

**Town and Village Of Marshfield, VT
Local Hazard Mitigation Plan
Adopted November 18th, 2015
Prepared by the Town and Village of Marshfield and CVPRC**

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1. Introduction

The impact of expected, but unpredictable natural and human-caused events can be reduced through community planning. The goal of this Plan is to provide an all-hazards local mitigation strategy that makes the communities of Central Vermont more disaster resistant.

Hazard mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. Based on the results of previous Project Impact efforts, FEMA and State agencies have come to recognize that it is less expensive to prevent disasters than to repeatedly repair damage after a disaster has struck. This Plan recognizes that communities have opportunities to identify mitigation strategies and measures during all of the other phases of emergency management – preparedness, response, and recovery. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where the hazards are most severe and identify local actions that can be taken to reduce the severity of the hazard.

Hazard mitigation strategies and measures alter the hazard by eliminating or reducing the frequency of occurrence, avert the hazard by redirecting the impact by means of a structure or land treatment, adapt to the hazard by modifying structures or standards, or avoid the hazard by stopping or limiting development.

2. Purpose

The purpose of this Local Hazard Mitigation Plan is to assist the Town and Village of Marshfield in recognizing hazards facing the region and their community and identify strategies to begin reducing risks from acknowledged hazards. Throughout this document, references to “Marshfield” include both the town and village; references to the “village” refer only to the incorporated area of Marshfield Village.

Marshfield strives to be in accordance the strategies, goals and objectives of the State Hazard Mitigation Plan, including an emphasis on proactive pre-disaster flood mitigation for public infrastructure, good floodplain and river management practices, and fluvial erosion risk assessment initiatives.

The 2015 Marshfield Local Hazard Mitigation Plan is an update of the 2006 plan. The plan has been reorganized and new sections have been added regarding:

- Plan Update Process
- Plan Maintenance
- Updates of worst and moderate threat hazards
- Updates of Local Areas of Concern Map
- Status update of 2006 mitigation strategies
- Identification of new mitigation strategies

3. Community Profile

The Town and Village of Marshfield is located in Washington County in Northeastern Vermont. Although the two are separate municipalities, the two are socially, economically, and politically intertwined. Village residents are also town residents, but not all town residents are village residents. Marshfield Village is located wholly within the boundaries of the Town of Marshfield and the Village's sole responsibility is operating the Village water and wastewater systems. Throughout this document, references to "Marshfield" include both the town and village; references to the "village" refer only to the incorporated area of Marshfield Village.

Marshfield is bounded by the Towns of Plainfield, Groton, Peacham, East Montpelier, Calais, and Cabot, and contains approximately 27,904 acres, or 43.6 square miles, of land. It is about 74 percent forested, with only about 2.6 percent of its land area developed. Approximately 12 percent of Marshfield's land area is cropland, pasture, or open land and another 6 percent is formerly open land in the process of reverting to forest. Wetlands (including only those mapped by the state) and surface waters comprise about 5.4 percent of the Town's total area.

Marshfield's landscape today was created by a decline in agriculture, the return of the forests, a growth in population and the introduction of conservation zoning and land protection programs. Also significant has been the increasing conversion of the town into a bedroom community of residents who commute to employment opportunities in larger towns. This has led to the building of houses in forests and fields, fragmenting the landscape for agriculture, forestry and wildlife.

Marshfield's water resources are a large, interconnected hydrologic system of aquifers, lakes, ponds, streams, rivers (collectively known as surface waters) and wetlands. In addition, riparian areas and floodways provide protection for Marshfield's surface waters. There are approximately 12.5 miles of river on the main stem of the Winooski River as it runs thru Marshfield. The majority of stream miles are small 1-3rd order streams. There are seven named streams in Marshfield, and numerous small unnamed streams including the stream along Creamery Road. There are a number of surface waters that serve as important recreation areas in Marshfield. Swimming, boating and/or fishing are important uses of the Marshfield Reservoir, Turtlehead Pond, Bailey Pond, Kettle Pond and Peacham Pond.

According to the 2010 US Census, the Town and Village of Marshfield have a total population of 1,588 people living in 729 housing units. Marshfield has seen both its population and number of housing units grow by approximately 6% from the 2000 Census. Population projections obtained by the Central Vermont Regional Planning Commission assert that by 2020 the combined population in Marshfield will increase (14%) while the number of housing units will increase only 8%. Approximately 77.3% of Marshfield's workforce is employed outside of the community, while the remaining 22.7% are employed within the Town.

Historically in Marshfield, as in many Vermont towns, the villages have been the focal point of commerce, industry, social and civic life. Accordingly, infrastructure and population have been

concentrated in these areas. The surrounding countryside and forests supplied the raw materials (e.g., lumber, wool, grains, milk, vegetables, etc) needed by the people and industries of the villages. The village and countryside were physically distinct and served distinctly different functions. The 2010 Census population of Marshfield Village is 273 people, with a total of 118 housing units.

The past several decades have witnessed changes in the pattern of growth and development in Marshfield. The freedom and mobility afforded by private automobiles now makes it easy for those who do not work the land for their livelihood, to enjoy living in the countryside while maintaining access to the jobs and services of the cities and villages. Consequently, Marshfield has, over the past thirty or forty years, evolved into a "bedroom community" with much of its new residential growth occurring outside of the villages and away from public infrastructure. Only 6 housing units were added between 2000 and 2010 in the Village versus 43 new units town-wide (Census). This new growth pattern could ultimately result in a loss of rural character, less vibrant villages, the waste and/or destruction of natural resources, and greater public costs.

Marshfield residents along the Route 2 corridor receive their power from Green Mountain Power Corporation (GMP), while those in the hills are supplied by the Washington Electric Cooperative (WEC). GMP is the region's largest utility. WEC is a member-owned utility managed by an elected, nine-member board. GMP operates a 5 mw hydroelectric station located on the Cabot Road.

There is a public water supply for the Village of Marshfield. The public water supply for the Village emanates from a groundwater spring off Folsom Hill Road, not from a surface water (see subsection on Groundwater for protections for springs and groundwater). The Village recently transferred to this spring at the urging of the federal Environmental Protection Agency (EPA). When the Village went to bring the spring on line in 2001, it was discovered that the spring water had elevated levels of naturally occurring uranium. To address this issue, the Village extracts the uranium from the spring and then discharges the rinse water into a permitted septic system. There is also a public water supply for Twinfield Union School. While the Village of Marshfield has a public water supply that serves the village residents, the majority of Marshfield residents are served by private wells that tap groundwater.

The Marshfield Wastewater Treatment Facility, located near the Schoolhouse Common, serves over 100 residences, 5 commercial establishments, and 6 "other" users in the Village of Marshfield. It has a design capacity of .45 mgd (million gallons per day), an average daily flow of .214 mgd, a committed reserve of .018 mgd, and an uncommitted reserve of .218 mgd. With an uncommitted reserve exceeding its current flow, the system appears to have the capacity to accommodate a significant amount of new development.

The Village system operates under a permit from the State of Vermont. Effluent is monitored daily to ensure that discharges are within allowed limits. According to Village ordinance, no on-site septic systems are allowed within the Village limits. Due to current state law, any new

connection or any increase in use (such as adding a bedroom or an apartment) must be approved by the Village and also requires a State permit. A schedule of user rates and connection fees is available from the Village Clerk.

In 2010 and 2011, sludge was removed from the two lagoons and, because it contained uranium that had been captured from the new Village water system during the years 2001-2003, was disposed of at a lined landfill. The cost of this procedure was approximately \$74,000. Sludge from the next cleanout, scheduled for approximately 2020, may be disposed of by land application depending on laws and policies in effect at that time. About 5.1 dry ton are produced each year.

The Plainfield Sewage Treatment Facility serves users within the Town of Marshfield. It has a design capacity of 1.0 mgd, an average daily flow of .776 mgd. With an uncommitted reserve of .0224 mgd, the system has the potential to accommodate some new growth. However, currently no new connections are available for the Marshfield properties serviced by the Plainfield sewer system due to a lack of an intra-municipal agreement for such connections to occur.

The Fire Department celebrated its 100th anniversary in 2009. In 2010, the Department responded to 77 calls, with the majority (25) being motor vehicle accidents. The Fire Department has one pumper (1991) and one tanker (1996). The fire-fighters are volunteers, with mutual aid among the towns of Cabot, Plainfield, Walden and East Montpelier. Ambulance service is provided by Cabot Emergency Ambulance Service and the Plainfield FAST squad. The service also responds to calls from Cabot, Walden and Plainfield. East Montpelier Ambulance Service provides backup.

Marshfield is now part of the Statewide E-911 program. All roads have received official names and all residences a number to allow emergency service providers to find callers even if they are unable to give their location. The state police are also relied upon to provide services and Washington County sheriffs provide speed control on Route 2.

The Town of Marshfield has an approved Basic Emergency Operations Plan updated in 2013. The Twinfield Union School, Old Schoolhouse and Masonic Lodge serve as the Town's emergency shelters and the Town Garage is the Emergency Operations Center.

The Town Plan was adopted in 2012 and includes a discussion and goals in regards to surface waters, wetlands, flood hazard and riparian areas, groundwater, land use, sewage treatment, water supply, health and emergency services, and community services. The 2007 Land Use & Development Regulations, amended by Town Vote in 2007, 2009, and 2010, include a Forestry and Conservation District, Water Conservation Overlay District, Flood Hazard District and standards in regards to steep slopes. Planning, zoning and emergency management functions in the Town of Marshfield also have jurisdiction over Marshfield Village.

4. Planning Process and Maintenance

4.1 Planning Process

Village residents are also town residents, but not all town residents are village residents. Throughout this document, references to “Marshfield” include both the town and village; references to the “village” refer only to the incorporated area of Marshfield Village. Unless otherwise specifically stated as Town or Village, “Marshfield” refers to the entire planning area.

The Central Vermont Regional Planning Commission (CVRPC) coordinated the Marshfield Local Hazard Mitigation Plan process. CVRPC contacted the Town Clerk and Regional Commissioner and sent planning area-specific hazard mitigation material for review. Announcement of the upcoming Hazard Mitigation Planning effort was made at the May 7, 2013 Selectboard meeting. After assessing the material, Select Board members, the Town Clerk, Road Foreman, Fire and Ambulance personnel and CVRPC staff held a publicly-posted meeting on June 25, 2013 at the Municipal Offices (see attachments). The Marshfield Hazard Mitigation Meeting focused on reviewing a draft plan based on previously gathered materials, assessing past mitigation projects and compiling information on its current and future hazard mitigation programs, projects and activities. For the next update, a committee will be formed in a similar manner with members from the Planning Commission and Village Board of Trustees.

Preparation for the meeting included a review of the Marshfield Town Plan (Town and Village), Marshfield Basic Emergency Operations Plan (Town and Village), 2012 Town Report (Town and Village), and the Upper Winooski River Corridor Plan for the Town of Marshfield (2008, Town and Village). Information from these documents is incorporated into various sections of this plan.

Attendees included:

- John Warshow, Selectboard Chair (Town)
- Chris Martin, Selectboard (Town)
- Bobbi Brimblecombe, Town Clerk
- Tim Maclay, Deputy Fire Chief (serves Town and Village)
- Will Schwarz, 1st Asst. Med Chief (serves Town and Village)
- Tim Morris, 2nd Asst. Fire Chief (serves Town and Village)
- Dan Tetreault, Road Foreman (serves Town and Village)
- Kim McKee, CVRPC

The meeting indicated that the Town and Village are most vulnerable to dam failure, flood/flash flood/fluvial erosion, extreme cold/winter storm/ice storm, and power outage/failure. Moderate threat hazards include high wind and transport/accident. Previously identified hazards include flash flood, power shortage/failures, and highway/transport accidents. Though the previous 2006 Annex to Central Vermont Regional Pre-Disaster Mitigation Plan placed highest priority on mitigation actions related to power outage/failures and installation of emergency generators, Marshfield is now focusing on flooding hazards as high priority as these events are the most common and most destructive.

Announcement of the Marshfield Hazard Mitigation planning effort was circulated in July 2013 CVRPC staff reports which are distributed via email to Commissioners from all 23 communities and was posted on the CVRPC web site prior to the July 9, 2014 Commission meeting. A revised draft was circulated to Marshfield Hazard Mitigation Planning meeting attendees and no additional comments or inquiries were received by CVRPC or Marshfield Staff. A separate, publicly-warned review meeting with the Village Trustees and CVRPC occurred on 3/25/2015 to go over the draft plan and receive input from additional members of the Village Trustees. After a final review of the plan on 4/22/2015, the Village Trustees indicated their willingness to adopt the plan pending FEMA approval. Minutes from this meeting are attached.

Public comments submitted, in the future, will be reviewed by the Town Clerk (and CVRPC Staff dependant on funding) and attached as an appendix. In the future, the draft plan will be made available during Town Meeting Day and local meetings with State and local officials to allow for more public comment and review. After Approval Pending Adoption, the plan will go before the Select Board and Village Board of Trustees for adoption.

This Marshfield Local Mitigation Plan will be submitted as a multi-jurisdictional plan for the Town and Village of Marshfield.

4.2 Plan Update Process

The Marshfield Local Hazard Mitigation Plan was originally adopted by the Town as an Annex to the Central Vermont Regional Pre-Disaster Mitigation Plan in 2006 and received FEMA final approval in 2006. The 2015 update is intended to be submitted as a standalone Town and Village Local Hazard Mitigation Plan.

The current plan is an overhaul of the 2006 plan. Below is a list of the revisions that have been made from the past plan and the appropriate sections for reference. New hazards identified include dam release and high wind.

General Updates

- General reorganization/restructuring of the plan according to future FEMA/VEM checklist
 - New sections added – 4.2 Plan Update Process, 4.3 Plan Maintenance, 5.2 Worst Threat Hazards, 5.3 Moderate Threat Hazards
- Update of all data and statistics using 2012 Town Report and US Census Data (Section 3)
- Revaluation, identification and analysis of all significant hazards (Section 5)
- Acknowledgment of implemented mitigation strategies since 2006 – see matrix below (section 4.2)
- Identification of on-going mitigation projects and strategies – see Existing Mitigation Programs, Projects and Activities section (section 4.2)

Hazard Analysis Updates (Sections 5 and 6)

- New hazards added – dam release and high wind
- Added location/vulnerability/extent/impact/likelihood table for each hazard to summarize hazard description (Section 5.1-5.3 – after each hazard)
- Review of Vermont Hazard Mitigation Plan (Section 5 – hazard analysis table)

Maps

- Review of 2006 Areas of Concern map and Local Hazards Analysis map – added Rt 2 culvert (C83)

The following chart provides an overview of Marshfield's proposed 2006 hazard mitigation actions along with their current status.

| Mitigation Action | 2013 Status |
|--|--|
| Reinstitute fire safety education programs at the Twinfield Union School | <ul style="list-style-type: none">• Reinstated in 2006 and also instituted at the Christ Covenant School |
| Install and wire town emergency shelter (Twinfield Union School) with permanent generators | <ul style="list-style-type: none">• Not installed, lack of funding |
| Install and wire town emergency operations center (Marshfield Town Garage) with permanent generators | <ul style="list-style-type: none">• Permanent generators installed at Town Garage and Fire Department |
| Update Y2K Vulnerable Population Survey | <ul style="list-style-type: none">• Need to update/fill in vulnerable population section of Basic Emergency Operations Plan;• Potential to partner with Council on Aging and Senior Center to populate this list, can also put notice in Town Reports, newsletters, Front Porch Forum |
| Reconstruct or relocate dangerous sections of US Route 2 that have a higher frequency of accidents and threaten to release hazardous materials into the Town | <ul style="list-style-type: none">• US Route 2 has been rebuilt and repaved through the Town of Marshfield, relocated in section near dam |
| Install a flash flood warning system | <ul style="list-style-type: none">• Manually operated siren installed at Fire Dept., improved communication plan in place with Green Mountain Power in regards to dam |

Existing Programs, Projects & Activities

The Town and Village of Marshfield share mitigation programs, projects and activities. The ongoing or recently completed programs, projects and activities are listed by mitigation strategy and were reviewed for the development of the plan. The 2012 Town Plan, 2012 Town Report, 2005 Land Use regulations, CVRPC's past Regional Mitigation Plan (2005), local Basic Emergency Operations Plan (2013), and past newspaper articles were reviewed for pertinent information. Information from these sources is incorporated into appropriate sections of the plan.

Community Preparedness Activities

- Current Basic Emergency Operations Plan – 2013
- Y2K Vulnerable Population Survey – 1999
- Marshfield Dam Hazard Evacuation Plan – 2011

Hazard Control & Protective Works

- Maintenance Programs (Culvert Survey & Replacement)
- Participant in the Capital Mutual Aid System
- Auto Response Arrangement with Cabot and Plainfield

Insurance Programs

- Participation in the National Flood Insurance Program (NFIP) since 1975

Land use Planning/Management

- Steep Slope Standards
 - Section 303 – No land development is allowed on slopes greater than 25%. A conditional use permit is required from the Development Review Board for land development on slopes between 15% and 25%. The application of slope criteria is limited to the area of the parcel where the proposed development and use activities will occur.
- Forestry and Conservation District
 - Section 430 – Includes all of the land in the Town of Marshfield that is not included in other districts. Where Forestry and Conservation District boundaries are uniformly setback from the existing Town Roads, the setback shall be 600 feet from the public road. The district is a largely unsettled part of Marshfield outside those areas that have traditionally served for residential and agricultural uses.
- Water Conservation Overlay District
 - Section 450 – Includes all lands along all streams (as defined in this ordinance) that are within 75 ft horizontal distance measured from the top of slope, where the channel runs adjacent to a valley wall or high

terrace, or top of bank, where the channel has access to its floodplain, or within 125 ft of these waters if the slopes of the water or area to be developed is 15 degrees or more. The District also includes all lands along ponds over 5 acres in size that are within 75 ft horizontal distance measured from the mean water level, or within 125 ft of these waters if the slopes of the water or area to be developed is 15 degrees or more. No land development and no clearing of land is permitted except for certain activities listed.

- Flood Hazard District
 - Section 440 - Limits construction of structures in floodplain areas designated within the Flood Insurance Rate Map for Marshfield.

Protection/Retrofit of Infrastructure and Critical Facilities

- Dry Fire Hydrant Program
- Back-up generators at the Town's Emergency Operations Center and Fire Dept.

Public Awareness, Training & Education

- Fire Prevention Week

4.3 Plan Maintenance

The Marshfield Local Hazard Mitigation Plan will be updated and evaluated annually at an April Select Board meeting along with the review of the Basic Emergency Operations Plan. Updates and evaluation by the Select Board will also occur within three months after every federal disaster declaration and as updates to town plan/zoning and river corridor plans come into effect. The plan will be reviewed by the Select Board, representative(s) of the Village Trustees, Town Clerk and public at the above mentioned April Select Board meeting. CVRPC will help with updates or if no funding is available, the Town Clerk and Select Board will update the plan.

The process of evaluating and updating the plan will include continued public participation through public notices posted on the municipal website, notice in the municipal building, Front Porch Forum, and CVRPC newsletter and blog inviting the public to the scheduled Select Board (or specially scheduled) meeting. Also invited in the future will be the VT Agency of Natural Resources (VT ANR), as they are able to provide assistance with NFIP outreach activities, models for stricter floodplain zoning regulations, delineation of fluvial erosion hazard areas, and other applicable initiatives. These efforts will be coordinated by the Town Clerk.

Monitoring of plan progress, implementation, and the 5 year update process will be undertaken by the Town Clerk and Planning Commission. Monitoring updates may include changes in community mitigation strategies; new town bylaws, zoning and planning strategies; progress of implementation of initiatives and projects; effectiveness of implemented projects or initiatives;

and evaluation of challenges and opportunities. The plan is to be a “living document” to allow for new actions to be identified in the five year interim period and amended without formal re-adoption during regularly scheduled Select Board meetings. Prior to the end of the five year period, the plan will be undergoing a formal update and submitted to FEMA for re-adoption following the process outlined in the schematic found in the Attachments section.

Marshfield shall also incorporate mitigation planning into their long term land use and development planning documents. It is recommended the Town and Village review and incorporate elements of the Local Hazard Mitigation Plan when updating the municipal plan, zoning regulations, and flood hazard/FEH bylaws. The incorporation of the Local Hazard Mitigation Plan into the municipal plan, zoning regulations and flood hazard/FEH bylaws will also be considered after declared or local disasters. The Town and Village shall also consider reviewing future Upper Winooski Corridor planning documents for ideas on future mitigation projects and hazard areas.

5. Community Vulnerability by Hazard

5.1 Hazard Identification

Vulnerability to hazards is dictated by the likelihood of the event occurring and the value, monetary or otherwise, of the community assets at risk. Patterns of vulnerability do not change a great deal over time in Marshfield and the Village. As described in the Community Profile, development occurs at a slow pace in Marshfield, and little has occurred in the last 5 years, especially in the Village. Addition or modification of community assets happens at a very small scale, although community awareness of potential threats does change with certain events, as is the case with the Marshfield Dam described below.

The natural disasters in the following table were discussed and the worst threat hazards were identified based upon the likelihood of the event and the community’s vulnerability to the event. Overall community vulnerability includes consideration of vulnerability of the Village, where density of population and valuable property and infrastructure is higher than other parts of town. Hazards not identified as a “worst threat” may still occur. Greater explanations and mitigation strategies of moderate threat hazards can be found in the State of Vermont’s Hazard Mitigation Plan.

| Hazard | Likelihood ¹ | Community Vulnerability ² | Worst Threat |
|-------------------------------------|-------------------------|--------------------------------------|--------------|
| Landslide | Low | N | |
| Dam Failures | Low | Y | √ |
| Drought | Low | N | |
| Earthquake | Low | N | |
| Extreme Cold/Winter Storm/Ice Storm | High | Y | √ |
| Flash Flood/Flood/Fluvial Erosion | High | Y | √ |
| High Wind | Med | N | |
| Ice Jam | Low | N | |
| Hurricane/Severe Storms | Low | N | |
| Structure Fire | Low | N | |
| Tornado | Low | N | |
| Water Supply Contamination | Low | N | |
| Transport/Accident | Med | N | |
| Wildfire/Forest Fire | Low | N | |

The Town and Village of Marshfield identified the following disasters as presenting the worst threat to the community:

- Flooding/Flash Flooding/Fluvial Erosion
- Dam Failure
- Extreme Cold/Winter Storm/Ice Storm

The Town and Village of Marshfield are interested in focusing a majority of mitigation efforts into reducing impacts from flooding, as the events occur most frequently, severely and cause the most damage to public and private infrastructure.

Moderate threat hazards include:

- High Wind
- Transport/Accident

¹ High likelihood of happening: Near 100% probability in the next year.

Medium likelihood of happening: 10% to 100% probability in the next year or at least once in the next 10 years.

Low likelihood of happening: 1% to 10% probability in the next year or at least once in the next 100 years.

² Does the hazard present the threat of disaster (Yes)? Or is it just a routine emergency (No)?

A discussion of each worst and moderate hazard is included in the proceeding subsections and a map identifying the location of each hazard is attached (See map titled *Areas of Local Concern*.) Each subsection includes a list of past occurrences based upon County-wide FEMA Disaster Declarations (DR-#) plus information from local records, a narrative description of the hazard and a hazard matrix containing the following overview information:

| Hazard | Location | Vulnerability | Extent | Impact | Probability |
|----------------|--|------------------------------|---|--|--|
| Type of hazard | General areas within municipality which are vulnerable to the identified hazard. | Types of structures impacted | Magnitude of hazard – scale dependant on hazard | Dollar value or percentage of damages. | <u>High</u> : 10% to 100% probability within the next year or at least once in the next 10 years. <u>Medium</u> : less than 10% to 100% probability within the within the next year or less than once in the next 10 years. |

5.2 Worst Threat Hazards

Flood/Flash Flood/Fluvial Erosion

History of Occurrences (from NCDC website and FEMA DR list) within Central Vermont – Town-specific data not available.

| Date | Event | Location | Extent |
|---------------|------------------------|-----------------------------|--|
| 11/08/2011 | Flood/Severe Storms | County Wide | DR 4043 |
| 8/28/2011 | Flash Flood (TS Irene) | County Wide | Winooski River crested at 19.05 feet in Montpelier– flood stage is at 15'; 5-7" of rain -DR 4022 |
| 5/26/2011 | Flash Flood | Marshfield, County Wide | 4" of rain; Montpelier gauge at 17.59' – DR4001 |
| 4/23-5/9/2011 | Flash Flood | County Wide | DR 1995 |
| 8/2/2008 | Flash Flood | County Wide | Not a historical crest; data gap |
| 7/11/2007 | Flash Flood | Northeast Washington County | 3-6" of rain in 2 hrs – DR 1715, not a historical crest |
| 6/26/2006 | Flood | County Wide | 3-4" of rain, not a historical crest |
| 9/16/1999 | Tropical Storm Floyd | County Wide | Montpelier flood gauge at 9.30 feet, 5-7" rain county wide DR 1307 |

| | | | |
|--------------|---------------------|-------------------------|--|
| 6/27/1998 | Flash Flood | County Wide | 3-6" of rain over 2 day period - DR 1228, not a historical crest |
| 6/6-6/8/1984 | Flood/Severe Storms | Marshfield, County Wide | DR-712, Town Hall flooded |
| 8/5/1976 | Flood | County Wide | Montpelier flood gauge at 12.31 feet – DR 518 |
| 6/30/1973 | Flood | County Wide | Montpelier gauge at 17.55 ft DR 397 |
| 9/22/1938 | Flood/Hurricane | County Wide | Montpelier flood gauge at 14.11 feet |
| 11/03/1927 | Flood | County Wide | Montpelier flood gauge at 27.10 feet |

The principle body of water within Marshfield is the Winooski River, the second largest river in Vermont. Within Marshfield, the River flows from the Cabot town line along Vermont Route 215 until Marshfield Village, where it converges with Molly's Brook and Creamery Brook. At this point, the River flows southwest through the Town along Route 2 and leaves the Town at the Plainfield Town line.

A large portion of Marshfield Village is located within the National Flood Insurance Program's designated 100-year floodplain, and additional structures outside of the Village are also vulnerable. Based on the results of overlaying the 2013 FIRM flood maps with the location of the E911 points, there exist 28 structures in the Village vulnerable to flooding. These include the Town Garage and Town Offices. Along with structures outside the Village, a total of 50 buildings in Marshfield are in the Special Flood Hazard Area. A similar overlay exercise with the Fluvial Erosion Hazard Areas shows that 83 buildings town-wide and 50 buildings in the Village are vulnerable to fluvial erosion hazards (2014 e911 Data).

The estimated loss for a severe flooding event for all properties located within the Town's 100-year floodplain is approximately \$35,815,000 (2008 Grand List data). This flood loss potential represents 34.8% of the total value of properties within Marshfield. Approximately \$8 million of this value is within the limits of Marshfield Village. There are currently 12 flood insurance policies in Marshfield covering \$1,161,603 in property value. Only 9 of these are identified as being in a flood hazard area (Zone A). As such only 23 percent of the structures at risk are carrying flood insurance. There are no repetitive loss properties located in Marshfield.

In 2011, two widespread floods caused significant damage to most of Marshfield's roads and infrastructure. During the May 2011 flooding event, washouts occurred on numerous back roads and near the town garage - totaling over \$750,000 in damage to public roads. During Tropical Storm Irene in August 2011, road damage was to a lesser extent but dam failure and subsequent downstream flooding was a great concern as Green Mountain Power considered an

emergency release to prevent a collapse of the Marshfield Dam. FEMA administered \$115,515 in Irene Relief and Recovery funds to the residents and the Town of Marshfield (see Table 1).

| Program | Subtotal | Total |
|------------------------------------|----------|-----------|
| Individuals and Households Program | | \$58,026 |
| Housing Assistance | \$52,761 | |
| Other Needs | \$5,265 | |
| Public Assistance | | \$57,489 |
| Hazard Mitigation Grant Program | | \$0 |
| Total | | \$115,515 |

Table 1. Marshfield: FEMA Irene Relief & Recover Funds

As previous events have made clear, even areas beyond the NFIP designated

100-year floodplain may be vulnerable to flood related hazards. Channel adjustments with devastating consequences have frequently been documented wherein such adjustments are linked to historical channel management activities, floodplain encroachments, adjacent land use practices and/or changes in watershed hydrology associated with conversion of land cover and drainage activities, within and beyond the NFIP floodplain. The attached Areas of Local Concern Map identifies the Fire Station, as well as other government buildings, as outside the designated floodplain, but near the river.

Bridges and roads are particularly susceptible to damage in the event of a flood related event. The Areas of Local Concern Map (attached) identifies one bridge that has been washed out in recent memory, the Potter Bridge on Holt Road, near the intersection of Laird Pond Road. Roads that have been susceptible to washouts are Lower Depot Road, Beaver Meadow Road, Pike Road, and Ennis Road at the intersection of Calais Road.

The 2012 Town Plan recognizes the importance of respecting flood hazard and riparian areas, indicating that Marshfield has recently updated its bylaws that protect flood hazard and riparian areas. In 2008, the Town approved substantial changes to Flood Hazard District (previously titled the Floodplain and Water Conservation District) regulations in order to bring the regulations into conformance with FEMA minimum standards. In 2009, additional minor amendments were approved to ensure compliance with the Federal Emergency Management Agency (FEMA) minimum standards. This is required by FEMA in order to make flood insurance available to the residents of Marshfield.

In 2008, the Town also approved creating a Watercourse Conservation District that restricted development activities near streams and lakes. Previously, these restrictions were contained within the Floodplain and Water Conservation District regulations. Creation of a separate overlay district helped clarify the regulations. Currently no development is allowed within certain setbacks from streams and lakes. The 2008 amendment also allowed for some minor activities to occur within the setback areas.

| Hazard | Location | Vulnerability | Extent | Impact | Probability |
|--|--|--|---------------|--|-------------|
| <i>Flood/Flash Flood/Fluvial Erosion</i> | <i>Town-wide impacts; Town Office and residential structures in the floodplain</i> | <i>Culverts, bridges, roads, residences and wells, special needs residents</i> | <i>Severe</i> | <i>May 2011 damages to public infrastructure (roads) exceeded \$750,000; additional economic impacts</i> | <i>High</i> |

Dam Failure

Although spring snowmelt, ice-jams, and heavy downpours represent the most common flood events, dam failure was of significant concern during the Marshfield LHMP update meeting. The Marshfield Dam is a Green Mountain Power owned and operated hydroelectric dam located on the Marshfield Reservoir (Molly's Falls Pond). The Dam and Pond are located just over and up-gradient of the Marshfield town line. The Marshfield Dam's flood retention capacity was challenged during the winter of 2002 by above average spring rains and snow melt, as well as an inoperable outflow. The outflow was fixed without incident by mid-spring. Since this event, the Dam's outflow has been returned to historic levels. Two of the Village's 4 bridges that are located downstream of the dam were built prior to the construction of the Dam, while the remaining two were constructed no more than three years after. It is assumed that all of these bridges were built to withstand the historic water flow.

During Tropical Storm Irene in August 2011, Green Mountain Power announced that it might have to release water from the Marshfield Dam into the Winooski in order to prevent a collapse of the earthen structure. 350 homes downstream of the dam in Marshfield, Montpelier and East Montpelier, Plainfield and Groton were evacuated. One hundred and three of these homes are in Marshfield and 48 are in Marshfield Village. A dam failure would have caused more damage than the release of water. Plant staffers removed one of the emergency stop logs, adding marginally to the spillover but not enough to add to flooding problems downstream, and far short of the maximum possible release.

Green Mountain Power presented the Town with a revised emergency plan for the Marshfield Dam in December 2011, marking color-coded areas that outline how much additional flooding would occur as pent-up water is released into the Winooski River from the dam during a weather emergency, such as a storm or hurricane. The water would be released through the main spillway or emergency spillway, both of which flow into the Winooski.

Though maximum release proved unnecessary in August 2011, Town Officials expressed concern over transportation infrastructure located downstream of the release, a culvert supporting Rt 2 in particular (C83 - see Local Areas of Concern Map). Table 2 documents flows for the service spillway (2,140 cfs) and emergency spillway (4,580 cfs) for the Marshfield Dam (Green Mountain Power).

Table 2

| Cross Section 2 - Porter Rd. Bridge | Baseline Flood | Service Spillway | Emergency Spillway |
|---------------------------------------|----------------|------------------|--------------------|
| 0.8 Miles Below Dam | | | |
| Water Surface Elev. (ft.): | 1,097.8 | 1,102.3 | 1,103.4 |
| Rise Over Baseline Flood Elev. (ft.): | -- | 4.5 | 5.6 |
| Flow (cfs): | 640 | 2,140 | 4,580 |
| Time of Arrival (hr:min): | -- | 0:00 | 0:00 |

Table 3 documents overtopping flow estimates for the bridge/culvert locations that are located downstream of the Marshfield Dam. The Gilman St. and School Rd. culverts are located in Marshfield Village. The overtopping flow estimate for structure C83 (Route 2) is 1,500 cfs, or 32.8% of the emergency spillway flow in the event of release.

Table 3. Inclusion or Exclusion of Bridges within Model

| BRIDGE/ROAD NAME | TOWN, STATE | STATUS IN MODEL | OVERTOPPING FLOW ESTIMATE (CFS) | REASON FOR EXCLUSION/ALTERNATION |
|--------------------------------------|----------------|-----------------|---------------------------------|----------------------------------|
| PORTER RD. | Marshfield, VT | Included | 750 | |
| HWY 232 (NEW DISCOVERY RD.) | Marshfield, VT | Included | 600 | |
| ROUTE 2 | Marshfield, VT | Included | 1,500 | |
| ROUTE 2 | Marshfield, VT | Included | 9,000 (approx. 500-yr.) | |
| GILMAN ST. | Marshfield, VT | Included | >12,000 (>500-yr.) | |
| SCHOOL RD. | Marshfield, VT | Included | 8,000 (> 100-yr.) | |
| SASS AVE. | Marshfield, VT | Included | 4,000 (approx. 10-yr.) | |
| PATTY'S CROSSING | Marshfield, VT | Included | 4,000 (approx. 10-yr.) | |
| CASSADY RD. | Marshfield, VT | Included | 8,000 (> 100-yr.) | |
| NAISMITH BROOK RD. | Marshfield, VT | Included | 15,000 (approx. 500-yr.) | |
| ONION RIVER CAMPGROUND (TOWN RD. 57) | Marshfield, VT | Included | 9,000 (> 50-yr.) | |
| JOHN FOWLER RD. | Marshfield, VT | Included | 6,000 (> 10-yr.) | |

| Hazard | Location | Vulnerability | Extent | Impact | Probability |
|-------------|--|---|--------|--|-------------|
| Dam Failure | Area downstream from Marshfield Dam; Town Office, sewerplant | Culvert at intersection of Rt 2/Rt 232; 30% of residences in Marshfield | Severe | \$10 million, if damage to sewer plant | Low |

Extreme Cold/Winter Storm/Ice Storm

Snow and/or ice events occur on a regular basis. Recent significant events have included (from NCDC website and FEMA DR List):

| Date | Event | Location | Extent |
|------------|--------------|-------------------------|---|
| 3/12/2014 | Winter Storm | Marshfield, County wide | 12-20" of snow |
| 3/19/2013 | Winter Storm | Marshfield, County wide | 6-14" of snow |
| 12/26/2012 | Winter Storm | Marshfield, County wide | 9-18" of snow |
| 2/24/2012 | Winter Storm | Marshfield, County wide | Total storm snowfall accumulations ranged from 3-36" across Washington County |
| 11/23/2011 | Winter Storm | Marshfield, County wide | 5-12" of heavy, wet snow mixed with rain and sleet |
| 3/6/2011 | Winter storm | Marshfield, County wide | 12-18" of snow, 10,000 customers lost power statewide |
| 2/23/2010 | Winter Storm | Marshfield, County wide | 20" of snow and 50,000 customers lost power statewide |
| 2/22/2009 | Winter Storm | Marshfield, County wide | 16" of snow, 30 mph wind gusts |
| 2/1/2008 | Winter storm | Marshfield, County wide | 3-7" of snow and ice ¼-1/2" thick, 50 mph wind gusts |
| 2/14/2007 | Winter storm | Marshfield, County wide | 22" of snow |
| 2/14/2006 | Winter storm | Marshfield, County wide | 30" of snow |
| 1/4/2003 | Winter storm | Marshfield, County wide | 19" of snow |
| 3/5/2001 | Winter storm | Marshfield, County wide | 15-30" of snow |
| 12/31/2000 | Winter storm | Marshfield, County wide | 10" of snow |
| 1/15/1998 | Winter storm | Marshfield, County wide | 10-12" snow (not a DR in Washington County) |
| 12/29/1997 | Winter storm | Marshfield, County wide | 21" of snow |
| 12/7/1996 | Winter Storm | Marshfield, County wide | 12" of snow |
| 3/21/1994 | Winter storm | Marshfield, County wide | 5-11" of snow |

| | | | |
|-----------|---------------|-------------------------|----------------------|
| 11/1/1993 | Winter storm | Marshfield, County wide | 15" of snow |
| 1/3/1993 | Freezing Rain | Marshfield, County wide | ¼-1/2" freezing rain |

A winter storm is defined as a storm that generates sufficient quantities of snow, ice or sleet to result in hazardous conditions and/or property damage. Ice storms are sometimes incorrectly referred to as sleet storms. Sleet is similar to hail only smaller and can be easily identified as frozen rain drops (ice pellets) that bounce when hitting the ground or other objects. Sleet does not stick to wires or trees, but in sufficient depth, can cause hazardous driving conditions. Ice storms are the result of cold rain that freezes on contact with the surfaces coating the ground, trees, buildings, overhead wires and other exposed objects with ice, sometimes causing extensive damage. Periods of extreme cold tend to occur with these events.

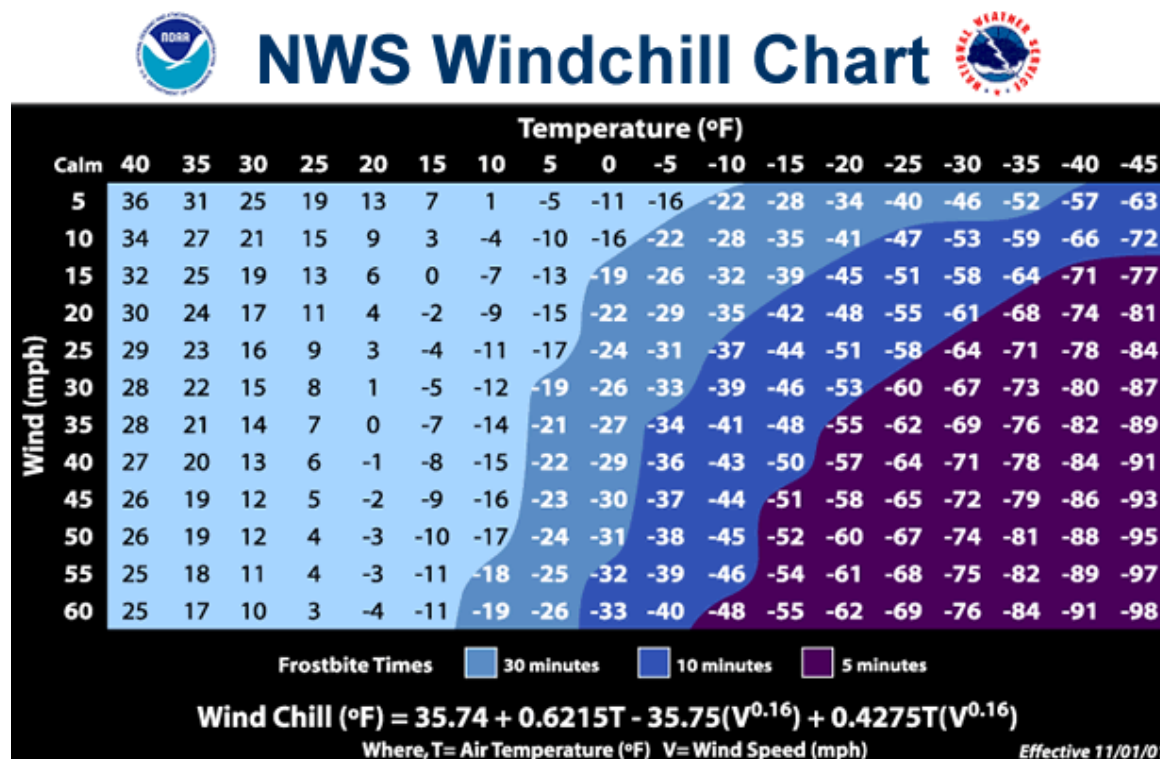
The physical impacts of winter storms are town wide due to the expansive nature of winter storms. Vulnerability in the Village is somewhat diminished as roadways are readily cleared from the Town Garage, power lines are less likely to be downed by trees and neighbors and emergency services are readily accessible. Based on past occurrences, the worst anticipated winter weather Marshfield could experience would be 2-3' in 24 hrs of snow with more at higher elevations and several days of power outages. Using the wind chill scale and historical information, the estimate for extreme cold is a – 60 degrees Fahrenheit. The worst recent storm was in March 2011 and after that the Blizzard of 1888. Scales to measure the extent of winter storms are:

Heavy snowfall – Marshfield is significantly affected when they experience an accumulation of 7 inches or more of snow in a 12-hour period or 13 inches or more in a 24-hour period.

Blizzard – Marshfield is significantly affected when they experience sustained wind speeds in excess of 40 mph accompanied by heavy snowfall or large amounts of blowing or drifting snow.

Ice storm – Marshfield is significantly affected when they experience ice accumulations of ¼" or greater.

Wind Chill Extent Scale



One of the major problems associated with ice storms is the loss of electrical power. Major electric utility companies have active, ongoing programs to improve system reliability and protect facilities from damage by ice, severe winds and other hazards. Typically, these programs focus on trimming trees to prevent encroachment of overhead lines, strengthening vulnerable system components, protecting equipment from lightning strikes and placing new distribution lines underground.

Additionally, sensitive populations such as the elderly or handicapped may be susceptible to extreme cold when power is lost and heating systems are run on electricity (versus gas or natural fuels). If power is lost, some populations may need to be relocated to areas with power so that medical equipment can function. Additionally limited mobility of some persons may make it difficult to relocate in general or in times of emergencies. The Town encourages neighbors to check on those neighbors who they may believe to be at risk during times of emergency. The Fire Department also has a list of those with medical needs. In the future, the Town can map the location of sensitive populations and trouble spots on roads that reach those populations in order to identify additional routes. Also, the Town can continue to provide outreach and education of the impacts of winter storms to these populations.

Other major impacts include closed roads, restricted transportation and large buildings collapsing under the weight of heavy snows.

By observing winter storm watches and warnings, adequate preparations can usually be made to lessen the impact of snow, ice and sleet, and below freezing temperature conditions on the Town of Marshfield. Providing for the mass care and sheltering of residents left without heat or electricity for an extended time and mobilizing sufficient resources to clear broken tree limbs from roads, are the primary challenges facing community officials. Marshfield should plan and prepare for these emergencies. That planning and preparedness effort should include the identification of mass care facilities and necessary resources such as cots, blankets, food supplies and generators, as well as debris removal equipment and services. Shelters within Marshfield include the Twinfield Union School, Old Schoolhouse and Masonic Lodge. Backup power generation is needed at the Twinfield Union School. The Town encourages residents who are in remote locations to be equipped with generators and backup fuel supplies in the event of prolonged power outages and travel restrictions.

The extent of winter storms on Marshfield is difficult to estimate as it is dependent on the size and path of the storm. For the next plan update, Marshfield will more closely monitor winter storms to determine the worst impacts possible on the Town.

Marshfield is served by two energy utilities, Green Mountain Power and Washington Electric Cooperative. The Power generation of both entities is based upon substations which are not set by jurisdictional lines. As a result, frequency and specific dates of power shortage/failure could not be attained. This level of detail could be provided in the future by working directly with the utilities in order to research this data.

This type of event is especially hazardous if it occurs during the winter, particularly in conjunction with another hazard, such as a winter storm/ice storm or extreme cold. Vulnerable populations, such as the elderly and handicapped are of greatest risk to this hazard. If this type of multiple hazard event takes place for an extended period of time, back-up power would be necessary for critical facilities such as the Marshfield Fire Department and the Twinfield Union School. Most recently, in early June 2013, a passing severe storm left a number of residents and businesses without power for over 24 hours resulting in loss of business and risk to vulnerable populations, particularly those with special home health needs.

| Hazard | Location | Vulnerability | Extent | Impact | Probability |
|-------------------------------------|-----------|--|---|---|-------------|
| Extreme Cold/Winter Storm/Ice Storm | Town wide | Elderly & handicapped populations, remote structures, old/under-insulated structures, utilities, trees | Below freezing and severe wind chill factor for multiple days; depends on severity of event; 18+” in March 2011 storm | Depends on severity – additional sheltering/plowing/emergency services costs for town | High |

5.3 Moderate Threat Hazards

High Wind

High wind is defined as an event with sustained wind speeds of 40 m.p.h. or greater lasting for 1 hour or longer or an event with winds of 58 m.p.h. or greater for any duration.

Thunderstorms can generate high winds and down hundreds of large trees within a few minutes. The State can also experience tornadoes, which are capable of damaging or destroying structures, downing trees and power lines and creating injuries and death from collapsing buildings and flying objects. Tornadoes are less common than hail storms and high winds, but have occurred throughout Vermont. Across the State, however, 34 tornadoes have been recorded between 1950 and 1999, injuring 10 people and causing over \$8.4 million dollars in estimated property damage. Nearly all of these incidents occurred from May through August with most occurring in the afternoon. To date, no recorded high wind events have occurred in Marshfield, however the community foresees a reasonable risk for this occurrence, both in the Town and Village.

| Hazard | Location | Vulnerability | Extent | Impact | Probability |
|-----------|-----------|--------------------------------|------------------------------|------------------------------|-------------|
| High Wind | Town-wide | Power lines, trees, structures | Depends on severity of event | Depends on severity of event | Med |

Highway/Transport Accident

History of Occurrences (Source: VT Agency of Transportation):

- 42 Vehicular accidents in 2003
- 68 Vehicular accidents between 2006-2010 (56 occurred on US Route 2)
- 67 Vehicular accidents between 2007-2011 (57 occurred on US Route 2)
- 66 Vehicular accidents between 2008-2012 (56 occurred on US Route 2)

The majority of Marshfield's vehicular accidents have taken place on US Route 2. US Route 2 contains various acute turns that prove difficult to drivers. The Areas of Local Concern Map (Attached) identifies two sections of Marshfield's roads that were identified as 2006-2010 high crash location sections by the Agency of Transportation.

Since US Route 2 serves as a major connector for St. Johnsbury and the North East Kingdom to points to the southwest, this route is regularly traveled by vehicles containing hazardous materials. A dangerous situation could result if a truck containing hazardous materials had an accident on this thoroughfare. The severity of this situation increases if it was to take place within the densely populated Village.

| Hazard | Location | Vulnerability | Extent | Impact | Probability |
|-----------------------------------|------------------------|--|----------|-------------------------|-------------|
| Highway/ Transport Accident | US Route 2 Corridor | Road infrastructure, vehicles, residential development and businesses | Moderate | Highly unpredictable | Low |

6. Mitigation

6.1 Town Plan (Sept. 2012) Goals that Support Local Hazard Mitigation

- Ensure zoning regulations protect against erosion by, regulating development on slopes.
- Restrict potentially polluting land uses from Marshfield's Wellhead Protection Areas and wetlands.
- Zoning regulations are compatible with the requirements, but may be more restrictive than, those of the Federal Emergency Management Agent's Federal Flood Insurance Program.
- Seek grant funds for groundwater mapping.
- Amend Zoning Bylaws to ensure that large commercial groundwater withdrawals do not interfere with the use and availability of water for farming and use as a drinking water source.
- The Conservation Commission should map wetlands for submission to ANR to ensure that significant wetlands in Marshfield are regulated by the state.
- Maintain, at a minimum, existing protection for surface waters, including riparian area protections in the Zoning Bylaws.
- Participate in State Watershed Planning Process to ensure that surface waters in Marshfield are properly classified and regulated by the state.
- Work with the state to regulate the operation of the Green Mountain Power dam on Marshfield Reservoir to address current impacts to water quality.
- The Village Trustees should continue to work to provide a safe and abundant water supply to meet the needs of the residents in Marshfield Village. In addition, the Trustees should continue their work monitoring and addressing the issues of uranium in the water supply.
- For both water and sewer supply, the Selectboard and Village Trustees should explore whether a merger between the Town and Village would in the best interest of operating and maintaining the sewer and water system.
- Town policy is to promote transmission and distributions lines which are designed to minimize negative impacts on natural and scenic resources.
- Planning Commission should ensure that zoning ordinances provide adequate access to emergency vehicles.
- Explore options for adopting Fluvial Erosion Hazard regulations.

Marshfield' town plan will be updated in 2017. The Town is interested in adding goals which relate to mitigation planning, such as:

- To take actions to reduce or eliminate the long-term risk to human life and property from natural hazards.

The goal of this hazard mitigation plan is to:

- To take actions to reduce or eliminate the long-term risk to human life and property from:
 - Flooding/Flash Flooding/Fluvial Erosion
 - Dam failure
 - Extreme Cold/Winter Storm/Ice Storm
 - Power Outage/Failure
 - High Wind
 - Highway/Transport Accident

Specific hazard mitigation strategies related to goals of the Plan include:

- Ensure existing and future drainage systems are adequate and functioning properly.
- Preserve and prevent development in areas where natural hazard potential is high.
- Ensure that all residents and business owners are aware of the hazards that exist within Marshfield and ways they can protect themselves and insure their property.
- Ensure that emergency response services and critical facilities functions are not interrupted by natural hazards.

6.2 Identified Hazard Mitigation Programs, Projects & Activities

Hazard mitigation programs, projects and activities that were identified for implementation at the Marshfield Local Hazard Mitigation meeting are:

| Hazard Mitigated | Mitigation Action | Local Leadership ³ | Prioritization (High, Med) | Possible Resources ⁴ | Time Frame |
|------------------|--|-------------------------------|----------------------------|---------------------------------|------------|
| Flooding | Education & awareness campaign for new flash flood warning system (Town and Village) | Fire Dept, SB | High | Town Funds | 1-2 years |
| Flooding | Identify proper site for Town equipment storage with access to fuel in | Road Foreman, Fire Dept. | High | N/A | 1-2 years |

³ SB – Select Board, PC – Planning Commission, ANR – Agency of Natural Resources

⁴ HMGP – Hazard Mitigation Grant Program, EMGP – Emergency Management Grant Program, PSIC/NTIA – National Telecommunications and Information Administration, USDA – United States Dept. of Agriculture

| | | | | | |
|-------------------------------------|--|-------------------------------------|----------|--------------------------|-----------|
| | advance of flood event (Town and Village) | | | | |
| Flooding | Upgrade and replace culverts identified in attachment (Town and Village) | Road Foreman, SB | High | HMGP, VTrans, Town Funds | 2-4 years |
| Dam Failure/ Flooding | Replace US Route 2 culvert (C83) to accommodate potential emergency dam release (Town and Village) | Road Foreman, SB, VTrans | High | HMGP, VTrans | 1-2 years |
| Dam Failure | Upgrade Marshfield Dam spillway, maintain communication systems (Town and Village) | SB, Green Mtn Power | Med | Green Mtn Power | 2-4 years |
| Extreme Cold/Winter Storm/Ice Storm | Update vulnerable population survey (Town and Village) | Senior Center, Council on Aging, SB | Med | Town Funds | 1-2 years |
| Extreme Cold/Winter Storm/Ice Storm | Install Transfer Switch and/or generator at Town Offices (Town and Village) | SB | Med/High | Town Funds, EMPG | 2-4 years |
| Extreme Cold/Winter Storm/Ice Storm | Install Transfer Switch and/or generator Twinfield Union School (Town and Village) | SB | Med/High | Town Funds, EMPG | 2-4 years |
| Extreme Cold/Winter Storm/Ice Storm | Identify Christ Covenant School as additional Emergency Shelter (Town and Village) | SB | Med/High | Town Funds | 1 year |
| Highway Transport/Accidents | Acquire rescue vehicle; expand the Fire House (Town and Village) | SB, Fire Dept | Low/Med | Town Funds | 2-4 years |

VEM also emphasizes a collaborative approach to achieving mitigation on the local level, by partnering with ANR, VTrans, ACCD, Regional Planning Commissions, FEMA Region 1 and other agencies, all working together to provide assistance and resources to towns interested in pursuing mitigation projects and planning initiatives.

The Hazard Mitigation Activities Matrix (Attached) lists mitigation activities in regards to local leadership, possible resources, implementation tools, and prioritization. Prioritization was based upon the economic impact of the action, the Community's need to address the issue, the

action's cost, and the availability of potential funding. The action's cost was evaluated in relation to its benefit as outlined in the STAPLEE⁵ guidelines.

Marshfield understands that in order to apply for FEMA funding for mitigation projects, a project must meet FEMA benefit cost criteria. In addition, the Town must also have a FEMA approved Hazard Mitigation Plan.

A High prioritization denotes that the action is either critical or potential funding is readily available and should have a timeframe of implementation of less than two years. A Medium prioritization is warranted where the action is less critical or the potential funding is not readily available and has a timeframe for implementation of more than two years but less than four. A Low prioritization indicates that the timeframe for implementation of the action, given the action's cost, availability of funding, and the community's need to address the issue, is more than four years.

Attachments

- Areas of Local Concern Map
- High Priority Culvert Inventory
- Marshfield Hazard Mitigation Planning Selectboard Announcement 5/7/2013
- Marshfield Hazard Mitigation Plan meeting 6/19/2013 public warning
- Marshfield Hazard Mitigation Plan meeting 6/19/2013 email invite
- Marshfield Hazard Mitigation Plan meeting Sign-in sheet
- CVRPC July 2013 Staff Report with notification of Marshfield LHMP assistance
- CVRPC staff report distribution lists
- Marshfield Village Trustees Hazard Mitigation Plan meeting Sign-in sheet
- 5 year review and maintenance process
- Village Trustee Minutes Indicating Willingness to Adopt
- Town and Village Resolution Adopting the Plan

⁵ A method of evaluating mitigation actions based on **S**ocial, **T**echnical, **A**dministrative, **P**olitical, **E**conomic, **E**nvironmental criteria

Town of Marshfield Areas of Local Concern

Legend

Municipal Buildings

- Town Garage
- Town Office
- Fire Station

Roads

- Minor Roads
- Vermont State Highway
- US Highway

Surface Waters

- Perennial
- Intermittent

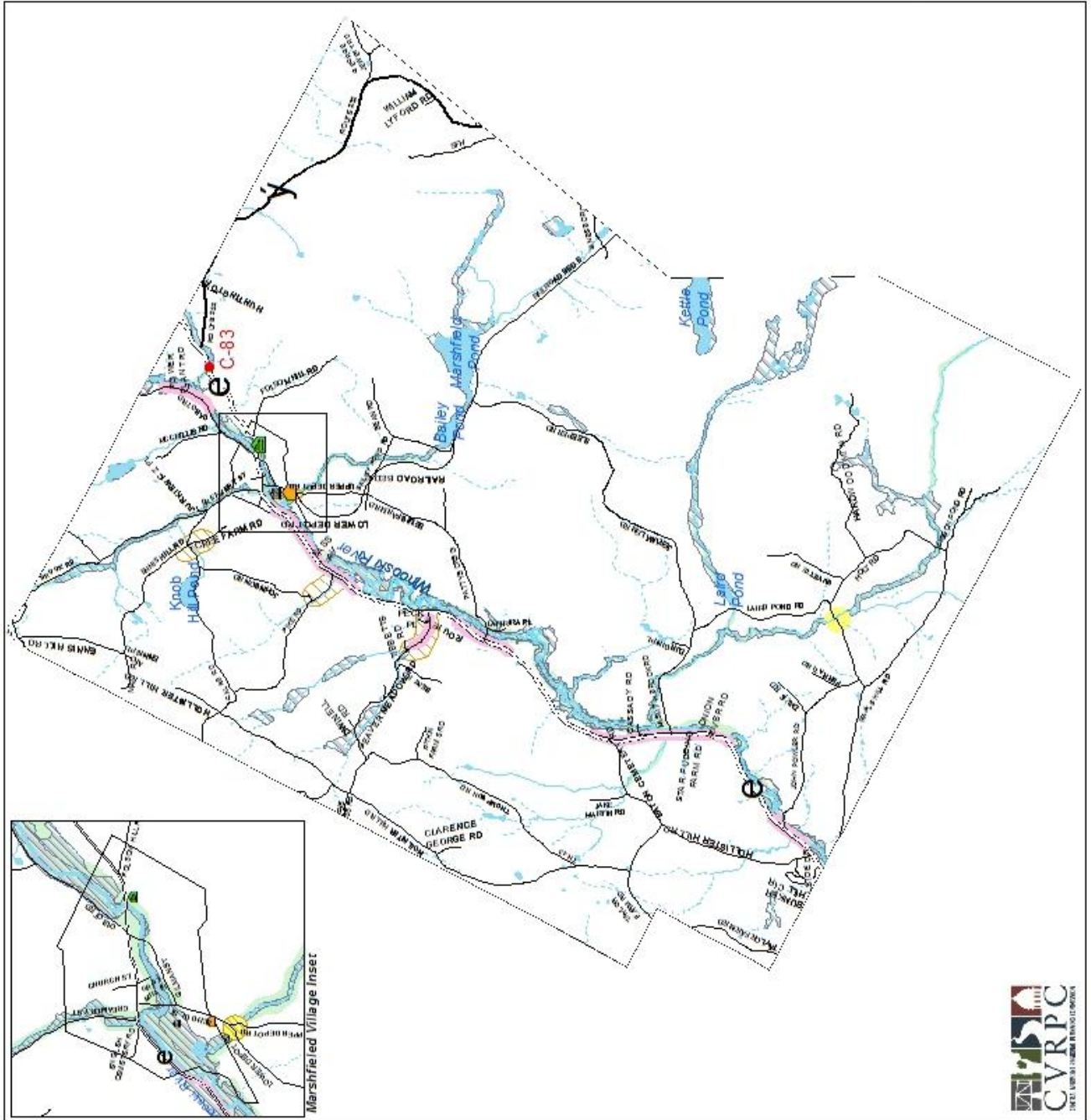
Lakes/Rivers

Marshfield Hazards

- Bridge Wash-out
- Road Wash-out
- Marshfield Hazards Roads
- Culvert US Route 2 C-83
- FEMA Special Flood Hazard Area
- Zone A and AE
- River Corridors



SOURCE:
Roads: VDOT, 2003
Surface Waters: 1:50,000 CVRPC Surface Water
Map created 8-18-2004 by D. Cullen, CVRPC.
NIT Town of Marshfield FOM Marshfield FOM Map
Data is only as accurate as the original source.
This map is for planning purposes only.
This map may contain errors and omissions.



**High Priority Culvert Inventory – Town of Marshfield
(Culverts in Critical, Urgent or Closed Condition)**

| Road | # of High Priority Culverts |
|----------------------|------------------------------------|
| Bailey Pond Rd | 4 |
| Bean Rd | 1 |
| Beaver Meadow Rd | 5 |
| Bemis Farm Rd | 1 |
| Bent Rd | 1 |
| Brook Rd | 2 |
| Cabot Rd | 1 |
| Calais Rd | 2 |
| Creamery St | 1 |
| E. Hill Rd. | 2 |
| Gilman St | 1 |
| Guyette Rd | 1 |
| Hardwood Mountain Rd | 1 |
| Hollister Hill Rdd | 6 |
| Hold Rd | 1 |
| Jake Martin Rd | 1 |
| Johnson Rd | 1 |
| Laird Pond Rd | 1 |
| Lower Depot Rd | 3 |

| | |
|-----------------|---|
| Maple Hill Rd | 1 |
| Mccrillis Rd | 2 |
| Pigeon Pond Rd | 1 |
| Pike Rd | 1 |
| Pitkin Farms Rd | 2 |
| Railroad Bed E. | 1 |
| School St | 2 |
| Taylor Farm Rd | 1 |

SELECTBOARD MEETING MINUTES

Tuesday, May 7, 2013, 6:00 p.m., Old Schoolhouse Common

Present: Selectboard members John Warshow, Chris Martin, and Helen Ducharme; Town Clerk Bobbi Brimblecombe; Visitors Faeterri Silver, Robin Schunk, Melissa Seifert, Dan and Dimples Mucherino, Will Walters (Hardwick Gazette)

At 6:00 p.m. the meeting was called to order by Chair John Warshow.

Community Garden: The Board met outside with Faeterri, Robin and Melissa to look at potential garden sites at the Old Schoolhouse Common. The committee is going to check the floodplain regulations and apply for a grant.

Mowing Bids: Bobbi explained that the mowing at the Covered Bridge was awarded to Joseph Mulligan last fall.

| | |
|-------------------------------------|---------------------|
| Patricia Mulligan | \$210.00 per mowing |
| Abare Lawn Care & Property Services | \$95.00 per mowing |
| Diversified Landscape Maintenance | \$240.00 per mowing |
| Maplecrest Enterprises | \$100.00 per mowing |

John moved to award the contract to Maplecrest because they have been doing the mowing and the Board has been happy with their work.

Regional Planning: Faeterri Silver is no longer interested in serving on the Transportation Advisory Committee because she is volunteering on other committees.

She updated the Selectboard on the final report of the joint committee on consolidation. The proposal is to consolidate the Central Vermont Regional Planning Commission and the Central Vermont Economic Development Corporation. John asked what would happen in case of an ACT 250 permit that is in opposition to the regional plan. At this time the CVRPC can be a party to an ACT 250 appeal. As Faeterri understands it, the regional planning function will still be separate from the economic development function. She feels that the combined organization will be unwieldy because the board will be so large. There is also concern that if only the economic development members attend the meeting, the vote could be vastly different than it would be otherwise. Faeterri is opposed to the idea but needs the Selectboard's feedback before the vote. The Selectboard will read the draft report and try to attend the Regional Planning meeting next Tuesday. They will decide at the next Selectboard meeting whether or not to support consolidation.

Hazard Mitigation Plan: The Town had a hazard mitigation plan in 2006 but it needs to be updated. There is help available from Regional Planning if the Town can get a group together to go over the questions that need to be answered.

Cree Farm Road: Mr. and Mrs. Mucherino attended to ask the Selectboard when they would prepare a letter regarding a turnaround, as discussed at their last meeting. The Board drafted and

WARNING

The Marshfield Selectboard will meet on Tuesday, June 25, 2013 at 4:30 at the Old Schoolhouse Common to review and update the Town's Hazard Mitigation Plan. The meeting is open to the public.

Bobbi Brimblecombe
Town Clerk
June 19, 2013

The foregoing is a true copy of a warning that was posted on June 19, 2013.

Attest, Bobbi Brimblecombe, Town Clerk

Kim McKee

From: Bobbi Brimblecombe [clerk@town.marshfield.vt.us]
Sent: Wednesday, June 19, 2013 8:57 AM
To: 83creameryst@pivot.net; Tim Maclay ;; wjs@fairpoint.net; timothy.morris@state.vt.us; dirtog@fairpoint.net; Kim McKee
Subject: Marshfield Hazard Mitigation Plan
Attachments: Hazard Mitigation Plan 2006.pdf

The Board settled on 4:30 for the time of the meeting on June 25th. I am attaching a copy of the current hazard mitigation plan in case you have a chance to review it before the meeting. Please let me know if you will attend so I know how many pizzas to order.

Bobbi

TOWN CLERK'S OFFICE
122 School Street, Room 1
Marshfield, VT 05658
(802) 426-3305

WARNING

The Marshfield Selectboard will meet on Tuesday, June 25, 2013 at 4:30 at the Old Schoolhouse Common to review and update the Town's Hazard Mitigation Plan. The meeting is open to the public.

Bobbi Brimblecombe
Town Clerk
June 19, 2013

NOTICE: Under Vermont's public records law, documents - including e-mail - in the possession of public officials about town business are classified as public records. This means if anyone asks to see it, we are required to provide it. There are very few exceptions. We welcome citizen comments and want to hear from our residents, but please keep in mind that what you write in an e-mail is not private and could show up in the local newspaper.

Bobbi Brimblecombe
Marshfield Town Clerk
122 School Street, Room 1
Marshfield, VT 05658
(802) 426-3305
clerk@town.marshfield.vt.us

Marshfield Local Hazard Mitigation Plan Meeting Agenda
Tuesday, June 25 4:30PM – Marshfield Town Offices

Purpose: Update the local hazard mitigation plan to address needed upgrades and alterations in local infrastructure and policy in order to reduce the risk of disaster from local hazards.

Agenda:

- I. Mitigation plan design and purpose
- II. Review of existing plan and historic mitigation efforts
- III. Open discussion of local hazards/high-likelihood disaster scenarios
 - a. Hazard identification
 - b. Prioritization of hazards
- IV. Open discussion of existing and potential mitigation strategies for listed hazards
 - a. Cost
 - b. Time needed to implement
- V. Review and approval of findings

Marshfield
 Local Hazard Mitigation Plan – SIGN-IN

| Name | Position | Email |
|---------------------|---------------------------------|-----------------------------|
| JOHN MARSHALL | Chair Selectboard | johnmarshall@vernet.net |
| Bobbie Brimblecombe | Town Clerk | clerk@town.marshfield.vt.us |
| Tim Morris | 2 nd Asst. Chief MED | Timothy.Morris@STATE.VT.US |
| Thomas MacLay | Deputy Chief | 83CRENHIERYST@FAIRPOINT.NET |
| Kim McKee | CURPC Staff | mckee@curregion.com |
| Wes Seawall | 1 st Asst. Chief MED | WES@FAIRPOINT.NET |
| Chris Martin | Selectboard | splitrockfarm@Fairpoint.net |
| Daniel Mottrell | Road Foreman | |

Local Hazard Mitigation Plans (LHMP): Fourteen towns have received final FEMA approval of their local hazard mitigation plans (LHMP) with 5 towns awaiting final approval. Having a LHMP (which is good for 5 years after final approval) makes towns eligible for FEMA grants such as the Hazard Mitigation Grant Program (next round of applications is July 12 in connection with Tropical Storm Irene) flood mitigation assistance, and the pre-disaster mitigation competitive grant program. If your community is interested in technical assistance from CVRPC, please contact Kim McKee at Mckee@cvregion.com. Paul Luciano can assist with these grant applications and can be contacted at 802/881-1654 or pluciano@ccrpcvt.org. Staff is assisting Calais and Marshfield with LHMP updates.

CVRPC Commission meeting packet distribution lists

| Members: | Distribution List Name: Commissioners |
|--|--|
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| Dick Payne, Cabot | jpp20021@hotmail.com |
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| dstrong@vtlink.net | dstrong@vtlink.net |
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| East Montpelier Tim Carver (carvertree@gmail.com) | carvertree@gmail.com |
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| Julie Potter | julianapotter@yahoo.com |
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Village Trustees Meeting Sign-in – 3/25/15 – Local Hazard Mitigation Plan

Village Trustees
LHMP meeting 3/25/15

Name
Jennifer Potter

Email
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Deborah Messignat

Maranfield Village @fairpoint.
NET

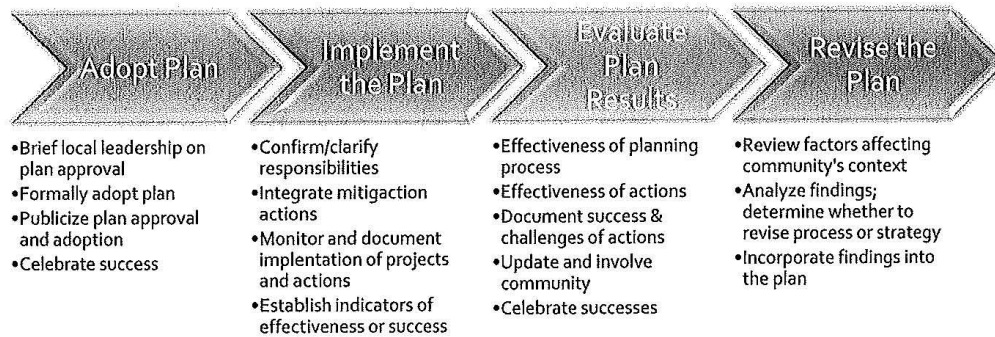
Bruce Hayden

Baro Washburn

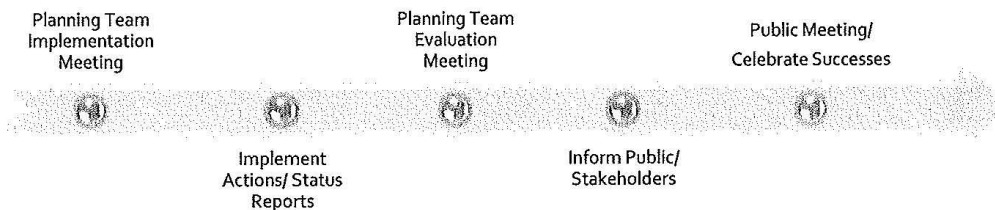
bwashburn-1@yahoo.com
awashburn@toschet.net

Gilbert K. Smith

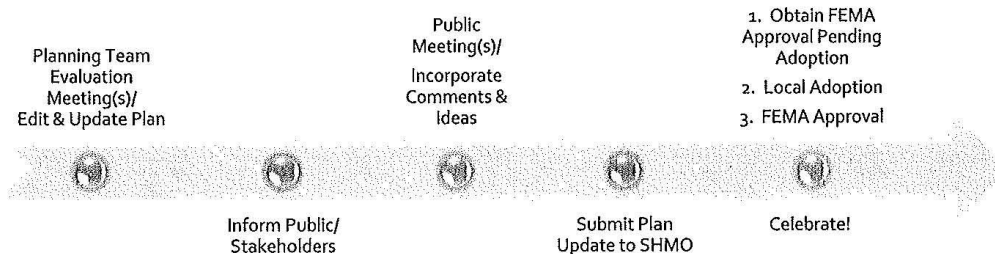
5-Year Plan Review/Maintenance



After Plan Adoption-Annually Implement and Evaluate



Fifth Year, and After Major Disaster Evaluate and Revise



Village of Marshfield, Inc.
Monthly Trustees Meeting
April 22, 2015

Present: Deborah Tousignant Village Clerk & Treasurer
Arthur Gilman President
Bruce Hayden Trustee
Jennifer Potter Trustee
Brad Washburn Trustee

Absent: Brendan McLane Trustee

Meeting came to order at 7:00 PM

1. Note changes made to posted agenda #5 & #6.
2. Approval of March 25, 2015 Trustees Meeting Minutes. Bruce made motion to approve meeting minutes, Brad seconded, all in favor.
3. Sewer Sludge Payment: Deborah explained to board that she had to pay payment out of two accounts Passumpsic Savings Bank and NSB Water accounts. Board said to transfer \$3700.00 instead of \$3080.00 every quarter from Passumpsic Savings Bank account into NSB Water Bank account, that way can make payment out of one account.
4. Local Hazard Mitigation Plan Update: Board went over Local Hazard Mitigation Plan Update, discussed didn't feel any changes needed to be made. Arthur signed Certificate of Adoption.
5. Checkbook Registers and Bank Statements for: A-PSB-WSV and NSB-Water from 3/25/2015 through 4/22/2015 was passed around.
6. Acadia Insurance: RE: Reauthorization of Federal Terrorism Program dated 4/13/2015 letter was passed around, board all set.
7. NSB letter dated 3/2/2015 RE: New Commercial Banking Officer Marsh Wimble. Letter was passed around.
8. Brad went over estimate he had gotten from John in regards to pumps, costs \$4850.00 for one pump and Barnes would pay for freight cost if purchased both pumps. Board went over rough cost for labor. Brad made the motion to authorize James Brimblecombe to buy Sewage Pump and Chemical Feed Pump and install not to exceed \$7,500.00; Jennifer seconded motion, all in favor.

Being no other business Bruce made the motion to adjourn said meeting. Meeting adjourned at 7:40 PM

Attest:
Deborah Tousignant

Certificate of Adoption

A Resolution Adopting the Local Hazard Mitigation Plan

The Town of Marshfield Select Board
November 17, 2015

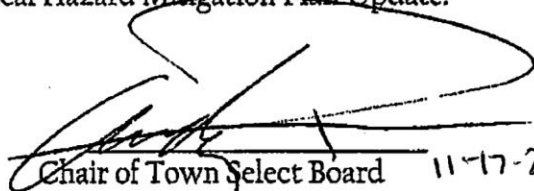
Village of Marshfield Trustees
NOVEMBER 18, 2015


WHEREAS, the Town and Village of Marshfield have worked with the Central Vermont Regional Planning Commission to identify hazards, analyze past and potential future losses due to natural and manmade-caused disasters, and identify strategies for mitigating future losses; and

WHEREAS, the Marshfield Local Hazard Mitigation Plan contains several potential projects to mitigate damage from disasters that could occur in the Town and/or Village of Marshfield; and


WHEREAS, duly-noticed public meetings were held by the Town of Marshfield Select Board on November 17, 2015, and Village of Marshfield Trustees on NOVEMBER 18, 2015, to formally adopt the Marshfield Local Hazard Mitigation Plan;

NOW, THEREFORE BE IT RESOLVED that the Marshfield Select Board and Village of Marshfield Trustees adopt the Marshfield Local Hazard Mitigation Plan Update.


Chair of Town Select Board 11-17-2015


President of Village Trustees
18 November 2015

ATTEST


Marshfield Town Clerk 11-17-2015


Marshfield Village Clerk 11-18-2015



U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

FEB 01 2016

Andrew Perchlik, Chair
Selectboard
Town Clerk's Office
122 School Street, Room 1
Marshfield, VT 05658

Dear Mr. Perchlik:

Thank you for the opportunity to review the Town and Village Of Marshfield, VT Local Hazard Mitigation Plan. The Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region I has evaluated the plan for compliance with 44 C.F.R. pt. 201. The plan satisfactorily meets all of the mandatory requirements set forth by the regulations.

This plan approval includes the following participating jurisdictions that provided copies of their resolutions adopting the plan.

- Town of Marshfield
- Village of Marshfield

With this plan approval, the communities listed above are eligible to apply to Vermont Division of Emergency Management & Homeland Security for mitigation grants administered by FEMA. Requests for mitigation funding will be evaluated individually according to the specific eligibility requirements identified for each of these programs. A specific mitigation activity or project identified in your community's plan may not meet the eligibility requirements for FEMA funding; even eligible mitigation activities or projects are not automatically approved.

Approved mitigation plans are eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Complete information regarding the CRS can be found at <http://www.fema.gov/national-flood-insurance-program-community-rating-system>, or through your local floodplain administrator.

Andrew Perchlik
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The Town and Village Of Marshfield, VT Local Hazard Mitigation Plan must be reviewed, revised as appropriate, and resubmitted to FEMA for approval within **five years of the plan approval date of January 15, 2016** in order to maintain eligibility for mitigation grant funding. We encourage Central Vermont Regional Planning Commission communities to continually update the plan's assessment of vulnerability, adhere to its maintenance schedule, and implement, when possible, the mitigation actions proposed in the plan.

Once again, thank you for your continued dedication to public service demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please do not hesitate to contact Marilyn Hilliard at (617) 956-7536.

Sincerely,



Paul F. Ford
Regional Administrator

PFF: mh

cc: Ray Doherty, Vermont State Hazard Mitigation Officer
Rob Evans, Vermont State NFIP Coordinator
Ben Rose, Recovery and Mitigation Section Chief, VT DEMHS
Lauren Oates, Hazard Mitigation Planner, VT DEMHS
Bobbi Brimblecombe, Town Clerk, Town of Marshfield
Arthur V. Gilman, President, Village Trustees, Village of Marshfield
Deborah Tousignant, Village Clerk, Village of Marshfield
Gail Aloisio, Assistant Planner, CVRPC

Enclosure



U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

FEB 01 2016

Arthur V. Gilman, President
Village Trustees
P.O. Box 244
Marshfield, Vermont 05658

Dear Mr. Gilman:

Thank you for the opportunity to review the Town and Village Of Marshfield, VT Local Hazard Mitigation Plan. The Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region I has evaluated the plan for compliance with 44 C.F.R. pt. 201. The plan satisfactorily meets all of the mandatory requirements set forth by the regulations.

This plan approval includes the following participating jurisdictions that provided copies of their resolutions adopting the plan.

- Town of Marshfield
- Village of Marshfield

With this plan approval, the communities listed above are eligible to apply to Vermont Division of Emergency Management & Homeland Security for mitigation grants administered by FEMA. Requests for mitigation funding will be evaluated individually according to the specific eligibility requirements identified for each of these programs. A specific mitigation activity or project identified in your community's plan may not meet the eligibility requirements for FEMA funding; even eligible mitigation activities or projects are not automatically approved.

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Enclosure