none of them have resulted in attention on the national scale.

Two landslides were reported following Tropical Storm Irene in Deerfield, Massachusetts. Residents reported that one landslide caused light gray mud to appear in streams. Nearby roadways were temporarily closed in response as a safety measure. Tropical Storm Irene also caused a landside on Route 2 in Western Massachusetts and caused additional flooding damage on slopes of the highway, causing road closures.

PROBABILITY OF FUTURE EVENTS

In U.S. Landslide GIS data, New Ashford ranked lowest on the confidence probability of landslide activity. Additionally, the U.S. Geological Survey's (USGS) U.S. Landslide

Inventory[16] does not indicate any areas in New Ashford where landslides are probable, so the probability for future events is **low**. Landslides typically occur because of extreme flooding and/or tropical storm damage. Although flooding and extreme storms are a concern in the region, the soil in New England is strong enough to prevent landslides except in the most extreme circumstances.

IMPACT

[NEED TO KNOW SPECIFIC AREAS OF CONCERN FOR LANDSLIDE ACTIVITY IN TOWN SINCE USGS DOESN'T NOTE ANY TO MAKE THIS CALCULATION]

VULNERABILITY

The vulnerability of New Ashford to these events remains **low** based on historical data. Any impact on the community would result in road closures from potential threats. Homes on mountain cliffs should be evacuated in major tropical storms or hurricanes to eliminate loss of life threats.

EARTHQUAKE

DESCRIPTION

New England is not generally a place that most residents think of earthquakes as a concern, but the increase in earthquake activity throughout the past two decades has increased, although not always noticeable. Earthquakes are caused by the shifting of rocks and plates beneath the Earth's surface. Although earthquakes have historically been categorized by activity below the surface, induced quakes can also be caused by human activity such as underground construction or fracking projects.

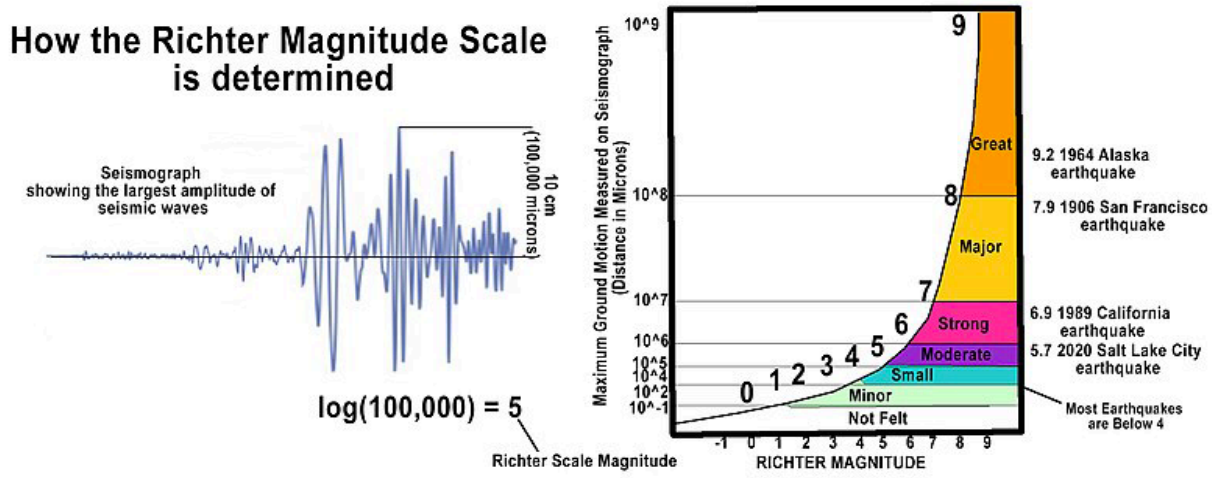
LOCATION

Due to the nature of the earthquake and its risks, the entire Town would be considered within the occurrence. Because most or all of the jurisdiction would be affected by the event, the location ranking is **high**. Earthquakes can be felt for hundreds of miles and depending on the zone of the Modified Mercalli Scale (highest intensity scale), the measurement of miles would likely incorporate the entire region. According to the USGS, the closest recorded earthquake to New Ashford occurred in 2012. It was measured at a magnitude of 1.9 on the Richter Scale, and the epicenter was located just north of Northampton.

[16] United States Geological Survey. (n.d.). *U.S. Landslide Inventory*. Retrieved from https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=ae120962f459434b8c904b456c82669d

EXTENT

Earthquakes are measured using the Richter Scale. Earthquake intensities are numerical values assigned to the effects of earthquakes on people and their works, and on the natural environment.



Intensities are evaluated using the Modified Mercalli Intensity Scale of 1931, which contains levels of effects ranging from intensity I, barely perceptible, to intensity XII, total damage. (NOAA)

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest,especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

***Table 11**. Modified Mercalli Intensity Scale of 1931*[17]

[17] United States Geological Survey. (n.d.). *The Modified Mercalli Intensity Scale of 1931*. Retrieved from https://www.usgs.gov/programs/earthquake-hazards/modified-mercalli-intensity-scale

PREVIOUS OCCURRENCES

Number of Felt Earthquakes in the Northeast States			
State	**Years of Earthquake Record**	**Number of Felt Earthquakes**	**Years with Damaging Earthquakes**
Connecticut	1678-2016	115	1791
Maine	1766-2016	454	1973, 1904
Massachusetts	1668-2016	408	1727, 1755
New Hampshire	1638-2016	320	1638, 1940
New Jersey	1738-2016	98	1884
New York	1737-2016	551	1737, 1929, 1944, 1983, 2002
Rhode Island	1766-2016	34	
Vermont	1843-2016	50	
Total Number of Felt Earthquakes		2030	

***Table 12**. Number of Felt Earthquakes in Northeast States*[18]

PROBABILITY OF FUTURE EVENTS

A measure that has been used in the past for reporting of earthquake activity has been the Earthquake Index Value. This measure tracks earthquake activity by region and can determine the risk of the region, in this case, the Northeast region of the United States. Based on the Earthquake Index Value, the earthquake activity for the Northeast is estimated low despite recent activity in 2020 in Southeastern Massachusetts. There is, therefore, a **low** probability of future annual events.

IMPACT

Earthquakes can impact infrastructure including roadways, bridges, and buildings. Before 1975 there were no building codes in place that adhered to standards to mitigate earthquake caused damage. Since most structures in Town, particularly municipal buildings and homes, were built before the 1980's, much of the Town's building infrastructure does not meet the updated specifications that improve outcomes resulting from earthquakes.

According to the Northeast State Emergency Consortium (see ***Table 12***), the last time Massachusetts experienced an earthquake that caused physical damage was in 1755. Since there

[18] The Northeast State Emergency Consortium. (2022). *Massachusetts Earthquakes: History of earthquakes in Massachusetts*. Retrieved from https://nesec.org/massachusetts-earthquakes/

has been no reported damage by an earthquake in nearly 400 years, the expected impact in the event of an earthquake in New Ashford is **low**, with a negligible amount of damage if any at all.

VULNERABILITY

Based on the above analysis, New Ashford has a **low** vulnerability from earthquakes.

WILDFIRE/BRUSH FIRE

DESCRIPTION

FEMA defines a wildfire as an unplanned fire that burns in a natural area such as a forest, grassland, or prairie. Wildfires are larger fires than brushfires, distinguished by their quick movement and impact on forested or grassland areas. Brushfires tend to be smaller and impact scrubland, but they can also impact large areas. The risk of a wildfire or brushfire is increased during periods of drought, when there is excess deadwood, and/or under high wind conditions, as the first two create conditions for easy ignition and the latter aid in their advance.

Wildfires and brushfires are not easily controlled once started. They typically advance through available fuel sources (i.e., trees, brush, grasses), leaving very little surviving vegetation, if any, in their wake. Wildfires and brushfires are hazards to humans for several reasons. First, if the fire moves to developed areas, there is an immediate risk to the safety of the inhabitants as well as to the structures in the fire's path. Losses of life and property result. The loss of vegetation and tree canopies has negative impacts for people by decreasing the area's natural defense against extreme temperatures and precipitation. Additionally, the smoke from wildfires can travel hundreds of miles, increasing the risk of respiratory problems for people in and well beyond the area of the fire. The young, elderly, and those with existing respiratory issues are most at risk.

There are three categories of wildfires, each based on where the fire is spreading. *Ground fires* begin underground, burning the roots of plants or other organic materials. These become *surface fires* as the fire spreads to the grasses, shrubs, and deadwood at ground level. The final category is a *crown fire*, distinguished by the burning of the tree canopy.

LOCATION

Because 91% of the land in New Ashford is forested, the location at risk of a wildfire or brushfire is **high**. As the Emerald Ash Borer continues to advance, the deadwood supply in those areas continues to increase. Since deadwood is more easily ignited than living trees, any wildfire that reaches the forests in New Ashford will spread rapidly. The Town makes efforts to keep fire roads through the forested areas clear, but the increasing deadwood will counteract the efficacy of those efforts.

EXTENT

Climate change has resulted in more high temperature records and an increased average temperature in New Ashford, as well as increased the number of consecutive days without precipitation, resulting in more periods of drought. Additionally, the Emerald Ash Borer is now inhabiting the forested areas on the mountains flanking the Town, increasing the deadwood along the forest floor as the species moves from tree to tree. In those forested areas, approximately half the trees are ash. All these factors increase the extent of the damage to the Town in the event of a wildfire or brushfire.

PREVIOUS OCCURRENCES

New Ashford has not had a wildfire in Town to date. There have been several wildfires in Berkshire County, and they are included in ***Table 13*** below.

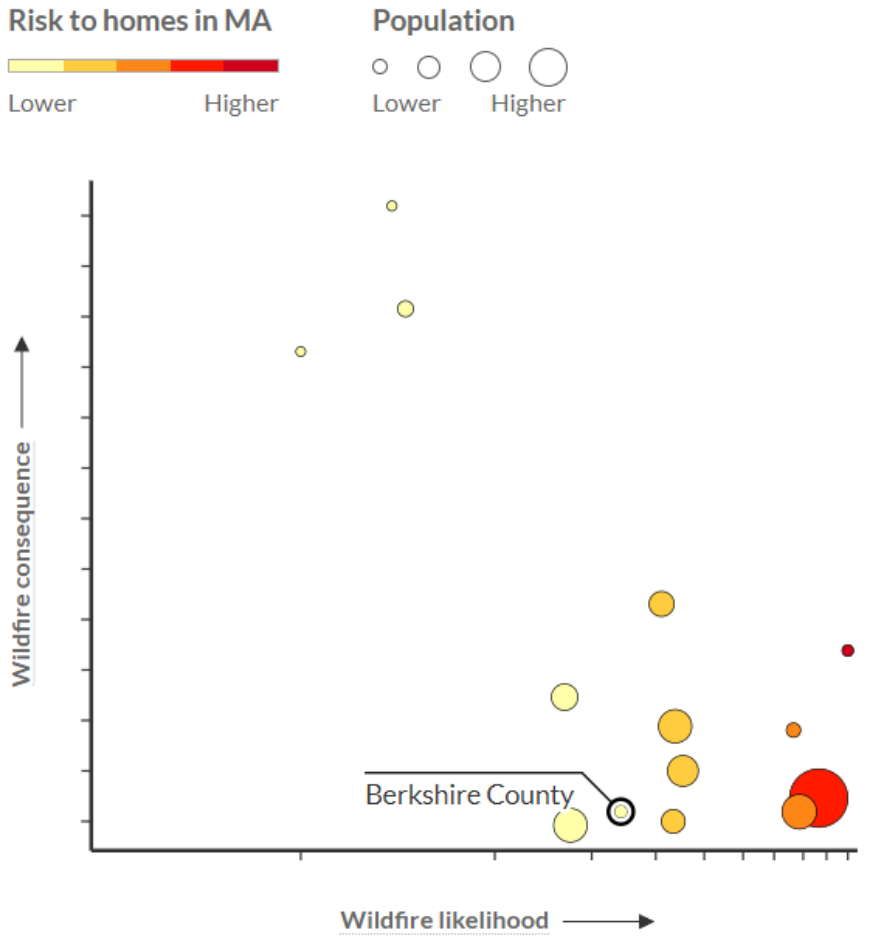
Event Type	Begin Date	End Date	Description of Event
Wildfire	7/5/2002	7/7/2002	Smoke, from many forest fires across the Nemiscau region of northern Quebec, became trapped under a subsidence inversion, and was transported south across western Massachusetts on the evening hours of July 5, to the late evening of July 7. The smoke obscured the sky, and even reduced surface visibilities to as low as one mile, especially on the early morning of July 7. Advisories were issued warning people with respiratory problems to remain indoors and all individuals to curb outside activity. No major problems were reported to the National Weather Service as a result of this smoke.
Wildfire	5/14/21	5/18/2021	A wildfire started on East Mountain in the Clarksburg State Forest during the evening of Friday, May 14th. The fire burned 947 acres before it was contained on Tuesday, May 18th, making it the largest wildfire in Massachusetts since 1999. Around 120 professional and volunteer firefighters responded to the incident. One firefighter was hospitalized with undisclosed injuries. The fire resulted in the closure of several hiking trails in the area, including the Appalachian Trail. No structures were impacted as the fire remained in the unpopulated state forest.

Table 13. *Wildfire events in Berkshire County*[19]

[19] National Centers for Environmental Information. (n.d.). Storm Events Database. Retrieved August 2, 2022, from https://www.ncdc.noaa.gov/stormevents

PROBABILITY OF FUTURE EVENTS

Given the factors mentioned above, including extensive forest, climate change, and the Emerald Ash Borer/increase in the deadwood along the forest floor, the probability of a wildfire or brushfire in New Ashford is **medium**. Though the USDA Forest Service categorizes the likelihood of a wildfire as low for Berkshire Country (assessed at the 38th percentile for Massachusetts communities), the extenuating factors above and different scale warrant a medium rating for the purpose of this document.



Wildfire Risk

This graph, from the USDA Forest Service, shows the wildfire risk for Hampden County. The color represents the risk to private homes and the size of the circle the population affected. The likelihood is shown as high, but the expected consequences are low.

***Figure 5**. Wildfire risk in Hampden County* [20]

IMPACT

As indicated in the image above, the expected impact on the developed portion of the community in the event of a wildfire or brushfire is minimal. Because the fire would more likely spread through the forested areas of Town, the more developed area that lies at lower elevation along the Green River is less at risk. Given these factors and the limited population, it is estimated that

[20] United States Department of Agriculture Forest Service. (2022). *Wildfire Risk to Communities*. Retrieved on November 4, 2022, from https://wildfirerisk.org/explore/0/25/25003/

well less than half the dwellings (estimated 30%) would be directly impacted (i.e., burned) by a wildfire. Using the combined property value in Town as a starting point, damages from a wildfire in New Ashford would total $9,247,680.

Though residential property damage would be minimal, the impact to the Town would be pronounced. A wildfire that reaches the forested areas in the mountains would not be easily contained, and there are over 12 square miles of forest in New Ashford. There would be an immediate concern for the health of residents in New Ashford and neighboring communities. Advisories would limit outdoor activities, resulting in loss of production for local agriculture and other outdoor-based businesses. The loss of a large portion of the tree canopy would result in higher local temperatures and increased runoff, likely overburdening culverts on mountain roads leading to washout.

Taking all factors into consideration, the impact of a wildfire on the community would be **high**.

VULNERABILITY

Given the location impacted, probability of future events, and expected impact, the risk assessment of New Ashford's vulnerability to wildfires and brushfires is rated as **high**.

EXTREME TEMPERATURES & DROUGHT

DESCRIPTION

Since the beginning of the 20th century, the average temperature in Massachusetts has risen almost 3.5 degrees Fahrenheit according to NOAA. The number of warmer days has been increasing since 1995, with the highest averages experienced in the last seven years. The average daily temperature for the months of June through August has increased for all of Berkshire County, as has the number of warmer nights. These extreme temperatures can influence drought activity throughout the region.

During periods of extreme heat, residents are more at risk if they are inside buildings that lack cooling systems, work outdoors, or have underlying health issues, and could be at risk for excessive heat exposure. This threat on the population can typically be found in more vulnerable areas. Identifying these populations can be done by also understanding that hot weather conditions in extreme temperatures have claimed more lives in the past ten years than any other weather-related event, as hot weather contributes to unhealthy air quality.

Increases in extreme low temperatures have also been trending since the early 1990's. This period includes the severe winter of 2014-2015 that brought heavy snowfall and colder than normal temperatures.

NOAA defines drought as dry weather patterns dominating an area. Low water supply becomes evident, especially in streams, reservoirs, and groundwater levels, usually after many months of

drought. Agricultural drought happens when crops become affected. And socioeconomic drought relates the supply and demand of various commodities to drought. Some droughts can begin and end rapidly, while others take much longer to develop and then recover. Based on past events, it appears that Western Massachusetts may be more vulnerable than Eastern Massachusetts to severe drought conditions.

LOCATION

Both extreme temperatures and drought affect the entire region, and that is why they are generally categorized regionally. These conditions impact the entire Town; therefore, the location ranking is **high**. It is important to note that different areas of New Ashford may experience different levels of the drought based on vegetation, altitude, and proximity to water supplies.

EXTENT

There are countless ways to measure temperature change over time. The primary measures include average temperatures across various scales (e.g., day, month, year) and record high and low temperatures. These temperatures are reported at the local, regional, national, or global level.

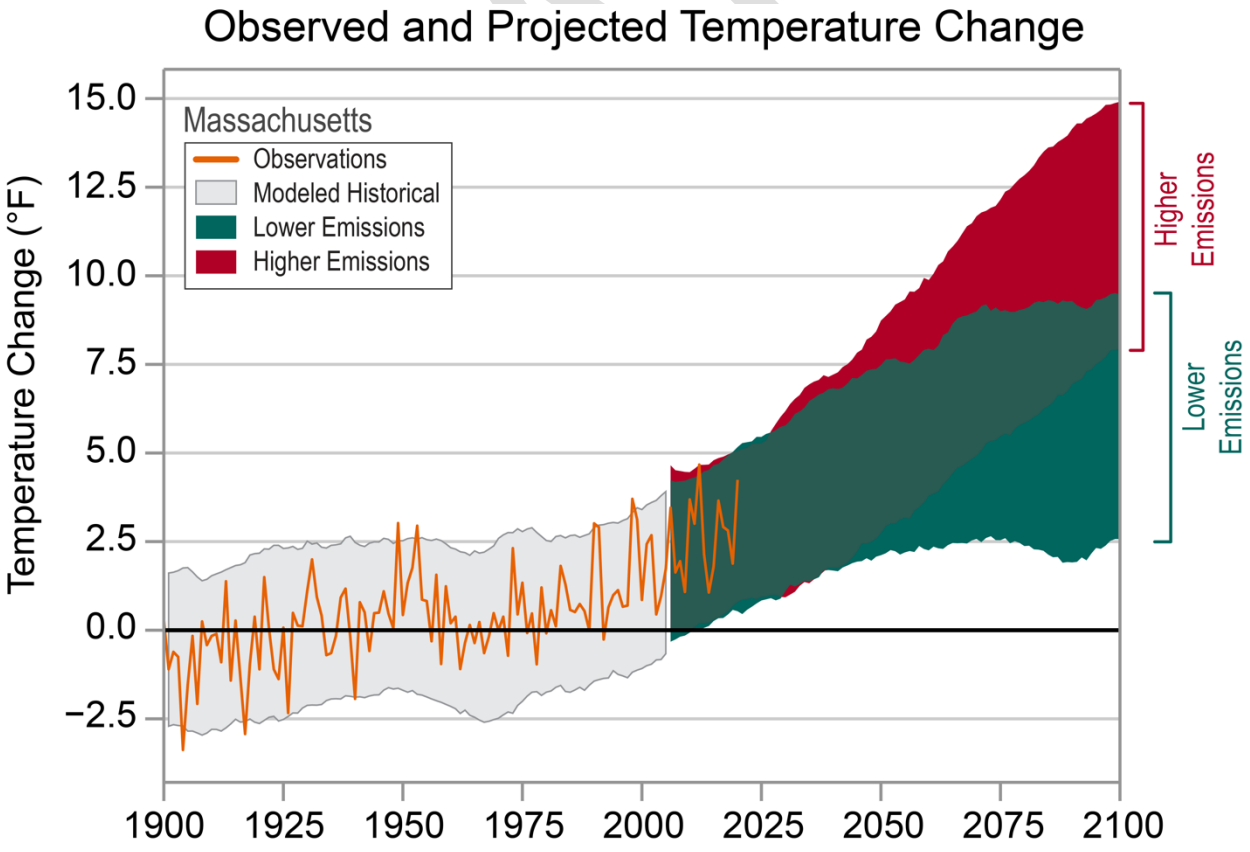


***Figure 6**. Observed and projected temperature change in Massachusetts since 1900*

Many different indices have been developed over the decades to measure drought in these various sectors. The U.S. Drought Monitor depicts drought integrated across all time scales and differentiates between agricultural and hydrological impacts.

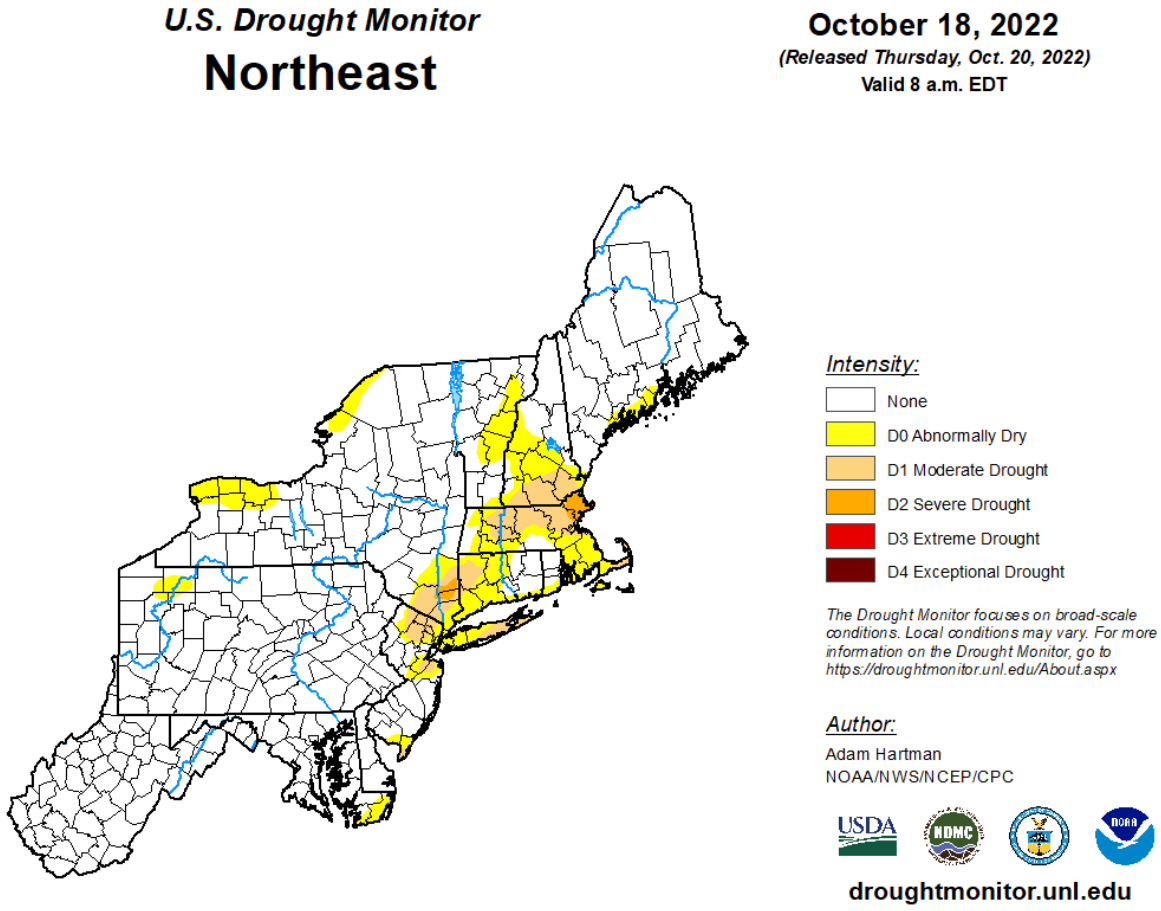


***Figure** 7. Drought intensity in northeastern U.S., October 2022*[21]

In the table below, the US Drought Monitor identifies the intensity of the drought by this rating:

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

The numbers are based on Northeast locations and statistics designed by the US Drought Monitor. Based on this data, there has been moderate drought conditions occurring in the Northeast region over the past 12 months.

[21] National Drought Mitigation Center (2022). U.S. Drought Monitor Northeast: October 18, 2022. University of Nebraska-Lincoln. Retrieved from https://droughtmonitor.unl.edu

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	10/18/22	84.49	15.51	4.61	0.44	0	0	21
Last Week	10/11/22	78.68	21.32	9.24	1.68	0.14	0	32
3 Months Ago	7/19/22	52.72	47.28	22.42	1.21	0	0	71
Start of Calendar Year	12/28/21	77.53	22.47	3.42	0.85	0	0	27
Start of Water Year	9/27/22	69.23	30.77	12.95	3.83	0.14	0	48
One Year Ago	10/19/21	86.61	13.39	2.94	1.07	0	0	17

***Table 14**. Source: US Drought Monitor*[22]

PREVIOUS OCCURRENCES

The total number of high temperature days breaking records from 2015-2022 in the Town of New Ashford is 143 days. That translates into 39% of daily high temperature records have been set in the last 7 years. Similarly, the number of daily low temperature records is also 143. Extreme temperature patterns have increased in both directions within the course of the past decade.

The Massachusetts Drought Management Plan was developed in response to a period of deficient precipitation that began in 1999. The most severe drought of modern times was the drought of the 1960s, equivalent to a drought emergency. A less severe drought occurred in the early 1980s. The Commonwealth experienced another impactful drought in 2016-2017 with drought levels reaching a Level 4 Drought (Warning) out of five levels of drought; the drought impacted the agricultural sector, some water supplies, the natural environment and many habitats and species.

Massachusetts maintains a record of the drought status by region from 2001 thru 2022 that can be found at https://www.mass.gov/doc/drought-status-history-0/download.

[22] National Drought Mitigation Center (2022). U.S. Drought Monitor: Data tables: Percent area in U.S. drought categories. University of Nebraska-Lincoln. Retrieved from https://droughtmonitor.unl.edu/DmData/DataTables.aspx

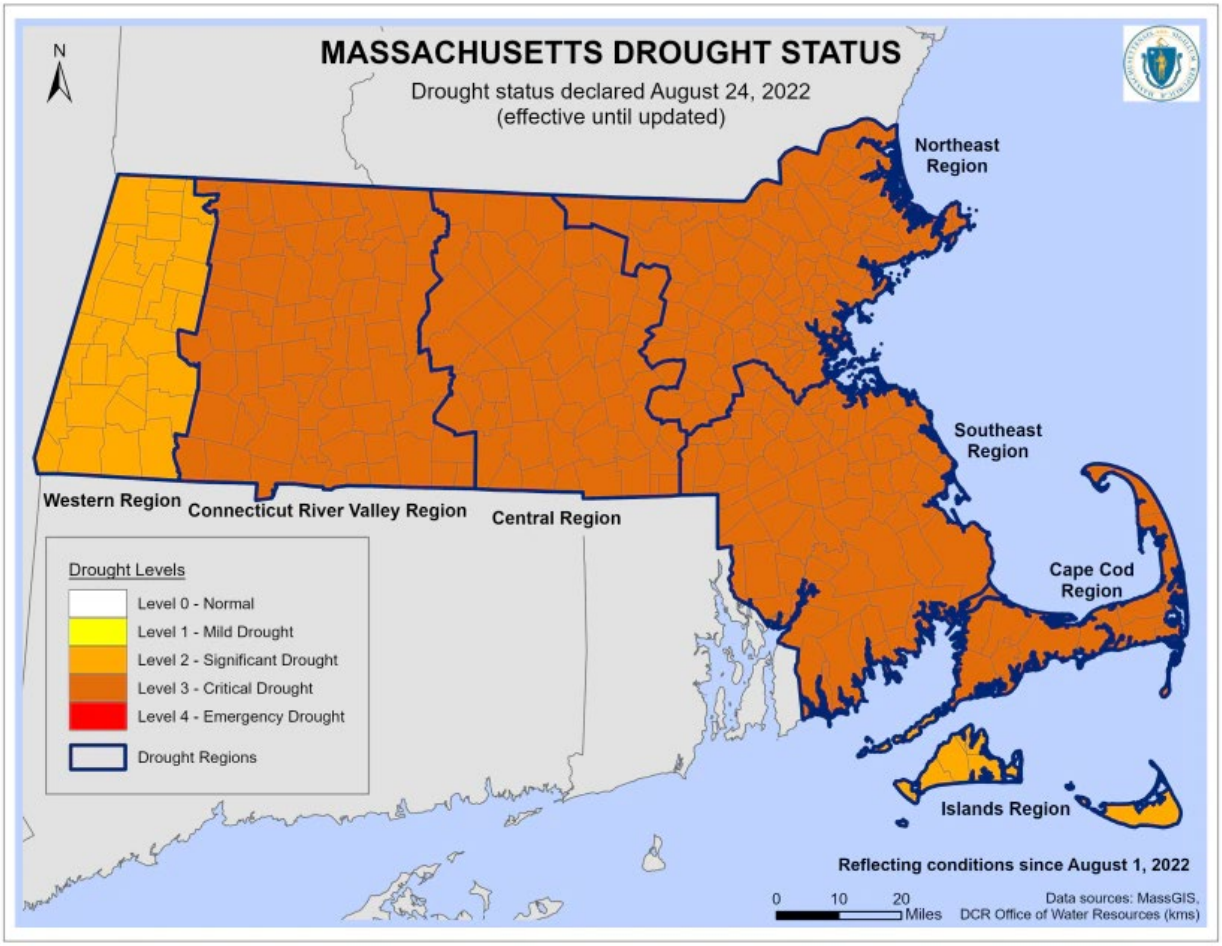


***Figure 8**. Regional drought status at the height of the summer of 2022 drought*[23]

PROBABILITY OF FUTURE EVENTS

In New Ashford as in the rest of the state, extreme temperatures and drought occurrence have a **high** probability. Climate change is causing a change in precipitation patterns, warmer summers, and longer dry seasons.

IMPACT

The FEMA Risk Index Rating is *Relatively Low* for Berkshire County, MA, when compared to the rest of the U.S. In terms of extreme temperature and drought, the expected annual loss is *Relatively Low*, social vulnerability is ranked *Relatively Moderate* and community resilience is *Very High*. The Berkshire region scored *low* (4.3) in the probability of extreme temperatures and drought being a priority hazard for the region. Risk Index scores are calculated using an equation

[23] Massachusetts Office of Water Resources. (2022). *Massachusetts Drought Status*. Massachusetts Department of Conservation and Recreation. Retrieved from https://www.mass.gov/news/risk-of-wildland-fires-increases-as-drought-persists

that combines scores for Expected Annual Loss due to natural hazards, social vulnerability, and community resilience.

Drought has affected New Ashford, particularly over the past few years, as it has become a reoccurring pattern in the warmer months. Severe and recurrent droughts can lead to emergency conditions. One major change is the increase in the fire hazard. As droughts increases, the Town's tree canopy decreases. The increased supply of dead trees raises the probability of structure fires and wildfires, and the reduced canopy further increases temperatures in the area. In the case of fires, drought's impact is compounded by also decreasing the water supply available for firefighting activities. Finally, as noted above, extreme temperatures are now the leading cause of death from weather-related causes.

Drought and extreme temperatures also reduce water levels. It has caused water shortages that impacted the agriculture in the region. New Ashford is not prepared for an extended or severe drought because those conditions would require improved water saving resources as well as secondary water supplies for residents and agriculture use. Most residents currently rely on private well water for residential uses, and there is a higher agriculture economy in this part of the state, particularly as it also uses private water supplies. The impact on agriculture includes decreased crops yield as well as increased mortality rates for livestock. The deceased water supplies have a similar effect on natural vegetation and wildlife.

Taken together, the factors above indicate that extreme temperatures and drought events would have a **medium** impact on New Ashford.

VULNERABILITY

Based on the above assessment, New Ashford has a vulnerability ranking of **high** from extreme temperatures and drought.

WINTER STORMS (BLIZZARDS/SNOW/ICE STORMS)

DESCRIPTION

Winter storms include heavy or blowing snow, blizzards, nor'easters, ice storms, or any other form of extreme winter precipitation.

Snow is water that falls as solid crystal formations due the temperature of between the ground and cloud levels being at or below freezing (32° Fahrenheit or 0° Celsius). *Heavy snow* reflects an increased rate of snowfall, and blowing snow results from wind moving the snow that has already fallen. Blizzards are considered the most extreme type of severe snowstorm. *Blizzards* are defined by the National Weather Service as a storm where the following conditions are expected to prevail for a period of 3 hours or longer:

- sustained wind or frequent gusts to 35 miles an hour or greater and

- considerable falling and/or blowing snow (i.e., reducing visibility frequently to less than ¼ mile)[24].

A *Nor'easter* is described by the National Weather Service as a strong low-pressure system that affects the Mid-Atlantic and New England States. It can form over land or over the coastal waters. These winter weather events are notorious for producing heavy snow and rain. Wind gusts associated with these storms can exceed hurricane force in intensity. A nor'easter gets its name from the continuously strong northeasterly winds blowing in from the ocean ahead of the storm and over the coastal areas. Nor'easters can bring substantial amounts of snowfall as they draw moisture from the ocean and deposit it onto the land. Nor'easters also tend to be more hazardous to coastal communities because they also cause heavy waves that batter the coast, but the resulting snowfall can also have a tremendous impact on inland areas.

Ice storms refer to winter storms where the precipitation falls as rain then freezes when it contacts the ground. The ice buildup must reach ¼ inches to be considered an ice storm.

LOCATION

Any severe snow or ice storm that impacts New Ashford will affect the entire Town, therefore the location impacted by this hazard is **high**.

EXTENT

The Northeast Snowfall Impact Scale (NESIS), developed by Paul Kocin and Louis Uccellini of the National Weather Service (Kocin and Uccellini, 2004[25]), characterizes and ranks high-impact Northeast snowstorms. These storms have large areas of 10-inch and greater snowfall accumulations. NESIS has five categories: *Extreme*, *Crippling*, *Major*, *Significant*, and *Notable*. The index differs from other meteorological indices in that it uses population information in addition to meteorological measurements. Thus, NESIS gives an indication of a storm's societal impacts. This scale was developed because of the impact Northeast snowstorms can have on the rest of the country in terms of transportation and economic impact.

The NESIS scale, values, and categories are summarized in ***Table 15***.

[24] National Weather Service. (n.d.). *National Weather Service: Glossary: Blizzard.* National Oceanic and Atmospheric Administration. Retrieved on November 7, 2022, from https://w1.weather.gov/glossary/index.php?word=blizzard#:~:text=(abbrev.,to%20less%20than%20%C3%82%C2%BC%20mile)

[25] Kocin, P. J. and L. W. Uccellini, 2004: A Snowfall Impact Scale Derived from Northeast Storm Snowfall Distributions. Bull. Amer. Meteor. Soc., 85, 177-194.

Category	NESIS Value	Description
1	1—2.499	Notable
2	2.5—3.99	Significant
3	4—5.99	Major
4	6—9.99	Crippling
5	10.0+	Extreme

***Table 15**. NESIS categories, their corresponding NESIS values, and a descriptive adjective*[26]

Below, ***Table 16*** contains severity information on winter storms affecting New Ashford calculated using the NESIS. Events are arranged based on severity rather than date, and the range of storms included are from 1956 - 2021.

Date	NESIS Value	NESIS Category	NESIS Classification
3/12/1993	13.20	5	Extreme
3/2/1960	8.77	4	Crippling
2/15/2003	7.50	4	Crippling
2/2/1961	7.06	4	Crippling
1/21/2005	6.80	4	Crippling
1/19/1978	6.53	4	Crippling
12/25/1969	6.29	4	Crippling
2/10/1983	6.25	4	Crippling
2/14/1958	6.25	4	Crippling
2/5/1978	5.78	3	Major
2/23/2010	5.46	3	Major
2/8/1994	5.39	3	Major
1/9/2011	5.31	3	Major
3/12/2017	5.03	3	Major

[26] National Centers for Environmental Information. (n.d.). *The Northeast snowfall impact scale (NESIS)*. National Oceanic and Atmospheric Administration. Retrieved on November 7, 2022, from https://www.ncei.noaa.gov/access/monitoring/rsi/nesis

1/30/2021	4.93	3	Major
2/18/1972	4.77	3	Major
12/11/1960	4.53	3	Major
2/7/2013	4.35	3	Major
2/22/1969	4.29	3	Major
1/18/1961	4.04	3	Major
2/8/1969	3.51	2	Significant
2/5/1967	3.50	2	Significant
3/5/2018	3.45	2	Significant
4/6/1982	3.35	2	Significant
3/4/2013	3.05	2	Significant
3/15/2007	2.54	2	Significant
3/31/1997	2.29	1	Notable
1/3/2018	2.27	1	Notable
2/2/1995	1.43	1	Notable
1/25/1987	1.19	1	Notable

***Table 16**. Severity of winter storms impacting New Ashford based on NESIS severity*[27]

PREVIOUS OCCURRENCES

Severe snowstorms are common in the winter months in New England, including Western Massachusetts.

NOAA collects historical occurrences of severe snowstorms in three categories. They provide data on occurrences of blizzards, ice storms, and winter storms. ***Table 17*** contains the reported storms in Berkshire County from 1996 through 2022, the years of data available at the time of this report. No noted deaths or injuries were recorded during these events.

[27] National Centers for Environmental Information. (n.d.). The Northeast snowfall impact scale (NESIS). National Oceanic and Atmospheric Administration. Retrieved on August 2, 2022, from https://www.ncei.noaa.gov/access/monitoring/rsi/nesis

Event Type	Begin Date	End Date	Property Damage (dollars)
Winter Storm	12/6/1996	12/6/1996	$8,000
Winter Storm	12/7/1996	12/8/1996	$15,000
Winter Storm	1/27/1997	1/28/1997	$0
Winter Storm	3/14/1997	3/14/1997	$15,000
Winter Storm	3/31/1997	3/31/1997	$1,000,000
Winter Storm	4/1/1997	4/1/1997	$0
Winter Storm	11/14/1997	11/14/1997	$15,000
Winter Storm	12/10/1997	12/11/1997	$0
Winter Storm	12/29/1997	12/30/1997	$15,000
Winter Storm	1/15/1998	1/16/1998	$0
Winter Storm	1/23/1998	1/24/1998	$0
Winter Storm	12/29/1998	12/30/1998	$0
Winter Storm	1/2/1999	1/3/1999	$0
Winter Storm	1/14/1999		$1,000
Winter Storm	3/6/1999	3/7/1999	$1,500
Winter Storm	1/13/2000	1/13/2000	$5,000
Winter Storm	1/25/2000	1/26/2000	$11,000
Winter Storm	1/31/2000	1/31/2000	$12,000
Winter Storm	2/18/2000	2/19/2000	$0
Winter Storm	4/9/2000		$25,000
Winter Storm	12/30/2000	12/31/2000	$0
Winter Storm	2/5/2001	2/6/2001	$0
Winter Storm	3/5/2001	3/5/2001	$0
Winter Storm	3/9/2001	3/9/2001	$0

Winter Storm	3/30/2001	3/30/2001	$0
Winter Storm	12/9/2001	12/9/2001	$0
Winter Storm	1/6/2002	1/7/2002	$0
Winter Storm	3/20/2002	3/20/2002	$0
Winter Storm	11/17/2002	11/17/2002	$10,000
Winter Storm	12/25/2002	12/26/2002	$0
Winter Storm	1/1/2003	1/2/2003	$0
Winter Storm	1/3/2003	1/4/2003	$0
Winter Storm	2/17/2003	2/18/2003	$0
Winter Storm	4/4/2003	4/5/2003	$0
Winter Storm	12/6/2003	12/7/2003	$0
Winter Storm	12/14/2003	12/15/2003	$0
Winter Storm	1/28/2004	1/28/2004	$0
Winter Storm	3/16/2004	3/17/2004	$0
Winter Storm	1/22/2005		$0
Winter Storm	3/8/2005		$0
Winter Storm	3/12/2005		$0
Winter Storm	11/22/2005	11/22/2005	$0
Ice Storm	1/15/2007	1/15/2007	$0
Winter Storm	12/16/2007	12/17/2007	$0
Winter Storm	2/12/2008	2/13/2008	$0
Ice Storm	12/11/2008	12/12/2008	$0
Winter Storm	1/28/2009	1/29/2009	$0
Winter Storm	12/26/2010	12/27/2010	$0
Winter Storm	12/26/2010	12/27/2010	$0
Winter Storm	1/11/2011	1/12/2011	$0

Winter Storm	1/18/2011	1/19/2011	$0
Winter Storm	2/1/2011	2/2/2011	$0
Winter Storm	2/25/2011	2/25/2011	$0
Winter Storm	10/29/2011	10/30/2011	$0
Winter Storm	1/13/2012	1/13/2012	$0
Winter Storm	12/26/2012	12/27/2012	$0
Winter Storm	2/8/2013	2/9/2013	$0
Winter Storm	12/14/2013	12/15/2013	$0
Winter Storm	2/5/2014	2/5/2014	$0
Winter Storm	2/13/2014	2/14/2014	$0
Winter Storm	11/26/2014	11/27/2014	$0
Winter Storm	2/12/2017	2/13/2017	$0
Blizzard	3/14/2017	3/16/2017	$0
Winter Storm	3/2/2018	3/2/2018	$0
Winter Storm	3/7/2018	3/8/2018	$0
Winter Storm	3/13/2018	3/13/2018	$0
Winter Storm	3/14/2018	3/15/2018	$0
Winter Storm	11/15/2018	11/16/2018	$0
Winter Storm	1/19/2019	1/20/2019	$0
Winter Storm	2/12/2019	2/13/2019	$0
Ice Storm	12/29/2019	12/31/2019	$0
Winter Storm	1/16/2021	1/17/2021	$0
Winter Storm	2/1/2021	2/2/2021	$0
Winter Storm	11/26/2021	11/27/2021	$0
Winter Storm	1/16/2022	1/17/2022	$0
Winter Storm	2/25/2022	2/25/2022	$0

Winter Storm	3/12/2022	3/12/2022	$0
Totals		**77**	**$1,133,500**

Table 17. Winter Storms, Ice Storms, and Blizzards in Berkshire County[28]

PROBABILITY OF FUTURE EVENTS

Given the historical data, severe snowstorms of ice storms occur at a rate of almost three (3) per year (77 storms in 26 years). The SHMCAP includes additional information about the impact of climate change on the effects of climate change on future events, summarized in the ***Table 18*** below.

Potential Effects of Climate Change		
	EXTREME WEATHER AND RISING TEMPERATURES ➔ INCREASED SNOWFALL	Increased sea surface temperature in the Atlantic Ocean will cause air moving north over the ocean to hold more moisture. As a result, when these fronts meet cold air systems moving from the north, an even greater amount of snow than normal can be anticipated to fall on Massachusetts.
	RISING TEMPERATURES ➔ CHANGING CIRCULATION PATTERNS AND WARMING OCEANS	Research has found that increasing water temperatures and reduced sea ice extent in the Arctic are producing atmospheric circulation patterns that favor the development of winter storms in the eastern U.S. Global warming is increasing the severity of winter storms because warming ocean water allows additional moisture to flow into the storm, which fuels the storm to greater intensity.
	EXTREME WEATHER ➔ INCREASE IN FREQUENCY AND INTENSITY	There is evidence suggesting that nor'easters along the Atlantic coast are increasing in frequency and intensity. Future nor'easters may become more concentrated in the coldest winter months when atmospheric temperatures are still low enough to result in snowfall rather than rain.

Table 18. *Potential effects of climate change* [29]

Factoring in the effects of climate change, the probability of future events will be greater than the historical rate. Therefore, there is an almost 100% chance of a winter storm annually.

More severe snowstorms and ice storms can be defined as being ranked as *Major*, *Crippling*, or *Extreme* using the NESIS. Twenty (20) of the 30 storms rated using the NESIS over 65 years were listed as *Major*, *Crippling*, or *Extreme*, resulting in a 31% chance of a winter storm with at least a *Major* rating every year. This means the probability of future occurrences of major to extreme winter storms is **medium**.

IMPACT

The impacts of a severe snowstorm or ice storm are well known to inhabitants of New England. Among the most common are:

- dangerous driving conditions resulting in decreased or loss of access to emergency services, evacuation routes, or access to critical lifelines (e.g., specialty support services, food);
- loss of work productivity due to the need to remain home when schools cancel services for the day or driving to non-essential jobs is prohibited;

[28] National Centers for Environmental Information. (n.d.). Storm Events Database. Retrieved August 2, 2022 from https://www.ncdc.noaa.gov/stormevents

[29] Commonwealth of Massachusetts. (2018). Massachusetts State Climate Change Adaptation Report (SHMCAP). Retrieved from https://www.mass.gov/files/documents/2018/10/26/SHMCAP-September2018-Full-Plan-web.pdf

- downed trees and limbs that obstruct roadways;
- interruptions to utilities, including electricity and telecommunication, because of downed lines;
- shortages of food or other basic provisions in the days leading up to and immediately following the severe weather event; and
- damage to structures from ice dams on roofs or the resulting flooding if enough snow melts quicker than it evaporates or is absorbed in the ground.

In the most extreme, these events can lead to injuries and death. Injuries can prove more fatal in these conditions because emergency responders have a more difficult time responding to calls then. As is the case with most hazards, Climate Vulnerable populations are disproportionately impacted by these events.

Massachusetts is more prepared for winter weather than some other regions of the United States, but the more severe snow and ice storms still have a substantial impact. Winter storms that are rated as *Notable* or *Significant* using the NESIS typically have little or no significant impact on Massachusetts communities due to their preparedness for these types of events. Impact from these storms is limited to the costs of road clearing and treatment and the loss in economic productivity for businesses and individuals when work is missed.

As calculated above, there is a 31% chance of a winter storm with at least a *Major* rating every year. Using the combined property value of New Ashford ($30,825,600) as a base, and assuming a 10% loss to structures in the event of an event of that magnitude, the estimated monetary impact of severe snow and ice storms is estimated as $955,594 annually.

When combined, the factors indicated above reflect a **medium** impact on New Ashford in the event of a severe snowstorm or ice storm.

VULNERABILITY

Given the location impacted, probability of future events, and expected impact, the risk assessment of New Ashford's vulnerability to severe snowstorms and ice storms is rated as **high**.

HURRICANES AND TROPICAL STORMS

DESCRIPTION

NOAA defines a hurricane as a tropical cyclone in which the maximum sustained service wind (using the U.S. 1-minute average) is 64 kt (74 mph or 119 km/hr) or more. The term hurricane is used for Northern Hemisphere tropical cyclones. According to NOAA, as a hurricane develops, the barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, is given a name, and is closely monitored by the National Hurricane Center in

Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane.

Damage caused by hurricanes is usually caused by the heavy wind that can reach speeds up to 200 miles per hour. Flooding, power outages, structural damage, and loss of life are threats of hurricanes. Hurricanes are particularly common in the months of June thru November but affect New England more commonly in August and September.

LOCATION

Hurricanes generally form over regions. That means hurricanes and tropical storms would affect all of New Ashford; they are quantitively large storms, so the location rank is **high**.

EXTENT

Hurricane intensity is classified by the Saffir-Simpson Hurricane Wind Scale. The scale categorizes hurricanes between 1 and 5 based on their wind speeds, with 5 being the most intense.

Saffir–Simpson Hurricane Scale		
Category	Wind Speed (mph)	Type of Damage
1	74-95	Some Damage
2	96-110	Extensive Damage
3	111-129	Devastating Damage
4	130-156	Catastrophic Damage
5	157 and above	Catastrophic Damage

PRIOR EVENTS

Year	Classification	Storm Name
1938	Hurricane (category 3)	Great Hurricane of 1938
1944	Hurricane (category 1)	Great Atlantic Hurricane
1954	Hurricane (category 3)	Carol
1955	Hurricane (category 1)	Edna
1960	Hurricane (category 1 or 2)	Diane
1985	Hurricane (category 1)	Gloria
1991	Hurricane (category 2)	Bob
1999	Tropical Storm	Floyd

2011	Tropical Storm	Irene
2020	Tropical Storm	Isaias

Table 19. Hurricanes and tropical storms in Massachusetts[30,31]

PROBABILITY OF FUTURE EVENTS

New Ashford faces a **low** probability of hurricanes and tropical storms, as it is in a region that doesn't experience hurricanes or tropical storms frequently. In the last decade, only one tropical storm (Isaias) reached Massachusetts, so there is approximately a 10% chance of a hurricane or tropical storm in any year.

IMPACT

By the time a hurricane or tropical storm reaches New Ashford, it has lost a significant amount of its power. As a result, the wind damage is typically limited, but the precipitation can still be substantial. The impact of a tropical storm or hurricane in New Ashford, therefore, is more like an extreme precipitation event, with localized flooding being the most anticipated outcome. As estimated previously, the result is $154,128 in damages. These estimates do not include the value of damage to infrastructure like roads, culverts or bridges that could also be impacted by flooding events. As with localized flooding the impact ranking of hurricanes and tropical storms is **low**.

VULNERABILITY

Based on the above assessment, New Ashford has a vulnerability rating of **medium** from hurricanes and tropical storms.

DAM FAILURE

DESCRIPTION

Dam failures refer to several types of events involving a dam rapidly losing some or all the water it is retaining. The water then floods lower lying land called inundation areas. Inundation areas are often populated, therefore, the resulting flooding can directly impact the people and structures below the dam.

[30] National Centers for Environmental Information. (n.d.). *Storm Events Database*. Retrieved August 2, 2022, from https://www.ncdc.noaa.gov/stormevents

[31] Blake, E., Landsea, C., & Gibney, E. (2011). *The deadliest, costliest, and most intense United States tropical cyclones from 1851 to 2010 (and other frequently requested hurricane facts)*. National Weather Service, Miami, FL. Retrieved from https://www.nhc.noaa.gov/pdf/nws-nhc-6.pdf

A complete list of dam failure events is provided by the U.S. Army Corps of Engineers in ***Table 20*** below. Different failure events are associated with different types of dams.

Failure Mode	Earthen/ Embankment	Concrete Gravity	Concrete Arch	Concrete Buttress	Concrete Multi-Arch
Overtopping	x	x	x	x	x
Piping/Seepage	x	x	x	x	x
Foundation defects	x	x	x	x	x
Sliding	x	x		x	
Overturning		x	x		
Cracking	x	x	x	x	x
Equipment Failure	x	x	x	x	x

Table 20*. Possible failure modes for various types of dams*[32]

Most categories of dam failure are structural failures. Structural failures typically result from the deterioration of the structure over time, especially when the dam is not properly maintained, or from excessive forces acting on the dam. These events are often the result of a large influx of water from a severe weather event or flooding upstream that results in a sudden increase in the forces exerted on an already compromised or weak dam. To prevent occurrences of this nature, The Massachusetts Office of Dam Safety (ODS) requires dams in the Commonwealth, both public and private, to be assessed by qualified engineers every two, five, or 10 years based on the hazard rating of the dam. Hazard ratings are assessments of the potential damage a failure of the dam would cause. The higher the hazard rating, the more frequently the dam is required to be inspected. The U.S. Army Corps of Engineers maintains a National Inventory of Dams[33] listing the most recently reported condition of all registered dams.

In addition to structural dam failures, many dams can also shed water without an underlying structural problem. Many have a built-in failure mechanism called a spillway. A spillway is designed to allow excess water (i.e., above a certain depth) to escape the dam in a controlled manner, thereby decreasing the forces exerted on the dam to prevent a structural failure. The escaping water is directed to a channel or other area to control the flow away from populated areas. Overtopping, or breaching, is a similar event caused by the water level exceeding the height of the dam. Breaching is less desirable than a spillway event when breaching releases water into an area not specifically designed to control or direct the overflowing water.

LOCATION

[32] U.S. Army Corps of Engineers (n.d.). *Causes and types of dam failures: Possible failure modes for various types of dams*. Retrieved on October 27, 2022, from https://www.hec.usace.army.mil/confluence/rasdocs/ras1dtechref/latest/performing-a-dam-break-study-with-hec-ras/estimating-dam-breach-parameters/causes-and-types-of-dam-failures

[33] U.S. Army Corps of Engineers. (n.d.). *National Inventory of Dams*. Available at https://nid.usace.army.mil/#/

There are no public dams in New Ashford. There are three private dams in Town, indicated by the white squares in the image below, but they are not included in the National Inventory of Dams. Because these dams are small, their failure would have a very **low** area of impact, affecting no more than one or two dwellings, or 1.25% of the dwellings in Town. These dams should be assessed at the owner's expense every 10 years.

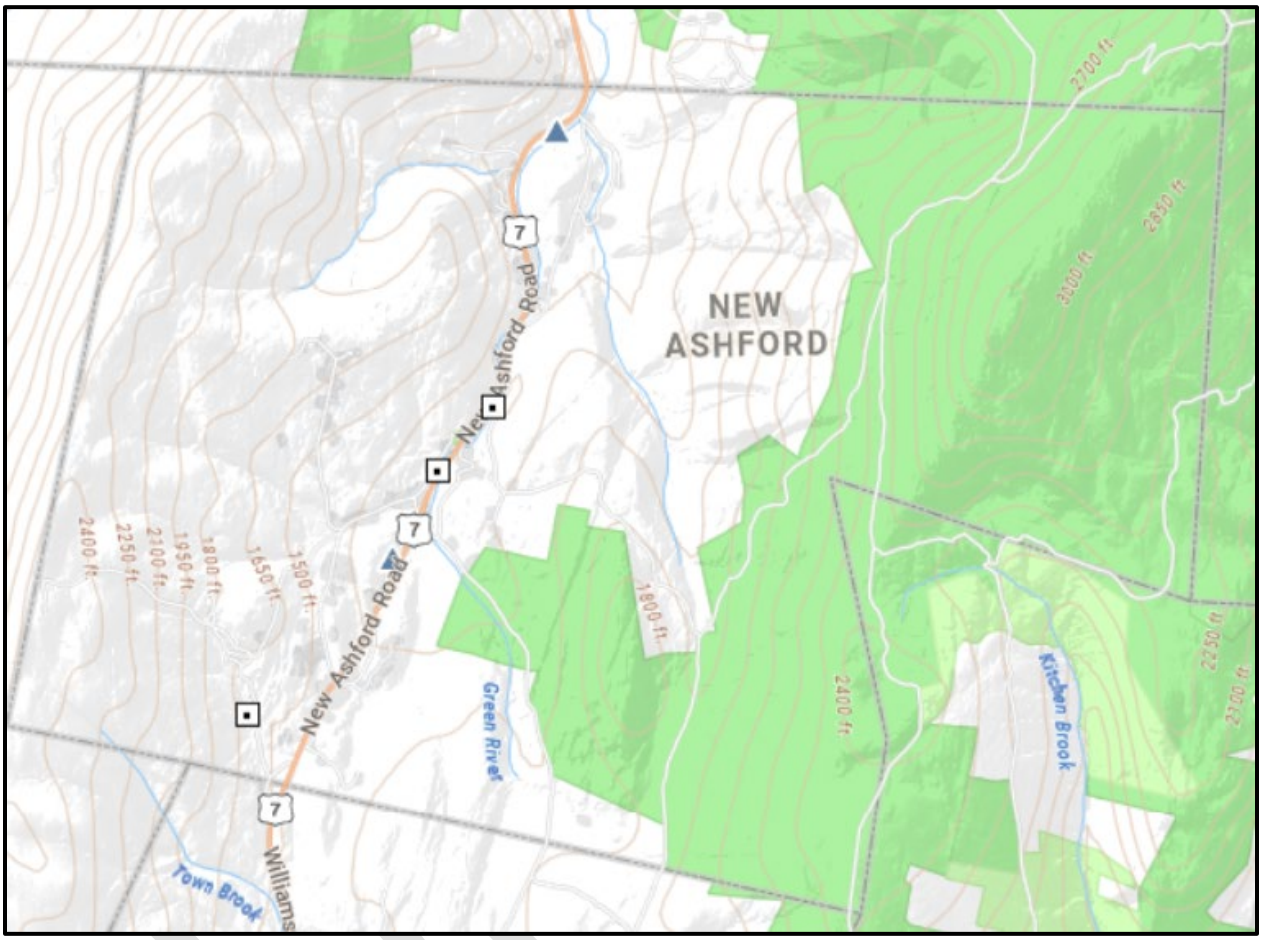


***Figure 9**. Map of private dams in New Ashford, MA. Dam locations are indicated by white squares*[34]

EXTENT

The ODS identifies dams due to the risk they pose in the event of a failure. Dams are ranked as *high*, *significant*, or *low* hazard dams based on the potential damage and loss or injury to people they would cause. A high hazard dam is ``A dam located where failure or improper operation will likely cause loss of life and serious damage to homes, industrial or commercial facilities,

[34] Massachusetts Office of Dam Safety. (n.d.). *MassMapper GIS*. Retrieved on October 27, 2022, from https://maps.massgis.state.ma.us/MassMapper/MassMapper.html?bl=MassGIS%20Basemap__100&l=massgis:GISDATA.DAMS_PT__GISDATA.DAMS_PT::Default__ON__100&b=-71.36341094970705,41.982207827022165,-70.86902618408205,42.22089028771471

important public utilities, main highways, or railroads" (M.G.L. c.21 §65(a), 2012)[35]. Low hazard dams are expected to have minimal impact to property and no loss of life or injury to people.

If any of dams were to fail, the resulting damage would be very limited. Because these are low hazard dams, there would be no expected loss of life and any property damage would be minimal in the event of a dam failure.

PREVIOUS OCCURRENCES

There are no previous occurrences of dam failure in New Ashford.

PROBABILITY OF FUTURE EVENTS

Because the condition of the three private dams has not been reported to the Town, there is no documented measure of how likely a failure of any of them might be. Because none of them retain large quantities of water, the forces acting on them are limited. Therefore, there is a <1%, or **low**, probability of dam failure in any given year.

IMPACT

In the event of a dam failure, there would be a **low** impact to the Town. The area flooded would likely be isolated to one site. The largest body of water being retained by one of these dams is Kearsey Pond, located between Route 7 and Greylock Road. The flood resulting from the failure of Kearsey Pond dam would most likely not cross Route 7 given the elevation of the road relative to the elevation of the pond and amount of water in the less than one acre pond.

Old Mill Pond Dam, situated between Route 7 and Cemetery Rd, is located on Old Mill Pond which covers just over a quarter of an acre. Due to the relative elevations involved, the failure of this dam would only impact the dwelling on the property.

Finally, Brodie Mountain Dam is a small dam retaining less than a quarter acre pond on the south end of Town. Its failure would only impact structures located on the property that are immediately adjacent to the pond. Estimated damages would be less than $50,000.

VULNERABILITY

Based on the above analysis, New Ashford is at a **low** vulnerability from dam failure.

[35] Massachusetts General Laws ch. 21, § 65(a). (2012).

MITIGATION STRATEGIES

GOAL STATEMENT

To reduce the vulnerability of natural hazards to protect the safety and health of the community. Our goal in completing this HMP/MVP is to protect lives and reduce hazards related to people and property. We look to these findings to reduce natural hazards threats, including the environment and the effects of climate change. We encourage the development of mitigation projects and policy solutions and look to improve our energy management preparedness and regional collaboration in the area. We look to establish partnerships though stakeholders such as state and federal government, businesses, and all emergency management to continue to increase resiliency and improve our critical facility measures to meet these goals.

EXISTING MITIGATION CAPABILITIES AND STRATEGIES

POLICIES

The Town of New Ashford's Bylaws[36] and Zoning Bylaws[37] include provisions meant to sustain the natural ecological order or prevent alterations that would negatively impact natural resources. These include bylaws limiting the disturbance of earth, encouraging recycling, preventing the accumulation of potentially hazardous materials on private property, and the dumping of the same into waterways. The Town utilizes a permit system to restrict activities like excavation, tree removal, debris burning, driveway and culvert construction, and other development.

New Ashford's government is largely volunteer. The Town provides modest stipends or hourly rates to those who volunteer to help ensure the necessary roles are being filled. There is no Town Administrator or Manager to run day-to-day operations, but the existing structure has been sufficient given the Town's small population. New Ashford has a Planning Board that oversees development in Town and a Conservation Committee that works to ensure the preservation of natural resources. They also have a Council on Aging that actively focuses on supporting the needs of the elderly in Town.

Due to the limited number of staff and competing priorities, the Town limits its planning activities. The previous HMP was adopted in 2015 as an addendum to the Berkshire County Regional Hazard Mitigation Plan (2012). New Ashford does not have a Master Plan, Vision

[36] Town of New Ashford. (2015). *Town of New Ashford By-Laws*. Retrieved from https://www.newashford-ma.us/wp-content/uploads/2015/01/Bylaws.pdf

[37] Town of New Ashford. (2009). *Town of New Ashford Massachusetts Zoning By-Laws*. Retrieved from https://www.newashford-ma.us/wp-content/uploads/2015/01/New-Ashford-Zoning-bylaw.pdf

Plan, Land Use Plan, Economic Development Plan. Overall, development in Town has been very limited, so these have not been priority tasks for the Town.

In addition to the Town's resources and policies, New Ashford receives support from neighboring communities through mutual aid agreements. These include support for emergency services like Fire Department, Road and Highway, and emergency sheltering. The Town receives police services from the State Highway Patrol in coordination with their Chief of Police.

PROGRAMS

New Ashford participates in the National Flood Insurance Program (NFIP). The NFIP is a program managed by the Federal Emergency Management Agency (FEMA) that offers flood insurance to private entities in participating communities. "The NFIP provides flood insurance to property owners, renters and businesses, and having this coverage helps them recover faster when floodwaters recede. The NFIP works with communities required to adopt and enforce floodplain management regulations that help mitigate flooding effects"[38]. At the time of this report, there are no insured buildings in Town.

New Ashford has started the process to participate in the Community Rating System (CRS)[39]. CRS is a FEMA program that awards points to participating municipalities for their floodplain management efforts that exceed the NFIP requirements. The points can be used to obtain discounts on insurance premiums for private owners in Special Flood Hazard Areas (SFHA). Town Officials are seeking participation in this program to encourage more participation in the NFIP from local homeowners.

The Town offers residents the opportunity to participate in a compost program for a small fee.

RESOURCES

Without question, the primary resource in the Town of New Ashford is its citizens. The first responder to an emergency is likely to be a neighbor. Residents look out for each other, and do not hesitate to lend a hand. A core group of volunteers hold many of the public positions within the Town, and long-time residents have a wealth of historical knowledge about the Town. These people ensure day-to-day functioning of public services as well as lead the community through emergencies or disasters. When resources within the community are insufficient to resolve an issue, they seek available resources from neighboring communities or the Commonwealth.

In addition to the programs mentioned above, Town officials actively seek opportunities to obtain funding for projects in Town. Their ongoing challenge is seeing opportunities through to the end given their limited resources. Nevertheless, members of the various boards give of their

[38] Federal Emergency Management Agency. (n.d.) *Flood Insurance*. Retrieved October 11, 2022, from https://www.fema.gov/flood-insurance

[39] National Flood Insurance Program. (2018). *Community Rating System*. Federal Emergency Management Agency. Indianapolis, IN. Retrieved from https://www.fema.gov/floodplain-management/community-rating-system

time to search for opportunities and ask questions to relevant parties (e.g., state officials) to find out about opportunities.

Table 21 below includes existing mitigation strategies that were identified in the 2013 HMP that remain in effect as well as an assessment of their current effectiveness. Effectiveness is ranked as either effective or ineffective, based on the proposed strategy and the ability to mitigate the hazard.

Type of Existing Protection	Description	Area Covered	Effective-ness	Improvements Needed	Municipal Official Responsible/ Funding
Building Code	The town enforces the current version of the state building code	Entire town	Effective	None	Building Inspector / General funds
Floodplain Bylaw	The town enforces the floodplain bylaw	Floodplain	Effective	None	Building Inspector / Planning Board / General funds
Collaboration with the DCR	Utilize strong communication with DCR regarding the Mt. Greylock reservation.	Mt. Greylock reservation	Mostly Effective	None	Selectboard / NA
Stormwater System Program	The town has and actively maintains a system of stormwater control.	Entire town	Mostly Effective	Replace/ maintain drainage system where flooding occurs.	Public Works / DPW Funds
Tree Trimming Program	The town works with the utility companies to ensure that trees are efficiently trimmed to prevent power outages during storm events	Majority of town	Somewhat Effective	Improve response time	Public Works / DPW Funds

Wetland Protection Act	The town enforces the wetland protection act	Floodplain	Effective	None	Building Inspector / Conservation Commission

***Table 21**. Existing strategies to mitigate hazards and their effectiveness*

PARTICIPATION IN NFIP AND CONTINUED COMPLIANCE

The Town of New Ashford currently participates in the National Flood Insurance Program. The Town maintains their participation in this program by meeting zoning/permitting requirements as well as active floodplain management. As of the date of this plan, there are currently no structures in Town insured through the NFIP, and there are no repetitive loss properties or severe repetitive loss properties.

NATURE-BASED SOLUTIONS

According to FEMA, nature-based solutions are sustainable planning, design, environmental management and engineering practices that weave natural features or processes into the built environment to promote adaptation and resilience. These solutions are designed to combat climate change, reduce flood risk, improve water quality, restore and protect wetlands, and/or add recreational space. These solutions typically come at a lower cost than traditional infrastructure, so they should be prioritized by the Town.[40]

Of the action items recommended, the following should be considered as nature-based solutions. XX

MITIGATION STRATEGIES

MITIGATION STRATEGY PRIORITIZATION PROCESS

To prioritize the recommended mitigation strategies, a two-step process was used. The first step ranked or assessed the mitigation strategy among the factors described below. Those results were then integrated in the second step to determine the priority ranking for each strategy.

Hazard(s) mitigated

[40] Federal Emergency Management Agency. (n.d.). Nature-based solutions. Retrieved on January 4, 2023, from https://www.fema.gov/emergency-managers/risk-management/nature-based-solutions

This section documents which hazards would be mitigated by the action. Actions that mitigate all hazards are noted as "all."

Responsible entity(ies)

This section identifies the public party(ies) responsible for ensuring, overseeing, and completing the strategy. These parties may consist of local boards and committees, Town staff, State Agencies, or other public entities that play a vital role in the implementation of a strategy. Not included are private businesses who may ultimately enter into agreements with the Town to complete some portions of the strategy.

Cost

The cost is estimated and ranked as low, medium, or high according to the scale below. Estimates are based on existing feasibility studies, professional estimates, or comparable historical projects as available. When the action only relies on actions of the municipality (e.g., passing a new Bylaw), an estimate of the hours required by Town Officials at a rate of $30 per hour is used.

Rank	Estimated Cost Range
Low	Less than $10,000
Medium	$10, 001 - $49,999
High	$50,000 or greater

Benefit

The estimated benefit is a ranking that assesses the change in vulnerability upon completion of the action. This measure considers the change in location of impact and/or the change in estimated impact cost as possible with the information available at the time of the report production.

Rank	Estimated Benefit
Low	Limited change in vulnerability. Only a few residents or small location affected. No notable change in potential for damage, injury, or death in the event of hazard event.
Medium	Notable change in vulnerability. Half the population affected. Some decrease in risk of damage, injury, or death in the event of hazard.

High	Significant change in vulnerability. Most of New Ashford and potentially neighboring communities affected. Notable decrease in risk of damage, injury, or death in the event of hazard.

Cost benefit analysis (CBA) or Cost-effectiveness analysis (CEA)

This section calculates the ratio of cost of the project against the anticipated benefit. The distinction between CBA and CEA is dependent on how the benefit is measured. If the benefit is measured in dollars, CBA is used. Otherwise, CEA is a more accurate description of the analysis.

Without the benefit of specific action plans created by engineers, including actual costs, this assessment instead compares the estimated cost of each action with the resulting change in vulnerability to the Town.

In calculating a CBA/CEA, the lower the ratio the greater the benefit of an action. For example, a project costing $1M with an expected benefit of $10M would be described by the formula:

$$\frac{Cost}{Benefit} = \frac{\$1M}{\$10M} = \frac{1}{10}, or\ 0.1$$

This equation demonstrates a return of $10 for every dollar spent. In fact, the lower the ratio the better the Town's return on investment. Describing the benefit as being better when the ratio is lower may seem counterintuitive, though, as a lower CBA or CEA can be perceived as a less advantageous action. Therefore, the ranking system will use the inverse ratio. In the example above, the result would be 10 instead of 0.1, thereby aligning a "high" value with an action that is of benefit for the community.

Value	Inverse estimated CBA or CEA
Low	<0.9
Neutral	0.9 - 1.1
High	>1.1

Potential funding source

This section identifies the primary source of funding for the action to be completed. Town Officials' time is assumed in all actions and is not noted in this section unless that is the only cost associated with an action.

Timeline

This is an estimation for how long the action would take to complete. This calculation may include the time estimated to obtain funding if necessary but not already completed.

Priority (includes historical priority if applicable)

Given all the factors described above, a final priority was assigned to each action. Specifically, the assessment involved weighing the costs, benefits, funding sources/access to funding, historical priority, and willingness of the municipality to complete the action. In some cases, priority may be given to smaller actions that are easy to achieve, even if there is a low benefit, over a higher benefit action that has little backing or would be difficult to fund.

Item	Action	Priority	Hazard(s) Mitigated	Responsible Entity	Cost	Benefit	CBA/ CEA	Funding Source	Timeline
1	**Upsized Culverts on Ingraham Road**	HIGH	FLOODING	TOWN	HIGH	HIGH	HIGH	ACTION GRANT	3 YEARS
2	**Emergency water supply for Fire Protection**	HIGH	WILDFIRE	DCR/TOWN	HIGH	HIGH	HIGH	ACTION GRANT	5 YEARS
3	**Diseased Tree Removal**	MEDIUM	WILDFIRE	DCR	HIGH	HIGH	NEUTRAL	STATE	5 YEARS
4	**Recruitment/ Retention and marketing and education**	MEDIUM	WILDFIRE/ FLOOD/ STORMS	TOWN	LOW	MEDIUM	HIGH	GRANT	5 YEARS
5	**Code Red/ Emergency Management Communication**	MEDIUM	WILDFIRE/ FLOOD/ STORMS	TOWN	LOW	HIGH	HIGH	GRANT AND TOWN FUNDS	3 YEARS
6	**Equipment for Fire Department**	MEDIUM	WILDFIRE/ FLOOD/ STORMS	TOWN	HIGH	MEDIUM	LOW	GRANT	3 YEARS
7	**Feasibility Study of dams**	LOW	FLOODING	TOWN/ PRIVATE	MEDIUM	MEDIUM	NEUTRAL	GRANT	5 YEARS
8	**Upsize Beach Hill and Greylock/ Bauer Culverts**	MEDIUM	FLOODING	TOWN	HIGH	MEDIUM	LOW	GRANT	5 YEARS
9	**Perform engineering study of Beach Hill Road Bridge**	MEDIUM	FLOODING	TOWN	MEDIUM	LOW	LOW	CHAPTER 90	5 YEARS

10	**New Floodplain Maps**	LOW	FLOOD/ DROUGHT	TOWN/ PLANNING	LOW	LOW	NEUTRAL	TOWN/ FEMA	1-3 YEARS
11	**Incorporate HMP into other community plans**	MEDIUM	ALL HAZARDS	TOWN/ PLANNING	LOW	MEDIUM	HIGH	TOWN	1-3 YEARS
12	**Establish education program for landowners on forest management**	LOW	WILDFIRES	TOWN/ PLANNING	LOW	LOW	NEUTRAL	TOWN	1-3 YEARS
13	**Distribute educational material to residents on highest hazard concerns in town**	LOW	ALL HAZARDS	TOWN/ PLANNING	LOW	LOW	HIGH	TOWN	1-3 YEARS
14	**Convene a meeting with state floodplain management**	MEDIUM	FLOODING	TOWN	LOW	LOW	HIGH	TOWN	3 YEARS
15	**Identify excess dry timber in the Mt. Greylock Reservation Area and remove it when needed**	LOW	WILDFIRES	TOWN/ STATE	LOW	MEDIUM	HIGH	STATE/ TOWN	5 YEARS

***Table 22**. Recommended action steps to mitigate hazards*

PLAN ADOPTION AND MAINTENANCE

ADOPTION

The draft of this plan was completed in early January 2023 and publicly posted to allow residents to review the contents. A public comment opportunity was scheduled for January 23, 2023, (see ***Appendix I***) to allow for feedback from the public. Subsequently, the plan was submitted to MEMA and FEMA for approval. Upon receiving conditional approval from FEMA, the plan was presented to the Select Board, and it was voted into adoption on XX (see ***Appendix M***).

IMPLEMENTATION AND MAINTENANCE PROCESSES

IMPLEMENTATION

The adopted plan will be implemented by the Emergency Management Director and Select Board, beginning with the dissemination of the plan to the entities noted in the mitigation strategies, Town's committees/commissions, and neighboring communities. Access to the adopted plan should also be made available in Town Hall and on the Town's website for the public at large.

INCORPORATION WITH OTHER PLANS

The creation of this combined plan included reviews of the SHMCAP, New Ashford's 2013 HMP, Zoning Bylaws, General Bylaws, and its Emergency Response Plan. Updates to the General and Zoning Bylaws should be considered based on the recommendations in this report and, when deemed appropriate, changes or additions should be made according to the respective processes required. The Town's Emergency Response Plan should also be revisited after the review of this plan and updated if warranted.

The Town does not have other planning documents that would be impacted by the contents of this report, but this report should be used as a reference in the development of any new plans. Most notably, a Comprehensive Plan or Climate Action Plan should include the findings of this report.

MONITORING/EVALUATION

A routine process to review this plan is necessary to ensure its accuracy and validity over time. Regular monitoring and evaluation ensure the plan is current and reflects the action steps taken as well as documenting changes to the risk assessment including documenting new challenges

faced by the community. Regular monitoring and evaluations will also make creating a new plan more efficient as this plan is expiring.

To that end, monitoring and evaluation of the plan via an annual review is recommended. The annual review should take place during a public meeting, and current members of the New Ashford Hazard Mitigation Planning/MVP Committee should be involved with the review. Soliciting feedback from other interested entities from within New Ashford as well as from neighboring communities, regional or state agencies, public utility providers, and community-based organizations should be considered. All meeting materials (e.g., agendas, minutes) will be publicly posted in keeping with Massachusetts Open Meeting Laws.

During the annual review, the following tasks should be considered:

- Re-evaluating the hazard ranking/risk assessment,
- Updating information about notable weather-related event that affected the Town,
- Updating the progress made on mitigations strategies,
- Re-prioritizing mitigation strategies,
- Adding new mitigation strategies based on new information, and/or
- Seeking public comment.

Unless updated prior, this plan will expire in five years. Should that occur, New Ashford will lose access to FEMA grants (e.g., BRIC, HMGP) until a new, updated HMP is approved. To avoid funding interruptions, the Town should begin the process of updating this HMP by the start of the fourth year of this plan (i.e., early 2027).

In order to maintain designation as an MVP Community by EEA, the Town is also required to submit an annual progress report detailing the efforts made by the Town toward completing their top recommendations. These efforts can include applying for grant funding, passing Bylaws or zoning regulations, updating other plans based on this report, or other activities. EEA provides a template that the Town is encouraged to use.

APPENDIX

APPENDIX A: LIST OF TABLES

(Please note that the page listed is the beginning page)

TABLE PAGE

APPENDIX B: LIST OF ACRONYMS

BRIC	Building Resilient Infrastructures and Communities Grant
BRPC	Berkshire Regional Planning Commission
C	Celsius
CBA	Cost-benefit analysis
CEA	Cost-effectiveness analysis
CMR	Code of Massachusetts Regulations
CRB	Community Resilience Building
CV or CVP	Climate Vulnerable Population
DCR	Massachusetts Department of Conservation and Recreation
DER	Massachusetts Department of Ecological Restoration
DPW	Department of Public Works
EEA	Massachusetts Executive Office of Energy and Environmental Affairs
EF-Scale	Enhanced Fujita Scale
EJ	Environmental Justice (population)
EMD	Emergency Management Director
EMT	Emergency medical technician
EOC	Emergency Operation Center
F	Fahrenheit
F-Scale	Fujita Scale
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPL	Federal Poverty Level
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
kmh	Kilometers per hour
kt	Knots
MEMA	Massachusetts Emergency Management Agency
M.G.L.	Massachusetts General Law
mph	Miles per hour
MVP	Municipal Vulnerability Preparedness
n.d.	No date
NESIS	Northeast Snowfall Impact Scale
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
ODS	Massachusetts Office of Dam Safety
SFHA	Special Flood Hazard Areas
SHMCAP	Massachusetts State Hazard Mitigation and Climate Adaptation Plan
USDA	United States Department of Agriculture
USGS	United States Geological Survey

APPENDIX C: CORE TEAM AGENDAS

commonwealth

Time/Date: April 15, 6:00 pm
Subject: New Ashford Municipal Vulnerability Preparedness (MVP) and Hazard Mitigation Plan (HMP) Kickoff Meeting
Format: Zoom call

Attendees: *Doreen DeFazio (CMC), Rob Polsinelli (CMC), Jason Jayko (Selectboard), Ken McInerney (Selectboard), Mark Phelps (Selectboard)*

1. Introductions — CMC/Core team

- Doreen DeFazio & Rob Polsinelli, CMC
- Jason Jayko, Selectboard
- Ken McInerney, Selectboard
- Mark Phelps, Selectborad
- Carrieanne Petrik, MVP Regional Coordinator

2. Housekeeping — Doreen

- SOW & contract with state returned
- Forward any paperwork from EEA to CMC
- Jason and Doreen will be main points of contact

3. Overview of MVP — Doreen

4. Schedule — Rob

- Extension
- Core Team meetings (suggested bi-weekly)
- Site visit
- Workshop as two 4-hour blocks or one 8-hour block
- Public comment sessions (two are required)

5. Q & A — Doreen & Rob

Select Board-MVP Meeting Agenda

Date and Time: Monday May 23, 2022, @6:00 PM

Municipal Vulnerability Planning - 6:00PM-6:30PM – May Run Longer
Location: Town Hall & Remote (Teleconference - Conference info below)
Subjects for consideration:

- Approve Minutes from 5/2/2022
- Site Visit Discussion
- Work Shops Schedule and Participants
- Next Steps
- Any other Unforeseen Business
- Public Comment

Next meeting date June 6, 2022 @ 6:00PM

Jason Jayko is inviting you to a scheduled Zoom meeting.

Topic: Select Board

Time: This is a recurring meeting Meet anytime

Join Zoom Meeting

https://us02web.zoom.us/j/9205821032

Meeting ID: 920 582 1032

One tap mobile

+13126266799,,9205821032# US (Chicago) +16465588656,,9205821032# US (New York)

Dial by your location

+1 312 626 6799 US (Chicago)

+1 646 558 8656 US (New York) +1 301 715 8592 US (Washington DC) +1 346 248 7799 US (Houston)
+1 669 900 9128 US (San Jose) +1 253 215 8782 US (Tacoma) Meeting ID: 920 582 1032
Find your local number:
https://us02web.zoom.us/u/kktTfflgU +1 669 900 9128 US (San Jose) Meeting ID: 885 5406 6417
Passcode: 674638

Find your local number: https://us02web.zoom.us/u/kcsSFSeuzF

Select Board-MVP Meeting Agenda

Date and Time: Monday June 6, 2022, @6:00 PM

Municipal Vulnerability Planning - 6:00PM-6:30PM – May Run Longer
Location: Town Hall & Remote (Teleconference - Conference info below)
Subjects for consideration:

- Approve Minutes from 5/22/2022
- Stakeholders
- Work Shops Schedule
- Next Steps
- Any other Unforeseen Business
- Public Comment

Next meeting date June TBD, 2022 @ 6:00PM

Jason Jayko is inviting you to a scheduled Zoom meeting.

Topic: Select Board

Time: This is a recurring meeting Meet anytime

Join Zoom Meeting

https://us02web.zoom.us/j/9205821032

Meeting ID: 920 582 1032

One tap mobile

+13126266799,,9205821032# US (Chicago) +16465588656,,9205821032# US (New York)

Dial by your location

+1 312 626 6799 US (Chicago)

+1 646 558 8656 US (New York) +1 301 715 8592 US (Washington DC) +1 346 248 7799 US (Houston)
+1 669 900 9128 US (San Jose) +1 253 215 8782 US (Tacoma) Meeting ID: 920 582 1032
Find your local number:
https://us02web.zoom.us/u/kktTfflgU +1 669 900 9128 US (San Jose) Meeting ID: 885 5406 6417
Passcode: 674638

Find your local number: https://us02web.zoom.us/u/kcsSFSeuzF

commonwealth

Time/Date: July 7, 2022 6:00 pm
Subject: New Ashford Municipal Vulnerability Preparedness (MVP) and Hazard Mitigation Plan (HMP) Core team meeting
Format: Hybrid Meeting

Attendees: *Doreen DeFazio (CMC),Jason Jayko (Selectboard), Ken McInerney (Selectboard), Mark Phelps (Selectboard)*

1. Review Hazards from HMP – questionnaire
2. Stakeholder list (invitations for workshop) based on vulnerabilities
3. Schedule workshop date (s)
4. Review timeline and responsibilities
5. Public meeting date
6. Q&A
7. Adjourn

August 1, 2022
6:00PM
AGENDA – New Ashford - HMP Review

- Review current hazard mitigation plan
  a. Current Hazard Data
  b. Actions completed

- Create and execute outreach strategy
  a. Review draft survey
  b. Conduct risk assessment

- Review Community capability

- Identify new goals and actions

APPENDIX D: WORKSHOP INVITATION

TOWN OF NEW ASHFORD
TOWN HALL
188 MALLERY ROAD
NEW ASHFORD, MASSACHUSETTS 01237

August 29, 2022

Dear Community Stakeholder,

Given previous and ongoing events we now find ourselves in a new era of more unpredictable and severe weather that can potentially cause more damage to our Town of New Ashford.

In order to be as proactive as we can in preparing and protecting our Town, I would like to personally invite you to join me at two free, half-day, Community Resilience Building Workshops on September 9th and September 10th, 2022. The CRB Workshops will take place on September 9th from 3 pm to 7 pm and on September 10th from 8 am to 12 pm at Town Hall. Refreshments and food will be provided. We will also offer a hybrid option for this meeting.

The Town of New Ashford is partnering with Commonwealth Municipal Consulting, LLC to offer these timely Workshops which will bring together community members like you to comprehensively identify and prioritize steps to reduce risk and improve resilience across New Ashford. These workshops will help clarify and advance comprehensive community resilience planning and hazard mitigation efforts.

The Workshop's Objectives are as follows:

- Understand connections between natural hazards and local planning/mitigation efforts.
- Evaluate strengths and vulnerabilities of residents, infrastructure, and natural resources.
- Develop and prioritize resilient actions for the municipality, local organizations, institutions, businesses, private citizens, neighborhoods, and community groups.
- Identify immediate opportunities to advance actions that reduce the impact of hazards and increase resilience in New Ashford.

Please RSVP for these Workshops by September 2 to Rob Polsinelli at robp.commonwealth@gmail.com.

Please indicate whether you will be participating in person or via Zoom.

I hope you or a designee can join me at these critical workshops. Thank you for your consideration!

Sincerely,

Sophie Protano, Sustainability Specialist
Commonwealth Municipal Consulting, LLC

APPENDIX E: WORKSHOP INVITATION LIST

Name	Position	Email	Invitation status	Attend (Y/N)
Frank Speth	Fire Chief, New Ashford	FireDepartment@newashford-ma.us	Sent	Yes
Jason Jayko	Selectboard, Chairman, New Ashford	jasonjayko@newashford-ma.us	Sent	Yes
Keith LaCasse	Road Commissioner, New Ashford	jlacasse91@gmail.com klcconstructioncorp91@gmail.com	Sent	Yes
Ken McInerney	Selectboard, Conservation Commission Member, New Ashford	kenmcinerney@townofnewashford.com	Sent	Yes
Lori Jayko	Treasurer, New Ashford	Treasurer@townofnewashford.com	Sent	Yes
Mark Phelps	Selectboard, New Ashford	markphelps@townofnewashford.com	Sent	Yes
Kurt Singer	Police chief, New Ashford	ksinger27@gmail.com	Sent	Yes
Allen Seney	Zoning board member, New Ashford	alseney@aol.com	Sent	No
Sherry Youngkin	Council on Aging member, New Ashford	coa@newashford-ma.us	Sent	No
Carrieanne Petrik	MVP Regional Coordinator, EEA	carrieanne.petrik@state.ma.us	Sent	No
Sarah White	Director, DCR	sarah.j.white@state.ma.us	sent	No
Josh Lane	Lanesborough TA	town.secretary@lanesborough-ma.gov	sent	No
Jonathan Coyne	Hancock TA	bos@fairpoint.net	sent	No
Robert Menicocci	Williamstown TA	rmenicocci@williamstownma.gov	sent	No
Jennifer Morse	Cheshire TA	jmorse@cheshire-ma.gov	sent	No

APPENDIX F: CLIMATE PROJECTIONS FOR NEW ASHFORD, MA

New Ashford Climate Projections

ResilientMA map viewer: https://resilientma.org/map/

Precipitation:

Consecutive dry days:

Projected change in # of consecutive dry days

- Annual baseline (# of consecutive days) majority of town (Hudson Basin): 14.63
  - High emissions scenario (RCP 8.5)
    - 2030s: +0.3
    - 2050s: +0.85
    - 2070s: +0.9
    - 2090s: +1.1
  - Medium emissions scenario (RCP 4.5)
    - 2030s: +0.43
    - 2050s: +0.56
    - 2070s: +0.22
    - 2090s: +0.3
- Annual baseline (# of consecutive days) remainder of town (Housatonic Basin): 15.98
  - High emissions scenario (RCP 8.5)
    - 2030s: +0.73
    - 2050s: +0.74
    - 2070s: +1
    - 2090s: +1.22
  - Medium emissions scenario (RCP 4.5)
    - 2030s: +0.57
    - 2050s: +0.43
    - 2070s: +0.43
    - 2090s: +0.49

Extreme precipitation > 1"

Projected change in # days with precipitation > 1 inch

- Annual baseline (days): 5.88
  - High emissions scenario (RCP 8.5)
    - 2030s: +0.93
    - 2050s: +1.56
    - 2070s: +2.29
    - 2090s: +2.87
  - Medium emissions scenario (RCP 4.5)
    - 2030s: +0.69
    - 2050s: +1.02
    - 2070s: +1.25
    - 2090s: +1.38

Extreme precipitation > 2"

Projected change in # days with precipitation > 2 inches

- Annual baseline (days) majority of town (Hudson Basin): 0.57
  - High emissions scenario (RCP 8.5)
    - 2030s: +0.16
    - 2050s: +0.14

        - 2070s: +0.31
        - 2090s: +0.38
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +0.11
        - 2050s: +0.12
        - 2070s: +0.11
        - 2090s: +0.18
- Annual baseline (days) remainder of town (Housatonic Basin): 0.57
    - High emissions scenario (RCP 8.5)
        - 2030s: +0.2
        - 2050s: +0.22
        - 2070s: +0.28
        - 2090s: +0.43
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +0.13
        - 2050s: +0.18
        - 2070s: +0.15
        - 2090s: +0.16

Extreme precipitation > 4"

Projected change in # days with precipitation > 4 inches

- Annual baseline (days) majority of town (Hudson Basin): 0.02
    - High emissions scenario (RCP 8.5)
        - 2030s: 0
        - 2050s: +0.01
        - 2070s: +0.01
        - 2090s: 0
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +0.01
        - 2050s: +0.02
        - 2070s: +0.01
        - 2090s: +0.02
- Annual baseline (days) remainder of town (Housatonic Basin): 0.01
    - High emissions scenario (RCP 8.5)
        - 2030s: +0.02
        - 2050s: +0.02
        - 2070s: +0.02
        - 2090s: +0.04
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +0.02
        - 2050s: +0.02
        - 2070s: +0.01
        - 2090s: +0.02

Total precipitation

Projected change in inches of total precipitation

- Annual baseline (Inches): 48.20
    - High emissions scenario (RCP 8.5)
        - 2030s: +2.63
        - 2050s: +3.62

        - 2070s: +4.89
        - 2090s: +5.6
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +2.13
        - 2050s: +3.16
        - 2070s: +2.81
        - 2090s: +3.77

Temperature

Average temperature

Projected change in average temperature (°F)

- Annual baseline (°F): 43.34
    - High emissions scenario (RCP 8.5)
        - 2030s: +3.91
        - 2050s: +5.9
        - 2070s: +8.17
        - 2090s: +10.1
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +3.12
        - 2050s: +4.49
        - 2070s: +5.51
        - 2090s: +5.46

Cooling degree days

Projected change in cooling degree days

- Annual baseline (degree-days): 213.75
    - High emissions scenario (RCP 8.5)
        - 2030s: +268.47
        - 2050s: +440.17
        - 2070s: +749.35
        - 2090s: +996.24
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +209.5
        - 2050s: +306.85
        - 2070s: +339.87
        - 2090s: +383.1

Days < 0 °F

Projected change in # days below 0 °F

- Annual baseline (days): 17.72
    - High emissions scenario (RCP 8.5)
        - 2030s: -9.06
        - 2050s: -12.1
        - 2070s: -12.16
        - 2090s: -13.41
    - Medium emissions scenario (RCP 4.5)
        - 2030s: -8.74
        - 2050s: -9.92
        - 2070s: -11.43
        - 2090s: -12.13

Days < 32 °F

Projected change in # days below 32 °F

- Annual baseline (days): 173.90
    - High emissions scenario (RCP 8.5)
        - 2030s: -20.54
        - 2050s: -31.7
        - 2070s: -45.57
        - 2090s: -56.65
    - Medium emissions scenario (RCP 4.5)
        - 2030s: -17.6
        - 2050s: -24.62
        - 2070s: -28.34
        - 2090s: -30.08

Days > 100 °F

Projected change in # days above 100 °F

- Annual baseline (days): 0.00
    - High emissions scenario (RCP 8.5)
        - 2030s: +0.03
        - 2050s: +0.11
        - 2070s: +0.79
        - 2090s: +2.32
    - Medium emissions scenario (RCP 4.5)
        - 2030s: 0
        - 2050s: +0.01
        - 2070s: +0.04
        - 2090s: +0.05

Days > 90 °F

Projected change in # days above 90 °F

- Annual baseline (days): 0.48
    - High emissions scenario (RCP 8.5)
        - 2030s: +5.61
        - 2050s: +12.71
        - 2070s: +25.39
        - 2090s: +40.72
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +4.02
        - 2050s: +6.7
        - 2070s: +8.64
        - 2090s: +9.89

Days > 95 °F

Projected change in # days above 95 °F

- Annual baseline (days): 0.01
    - High emissions scenario (RCP 8.5)
        - 2030s: +0.68
        - 2050s: +2.52
        - 2070s: +7.41
        - 2090s: +14
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +0.33
        - 2050s: +0.62
        - 2070s: +1.13

        - 2090s: +1.46

Growing degree days

Projected change in growing degree days

- Annual baseline (degree-days): 1760.90
    - High emissions scenario (RCP 8.5)
        - 2030s: +635.54
        - 2050s: +1009.62
        - 2070s: +1480.75
        - 2090s: +1885.54
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +479.37
        - 2050s: +702.06
        - 2070s: +783.05
        - 2090s: +830.94

Heating degree days

Projected change in heating degree days

*** Town split up into 2 sets of projections*

- Annual baseline (degree days) majority of town (Hudson Basin): 8133.98
    - High emissions scenario (RCP 8.5)
        - 2030s: -1119.88
        - 2050s: -1668.09
        - 2070s: -2266.78
        - 2090s: -2687.93
    - Medium emissions scenario (RCP 4.5)
        - 2030s: -935.83
        - 2050s: -1320.82
        - 2070s: -1540.38
        - 2090s: -1613.29
- Annual baseline (degree days) remainder of town (Housatonic Basin): 7822.03
    - High emissions scenario (RCP 8.5)
        - 2030s: -1067.21
        - 2050s: -1590.87
        - 2070s: -2114.46
        - 2090s: -2515.23
    - Medium emissions scenario (RCP 4.5)
        - 2030s: -877.79
        - 2050s: -1234.64
        - 2070s: 1465.53
        - 2090s: -1524.48

Maximum temperatures

Projected change in maximum temperature °F

- Annual baseline (°F): 53.93
    - High emissions scenario (RCP 8.5)
        - 2030s: +3.81
        - 2050s: +5.88
        - 2070s: +7.95
        - 2090s: +9.87
    - Medium emissions scenario (RCP 4.5)
        - 2030s: +3.18

        - 2050s: +4.43
        - 2070s: +5.15
        - 2090s: +5.54

Minimum temperatures

Projected change in maximum temperature °F

- Annual baseline (°F): 32.74
    - High emissions scenario (RCP 8.5)
        - 2030s: +3.99
        - 2050s: +6.09
        - 2070s: +8.41
        - 2090s: +10.33
    - Medium emissions scenario
        - 2030s: +3.23
        - 2050s: +4.41
        - 2070s: +5.16
        - 2090s: +5.39

Comparisons to other towns:

- Amongst towns with the greatest projected change in days below 0 degrees
- Consistent with the rest of the state or expecting less change in all other areas
- Coastal vulnerabilities N/A

Category	Annual Baseline	High Emissions Scenario (RCP 8.5) Projection by 2050's
Consecutive dry days ** *Town split up into 2 sets of projections*	14.63 days (Hudson Basin) 15.98 (Housatonic Basin)	+0.85 days +0.74 days
Extreme precipitation > 1"	5.88 days	+1.56 days
Extreme precipitations > 2" ** *Town split up into 2 sets of projections*	0.57 days (Hudson Basin) 0.57 days (Housatonic Basin)	+0.14 days +0.22 days
Extreme precipitation > 4" ** *Town split up into 2 sets of projections*	0.02 days (Hudson Basin) 0.01 (Housatonic Basin)	+0.01 days +0.02 days
Total precipitation	48.20 inches	+3.62 inches
Average temperatures	43.34 °F	+5.9 °F
Cooling degree days	213.75 degree days	+440.17 degree days
Days < 0 °F	17.12 days	-12.1 days

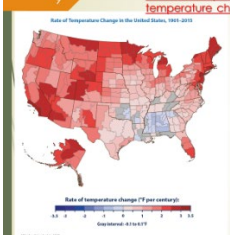
Days < 32 °F	173.90 days	-31.7 days
Days > 100 °F	0.00 days	+0.11 days
Days > 90 °F	0.48 days	+12.71
Days > 95 °F	0.01 days	+2.52 days
Growing green days	1760.90 degree days	+1009.62 degree days
Heating degree days *** Town split up into 2 sets of projections*	8133.98 degree days (Hudson Basin) 7822.03 degree days (Housatonic Basin)	-1668.09 degree days (Hudson Basin) -1590.87 degree days (Housatonic Basin)
Maximum temperatures	53.93 °F	+5.88 °F
Minimum Temperatures	32.74 °F	+6.09 °F

APPENDIX G: CRB WORKSHOP PRESENTATION

Context: **National** Perspectives on Climate

9

Extreme temperatures & temperature changes



Extreme rainfall / precipitation

1901-2015

Source: https://www.epa.gov/climate-indicators

Context: Climate Observations & Projections **for Massachusetts**

10

Massachusetts Observed Climate Changes

Temperature:	2.9°F	Since 1895 (Statewide)
Growing Season:	15 Days	Since 1950
Sea Level Rise:	11 inches	Since 1922 (Boston)
Heavy Precipitation:	55%	Since 1958

PROJECTIONS

Massachusetts Climate Changes Projected by the 2090s

Temperature	7.2°F
90°F Days	34
Sea Level Rise	4 to 10.2 feet
2" Precipitation Days	47%

OBSERVATIONS

More Precipitation.

Total annual precipitation has increased by:

15%

1.2 trillion more gallons of water equivalent falling on Massachusetts each year.

~9,700 filled Prudential Towers

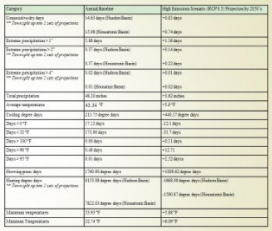
Source: "Climate Change in Massachusetts" www.resilientMA.org

New Ashford Climate Data

11

Comparisons to other towns:

- Amongst towns with the greatest projected change in days below 0 degrees
- Consistent with the rest of the state or expecting less change in all other areas
- Coastal vulnerabilities N/A



Hazard Mitigation Plan vs Municipal Vulnerability Preparedness Plan

12

HMP

- Considers all **environmental hazards** that could affect the Town and how to mitigate them
- FEMA has final approval of plan (done through MEMA)
- Much more comprehensive in scope
- Once approved, certain FEMA funding is accessible

MVP

- Focused on **climate change resilience**
- Borrows information from HMP related to hazards as a starting point
- EEA approves plans
- Once approved, Town can submit for MVP Action Grants

In consideration of climate change mitigation

13

Two specific topics will be revisited based on MVP Action Grant priorities

- Nature-based solutions: Actions that use or reinforce natural resources rather than brick and mortar solutions
  - Examples include tree planting, river straightening, dam removal
- Regionalization: Working with other communities on a project that benefits more than one community
  - An example is enacting a project to purchase and then preserve a forested area that lies in three municipalities

New Ashford's TOP FOUR HAZARDS

14

These TOP 4 Hazards will serve as an **important input to Workshop Actions.**

- Flooding
- Wildfires
- Drought
- Winter Storms

The Risk Matrix

15

The Risk Matrix is a tool to organize the discussions we are having in each of our workgroups

Used to document the hazards, vulnerabilities, strengths, actions discussed during the workshop Each of those will be organized into one of three sub-categories

Infrastructural
Societal
Environmental

The Risk Matrix

16

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org

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

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

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

17

Day 1 Workshop: 1st Group Activity

- **Purpose and description of Step C:**

C Identify Community Vulnerabilities and Strengths

Section C Objectives (small teams): Develop a comprehensive understanding or profile of the community's (1) infrastructural, (2) societal, and (3) environmental components that are impacted by the **Top 4 Hazards** (B-2), as well as those features that help to make the community stronger and more resilient against these top hazards. The **Risk Matrix** captures the community's **Top 4 Hazards**, vulnerabilities, strengths, and actions. The **Risk Matrix** provides information necessary to develop strategies, inform community plans and advance actions to lessen hazard impacts and build resilience.

18

1st Group Activity – 1 HOUR

"C1, C2, & C3" Identify Community Vulnerabilities and Strengths

Instructions

- As a group, discuss the vulnerabilities and strengths of New Ashford in light of top hazards.
  - Use 15 minutes to discuss vulnerabilities and strengths in relation to the *Infrastructure* of New Ashford
  - Spend 5 minutes documenting on the Risk Matrix
  - Repeat for *Societal* and then for *Environmental* vulnerabilities and strengths
  - Be specific about locations when possible

19

The Risk Matrix

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org

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

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

In light of TOP 4 HAZARDS

20

30 MINUTE BREAK

21

Day 1 Workshop: 2nd Group Activity

- **Purpose and description of Step D:**

D Identify and Prioritize Community Actions

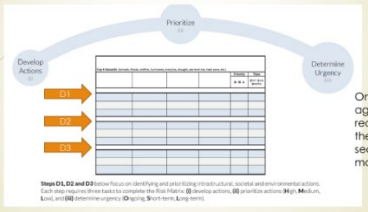
Section D Objective: For each profile – Infrastructural, Societal, Environmental – carefully identify and then prioritize actions to help reduce vulnerability or reinforce strengths for each or all of the **Top 4 Hazards**. Continue to work as small teams through the following three steps for each profile and capture dialogue, in detail, on the respective Risk Matrix. The **Risk Matrix** captures the community's **Top 4 Hazards**, vulnerabilities, strengths, and actions. The **Risk Matrix** provides information necessary to develop strategies, inform community plans and advance actions to lessen hazard impacts and build resilience.

1.5 Hours

22

Day 1 Workshop: 2nd Group Activity

- 30 minutes devoted to each of the following: **Infrastructural (D1), Societal (D2), and Environmental (D3):**



Once team agreement is reached, fill out the applicable sections of the risk matrix

CONCLUSION OF DAY 1

23

COMMONWEALTH

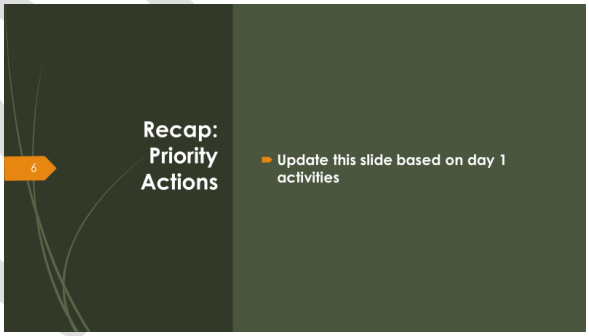

Municipal Vulnerability Preparedness (MVP)
Community Resilience Workshop for Town of New Ashford, MA
Day Two
COMMONWEALTH


2
Contents
Recap:
Workshop Objectives (overall)
Agenda & Daily Objectives:
• Day 1 of Workshop (yesterday)
• Day 2 of Workshop (today)
Day 2 Workshop Actions
Determine Overall Priority Actions


3
Agenda & Daily Objectives
NEW ASHFORD
Day Two (Saturday) – 4 hrs
Recap of Day 1 – 30 min
Determine the overall priority actions – 2 hrs
Break: 30 min
Wrap-up / explanation of next steps – 1 hr


4
Recap on: New Ashford's TOP FOUR HAZARDS
These TOP 4 HAZARDS will serve as an important input to Workshop Actions.
Flooding
Wildfires
Drought
Winter Storms


5
Recap: New Ashford's Vulnerabilities and Strengths
Update this slide based on day 1 activities
Revisit the risk matrix as completed


6
Recap: Priority Actions
Update this slide based on day 1 activities


7 Day 2 Workshop Actions
Large Group Activity – 2 HOURS
"E1 & E2" - Determine Overall Priority Actions


8
Day 2 Workshop: Group Activity
Given the actions developed in the group activity, we will "dot-vote", discuss further , agree to the overall priorities:
Purpose: to generate a "Highest Priority" action list (3 to 5 items)
Factor in urgency and timing to help create this more focused list.

9

What is Dot Voting?

- Dot-voting is a quiet activity
- Participants walk around to the Risk Matrix and apply dots to actions they believe are most critical
- 3 dots per person, 1 vote allowed per action
- When voting is complete, the 3-5 actions with the most dots are considered highest priority
- The list is further prioritized based on discussion, factoring in urgency and timing

10

Time to Vote

11

Group Activity – Refinement

Further Define Urgency and Timing

Instructions

- For each of the top 3-5 priorities, review each action and consider:
  - Urgency and Timing
  - Nature-based solutions
  - Potential for Regionalization
  - Any other factors that affect priority (e.g., funding, community support, etc.)

12

30 MINUTE BREAK

13

NEXT STEPS
- MVP related activities
- HMP related activities

1 HOUR

14

What Happens Next?

F Put It All Together
1. Generate final workshop products.

G Move Forward
1. Continue community outreach and engagement.
2. Secure additional data and information.
3. Inform existing planning and project activities.

From: Community Resilience Building WORKSHOP GUIDE

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What Happens Next?

- HMP requirements include:
  - *Drafting of HMP report that is more comprehensive than MVP report*
  - *Further collection and review of historic weather data*
  - *May require input from Core Team members, New Ashford Town Officials, or from State and other municipal sources*

Any questions?

Thank you all for your participation!

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APPENDIX H: PUBLIC COMMENT OPPORTUNITY ONE NOTICE

TOWN OF NEW ASHFORD
TOWN HALL
188 MALLERY ROAD
NEW ASHFORD, MASSACHUSETTS 01237

Public Notice

This is a notice to the public that on Monday, August 29th at 6:00PM there will be a Public Meeting to discuss the proposed MVP/HMP plan updates prior to the scheduled MVP workshop.

The link for the online meeting will be posted on the attached agenda and on the Town's website.

We ask that anyone who cannot attend the meeting but has questions regarding the HMP/MVP plan to please submit your questions in writing to Doreen.commonwealth@gmail.com before August 29th at 3:00pm and they will be answered and recorded at the public meeting.

There will be two public comment meetings held during this process. The second will be held after the workshop date and will be posted at a future date.

For more information, please contact the Municipal Office.

SEE ATTACHED AGENDA

Time/Date: August 29, 2022

Subject: New Ashford Public Meeting Municipal Vulnerability Preparedness (MVP) Core Team Meeting/Public Meeting

Format: Zoom call

Presenters: Commonwealth Municipal Consulting, LLC

1. Call to Order
2. Public Meeting Review of HMP findings
3. Risk Assessment
4. Workshop Updates
5. Q & A
6. Adjourn

Join Zoom Meeting

https://us02web.zoom.us/j/83142861388?pwd=VDlLZWI4QlBkUW8rTUxIRVMwRXU4dz09

Meeting ID: 831 4286 1388

Passcode: 669311

Dial by your location

+1 312 626 6799 US (Chicago)

+1 646 558 8656 US (New York)

+1 646 931 3860 US

+1 301 715 8592 US (Washington DC)

+1 309 205 3325 US

APPENDIX I: PUBLIC COMMENT OPPORTUNITY TWO NOTICE

TOWN OF NEW ASHFORD
TOWN HALL
188 MALLERY ROAD
NEW ASHFORD, MASSACHUSETTS 01237

Public Notice

This notice informs you that the Town is holding a **Public Meeting** on **Monday, January 23, 2023, at 6:30 PM**. This public meeting is to discuss the proposed Municipal Vulnerability Plan (MVP), which the Town has been working on with Commonwealth Municipal Consulting, LLC, since last spring.

The Municipal Vulnerability Preparedness grant program (MVP) provides support for cities and towns in Massachusetts to begin the process of planning for climate change resiliency and implementing priority projects. The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans. Communities that complete the MVP program become certified as an MVP community and are eligible for MVP Action Grant funding and other opportunities. The report includes an update to our Hazard Mitigation Plan.

If you cannot attend the meeting but have questions regarding the MVP/HMP plan, please submit your questions in writing to Doreen.commonwealth@gmail.com **before 3:00 PM, January 21, 2023**, and we will answer them during the public meeting.

The Meeting will be held at Town Hall, 188 Mallery Rd, New Ashford, MA 01237, and via

COMMONWEALTH

Zoom using the following information:

Join Zoom Meeting
https://us02web.zoom.us/j/85960522010?pwd=aFllLzFpb3g4akx3Ukl6T0tnbUczUT09
Meeting ID: 859 6052 2010

Passcode: 219451
One tap mobile
+16465588656,,85960522010#,,,,*219451# US (New York)
+16469313860,,85960522010#,,,,*219451# US

Additional questions can be directed to the Municipal Office at
(413) 458-5461.

APPENDIX J: PUBLIC SURVEY

NOTE: *This survey was available for residents online per the decision of the Core Team. Minor differences in format exist, notably that open ended questions could be answered in a text box rather than on a line as shown below.*

New Ashford Public Comment Survey

Survey Introduction: This survey aims to collect data surrounding hazards and vulnerabilities in the Town of New Ashford, Massachusetts. Responses to this survey serve as essential public input regarding the contents and direction of the Hazard Mitigation Planning and Municipal Vulnerability Preparedness process being conducted by the Town. This survey will take approximately 5 - 10 minutes and consists of 9 questions requiring you to rank choices, choose from a multiple-choice list or type a short response. If you are not comfortable answering specific questions please feel free to skip them. Answers to this survey are completely anonymous, and there is no risk of a respondent's identity being revealed. Furthermore, your answers will be protected through the website where this online survey will be conducted. This survey is intended for residents of New Ashford, Massachusetts and may only be completed one time per resident. If you are assisting a resident in completing this survey, please indicate that below.

Please note that at the end of this survey there will be a prompt for individuals who fall under the listed categories to click a link bringing them to a subsequent survey relating to climate vulnerable populations.

If you have any questions or concerns please feel free to reach out to the principal investigator, Rob Polsinelli, at robp.commonwealth@gmail.com.

Please check the appropriate boxes to attest that you have read the above information, that you would like to proceed with taking this survey, that you are a current resident of the Town of New Ashford, and that you will only complete the survey one time.

- ☐ I affirm that I have read the above information and would like to proceed in taking this survey
- ☐ I affirm that I will only take this survey one time
- ☐ I affirm that I am a current resident of New Ashford **OR**
- ☐ I am assisting a resident of New Ashford in completing this survey because they are unable to complete it on their own.

Q1: Rank the hazards faced by the Town of New Ashford from most to least concerning. Use the scroll bar on the bottom to see all options. Please note, only one selection is allowed for each row or column.

- ☐ Dam failure
- ☐ Extreme Temperatures & Drought

- ☐ Earthquakes
- ☐ Flooding/Ice Jams
- ☐ Hurricane/tropical storm
- ☐ Winter Storm (blizzards/snow/ice storms)
- ☐ Severe storm (thunderstorms/wind/hail/lightning)
- ☐ Wildfire/brushfire
- ☐ Tornado
- ☐ Landslide

Q2: Please provide a brief explanation as to why you ranked your top hazard as the most concerning.

_____

Q3: Are there one or more areas of Town that come to mind as particularly vulnerable to hazards? Please list them in the space provided. _____

Q4: What project(s) could be done to limit the vulnerability of the area(s) you listed above?

_____

Q5: Fill in the blank based on your level of confidence: If New Ashford were to experience a hazard I would feel _____ in the Town's ability to be resilient and manage emergency services.

- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Apprehensive
- ☐ Very apprehensive

Q6: If you answered "very confident" or "confident" what do you think the town is doing right to prepare/plan for hazardous events?

_____

Q7: If you answered "apprehensive" or "very apprehensive," what could the town do differently to be better equipped to handle hazards?

_____

Q8: How would you rank your concern for climate change? (1 being "not at all concerned" and 5 being "very concerned")

not concerned 1 2 3 4 5 very concerned

Q9: If you answered "4" or "5" to the previous question, what is your biggest climate change concern as it relates to the hazards faced by the Town of New Ashford?_____

Climate Vulnerable Population Survey Invitation

In order to gauge the opinions of Climate Vulnerable Populations in the Town of New Ashford, CMC has prepared a subsequent survey seeking respondents who fall into one or more of the following categories:

- Non-white
- Low income
- Elderly (65+)
- Individuals with a chronic physical disability (some examples include a visual impairment, hearing impairment, motor impairment including the need for physical assistance or use of a wheelchair, walker, or cane)
- Individuals with a mental health disorder or intellectual disability (some examples include PTSD, Depression, cognitive impairment, or developmental disability.)

If any of the above categories pertain to you please click this link to complete the environmental justice portion of the survey: New Ashford CVP Survey

Otherwise, thank you very much for your participation.

Debrief: Thank you so much for taking the time to participate in this survey. To reiterate, your responses are completely anonymous and your data is protected through the website on which this survey is conducted. Any questions or concerns do not hesitate to reach out to robp.commonwealth@gmail.com. Your participation is much appreciated!

APPENDIX K: CLIMATE VULNERABLE POPULATION SURVEY

NOTE: *This survey was available for residents online per the decision of the Core Team. Minor differences in format exist, notably that open ended questions could be answered in a text box rather than on a line as shown below.*

New Ashford Climate Vulnerable Population Survey

This survey aims to collect data about climate vulnerable populations in the Town of New Ashford, Massachusetts. Responses to this survey will assist in filling gaps in data surrounding environmental justice in Massachusetts and provide a valuable starting point for work that Commonwealth Municipal Consulting can do to best address these stressors. This survey will approximately 5 minutes and consists of 13 questions requiring you to choose from a multiple-choice list. If you are not comfortable answering specific questions please feel free to skip them. Answers to this survey are completely anonymous, and there is no risk of a respondent's identity being revealed. Furthermore, your answers will be protected through the website where this online survey will be conducted. This survey is intended for residents of New Ashford, Massachusetts and may only be completed one time per resident. If you are assisting a resident in completing this survey please indicate that below.

If you have any questions or concerns please feel free to reach out to the principal investigator, Rob Polsinelli, at robp.commonwealth@gmail.com.

Section 1: Confirmation

Please check the appropriate boxes to attest that you have read the above information, that you would like to proceed with taking this survey, that you are a current resident of the Town of New Ashford, and that you will only complete the survey one time.

- ☐ I affirm that I have read the above information and would like to proceed in taking this survey
- ☐ I affirm that I will only take this survey one time
- ☐ I affirm that I am a current resident of New Ashford
  OR
- ☐ I am assisting a resident of New Ashford in completing this survey because they are unable to complete it on their own

Section 2: Demographic information:

Q1: How old are you?

- ☐ Under 18
- ☐ 18-24 years old
- ☐ 25-34 years old
- ☐ 35-44 years old

- ☐ 45-54 years old
- ☐ 55-64 years old
- ☐ 65-74 years old
- ☐ 75 years or older

Q2: Approximately how long have you been a resident of New Ashford?

- ☐ Less than 1 year
- ☐ 1-4 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years
- ☐ 20-29 years
- ☐ 30-39 years
- ☐ 40-49 years
- ☐ 50+ years

Q3: Do you currently own or rent your home?

- ☐ Own
- ☐ Rent

Q4: Are you of Hispanic/Latinx/Spanish origin?

- ☐ Yes
- ☐ No

Q5: How would you best describe yourself? (Select only one)

- ☐ Two or more races
- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Black/African American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White
- ☐ Other _____

Q6: What is your annual household income?

- ☐ Less than $20,000
- ☐ Between $20,000 and $34,999
- ☐ Between $35,000 and $49,999
- ☐ Between $50,000 and $74,999
- ☐ Between $75,000 and $99,999
- ☐ Between $100,000 and $150,000
- ☐ Over $150,000

Q7: Do you have a chronic physical disability? (Examples include but are not limited to a visual impairment, hearing impairment, motor impairment including the need for physical assistance or use of a wheelchair, walker, or cane.)

- ☐ Yes
- ☐ No

Q8: Q8: Do you have a mental health disorder or an intellectual disability? (Examples include but are not limited to PTSD, Depression, cognitive impairment, or developmental disability.)

- ☐ Yes
- ☐ No

Section 3: Hazard experience

Q9: Since becoming a resident of New Ashford, have you experienced a hazardous event within the Town? (Examples may include flood, dam failure, hurricane, severe winter weather, severe weather, drought, fire, earthquake, and landslide.)

- ☐ Yes
- ☐ No

Q10: If you answered yes to the previous question, how would you best categorize the hazardous event(s) you have experienced in New Ashford. Select as many as applicable.

- ☐ Flooding/Ice Jams
- ☐ Dam failure
- ☐ Hurricane & Tropical Storm
- ☐ Winter Storm (blizzard/snow/ice storm)
- ☐ Severe Storm (thunderstorm/wind/hail/lightning)
- ☐ Extreme Temperature/Drought
- ☐ Wildfire/Brushfire
- ☐ Earthquake
- ☐ Landslide
- ☐ Tornado
- ☐ Other (list) _____

Q11: If you answered yes to question 9 choose your level of agreement with this statement: During a time of hazardous event within the Town of New Ashford, I was able to receive the necessary resources and/or assistance to mitigate harm.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree
- ☐ N/A

Q12: Choose your level of agreement with this statement: If the Town of New Ashford were to experience a hazardous event, I would be able to receive the necessary resources and/ or assistance to mitigate harm.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Q13: If the Town of New Ashford were to experience a hazardous event, do you expect to have more difficulties accessing or receiving necessary resources and/ or assistance to mitigate harm than others based on one of the following factors? (You may select multiple answers.)

- ☐ Yes, because of my income
- ☐ Yes, because of my race or ethnicity
- ☐ Yes, because of my age
- ☐ Yes, because of a disability
- ☐ No, my experience would not be affected by any of the factors listed above

Section 4: Debrief

Thank you so much for taking the time to participate in this survey. To reiterate, your responses are completely anonymous and your data is protected through the website on which this survey is conducted. Any questions or concerns do not hesitate to reach out to robp.commonwealth@gmail.com. Your participation is much appreciated!

APPENDIX L: SITE MAP OF MONTGOMERY, MA

APPENDIX M: PLAN ADOPTION CERTIFICATE