

# TOWN OF ATHOL, MA

## Community Resilience Building: Integrated MVP HMP Report

**SUMMARY OF FINDINGS &  
HAZARD MITIGATION PLAN UPDATE  
2020**

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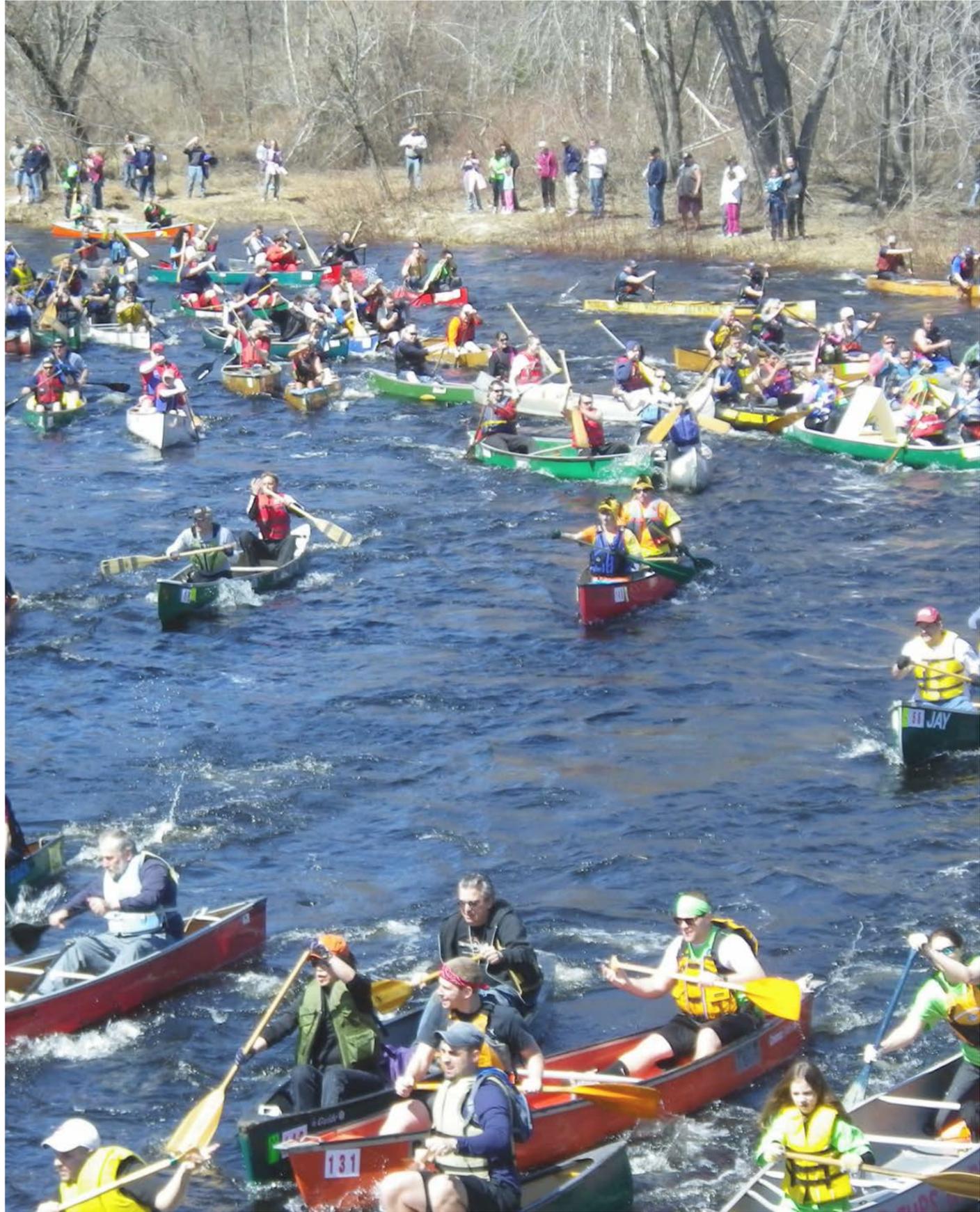
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Town of  
**ATHOL**  
Massachusetts





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## EXECUTIVE SUMMARY

In accordance with Executive Order 569, which seeks to build resilience and adapt to the impacts of climate change, the Town of Athol, Massachusetts is pleased to submit this Integrated Summary of Findings Report and Hazard Mitigation Plan. In 2019, the Town of Athol applied for and received a Municipal Vulnerability Preparedness (MVP) program planning grant from the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) to 1) complete a vulnerability assessment and action oriented resilience plan (Findings Report), 2) update its Hazard Mitigation Plan, and 3) conduct an education and engagement effort explicitly focused on addressing socially vulnerable populations in Athol through the lens of climate change resilience. Collectively, these 3 efforts followed the Community Resilience Building (CRB) framework developed by The Nature Conservancy. The CRB framework uses a community-driven workshop process to identify climate-related hazards, community strengths and vulnerabilities, and develop solutions to address these considerations. Completion of the CRB process enables the Town to achieve MVP community designation status from the EEA and receive preference for future state grants under the MVP program or other participating funding entities. As climate change continues to alter the way municipalities evaluate risk and manage resources, it is important to evaluate the effects of climate change and the solutions to address these challenges in a manner that assesses the interdependency of Athol's infrastructural, societal, and environmental features. This Findings Report provides an important first step to establish climate resilience within the community.

## CHAPTER 1:

# COMMUNITY RESILIENCE BUILDING PLANNING AND WORKSHOP



# COMMUNITY RESILIENCE BUILDING PLANNING AND WORKSHOP

## COMMUNITY RESILIENCE BUILDING WORKSHOP A PATH TO CLIMATE RESILIENCE

**Athol, Massachusetts  
Millers Watershed Basin**

Ashburnham, Athol, Erving, Gardner, Hubbardston, Montague, New Salem, Northfield, Orange, Petersham, Phillipston, Royalston, Templeton, Warwick, Wendell, Westminster, and Winchendon



The Town of Athol has received a Municipal Vulnerability Preparedness (MVP) Planning Grant from the Commonwealth of Massachusetts. With this grant, our community will engage in a planning initiative to better understand

**HOW WE ARE VULNERABLE TO THE EFFECTS OF CLIMATE CHANGE AND  
PRIORITIZE ACTIONS TO INCREASE THE CLIMATE RESILIENCE OF OUR TOWN.**

As a project stakeholder, your attendance is requested at this workshop.

### WHERE:

Athol Public Library  
568 Main Street, Athol, MA 01331

### WHEN:

Tuesday, Feb 4, 2020  
Snow date, Tuesday, Feb 11, 2020

### TIME:

9 am - 5 pm

COFFEE, SNACKS, AND  
LUNCH WILL BE  
PROVIDED

### RSVP BY WEDNESDAY JANUARY 29

Eric Smith, Director of Planning and  
Development  
(978) 721-8500 x. 517  
planning@townofathol.org



TAKE ACTION!

DEVELOP AND  
PRIORITIZE  
ACTIONS

COMPLETE  
ASSESSMENT OF  
VULNERABILITIES  
AND STRENGTHS

IDENTIFY  
CLIMATE  
IMPACTS AND  
HAZARDS

ENGAGE  
COMMUNITY

←  
Community  
Resilience Building  
Workshop Invite

The CRB process began with the establishment of a Core Team comprised of municipal staff members. Core Team meetings involved developing a broad understanding of the Hazards, Vulnerabilities, and Strengths that characterize the Town of Athol, and to identify a list of Preliminary Resilience Actions that the community may consider at the CRB Workshops. Core Team meetings were also used to identify the goals of the workshop within the context of community interests and needs. The Core Team decided that it was important to use the workshops as a mechanism to engage with the community using interactive media platforms such as a GIS community data viewer prepared specifically for the workshop. Public climate data sources provided on the Massachusetts Data Clearinghouse Website, resilientma.org were also introduced to workshop participants.

Workshop participants included a diverse set of community stakeholders from municipal departments, local businesses, non-government entities, and local interest groups. The Workshop involved a series of stakeholder breakout working sessions, group discussion, interactive online GIS data presentations, and presentations focused on Nature-based solutions, Hazard Mitigation Planning, and Social Vulnerability in the community. The combination of institutional knowledge within workshop group planning efforts expanded upon Core Team Planning efforts to prioritize actions. The workshop concluded with a group discussion intended to identify interdependent project types that may be eligible for funding under the MVP program or other Massachusetts grant sources. Climate resilience planning requires an ongoing effort by community stakeholders. Workshop attendees and other interested stakeholders are encouraged to provide comments, corrections, updates, or additional information of findings transcribed in this report to Eric Smith at [planning@townofathol.org](mailto:planning@townofathol.org). The success of climate resilience planning in Athol is contingent upon ongoing participation of community stakeholders.

CORE TEAM MEETING DATES	TOPICS
October 2, 2019	MVP Kickoff Meeting
November 6, 2019	Community Resilience Building Hazard Mitigation Planning Equitable Adaptation Working Group
December 4, 2019	Community Resilience Building Hazard Mitigation Planning Equitable Adaptation Working Group
February 4, 2020	Community Resilience Building Workshop
March 4, 2020	Public Listening Session #1 - Integrated MVP/HMP Planning
April 22, 2020 (Online)	Public Listening Session #2



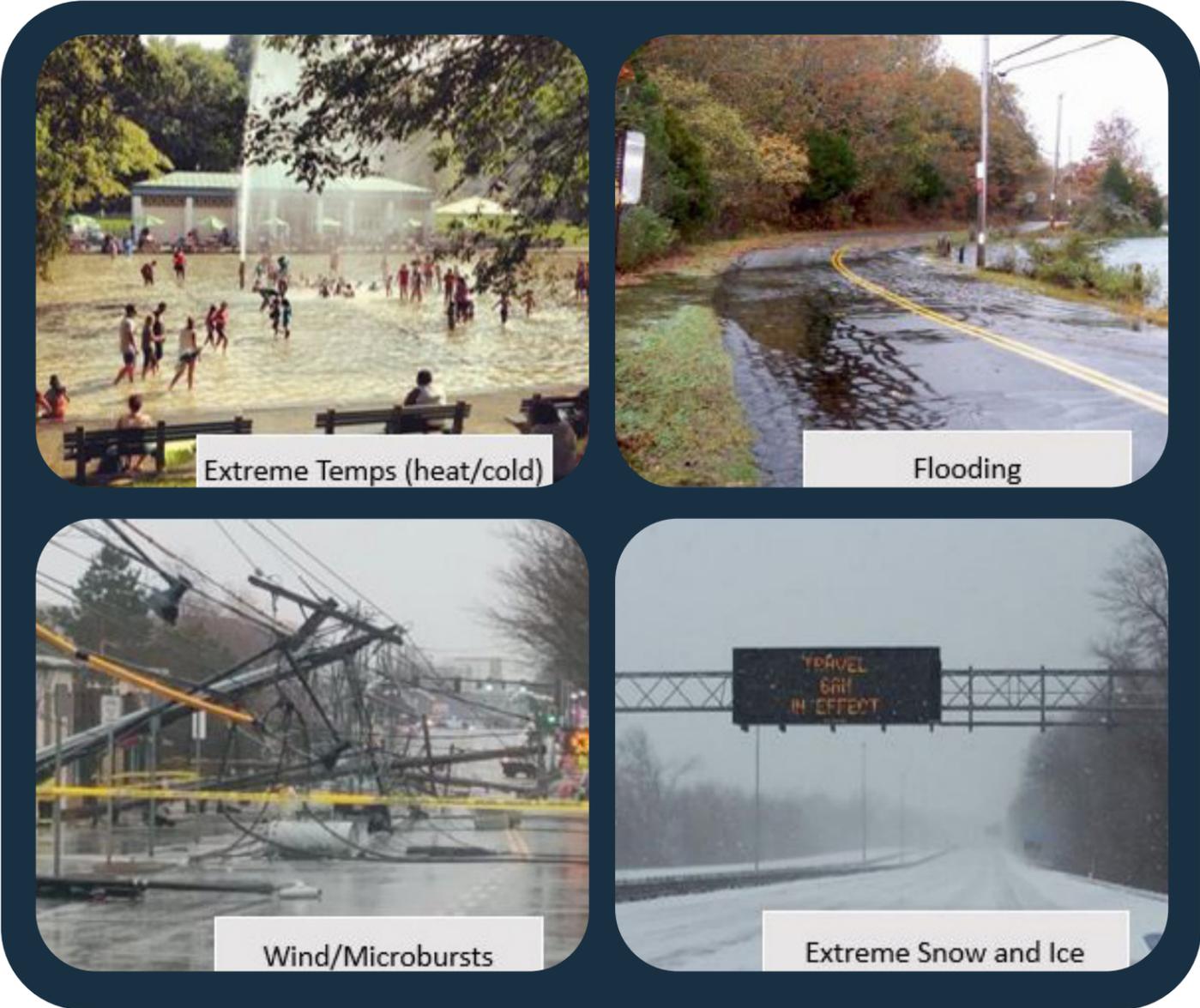
Town of  
**ATHOL**  
Massachusetts



# DEFINING HAZARDS

The Town of Athol has several challenges related to establishing resilience to the effects of climate change. Climate related hazards and action-oriented solutions to address these challenges have been developed by the community. Climate change is expected to increase the occurrence and intensity of weather related events. Identifying and preparing for the hazards most prevalent within Athol is the first step to prepare for the effects of climate change.

## CLIMATE CHANGE IN ATHOL



↑ Workshop Presentation Graphic

→ Community Resilience Building Workshop, Athol, MA

During the Core Team and CRB planning efforts, stakeholders identified the top natural hazards for the Town of Athol. Inland riverine flooding from extreme precipitation events and extreme heat was identified as the top hazards among most participants. Extreme snow and ice events and wind/microbursts represented additional climate exposure hazards and were highlighted as significant concerns for the Town. Collectively, it was agreed upon by the group that the Town of Athol’s top hazards present ongoing and cumulative adverse impacts on the community’s most important infrastructural, societal, and environmental resources.

While Athol identifies Inland Flooding, Extreme Heat, Extreme Snow and Ice, and Wind/Microbursts as a source of significant vulnerability for the community, Atmospheric, Fire, and Geologic Hazards were also evaluated as part of this Integrated MVP/HMP planning process. Of the hazards considered as part of this risk and vulnerability assessment, only Tsunami’s were identified as not applicable. A Hazard Mitigation Plan Update is provided in Chapter 2 of this report.

**HAZARD MITIGATION PLANNING**

**Flood Related Hazards**  
Heavy Rain, Snow Melt, Dam Failure, Ice Jam, Beavers

**Atmospheric And Winter Related Hazards**  
High Winds, Hurricanes, Tornadoes, Nor’easters, Severe Thunderstorms, Heavy Snow, Ice Storms, Blizzard

**Other Natural Hazards**  
Major Urban Fires, Wildland Fire, Drought, Extreme Temperatures

**Geologic Hazards**  
Earthquakes, Landslides, Tsunami



# CHARACTERIZING A CLIMATE RESILIENT ATHOL - MUNICIPAL VULNERABILITIES AND STRENGTHS

The CRB process involves a robust stakeholder engagement effort and can be used to characterize vulnerabilities and strengths unique to a given community. The Athol CRB process revealed important characteristics that broadly represent the identity and culture of the community. Collectively, these characteristics provide a snapshot of the community's vulnerabilities and strengths and is an important starting point to identify community features most at risk to the effects of climate change.

## SOCIAL VULNERABILITY – ATHOL HELPING ATHOL “AHA”

The Town of Athol contains environmental justice (EJ) communities and other groups of people (i.e. socially vulnerable populations) that may be disproportionately vulnerable to climate change impacts and natural hazards. Of the six demographic indicators identified by the Environmental Protection Agency's EJScreen mapping tool ([www.epa.gov/ejscreen](http://www.epa.gov/ejscreen)), Athol has EJ neighborhoods with residents characterized by low income (93%tile) and individuals with less than high school educations (90%tile) compared to state percentiles. Other forms of social vulnerability exist within Athol such as minority populations, children under the age of 5, and adults over the age of 65. While significant social vulnerability exists within Athol, a dedicated network of social service providers is committed to addressing the most pressing needs of the community. Organizations such as the North Quabbin Community Coalition and the Athol Council on Aging remain routinely engage with members of the community and municipal representatives. As part of this MVP planning process, stakeholders from the community participated in a collaborative planning initiative intended to increase the capacity of socially vulnerable populations in Athol subject to the effects of climate change. Through this process, stakeholders identified the needs of two key groups in the community: 1) elderly populations (ages 65+), children, and teens and transitional youth (ages 16-24). When explicitly considering the needs of these groups in the planning process, overlapping sources of vulnerability were identified. Actions to increase the climate resilience of these groups of people were also found to share similarities such as transportation, housing and social support needs. The vulnerabilities and related climate resilient solutions are embedded throughout this Findings Report and within the attached “AHA” – Athol Helping Athol: Community Plan for Social Resilience.

## EMERGENCY PREPAREDNESS AND RESPONSE – DRAWING UPON ESTABLISHED PROCESSES AS A FOUNDATION FOR CLIMATE RESILIENCE

Emergency preparedness and response operations are managed by an established and collaborative effort between the Police Department, Fire Department and Public Works. Other municipal department such as the Board of Health are also called upon to coordinate resources and expertise in an emergency circumstance for example during outbreaks of mosquito borne illness. The Town of Athol has a well-defined and established operational procedure to prepare for the effects of natural hazards and associated response. Emergency preparedness and response systems in Athol consist of a variety of communication procedures that have proven effective in past emergency situations. The community recognizes these systems as adequate and effective but agrees that improvements to these systems such as radio communications for emergency personnel are both appropriate and necessary in the face of changing climate related hazards.

## THE MILLERS RIVER – AN IMPORTANT SOCIAL, ECONOMIC, AND ENVIRONMENTAL RESOURCE

The Millers River represents an important cultural feature within the community. The relationship of the Millers River to Athol's historical heritage was apparent during community resilience building efforts. Stakeholders frequently mentioned the importance of improving access to the river and supporting economic development that improves infrastructural, societal, and environmental conditions along the river. This was particularly apparent when the relationship to the Millers River with Athol's downtown areas were discussed. Water resources in the community drain predominantly to the Millers River and therefore Athol's water management infrastructure (bridges, culverts, and dams) were frequently discussed during planning efforts. Similarly, water quality and public use of Athol's natural resources for ecological resilience was identified as important to the community, for example Lake Ellis and Silver Lake. The adjacency of the Millers River to former and current manufacturing mills complexes, Athol's municipal offices, the Athol Police Department, the Athol Public Library, and residential neighborhoods and development was frequently discussed as a strength and vulnerability for the community. An industrial presence along the banks of the Millers River combined with a legacy of environmental contamination and urban development has limited the redevelopment of under-utilized sites and stressed the environmental justice communities along the Route 2A corridor. Redevelopment of downtown Athol, notably Lord Pond Plaza is identified by the community is an essential aspect of achieving the co-benefits related to social, economic, and environmental resilience.

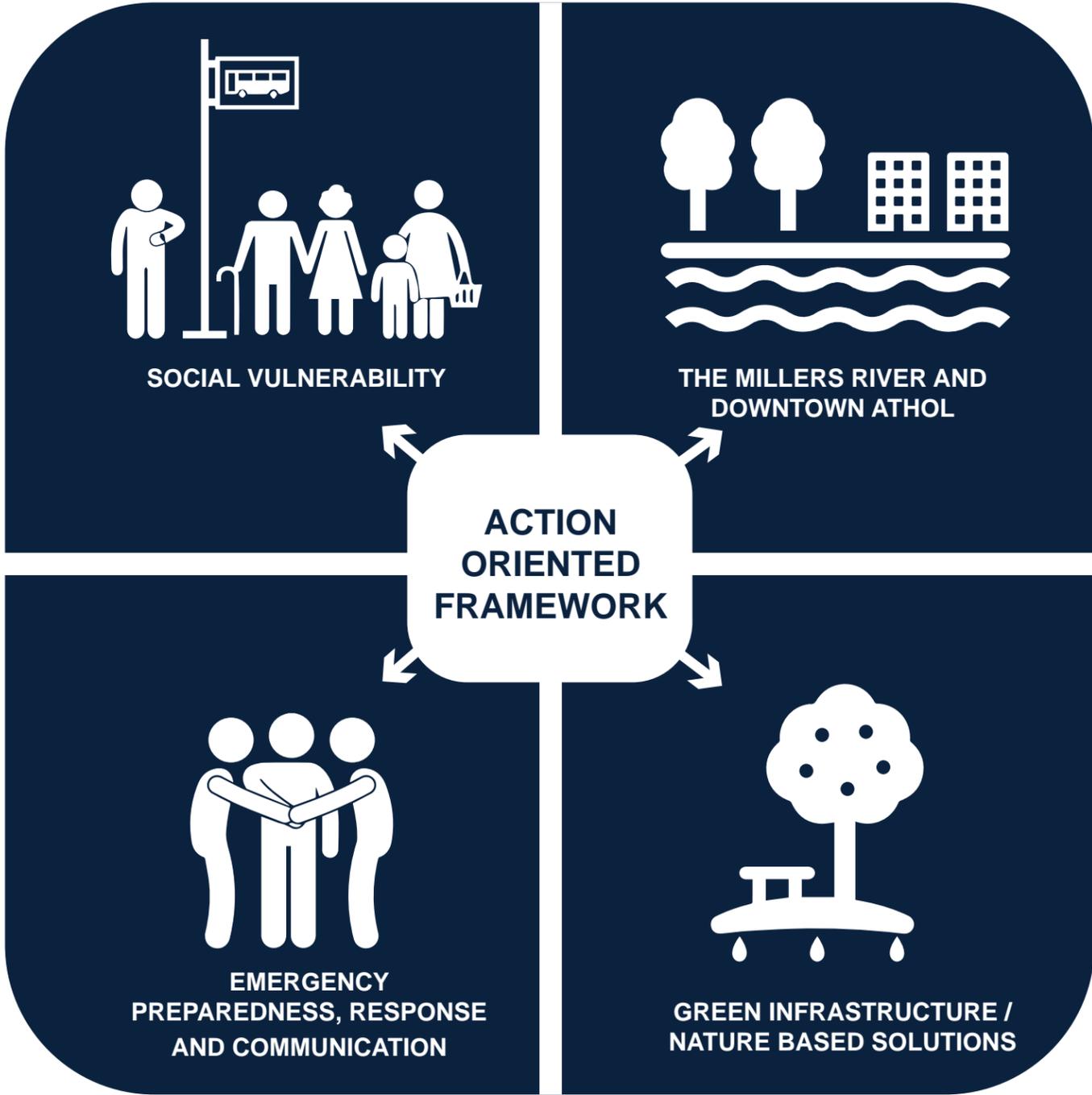


↑ Farm School, Athol, MA

← Millers River Environmental Center, Athol, MA

# CATEGORIZING CONCERNS AND CHALLENGES

Workshop participants used the CRB process to collaborative identify action-oriented solutions to address the climate vulnerabilities faced by the Town of Athol. These actions are organized into four categories based on a combination of community characteristics (i.e. strengths and vulnerabilities) and solutions identified by workshop participants. During the workshops, an emphasis was placed on the interdependence of these categories that allowed for the development of climate resilience solutions that span infrastructural, societal, and environmental features. Through this lens, overlapping solutions that provide co-benefits were identified and prioritized.



## SOCIAL VULNERABILITY

Workshop participants expressed a diverse set of viewpoints pertaining to the need to address the considerations of socially vulnerable populations in response to the anticipated effects of climate change. Social vulnerability in Athol is characterized by elderly populations (ages 65+), economically stressed individuals/families, children, and teens and transitional age youth (ages 16-24). Stakeholders emphasized that a central feature of climate adaptation planning within the community must ensure planning and implementation efforts do not reinforce existing sources of vulnerability. Participants agreed that future climate change planning should draw upon the institutional knowledge and resources of locally based organizations such as the Council on Aging and the North Quabbin Community Coalition to increase Athol’s capacity to address the needs of the most vulnerable, improve communications with traditionally marginalized groups, and to provide appropriate levels of emergency management services during climate related hazards. As an outcome of this MVP planning process, an explicit focus on socially vulnerable populations led to the development of a community-driven plan intended to address the considerations of socially vulnerable populations in response to changing climate conditions. This report, title “AHA” Athol Helping Athol: Community Plan for Social Resilience can be found as an Attachment to this Findings Report and is intended for use in conjunction with this plan or as a stand-alone document.

- CRB**

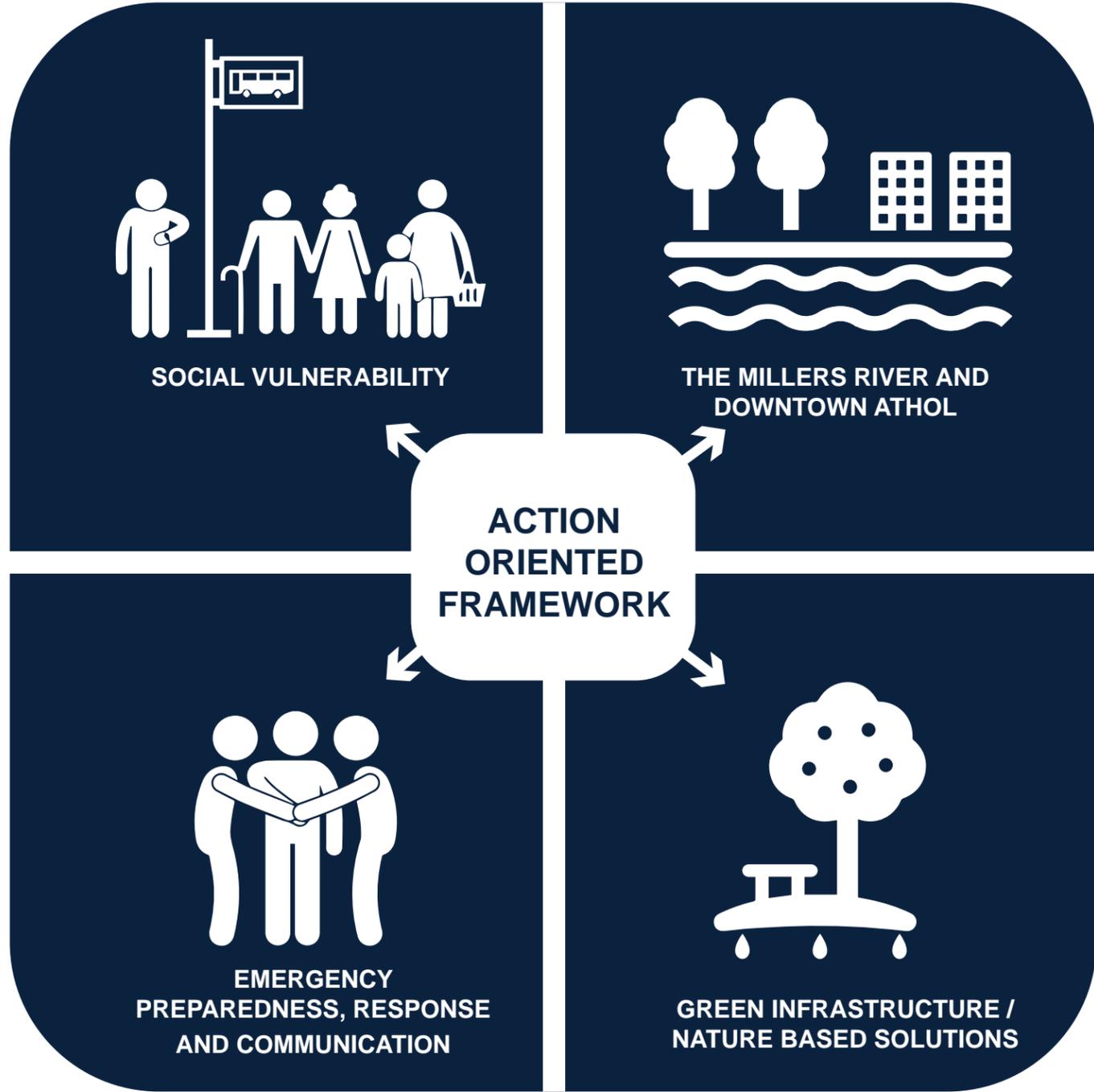
  - Environmental Justice Populations**
  - Elderly Residents**
  - Children**
  - Teens and Transition Age Youth**
  - Morton Meadows**
  - Lack of Housing, Reliable Transportation**
  - Food Insecurity**
  - Isolation**
  - Low Income Residents**

*Montachusett Regional  
↓  
Transit Authority*



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## THE MILLERS RIVER AND DOWNTOWN ATHOL

Workshop participants frequently cited the importance of the Millers River to the historic and future prosperity of downtown Athol. Municipal attention and engaged community leadership are committed to building a vibrant downtown Athol centered around the Millers River. Action items developed during the community resilience building process shared a distinct relationship between the Millers River and downtown Athol. This was particularly apparent where actions focused on building economic, social, and environmental resilience. Solutions such as improving water quality through stormwater management and green infrastructure, creating inviting open space, addressing flood mitigation and urban heat island effect, promoting economic development, and expanding social services, were identified as inextricably linked to the Millers River. Significant critical infrastructure in Athol is located adjacent to the Millers River, characterized by an interdependent network of roads, bridges, dams, culverts, municipal buildings, and privately-owned buildings. Notably, the Athol Police Station and Morton Meadows, a low income and senior housing complex, are in the Millers River Floodplain.

- CRB**
- Flood Mitigation
  - Urban Heat Island Effect
  - Green Infrastructure
  - Economic Development, Community Open Space
  - Public Shade Trees
  - Lord Pond Plaza, Morton Meadows
  - Walkable Downtown
  - Stormwater Quality
  - Greenway
  - River Access



← ↑ Millers River, Athol MA

# CATEGORIZING CONCERNS AND CHALLENGES

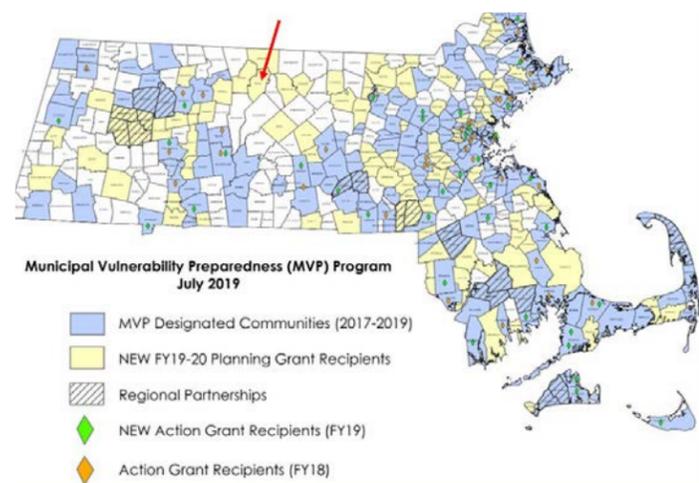
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## EMERGENCY PREPAREDNESS, RESPONSE AND COMMUNICATION

Emergency Preparedness, Response, and Communication was a central focus by workshop participants. Stakeholders overwhelmingly agreed that emergency preparedness, response, and communications are inherently connected to other aspects of the community’s strengths and vulnerabilities. Athol feels that its emergency preparedness planning and operations functions adequately in emergency events, but it was acknowledged that improvements could be made to promote community awareness of the many emergency resources provided by the town. A Public Safety Campaign relative to climate related hazards was suggested by stakeholders as an achievable first step. This public safety campaign should include educational information such as sheltering information, safe portable electric generator practices, and local communication networking resources. The development of an Emergency Preparedness Plan and Communication Network strategy, while more complex, was identified as an essential planning tool relative to distribution of resources (e.g. food and medical supplies) during emergencies. Dissemination of important emergency preparedness and response information was also identified as an important step to improve the social resilience of the community. Participants emphasized the importance of “last-mile options” such as Mass Broadband, Fiber Optic Expansions, and increasing Code Red users. Workshop participants emphasized the use of local public television (Athol-Orange Community Television, AOTV - Ch. 1301 and 1302) and radio (WVAO - 105.9FM) resources to improve social networks and communication throughout the community.

- CRB**
- Community Outreach
  - Community Networks and Education
  - Community Communication Networks
  - Public Safety Campaign
  - Police Station
  - Public TV/Radio



← Workshop Presentation Graphic

# CATEGORIZING CONCERNS AND CHALLENGES

Workshop participants used the CRB process to collaborative identify action-oriented solutions to address the climate vulnerabilities faced by the Town of Athol. These actions are organized into four categories based on a combination of community characteristics (i.e. strengths and vulnerabilities) and solutions identified by workshop participants. During the workshops, an emphasis was placed on the interdependence of these categories that allowed for the development of climate resilience solutions that span infrastructural, societal, and environmental features. Through this lens, overlapping solutions that provide co-benefits were identified and prioritized.



## GREEN INFRASTRUCTURE / NATURE BASED SOLUTIONS

The Town of Athol has developed in a manner that blends industrial, commercial, and residential development while maintaining an important network of open space, conservation, and recreation land. Athol recognizes the importance of its permanently protected open space in the northern half of the town. This protected land provides important natural resource and flood mitigation benefits related to the Millers River. Open space in the southern half of town, while mostly private property, remains undeveloped and serves an important role for ecological resilience including the many tributaries that flow to the Millers River. Athol recognizes the deficiency of green space within downtown Athol and acknowledged the importance of implementing green infrastructure and nature-based solutions along the Route 2 and 2A corridor. Many developed areas within the community are in the Millers River floodplain and suffer from the effects of urban heat island effect. Workshop participants identified Lord Pond Plaza, Morton Meadows, and the Police Station as key areas to implement green infrastructure and nature-based solutions to address flooding and urban heat island effect. Removal of paved/impervious surfaces in downtown Athol was also a focus of workshop participants. Stakeholders emphasized the importance of the co-benefits related to pavement removal and the integration of green infrastructure to mitigate flooding and urban heat islands, improve water quality that drains to the Millers River, and achieve its social resilience goals of establishing community networks and gathering spaces downtown.

- CRB**
- Flood Mitigation
  - Urban Heat Island Effect
  - Nature-based Solutions
  - Millers River
  - Water Quality
  - Impervious Surface
  - Public Shade Trees
  - Downtown Open Space
  - Splash Park



↑ Athol Ice Jam, Athol, MA

← Cass Meadow, Athol, MA

# COMMUNITY RESILIENCE BUILDING – PRIORITIZING COMMUNITY RESILIENCE ACTIONS

Climate Resilience Actions to address these concerns were prioritized through workshop activities and coordination with Core Team leadership. The top Resilience Actions identified by workshop participants are provided in the first table below. All Climate Resilience Actions identified by workshop participants are also provided in tables organized by High Priority, Medium Priority, and Low Priority Actions.

TOP PRIORITY RESILIENCE ACTIONS	
RESILIENCE ACTION	KEY FEATURES, OPPORTUNITIES, AND GOALS
Lord Pond Plaza	     
Implement “AHA” Athol Helping Athol: Community Plan for Social Resilience	     
Green Infrastructure/Nature-Based Solutions	     
Emergency Preparedness, Response, and Communication	     

# HIGH PRIORITY RESILIENCE ACTIONS



## SOCIAL VULNERABILITY

What is the biggest challenge/need you and/or your family face daily?



Major themes; housing across the board, financial stability, basic needs, sustainable business opportunity and growth.



What do you consider to be your biggest source of vulnerability?



Safety, Space and Financial Security. Safety, meaning emotional and physical safety inclusive of a stable home base situation.



CATEGORY	ACTION
Social Vulnerability	Senior populations (ages 60+) face significant vulnerability relative to the effects of climate change. Numerous social services are acknowledged as important to improving the social resilience of this vulnerable group within the community. Remove Morton Meadows from the Floodplain. Establish transportation systems that are reliable and provide access to medical appointments to places other than Athol such as Boston or Worcester where specialty medical services are provided. Ensure that aging populations don't experience isolation or food insecurity during climate related hazards. Provide fuel and cooling assistance programs during extreme events. Continue to draw upon social support networks. Develop community support networks. Develop open space or recreational areas within downtown Athol that may be used by senior populations to recreate. Transportation systems must support aging populations and transition youth that rely on these services at different time during the day.
	Teens and Transition Youth (ages 16-24) face significant vulnerability relative to the effects of climate change. Unlike the dedicated social services provided to senior populations in Athol, teens and transition youth face challenges related to limited opportunity and a disconnect between school administration and local support groups and non-profit organizations. To support this vulnerable demographic of Athol residents, there should be support groups developed in the community. Food security issues should be addressed through transportation options (to work, school, or recreation) and plans for local economic opportunity (i.e. jobs) should be developed. Recreational opportunities and/or networking opportunities should be developed through downtown Athol revitalization efforts. Consider developing a green job program in conjunction with local non profits or the school system.
	Relocate Morton Meadows to a location that is out of the floodplain. Other immediate actions such as bank stabilization or flood mitigation measures will help to protect the built infrastructure and residents of Morton Meadows from flood risk in the short-term. Install flood control/river bank protection measures at Morton Meadows.
	Regional coordination among Athol stakeholders and other regional groups and/or municipalities is an important strength in Athol and the surrounding region. Build on upon existing relationships and create an Athol/Regional Emergency Response Team to respond to existing infrastructural, societal, and environmental threats related to climate change. Draw upon work already done by regional stakeholders that consider the effects of climate change within the context of social resilience.
	Expand & Formalize Existing Programs (area agencies including the Council on Aging) & MOUs (SMART & LifePath). Relocate Senior Housing out of the Floodplain.
	The community considers transportation accessibility to be an important vulnerability and strength. The community feels it works well together to provide transportation options, but communication among resource providers is limited. Improve technological options for transportation resources/accessibility. Formalize agreements to expand services workability and regional access.

# HIGH PRIORITY RESILIENCE ACTIONS



## THE MILLERS RIVER AND DOWNTOWN ATHOL

Many developed areas in the community are in the floodplain to the Millers River or its tributaries.



Promote the historical or cultural significant of the Millers River through educational or outreach materials.



Lord Pond Plaza presents significant vulnerability related to urban heat island effect, flooding, and social vulnerability.



There are significant areas of impervious surface within downtown Athol.



CATEGORY	ACTION
The Millers River and Downtown Athol	Many developed areas in the community are in the floodplain to the Millers River or its tributaries. The police station and Morton Meadows housing facility for example are in the floodplain. Assess open space opportunities to create flood mitigation and storage and and relocate critical assets/facilities out of the floodplain. Where critical facilities cannot be removed from the floodplain, consider the use of green infrastructure, nature-based solutions, or other mitigative measures to alleviate the risk of flood damage or public health and safety emergencies.
	The Millers River represents important cultural, ecological, and environmental value within the community. Ensure downtown or open space planning efforts consider access to the Millers River as part of its planning and implementation efforts. Promote the historical or cultural significant of the Millers River through educational or outreach materials. Establish a local greenway along the Millers River. Coordinate with The Town of Orange to promote the establishment of a regional greenway community planning initiative.
	Continue to identify and obtain urban renewal grant funding for downtown development efforts or areas where known brownfield contamination exists. Areas such as Lord Pond Plaza, Canal St, South St, and Exchange St represent opportunity to address flood mitigation, urban heat island effect, and local redevelopment opportunity.
	There are significant areas of impervious surface within downtown Athol. Evaluate downtown Athol, at Lord Pond Plaza for strategies to remove impervious pavement, a significant source of urban heat island effect. Identify locations to implement streetscape improvements such as public shade trees, or urban rain gardens. The implementation of nature-based solutions and green infrastructure promotes water quality improvements to the Millers River. Advocate for Zoning By-Law changes to incorporate green infrastructure.
	Redesign Lord Pond Plaza to daylight buried brook. Add green infrastructure and nature-based solutions to Lord Pond Plaza to improve water quality runoff and mitigate urban heat island effect. Consider public amenities such as a splash pad/park, open space, and improved visibility from the roadway. Address public safety issues in the plaza with traffic management.
	Lord Pond Plaza presents significant vulnerability related to urban heat island effect, flooding, and social vulnerability. Consider options such as green infrastructure, nature-based solutions, traffic management, and public private partnerships to address these vulnerabilities. Consider daylighting culverted brook, close street entrances, remove pavement, plant shade trees, green infrastructure - rain gardens, porous pavement.
	Critical infrastructure throughout the community requires evaluation and funding. Gather additional funding sources for street repair. Ensure the Crescent Street Bridge construction project considers the effects of hazardous weather conditions during reconstruction activities - anticipated completion 2021. Use coordinated regional approaches that include the Town of Orange to address Tully Bridge and other bridges that need repair. Assess all town bridges culverts/beaver dam issues (i.e. Market Basket). Numerous dams in Athol need to be addressed for hazardous rankings. Coordinate with DCR or other ownership entities to further evaluate the condition of hazardous dams.

# HIGH PRIORITY RESILIENCE ACTIONS



## EMERGENCY PREPAREDNESS, RESPONSE, AND COMMUNICATION

Consider option to secure funding to remove beaver dam.



Consider holding local engagement/education/or outreach events at the high school to encourage participation by Athol's youth



Conduct outreach of events directly to students.



Upgrade facilities for neighborhood resource centers during emergencies.

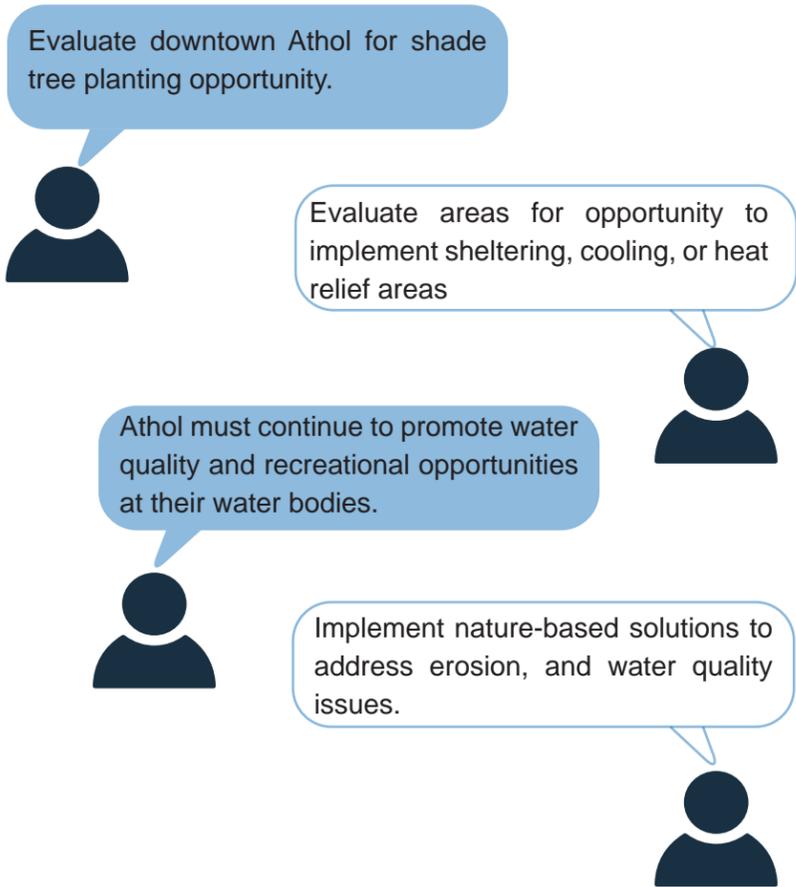


CATEGORY	ACTION
Emergency Preparedness, Response, and Communication	The existing beaver dam at the North Quabbin Commons development presents significant vulnerability for downstream properties. Consider option to secure funding to remove this dam. Identify ownership issues that may exist and address the financial cost of beaver dam removed through a public-private working group.
	Consider holding local engagement/education/or outreach events at the high school to encourage participation by Athol's youth, most notably its teens and transitional age youth demographic. Increase the use of social media to disseminate emergency notification or publicly available resource information. Develop Emergency preparedness plan/communication network that draws upon the considerations of the most socially vulnerable in the community. Call upon emergency response volunteer group to increase the capacity of the community to respond to natural hazard related emergencies. Create a central body to gather/disperse information for emergency response. Pursue last mile options: Mass Broadband, Fiber Optic Expansions, Code Red.
	Develop a multi-topic campaign to provide information: shelters, increase Code Red users. Promote social/community events such as street fairs or local cultural events related to the Millers River. Conduct outreach of events directly to students. Leverage the school system to disseminate information. Sponsor special events that bring important local or community leaders that can promote local outreach of events or emergency preparedness information. Transportation to shelters available through social media only; develop a program that makes transportation resources more accessible to a greater number of community members. Develop an education program that promotes educational or recreational programs and local resources available to residents. Develop an Athol Helping Athol online portal to disseminate this resource to the broader public. Establish or improve phone and radio systems to First Responders to improve emergency response and communications efforts.
	Collect inventory of emergency preparedness and response resources available to the town. This includes social information such as communication networks or peer-to-peer networks. Implement and educational/outreach engagement strategy intended to disseminate information to the public regarding emergency resources. Acquire portable generators for emergencies, auxiliary tower & standardization. Investigate electrified microgrids and renewable energy options.
	Upgrade facilities for neighborhood resource centers during emergencies. Develop temporary response plan for power before state can provide help. Update Memorandum of Understanding on shelters & resources. Upgrade communications infrastructure.
	The community lacks an organized informational access and communication system beyond existing media platforms such as public tv, radio, or municipal social media outlets. Athol should improve communication networks to better disseminate public emergency information. A public safety campaign should be developed in conjunction with emergency networking approaches to increase users in programs such as Code Red. An emergency response/communication system should also include information about backup electricity options and safe use of electric generators. Emergency communication efforts should also seize opportunity to implement green infrastructure.

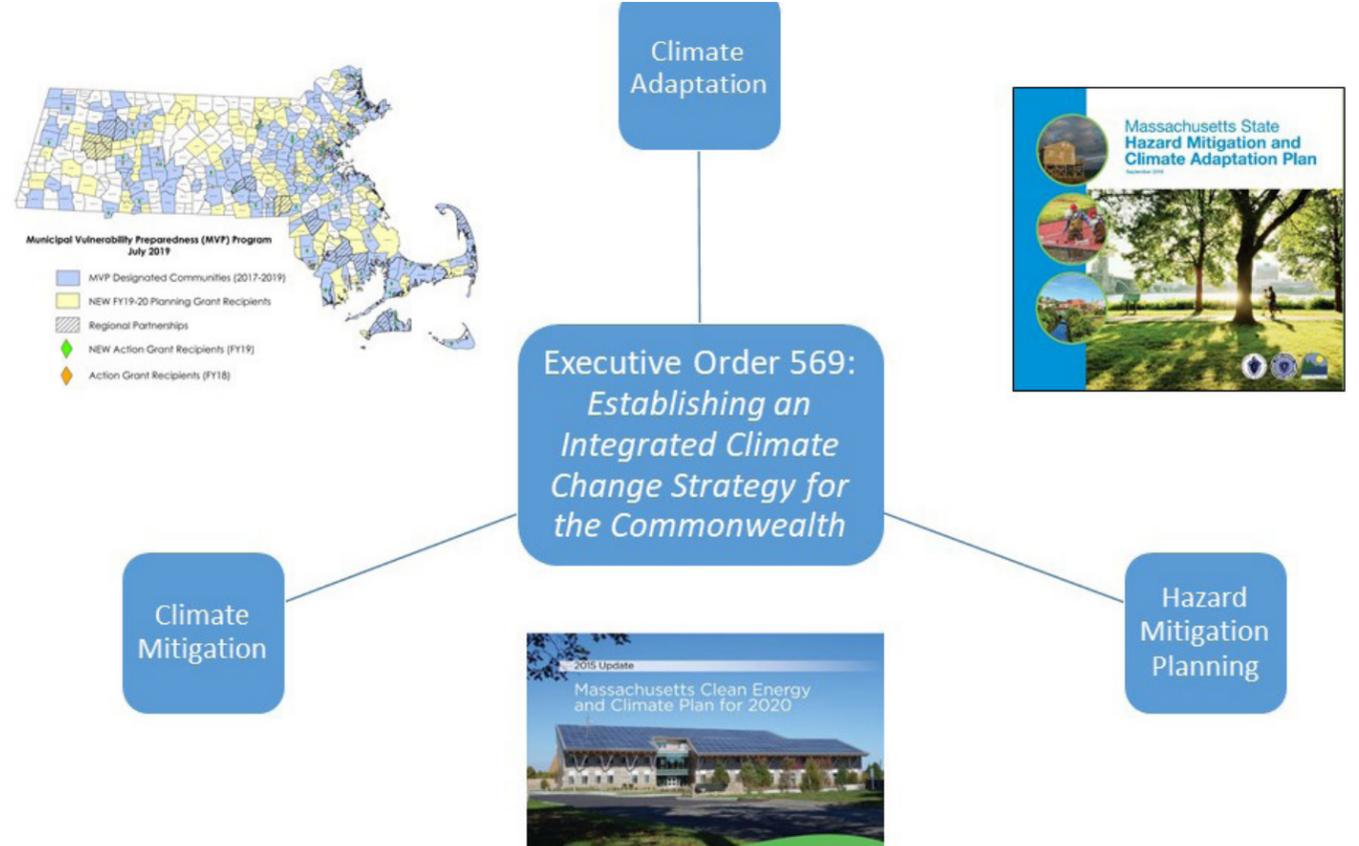
# HIGH PRIORITY RESILIENCE ACTIONS



## GREEN INFRASTRUCTURE / NATURE BASED SOLUTIONS



CATEGORY	ACTION
Green Infrastructure/ Nature Based Solutions	Evaluate downtown Athol for shade tree planting opportunity. Consider options for a shade structure in Veterans Park (hardscape shelter), improve streetscapes that address flood and urban heat island vulnerabilities through green infrastructure and nature-based solutions. Evaluate areas for opportunity to implement sheltering, cooling, or heat relief areas (splash park, tree plantings, shade structures). Consider downtown areas for recreational, conservation, or preservation areas. These areas can contribute to urban heat island mitigation and can increase the social resilience of the community.
	The lakes within Athol are important cultural, social and ecological features. Athol must continue to promote water quality and recreational opportunities at these water bodies. Implement geese control measures. Improve public use facilities at these locations including permanent restroom facilities rather than portable toilets. Improve sidewalks/lighting/seating to promote use by the public. Implement nature-based solutions to address erosion, and water quality issues. Implement the Silver Lake Plan (in progress). Conduct a public outreach campaign to promote safe pet waste disposal. Evaluate Silver Lake and Lake Ellis for improvements to promote public swimming or recreational opportunities as mitigation for urban heat island effect.



Workshop Presentation Graphic

# MEDIUM PRIORITY RESILIENCE ACTIONS



**SOCIAL VULNERABILITY**



**THE MILLERS RIVER AND DOWNTOWN ATHOL**

CATEGORY	ACTION
Social Vulnerability	<p>Develop a green housing initiative to implement at vacant houses that may be restored for residential or commercial use. Promote weatherization and healthy homes programming through community engagement and outreach initiatives. Community engagement/education/outreach efforts should include the risks of a changing climate and integrate strategies that promote renewable energy technologies or energy efficient best practices.</p>
	<p>Improve communications with neighboring towns (regional program to address issues related to transportation accessibility). Improve access to shelters. Coordinate through MART &amp; FRTA (the Franklin Regional Transit Authority). Expand Pedestrian Shelters &amp; Complete Streets programs. Collaborate with MassDOT for Greenway development.</p>
	<p>While transportation options exist within the community, there is limited transportation options for people without a vehicle to conduct day-to-day business for example trips to the supermarket, to school, or local businesses. Consider utilizing state financing/grant mechanisms such as complete streets to increase the number of sidewalks for people to walk or bicycle to local amenities. Develop a plan to establish a cohesive greenway access or connection to the river in downtown Athol.</p>
The Millers River and Downtown Athol	<p>Add green space by Lord Pond Plaza. Improve natural refuge for urban heat island effect in Athol's downtown areas. Promote shade tree planting initiatives in the downtown corridor and at Lord Pond Plaza. Consider water quality measures such as nature-based solutions or green infrastructure in this design. Establish ADA friendly parks throughout the community. Promote efforts that increases access to the Millers River from residents of the community.</p>
	<p>There are many buildings (residential and commercial) buildings in Athol that are vacant or in disrepair. This condition currently presents a public safety hazard due to fires, falling roofs or collapsing structures. The community should conduct a building assessments for retrofits, open space planning, or flood mitigation efforts.</p>
	<p>Many opportunities exist within downtown Athol to address critical infrastructure, social vulnerability and ecological resilience. In addition to the implementation of green infrastructure and nature-based solutions at Lord Pond Plaza, there is also opportunity to analyze the downtown streetscape to promote urban cooling opportunities with shade trees or public landscaping. Consider opportunities to engage with the Athol Housing Authority and/or the Massachusetts Department of Housing and Community Development (DCD) to identify resilience solutions or funding options. Evaluate potential partnerships with MassDOT to create/develop connections to municipal or private resources such as public schools, supermarkets (Hannaford, Market Basket) restaurants and businesses, and public open space. Ensure access and an infrastructural connection to the Millers River is integrated into planning and implementation efforts.</p>

## MEDIUM PRIORITY RESILIENCE ACTIONS



**EMERGENCY PREPAREDNESS,  
RESPONSE, AND COMMUNICATION**



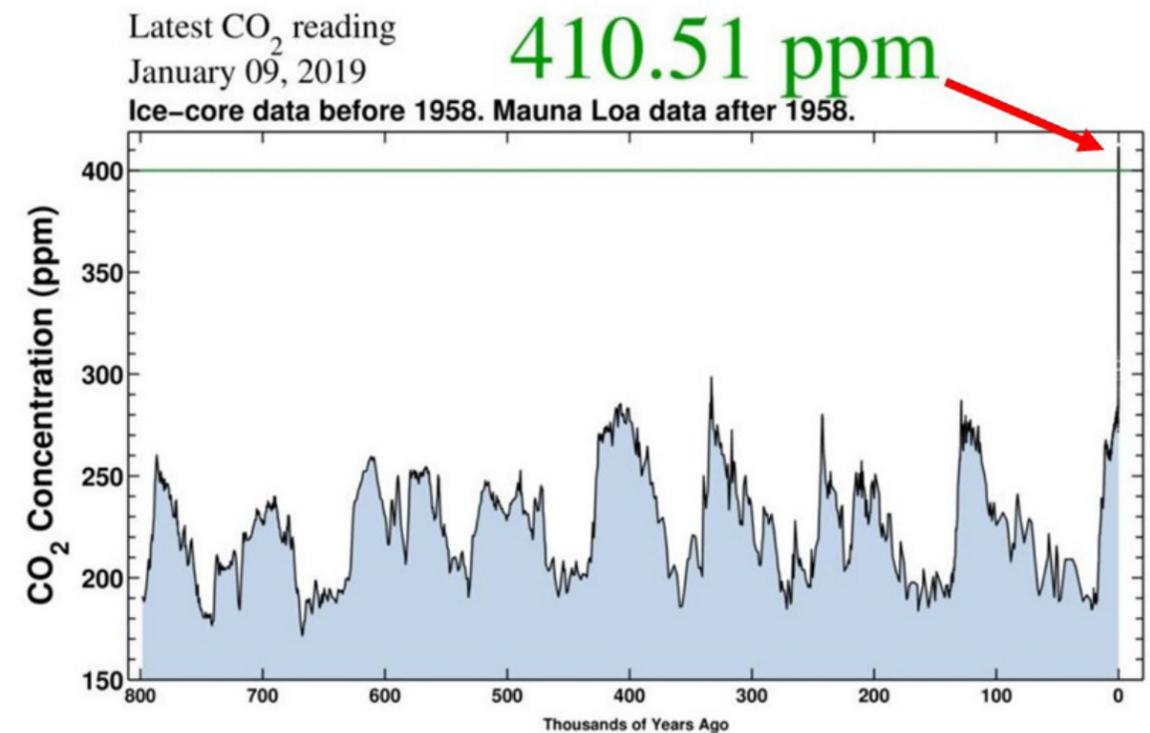
**GREEN INFRASTRUCTURE / NATURE  
BASED SOLUTIONS**

CATEGORY	ACTION
Emergency Preparedness, Response, and Communication	Identify localized ponding sites where mosquito breeding tends to occur. Develop a targeted plan to address temporary ponding issues that leads to this mosquito breeding habitat. Develop and establish a community support network to promote environmental stewardship to help control the spread of invasive or toxic species such as poison ivy. This environmental stewardship initiative should focus on health issues and benefits related to environmental stewardship and the control of nuisance pests and invasive species.
	Athol should focus on establishing a mosquito control project that includes preventative measures and education initiatives.
	Establish chain of responsibility for emergency response/procedures.
	Consider alternative backup sites for police station operations in the event a flood occurs at the existing police station. Evaluate the use of the state police barracks (out of floodplain/next to fire station) for backup site/resources for emergency responses. Consider the use of green infrastructure to mitigate for flooding at the police station. Consider backup power/electricity options in the event of a flood at the police station.
	Establish and improve upon existing municipal communication networks. Identify opportunity to develop local partnerships that may improve the distribution of information, goods, or resources during an emergency.
	Establish a regular maintenance and wellhead protection protocol.
Green Infrastructure/ Nature Based Solutions	Existing parks and open space throughout the community is an important social strength. Outside of Downtown, there is significant open space and public parks in Athol to provide escape from urban heat island effect. There is an opportunity to pair open space planning with nature-based solutions or green infrastructure within existing or new areas of open space (e.g. park land) to develop co-benefits relative to infrastructure ecological, or economic conditions. Make improvements to existing parks to address climate resilience measures related to flood mitigation and urban heat island effect. Implement nature-based solutions or green infrastructure where appropriate. Consider land acquisition options. Consider land preservation or conservation options. Improve maintenance schedules of public parks and increase signage.
	Continue to progress Mill Brook Restoration and associated brownfields cleanup.
	Athol should pursue river corridor management efforts such as river dredging and bank stabilization projects. Evaluate funding sources to conduct these types of efforts. Incorporate safe snow management/stockpiling into DPW practices particularly where snow storage occurs along the Millers River or tributaries. Integrate river management efforts with bridge and dam maintenance/improvement activities where appropriate.

# LOW PRIORITY RESILIENCE ACTIONS



CATEGORY	ACTION
Social Vulnerability	No Low Priority Actions Identified in the Social Vulnerability Category
The Millers River and Downtown Athol	No Low Priority Actions Identified in the Millers River and Downtown Athol Category
Emergency Preparedness, Response, and Communication	The police station is in the floodplain. This presents challenges for emergency preparedness and response. Improve the drainage system and sump pumps at the Police Station. Evaluate the property for opportunities to apply climate resilient flood solutions such as green infrastructure or nature-based solutions at the Police Station parking lot. Consider green roofs where applicable.
	Develop more centralized, consolidated electric utility network. This may include introducing renewable energy sources and microgrids, or may also include coordinating with electric utility companies to improve electric distribution and transmission redundancy. Continue to implement tree and power line maintenance.
	Advocate for larger scale electric network capacity regionally. Solar & additional backup systems throughout town, equally distributed. Library & schools ready for hook-up.
Green Infrastructure/ Nature Based Solutions	Increase the amount of conservation land in the community. Leverage existing resources and/or local partnership to promote the resilient use of forested open space areas to provide recreational opportunities or flood mitigation to the benefit of downtown Athol.



Workshop Presentation Graphic

## COMMUNITY WORKSHOP PARTICIPANTS

NAME	AFFILIATION
Chris Casella	Team Rubicon Disaster Response
Brian Bruso	Athol – Facilities
Jeffrey Parker	Athol – Fire Department
Joseph Guarnera	Athol – Fire Department
Craig Lundgren	Athol – Police Department
Rebecca Bialecki	Board of Selectmen, Life Path
Bonnie Benjamin	AOTV
Ivan Ussach	Millers River Watershed Council
Pat Moore	Valuing Our Children/Patch
Jean Shaughnessy	Athol Public Library
Eric Smith	Athol – Planning Department
Deb Vondal	Athol – Health Department
Jim Meehan	Athol Economic Development Industrial Corp.
Cathy Savoy	Athol Senior Center
Brian Hall	Athol Open Space
Sarah Wells	Mount Grace Land Conservation Trust
Heather Bialecki-Canning	North Quabbin Community Coalition
Dick Kilhart	Athol – Department of Public Works
Sara Lyman	Hometown Realtors
Shaun Suhoski	Athol – Town Manager
Dave Small	Athol - Planning and Community Development

### CITATION

Athol (2020) Community Resilience Building Workshop Summary of Findings, BSC Group, Inc. and Town of Athol. Athol, Massachusetts

### WORKSHOP FACILITATORS

Jeffrey T. Malloy, BSC Group, Inc.  
 Brian Cullinan, BSC Group, Inc.  
 Ale Echandi, BSC Group, Inc.  
 Jeanette Tozer, BSC Group, Inc.  
 Marissa Valentino, BSC Group, Inc.

### MVP CORE TEAM WORKING GROUP

Eric R. Smith, Planning Department  
 Joseph Guarnera, Athol Fire Chief  
 Craig Lundgren, Athol Police Chief  
 Doug Walsh, Athol Public Works, Superintendent  
 David Small, Athol Planning and Community Development  
 Deb Vondall, Athol Board of Health  
 Sarah Wells, Mount Grace Land Conservation Trust  
 Bob Legare, Athol Building Inspector  
 Jeff Parker, Athol Fire Department  
 Bob Muzzy, Athol Conservation Commission  
 Brian Hall, Athol Open Space  
 Ivan Ussach, Millers River Watershed Council  
 Heather Bialecki-Canning, North Quabbin Community Coalition  
 Max Feldman, Mount Grace Land Conservation Trust  
 Shaun Suhoski, Athol Town Manager  
 Dick Kilhart, Athol Department of Public Works  
 Heidi Strickland, Resident

### ACKNOWLEDGMENTS

This project was made possible through funding from the Massachusetts Executive Office of Energy and Environmental Affairs' Municipal Vulnerability Preparedness (MVP) Grant Program. Thank you for providing the leadership and funds to support this process. The Town of Athol values your partnership.

Thank you to the community leaders within Athol who attended the Athol CRB Workshops. The institutional knowledge provided by workshop participants was essential to the success of this process.

Thank you to Dave Small, Athol Planning and Community Development for providing many of the photographs depicted throughout this report.

Thank you to the Montachusett Regional Planning Commission (MRPC) for providing background data and community maps that were used during workshop breakout engagement activities.

A special thank you to Heather Bialecki-Canning of the North Quabbin Community Coalition for her dedicated efforts to ensure the considerations of socially vulnerable populations were included in this Findings Report and the "AHA" - Athol Helping Athol: Community Plan for Social Resilience.

# PUBLIC LISTENING FEEDBACK

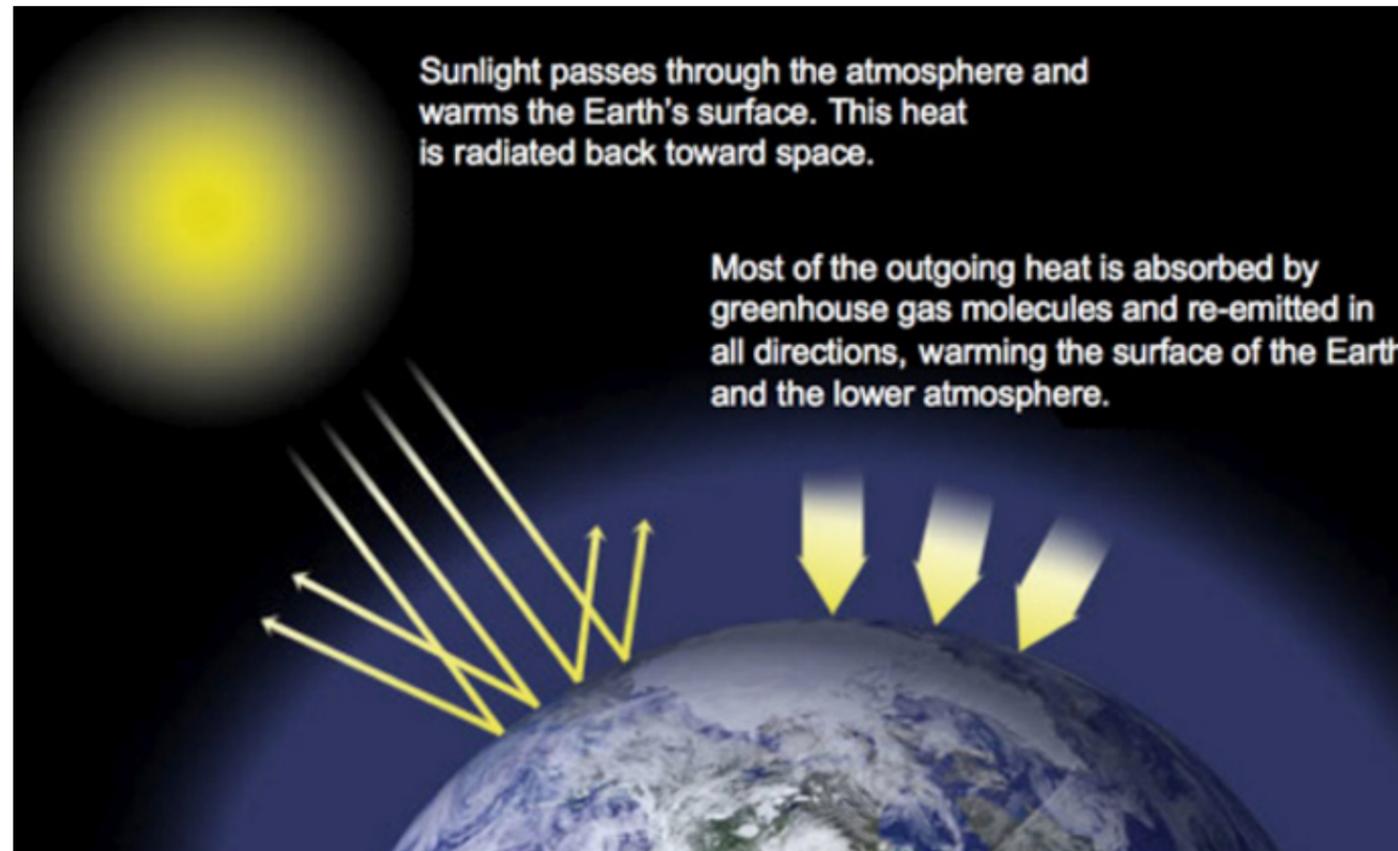
**CHAPTER 2:  
HAZARD MITIGATION PLAN**



# SUMMARY

Hazard Mitigation planning is any sustained action taken to reduce or eliminate the long-term risk to life and property from hazards. (source State Mitigation Plan Review Guide, Released March 2015 Effective March 2016 FB 302-094-2 FEMA) Hazard Mitigation focuses on the long term and aims at reducing vulnerability over the long term. The Federal Disaster Mitigation Act of 2000 requires all municipalities to adopt a Hazard Mitigation Plan and update this plan every five years to be eligible to receive FEMA funding.

This plan is an update from the original Hazard Mitigation Plan. Athol's plan was included in the Montachusett Region Natural Hazard Mitigation Plan 2015 Update prepared by Montachusett Regional Planning Commission (MRPC) and approved by FEMA in 2015.



↑ Source: NASA

# HAZARD MITIGATION PLANNING PROCESS AND PUBLIC PARTICIPATION

The updated Hazard Mitigation Plan was created as part of the integrated Municipal Vulnerability Preparedness (MVP) program as part of a grant from the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). The Community Resilience Building Planning and Workshops incorporated Core Meetings to identify the goals within the context of community interests and needs. The following Core Team Meeting Dates were held with the Hazard Mitigation Planning workshops listed in bold below:

CORE TEAM MEETING DATES	TOPICS
October 2, 2019	MVP Kickoff Meeting
November 6, 2019	Community Resilience Building Hazard Mitigation Planning Equitable Adaptation Working Group
December 4, 2019	Community Resilience Building Hazard Mitigation Planning Equitable Adaptation Working Group
February 4, 2020	Community Resilience Building Workshop
March 4, 2020	Public Listening Session #1 - Integrated MVP/HMP Planning
April 22, 2020 (Online)	Public Listening Session #2

Workshop participants comprised of community stakeholders from municipal departments, local businesses, non-government entities, and local interest groups reviewed the Hazard Mitigation Plan concurrently with the Municipal Vulnerability Preparedness planning process.

# CHARACTERIZE HAZARDS

During the Core Team and CRB planning efforts, stakeholders identified the top natural hazards for the Town of Athol. Hazards including Flooding, Extreme Heat, Extreme Snow and Ice, and Wind/Microbursts, Atmospheric, Fire and Geological Hazards were evaluated as part of this Integrated MPV/HMP planning process. Collectively, it was agreed upon by the group that the Town of Athol's top hazards include Inland Flooding, Extreme Heat, Extreme Snow and Ice and Wind/Microbursts.

## CRITICAL FACILITIES

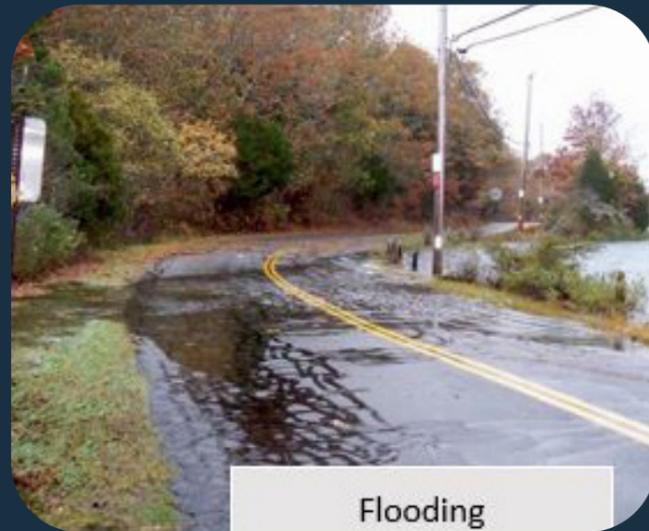
Critical facilities include the public and private facilities such as emergency response centers, schools, utilities and other assets determined by the community. Disruption of these facilities can cause long term damage beyond the cost to repair to facility. A list of the critical facilities within Athol is shown in the following table. The data was obtained from MassGIS data and is also included on the map entitled "Hazard Mitigation Plan" provided as an Attachment to this Integrated MVP/HMP Planning Report.

## CRITICAL FACILITIES TABLE

ASSET TYPE	ADDRESS	FLOOD ZONE
City/Town Halls	584 Main Street	
Clinics	491 Main Street 2nd & 3rd Floor	
Clinics	201 South Main Street	
Communication Towers	Pleasant Street	
Public Water Supply		100ft of 100yr
Public Water Supply		
Public Water Supply	Off Jones Street	100YR
Public Water Supply		
Public Water Supply	Off Pequoig Avenue	100YR
Public Water Supply	Off Pequoig Avenue	100YR
Public Water Supply		
Public Water Supply	Off Pequoig Avenue	500YR
DPW Facilities	Unity Avenue	
Early Education Childcare Facilities	383 Chestnut Hill Avenue	
Early Education Childcare Facilities	387 School Street	



Extreme Temps (heat/cold)



Flooding



Wind/Microbursts



Extreme Snow and Ice

↑ Workshop Presentation Graphic

## CRITICAL FACILITIES TABLE

ASSET TYPE	ADDRESS	FLOOD ZONE	ASSET TYPE	ADDRESS	FLOOD ZONE
Early Education Childcare Facilities	47 PINE ST		Early Education Childcare Facilities	127 FLAT ROCK RD	
Early Education Childcare Facilities	107 PARK ST		Early Education Childcare Facilities	152 RIDGE RD	
Early Education Childcare Facilities	17 CRAIGIN ST		Early Education Childcare Facilities	545 MAIN ST	
Early Education Childcare Facilities	200 ORANGE ST		Early Education Childcare Facilities	419 HIGH KNOB RD	
Early Education Childcare Facilities	12 Riverbend Street		Early Education Childcare Facilities	1711 WHITE POND RD	
Early Education Childcare Facilities	491 SPRING ST		Elderly Housing	416 Main Street	
Early Education Childcare Facilities	237 RIDGE RD		Elderly Housing	739 Daniel Shays Highway	
Early Education Childcare Facilities	44 S ATHOL RD		Elderly Housing	21 Gibson Drive	
Early Education Childcare Facilities	83 JEANNE DR		Elderly Housing	1-30 Bickford Drive	100YR
Early Education Childcare Facilities	117 KELTON ST		Electric Substations	Chestnut Hill Avenue	
Early Education Childcare Facilities	1581 PETERSHAM RD		End of Life Facilities	146 Main St	
Early Education Childcare Facilities	67 LAUREL ST		End of Life Facilities	1356 Main Street	
Early Education Childcare Facilities	780 OLD KEENE RD		End of Life Facilities	137 Main St	
Early Education Childcare Facilities	20 EVERETT AVE		End of Life Facilities	Mount Pleasant Street	
Early Education Childcare Facilities	528 W ROYALSTON RD		End of Life Facilities	Hillside Terrace	
Early Education Childcare Facilities	177 RIVERBEND ST # 1		End of Life Facilities	New Sherborn Road	
Early Education Childcare Facilities	178 SUMMER ST		End of Life Facilities	Doe Valley Road	
Early Education Childcare Facilities	18 SUNSET AVE		End of Life Facilities	Vine Street	
Early Education Childcare Facilities	2064 WHITE POND RD		End of Life Facilities	Silver Lake Street	
Early Education Childcare Facilities	372 UNITY AVE		End of Life Facilities	Chestnut Hill Avenue	
Early Education Childcare Facilities	533 NEW SHERBORN RD		End of Life Facilities	Brookside Road	
Early Education Childcare Facilities	167 COBB RD		Fire	206 Exchange Street	

## CRITICAL FACILITIES TABLE

ASSET TYPE	ADDRESS	FLOOD ZONE	ASSET TYPE	ADDRESS	FLOOD ZONE
Fire	2251 Main Street		Other Critical Facilities	575 South Street	
Freight			Other Critical Facilities	Harrison Avenue	
Gas Station	1728 Main Street		Other Critical Facilities	Main Street	
Gas Station	1590 Main Street		Other Critical Facilities	41 Brickyard Road	
Gas Station	297 Main Street	100ft of 500yr	Other Critical Facilities	High Knob Road	
Gas Station	223 Main Street		Other Government Buildings	338 Unity Avenue	
Gas Station	109 Brookside Road		Other Government Buildings	568 Main Street	100ft of 500yr
Hospitals	2033 MAIN STREET		Other Government Buildings	165 North Orange Road	500YR
Long Term Care Facility	171 S. Royalston Road		Other Government Buildings	242 Main Street	
Long Term Care Facility	648 Pleasant Street		Other Government Buildings	1307 Main Street	
Long Term Care Facility	821 Daniel Shays Highway		Other Government Buildings	High Knob Road	
Other Critical Facilities	South Main Street		Other Government Buildings	Bickford Drive	100YR
Other Critical Facilities	764 South Athol Road		Other Government Buildings	Garfield Road	
Other Critical Facilities	Bearsden Road		Other Government Buildings	Lenox Street	100YR
Communications Tower	Bearsden Road		Other Government Buildings	Linden Park	100ft of 500yr
Other Critical Facilities	Riverbend Street		Other Government Buildings	Hillside Terrace	
Other Critical Facilities	62 Freedom Street	500YR	Other Government Buildings	Silver Lake Street	
Other Critical Facilities	Fish Street		Other Government Buildings	Pinedale Avenue	
Other Critical Facilities	121 Crescent Street		Other Government Buildings	South Athol Road	
Other Critical Facilities	121 Crescent Street		Other Government Buildings	Hillside Terrace	
Other Critical Facilities	2143 Main Street		Other Government Buildings	Hillside Terrace	
Other Critical Facilities	1665 Main Street		Police	280 Exchange Street	100ft of 100yr

## CRITICAL FACILITIES TABLE

ASSET TYPE	ADDRESS	FLOOD ZONE
Police	2289 Main Street	
School	2363 Main Street	
School	174 Riverbend Street	
School	314 Sanders Street	
School	1062 Pleasant Street	
School	1060 Pleasant Street	
Church/Cultural Building	107 Walnut Street	
Church/Cultural Building	3200 South Athol Rd	
Church/Cultural Building	40 Island Street	100ft of 500yr
Church/Cultural Building	1225 Chestnut Street	
Church/Cultural Building	131 Ridge Avenue	
Church/Cultural Building	15 Park Avenue	
Church/Cultural Building	105 Main Street	
Church/Cultural Building	192 School Street	
Potable Water Treatment Plants	Off Jones Street	100ft of 100yr
Wastewater Treatment Plant	Off Jones Street	100ft of 100yr

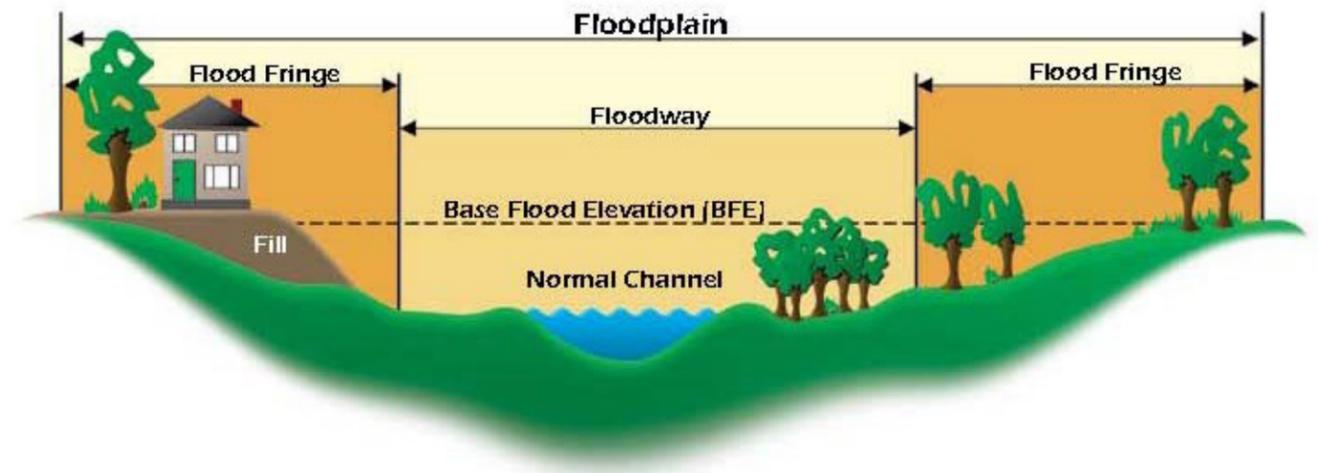
## FLOOD RELATED HAZARDS

The following is a list of the Critical Facilities within the 100-Year Flood Zone

FEATURE TYPE	NAME	ADDRESS
Elderly Housing	Morton Meadows	1-30 Bickford Drive
Government Buildings	Bickford Drive Sewage Lift Station	Bickford Drive
	Lenox Street Sewage Lift Station	Lenox Street
Public Water Supply	South Street Gravel Packed Well #1	Off Jones Street
	Well 1 Tully Well Field	Off Pequoig Avenue
	Well 2 Tully Well Field	Off Pequoig Avenue

According to the National Flood Insurance Program (NFIP) data, there are no repetitive loss properties in Athol. Please see the Appendix for FEMA Q3 Flood Zones Map which depicts the 100 year flood zones in Athol.

### Characteristics of a Floodplain



↑Source: NFIP

# DAM TABLE

DAM NAME	FLOOD ZONE	NATID	REGAUTH	OWNTYPE1	OWNTYPE2	OWNTYPE3	MGMTUNT	DAMLAT	DAMLONG	LOCSTATUS	HAZCODE
1000 Acre Pond Dam		MA02309	Non-Jurisdictional - Other	Public	Municipality	Town of Athol		42.61169972	-72.16406029	Verified	N/A
Bemis Pond Dam		MA01692	Non-Jurisdictional - Other	Private	Private	Private		42.53895	-72.21226389	Verified	N/A
Canal Dam	100YR/ 500YR	MA01688	Non-Jurisdictional - Other	Private	Private	Private		42.59148611	-72.2389778	Verified	N/A
Cass Pond Dam		MA01683	Non-Jurisdictional - Other	Private	Private	Private		42.60762	-72.21488	Verified	N/A
Chase Pond Dam		MA01690	Non-Jurisdictional - Other	Private	Private	Private		42.5844	-72.23709	Not Verified	N/A
Crescent Street Dam	100YR	MA00934	Office of Dam Safety	Private	Private	Private		42.59449301	-72.22675812	Verified	High Hazard
Cresticon Lower Dam	100YR	MA01684	FERC Jurisdiction	Private	Private	Private		42.597063	-72.220614	Verified	Significant Hazard
Cresticon Upper Dam	100YR	MA00932	FERC Jurisdiction	Private	Private	Private		42.59627543	-72.21856146	Not Verified	High Hazard
Farm Pond Dam		MA01691	Non-Jurisdictional - Other	Private	Private	Private		42.58821111	-72.22754167	Verified	N/A
Filter Plant Dam		MA02308	Non-Jurisdictional - Other	Private	Private	Private		42.58192972	-72.19643285	Verified	N/A
Lake Ellis Dam		MA00005	Office of Dam Safety	Public	Municipality	Town of Athol	Board of Selectmen	42.58185331	-72.20668564	Verified	Significant Hazard
Lake Rohunta Dam	100YR	MA00012	Office of Dam Safety	Private	Private	Private		42.56883375	-72.27197439	Verified	Low Hazard
New Quinlan Pond Dam		MA01685	Non-Jurisdictional - Other	Private	Private	Private		42.576131	-72.234232	Verified	N/A
Newton Reservoir Dam	500YR	MA00011	Office of Dam Safety	Public	Municipality	Town of Athol	Board of Selectmen	42.60137908	-72.17461556	Verified	Low Hazard
Reservoir #2 Dam		MA00933	Office of Dam Safety	Private	Private	Private		42.5721152	-72.17461556	Verified	Significant Hazard
Riceville Pond Dam	100YR	MA00014	Office of Dam Safety	Public	State	DCR - Dept. of Conservation & Recreation	State Forest & Parks	42.53145188	-72.22384026	Verified	Low Hazard
South Athol Pond Dam	100YR	MA00215	Office of Dam Safety	Private	Private	Private		42.53143667	-72.26056201	Verified	Significant Hazard
Sportsmans Pond Dam	100YR	MA00013	Office of Dam Safety	Private	Private	Private		42.61076293	-72.2350981	Verified	Significant Hazard
Ward Pond Dam		MA01686	Office of Dam Safety	Private	Private	Private		42.56008	-72.24674	Verified	Significant Hazard
White Pond Dam	100YR	MA00214	Office of Dam Safety	Private	Private	Private		42.55078348	-72.26350463	Verified	Significant Hazard

# IDENTIFY COMMUNITY VULNERABILITIES AND STRENGTHS (RISK ASSESSMENT)

During the Community Resilience Building Workshop and subsequent Hazard Mitigation Planning Public Listening Session, natural hazards in Athol were discussed and ranked. The hazards were split into flood related hazards (including heavy rain, snow melt, dam failure, ice jams, beavers), atmospheric related and winter related hazards (including high winds, hurricanes, tornados, nor'easters, severe thunderstorms, heavy snow, ice storms blizzard), other natural hazards (including major urban fires, wildland fire, drought, extreme temperatures) and geologic hazards (including earthquakes, landslides and tsunami). The hazards were ranked based on likelihood of occurrence, location, impacts and hazard index.

NATURAL HAZARD	LIKELIHOOD OF OCCURRENCE	LOCATION	IMPACTS	HAZARD INDEX
Natural Hazard Separated by Flood, Atmospheric Related Winter Related, Other Natural Hazards, and Geologic Hazards	3 = Highly Likely 2= Possible 1 = Unlikely	3= Regional/State 2= Multi Community/ Regional 1=Local/Town	4= Catastrophic 3= Critical 2= Limited 1= Negligible	Ranking Determined by Combining Likelihood, Location and Impacts of a Natural Hazard
<b>FLOOD RELATED HAZARDS</b>				
Heavy Rain	3	3	3	9
Snow Melt	1	1	2	4
Dam Failure	2	2	4	8
Ice Jams	2	1	3	6
Beavers	3	1	4	8
<b>ATMOSPHERIC RELATED AND WINTER RELATED HAZARDS</b>				
High Winds	3	2	3	8
Hurricanes	2	3	3	8
Tornados	2	2	4	8
Nor'easters	3	3	3	9
Severe Thunderstorms	3	3	2	8
Heavy Snow	3	3	3	9
Ice Storms	3	2	3	8
Blizzard	2	3	3	8

NATURAL HAZARD	LIKELIHOOD OF OCCURRENCE	LOCATION	IMPACTS	HAZARD INDEX
Natural Hazard Separated by Flood, Atmospheric Related Winter Related, Other Natural Hazards, and Geologic Hazards	3 = Highly Likely 2= Possible 1 = Unlikely	3= Regional/State 2= Multi Community/ Regional 1=Local/Town	4= Catastrophic 3= Critical 2= Limited 1= Negligible	Ranking Determined by Combining Likelihood, Location and Impacts of a Natural Hazard
<b>OTHER NATURAL HAZARDS</b>				
Major Urban Fires	2	1	4	7
Wildland Fire	3	1	2	6
Drought	2	3	3	8
Extreme Temperatures	3	3	3	9
<b>GEOLOGIC HAZARDS</b>				
Earthquakes	1	3	2	6
Landslides	1	1	1	3
Tsunami	N/A	N/A	N/A	N/A

## KEY

- Highly Likely: 90-100% probability of occurrence interval of less than 1 year
- Possible: 10-90% probability of occurrence in the next year or recurrence interval of 1 to 10
- Unlikely: Less than 10% probability of occurrence in the next year or a recurrence interval of greater than 11 years
- Catastrophic: Immediate onset of extended duration of event resulting in catastrophic damage and uninhabitable conditions
- Critical: Fast speed of onset or long duration of event resulting in devastating damage and loss of services for weeks or months
- Limited: Moderate speed of onset or moderate duration of event resulting in some damage
- Negligible: Slow speed of onset or short duration of event resulting in little to no damage

# HAZARD MITIGATION GOALS AND PRIORITIZED COMMUNITY ACTIONS

These goals build upon the 2015 Montachusett Region Hazard Mitigation Plan based upon Findings from the Municipal Vulnerability Preparedness planning process. Each goal statement is followed by the related Administrative Review Actions identified by the community during its Integrated MVP/HMP Planning Process.

- Overall Goal Statement
- Goal Statement for Flooding
- Goal Statement for Extreme Temps
- Goal Statement for Beaver
- Goal Statement for Atmospheric Related Hazards
- Goal Statement for Winter Related Hazards

## OVERALL GOAL STATEMENT

To be prepared to reduce the loss of life, property, infrastructure and cultural resources throughout the town of Athol from natural disasters through a multiple hazard mitigation program that involves increased coordination, planning, education and capital improvements.

- To organize and prepare to provide adequate shelter, water, food and basic first aid to displaced residents, evacuation procedures, etc., to residents in the event of a natural disaster.
- To inventory supplies at existing shelters and develop a needs list and storage requirements; and to establish arrangements with local or neighboring vendors for supplying shelters with food and first aid supplies in the event of a natural disaster.
- To have Emergency Management Director (EMD) lead an effort to increase coordination between inter-departments in pre-disaster planning and implementation of hazard mitigation projects.
- Increase awareness of hazard mitigation among town officials, private organizations, businesses, and the general public.
- To examine Athol's Code Red System and identify mechanisms such as funding sources to further implement this system in Athol. Identify opportunities to also implement Reverse-911 (R-911) capabilities.
- To collect, periodically update, and disseminate information on which local radio stations provide emergency information, what to include in a "home survival kit, how to prepare homes and other structures to withstand flooding with high winds, how to manage back-up power equipment, and the proper evacuation procedures to follow during a natural disaster.



↑The intersection of South Athol Road and Sanders, Tunnel and Hapgood streets, Athol, MA

# GOAL STATEMENT FOR FLOODING

To prepare emergency staff and volunteers in order to minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to flooding.

- To continue to participate in the National Flood Insurance Program, and to have the flood maps periodically updated.
- To Develop a priority list and seek funding through the Hazard Mitigation Grant Program (HMGP) for the replacement of undersized culverts throughout the Town.

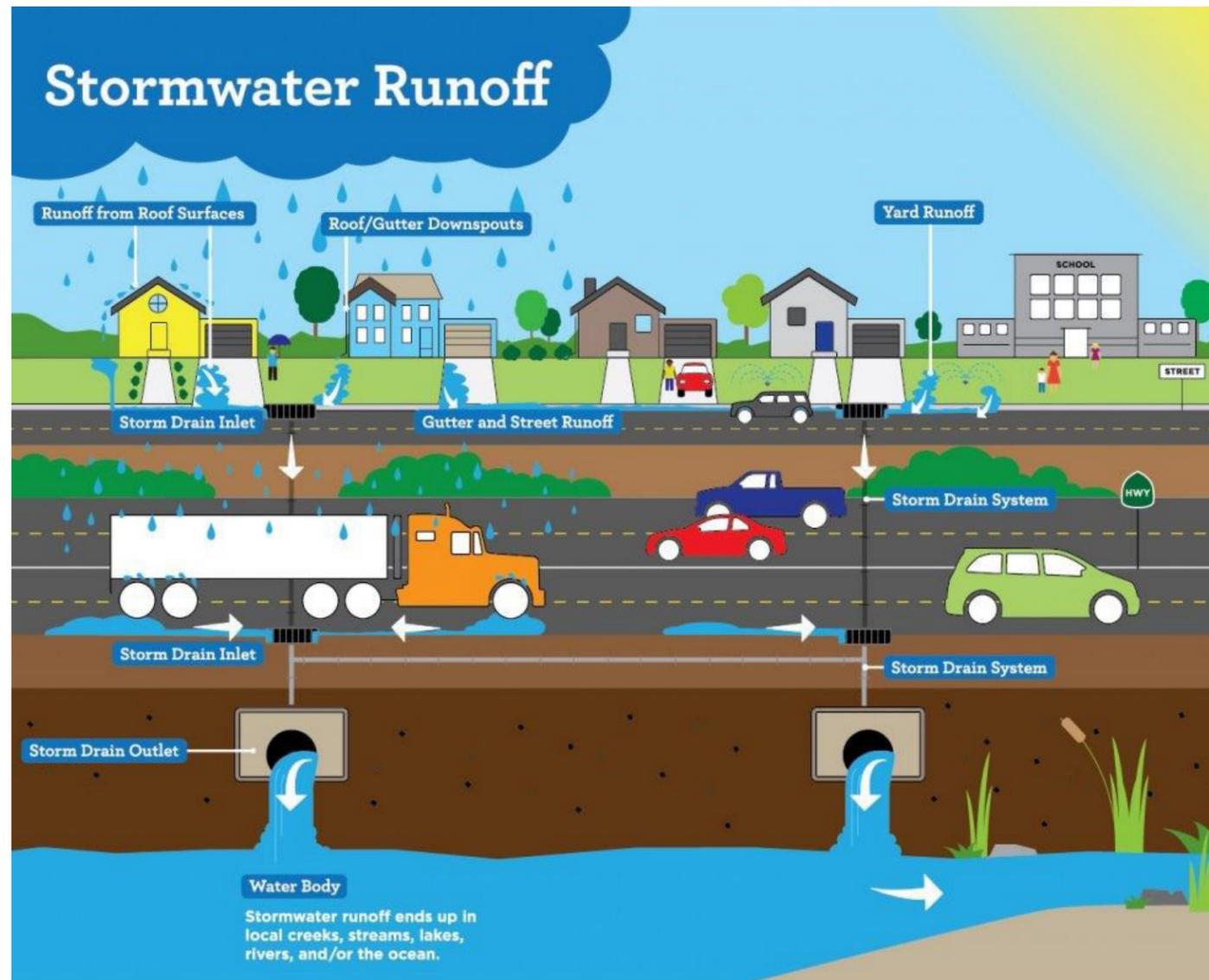
FLOOD RELATED HAZARD				
TYPE OF EXISTING PROTECTION	DESCRIPTION	AREA COVERED	IMPLEMENTATION RESOURCES AND FUNDING	IMPROVEMENTS OF CHANGES NEEDED
Stormwater Management Standards	State Regulations under the Wetlands Protection Act to regulate storm water and other point source discharge; Stormwater Management is also regulated under local bylaws and regulatory provisions	Town - Wide	Enforced by the Athol Conservation Commission (Wetlands Protection Act) and Athol Planning Board (Subdivision Control Law and site plan review) staffed by the municipal Town Planner	Stormwater management standards are and continue to be enforced. Adopt the Town of Athol Stormwater Requirement Recommendations per the December 9, 2019 planning memorandum prepared by the Town of Athol Department of Planning and Development and Tighe&Bond.
Wetlands Protection Act	State law regulating development and activity within wetland buffer zone	100-foot state buffer around wetland area; 200 foot buffer around river front areas	Enforced by the Athol Conservation Commission	No improvements or changes needed

FLOOD RELATED HAZARD				
TYPE OF EXISTING PROTECTION	DESCRIPTION	AREA COVERED	IMPLEMENTATION RESOURCES AND FUNDING	IMPROVEMENTS OF CHANGES NEEDED
100 Year Flood Zone	Federal law requiring elevation about 100-year flood level of new and substantially improved residential structures in floodplain	100-year floodplain as shown on Flood Insurance Rate Map dated July 9, 1982.	Enforced by the Building Inspector (municipal staff) and Athol Conservation Commission	Insurance Flood Rate. Map needs updating
Town Bylaw Flood Plain District	Local bylaw enhancing federal/ state laws and regulating any development in flood plain district	100-year floodplain as shown on Flood Insurance Rate Map dated July 9, 1982	Enforced by the Building Inspector (municipal staff) and Board of Appeals	Insurance Flood Rate Maps need to be updated.
Maintenance of municipal storm water drainage system	Regular cleaning of catch basins, storm drains, and culverts	Town wide	Undertaken by the Department of Public Works municipal staff	Maintenance continues but additional personnel and equipment needed to undertake this task
Maintenance of public water bodies (ponds, streams, brooks, wetlands)	Periodic cleaning of waterways needed, e.g. remove trash, debris	Town wide	Undertaken by the Department of Public Works municipal staff with guidance from Athol Conservation Commission	Maintenance continues no improvements of changes needed
Inspection of major dams	Periodic inspection of the structural integrity of the dam	Town wide	Undertaken by the Massachusetts Department of Conservation and Recreation, Office of Dam Safety	Update Dam failure studies for the dams rated as high hazard

# GOAL STATEMENT FOR EXTREME TEMPERATURE

To minimize the threat to health and the disruption of governmental service and general business activities due to extreme temperatures.

- Assess open space opportunities to create green infrastructure and nature based solutions.
- Identify and obtain urban renewal grant funding for downtown development efforts to reduce the significant areas of impervious surface in downtown Athol



↑ Source: NPDES

EXTREME TEMPERATURE RELATED HAZARD				
TYPE OF EXISTING PROTECTION	DESCRIPTION	AREA COVERED	IMPLEMENTATION RESOURCES AND FUNDING	IMPROVEMENTS OF CHANGES NEEDED
Stormwater Management Standards	State Regulations under the Wetlands Protection Act to regulate storm water and other point source discharge	Town - Wide	Enforced by the Athol Conservation Commission (Wetlands Protection Act) and Athol Planning Board (Subdivision Control Law and site plan review) staffed by the municipal Town Planner	Evaluate downtown Athol, at Lord Pond Plaza for strategies to remove impervious pavement, a significant source of urban heat island effect. Identify locations to implement streetscape improvements such as public shade trees or urban rain gardens.
Wetlands Protection Act	State law regulating development and activity within wetland buffer zone	100-foot state buffer around wetland area; 200 foot buffer around river front areas	Enforced by the Athol Conservation Commission	No improvements or changes needed
Zoning By Law	Local bylaw enhancing federal/state laws	Town-Wide	Enforced by the Building Inspector (municipal staff) and Board of Appeals	Advocate for the local zoning by law to incorporate green infrastructure

## GOAL STATEMENT FOR PROTECTION FROM BEAVERS

To minimize the threat to health, the damage to roads and property, and the disruption of governmental service and general business activities due to flooding caused by beavers.

- Support local town departments to continue present methods to prevent beaver caused flooding.
- Seek assistance from beaver management professionals, including trappers.
- Install beaver management devices.

FLOOD RELATED HAZARD				
TYPE OF EXISTING PROTECTION	DESCRIPTION	AREA COVERED	IMPLEMENTATION RESOURCES AND FUNDING	IMPROVEMENTS OF CHANGES NEEDED
Board of Health Permit Provision	State law implemented by municipal Board of Health Departments relative to public health and safety caused by Beaver activity	Areas downstream from the North Quabbin beaver dam	Board of Health issues beaver trapping and removal permits typically with a 10-day Emergency Permit	Consider option to secure funding to remove the beaver dam at the North Quabbin Commons development. Identify ownership issues that may exist.

## GOAL STATEMENT FOR ATMOSPHERIC RELATED HAZARDS

To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to atmospheric related hazards.

- To develop a plan for providing access to water, information, shelter and food stores to people in remote locations in Athol in the event of a atmospheric related hazards.

ATMOSPHERIC RELATED HAZARD				
TYPE OF EXISTING PROTECTION	DESCRIPTION	AREA COVERED	IMPLEMENTATION RESOURCES AND FUNDING	IMPROVEMENTS OF CHANGES NEEDED
Tree Maintenance	Regular inspections and tree maintenance to cut branches threatening power lines and overhead utilities	Town wide	National Grid hires certified contractors to conduct tree trimming activities to ensure the safety and electric service reliability, National Grid schedules tree trimming every five to seven years adhering to the industry "best practices"	No improvement of changes needed

## GOAL STATEMENT FOR WINTER RELATED HAZARDS

To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to severe snow and ice storms.

- To develop a plan for providing access to water, information, shelter and food stores to people in remote locations in Athol in the event of a severe winter storm.

WINTER RELATED HAZARD				
TYPE OF EXISTING PROTECTION	DESCRIPTION	AREA COVERED	IMPLEMENTATION RESOURCES AND FUNDING	IMPROVEMENTS OF CHANGES NEEDED
Residential Parking Bans	Parking Band sot enable snow removal effectively from residential streets	Town - Wide	Department of Public works municipal staff	No improvements or changes needed.
Clearing Snow from Major Arterial Routes	Ensure Access to Emergency Services	Town Wide	Department of Public Works municipal staff	Snow clearing continues but additional personnel and equipment needed
Sidewalk Snow Removal	Safe pedestrian walking conditions to downtown services	Town-Wide (downtown)	Department of Public Works municipal staff	Snow cleaning continues but additional personnel and equipment are needed.

→ Athol Ice Jam, Athol, MA



## OTHER HAZARDS (LESS CRITICAL)

### **Snow Melt:**

Incorporate safe snow management/stockpiling into DPW practices particularly where snow storage occurs along the Millers River or tributaries.

### **Ice Jams:**

Identify potential areas for Ice Jams and monitor during winter months.

### **Urban Fire:**

Educate property owners on actions that can reduce fire risks.

### **Wildland Fire:**

Develop a plan to provide brush clearing for access of Emergency Services vehicles.

### **Earthquakes:**

Develop a plan for providing access to water, information, shelter and food stores in the event of an earthquake.

### **Landslides:**

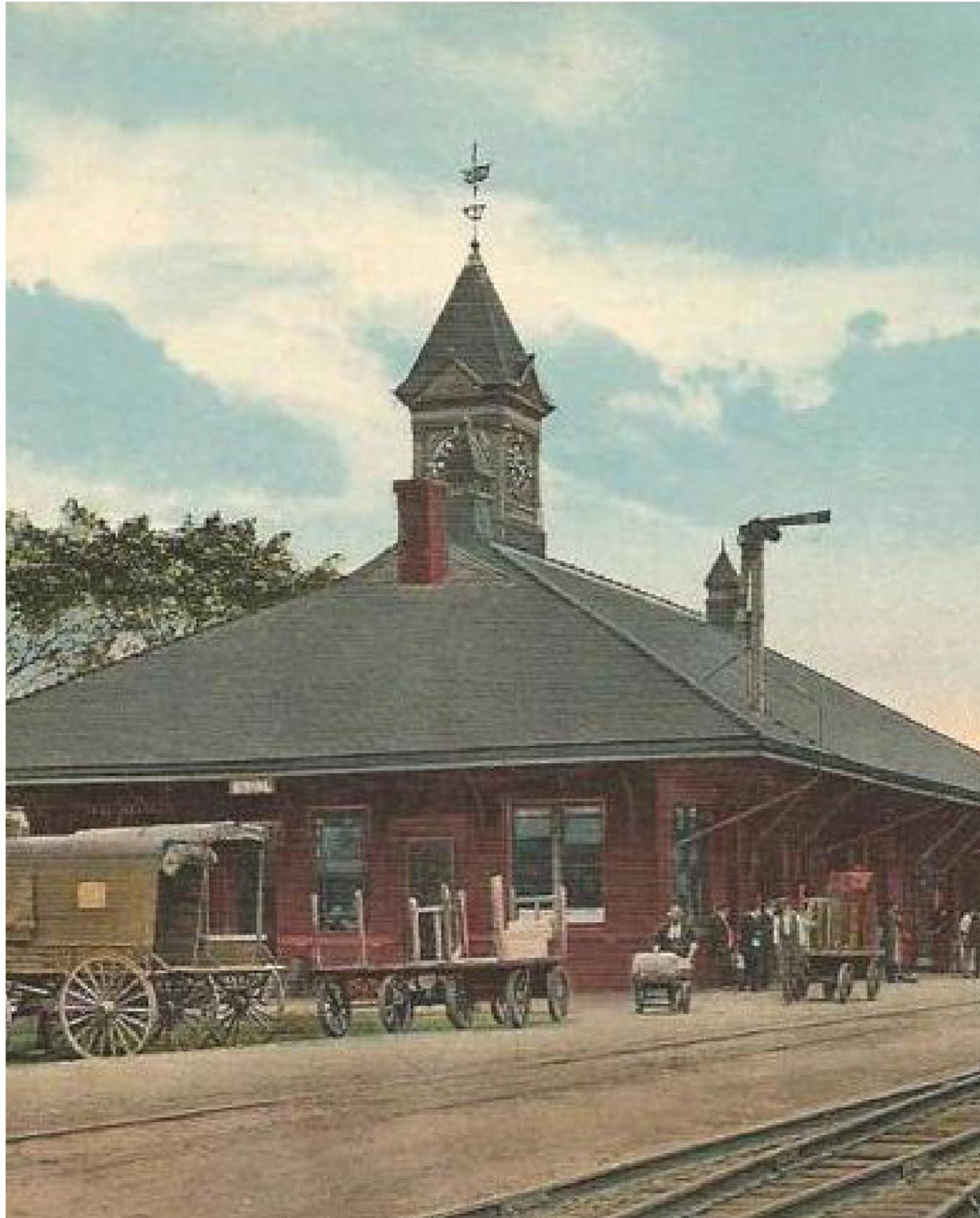
Develop a plan for providing access to water, information, shelter and food stores in the event of a landslide.

### **Tsunami:**

Athol is an inland city and therefore the risk for potential tsunami's was considered very low (not applicable).



↑ Ice chunks on the Millers river, Athol, MA



## REVIEW AND APPROVAL PROCESS

After the public listening session, the plan is submitted electronically to MEMA at mitigation@mass.gov and to the MVP Portal on the resilientMA.com Climate Change Clearing House. The Integrated MVP/HMP Plan is reviewed by FEMA and final copies are sent to the MVP Regional Coordinator and MVP Manager. After this, the municipality will be designated as a “Municipal Vulnerability Preparedness Program Climate Community,” or “MVP Climate Community”. (Source Municipal Vulnerability Preparedness (MVP) award: MVP/HMP Combined Scope Update dated November 23, 2019)

Following approval by FEMA, the Town’s Hazard Mitigation Core team will periodically review the plan. The Core Team will have at least one public review session by the end of 2022 to review the plan. The meetings will be posted publicly in accordance with the Town and State open meetings laws.

The plan is approved for five years (2025) by which time an updated plan must be reviewed and approved by FEMA. The Hazard Mitigation Team will begin to prepare for an update in the spring of 2024. They will use the information gathered from the periodic meetings to implement and update the Hazard Mitigation Plan. Once the new plan has been drafted, it will be submitted to FEMA/MEMA for review and approval prior to the date of approval of this document.

← Union Station, Athol, MA