

# **The Town of Montgomery**

# **Hazard Mitigation Plan**

**Adopted by the Montgomery Select Board on August 26, 2016**

**Prepared by:**

Montgomery Hazard Mitigation Planning Committee

and

The Pioneer Valley Planning Commission

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This project was funded by a grant received from the Massachusetts Emergency Management Agency (MEMA) and the Massachusetts Department of Conservation Services (formerly the Department of Environmental Management)

## **Acknowledgements**

The Montgomery Select Board extends special thanks to the Montgomery Natural Hazard Mitigation Planning Committee as follows:

Daniel Flechsig, Emergency Management Director  
Curtis Bush, Highway Superintendent  
Jane Thielen, Town Administrative Secretary  
Wayne Morse, Board of Selectmen  
David Berndt, Board of Selectmen

The Montgomery Select Board offers thanks to the Massachusetts Emergency Management Agency (MEMA) for developing the Commonwealth of Massachusetts Hazard Mitigation Plan ([www.state.ma.us/dem/programs/mitigate/index.htm](http://www.state.ma.us/dem/programs/mitigate/index.htm)) which served as a model for this plan. In addition, special thanks are extended to the staff of the Pioneer Valley Planning Commission for professional services, process facilitation and preparation of this document.

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# 1: PLANNING PROCESS

## Introduction

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The Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA) define Hazard Mitigation as any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards such as flooding, storms, high winds, hurricanes, wildfires, earthquakes, etc. Mitigation efforts undertaken by communities will help to minimize damages to buildings and infrastructure, such as water supplies, sewers, and utility transmission lines, as well as natural, cultural and historic resources.

Planning efforts, like the one undertaken by the Town of Montgomery and the Pioneer Valley Planning Commission, make mitigation a proactive process. Pre-disaster planning emphasizes actions that can be taken before a natural disaster occurs. Future property damage and loss of life can be reduced or prevented by a mitigation program that addresses the unique geography, demography, economy, and land use of a community within the context of each of the specific potential natural hazards that may threaten a community.

Preparing a hazard mitigation plan before a disaster, can save the community money and facilitate post-disaster funding. Costly repairs or replacement of buildings and infrastructure, as well as the high cost of providing emergency services and rescue/recovery operations, can be avoided or significantly lessened if a community implements the mitigation measures detailed in the plan.

FEMA requires that a community adopt a pre-disaster mitigation plan as a condition for mitigation funding. For example, the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance Program (FMA), and the Pre-Disaster Mitigation Program are programs with this requirement.

## **Hazard Mitigation Committee**

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Planning for natural hazard mitigation in Montgomery involved a five-member committee:

- Daniel Flechsig, Emergency Management Director
- Curtis Bush, Highway Superintendent
- Jane Thielen, Town Administrative Secretary
- Wayne Morse, Board of Selectmen
- David Berndt, Board of Selectmen

The Hazard Mitigation Planning process for the Town included the following tasks:

- Reviewing and incorporating existing plans and other information.
- Identifying the natural hazards that may impact the community.
- Conducting a Vulnerability/Risk Assessment to identify the infrastructure at the highest risk for being damaged by the identified natural hazards, particularly flooding.
- Identifying and assessing the policies, programs, and regulations the community is currently implementing to protect against future disaster damages.
- Identifying deficiencies in the current strategies and establishing goals for updating, revising or adopting new strategies.
- Adopting and implementing the final Hazard Mitigation Plan.

The key product of this process is the development of an Action Plan with a Prioritized Implementation Schedule.

### **Committee Meetings**

Meetings of the Hazard Mitigation Committee, all of which took place at Montgomery Town Hall, were held on the dates listed below.

#### **June 23<sup>rd</sup>, 2014, 7:00 p.m.**

Work group meeting included hazard mitigation planning overview, identify and organizing of the planning team, identifying critical facilities, an initial discussion of hazard identification and risk assessment, and existing mitigation strategies undertaken by the Town.

#### **July 7<sup>th</sup>, 2014, 7:30 p.m.**

Work group revisited critical facilities, discussed history of natural hazard events, and discussed potential mitigation strategies to be implemented.

**July 21<sup>st</sup>, 2014, 7:00 p.m.**

Work group reviewed list of current mitigation strategies undertaken by the Town and draft of prioritized list of mitigation strategies, based on conversation at previous meeting.

**July 28<sup>th</sup>, 2014, 7:30 p.m.**

Work group finalized list of implementation strategies, discussed the plan adoption process and procedures for regular maintenance of the plan.

Agendas and sign-in sheets for each meeting can be found in Appendix B. While not all members of the Hazard Mitigation Committee were able to attend each meeting, all members collaborated on the plan and were updated on progress by fellow Committee members after meetings occurred as necessary.

## **Participation by Stakeholders**

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A variety of stakeholders were provided with an opportunity to be involved in the development of the Montgomery Hazard Mitigation Plan. The different categories of stakeholders that were involved, and the engagement activities that occurred, are described below.

### **Local and regional agencies involved in hazard mitigation activities and surrounding community engagement and input**

The Pioneer Valley Planning Commission is a regional planning agency for 43 towns and cities in Massachusetts' Hampden and Hampshire Counties. PVPC regularly engages with the Town of Montgomery as part of its regional planning efforts, which include the following:

- Developing the Pioneer Valley Regional Land Use Plan, Valley Vision 2, which advocates for sustainable land use throughout the region and consideration for the impact of flooding and other natural hazards on development.
- Developing the Pioneer Valley Climate Action and Clean Energy Plan, which assesses the impact that climate change will have on the region and recommends strategies for mitigation that can be implemented by local municipalities and businesses.
- Collaborating with state agencies, such as the Department of Conservation and Recreation, to maintain inventories of critical infrastructure throughout the region.

All of these PVPC initiatives considered the impact of natural hazards on the region and strategies for reducing their impact to people and property through hazard mitigation activities. The facilitation of the Montgomery Hazard Mitigation Plan by PVPC ensured that the information from these plans was incorporated into the Hazard Mitigation Planning process.

In addition, the Pioneer Valley Planning Commission is actively involved in the Western Region Homeland Security Advisory Council (WRHSAC). WRHSAC, which includes representatives from Western

Massachusetts municipalities, Fire Departments, Public Works Departments, Police Departments, area hospitals and regional transit from throughout the four counties of western Massachusetts, is responsible for allocating emergency preparedness funding from the US Department of Homeland Security. The representatives of these disciplines who serve on the WRHSAC are charged with sharing the information discussed at meetings with their colleagues at their regular meetings. PVPC attend all WRHSAC meetings and all WRHSAC members are aware of the fact that Montgomery was updating its Hazard Mitigation plan. Meetings of WRHSAC regularly involve discussion about how to improve emergency preparedness in western Massachusetts, and hazard mitigation activities are included in this discussion.

For the update of this Hazard Mitigation Plan, PVPC provided feedback from WRHSAC on regional mitigation activities and natural hazards pertaining to Montgomery. This was the method through which WRHSAC was engaged in the planning process.

In addition, PVPC staff regularly present to their Executive Committee and Commission (representatives from the 43 cities and towns that comprise the Pioneer Valley, when new projects are launched and when funding opportunities are available). As result, all the communities in the region were informed of Montgomery's Hazard Mitigation Plan update process and encouraged to comment.

PVPC staff included a summary article on the status of Hazard Mitigation planning in the region in the quarterly Regional Reporter that is mailed to area Chambers of Commerce, all member municipalities, area colleges and universities and other key stakeholders in the region. In this way, businesses, educational institutions and other key stakeholders were educated about and informed of Montgomery's hazard mitigation planning work.

### **Agencies that have the authority to regulate development**

The Montgomery Planning Board is the primary Town agency responsible for regulating development in town, through application of the Town's zoning and subdivision regulations. Feedback to and from the Planning Board was ensured through the participation of a Planning Board member in the Hazard Mitigation Committee. In addition, the Pioneer Valley Planning Commission, as a regional planning authority, works with all agencies that regulate development in Montgomery, including the municipal entities listed above and state agencies, such as Department of Conservation and Recreation and MassDOT. This regular involvement ensured that during the development of the Montgomery Hazard Mitigation Plan, the operational policies and any mitigation strategies or identified hazards from these entities were incorporated into the Hazard Mitigation Plan.

### **Ability to Expand On and Improve Existing Policies and Programs**

Because the committee included membership from and supplemental input by all entities and agencies that have the ability to regulate development—elected officials, volunteer board and committee members and municipal staff, and because the plan is based on a thorough review of existing regulations, plans, policies and physical infrastructure that mitigates the long term consequences of natural disasters, the Town of Montgomery feels confident and equipped to expand on and improve the mitigation capability of existing policies and programs, through the local legislative process—amending zoning which requires a 2/3 majority, adopting resolutions and/or policies, developing new (as needed)

and updating and implementing existing plans, as well as working with regional, state and federal partners to secure funds for any necessary high cost infrastructure improvements .

Existing financial resources in the Town of Montgomery are constrained, but the Town does have qualified volunteers and professionals working to achieve the Town's goals and the Town is also served by the PVPC as well as other state, regional and sub-regional entities that can assist with planning, grant writing and regulatory changes.

### **Participation by the Public, Businesses, and Neighboring Communities**

Two public planning sessions were held as part of the development of the Montgomery plan – on July 7<sup>th</sup>, 2014 and July 28<sup>th</sup>, 2014. Both meetings occurred after the Hazard Mitigation Committee had provided input on hazards and mitigation strategies relevant to the community. Notice of both public meetings was posted at Montgomery Town Hall in compliance with the Commonwealth of Massachusetts' open meeting law. Public meeting agendas and notices can be found in Appendix B.

On June 17<sup>th</sup>, 2014, the Pioneer Valley Planning Commission sent a press release to all area media outlets to inform that the Hazard Mitigation Planning process was underway. Another press release was sent out by PVPC on July 2<sup>nd</sup>, 2014 to announce that there would be a first public outreach meeting about the plan on July 7<sup>th</sup>, 2014. On July 25<sup>th</sup>, 2014 PVPC sent out a third press release indicating that a second public outreach meeting would take place, and also to inform the public that a draft of the Montgomery Hazard Mitigation Plan had been placed on PVPC's website. A screen capture of PVPC's website showing the link to the press release can be found in Appendix B. The release also indicated that hard copies were available at PVPC's offices and at Montgomery Town Hall, and that all residents, businesses and other concerned parties of Montgomery and adjacent communities were encouraged to comment on the plan by e-mailing or calling staff contacts at PVPC or the Town. Notice of the meeting was also posted in the Mountain Breeze, which is distributed to all homes in Town by the Council on Aging.

A list of media organizations that were sent the press releases on June 17th and July 2nd are included in Appendix B, which are the television stations, radio stations, and newspapers located in western Massachusetts, northern Connecticut, and southern Vermont. The third press release was sent out on July 25th to The Republican and Westfield News. These two newspapers were identified as the media outlets most likely to cover the meeting - The Republican because it covers the entire Pioneer Valley region, and the Westfield News because it had written a previous story about the first public meeting, a copy of which is included in Appendix B.

The Hazard Mitigation Committee determined that the most effective outreach strategy for engaging with the public, businesses and neighboring communities was through the media, and so this was the outreach strategy employed for reaching out to all three groups of stakeholders. The press release indicated that residents of Montgomery were invited to attend the event, which was also intended to include representatives of businesses in Montgomery and residents of neighboring communities.

Businesses and neighboring communities were also provided with an opportunity to provide feedback through the Pioneer Valley Planning Commission. PVPC is regularly involved in land use, transportation, and environmental planning initiatives in Montgomery and surrounding communities. Regular feedback received from these other initiatives were incorporated into the hazard mitigation planning process.



Neighboring communities that were provided with an opportunity to comment included municipalities that directly border Montgomery, which are: Southampton, Westfield, Russell, and Huntington.

Additional outreach to surrounding communities occurred through the regular quarterly newsletter that PVPC sends out to its member communities about its recent activities. In these articles, adjacent municipalities were encouraged to reach out to PVPC about hazard mitigation plans by e-mailing or calling staff contacts at PVPC. These notices are included in Appendix B.

No feedback was received from the public, businesses, or neighboring communities during the planning process. Any future input received from the public, as well as any other stakeholders, will be incorporated into the plan during future regular updates. Public participation will be a critical component of the Hazard Mitigation Plan maintenance process. The Hazard Mitigation Committee will hold all future meetings in accordance with Massachusetts open meeting laws. In addition, the public will be invited to provide comments through e-mail. The comments will be reviewed by the Hazard Mitigation Committee and incorporated as appropriate.

## **Select Board Meeting**

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In 2011, the Select Board agreed to begin the process of developing a Hazard Mitigation Plan. Once the plan was provisionally approved by FEMA, the Select Board held a public hearing on the plan and then adopted it.

## 2: LOCAL PROFILE

### Community Setting

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#### Geography

Montgomery is located in southwestern Massachusetts. It is bordered by Southamptton to the northeast, Westfield to the southeast, Russell to the southwest, and Huntington to the northwest. The town is approximately 17 miles west of Springfield and 101 miles west of Boston.

#### Population Characteristics

According to the 2010 U.S. Census, there are 838 Montgomery residents and a total of 343 housing units. The median family income is \$80,893 with 2.4 percent of residents living in poverty (American Community Survey 2008-12).

#### Economy

The majority of Montgomery's workforce works at jobs outside the town, traveling an average of 32.8 minutes to work each day (ACS 2008-12). According to the Massachusetts Department of Employment and Training, the town is currently home to 12 businesses. The approximate labor force is 467, which has grown modestly since 2000, when it was 438. The current unemployment rate was 4.9 percent as of the end of 2013.

#### Climate

Montgomery is located in western Hampden County, where annual rainfall averages 44 inches and is distributed throughout the year. In addition to rain, snowfall averages 40 inches per season.

Prevailing winds from the south (and from the north/northwest to a lesser extent) reach their highest average speed during the month of April.

In the past few decades, New England has seen an increase in the number of extreme rainfall events, defined as large amounts of rain in a short period of time. In Massachusetts, the increase since 1948 has been 81 percent (Environment America Research & Policy Center, 2012).

Extreme rainfall is a cause of flooding, which is a major concern of this plan. In the last five years, there has also been an increased occurrence of tornadoes and large storms that generate strong wind gusts.

## **Infrastructure**

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### **Transportation**

Other than a short stretch, less than 200 yards (180 m) long, of Interstate 90, located at the southern tip of town between Westfield and Russell, the town has no state or federal roads crossing through it. There are only nine roads which enter or exit the town's borders, four of which dead-end either just inside or outside of town.

The town benefits from access to Route 20, which runs on its western border through the Town of Russell. Route 20 passes through Westfield into Springfield, and it also serves as an alternate route west into the Berkshires. Main Road is used as a short-cut from Westfield to Huntington, and is the busiest road in Town.

### **Public Water Service**

There is no public water service in Montgomery, with residents relying on local wells.

### **Sewer Service**

There is no public sewer service in Montgomery. Residents use septic systems for disposal of wastewater.

## **Natural Resources**

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### **Water Resources**

The town has the following water resources:

- Moose Meadow Brook
- Westfield Reservoir
- Tekoa Reservoir
- Westfield River

### **Forests and Fields**

Although Montgomery has a significant amount of open crop and pasture land, there are few working farms left in the community. More than 80 percent of land within Montgomery is forested.

More than 3,275 acres of the land in Montgomery is permanently protected open space, which includes the following owners:

- City of Westfield (2,203 acres), for protection of the Montgomery Reservoir which is an emergency water source for the city. The Massachusetts Department of Fish and Wildlife recently obtained conservation restrictions for this land to ensure that it will remain as permanently protected open space.
- Massachusetts Department of Fish and Wildlife (555 acres), located in the Mount Tekoa Wildlife Management Area.
- City of Holyoke (266 acres), which serves as watershed protection for the Tighe Carmody Reservoir in Southampton.

## Development

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### Zoning

The Town of Montgomery has two zoning districts:

- Agricultural-Residential District, comprising the entire area of the Town.
- Floodplain Overlay District, which has regulations in addition to the Agricultural-Residential District. The District, which applies to land that is part of FEMA's Flood Insurance Rate Map, prohibits various industrial and business development and requires a special permit for single-family residences.

### Current Development Trends

There are no schools or gas stations in Montgomery. The small community center has a Town Hall, library, fire department, historical building, church, carriage shed, highway department, and salt shed. In addition, there is one commercial building which houses several stores and is located on Main Road.

Montgomery is close to more developed areas of the region, including Westfield and Northampton. The population has more than doubled in the last 50 years, from 333 in 1960 to 838 in 2010. There were 14 building permits issued between 2008 and 2012 (US Census).

### National Flood Insurance Program Status

The NFIP is a Federal program created by Congress to mitigate future flood losses nationwide through sound, community-enforced building and zoning ordinances and to provide access to affordable, federally backed flood insurance protection for property owners. The NFIP is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government that states that if a community will adopt and enforce a

floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

A community participating in the Regular Program of the NFIP is usually provided with a FIRM and a detailed engineering study, termed a Flood Insurance Study (FIS). (Additional information on FIRMs and FISs is provided in the “Flood Hazard Assessment and Mapping Requirements” section of the **Introduction to the FIRM** book available on-line, starting on page 27.) Under the Regular Program, the adoption by the community of more comprehensive floodplain requirements is required for higher amounts of flood insurance.

Montgomery is not a participating member of the National Flood Insurance Program. In 2013 the Board of Selectmen decided not to participate in the National Flood Insurance Program, explaining that the requirements are too stringent for the small area involved and due to part-time officials would not be easily enforceable. Now that the Town has developed a Hazard Mitigation Plan, the Town has decided to look into participation as part of the action strategy included in this plan. Flood Insurance Maps (FIRMs) are used for flood insurance purposes and are on file with the Montgomery Planning Board. The current FIRM has been effective since July 16, 2013.

## 3: HAZARD IDENTIFICATION AND RISK ASSESSMENT

The following section includes a summary of disasters that have affected or could affect Montgomery. Historical research, conversations with local officials and emergency management personnel, available hazard mapping and other weather-related databases were used to develop this list. Identified hazards are the following:

- Floods
- Severe snowstorms / ice storms
- Hurricanes / tropical storms
- Severe thunderstorms / wind / tornadoes
- Wildfires / brushfires
- Earthquakes
- Dam failure
- Drought

### Natural Hazard Analysis Methodology

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This chapter examines the hazards in the Massachusetts State Hazard Mitigation Plan which are identified as likely to affect Montgomery. The analysis is organized into the following sections: Hazard Description, Location, Extent, Previous Occurrences, Probability of Future Events, Impact, and Vulnerability. A description of each of these analysis categories is provided below.

#### Hazard Description

The natural hazards identified for Montgomery are: floods, severe snowstorms/ice storms, hurricanes, tornadoes, wildfire/brushfire, earthquakes, dam failure, and drought. Many of these hazards result in similar impacts to a community. For example, hurricanes, tornadoes and severe snowstorms may cause wind-related damage.

## Location

Location refers to the geographic areas within the planning area that are affected by the hazard. Some hazards affect the entire planning area universally, while others apply to a specific portion, such as a floodplain or area that is susceptible to wild fires. Classifications are based on the area that would potentially be affected by the hazard, on the following scale:

Location of Occurrence, Percentage of Town Impacted by Given Natural Hazard	
Location of Occurrence	Percentage of Town Impacted
Large	More than 50% of the town affected
Medium	10 to 50% of the town affected
Small	Less than 10% of the town affected

## Extent

Extent describes the strength or magnitude of a hazard. Where appropriate, extent is described using an established scientific scale or measurement system. Other descriptions of extent include water depth, wind speed, and duration.

## Previous Occurrences

Previous hazard events that have occurred are described. Depending on the nature of the hazard, events listed may have occurred on a local, state-wide, or regional level.

## Probability of Future Events

The likelihood of a future event for each natural hazard was classified according to the following scale:

Frequency of Occurrence and Annual Probability of Given Natural Hazard	
Frequency of Occurrence	Probability of Future Events
Very High	70-100% probability in the next year
High	40-70% probability in the next year
Moderate	10-40% probability in the next year
Low	1-10% probability in the next year
Very Low	Less than 1% probability in the next year

## Impact

Impact refers to the effect that a hazard may have on the people and property in the community, based on the assessment of extent described above. Impacts are classified according to the following scale:

Extent of Impacts, Magnitude of Multiple Impacts of Given Natural Hazard	
Extent of Impacts	Magnitude of Multiple Impacts
Catastrophic	Multiple deaths and injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of facilities for 30 days or more.
Critical	Multiple injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of facilities for more than 1 week.
Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of facilities for more than 1 day.
Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of facilities.

## Vulnerability

Based on the above metrics, a hazard index rating was determined for each hazard. The hazard index ratings are based on a scale of 1 through 5 as follows:

- 1 – Highest risk
- 2 – High risk
- 3 – Medium risk
- 4 – Low risk
- 5 – Lowest risk

The ranking is qualitative and is based, in part, on local knowledge of past experiences with each type of hazard. The size and impacts of a natural hazard can be unpredictable. However; many of the mitigation strategies currently in place and many of those proposed for implementation can be applied to the expected natural hazards, regardless of their unpredictability.



## Hazard Identification and Risk Analysis for Montgomery

Type of Hazard	Location of Occurrence	Probability of Future Events	Impact	Hazard Risk Index Rating
Flooding	Small	High	Limited	4 – Low risk
Severe Snowstorms / Ice Storms	Large	High	Limited	3 - Medium risk
Severe Thunderstorms / Winds / Tornadoes	Small	Severe thunderstorms and wind: Moderate  Tornadoes: Low	Limited	Severe thunderstorms and wind: 2 – High risk Tornadoes: 4 – Low risk
Hurricanes / Tropical Storms	Large	Low	Limited	2 - High risk
Wildfire / Brushfire	Large	Low	Critical	2 – High risk
Earthquakes	Large	Very low	Critical	4 - Low risk
Dam Failure	Medium	Very low	Critical	5 - Very low risk
Drought	Large	Low	Minor	5 - Very low risk

# Floods

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## Hazard Description

There are three major types of storms that can generate flooding in Montgomery:

- Continental storms are typically low-pressure systems that can be either slow or fast moving. These storms originate from the west and occur throughout the year.
- Coastal storms, also known as nor'easters, usually occur in late summer or early fall and originate from the south. The most severe coastal storms, hurricanes, occasionally reach Massachusetts and generate very large amounts of rainfall.
- Thunderstorms form on warm, humid summer days and cause locally significant rainfall, usually over the course of several hours. These storms can form quickly and are more difficult to predict than continental and coastal storms.

A floodplain is the relatively flat, lowland area adjacent to a river, lake or stream. Floodplains serve an important function, acting like large “sponges” to absorb and slowly release floodwaters back to surface waters and groundwater. Over time, sediments that are deposited in floodplains develop into fertile, productive farmland like that found in the Connecticut River valley. In the past, floodplain areas were also often seen as prime locations for development. Industries were located on the banks of rivers for access to hydropower. Residential and commercial development occurred in floodplains because of their scenic qualities and proximity to the water. Although periodic flooding of a floodplain area is a natural occurrence, past and current development and alteration of these areas will result in flooding that is a costly and frequent hazard.

Floods can be classified as one of two types: flash floods and general floods.

- **Flash floods** are the product of heavy, localized precipitation in a short time period over a given location. Flash flooding events typically occur within minutes or hours after a period of heavy precipitation, after a dam or levee failure, or from a sudden release of water from an ice jam. Most often, flash flooding is the result of a slow-moving thunderstorm or the heavy rains from a hurricane. In rural areas, flash flooding often occurs when small streams spill over their banks. However, in urbanized areas, flash flooding is often the result of clogged storm drains (leaves and other debris) and the higher amount of impervious surface area (roadways, parking lots, roof tops).
- **General floods** may last for several days or weeks and are caused by precipitation over a longer time period in a particular river basin. Excessive precipitation within a watershed of a stream or river can result in flooding particularly when development in the floodplain has obstructed the natural flow of the water and/or decreased the natural ability of the groundcover to absorb and

retain surface water runoff (e.g., the loss of wetlands and the higher amounts of impervious surface area in urban areas).

## **Location**

There are approximately 171 acres of land within the FEMA mapped 100-year floodplain, located along Moose Meadow Brook. There is no land mapped as part of the 500-year floodplain in Montgomery.

Various parts of Montgomery have issues with localized flooding, described below:

- Main Road
- Carrington Road at Russell and Montgomery town line
- Carrington Road at Pomeroy Road

Based on these locations, flooding has a “small” location of occurrence, with less than 10 percent of land area affected.

## **Extent**

The average annual precipitation for Montgomery and surrounding areas in western Massachusetts is 46 inches. Water levels in Montgomery's rivers, streams, and wetlands rise and fall seasonally and during high rainfall events. High water levels are typical in spring, due to snowmelt and ground thaw. This is the period when flood hazards are normally expected. Low water levels occur in summer due to high evaporation and plant uptake (transpiration). At any time, heavy rainfall may create conditions that raise water levels in rivers and streams above bank full stage, which then overflow adjacent lands.

The Hazard Mitigation Committee indicated that all locations of localized flooding can receive high water marks of up to several feet during sufficiently large rainstorms.

## **Previous Occurrences**

There has been one major flooding event in Montgomery, which occurred during Hurricane Diane on August 17-19, 1955. The flood washed out Main Road and caused major flooding.

## **Probability of Future Events**

Based upon previous data, there is a "high" chance (between 40 percent and 70 percent in the next year) of flash flooding or general flooding occurring in Montgomery. Flooding frequencies for the various floodplains in Montgomery are defined by FEMA as the following:

- 10-year floodplain – 10 percent chance of flooding in any given year
- 25-year floodplain – 2.5 percent chance of flooding in any given year
- 100-year floodplain – 1 percent chance of flooding in any given year
- 500-year floodplain – 0.2 percent chance of flooding in any given year

Climate scientists predict that in the next few decades, climate change will increase the frequency and intensity of all storms that can cause flooding. Currently, floods are the most costly natural hazard in the United States, and climate change will only increase this damage. More information about the effect of Climate Change can be found in the Pioneer Valley Planning Commission's Climate Action Plan, available at [www.sustainableknowledgecorridor.org](http://www.sustainableknowledgecorridor.org).

The Massachusetts State Climate Change Adaptation Report has additional information about the impact of climate change and can be accessed at [www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html](http://www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html).

### **Impact**

The Town faces a "limited" impact, with 10 percent or more of total area affected, from flooding.

There is 1 home located within the 100-year floodplain. Utilizing the Town's median home value of \$280,700 (2008-12 ACS), \$280,700 worth of damage could result to the town. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate.

### **Vulnerability**

Based on the above analysis, Montgomery has a hazard index rating of "4 – low risk" from flooding.

## Severe Snowstorms / Ice Storms

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### Hazard Description

Severe winter storms can pose a significant risk to property and human life. The rain, freezing rain, ice, snow, cold temperatures and wind associated with these storms can cause the following hazards:

- Disrupted power and phone service
- Unsafe roadways and increased traffic accidents
- Infrastructure and other property are also at risk from severe winter storms and the associated flooding that can occur following heavy snow melt.
- Tree damage and fallen branches that cause utility line damage and roadway blockages
- Damage to telecommunications structures
- Reduced ability of emergency officials to respond promptly to medical emergencies or fires.

### Location

The entire Town of Montgomery is susceptible to severe snowstorms. Because these storms occur regionally, they impact the entire town. The town has particular problems with snow and ice removal on its gravel roads. Based on this assessment, the location of occurrence from snow storms and ice storms in Montgomery is “large.”

### Extent

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

NESIS scores are a function of the area affected by the snowstorm, the amount of snow, and the number of people living in the path of the storm. The aerial distribution of snowfall and population information are combined in an equation that calculates a NESIS score which varies from around one for smaller storms to over ten for extreme storms. The raw score is then converted into one of the five NESIS categories. The largest NESIS values result from storms producing heavy snowfall over large areas that include major metropolitan centers.

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

Source: <http://www.ncdc.noaa.gov/snow-and-ice/rsi/nesis>

### Previous Occurrences

Montgomery generally experiences at least one or two severe winter storms each year with varying degrees of severity. Severe winter storms typically occur during January and February; however, they can occur from late September through late May.

Based on data available from the National Oceanic and Atmospheric Administration, there are 47 winter storms since 1958 that have registered on the NESIS scale. Of these, approximately 26 storms resulted in snow falls in the Pioneer Valley of at least 10 inches. These storms are listed in the table on the next page, in order of their NESIS severity.

Because of the relatively high elevation of Montgomery compared to nearby Towns, local snowfalls can vary significantly locally from the NESIS values shown below. However, these records are the best available information for the Town.

Winter Storms Producing Over 10 inches of Snow in the Pioneer Valley, 1958-2013			
Date	NESIS Value	NASIS Category	NESIS Classification
3/12/1993	13.2	5	Extreme
3/2/1960	8.77	4	Crippling
2/15/2003	7.5	4	Crippling
2/2/1961	7.06	4	Crippling
1/21/2005	6.8	4	Crippling
1/19/1978	6.53	4	Crippling
12/25/1969	6.29	4	Crippling
2/10/1983	6.25	4	Crippling
2/14/1958	6.25	4	Crippling
2/5/1978	5.78	3	Major
2/23/2010	5.46	3	Major
2/8/1994	5.39	3	Major
1/9/2011	5.31	3	Major
2/18/1972	4.77	3	Major
12/11/1960	4.53	3	Major
2/7/2013	4.35	3	Major
2/22/1969	4.29	3	Major
1/18/1961	4.04	3	Major
2/8/1969	3.51	2	Significant
2/5/1967	3.5	2	Significant
4/6/1982	3.35	2	Significant
3/4/2013	3.05	2	Significant
3/15/2007	2.54	2	Significant
3/31/1997	2.29	1	Notable
2/2/1995	1.43	1	Notable
1/25/1987	1.19	1	Notable

Source: <http://www.ncdc.noaa.gov/snow-and-ice/rsi/nesis>

In addition to these storms, a snow storm on May 9, 1977 produced high amounts of snowfall within the Town.

## **Probability of Future Events**

Based upon the availability of records for Hampden County, the likelihood that a severe snow storm will affect Montgomery is high (between 40 and 70 percent in the next year).

Research on climate change indicates that there is great potential for stronger, more frequent storms as the global temperature increases. More information about the effect of Climate Change can be found in the Pioneer Valley Planning Commission's Climate Action Plan, available at [www.sustainableknowledgecorridor.org](http://www.sustainableknowledgecorridor.org).

The Massachusetts State Climate Change Adaptation Report has additional information about the impact of climate change and can be accessed at [www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html](http://www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html).

## **Impact**

The Town faces a "limited" impact, or 10 percent or more of total property damaged, from snowstorms.

To approximate the potential impact to property and people that could be affected by this hazard, the total value of all property in town, \$96,280,100 is used. An estimated 20 percent of damage would occur to 10 percent of structures, resulting in a total of \$1,925,602 worth of damage. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate.

## **Vulnerability**

Based on the above assessment, Montgomery has a hazard index rating of "3 — medium risk" from snowstorms and ice storms.



## Hurricanes / Tropical Storms

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### Hazard Description

Hurricanes are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and whose diameter averages 10 to 30 miles across. The primary damaging forces associated with these storms are high-level sustained winds and heavy precipitation. Hurricanes are violent rainstorms with strong winds that can reach speeds of up to 200 miles per hour and which generate large amounts of precipitation. Hurricanes generally occur between June and November and can result in flooding and wind damage to structures and above-ground utilities.

### Location

Because of the hazard's regional nature, all of Montgomery is at risk from hurricanes and tropical storms, meaning the location of occurrence is "large." Ridgetops are more susceptible to wind damage.

### Extent

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. Hurricane intensity is further classified by the Saffir-Simpson Hurricane Wind Scale, which rates hurricane wind intensity on a scale of 1 to 5, with 5 being the most intense.

SAFFIR-SIMPSON SCALE	
Category	Maximum Sustained Wind Speed (MPH)
1	74–95
2	96–110
3	111–129
4	130–156
5	157 +

Source: National Hurricane Center, 2012

## Previous Occurrences

Hurricanes that have affected Montgomery are show in the following table.

Major Hurricanes and Storms Affecting Montgomery		
Hurricane/Storm Name	Year	Saffir/Simpson Category (when reached MA)
Great Hurricane of 1938	1938	3
Great Atlantic Hurricane	1944	1
Carol	1954	3
Edna	1954	1
Diane	1955	Tropical Storm
Donna	1960	Unclear, 1 or 2
Groundhog Day Gale	1976	Not Applicable
Gloria	1985	1
Bob	1991	2
Floyd	1999	Tropical Storm
Irene	2011	Tropical Storm
Sandy	2012	Super Storm

Source: National Hurricane Center, 2012

Of these storms, Hurricane Irene had very little effect on the Town, while Hurricane Gloria had a significant effect, with many downed trees and localized flooding throughout the Town.

## Probability of Future Events

Montgomery's location in western Massachusetts reduces the risk of extremely high winds that are associated with hurricanes, although it can experience some high wind events. Based upon past occurrences, it is reasonable to say that there is a "low" probability of hurricanes in Montgomery, or between a 1 and 10 percent chance, in any given year.

## Impact

A description of the damages that could occur due to a hurricane is described by the Saffir-Simpson scale, as shown below.

Hurricane Damage Classifications			
Storm Category	Damage Level	Description of Damages	Wind Speed (MPH)
1	MINIMAL	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage. An example of a Category 1 hurricane is Hurricane Dolly (2008).	74-95
	Very dangerous winds will produce some damage		
2	MODERATE	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings. An example of a Category 2 hurricane is Hurricane Francis in 2004.	96-110
	Extremely dangerous winds will cause extensive damage		
3	EXTENSIVE	Some structural damage to small residences and utility buildings, with a minor amount of curtain wall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures, with larger structures damaged by floating debris. Terrain may be flooded well inland. An example of a Category 3 hurricane is Hurricane Ivan (2004).	111-129
	Devastating damage will occur		
4	EXTREME	More extensive curtain wall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland. An example of a Category 4 hurricane is Hurricane Charley (2004).	130-156
	Catastrophic damage will occur		
5	CATASTROPHIC	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required. An example of a Category 5 hurricane is Hurricane Andrew (1992).	157+
	Catastrophic damage will occur		

The Town faces a “limited” impact from hurricanes, with 10 percent or more of Montgomery affected.

To approximate the potential impact to property and people that could be affected by this hazard, the total value of all property in town, \$96,280,100 is used.

Wind damage of 5 percent with 10 percent of structures damaged would result in an estimated \$481,400 of damage. Estimated flood damage to 10 percent of the structures with 20 percent damage to each structure would result in \$1,925,602 of damage. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate.

### **Vulnerability**

Based on the above analysis, Montgomery has a hazard index rating of “2 – high risk” from hurricanes.

## Severe Thunderstorms / Wind / Tornadoes

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### Hazard Description

A thunderstorm is a storm with lightning and thunder produced by a cumulonimbus cloud, usually producing gusty winds, heavy rain, and sometimes hail. Effective January 5, 2010, the NWS modified the hail size criterion to classify a thunderstorm as 'severe' when it produces damaging wind gusts in excess of 58 mph (50 knots), hail that is 1 inch in diameter or larger (quarter size), or a tornado (NWS, 2013).

Wind is air in motion relative to surface of the earth. For non-tropical events over land, the NWS issues a Wind Advisory (sustained winds of 31 to 39 mph for at least 1 hour or any gusts 46 to 57 mph) or a High Wind Warning (sustained winds 40+ mph or any gusts 58+ mph). For non-tropical events over water, the NWS issues a small craft advisory (sustained winds 25-33 knots), a gale warning (sustained winds 34-47 knots), a storm warning (sustained winds 48 to 63 knots), or a hurricane force wind warning (sustained winds 64+ knots). For tropical systems, the NWS issues a tropical storm warning for any areas (inland or coastal) that are expecting sustained winds from 39 to 73 mph. A hurricane warning is issued for any areas (inland or coastal) that are expecting sustained winds of 74 mph. Effects from high winds can include downed trees and/or power lines and damage to roofs, windows, etc. High winds can cause scattered power outages. High winds are also a hazard for the boating, shipping, and aviation industry sectors.

Tornadoes are swirling columns of air that typically form in the spring and summer during severe thunderstorm events. In a relatively short period of time and with little or no advance warning, a tornado can attain rotational wind speeds in excess of 250 miles per hour and can cause severe devastation along a path that ranges from a few dozen yards to over a mile in width. The path of a tornado may be hard to predict because they can stall or change direction abruptly. Within Massachusetts, tornadoes have occurred most frequently in Worcester County and in communities west of Worcester, including towns in eastern Hampshire County. High wind speeds, hail, and debris generated by tornadoes can result in loss of life, downed trees and power lines, and damage to structures and other personal property (cars, etc.).

### Location

As per the Massachusetts Hazard Mitigation Plan, the entire town is at risk of high winds, severe thunderstorms, and tornadoes. The plan also identifies Montgomery and the surrounding communities as having a high frequency of tornado occurrence within Massachusetts. However, the actual location of occurrence of a thunderstorms, severe wind, or tornado is "small," with less than 10 percent of the town affected.

## Extent

An average thunderstorm is 15 miles across and lasts 30 minutes; severe thunderstorms can be much larger and longer. Tornadoes are measured using the enhanced F-Scale. The damages that tornadoes and severe wind can create is shown with the following F-Scale categories and corresponding descriptions of damage:

Enhanced Fujita Scale Levels and Descriptions of Damage			
EF-Scale Number	Intensity Phrase	3-Second Gust (MPH)	Type of Damage Done
EF0	Gale	65–85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
EF1	Moderate	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
EF2	Significant	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	Severe	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	Devastating	166–200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.

Rainfall records for a 24-hour period and per month are listed below:

Rainfall Records for Montgomery, MA		
Month	24-Hour Record	Monthly Record
January	2.8"	8.9"
February	3.23"	7.68"
March	2.8"	7.72"
April	3.55"	8.75"
May	3.62"	11.54"
June	3.74"	10.4"
July	4.33"	9.73"
August	7.56"	18.68"
September	7.68"	3.23"
October	3.39"	9.06"
November	2.44"	7.56"
December	2.99"	7.25"

<http://www.myforecast.com/bin/almanac.m?city=571190&metric=false>

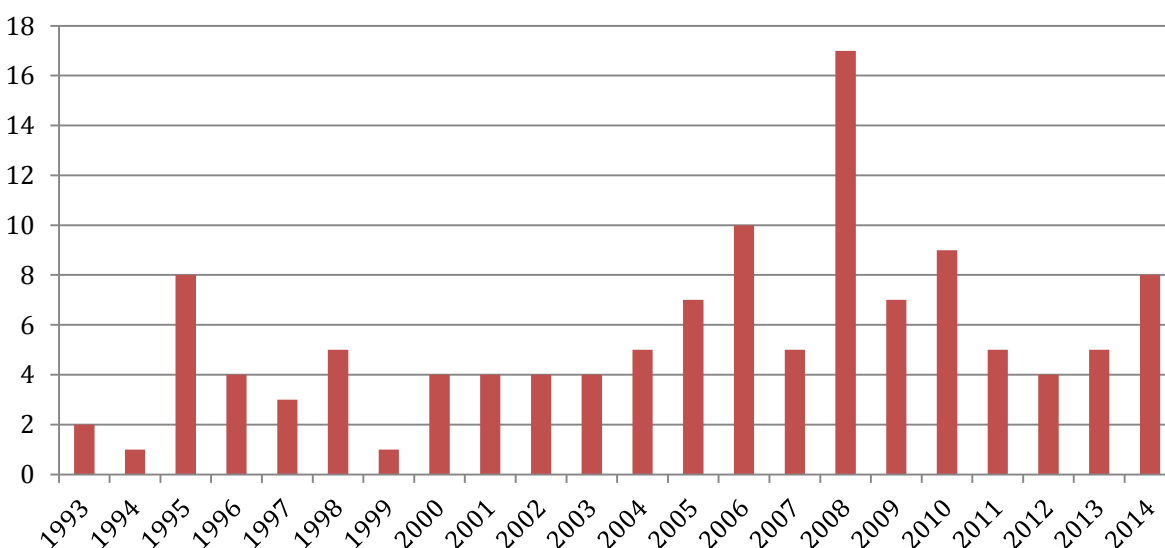
## Previous Occurrences

Because thunderstorms and wind affect the town regularly on an annual basis, there are not significant records available for these events. As per the Massachusetts Hazard Mitigation Plan, there are approximately 10 to 30 days of thunderstorm activity in the state each year.

For tornadoes, there are typically 1 to 3 tornadoes somewhere in southern New England per year. Most occur in the late afternoon and evening hours, when the heating is the greatest. The most common months are June, July, and August, but the Great Barrington, MA tornado (1995) occurred in May and the Windsor Locks, CT tornado (1979) occurred in October.

Within Massachusetts, tornadoes have occurred most frequently in Worcester County and in communities west of Worcester. In 2011, a tornado ranked F3 (Severe Damage) on the Fujita Scale of Tornado Intensity, blew through the towns of West Springfield, Westfield, Springfield, Monson, Wilbraham, Brimfield, Sturbridge, and Southbridge. The tornado and related storm killed 3 people and resulted in hundreds of injuries across the state.

The number of severe thunderstorms in Hampden County that included winds over 50 miles per hour, since 1993, are included in the table below. On average, since 1993, there have been between 5-6 severe thunderstorms per year.



Source: NOAA Storm Events Database, 2014, [www.ncdc.noaa.gov/stormevents/](http://www.ncdc.noaa.gov/stormevents/)

## Probability of Future Events

One measure of tornado activity is the tornado index value. It is calculated based on historical tornado events data using USA.com algorithms. It is an indicator of the tornado level in a region. A higher tornado index value means a higher chance of tornado events. Data was used for Hampden County to determine the Tornado Index Value as shown in the table below.

Tornado Index for Hampden County	
Hampden County	138.23
Massachusetts	87.60
United States	136.45

Source: USA.com, <http://www.usa.com/hampden-county-ma-natural-disasters-extremes.htm>

Based upon the available historical record, as well as Montgomery's location in a high-density cluster of state-wide tornado activity, it is reasonable to estimate that there is a "low" probability of tornado occurrence (1 to 10 percent chance in any given year) in the town.

As per the Massachusetts Hazard Mitigation Plan, there are approximately 10 to 30 days of thunderstorm activity in the state each year. Thus, there is a "moderate" probability (10 percent to 40 percent chance in any given year) of a severe thunderstorm or winds affecting the town.

### Impact

Overall, the Town faces a "limited" impact from severe thunderstorms, winds, or tornadoes with 10 percent or more of the town affected.

The potential for locally catastrophic damage is a factor in any severe weather event. In Montgomery, a tornado that hit residential areas would leave much more damage than a tornado with a travel path that ran along the town's forested areas, where little settlement has occurred. Most buildings in town have not been built to Zone 1, Design Wind Speed Codes. The first edition of the Massachusetts State Building Code went into effect on January 1, 1975, with most of the town's housing built before this date.

To approximate the potential impact to property and people that could be affected by severe weather, tornado, or wind, the total value of all property in town, \$96,280,100 is used.

For a tornado, an estimated 100 percent of damage would occur to 1 percent of structures, resulting in a total of \$962,801 worth of damage. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate. For a severe thunderstorm or wind, an estimated 20 percent of damage would occur to 10 percent of structures, resulting in a total of \$1,925,602 worth of damage.



**Vulnerability**

Based on the above assessment, Montgomery has a hazard index rating of “2 – high risk” from severe thunderstorms and winds, and a “4 – low risk” from tornadoes.

## Wildfire / Brushfire

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### Hazard Description

Wildland fires are typically larger fires, involving full-sized trees as well as meadows and scrublands. Brushfires are uncontrolled fires that occur in meadows and scrublands, but do not involve full-sized trees. Both wildland fires and brushfires can consume homes, other buildings and/or agricultural resources. Typical causes of brushfires and wildfires in Montgomery are lightning strikes, human carelessness, arson, and construction work around the railroad tracks that run through town.

FEMA has classifications for 3 different classes of wildland fires:

- Surface fires are the most common type of wildland fire and burn slowly along the floor of a forest, killing or damaging trees.
- Ground fires burn on or below the forest floor and are usually started by lightning
- Crown fires move quickly by jumping along the tops of trees. A crown fire may spread rapidly, especially under windy conditions.

The wildfire season in Massachusetts usually begins in late March and typically culminates in early June, corresponding with the driest live fuel moisture periods of the year. April is historically the month in which wildfire danger is the highest. However, wildfires can occur every month of the year. Drought, snow pack, and local weather conditions can expand the length of the fire season. The early and late shoulders of the fire season usually are associated with human-caused fires.

### Location

Hampden County has approximately 273,000 acres of forested land, which accounts for 67 percent of total land area. There is forest very near all areas of Montgomery, making the entire Town susceptible to wildfire and brushfire, and meaning the location of occurrence from this hazard is “large.”

### Extent

Wildfires can cause widespread damage to the areas that they affect. They can spread very rapidly, depending on local wind speeds and be very difficult to get under control. Fires can last for several hours up to several days. There are approximately 12 square miles, or approximately 7782 acres, of forested area in the town that are at risk of a wildfire or brushfire.

As described in the next section describing previous occurrences of wildfire, there have not been any major wildfires recorded in Montgomery. However, based on other major wildfires that have occurred in western Massachusetts, it is estimated that such a fire would likely destroy around 50 to 500 acres of forested area.

## Previous Occurrences

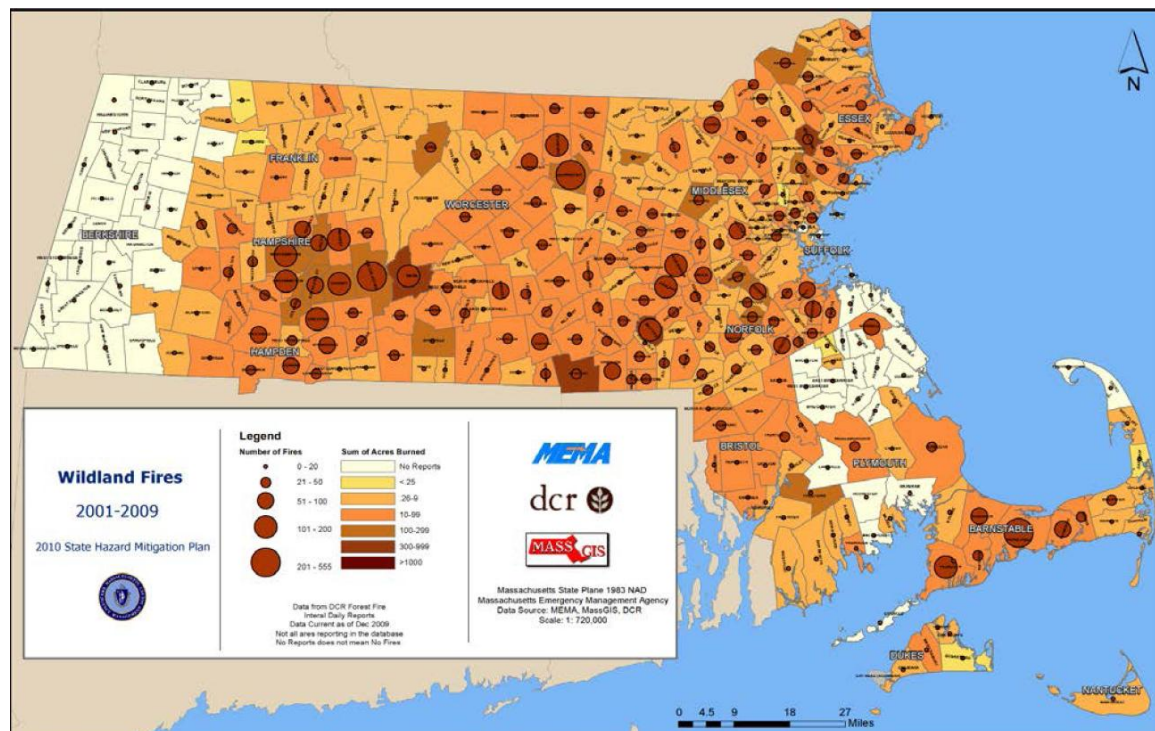
During the past 100 years, there have not been many wildfires occurring in the Pioneer Valley. However, several have occurred during the past 20 years, as shown in the list below:

- 1995 – Russell, 500 acres burned on Mt. Tekoa
- 1999 – Russell and Montgomery, 1200 acres burned from a fire started during railroad work
- 2000 – South Hadley, 310 acres burned over 14 days in the Litchia Springs Watershed
- 2001 – Ware, 400 acres burned
- 2010 – Russell, 320 acres burned on Mt. Tekoa
- 2012 – Eastern Hampden County, dry conditions and wind gusts created a brush fire in Brimfield, and burned 50 acres

The two fires that have occurred in neighboring Russell and one fire that occurred jointly between Russell and Montgomery are a major concern to the Town.

There have not been any brushfires recorded in Montgomery.

## Wildland Fires in Massachusetts, 2001-2009



Source: Massachusetts Hazard Mitigation Plan

## **Probability of Future Events**

In accordance with the Massachusetts Hazard Mitigation Plan, the Town Hazard Mitigation Committee found it is difficult to predict the likelihood of wildfires in a probabilistic manner because the number of variables involved. However, given the proximity of previous wildfires, and their proximity to the Town, the Hazard Mitigation Committee identified the likelihood of a future wildfire to be “low” (1 percent to 10 percent probability in the next year).

Climate scenarios project summer temperature increases between 2°C and 5°C and precipitation decreases of up to 15 percent. Such conditions would exacerbate summer drought and further promote high-elevation wildfires, releasing stores of carbon and further contributing to the buildup of greenhouse gases. Forest response to increased atmospheric carbon dioxide—the so-called “fertilization effect”—could also contribute to more tree growth and thus more fuel for fires, but the effects of carbon dioxide on mature forests are still largely unknown.

## **Impact**

The Town faces a “critical” impact from wildfires, with over 25 percent of property in affected area damaged or destroyed.

To approximate the potential impact to property and people that could be affected by this hazard, the total value of all property in town, \$96,280,100 is used.

An estimated 100 percent of damage would occur to 25 percent of structures, resulting in a total of \$24,070,025 worth of damage. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate.

## **Vulnerability**

Based on the above assessment, Montgomery has a hazard risk index of “2 – high risk” from wildfires.

# Earthquakes

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## Hazard Description

An earthquake is a sudden, rapid shaking of the ground that is caused by the breaking and shifting of rock beneath the Earth's surface. Earthquakes can occur suddenly, without warning, at any time of the year. New England experiences an average of 30 to 40 earthquakes each year although most are not noticed by people.<sup>1</sup> Ground shaking from earthquakes can rupture gas mains and disrupt other utility service, damage buildings, bridges and roads, and trigger other hazardous events such as avalanches, flash floods (dam failure) and fires. Un-reinforced masonry buildings, buildings with foundations that rest on filled land or unconsolidated, unstable soil, and mobile homes not tied to their foundations are at risk during an earthquake.<sup>2</sup>

## Location

Because of the regional nature of the hazard, the entire town is equally susceptible to earthquakes and the location of occurrence is "large," with over 50 percent of land affected.

## Extent

The magnitude of an earthquake is measured using the Richter Scale, which measures the energy of an earthquake by determining the size of the greatest vibrations recorded on the seismogram. On this scale, one step up in magnitude (from 5.0 to 6.0, for example) increases the energy more than 30 times. The intensity of an earthquake is measured using the Modified Mercalli Scale. This scale quantifies the effects of an earthquake on the Earth's surface, humans, objects of nature, and man-made structures on a scale of I through XII, with I denoting a weak earthquake and XII denoting a earthquake that causes almost complete destruction.

Richter Scale Magnitudes and Effects	
Magnitude	Effects
< 3.5	Generally not felt, but recorded.
3.5 - 5.4	Often felt, but rarely causes damage.
5.4 - 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 - 6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0 - 7.9	Major earthquake. Can cause serious damage over larger areas.
8 or >	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

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<sup>1</sup> Northeast States Emergency Consortium Web site: [www.nesec.org/hazards/earthquakes.cfm](http://www.nesec.org/hazards/earthquakes.cfm).

<sup>2</sup> Federal Emergency Management Agency Web site: [www.fema.gov/hazards/earthquakes/quake.shtm](http://www.fema.gov/hazards/earthquakes/quake.shtm).

Modified Mercalli Intensity Scale for and Effects			
Scale	Intensity	Description Of Effects	Corresponding Richter Scale Magnitude
I	Instrumental	Detected only on seismographs.	
II	Feeble	Some people feel it.	< 4.2
III	Slight	Felt by people resting; like a truck rumbling by.	
IV	Moderate	Felt by people walking.	
V	Slightly Strong	Sleepers awake; church bells ring.	< 4.8
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves.	< 5.4
VII	Very Strong	Mild alarm; walls crack; plaster falls.	< 6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged.	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open.	< 6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread.	< 7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards.	< 8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves.	> 8.1

Source: US Federal Emergency Management Agency

## Previous Occurrences

The most recent earthquakes to affect New England are shown in the table below.

Largest Earthquakes Affecting Montgomery, 1924 – 2014		
Location	Date	Magnitude
Ossipee, NH	December 20, 1940	5.5
Ossipee, NH	December 24, 1940	5.5
Dover-Foxcroft, ME	December 28, 1947	4.5
Kingston, RI	June 10, 1951	4.6
Portland, ME	April 26, 1957	4.7
Middlebury, VT	April 10, 1962	4.2
Near NH Quebec Border, NH	June 15, 1973	4.8
West of Laconia, NH	Jan. 19, 1982	4.5
Plattsburg, NY	April 20, 2002	5.1
Bar Harbor, NH	October 3, 2006	4.2
Hollis Center, ME	October 16, 2012	4.6

Source: Northeast States Emergency Consortium website, [www.nesec.org/hazards/earthquakes.cfm](http://www.nesec.org/hazards/earthquakes.cfm)

New England States Record of Historic Earthquakes		
State	Years of Record	Number Of Earthquakes
Connecticut	1668 - 2007	137
Maine	1766 - 2007	544
Massachusetts	1668 - 2007	355
New Hampshire	1638 - 2007	360
Rhode Island	1776 - 2007	38
Vermont	1843 - 2007	73
New York	1840 - 2007	755
<i>Total Number of Earthquakes within the New England states between 1638 and 1989 is 2262.</i>		

Source: Northeast States Emergency Consortium website,  
[www.nesec.org/hazards/earthquakes.cfm](http://www.nesec.org/hazards/earthquakes.cfm)

## Probability of Future Events

One measure of earthquake activity is the Earthquake Index Value. It is calculated based on historical earthquake events data using USA.com algorithms. It is an indicator of the earthquake activity level in a region. A higher earthquake index value means a higher chance of earthquake events. Data was used for Hampden County to determine the Earthquake Index Value as shown in the table below.

Earthquake Index for Hampden County	
Hampden County	0.24
Massachusetts	0.70
United States	1.81

Based upon existing records, there is a “very low” chance (less than 1 percent probability in any given year) of an earthquake in Montgomery.

## Impact

Massachusetts introduced earthquake design requirements into their building code in 1975 and improved building code for seismic reasons in the 1980s. However, these specifications apply only to new buildings or to extensively-modified existing buildings. Buildings, bridges, water supply lines, electrical power lines and facilities built before the 1980s may not have been designed to withstand the forces of an earthquake. The seismic standards have also been upgraded with the 1997 revision of the State Building Code.

The town faces a “critical” impact from earthquakes, with more than 25 percent of Montgomery affected.

To approximate the potential impact to property and people that could be affected by this hazard, the total value of all property in town, \$96,280,100 is used.

An estimated 100 percent of damage would occur to 25 percent of structures, resulting in a total of \$24,070,025 worth of damage. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate.

## Vulnerability

Based on the above analysis, Montgomery has a hazard index rating of “4 – low risk” from earthquakes.



## Dam Failure

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### Hazard Description

Dams and their associated impoundments provide many benefits to a community, such as water supply, recreation, hydroelectric power generation, and flood control. However, they also pose a potential risk to lives and property. Dam failure is not a common occurrence, but dams do represent a potentially disastrous hazard. When a dam fails, the potential energy of the stored water behind the dam is released rapidly. Most dam failures occur when floodwaters above overtop and erode the material components of the dam. Often dam breaches lead to catastrophic consequences as the water rushes in a torrent downstream flooding an area engineers refer to as an “inundation area.” The number of casualties and the amount of property damage will depend upon the timing of the warning provided to downstream residents, the number of people living or working in the inundation area, and the number of structures in the inundation area.

Many dams in Massachusetts were built during the 19<sup>th</sup> Century without the benefit of modern engineering design and construction oversight. Dams of this age can fail because of structural problems due to age and/or lack of proper maintenance, as well as from structural damage caused by an earthquake or flooding.

The Massachusetts Department of Conservation and Recreation Office of Dam Safety is the agency responsible for regulating dams in the state (M.G.L. Chapter 253, Section 44 and the implementing regulations 302 CMR 10.00). To be regulated, these dams are in excess of 6 feet in height (regardless of storage capacity) and have more than 15 acre feet of storage capacity (regardless of height). Dam safety regulations enacted in 2005 transferred significant responsibilities for dams from the State of Massachusetts to dam owners, including the responsibility to conduct dam inspections.

### Location

The Massachusetts Emergency Management Agency (MEMA) identifies 3 dams in Montgomery.

Dams in Montgomery	
Dam	Hazard Level
Crescent Mills Dam	Low
Westfield Reservoir Dam	High
Tekoa Dam	Low

A dam failure from the Westfield Reservoir Dam is estimated to affect between 10 percent and 50 percent of the town, making the location of occurrence “medium.”

## Extent

Often dam breaches lead to catastrophic consequences as the water ultimately rushes in a torrent downstream flooding an area engineers refer to as an “inundation area.” The number of casualties and the amount of property damage will depend upon the timing of the warning provided to downstream residents, the number of people living or working in the inundation area, and the number of structures in the inundation area.

Dams in Massachusetts are assessed according to their risk to life and property. The state has three hazard classifications for dams:

- *High Hazard:* Dams located where failure or improper operation will likely cause loss of life and serious damage to homes, industrial or commercial facilities, important public utilities, main highways, or railroads.
- *Significant Hazard:* Dams located where failure or improper operation may cause loss of life and damage to homes, industrial or commercial facilities, secondary highways or railroads or cause interruption of use or service of relatively important facilities.
- *Low Hazard:* Dams located where failure or improper operation may cause minimal property damage to others. Loss of life is not expected.

## Previous Occurrences

To date, there have been no dam failures in Montgomery.

## Probability of Future Events

As Montgomery’s dams age, and if maintenance is deferred, the likelihood of a dam bursting will increase, but currently the frequency of dam failures is “very low,” with a less than 1 percent chance of a dam bursting in any given year.

As described in the Massachusetts Hazard Mitigation Plan, dams are designed partly based on assumptions about a river’s flow behavior, expressed as hydrographs. Changes in weather patterns can have significant effects on the hydrograph used for the design of a dam. If the hydrograph changes, it is conceivable that the dam can lose some or all of its designed margin of safety, also known as freeboard. If freeboard is reduced, dam operators may be forced to release increased volumes earlier in a storm cycle in order to maintain the required margins of safety. Such early releases of increased volumes can increase flood potential downstream. Throughout the west, communities downstream of dams are already experiencing increases in stream flows from earlier releases from dams. Dams are constructed with safety features known as “spillways.” Spillways are put in place on dams as a safety measure in the event of the reservoir filling too quickly. Spillway overflow events, often referred to as “design failures,” result in increased discharges downstream and increased flooding potential. Although climate change

will not increase the probability of catastrophic dam failure, it may increase the probability of design failures.

### **Impact**

The town faces a “critical” impact from failure of dams with a high hazard level (Westfield Reservoir Dam), with 25 percent of the town affected.

To approximate the potential impact to property and people that could be affected by this hazard, the total value of all property in town, \$96,280,100 is used.

An estimated 100 percent of damage would occur to 25 percent of structures, resulting in a total of \$24,070,025 worth of damage. The cost of repairing or replacing the roads, bridges, utilities, and contents of structures is not included in this estimate.

### **Vulnerability**

Based on this analysis, Montgomery has a hazard index rating of “5 – very low risk” from dam failure.

## Drought

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Drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. In the most general sense, drought originates from a deficiency of precipitation over an extended period of time, resulting in a water shortage for some activity, group, or environmental sector. Reduced crop, rangeland, and forest productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality rates; and damage to wildlife and fish habitat are a few examples of the direct impacts of drought. Of course, these impacts can have far-reaching effects throughout the region and even the country.

### Location

Because of this hazard's regional nature, a drought would impact the entire town, and the location of occurrence is "large," with over 50 percent of total land affected.

### Extent

The severity of a drought would determine the scale of the event and would vary among town residents depending on whether the residents' water supply is derived from a private well or the public water system.

The U.S. Drought Monitor also records information on historical drought occurrence. Unfortunately, data could only be found at the state level. The U.S. Drought Monitor categorizes drought on a D0-D4 scale as shown below.

U.S. Drought Monitor		
Classification	Category	Description
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies

Source: US Drought Monitor, <http://droughtmonitor.unl.edu/classify.htm>

## Previous Occurrences

In Montgomery, six major droughts have occurred statewide since 1930.<sup>3</sup> They range in severity and length, from three to eight years. In many of these droughts, water-supply systems were found to be inadequate. Water was piped in to urban areas, and water-supply systems were modified to permit withdrawals at lower water levels. The following table indicates previous occurrences of drought since 2000, based on the US Drought Monitor:

Annual Drought Status in Montgomery	
Year	Maximum Severity
2000	No drought
2001	D2 conditions in 21% of the state
2002	D2 conditions in 99% of the state
2003	No drought
2004	D0 conditions in 44% of the state
2005	D1 conditions in 7% of the state
2006	D0 conditions in 98% of the state
2007	D1 conditions in 71% of the state
2008	D0 conditions in 57% of the state
2009	D0 conditions in 44% of the state
2010	D1 conditions in 27% of the state
2011	D0 conditions in 0.01% of the state
2012	D2 conditions in 51% of the state

Source: US Drought Monitor

Montgomery has not been impacted by any previous droughts in the state.

## Probability of Future Events

In Montgomery, as in the rest of the state, drought occurs at a “low” probability, at a rate of between 1 percent and 10 percent in any given year.

Based on past events and current criteria outlined in the Massachusetts Drought Management Plan, it appears that western Massachusetts may be more vulnerable than eastern Massachusetts to severe drought conditions. However, many factors, such as water supply sources, population, economic factors (i.e., agriculture based economy), and infrastructure, may affect the severity and length of a drought event. When evaluating the region’s risk for drought on a national level, utilizing a measure called the Palmer Drought Severity Index, Massachusetts is historically in the lowest percentile for severity and risk of drought.<sup>4</sup> However, global warming and climate change may have an effect on drought risk in the region. With the projected temperature increases, some scientists think that the global hydrological

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<sup>3</sup> US Geological Survey Water-Supply Paper 2375. “National Water Summary 1989 – Floods and Droughts: Massachusetts.” Prepared by S. William Wandle, Jr., US Geological Survey.

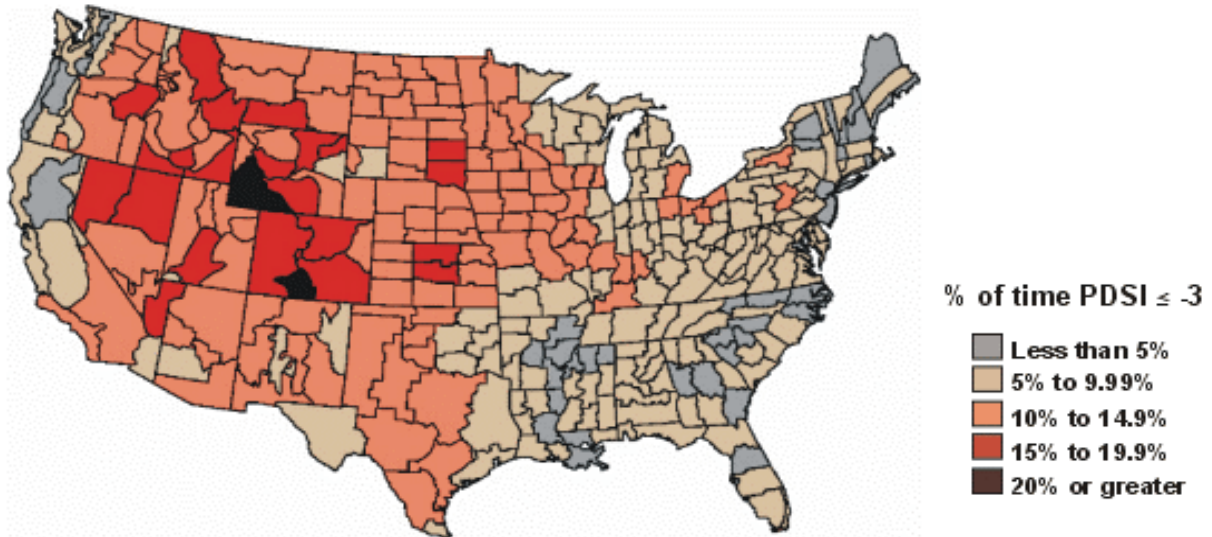
<sup>4</sup> National Drought Mitigation Center – <http://drought.unl.edu>

cycle will also intensify. This would cause, among other effects, the potential for more severe, longer-lasting droughts.

## Palmer Drought Severity Index

1895–1995

Percent of time in severe and extreme drought



### Impact

Due to the water richness of Western Massachusetts, Montgomery is unlikely to be adversely affected by anything other than a major, extended drought. While such a drought would require water saving measures to be implemented, there would be no foreseeable damage to structures or loss of life resulting from the hazard.

### Vulnerability

Based on the above assessment, Montgomery has a hazard index rating of “5 – very low risk” from drought.

## Other Hazards

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In addition to the hazards identified above, the Hazard Mitigation Committee reviewed the full list of hazards listed in the Massachusetts Hazard Mitigation Plan. Due to the location and context of the town, coastal erosion, landslides, and tsunamis, were determined to not be a threat.

Extreme temperatures, while a hazard identified in the state Hazard Mitigation Plan, was determined by the Montgomery Hazard Mitigation Workgroup to not currently be a primary hazard to people, property, or critical infrastructure in Montgomery. While extreme temperatures can result in increased risk of wildfire, this effect is addressed as part of the “Wildfire/Brushfire” hazard assessment.

Ice jams, another hazard identified in the state Hazard Mitigation Plan, was similarly determined by the Montgomery Hazard Mitigation Committee to not be a primary hazard to people, property, or critical infrastructure in town. To the extent that ice jams do result in flooding, ice jams are addressed in the "Flooding" section of this chapter.

The Hazard Mitigation Committee will continue to assess the impact of extreme temperatures and ice jams and update the Hazard Mitigation Plan accordingly.

## 4: CRITICAL FACILITIES

### Facility Classification

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A Critical Facility is defined as a building, structure, or location which:

- Is vital to the hazard response effort
- Maintains an existing level of protection from hazards for community residents and property
- Would create a secondary disaster if a hazard were to impact it

The Critical Facilities List for the Town of Montgomery has been identified utilizing a Critical Facilities List provided by the State Hazard Mitigation Officer. Montgomery's Hazard Mitigation Committee has broken up this list of facilities into three categories:

- Facilities needed for emergency response in the event of a hazard event.
- Facilities identified as non-essential and not required in an emergency response event, but which are considered essential for the everyday operation of the Town.
- Facilities or institutions that include special populations which would need additional attention in the event of a hazard event.

The critical facilities and evacuation routes potentially affected by hazard areas are identified following this list. The Past and Potential Hazards/Critical Facilities Map (Appendix D) also identifies these facilities.



## **Category 1 – Emergency Response Facilities**

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The Town has identified the emergency response facilities as the highest priority in regards to protection from natural hazards:

Emergency Operations Center – Fire Department, 159 Main Road, 413-862-4505

Fire Department, 159 Main Road, 413-862-4505

Police Station – 413-862-4545

Department of Public Works – 413-862-4037

Facilities with Backup Power

Town Hall, 161 Main Road, 413-862-3386

Department of Public Works, 413-862-4037

Fire Department, 159 Main Road, 413-862-4505

Fuel Stations – Behind Town garage near 161 Main Road

Emergency Shelter – Town Hall, 161 Main Road, 413-862-3386

Helicopter Landing Sites (Lifeflight-Lifestar preapproved)

Pitcher Street (42° 13' 24" N, 72° 48' 19" W)

Main Road (42° 12' 23" N, 72° 49' 35" W)

Carrington Road (Peckams Field) (42° 12' 24" N, 71° 50' 53" W)

Communications – telecommunications tower on Carrington Road

Primary Evacuation Routes – Main Road, Southampton Road, Carrington Road

Culverts Located on Evacuation Routes –Carrington Road at Lower Pomeroy Road

## **Category 2 – Non-Emergency Response Facilities**

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The Town has determined that there are no non-emergency facilities in Montgomery that are considered essential to the everyday operation of Montgomery.

## **Category 3 – Facilities / Institutions with Special Populations**

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The Town has determined that there are no facilities or institutions with special populations in Montgomery.

Hazard Type	Hazard Area	Critical Facilities Affected
Floods	Areas around Moose Meadow Brook	None
Severe snowstorms / ice storms	Entire town	Site-specific
Hurricanes	Entire town	Site-specific
Severe thunderstorms / winds / tornadoes	Entire town	Site-specific
Wildfires / brushfires	Entire town	Site-specific
Earthquakes	Entire town	Site-specific
Dam failure	Entire town	Site-specific
Drought	Entire town	Site-specific

(Past & Potential Hazards/Critical Facilities Map Located In Appendix D)

## 5: MITIGATION STRATEGIES

One of the steps of this Hazard Mitigation Plan is to evaluate all of the Town's existing policies and practices related to natural hazards and identify potential gaps in protection. After reviewing these policies and the hazard identification and assessment, the Town Hazard Mitigation Committee developed a set of hazard mitigation strategies it would like to implement.

The Town of Montgomery has developed the following goal to serve as a framework for mitigation of the hazards identified in this plan.

### Goal Statement

To minimize the loss of life, damage to property, and the disruption of governmental services and general business activities due to the following hazards: flooding, severe snowstorms/ice storms, severe thunderstorms, hurricanes, tornadoes, wildfires/brushfires, earthquakes, dam failures, and drought.

For the extent of this analysis, the Committee reviewed the following Town documents:

- Zoning Bylaws
- Subdivision Rules and Regulations
- Electronic Comprehensive Emergency Management Plan

As noted previously, because the committee included membership from and supplemental input by all entities and agencies that have the ability to regulate development—elected officials, volunteer board and committee members and municipal staff, and because the plan is based on a thorough review of existing regulations, plans, policies and physical infrastructure that mitigates the long term consequences of natural disasters, the Town of Montgomery feels confident and equipped to expand on and improve the mitigation capability of existing policies and programs, through the local legislative process—amending zoning which requires a 2/3 majority, adopting resolutions and/or policies, developing new (as needed) and updating and implementing existing plans, as well as working with regional, state and federal partners to secure funds for any necessary high cost infrastructure improvements .

## **Overview of Mitigation Strategies by Hazard**

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An overview of the general concepts underlying mitigation strategies for each of the hazards identified in this plan is as follows:

### **Flooding**

The key factors in flooding are the water capacity of water bodies and waterways, the regulation of waterways by flood control structures, and the preservation of flood storage areas and wetlands. As more land is developed, more flood storage is demanded of the town's water bodies and waterways. The Town currently addresses this problem with a variety of mitigation tools and strategies. Flood-related regulations and strategies are included in the Town's zoning bylaw and subdivision regulations, such as ensuring adequate driveway drainage, restricting development in the floodplain, requiring drainage easements where applicable for subdivisions, and following the Wetlands Protection Act.

### **Severe Snowstorms / Ice Storms**

Winter storms can be especially challenging for emergency management personnel. The Massachusetts Emergency Management Agency (MEMA) serves as the primary coordinating entity in the statewide management of all types of winter storms and monitors the National Weather Service (NWS) alerting systems during periods when winter storms are expected. Even though the storm has usually been forecast, there is no certain way for predicting its length, size or severity. Therefore, mitigation strategies must focus on preparedness prior to a severe snow/ice storm.

The Town's current mitigation strategy is to restrict the location and height of telecommunications facilities. To the extent that some of the damages from a winter storm can be caused by flooding, flood protection mitigation measures also assist with severe snowstorms and ice storms.

### **Hurricanes**

Hurricanes provide the most lead warning time of all identified hazards, because of the relative ease in predicting the storm's track and potential landfall. MEMA assumes "standby status" when a hurricane's location is 35 degrees North Latitude (Cape Hatteras) and "alert status" when the storm reaches 40 degrees North Latitude (Long Island). Even with significant warning, hurricanes can cause significant damage – both due to flooding and severe wind.

The flooding associated with hurricanes can be a major source of damage to buildings, infrastructure and a potential threat to human lives. Flood protection measures can thus also be considered hurricane mitigation measures. The high winds that often accompany hurricanes can also damage buildings and infrastructure, similar to tornadoes and other strong wind events. Meeting the requirements of the State Building code also reduce damages from hurricanes.

## **Severe Thunderstorms / Winds / Tornadoes**

Most damage from tornadoes and severe thunderstorms come from high winds that can fell trees and electrical wires, generate hurtling debris and, possibly, hail. Adherence to the Massachusetts Building Code is a primary current mitigation strategy. In addition, current land development regulations, such as restrictions on the height of telecommunications towers, also help prevent wind damages. Requiring special authorization for mobile homes is an additional mitigation strategy.

## **Wildfires / Brushfires**

The current mitigation strategy is to require residents to notify the Fire Department when they plan to have a controlled burn on their property.

## **Earthquakes**

Although there are five mapped seismological faults in Massachusetts, there is no discernible pattern of previous earthquakes along these faults nor is there a reliable way to predict future earthquakes along these faults or in any other areas of the state. Consequently, earthquakes are arguably the most difficult natural hazard for which to plan.

Most buildings and structures in the state were constructed without specific earthquake resistant design features. However, the Building Code helps maintain the structural integrity of structures and helps to mitigate earthquakes.

## **Dam Failure**

Dam failure is a highly infrequent occurrence, but a severe incident could prove catastrophic. In addition, dam failure most often coincides with flooding, so its impacts can be multiplied, as the additional water has nowhere to flow. The only mitigation measures currently in place are the regular inspections required by the Massachusetts DCR.

## **Drought**

Although Massachusetts does not face extreme droughts like many other places in the country, it is susceptible to dry spells and drought. The Town does not have any drought-specific hazard mitigation strategies currently in place.

## Existing Strategies

The Hazard Mitigation Committee has identified the following mitigation strategies that were in place prior to the development of this Hazard Mitigation Plan. Several of the recommended mitigation measures have multiple benefits because, if implemented, they will mitigate or prevent damages from more than one type of natural hazard. These do not fall under one hazard type, but could be put into place for facilitation of better hazard protection generally.

Strategy	Action Type	Description	Hazards Mitigated	Effectiveness
Regulation for telecommunications facilities	Zoning Bylaw	Regulates placement, construction, and appearance of telecommunications facilities. Tower required to be separated by a "fall zone radius," at least 25 feet plus height of tower to the edge of property line and no structures. Tower height cannot exceed 150 feet. (Zoning Bylaw, Article 5: Telecommunications Facilities)	Severe thunderstorms / wind / tornadoes / hurricanes / severe snow storms / ice storms	Effective
Adequate driveway drainage	Zoning Bylaw	Driveways must conform to applicable laws regarding wet-lands, have an entrance grade of no more than 6 percent from that of the road grade, and must not overload drainage facilities. If Highway Superintendent determines that a culvert or culverts are required, he or she shall determine the size of said culvert. (Zoning Bylaw, Article 6: Driveway Standard)	Flooding	Effective
Floodplain development restrictions	Zoning Bylaw	Overlay district protect areas delineated as part of the 100-year floodplain by regulating uses and special permit requirements (Zoning Bylaw, Article 7: Floodplain Overlay District)	Flooding	Effective
Mobile homes require special authorization	Zoning Bylaw	Use of a trailer or mobile home as a temporary dwelling for 60 days is permitted, as is use of a trailer as a permanent dwelling provided it meets all the building, zoning and sanitation codes of the town. (Zoning Bylaw, Section 1.B.)	Severe thunderstorms / wind / tornadoes / hurricanes /	Effective

Strategy	Action Type	Description	Hazards Mitigated	Effectiveness
Subdivision proposals must include hazard-related items	Subdivision Bylaw	Subdivision plans must include location of buildings, wooded areas, swamps, water bodies, proposed roads, and proposed water supply system of drainage, hydrants, sewage pipes, public utility facilities, water pipes and wells, and storm drainage of land (Subdivision Bylaw, A: Preliminary Plan; Subdivision Bylaw, B: Definitive Plan)	All hazards	Effective
Review of subdivision proposals by various Town staff	Subdivision Bylaw	The Planning Board will solicit input from the Select Board, Highway Superintendent, and any other boards deemed necessary regarding the street system, drainage system, and sewer system. (Subdivision Bylaw, B: Definitive Plan)	All hazards	Effective
Construction of bridges in conformance with state regulations	Subdivision Bylaw	New bridges shall be constructed in such a manner as to comply with plans and specifications as shall be in accordance with Chapter 41, section 35, of the General Laws for bridges on public highways and shall be approved by the State Department of Public Works (Subdivision Bylaw, Section IV – Design Standards)	All hazards	Effective
Protection during development process	Subdivision Bylaw	The Planning Board requires that subdividers make every reasonable effort consistent with sound planning to preserve natural features such as large trees, water courses, scenic points, historic spots, and similar community assets, and that top soil shall be replaced on all disturbed earth. (Subdivision Bylaw, Section IV – Design Standards)	Flooding	Effective
Drainage easements	Subdivision Bylaw	Where a subdivision is transverse by a water course, drainage way, channel or stream, the Planning Board may require that there be provided a storm water easement or drainage right of way. (Subdivision Bylaw, Section IV – Design Standards)	Flooding	Effective
Conformance with State Building Code	State Regulation	Conformance with the Massachusetts State Building Code, which promotes construction of buildings that can withstand hazards to a certain degree.	All hazards	Effective



Strategy	Action Type	Description	Hazards Mitigated	Effectiveness
Wetlands Protection Regulations	State Regulation	Requires all new development to conform to regulations set forth in MassDEP Wetlands Protection Act.	Flooding	Effective
Dam inspections	State Regulation	DCR requires property owners to inspect dams based on the hazard rating of the dam (low, medium, high hazard).	Dam failure	Effective
Burn permits	Municipal Operations	Fire Department is notified by residents of days on which burns will occur. Burning is permitted from January 15 to May 1 for residential property and year around for agricultural property.	Wildfire / brushfire	Effective

## New Strategies

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Based on the hazard identification and risk assessment, list of critical facilities that would be affected by hazards, and evaluation of the effectiveness of current mitigation strategies, the Hazard Mitigation Committee identified several new strategies to pursue.

## Strategy Prioritization Methodology

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The Hazard Mitigation Planning Committee reviewed and prioritized a list of new mitigation strategies using the following criteria:

**Application to multiple hazards** – Strategies are given a higher priority if they assist in the mitigation of several natural hazards.

**Time required for completion** – Projects that are faster to implement, either due to the nature of the permitting process or other regulatory procedures, or because of the time it takes to secure funding, are given higher priority.

**Estimated benefit** – Strategies which would provide the highest degree of reduction in loss of property and life are given a higher priority. This estimate is based on the Hazard Identification and Analysis Chapter, particularly with regard to how much of each hazard's impact would be mitigated.

**Cost effectiveness** – in order to maximize the effect of mitigation efforts using limited funds, priority is given to low-cost strategies. For example, regular tree maintenance is a relatively low-cost operational strategy that can significantly reduce the length of time of power outages during a winter storm. Strategies that have identified potential funding streams, such as the Hazard Mitigation Grant Program, are also given higher priority.

The following categories are used to define the priority of each mitigation strategy:

- **Low** – Strategies that would not have a significant benefit to property or people, address only one or two hazards, or would require funding and time resources that are impractical
- **Medium** – Strategies that would have some benefit to people and property and are somewhat cost effective at reducing damage to property and people
- **High** – Strategies that provide mitigation of several hazards and have a large benefit that warrants their cost and time to complete
- **Very High** – extremely beneficial projects that will greatly contribute to mitigation of multiple hazards and the protection of people and property. These projects are also given a numeric ranking within the category.

## Cost Estimates

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Each of the following implementation strategies is provided with a cost estimate. Projects that already have secured funding are noted as such. Where precise financial estimates are not currently available, categories were used with the following assigned dollar ranges:

- **Low** – cost less than \$50,000
- **Medium** – cost between \$50,000 – \$100,000
- **High** – cost over \$100,000

Cost estimates take into account the following resources:

- Town staff time for grant application and administration (at a rate of \$25 per hour)
- Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town)
- Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

## Project Timeline

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Each strategy is provided with an estimated length of time it will take for implementation. Where funding has been secured for the project, a specific future date is provided for when completion will occur. However, some projects do not currently have funding and thus it is difficult to know exactly when they will be completed. For these projects, an estimate is provided for the amount of time it will take to complete the project once funding becomes available.

Number	Action Type	Hazards Mitigated	Action Name	Responsible Entity	Priority	Cost	Funding Source	Timeframe
1	Structure and infrastructure projects	Flooding	Upgrade stream crossings, bridges, and culverts by pro-actively replacing underperforming culverts to accommodate floods and promote wildlife passage	DPW	High	High	HMGP	3 years
2	Structure and infrastructure projects	Flooding	Preserve floodplains as open space and protect natural resources located within floodplains	DPW, Planning Board	High	Low	Town staff	3 years
3	Structure and infrastructure projects	Snow storms / ice storms	Work with utility company to regularly inspect and prune trees to ensure they will not potentially damage utility lines	Fire Department, DPW	High	Low	Town staff	3 months
4	Local planning and regulations	Flooding	Join the National Flood Insurance Program	Planning Board, Select Board	Medium	Low	Town staff	4 years
5	Local planning and regulations	All hazards	Update Hazard Mitigation Plan every 5 years, using procedures identified in the plan	EMD, Fire Department, DPW, Select Board	Medium	Low	HMGP	5 years
6	Local planning and regulations	All hazards	Regularly update Comprehensive Emergency Management (CEM) Plan	EMD, Fire Department, DPW, Select Board	Medium	Low	Town staff	5 years

Number	Action Type	Hazards Mitigated	Action Name	Responsible Entity	Priority	Cost	Funding Source	Timeframe
7	Local planning and regulations	All Hazards	Research feasibility of implementing a Reverse 911 system to alert local residents to hazards	EMD, Fire Department, DPW, Select Board	Medium	High	Town staff	5 years
8	Local planning and regulations	Drought Wildfire / Brushfire	Revise subdivision bylaw to include Fire Department in review of subdivision plans, commercial plans, and industrial plans	Fire Department, Planning Board	Medium	Low	Town Fire Department	3 years
9	Education and outreach programs	Snow storms / ice storms	Publish emergency information for vulnerable populations in Mountain Breeze newsletter, including who to contact in emergency situations and how to opt-in to Council on Aging program where volunteers check on residents during an emergency	EMD	Low	Low	Town staff	3 years

## 6: PLAN REVIEW, EVALUATION, IMPLEMENTATION, AND ADOPTION

Upon completion of the draft Hazard Mitigation Plan, a public meeting was held by the Town staff and the Pioneer Valley Planning Commission on July 28th to present and request comments from town officials and residents. The Hazard Mitigation Plan was then submitted to the Massachusetts Emergency Management Agency (MEMA) and the Federal Emergency Management Agency for their review. Upon receiving conditional approval of the plan by FEMA, the plan was presented to the Town's Select Board and adopted.

### Plan Implementation

The implementation of this plan began upon its formal adoption by the Town Select Board and approval by MEMA and FEMA. Those Town departments and boards responsible for ensuring the development of policies, bylaw revisions, and programs as described in this plan will be notified of their responsibilities immediately following approval. The Town's Hazard Mitigation Committee will oversee the implementation of the plan.

### Incorporation with Other Planning Documents

Existing plans, studies, reports and municipal documents were incorporated throughout the planning process. This included a review and incorporation of significant information from the following key documents:

- **Montgomery Comprehensive Emergency Management Plan** (particularly the Critical Infrastructure Section) – the Critical Infrastructure section was used to identify those infrastructure components in Montgomery that have been identified as crucial to the function of the Town.
- **Montgomery Zoning and Subdivision Bylaw** - The Town's Zoning was used to gather identify those actions that the Town is already taking that are reducing the potential impacts of a natural hazard (i.e. floodplain regulations) to avoid duplicating existing successful efforts.
- **Massachusetts' State Hazard Mitigation Plan** - This plan was used to insure that the Town's Hazard Mitigation Plan is consistent with the State's Plan.

The Hazard Mitigation Plan will also be incorporated into updates of the Town's Comprehensive Emergency Management Plan.

During regular update meetings for the Hazard Mitigation Plan, the Hazard Mitigation Committee will review whether any of these plans are in the process of being updated. If so, the Hazard Mitigation Committee will provide copies of the Hazard Mitigation Plan to relevant Town staff and brief them on the content of the Hazard Mitigation Plan. The Hazard Mitigation Committee will also review current Town programs and policies to ensure that they are consistent with the mitigation strategies described in this plan.

## **Plan Monitoring and Evaluation**

The Town's Emergency Management Director will call meetings of all responsible parties to review plan progress as needed, based on occurrence of hazard events. The public will be notified of these meetings in advance through a posting of the agenda at Town Hall. Responsible parties identified for specific mitigation actions will be asked to submit their reports in advance of the meeting.

Meetings will involve evaluation and assessment of the plan, regarding its effectiveness at achieving the plan's goals and stated purpose. The following questions will serve as the criteria that is used to evaluate the plan:

### *Plan Mission and Goal*

- Is the Plan's stated goal and mission still accurate and up to date, reflecting any changes to local hazard mitigation activities?
- Are there any changes or improvements that can be made to the goal and mission?

### *Hazard Identification and Risk Assessment*

- Have there been any new occurrences of hazard events since the plan was last reviewed? If so, these hazards should be incorporated into the Hazard Identification and Risk Assessment.
- Have any new occurrences of hazards varied from previous occurrences in terms of their extent or impact? If so, the stated impact, extent, probability of future occurrence, or overall assessment of risk and vulnerability should be edited to reflect these changes.
- Is there any new data available from local, state, or Federal sources about the impact of previous hazard events, or any new data for the probability of future occurrences? If so, this information should be incorporated into the plan.

### *Existing Mitigation Strategies*

- Are the current strategies effectively mitigating the effect of any recent hazard events?
- Has there been any damage to property since the plan was last reviewed?
- How could the existing mitigation strategies be improved upon to reduce the impact from recent occurrences of hazards? If there are improvements, these should be incorporated into the plan.

### *Proposed Mitigation Strategies*

- What progress has been accomplished for each of the previously identified proposed mitigation strategies?
- How have any recently completed mitigation strategies affected the Town's vulnerability and impact from hazards that have occurred since the strategy was completed?
- Should the criteria for prioritizing the proposed mitigation strategies be altered in any way?
- Should the priority given to individual mitigation strategies be changed, based on any recent changes to financial and staffing resources, or recent hazard events?

#### *Review of the Plan and Integration with Other Planning Documents*

- Is the current process for reviewing the Hazard Mitigation Plan effective? Could it be improved?
- Are there any Town plans in the process of being updated that should have the content of this Hazard Mitigation Plan incorporated into them?
- How can the current Hazard Mitigation Plan be better integrated with other Town planning tools and operational procedures, including the zoning bylaw, the Comprehensive Emergency Management Plan, and the Capital Improvement Plan?

Following these discussions, it is anticipated that the committee may decide to reassign the roles and responsibilities for implementing mitigation strategies to different town departments and/or revise the goals and objectives contained in the plan. The committee will review and update the Hazard Mitigation Plan every five years.

Public participation will be a critical component of the Hazard Mitigation Plan maintenance process. The Hazard Mitigation Committee will hold all meetings in accordance with Massachusetts open meeting laws and the public invited to attend. The public will be notified of any changes to the Plan via the meeting notices board at Town Hall, and copies of the revised Plan will be made available to the public at Town Hall.



## 7: APPENDICES

## Appendix A – Technical Resources

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### 1) Agencies

Massachusetts Emergency Management Agency (MEMA).....	508/820-2000
Hazard Mitigation Section .....	617/626-1356
Federal Emergency Management Agency (FEMA) .....	617/223-4175
Selected MA Regional Planning Commissions:	
Berkshire Regional Planning Commission (BRPC).....	413/442-1521
Franklin Regional Council of Governments (FRCOG).....	413/774-3167
Metropolitan Area Planning Council (MAPC).....	617/451-2770
Pioneer Valley Planning Commission (PVPC).....	413/781-6045
MA Board of Building Regulations & Standards (BBRS).....	617/227-1754
DCR Water Supply Protection.....	617/626-1379
DCR Waterways.....	617/626-1371
DCR Office of Dam Safety.....	508/792-7716
DFW Riverways.....	617/626-1540
MA Dept. of Housing & Community Development.....	617/573-1100
Woods Hole Oceanographic Institute.....	508/457-2180
UMass-Amherst Cooperative Extension.....	413/545-4800
National Fire Protection Association (NFPA).....	617/770-3000
New England Disaster Recovery Information X-Change (NEDRIX – an association of private companies & industries involved in disaster recovery planning).....	781/485-0279
MA Board of Library Commissioners.....	617/725-1860
MA Highway Dept, District 1.....	413/582-0599
MA Division of Marine Fisheries.....	617/626-1520
MA Division of Capital & Asset Management (DCAM).....	617/727-4050
University of Massachusetts/Amherst.....	413/545-0111
Natural Resources Conservation Services (NRCS).....	413/253-4350
MA Historical Commission.....	617/727-8470
U.S. Army Corps of Engineers.....	978/318-8502
Northeast States Emergency Consortium, Inc. (NESEC).....	781/224-9876
National Oceanic and Atmospheric Administration: National Weather Service.....	508/824-5116
US Department of the Interior: US Fish and Wildlife Service .....	413/253-8200
US Geological Survey.....	508/490-5000

## 2) Mitigation Funding Resources

404 Hazard Mitigation Grant Program (HMGP) .....	MA Emergency Management Agency
406 Public Assistance and Hazard Mitigation .....	MA Emergency Management Agency
Community Development Block Grant (CDBG).....	DHCD, also refer to RPC
Dam Safety Program.....	MA Division of Conservation and Recreation
Disaster Preparedness Improvement Grant (DPIG) .....	MA Emergency Management Agency
Emergency Generators Program by NESEC† .....	MA Emergency Management Agency
Emergency Watershed Protection (EWP) Program.....	USDA, Natural Resources Conservation
Service Flood Mitigation Assistance Program (FMAP).....	MA Emergency Management Agency
Flood Plain Management Services (FPMS).....	US Army Corps of Engineers
Mitigation Assistance Planning (MAP).....	MA Emergency Management Agency
Mutual Aid for Public Works.....	Western Massachusetts Regional Homeland Security Advisory Council
National Flood Insurance Program (NFIP) † .....	MA Emergency Management Agency
Power of Prevention Grant by NESEC† .....	MA Emergency Management Agency
Roadway Repair & Maintenance Program(s).....	Massachusetts Highway Department
Section 14 Emergency Stream Bank Erosion & Shoreline Protection .....	US Army Corps of Engineers
Section 103 Beach Erosion.....	US Army Corps of Engineers
Section 205 Flood Damage Reduction.....	US Army Corps of Engineers
Section 208 Snagging and Clearing .....	US Army Corps of Engineers
Shoreline Protection Program.....	MA Department of Conservation and Recreation
Various Forest and Lands Program(s).....	MA Department of Environmental Protection
Wetlands Programs .....	MA Department of Environmental Protection

†NESEC – Northeast States Emergency Consortium, Inc. is a 501(c)(3), not-for-profit natural disaster, multi-hazard mitigation and emergency management organization located in Wakefield, Massachusetts. Please, contact NESEC for more information.

† Note regarding National Flood Insurance Program (NFIP) and Community Rating System (CRS): The National Flood Insurance Program has developed suggested floodplain management activities for those communities who wish to more thoroughly manage or reduce the impact of flooding in their jurisdiction. Through use of a rating system (CRS rating), a community's floodplain management efforts can be evaluated for effectiveness. The rating, which indicates an above average floodplain management effort, is then factored into the premium cost for flood insurance policies sold in the community. The higher the rating achieved in that community, the greater the reduction in flood insurance premium costs for local property owners. MEMA can provide additional information regarding participation in the NFIP-CRS Program.

### 3) Internet Resources

Sponsor	Internet Address	Summary of Contents
Natural Hazards Research Center, U. of Colorado	<a href="http://www.colorado.edu/litbase/hazards/">http://www.colorado.edu/litbase/hazards/</a>	Searchable database of references and links to many disaster-related websites.
Atlantic Hurricane Tracking Data by Year	<a href="http://wxp.eas.purdue.edu/hurricane">http://wxp.eas.purdue.edu/hurricane</a>	Hurricane track maps for each year, 1886 – 1996
National Emergency Management Association	<a href="http://nemaweb.org">http://nemaweb.org</a>	Association of state emergency management directors; list of mitigation projects.
NASA – Goddard Space Flight Center “Disaster Finder:	<a href="http://www.gsfc.nasa.gov/ndrd/disaster/">http://www.gsfc.nasa.gov/ndrd/disaster/</a>	Searchable database of sites that encompass a wide range of natural disasters.
NASA Natural Disaster Reference Database	<a href="http://ltpwww.gsfc.nasa.gov/ndrd/main/html">http://ltpwww.gsfc.nasa.gov/ndrd/main/html</a>	Searchable database of worldwide natural disasters.
U.S. State & Local Gateway	<a href="http://www.statelocal.gov/">http://www.statelocal.gov/</a>	General information through the federal-state partnership.
National Weather Service	<a href="http://nws.noaa.gov/">http://nws.noaa.gov/</a>	Central page for National Weather Warnings, updated every 60 seconds.
USGS Real Time Hydrologic Data	<a href="http://h20.usgs.gov/public/realtime.html">http://h20.usgs.gov/public/realtime.html</a>	Provisional hydrological data
Dartmouth Flood Observatory	<a href="http://www.dartmouth.edu/artsci/geog/floods/">http://www.dartmouth.edu/artsci/geog/floods/</a>	Observations of flooding situations.
FEMA, National Flood Insurance Program, Community Status Book	<a href="http://www.fema.gov/fema/csb.html">http://www.fema.gov/fema/csb.html</a>	Searchable site for access of Community Status Books

Sponsor	Internet Address	Summary of Contents
Florida State University Atlantic Hurricane Site	<a href="http://www.met.fsu.edu/explores/tropical.html">http://www.met.fsu.edu/explores/tropical.html</a>	Tracking and NWS warnings for Atlantic Hurricanes and other links
The Tornado Project Online	<a href="http://www.tornadoobject.com/">http://www.tornadoobject.com/</a>	Information on tornadoes, including details of recent impacts.
National Severe Storms Laboratory	<a href="http://www.nssl.uoknor.edu/">http://www.nssl.uoknor.edu/</a>	Information about and tracking of severe storms.
Independent Insurance Agents of America IIAA Natural Disaster Risk Map	<a href="http://www.iaa.iix.com/ndcmap.html">http://www.iaa.iix.com/ndcmap.html</a>	A multi-disaster risk map.
Earth Satellite Corporation	<a href="http://www.earthsat.com/">http://www.earthsat.com/</a>	Flood risk maps searchable by state.
USDA Forest Service Web	<a href="http://www.fs.fed.us/land">http://www.fs.fed.us/land</a>	Information on forest fires and land management.

## **Appendix B – Documentation of the Planning Process**

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### **Montgomery Hazard Mitigation Committee Meeting Agenda**

**Montgomery Town Hall  
June 23, 2014, 7:00 p.m.**

1. Introductions
2. Overview of Hazard Mitigation Planning Process
  - a. Background on Hazard Mitigation Planning
  - b. Planning process and requirements
    - i. 3 committee meetings
    - ii. 2 public committee meetings
    - iii. MEMA / FEMA review
    - iv. Select Board adoption
  - c. Proposed timeline for meetings

• Committee Meeting #1	Monday, June 23
• Public Outreach Meeting #1 & Committee Meeting #2	Monday, July 7
• Committee Meeting #3	Monday, July 21
• Public Outreach Meeting #2	Monday, July 28
3. Review of Chapter 1: Planning Process
4. Review of Chapter 2: Local Profile
5. Review of Chapter 3: Hazard Identification and Risk Assessment

**Montgomery Hazard Mitigation Committee  
Meeting Agenda**

**Montgomery Town Hall  
July 7, 2014, 7:30 p.m.**

1. Review of changes from previous meeting
2. New mitigation strategies to pursue
3. Review of hazard identification and critical infrastructure map

**Montgomery Hazard Mitigation Committee  
Meeting Agenda**

**Montgomery Town Hall  
July 21, 2014, 7:00 p.m.**

1. Review of edits from last meeting
2. List of current mitigation strategies
3. Review of draft list of proposed mitigation strategies
4. Next meeting: July 28 at 7:00 p.m.



**Montgomery Hazard Mitigation Committee  
Meeting Agenda**

**Montgomery Town Hall  
July 28, 2014, 7:30 p.m.**

1. Review of prioritized list of mitigation strategies
2. Plan adoption process
3. Procedures for regular maintenance of plan



*Catalyst for Regional Progress*

**PVPC**

Timothy W. Brennan, Executive Director

## **MEDIA RELEASE**

CONTACT: Josiah Neiderbach, PVPC Planner, (413) 781-6045 or [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org)

FOR IMMEDIATE RELEASE

June, 17, 2014

### **Town of Montgomery Hazard Mitigation Plan Public Notice**

The Town of Montgomery, in conjunction with the Pioneer Valley Planning Commission, is preparing a Hazard Mitigation Plan.

This planning effort is being undertaken to help the Town of Montgomery assess the risks faced from natural hazards, identify action steps that can be taken to prevent damage to property and loss of life, and prioritize funding for mitigation efforts. A mitigation action is any action taken to reduce or eliminate the long-term risk to human life and property from hazards.

The hazard mitigation plan is being developed with funding provided by the Federal Emergency Management Agency and assistance from the Massachusetts Emergency Management Agency.

A public meeting to review the draft plan will be announced in the near future.

For more information, please contact PVPC's Josiah Neiderbach at [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org) or (413) 781-6045.



Catalyst for Regional Progress

**PVPC**

Timothy W. Brennan, Executive Director

## MEDIA RELEASE

CONTACT: Josiah Neiderbach, PVPC Planner, (413) 781-6045 or [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org)  
Jane Thielen, Town of Montgomery Administrative Secretary, (413) 862-3386 or [montgomerymass@rcn.com](mailto:montgomerymass@rcn.com)

FOR IMMEDIATE RELEASE

July 2, 2014

### **Town of Montgomery Hazard Mitigation Plan Public Engagement Event to Be Held**

Montgomery residents are invited to provide comments on the development of the Town of Montgomery's first hazard mitigation plan **Monday, July 7, 7:00 p.m.** at Town Hall, 161 Main Road. All members of the public are welcome to attend.

The meeting will include an introduction to the hazard mitigation planning process, information on the location of the Town's critical facilities, and a summary of existing mitigation initiatives. Municipal officials and Pioneer Valley Planning Commission staff will be available to answer questions and listen to comments from the public.

This planning effort is being undertaken to help the Town of Montgomery assess the risks faced from natural hazards, identify action steps that can be taken to prevent damage to property and loss of life, and prioritize funding for mitigation efforts. A mitigation action is any action taken to reduce or eliminate the long-term risk to human life and property from hazards.

The plan is being produced by the Town with assistance from the Pioneer Valley Planning Commission and is funded by the Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA).

For more information, please contact PVPC's Josiah Neiderbach at [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org) or (413) 781-6045.

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Catalyst for Regional Progress

**PVPC**

Timothy W. Brennan, Executive Director

## MEDIA RELEASE

CONTACT: Josiah Neiderbach, PVPC Planner, (413) 781-6045 or [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org)  
Jane Thielen, Town of Montgomery Administrative Secretary, (413) 862-3386 or [montgomerymass@rcn.com](mailto:montgomerymass@rcn.com)

FOR IMMEDIATE RELEASE

July 25, 2014

### **Town of Montgomery to Hold Public Engagement Event for Hazard Mitigation Plan**

Montgomery residents are invited to provide comments on a completed draft of the Town's first hazard mitigation plan on Monday, July 28, from 7:00 p.m. to 7:30 p.m. in Montgomery Town Hall, 161 Main Road. The plan was produced by the Town with assistance from the Pioneer Valley Planning Commission and is funded by the Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA). All members of the public are welcome to attend the event.

The meeting will include an introduction to the planning process, a summary of existing mitigation initiatives, and an outline of recommended strategies for addressing natural hazards in Montgomery. Municipal officials and PVPC staff will be available to answer questions and listen to comments on the draft plan, which is posted at [www.pvpc.org/plans/town-montgomery-hazard-mitigation-plan](http://www.pvpc.org/plans/town-montgomery-hazard-mitigation-plan).

This planning effort is being undertaken to help the Town of Montgomery assess the risks faced from natural hazards, identify action steps that can be taken to prevent damage to property and loss of life, and prioritize funding for mitigation efforts. A mitigation action is any action taken to reduce or eliminate the long-term risk to human life and property from hazards.

For more information, please contact PVPC's Josiah Neiderbach at [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org) or (413) 781-6045.

### Media Organizations Sent Press Releases

Media Organization	Address	Town	State	Zip Code
African American Point of View	688 Boston Road	Springfield	MA	01119
Agawam Advertiser News	23 Southwick Street	Feeding Hills	MA	01030
Amherst Bulletin	115 Conz Street	Northampton	MA	01060
Belchertown Sentinel	1 Main Street	Belchertown	MA	01007
Berkshire Eagle	75 South Church Street	Pittsfield	MA	01202
Brattleboro Reformer	62 Black Mountain Rd.	Brattleboro	VT	05301
CBS 3 Springfield	One Monarch Place	Springfield	MA	01144
Chicopee Register	380 Union Street	West Springfield	MA	01089
CommonWealth Magazine	18 Tremont Street	Boston	MA	02108
Country Journal	5 Main Street	Huntington	MA	01050
Daily Hampshire Gazette	115 Conz Street	Northampton	MA	01060
El Sol Latino	P.O. Box 572	Amherst	MA	01004
Going Green	PO Box 1367	Greenfield	MA	01302
Hilltown Families	P.O. Box 98	West Chesterfield	MA	01084
Holyoke Sun	138 College Street	South Hadley	MA	01075
Journal Register	24 Water Street	Palmer	MA	01069
La Voz Hispana	133 Maple Street #201	Springfield	MA	01105
Ludlow Register	24 Water Street	Palmer	MA	01069
Massachusetts Municipal Association	One Winthrop Street	Boston	MA	02110
Quaboag Current	80 Main Street	Ware	MA	01082
Recorder	14 Hope Street	Greenfield	MA	01302
Reminder	280 N. Main Street	East Longmeadow	MA	01028
Southwick Suffield News	23 Southwick Street	Feeding Hills	MA	01030
State House News Service	State House	Boston	MA	02133
Tantasqua Town Common	80 Main Street	Ware	MA	01082
The Longmeadow News	62 School Street	Westfield	MA	01085
The Republican	1860 Main Street	Springfield	MA	01102
The Westfield News	62 School Street	Westfield	MA	01085
Town Reminder	138 College Street	South Hadley	MA	01075
Urban Compass	83 Girard Avenue	Hartford	CT	06105
Valley Advocate	115 Conz Street	Northampton	MA	01061
Vocero Hispano	335 Chandler Street	Worcester	MA	01602

WAMC Northeast Public Radio	1215 Wilbraham Road	Springfield	MA	01119
Ware River News	80 Main Street	Ware	MA	01082
West Springfield Record	P.O. Box 357	West Springfield	MA	01098
WFCR-Public Radio	131 County Circle	Amherst	MA	01003
WGBY-Public TV	44 Hampden Street	Springfield	MA	01103
WGGB ABC40/FOX 6 News	1300 Liberty Street	Springfield	MA	01104
WHMP-FM	15 Hampton Avenue	Northampton	MA	01060
Wilbraham-Hampden Times	2341 Boston Road	Wilbraham	MA	01095
Worcester Telegram & Gazette	20 Franklin Street	Worcester	MA	01615
WRNX/WHYN/WPKR Radio	1331 Main Street	Springfield	MA	01103
WWLP-TV 22	PO Box 2210	Springfield	MA	01102

**Friday, June 27, 2014**

## **Residents invited to participate in planning process**

**By DAN MORIARTY**  
*Staff Writer*

MONTGOMERY – Town residents are invited to participate in creating a hazard mitigation plan being developed by town officials with the assistance of the Pioneer Valley Planning Commission.

Town officials recently initiated the process of developing a hazard mitigation plan to identify actions that can be taken to reduce damage caused by natural disasters. Meetings are slated to be held on three Mondays, July 7, 21 and 28 and will be held at the Montgomery Town Hall at 7 p.m.

Josiah Neiderbach of the PVPC said the adoption of the hazard mitigation plan will make the town eligible for FEMA grant funding.

"The Town of Montgomery is currently developing a hazard mitigation plan to

identify ways to prevent damage from natural hazards such as snow storms, flooding, and wildfires," Neiderbach said.

Neiderbach recently met with town officials to initiate the planning process and to form a hazard mitigation committee.

"The planning process will last a couple of weeks, pretty much through the end of July," Neiderbach said.

Those actions include something as simple as improving stormwater drainage to mitigate road damage caused by flooding, Neiderbach said. Part of the planning process is to establish priorities for mitigation action and to consider the cost of the actions.

"This planning effort is being undertaken to help the town officials and residents assess the risks faced from natural hazards, identify action steps that can be

taken to prevent damage to property and loss of life, and prioritize funding for mitigation efforts," Neiderbach said. "A mitigation action is any action taken to reduce or eliminate the long-term risk to human life and property from hazards."

The hazard mitigation plan is being developed with funding provided through the Federal Emergency Management Agency (FEMA) and with the assistance from the Massachusetts Emergency Management Agency (MEMA).

Neiderbach said the public meetings will provide residents with an introduction to the planning process, a summary of existing mitigation initiatives, and an outline of recommended strategies for addressing natural hazards. Municipal officials and PVPC staff will be available to answer questions and listen to comments on the planning process.

Friday, July 29, 2014

## Town seeks state, federal plan review

By DAN MORIARTY  
*Staff Writer*

MONTGOMERY – Town officials conducted the third public meeting last night for the development of a hazard mitigation plan seeking comment on options to reduce the damage, and possible loss of life, caused by natural disasters.

The hazard mitigation planning process was initiated in late June under a program funded by the Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA) and coordinated by the Pioneer Valley Planning Commission.

Josiah Neiderbach of the PVPC said the adoption of the hazard mitigation plan will make the town eligible for FEMA grant funding.

"The Town of Montgomery is currently developing a hazard mitigation plan to identify ways to prevent

See Federal Plan, Page 3

## Federal Plan

Continued from Page 1

damage from natural hazards such as snow storms, flooding, and wildfires," Neiderbach said as the process was put into motion.

This planning effort is being undertaken to assess the risks faced from natural hazards, identify action steps that can be taken to minimize or prevent damage to property and loss of life, and prioritize funding for mitigation efforts.

A mitigation action is any action taken to reduce or eliminate the long-term risk to human life and property from hazards.

PVPC Principal Planner for the Land Environment Section Catherine Ratte said the planning process was completed last night and the Montgomery Hazard Mitigation Plan will be submitted to MEMA for its review.

"If the plan is approved by MEMA it is then sent to FEMA for its review and approval," Ratte said. "That process could take as long as a year. Almost all of the 351 communities in the state have hazard mitigation plans which are good for five years, so there are always communities submitting updated plans for MEMA review."

After the mitigation plan has gone through the review process with MEMA and FEMA it will come back to the Montgomery Board of Selectmen for their final vote of adoption.

The draft plan is posted at [www.pvpc.org/plans/town-montgomery-hazard-mitigation-plan](http://www.pvpc.org/plans/town-montgomery-hazard-mitigation-plan).



**Montgomery Hazard Mitigation Plan  
Public Input and Workshop**

**Agenda**

**Montgomery Town Hall  
July 7, 2014, 7:00 p.m.**

1. Welcome and introductions
2. Overview of hazard mitigation planning process
3. Hazard identification and risk assessment
  - a. Types of hazards affecting Montgomery
  - b. Previous occurrences, extent, location, impact, future probability, and vulnerability of each hazard
4. Existing mitigation measures
5. Recommended new mitigation strategies or changes to existing mitigation strategies
6. Discussion
7. Next steps

**Montgomery Hazard Mitigation Plan  
Public Input and Workshop**

**Agenda**

**Montgomery Town Hall  
July 28, 2014, 7:00 p.m.**

1. Welcome and introductions
2. Overview of hazard mitigation planning process
3. Hazard identification and risk assessment
  - a. Types of hazards affecting Montgomery
  - b. Previous occurrences, extent, location, impact, future probability, and vulnerability of each hazard
4. Existing mitigation measures
5. Recommended new mitigation strategies or changes to existing mitigation strategies
6. Discussion
7. Next steps

**Montgomery Hazard Mitigation Committee Meeting**  
**Sign-In Sheet**  
**June 23, 2014, 7:00 p.m.**

Name	Position	E-mail
Daniel C. Fleishy	EMD	PIKESPEAK.SANTA@YAHOO.COM
Curtis Bush	Hwy Supt	None
Jane L. Thielen	Adm. Secretary	montgomerymass@ren.com

**Montgomery Hazard Mitigation Committee Meeting**  
**Sign-In Sheet**  
**July 7, 7:30pm, Montgomery Town Hall**

Name	Position	E-mail
Wayne L. Morse	Seatedman	teppen@verizon.net
Sal G. Bernetti	Seatedman	_____
Jane R. Thullen	Adm. Assistant	montgomerymass@ren.com
DANIEL C. FLEISH	EMD	PikePineSantos@yahoo.com

**Montgomery Hazard Mitigation Committee Meeting**  
**Sign-In Sheet**  
**July 21, 7:00 p.m., Montgomery Town Hall**

Name	Position	E-mail
Josiah Reidherd	Planner, PVPC	jreidherd@pvpc.org
Wagner L. Morse	Selectman	TENNEN@VERIZON.NET
David G. Berndt	Selectman	—
Jane R. Shilin	Adm. Assistant	montgomerymass@rcn.com
DANIEL M. FLEETS, Jr.	EMD	<del>PIKESPEAK</del> Pikespeak Santa@Yahoo.com
Curtis Bush	Hwy Supt	—

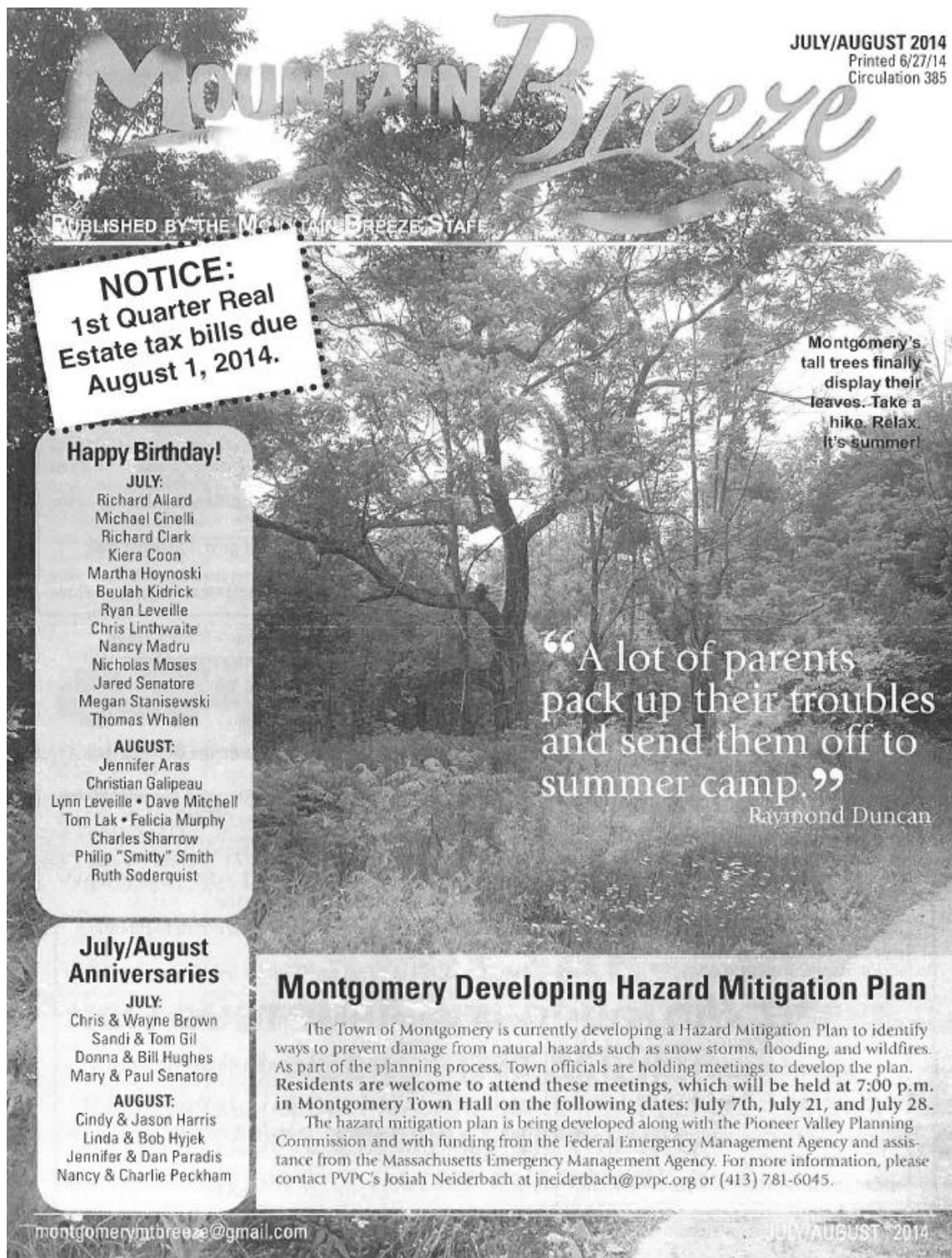
# Montgomery Hazard Mitigation Public Outreach Meeting

## Sign-In Sheet

July 28, 7:00pm, Montgomery Town Hall

// 7:10 Committee Meeting.

Name	Address	E-mail
WAYNE L MORSE	102 CARRINGTON RD	TEWNEW@Verizon.net
Jane R. Shellen	161 Main Road	montgomerymass@rcn.com
DANIEL FLECHSIG	1699 Russell Road	PIKESPEAKSANTAC@Yahoo.com
David A. Bernick	184 Carrington Rd	—



# MOUNTAIN Breeze

JULY/AUGUST 2014  
Printed 6/27/14  
Circulation 385

PUBLISHED BY THE MOUNTAIN BREEZE STAFF

**NOTICE:**  
1st Quarter Real  
Estate tax bills due  
August 1, 2014.

## Happy Birthday!

### JULY:

Richard Allard  
Michael Cinelli  
Richard Clark  
Kiera Coon  
Martha Hoynoski  
Beulah Kidrick  
Ryan Leveille  
Chris Linthwaite  
Nancy Madru  
Nicholas Moses  
Jared Senatore  
Megan Stanisewski  
Thomas Whalen

### AUGUST:

Jennifer Aras  
Christian Galipeau  
Lynn Leveille • Dave Mitchell  
Tom Lak • Felicia Murphy  
Charles Sharrow  
Philip "Smitty" Smith  
Ruth Soderquist

## July/August Anniversaries

### JULY:

Chris & Wayne Brown  
Sandi & Tom Gil  
Donna & Bill Hughes  
Mary & Paul Senatore

### AUGUST:

Cindy & Jason Harris  
Linda & Bob Hyjek  
Jennifer & Dan Paradis  
Nancy & Charlie Peckham

Montgomery's  
tall trees finally  
display their  
leaves. Take a  
hike. Relax.  
It's summer!

"A lot of parents  
pack up their troubles  
and send them off to  
summer camp."

Raymond Duncan

## Montgomery Developing Hazard Mitigation Plan

The Town of Montgomery is currently developing a Hazard Mitigation Plan to identify ways to prevent damage from natural hazards such as snow storms, flooding, and wildfires. As part of the planning process, Town officials are holding meetings to develop the plan. Residents are welcome to attend these meetings, which will be held at 7:00 p.m. in Montgomery Town Hall on the following dates: July 7th, July 21, and July 28.

The hazard mitigation plan is being developed along with the Pioneer Valley Planning Commission and with funding from the Federal Emergency Management Agency and assistance from the Massachusetts Emergency Management Agency. For more information, please contact PVPC's Josiah Neiderbach at [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org) or (413) 781-6045.

[montgomerymtbreeze@gmail.com](mailto:montgomerymtbreeze@gmail.com)

JULY/AUGUST 2014

## Notification of Draft Hazard Mitigation Plan for Public Comment on PVPC Website

/plans/town-montgomery-hazard-mitigation-plan

**PIONEER VALLEY PLANNING COMMISSION**

TRANSLATE PAGE

A+ CHANGE FONT SIZE

ABOUT

PLANNING

DOING

MEASURING





## Town of Montgomery Hazard Mitigation Plan



This draft of the Town of Montgomery Hazard Mitigation Plan was completed to help the Town of Montgomery assess the risks faced from natural hazards, identify action steps that can be taken to prevent damage to property and loss of life, and prioritize funding for mitigation efforts. A mitigation action is any action taken to reduce or eliminate the long-term risk to human life and property from hazards. The draft was produced by the Town, along with the Pioneer Valley Planning Commission, with funding provided by the Federal Emergency Management Agency and assistance from the Massachusetts Emergency Management Agency.

### Documents

**MONTGOMERY HAZARD MITIGATION PLAN**  
Montgomery Hazard Mitigation Plan 2014  
Montgomery\_HMP\_2014\_7-24-14.docx

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# Montgomery Hazard Mitigation Plan

## Public Outreach Event

July 28, 2014



## Agenda

2

- Overview of hazard mitigation
- Content of Montgomery Hazard Mitigation Plan
  - ▣ Hazard identification and risk assessment
  - ▣ Critical infrastructure
  - ▣ Existing strategies for mitigating hazards
  - ▣ Proposed strategies for mitigating hazards
- Question and comment period

## What is Hazard Mitigation?

3

According to FEMA:

“any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards such as flooding, storms, high winds, hurricanes, wildfires, earthquakes, etc.”

Natural hazard mitigation applies to events such as snow storms, flooding, earthquakes, and wildfires. Man-made hazards such as hazardous material sites are not included.

## Mitigation Versus Preparedness

4

### Mitigation Actions

Planning and zoning

Open space preservation

Public outreach projects

Drainage improvements

### Preparedness Actions

Disaster warning systems

Evacuation planning

Radio communications equipment

Emergency response drills

## Benefits of Hazard Mitigation

5

- ❑ Makes community eligible to apply for MEMA/FEMA grant opportunities for hazard mitigation projects.
- ❑ Mitigation is less expensive than disaster clean up.
- ❑ Having a plan provides an approach for using limited resources more effectively.

## Overview of a Hazard Mitigation Plan

6

Purpose of plan:

Lessen the long-term consequences of natural disasters

Key plan components:

1. Hazard identification and assessment
2. Identification of critical infrastructure
3. Existing and proposed mitigation strategies
4. Proposed schedule for implementation of strategies

## Montgomery Hazard Mitigation Committee

7

Town officials reviewed and developed the plan. Public comments received at this meeting will be incorporated into the final draft.

**Hazard Mitigation Committee members:**

- Daniel Flechsig, Emergency Management Director
- Curtis Bush, Highway Superintendent
- Jane Thielen, Town Administrative Secretary
- Wayne Morse, Board of Selectmen
- David Berndt, Board of Selectmen

The Pioneer Valley Planning Commission assisted the Town with the development of the plan, through funding from FEMA and assistance from MEMA.

## Hazard Assessment

Type of Hazard	Location of Occurrence	Probability of Future Events	Impact	Hazard Risk Index Rating
Flooding	Small	Moderate	Limited	4 – Low risk
Severe Snowstorms / Ice Storms	Large	High	Limited	3 - Medium risk
Severe Thunderstorms / Winds / Tornadoes	Small	Severe thunderstorms and wind: Moderate Tornadoes: Low	Limited	Severe thunderstorms and wind: 2 – High risk Tornadoes: 4 – Low risk
Hurricanes	Large	Low	Limited	2 - High risk
Wildfire / Brushfire	Large	Low	Critical	2 – High risk
Earthquakes	Large	Very low	Critical	4 - Low risk
Dam Failure / Levee Breach	Medium	Very low	Critical	5 - Very low risk
Drought	Large	Low	Minor	5 - Very low risk

## Existing and New Mitigation Strategies

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- Montgomery currently has a range of mitigation strategies in place.
- The Hazard Mitigation Committee evaluated each strategy in terms of its effectiveness and developed a prioritized list of new mitigation strategies.
- Public feedback is welcome regarding the list of current mitigation strategies and what strategies should be pursued in the future.

## Next Steps in Planning Process

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- Resident feedback will be incorporated into plan.
- Plan will then be submitted for review by MEMA and FEMA.
- Selectboard will adopt the plan.

## Question and Comments

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Contact information:

Josiah Neiderbach

Planner, Pioneer Valley Planning Commission

E-mail: [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org)

Phone: 413-781-6045



## **Pioneer Valley Planning Commission Regional Reporter January 2015**

Let PVPC Guide Your Community Through the Hazard Mitigation Planning Process!

Over the past 10 years, PVPC has helped 40 communities in the Pioneer Valley develop hazard mitigation plans, making them eligible for grant opportunities from the Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA).

Through the hazard mitigation planning process, communities assess their vulnerability to natural hazards, such as flooding, snowstorms, hurricanes, wildfire, and tornadoes. They also prioritize a set of mitigation strategies that will help eliminate the long-term risk to human life and property from these hazards. Common mitigation strategies that are eligible for grant funding from FEMA and MEMA include minor localized flood reduction projects, structural retrofitting of existing buildings, culvert improvements, installation of emergency backup generators, and infrastructure retrofits.

PVPC provides guidance in all aspects of the development of hazard mitigation plans, including identification and mapping of natural hazards, collaboration with municipal officials to prioritize mitigation strategies, and public outreach. PVPC can also assist communities in applying for grants to fund mitigation projects, through its Local Technical Assistance (*LTA*) program. Contact Josiah Neiderbach at [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org) to find out more.

## **Pioneer Valley Planning Commission Regional Reporter April 2013**

The Pioneer Valley Planning Commission is currently working with 23 member municipalities to create new hazard mitigation plans and update expiring plans. These plans, approved by the Federal Emergency Management Agency (FEMA), make these municipalities eligible to apply for hazard mitigation grant funds to address identified top community priorities to mitigate the long-term consequences of natural disasters.

PVPC is currently in the process of creating or updating plans for 10 communities. This includes developing new hazard mitigation plans for Granville, Longmeadow, Montgomery, Russell, and Wales, as well as updating the current plans for Agawam, Easthampton, Hampden, Southwick, and Ware.

PVPC also recently applied for funds from FEMA to create or update plans for an additional 13 communities. This includes creating new plans for Blandford and Tolland, as well as updating existing plans for Chesterfield, Hadley, Hatfield, Holyoke, Ludlow, Monson, Northampton, South Hadley, Southampton, Westhampton, and Wilbraham.

Copies of approved hazard mitigation plans are available on PVPC's website at <http://www.pvpc.org/activities/landuse-mitplans-2011.shtml>. For more information please contact PVPC's Josiah Neiderbach at (413) 781-6045 or [jneiderbach@pvpc.org](mailto:jneiderbach@pvpc.org).

**Pioneer Valley Planning Commission Regional Reporter  
December 2012**

*PVPC working with member communities to mitigate the long term consequences of natural hazards*

PVPC is working with 10 member municipalities to update and/or develop new Hazard Mitigation plans. Granville, Longmeadow, Montgomery, Russell, and Wales are all developing their first Hazard Mitigation plans; while Agawam, Easthampton, Hampden, Southwick, and Ware are working on updates.

PVPC was also engaged by the University of Massachusetts Amherst campus to write their campus Hazard Mitigation plan, and PVPC has just submitted a grant application to MEMA to update plans for Hadley, Hatfield, Holyoke, Ludlow, Monson, Northampton, South Hadley, Southampton, Westhampton, and Wilbraham.

Having a FEMA approved Hazard Mitigation plan makes each municipality eligible to apply for Hazard Mitigation grant funds to address identified top community priorities to mitigate the long-term consequences of natural disasters.

For more information, please contact Catherine Ratté at [cratte@pvpc.org](mailto:cratte@pvpc.org) or 413/781-6045.



## Appendix C – List of Acronyms

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FEMA	Federal Emergency Management Agency
MEMA	Massachusetts Emergency Management Agency
PVPC	Pioneer Valley Planning Commission
EPA	Environmental Protection Agency
DEP	Massachusetts' Department of Environmental Protection
NWS	National Weather Service
HMGP	Hazard Mitigation Grant Program
FMA	Flood Mitigation Assistance Program
SFHA	Special Flood Hazard Area
CIS	Community Information System
DCR	Massachusetts Department of Conservation and Recreation
FERC	Federal Energy Regulatory Commission
TRI	Toxics Release Inventory
FIRM	Flood Insurance Rate Map
NFIP	National Flood Insurance Program
CRS	Community Rating System
BOS	Board of Selectmen
DPW	Department of Public Works
LEPC	Local Emergency Planning Committee
EMD	Emergency Management Director
Con Com	Conservation Commission
Ag Com	Agricultural Commission
EOC	Emergency Operations Center
CEM Plan	Comprehensive Emergency Management Plan
EMA	Emergency Management Agency
RACES	Radio Amateur Civil Emergency Service
WMECO	Western Massachusetts Electric Company
HAZMAT	Hazardous Materials

## Appendix D – Past and Potential Hazards/Critical Facilities Map

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*The Commonwealth of Massachusetts*

## TOWN OF MONTGOMERY

161 Main Road, Montgomery, Massachusetts 01085

413 862-3386

413 862-3204 (Fax #)

### CERTIFICATE OF ADOPTION

Town of Montgomery, MASSACHUSETTS

BOARD OF SELECTMEN

#### A RESOLUTION ADOPTING THE TOWN OF MONTGOMERY HAZARD MITIGATION PLAN

WHEREAS, the Town of Montgomery established a Committee to prepare the Hazard Mitigation plan; and

WHEREAS, the Town of Montgomery participated in the development of the Town of Montgomery Hazard Mitigation Plan;

and WHEREAS, the Town of Montgomery Hazard Mitigation Plan contains several potential future projects to mitigate potential impacts from natural hazards in the Town of Montgomery; and

WHEREAS, a duly-noticed public meeting was held by the Board of Selectmen on 26 August 2016 for the public and municipality to review prior to consideration of this resolution; and

WHEREAS, the Town of Montgomery authorizes responsible departments and/or agencies to execute their responsibilities demonstrated in the plan, and

NOW, THEREFORE BE IT RESOLVED that the Town of Montgomery Board of Selectmen formally approves and adopts the Town of Montgomery Hazard Mitigation Plan, in accordance with M.G.L. c. 40A, § 1A.

ADOPTED AND SIGNED this 26 August 2016

*Ronald F. L...*  
*Wayne M...*

ATTEST

*Jane L. Thuler, Notary*  
9-25-2020 Expires