

							framework plan
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*Unless otherwise noted, Athol's Resources/Funding consists of elected/appointed boards and commissions and municipal staff whose positions are funded through local taxes.

**Actions identified as carried forward were not completed in the previous planning cycle unless otherwise stated.

Mitigation actions from the 2008 Montachusett Region Hazard Mitigation Plan that have been completed include:

- Identification of existing shelters that are earthquake resistant as well as outside of floodplain (and dam inundation) areas.
- Inventory supplies at existing shelters and develop a needs list and storage requirements. Completed a Comprehensive Shelter Plan with supplies.



Ayer Natural Hazard Risk Assessment

While this annex focus' pertains to critical facilities, flooding, risk assessment, existing protections and mitigation strategy in the community, more detailed descriptions of each natural hazard's impact on the region and its communities and summary of vulnerability can be located in the regional section entitled " 4. Identification of Natural Hazards, Identifying and Profiling Hazards".

Community Profile

The Town of Ayer is located in the far eastern part of North Central Massachusetts, on the western edge of Middlesex County. It is bordered by the Town of Shirley on the west, Groton on the north, Littleton on the east, and Harvard on the South. Ayer is located 27 miles northeast of Worcester, 35 miles northwest of Boston, 38.8 miles directly east of Athol, 88.3 miles from Springfield, and 207 miles from New York City.

The town of Ayer covers an area of 9.57 square miles and has a resident population of 7,427, according to the 2010 U.S. Census. The population density is 776 people per square mile. There are 3,462 housing units in the town, and the average household size is 2.30. Median age of Ayer's residents is 38.

Ayer's history dates back to 1667 when the first mill, used to grind corn in the agricultural community, was built. Originally part of the town of Groton, Ayer was incorporated in 1871 and named in honor of Dr. James Cook Ayer, a prominent resident of Lowell who provided the funding for the construction of Town Hall (1873-76). The Town's growth was influenced by a period of rapid development of railroad transportation during the mid-19th century. Though only 9.5 square miles in area the Town became a major junction for both east-west and north-south rail lines, and developed into an important commercial center. During the Civil War an army training camp, Camp Stevens, was located near the Nashua River. Camp Devens, which eventually became Fort Devens, was established in 1917, during World War I. The presence of thousands of military and civilian personnel on the base shifted Ayer's commercial development towards meeting their needs until Fort Devens was closed in 1994. The Town today is a reflection of its history. Within its relatively small area the Town boasts numerous industries, a thriving, historical downtown, unique to the Region and modern commuter rail service to Boston.

Ayer is also home to the Nashua River Rail Trail, an 11-mile long, beautifully maintained, pastoral corridor connecting five New England towns, a popular attraction. The town has a significant number of employers, the three largest being, Nashoba Valley Medical Center, American Superconductor Corp and Apple Valley Nursing and Rehab.

Critical Facilities



In general usage, the term “critical facilities” is used to describe all manmade structures or other improvements that, because of their function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed, damaged, or if their functionality is impaired.

Critical facilities commonly include all public and private facilities that a community considers essential for the delivery of vital services and for the protection of the community. They usually include emergency response facilities (fire stations, police stations, rescue squads, and emergency operation centers [EOCs]), custodial facilities (jails and other detention centers, long-term care facilities, hospitals, and other health care facilities), schools, emergency shelters, utilities (water supply, wastewater treatment facilities, and power), communications facilities, and any other assets determined by the community to be of critical importance for the protection of the health and safety of the population. The adverse effects of damaged critical facilities can extend far beyond direct physical damage. Disruption of health care, fire, and police services can impair search and rescue, emergency medical care, and even access to damaged areas.

The number and nature of critical facilities in a community can differ greatly from one jurisdiction to another, and usually comprise both public and private facilities. In this sense, each community needs to determine the relative importance of the publicly and privately owned facilities that deliver vital services, provide important functions, and protect special populations. *Source: Federal Emergency Management Administration, Risk Management Series, Design Guide for Improving Critical Facility Safety from Flooding and High Winds, FEMA 543, January 2007.*

A list of the critical facilities within the community is shown in Table 30. This data was obtained from the community’s Comprehensive Emergency Management Plan (CEMP). The data was then reviewed by the Emergency Management Director. These facilities were digitized into GIS and used for determining vulnerability to the various hazards. The map that follows entitled FEMA Q3 Flood Zones and Critical Infrastructure depicts Critical Facilities in the community.

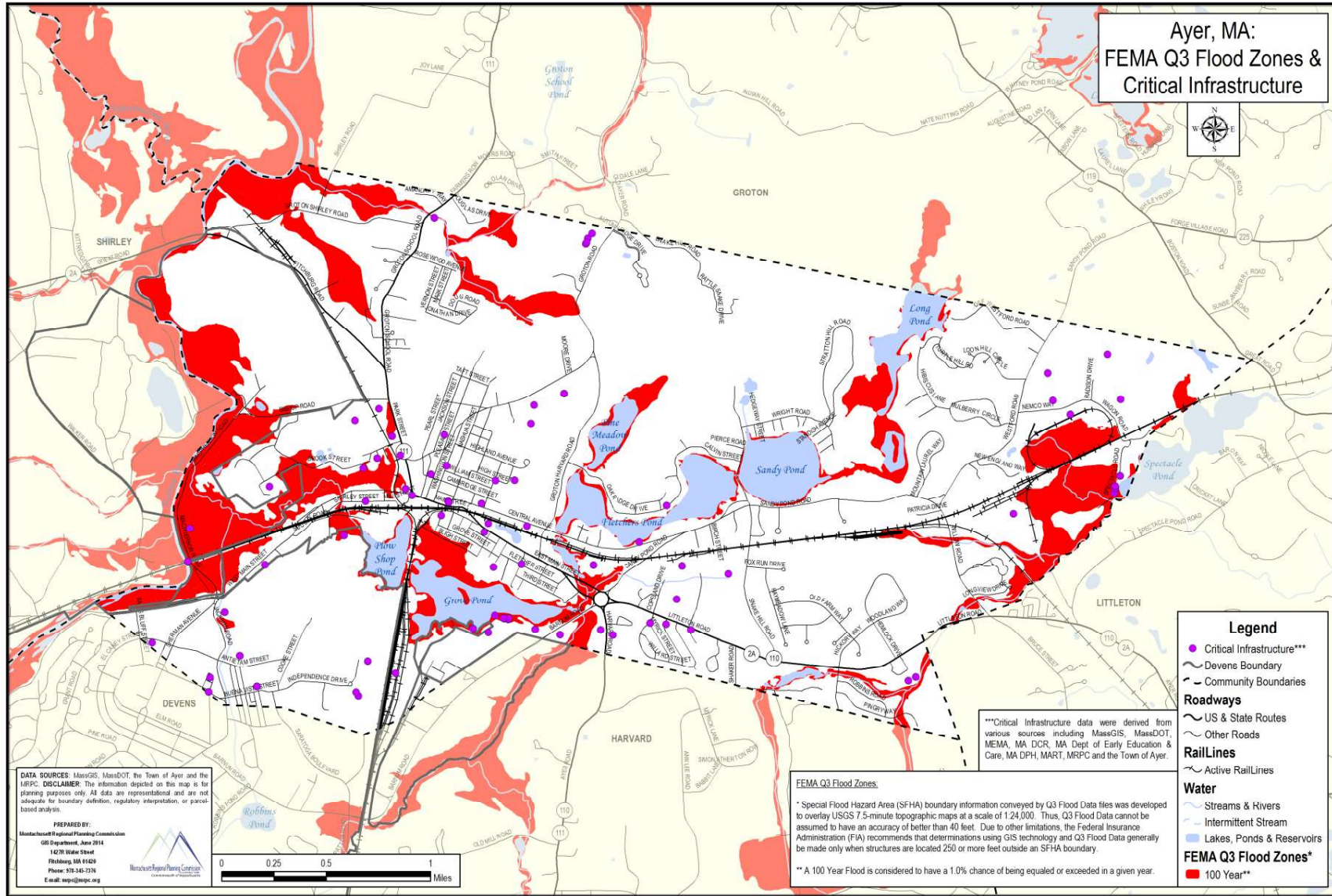
Table 30: Ayer Critical Facilities

<i>Feature Type</i>	<i>Name</i>	<i>Address</i>
Animal Shelters	Ayer Animal Medical Center	196 West Main Street
City/Town Halls	Ayer Town Hall	1 Main Street
Clinics	Advocates Community Counseling	11 Depot Square
District Court	Ayer District Courthouse	25 East Main Street
DPW Facilities	Ayer DPW	25 Brooks Street
Early Education Childcare Facilities	Mullan, Janet	6 Forest St
	Ayer Kiddie Depot	33 Shirley St

	Stevens, Patricia	23 High St
	Boisseau, Brenda M.	22 Fletcher St
	Duncanson, Tiffany	10 Atherton St.
	Aguiar Muniz, Claudia	2 Myrick St
	Bourne, Karen	142 Oak Ridge Dr
	Duncanson, Linda	9 Hatch St.
Elderly Housing	Ayer Housing Authority	18 Pond Street
	Pleasant Street School Apartments	62 Pleasant Street
Emergency Operations Centers	Ayer Police Station	54 Park Street
	Ayer Fire Station	1 West Main Street
Emergency Shelters	Nashoba Valley Medical Center	200 Groton Road
	Ayer Town Hall	1 Main Street
	Ayer High School	141 Washington Street
End Of Life Facilities	Woodlawn Cemetery	
	Woodlawn Cemetery	
	Anderson Family Funeral Homes	46 Washington St
	Saint Marys Cemetery	
Fire	Ayer Fire Station	1 West Main Street
Freight	Panam Southern Rr Auto Yard	
	Devens Intermodal Rail Terminal	
Hazmat Sites	Cains Foods, L.P. (Warehouse)	3 Nemco Way
	Cains Foods, L.P. (Manufacturing Facility)	114 East Main Street
	Cargill Inc- Horizon Milling	35 Nemco Way
	Cpf Inc/Northeast Hotfill	25 Copeland Drive
	Epic Enterprises Inc.	11 Copeland Drive
	Jiffy Lube	38 Park Street
	Jp Sullivan & Co.	50 Barnum Road
	L3 Communications Essco	90 Nemco Way
	National Grid- Ayer 201	Bishop Road
	National Grid- Sandy Pond 237	Westford Road
	Steward Health Care Systems D/B/A Nashoba	200 Groton Road
	Verizon	26 Pleasant Street
	Nashoba Valley Express Co., Inc.	81 Central Avenue
	National Grid- Sandy Pond Hvdc	Radisson Road
Hospitals	Nashoba Valley Medical Center	200 Groton Street
Long Term Care Facility	Nashoba Park	15 Winthrop Avenue
	Apple Valley Center	400 Groton Road
Other Critical Facilities	Ayer Water Storage Tank	Off Washington Street
Other Government Buildings	Ayer Dpw	25 Brooks Street

	Ayer Public Library	26 East Main Street
Police	Ayer Police Station	54 Park Street
Potable Water Treatment Plants	Ayer Water Treatment Plant	Off Nemco Way
	Ayer Water Treatment Plant	Off Barnum Road
Public Health Office	Ayer Board Of Health	1 Main Street
	Nashoba Associated Board Of Health	30 Central Avenue
Public Water Supply*	Proposed Grove Pond Well #3	
	Spectacle Pond Well # 1a	
	Spectacle Pond 2 Well	
	Well #1	
	Grove Pond Well #1	
	Grove Pond Well #2	
	Pepsi Cpf	25 Copeland Drive
	Spectacle Pond # 2 Well	
	Spectacle Pond # 1 Well	
	Grove Pond Gravel Packed (12 8") Wells	
	Well #1	
	Macpherson Naturally Developed Well	
	Grove Pond Well # 1	
	Grove Pond Well # 2	
Pumping Stations	Ayer Water Treatment Plant	Off Barnum Road
	Ayer Water Pumping Station	Central Avenue
	Ayer Water Pumping Station	25 Brooks Street
	Groton School Road Pumping Station	Groton School Road
School	Page-Hilltop School	115 Washington Street
	Ayer High School	141 Washington Street
Wastewater Treatment Plant	Ayer Wastewater Treatment Facility	25 Brooks Street

*As stated in 310 CMR 22.02, a Public Water System means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year” (Mass GIS, 2014).



Flood Prone Areas

Particular areas within the community where the risk of flood areas are or could occur are shown on the Ayer Local Hazards Assessment Map (Appendix 2) as determined at the first meeting of the Ayer Local Hazard Mitigation Team held on December 10, 2012.

Flooding Vulnerability Assessment

An analysis of the FIRM flood hazard area maps indicates that there is a total of 1175.61 acres of 100-year floodplain within Ayer. This amounts to 19.33% of the total town. Based on additional analysis, 82.32 acres (7%) of the floodplain are developed. Currently there are 101 structures in the floodplain which is about 3.21% of the total structures in the community. The buildings are then multiplied by the building value, as determined by the MA Department of Revenue, to come up with a potential loss of \$221,082,000.

Listed below are critical facilities within the 100 year flood zone. Bridges and Dams are also within the 100 year flood zone.



Table 31: Ayer Critical Facilities within 100-Year Flood Zone

Feature Type	Name	Address
Emergency Operations Centers	Ayer Fire Station	1 West Main Street
Fire	Ayer Fire Station	1 West Main Street
Hazmat Sites	Shelpley Hill Treatment Facility	(Access Off Of) Scully Road
Other Critical Facilities	Guilford Rail Bridge	Rail Line & Nashua River
Potable Water Treatment Plants	Ayer Water Treatment Plant	Off Nemco Way
Public Water Supply	Grove Pond Gravel Packed (12 8") Wells	
	Macpherson Naturally Developed Well	
	Grove Pond Gravel Packed (12 8") Wells	
	Proposed Grove Pond Well #3	
	Macpherson Naturally Developed Well	
	Grove Pond Well #1	
	Grove Pond Well #2	
	Grove Pond Gravel Packed (12 8") Wells	
	Macpherson Naturally Developed Well	
	Grove Pond Well # 1	
	Grove Pond Well # 2	
Pumping Stations	Ayer Water Pumping Station	25 Brooks Street

Since the initiation of the National Flood Insurance Program (NFIP), three flood insurance claims in the Town of Ayer have been made totaling \$7,783.30 in payments. There are no repetitive loss properties in Ayer. Statistics from the NFIP BureauNet indicate in the town of Ayer there are 34 flood insurance policies in force.

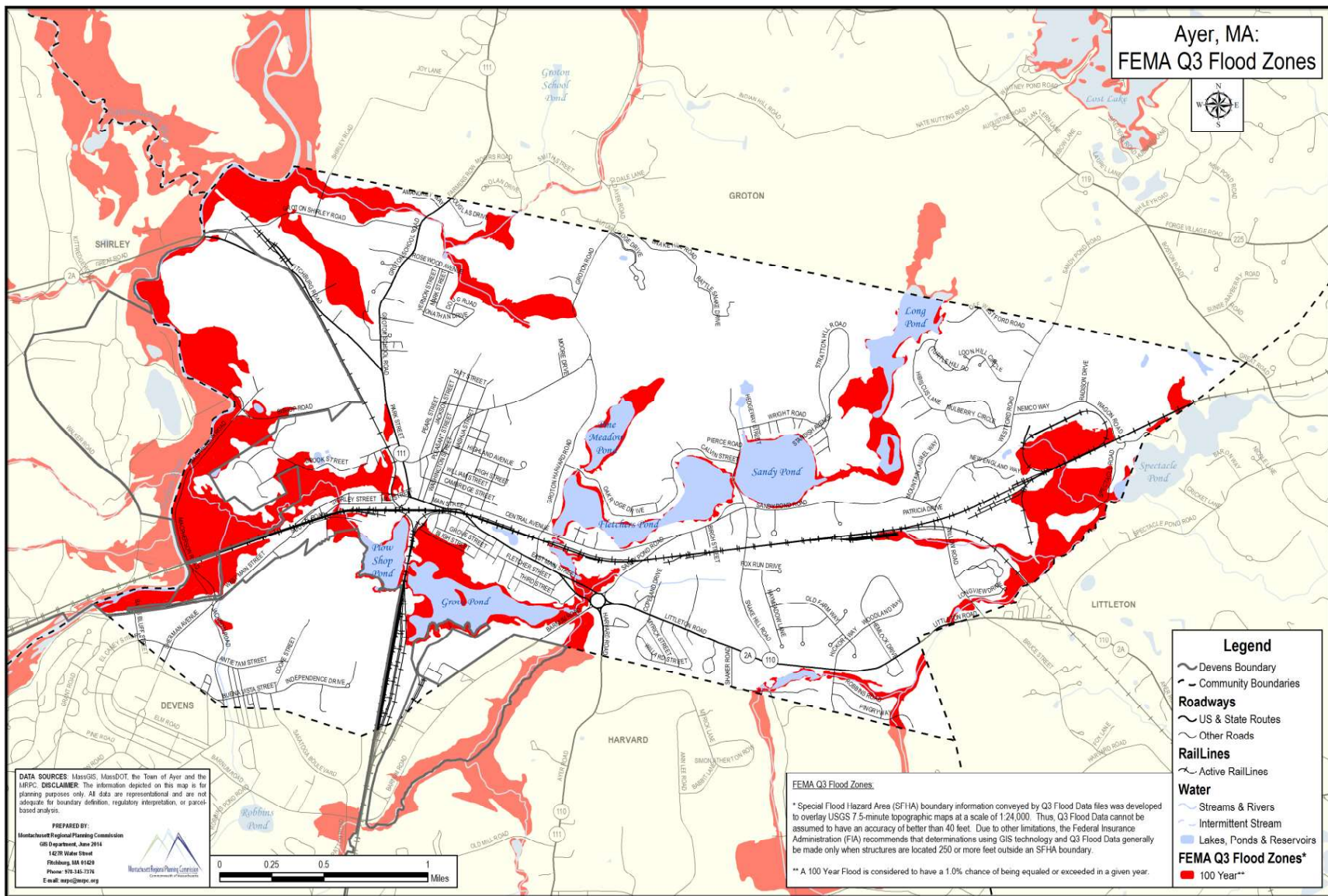
Floodplain Management and Compliance with NFIP



The town supports numerous floodplain management activities in an effort to meet compliance of the National Floodplain Insurance Program. These efforts include:

- Implementing the MA Wetlands Protection Act and the town's Wetland's Protection Bylaw regulating development and activity within the wetlands buffer zone and regulating stormwater and other point source discharge.
- Implementing the Town Flood Plain District Bylaw (December 10, 1999) regulating development in the floodplain district.
- Continued maintenance of municipal stormwater drainage system which includes regular cleaning of catch basins, storm drains and culverts.
- Continued maintenance of public water bodies to reduce flooding caused by erosion and water displacement.
- Enforcement of the Cluster Development Bylaw which mitigates possible flooding events by designating protected open space within a development which in turn treats stormwater runoff through the means of natural infiltration.

The map on the following page entitled FEMA Q3 Flood Zones depicts the 100 year flood zones in the community.



Structurally Deficient Bridges Over Waterways

Ayer does not have any bridges over water that are classified by MassDOT as “structurally deficient”.

Hazard Potential of Dams

The DCR Office of Dams Safety lists nine dams in the Town of Ayer as shown in Table 32. Of these nine dams, four dams, namely, Balch Pond, Upper Flanagan Pond, Plow Shop Pond, and Balch Pond Dike Dams are classified as significant hazards.

Classifications for potential hazards are in accordance with the chart below.

Hazard Potential Classification

High Hazard	Refers to dams located where failure will likely cause loss of life and serious damage to home(s), industrial or commercial facilities, important public utilities, main highway(s) or railroad(s).
Significant Hazard	Refers to dams located where failure may cause loss of life and damage home(s), industrial or commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important facilities
Low Hazard	Refers to dams located where failure may cause minimal property damage to others. Loss of life is not expected.

Source: MA Department of Conservation and Recreation Office of Dam Safety

High hazard dams must be inspected every two year, significant hazard every five years, and low Hazards dams every 10 years. Owners of dams are responsible for having their dam inspected. MGL Chapter 253 and 302 CMR 10.00 requires that dam owners prepare, maintain and update Emergency Action Plans for all High Hazard Potential dams and certain Significant Hazard Potential dams.

Non-jurisdictional dams are not regulated by the Office of Dam Safety or under their jurisdiction. Typically these dams are under 6 feet in height and/or under 15 acre-feet in storage and do not have an assigned 'Hazard Code'. Dams owned and regulated by the Federal Government are also typically non-jurisdictional but DO have an assigned Hazard Code.



Table 32: Dams

Town	Dam	Hazard Code	Owner
Ayer	Ice House Dam	Low Hazard	Private
Ayer	Lower Long Pond Dam	Low Hazard	Private
Ayer	Long Pond Dam	Low Hazard	Public
Ayer	Plow Shop Pond Dike	N/A	Private
Ayer	Ayer Fish & Game Club Pond Dam	N/A	Private
Ayer	Balch Pond Dam	Significant Hazard	Public

Ayer	Upper Flanagan Pond Dam	Significant Hazard	Private
Ayer	Plow Shop Pond Dam	Significant Hazard	Private
Ayer	Balch Pond Dike	Significant Hazard	Public

*N/A – Information not available as the dam is non-jurisdictional.

Risk Assessment

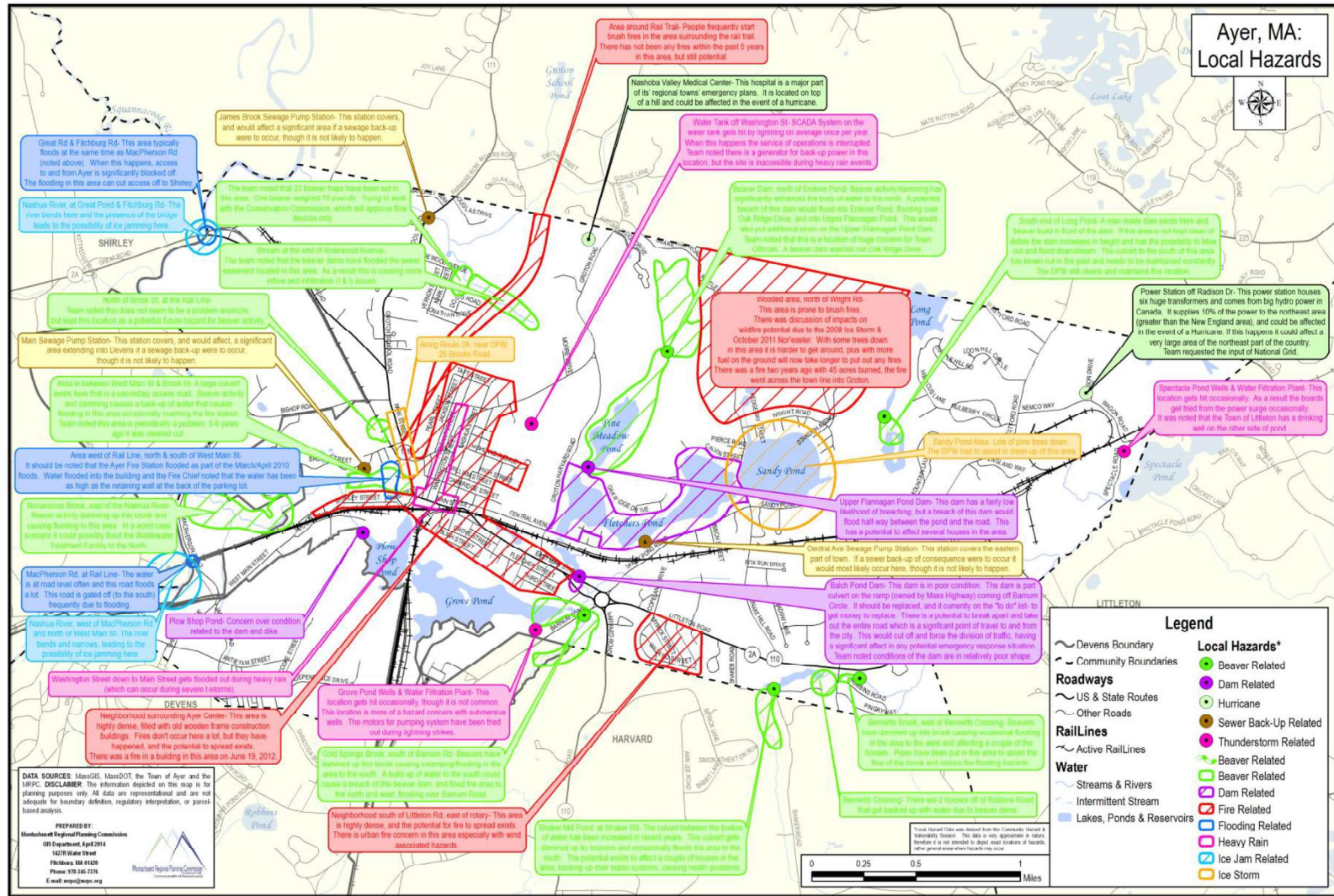
As previously stated, located in Section 4. Identification of Natural Hazards, Identifying and Profiling Hazards”, there is a description of each identified hazards’ impact on the region and its communities as well as an overall summary of vulnerability. Based on the hazards identified in this plan and the assessment of risks by the Town of Ayer, the town considers itself to be at a high risk for Beavers, Heavy Snow, and Wild land Fire; moderate risk for Heavy Rain, Dam Failure, High Winds, Nor’easters, Severe Thunderstorms, and Ice Storms; low risk for Snow Melt, Ice Jams, Hurricanes, Blizzard, Major Urban Fires, Drought, Extreme Temperatures, Earthquakes and Landslides; and tsunamis as not applicable. This information is documented in the Ayer Natural Hazard Matrix below which was obtained from participants at the Ayer Local Hazard Mitigation Team Meeting held on December 10, 2012.





Ayer Natural Hazard Matrix				
Natural Hazard	Likelihood of Occurrence	Location	Impacts	Hazard Index
Natural Hazard Separated by Flood, Atmospheric Related and 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 the Likelihood, Location and Impacts of a Natural Hazard
<u>Flood-Related Hazards</u>				
• Heavy Rain	2	1	2	5
• Snow Melt	1	1	1	3
• Dam Failure	2	2	3	7
• Ice Jams	1	2	3	6
• Beavers	3	1	2	6
<u>Atmospheric Related and Winter Related Hazards</u>				
• High Winds	2	2	3	7
• Hurricanes	1	3	3	7
• Tornados	1	2	3	6
• Nor'easters	2	3	2	7
• Severe Thunderstorms	2	1	2	5
• Heavy Snow	3	2	3	8
• Ice Storms	2	2	3	7
• Blizzard	1	2	3	6
<u>Other Natural Hazards</u>				
• Major Urban Fires	1	1	3	5
• Wildland Fire	3	1	2	6
• Drought	1	3	2	6
• Extreme Temperatures	1	3	2	6
<u>Geologic Hazards</u>				
• Earthquakes	1	2	2	5
• Landslides	1	1	1	3
• Tsunami	NA	NA	NA	NA
Key Highly likely: 90 to 100 percent probability of occurrence in the next year or a recurrence interval of less than 1 year. Possible : 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years. Unlikely: Less than 10 percent probability of occurrence in the next year or a recurrence interval of greater than 11 years. Catastrophic: Immediate onset or 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.				

Also discussed at this meeting were the hazards that affect each community and the identification of specific problem areas in the community that need to be addressed. This included the identification of new hazards that were determined to pose a threat or community vulnerability which are detailed in the Ayer Local Hazards Map on the following page. The entire community is equally at risk to the following hazards: snow melt, tornados, nor'easters, heavy snow, blizzards, drought, extreme temperatures, earthquakes and landslides.





Existing Protections

The original inventory of hazard mitigation actions which the Montachusett communities undertook for the 2008 Montachusett Region Hazard Mitigation Plan was reviewed and updated by each community at a meeting held in each community with the MRPC and the community's Local Hazard Mitigation Planning Team and, in some communities, the Emergency Management Committee. The attendees of the meetings can be found in Appendix A. The following matrices depict the updated inventory of what is currently being done to mitigate hazards by listing the programs and activities already in place. It includes a description of the protection measure, who is responsible, and improvements and changes that may be needed. This inventory was used by the Planning Team/Emergency Management Committee to identify gaps in existing protections that were then addressed through the development of this plan update.

Ayer

Type of Existing Protection	Description	Area Covered	Implementation Resources and Funding*	Improvements or Changes Needed
Flood Related Hazards				
Storm water management standards	State Regulation under the Wetlands Protection Act to regulate storm water and other point source discharge	Town-Wide	Enforced by the Ayer Conservation Commission (Wetlands Protection Act) and Ayer Planning Board (Subdivision Control Law and site plan review).	Storm water management standards are and continue to be enforced. No improvements or changes needed.
Wetlands Protection Act (state)	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 Ayer Conservation Commission.	No improvements or changes needed.
Wetland Protection Bylaw (local)	Local bylaw supplementing the Wetlands Protection Act	100-foot state buffer around wetland area; 200 foot buffer around river front areas	Enforced by the Ayer Conservation Commission.	No improvements or changes needed.
100 Year Flood Zone	Federal law requiring elevation above 100-year flood level of new and substantially improved residential structures in floodplain	100-year floodplain as shown on Flood Insurance Rate Map dated June 4, 2010.	Enforced by the Building Inspector (municipal staff) and Board of Appeals	No improvements or changes needed.

Town Bylaw Flood Plain District	Local bylaw enhancing federal/state laws and regulating any development in the flood plain district	100-year floodplain as shown on Flood Insurance Rate Map dated June 4, 2010.	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	Directed 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 is undertaken, i.e., remove trash, debris	Town-Wide	Undertaken by the Department of Public municipal staff. Works with guidance from Conservation Commission	Maintenance continues. No improvements or changes needed.
Inspection of major dams	Periodic inspections 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
Wind Related Hazards				
State Building Code	State Law related to design loads to include wind effects	Town-Wide	Enforced by Building Inspector (municipal staff).	Continued enforcement remains in place. No improvements or changes needed.
Tree Maintenance	Regular inspection and tree maintenance to cut branches threatening power lines and overhead utilities	Town-Wide	National Grid staff (electric company).	This task continues. No improvements or changes needed.
Fire Related Hazards				
Limited Brush Clearing	Brush clearing to provide access to Emergency Service vehicles.	Town-Wide	Directed by the Department of Public municipal staff.	Continue to Identify additional Areas with Potential for Brushfires
Winter Storms Related				
Residential Parking Bans	Parking Bans to Enable Snow Removal Effectively from Residential Streets	Town-Wide	Department of Public Works municipal staff.	Additional personnel and equipment needed to enforce parking bans.

Clearing Snow from Major Arterial Routes	Ensure Access to Emergency Service vehicles.	Town-Wide	Department of Public Works municipal staff.	Snow clearing continues but additional personnel and equipment needed
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*Ayer's enforcement/implementation is generally carried out by elected/appointed boards and commissions and municipal staff whose positions are funded through local taxes.



Mitigation Goals, Objectives and Strategies

As discussed earlier in this Plan, MRPC previously prepared the 2008 Montachusett Region Hazard Mitigation Plan which consisted of individual annexes for each MRPC community. Similarly, as part of the multi-jurisdictional plan update, each community also developed their own individual goals, objectives and strategies which are listed in this section.

Overall Goal Statement: To prepare to reduce the loss of life, property, infrastructure and cultural resources throughout the Town of Ayer from natural disasters through a multiple hazard mitigation program that involves increased coordination, planning, education, and capital improvements.

1. **Objective:** To provide adequate shelter, water, food, and basic first aid to displaced residents in the event of a natural disaster, and to provide adequate notification and information regarding evacuation procedures, *etc.*, to residents in the event of a natural disaster.
2. **Objective:** to increase coordination between inter-departments in pre-disaster planning, post-disaster recovery and continuous hazard mitigation implementation.
3. **Objective:** Increase awareness of hazard mitigation among town officials, private organizations, businesses, and the general public.
4. **Objective:** To ensure that critical infrastructure sites are protected from natural hazards, and to maintain existing mitigation infrastructure in good condition.
5. **Objective:** To educate the public about the threat of natural hazards and the possible mitigation measures that can be taken to protect public health and safety, as well as infrastructure and property; and to educate the public as well about zoning and building regulations, particularly regulations that relate to new construction.
6. **Objective:** To encourage future development in areas that are not prone to natural disasters.
7. **Objective:** To identify existing shelters that are earthquake resistant as well as outside of floodplain and inundation areas. Disseminate this information to appropriate Town departments.
8. **Objective:** 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.
9. **Objective:** To implement the Town's Reverse 911 notification system.
10. **Objective:** 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 and high winds, and the proper evacuation procedures to follow during a natural disaster.

Specific Natural Hazard Goals for Ayer

Goal Statement for Flooding: To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to flooding. And to pursue prevention activities which include planning, zoning, open space preservation, floodplain and wetland development regulations, storm water management, waterway dumping regulations, watershed protection measures, and best management practices, as well as, soil erosion, building ordinances, and subdivision regulations.

1. **Objective:** To implement standards in the Subdivision Rules and Regulations to require temporary and permanent erosion control measures for streams and surface water bodies.
2. **Objective:** To add more specific requirements to address flood related issues in the Special Permit and Site Plan Approval provisions in the Ayer Zoning Bylaw including topographic change, removal of cover vegetation, risk of erosion or siltation and increased stormwater runoff.

3. **Objective:** To identify all structures throughout Town that need to be elevated above the base-flood elevation.

4. **Objective:** To Develop a priority list and seek funding through the Hazard Mitigation Grant Program (HMGP) for the replacement of undersized culverts throughout Town.

Goal Statement for Protection from Beavers: To minimize the threat to health, the damage to roads and property, and the disruption of governmental services and general business activities due to flooding caused by beavers.

1. **Objective:** Support local town departments to continue present methods to prevent beaver caused flooding.

2. **Objective:** See assistance from beaver management professionals, including trappers.

3. **Objective:** Install beaver management devices.

Goal Statement for Hurricanes and Tornadoes: To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to high winds associated with hurricanes and tornadoes. (The objectives listed above, under flooding, address the flooding that can result from a hurricane.)

1. **Objective:** To educate residents and volunteers regarding the safe methods and actions necessary to deal with hurricanes and tornados.

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.

1. **Objective:** To develop a plan for providing access to water, information, shelter, and food stores to people in remote locations in Ayer in the event of a severe winter storm.

Goal Statement for Dam Failure: To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to dam failures.

1. **Objective:** To identify sources of funding for dam safety inspections and improvements.

Goal Statement for Earthquakes: To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to earthquakes.

1. **Objective:** To evaluate all Shelters and Reception Centers to determine if they are earthquake resistant.

2. **Objective:** To insure that all identified shelters have sufficient back-up utility service in the event of primary power failure.

Goal Statement for Drought: To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to drought.

1. **Objective:** Review and update, as needed, the Town of Ayer Water Conservation Plan.

Goal Statement for Wildfires/Brushfires: To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to wildfires/brushfires.

1. **Objective:** Develop and distribute an educational pamphlet on fire safety and prevention.

2. **Objective:** Consider amending the Subdivision Rules and Regulations and Required Improvements section to include fire suppression provisions for new residential developments.

Goal Statement for Weather Extremes: To minimize the loss of life and the threats to public health and safety.

1. **Objective:** To develop and distribute educational information regarding the threats from extreme heat and cold.

2. **Objective:** To educate the residents as to the causes and effects of global warming; and how it affects the residents of Ayer, and what they could be doing to help improve the situation.

Mitigation Action Plans and Prioritization of Actions (STAPLEE)

Initial Mitigation Action Plans for the Montachusett Communities were presented in the communities Hazard Mitigation Plans that were approved by FEMA in 2009 and 2010. The original Mitigation Action Plans were developed through an inventory of potential hazards which could impact the community and an evaluation of a range of alternatives to address these hazards. As part of the plan update process, the original Mitigation Action Plan was reviewed by the community's Local Hazard Mitigation Planning Team/Emergency Management Committee to delete actions which have already been completed, add additional actions which are either underway or planned to be undertaken, and to update the current status of all actions. The goals were reviewed and updated at the second meeting with each community.

An additional step in this process was to conduct a "STAPLEE" analysis for each action to prioritize all actions within each community and a subjective evaluation of each action's perceived cost/benefit. In the 2008 plan, actions were not prioritized so there were no changes in priorities in this update. The revised Community Mitigation Action Plans matrices that follow identify each mitigation action, the responsible department or board responsible for implementation, potential funding sources, the timetable of the action, results of the prioritization of actions through the STAPLEE analysis, and the perceived cost/benefit for each mitigation action.

The goal of each identified strategy, or mitigation action, is reduction or prevention of damage from a hazard event. In order to determine their effectiveness in accomplishing this goal, a set of criteria was applied to each action to establish priorities for implementation, using the "STAPLEE" method. The STAPLEE methodology was developed by the Federal Emergency Management Agency as a tool to help communities prioritize their hazard mitigation strategies and determine the most appropriate actions for implementation. The STAPLEE method analyzes the **S**ocial, **T**echnical, **A**ministrative, **P**olitical, **L**egal, **E**conomic and **E**nvironmental aspects of an action and is designed to be used by public officials and planners for making planning decisions.

To conduct the STAPLEE exercise, the community's Hazard Mitigation Team was asked to rate each action in their Mitigation Action Plan on each of the following criteria, using a score of 1 to 3 (Good = 3, Average = 2, Poor = 1):

- Social: Is the proposed action socially acceptable to the community? Are there equity issues involved that would mean that one segment of the community is treated unfairly?
- Technical: Will the proposed strategy work? Will it create more problems than it solves?
- Administrative: Can the community implement the action? Is there someone to coordinate and lead the effort?
- Political: Is the action politically acceptable? Is there public support both to implement and to maintain the action?



- Legal: Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity?
- Economic: What are the costs of this action? Does the cost seem reasonable for the size of the problem and the likely benefits?
- Environmental: How will the action impact the environment? Will the action need environmental regulatory approvals?

These scores were then totaled, resulting in a final score of 7 (least priority) to 21 (highest priority) for each action. The higher the final score, the higher the relative priority of that action for implementation. This information can then be utilized in each community as they conduct and administer relevant municipal functions and activities. The final STAPLEE score for each action is shown in the following mitigation action plan.

The Hazard Mitigation team was also asked to do a relative cost/benefit of each action. This assessment was intended to informally indicate if an action will either have more benefits accrued to the Town than the Cost of implementing the action, or if the costs would exceed any benefits. Responses include: “Benefits Exceed Costs”, “Benefits Equal Costs, or “Costs Exceed Benefits”.

AYER IMPLEMENTATION STRATEGY FOR PRIORITY MITIGATION ACTIONS							
Type of Natural Hazard	Description of Action	Implementation Responsibility	Resources/Funding	Timeframe	Priority (STAPLEE SCORE)	Cost/Benefit Evaluation	Status Update from the 2008 Plan**
Wildland Fire	Increase awareness by educating property owners on actions that they can take to reduce risk to property by developing and distributing an Educational Pamphlet on Fire Safety and Prevention (SAFE PROGRAM) (SENIOR SAFE) and wildfire prevention.	Fire Department	Municipal Staff	2015 - 2020	21	Benefits Exceed Costs	Completed but carried forward. Materials updated and distributed annually.
All Natural Hazards	Increase hazard education and risk awareness to public by Updating and Disseminating Information on	Emergency Management Director	Municipal Staff	2015 - 2020	21	Benefits Exceed Costs	New Action. Sharing MEMA Alerts. Update and

	Local Radio/TV Stations to educate the public and alert them of emergency information including shelter locations and other instructions related to all natural hazards. Share MEMA alerts on Town's website as well as making use of Social Media feeds on Facebook and Twitter						Dissemination of information completed but carried forward as action is undertaken on an annual basis.
All Natural Hazards	Inventory supplies at existing shelters and develop a needs list and storage requirements for food and first aid supplies in the event of a natural disaster. Supplies must be adequate to eliminate or reduce risk to human life.	Emergency Management Planning Committee, School Facilities Manager	Municipal Staff	2015-2020	21	Benefits Exceed Costs	Completed but carried forward. Inventory of Supplies done periodically. Note: Bought a shelter trailer for supplies/equipment however, a permanent storage area is needed.
Flood Related Hazards	Identify all structures throughout the town that need to be Elevated above the Base-Flood Elevation. Once identified educate those property	Building Inspector, Fire Department, DPW with MRPC assistance	Municipal Staff. FEMA HMGP grant 75%	2015-2020	10	Benefits Exceed Costs	Carried forward. Building Footprint GIS Layer recently completed.

	owners regarding their options for mitigation.						
Flood Related Hazards	Develop a priority list and possibly seek funding through the Hazard Mitigation Grant Program (HMGP) for the replacement of undersized culverts throughout Town to reduce or eliminate flooding risk.	Department of Public Works	Municipal Staff, MRPC Assistance in mapping FEMA HMPG grant 75%	2015-2020	21	Benefits Exceed Costs	Carried forward: Mapping of culverts was recently completed. Priority list needs to be developed.
Flood Related Hazards	Educate property owners regarding options for mitigating their properties from flooding through outreach programs that address measures that residents can take (i.e installing backflow valves, securing debris, etc.)	Emergency Management Director, Fire Department	Property Owners	2015 - 2020	21	Benefits Exceed Costs	New Action.
All Hazards	Evaluate and relocate valuable and historical items, and furnaces, Water heaters, and electrical equipment to reduce flood damage.	Emergency Management Director, Fire Department	Municipal Staff	2017;	12	Benefits Exceed Costs	Carried forward. Additional time needed due to lack of municipal funding. Note: Town Hall

							does have a storage issue with historical records; still needs to be addressed.
Other Natural Hazards (Wildland fire)	Identify areas with potential for brush fires to track community vulnerability by developing and maintaining a data base.	Department of Public Works/Tree Warden and National Grid	Municipal Staff; National Grid through ratepayers	2015 - 2020	21	Benefits Exceed Costs	New Action.
Flood Related Hazards	Install "beaver diverters" and water control devices to mitigate flooding caused by beaver dams.	Department of Public Works	Municipal Staff	2015 – 2020 as needed	20	Benefits Exceed Costs	Carried Over. Ongoing. This action is undertaken on an as needed basis.
Flood Related Hazards	Hire trapper for removal of beavers to mitigate flooding caused by beaver dams.	Department of Public Works	Municipal Staff	2015 – 2020 as needed		Benefits Exceed Costs	Carried Over. Ongoing. This action is undertaken on an as needed basis.
All Natural Hazards	Implement recommendations regarding natural hazard mitigation in existing planning documents such as the master plan, five year action plan of the open space and recreation plan and the	Conservation Commission, Board of Selectmen, Planning Board, Emergency Management Director	Conservation Commission, Board of Selectmen, Planning Board, Emergency Management Director	2015 - 2020	21	Benefits Exceed Costs	Carried forward due to time constraints

	emergency evacuation plan						
Flood Related Hazards	Continue participation in the National Flood Insurance Program to enable property owners to purchase insurance protection against flood losses.	Board of Selectmen, Conservation Commission	FEMA/MEM A	2015 - 2020	21	Benefit exceeds cost	Completed but carried forward. Town continues its participation in the NFIP.

*Unless otherwise noted, Ayer's Resources/Funding consists of elected/appointed boards and commissions and municipal staff whose positions are funded through local taxes.

**Actions identified as carried forward were not completed in the previous planning cycle unless otherwise stated.



Mitigation Actions from the 2008 Montachusett Region Hazard Mitigation Plan that are complete include:

- Identify existing shelters that are earthquake resistant as well as outside of floodplain (and dam inundation) areas.
- Identify shelters and publicize locations; Obtain flashing sign to direct residents to shelter.
- Implementation of Reverse 911.
- Update Insurance Flood Rate Maps.
- Hold open house at Fire Department.
- Expansion of residential parking bans to enable snow removal from all streets.
- Evacuation routes have been identified.

Clinton Natural Hazard Risk Assessment



While this annex focus' pertains to critical facilities, flooding, risk assessment, existing protections and mitigation strategy in the community, more detailed descriptions of each natural hazard's impact on the region and its communities and summary of vulnerability can be located in the regional section entitled " 4. Identification of Natural Hazards, Identifying and Profiling Hazards".

Community Profile

The Town of Clinton is located in North Central Massachusetts, bordered by Bolton and Berlin on the east, Boylston on the south, Sterling on the west, and Lancaster on the northwest and north. Clinton is 13 miles north of Worcester, 16 miles south of Fitchburg, 35 miles west of Boston, and 200 miles from New York City.