Town of Plainfield, VT
Local Hazard Mitigation Plan Update
April 2012
Prepared by the Town of Plainfield and CVRPC

Contents

1. Introduction

The impact of expected, but unpredictable natural events can be reduced through community planning. The goal of this Local Hazard Mitigation Plan is to provide a local mitigation plan that makes the Town of Plainfield 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 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 preventing or limiting development.

2. Purpose

The purpose of this Local Hazard Mitigation Plan is to assist the Town of Plainfield in recognizing hazards facing its community and identifies strategies to begin reducing risks from acknowledged hazards.

Plainfield 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 2011 Plainfield 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
- Hurricane/Tropical Storm/Severe Storm Hazard
- Non worst 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 of Plainfield is located in the eastern section of Washington County; bordered by the towns of Marshfield, East Montpelier, Barre, Orange, and Groton. According to the 2010 US Census, Plainfield had a total population of 1,243 people. The population decreased by 3% from the 2000 Census. In 2010, there were a total of 565 housing units. This is an increase of 8.6%. Approximately 28% of Plainfield's workforce is employed within the Town, with the remaining 71% working outside of the community.

The Town's major thoroughfares are U.S. Route 2 and Vermont Route 214, which converge in the Village of Plainfield in the Northwestern section of the Town. Housing within the Town is widely dispersed both within rural locations and the Village, culminating in a total of 74% of the dwellings identified as owner occupied. The Town's limited Commercial development is focused within the village, which is representative of current zoning regulations. Development in Plainfield continues to be scatted, rural residential.

In Plainfield, Green Mountain Power provides electricity to customers within the village. The Washington Electric Cooperative serves residents in the rest of town. The Plainfield water and sewer districts – for a total of 350 connections, serve the Village of Plainfield, along with a handful of Marshfield customers. The remaining properties in the community are dependent upon groundwater for domestic water supply and leach fields for on-site septic disposal.

The Plainfield Volunteer Fire and Rescue provide fire protection and emergency response services to the Town. According to the 2010 Town Report, Fire and Rescue responded to approximately 200 calls during the year, ranging from barn fires to car accidents. Plainfield is a member of the Capital Fire Mutual Aid System, which includes all of the Towns in Washington County and some surrounding communities, and has automatic response agreement with Marshfield and East Montpelier. Plainfield receives additional emergency response from Barre Town Emergency Medical Services, which responded to 71 calls in Plainfield during 2004.

Law enforcement support is served by the Vermont State Police. In addition, the Washington County Sheriff's Department is periodically engaged to monitor the local roadways.

The Town of Plainfield has an approved Emergency Operations Plan dated April 2005 and a Rapid Response Plan that was adopted in 2003.

The Town Plan includes goals and strategies in regards to floodplains, transportation, and public services. The March 2003 Zoning Regulations include a Floodplain section and a Forest and Agricultural Lands District, which covers the majority of the Town.

4. Planning Process and Maintenance

4.1 Planning Process

The Central Vermont Regional Planning Commission (CVRPC) and the Plainfield Select Board coordinated Plainfield's Local Hazard Mitigation Plan process. An initial meeting was held in Plainfield on March 28, 2011, while a follow up meetings were held April 25, 2011 and May 9, 2011 in order to gain an inventory of the town's vulnerability to hazards and its current and future mitigations programs, projects and activities.

Preparation for the meeting included a review of the Plainfield Town Plan, Plainfield Rapid Response Plan, 2010 Town Report, Upper Winooski Corridor Plan, and Great Brook Geomorphic Assessment. Information from these documents is incorporated into numerous sections of the plan. The Plainfield Hazard Mitigation Meeting focused on assessing past mitigation projects and compiling information on its current and future hazard mitigation programs, projects and activities.

Attendees included:

Bram Towbin – Select Board
David Strong – Select Board
Gary Graves – Select Board
Patrick Martin - Fire Chief
George Springston– Geologist

The meeting indicated that the Town is most vulnerable to landslide/fluvial erosion, flash flood/flood, wildfire. Previously identified hazards included flash flooding, power shortage/failure, and winter storm/ice storm. Plainfield feels power shortage/failure, and winter storm/ice storm are no longer significant hazards because of town wide improvements and improved communications with the power utilities that have been made over the past 5 years. Flood and fluvial erosion mitigation projects are now a priority due to recent storm events. Flooding and fluvial erosion events are also the most common and damaging.

Once the draft was updated, CVRPC placed a notice for public comments of the draft update on the CVRPC blog and newsletter. The draft update was also available was at Plainfield Municipal offices and by request from CVRPC for public review and comments from November 7, 2011 to December 31, 2011. The announcement of the draft update in the CVRPC newsletter reached over 150 people and businesses in the Region's 23 towns, including the adjacent towns of Marshfield, East Montpelier, Barre Town and Orange. No comments were received by CVRPC or Plainfield Staff. Public comments submitted in the future will be reviewed by the Select Board (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. Once the plan is conditionally approved by FEMA, the plan will go before the Select Board for adoption.

4.2 Plan Update process

The Plainfield Local Hazard Mitigation Plan was originally adopted by the Town as an Annex to the Central Vermont Regional Pre Disaster Mitigation Plan in March 2006 and received FEMA final approval in March 2006. The 2011 update is intended to be submitted as a stand-alone town plan.

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 2010 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)

- 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 additional flooding areas and forest layer

Appendix

- Added strategies from Upper Winooski Corridor Plan

The following chart provides an overview of Plainfield's proposed 2006 Local Hazard mitigation actions along with their current status. Additionally since the 2006 plan, in the aftermath of May, 2011 flood events, the town has established a flood advisory committee which is developing recommendations for improving local flood resilience and mitigation measures. In addition, the town planning commission is exploring the incorporation of FEH maps into planning and zoning processes. The town is actively seeking resources to pursue geomorphic assessment and river corridor planning work. The town is also seeking Hazard Mitigation grant funding to address chronic debris jamming/washout concerns with undersized bridges in the village.

2006 Mitigation Action	2011 Status
Improve drainage at Fowler Rd	2 Phase project involving a larger drainage area and culvert addition has been started
Make the Fire Station a Red Cross certified emergency shelter	Not yet – in progress – funding fell through to make a certified shelter. Back-up generators now available
Institute traffic calming measures along US Rte 2	In progress - traffic-calming banners are being produced
Replace aging bridges along Brook Rd and within the village	Developing Hazard Mitigation grant application to replace two undersized bridges in village
Provide standby electric power for Twinfield Union School	Project of previous board members; will look into. Involves coordination with Marshfield
Proved pandemic trainings to the community and facilitate communication around the issue	No – will talk with Health Center and Health Officer
Develop a vulnerable population list	Set up – has not been updated in 3 or 4 years. Some outreach did occur
Prove the Fire Station with a sprinkler system	Attempted, but funding was not secured
Increase ingress/egress of emergency vehicles during flood emergencies	No – still looking into
Purchase Knox Boxes for critical facilities	Yes – Purchased for fire station, old high school, health center and all VT housing authority units
Increase operability between Vermont State Police and municipality	Yes – new radio system for fire house and town offices
Place vulnerable power lines underground	No – too expensive – no longer considering

Existing Mitigation Programs, Projects and Activities
The ongoing or recently completed programs, projects and activities are listed by mitigation strategy and were reviewed during the update process.

Community Preparedness Activities
- Current Rapid Response Plan
- Current Emergency Operations Plan
- 911 Signage Program – immediate village area & town roads
- Rural Water Supply Plan
- Pandemic Preparation Group

Hazard Control & Protective Works
- Maintenance Programs (Culvert Survey & Replacement)
- Road Surface Management System (RSMS) – on going
- Participant in the Capital Fire Mutual Aid System

Insurance Programs
- Participation in NFIP

Land use Planning/Management
- Stream Geomorphic Assessment on the Great Brook
- Restoration of the Great Brook to reduce incision
- Assessment of the Winooski River and its major tributaries and identify corrective measures to reduce stream bank erosion; and
- Zoning Regulations – Floodplain areas designated within Flood Insurance Rate Map for Plainfield (7/16/1996 – Town, 8/1/1983 – Village)

Protection/Retrofit of Infrastructure and Critical Facilities
- Dry Hydrant Program – new at Hollister Hill Rd

Public Awareness, Training & Education
- Fire Safety Educational Programs for Town Residents – high school and old home day celebration

4.3 Plan Maintenance
The Plainfield Local Hazard Mitigation Plan will be updated and evaluated annually at a September 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, the Plainfield Emergency Management Coordinator and public at the above mentioned September 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, Fieldnotes (the local community newsletter), and CVRPC newsletter and blog inviting the public to the scheduled Select Board (or specially scheduled) meeting. Additional stakeholders invited to the meeting will be residents abutting the Great Brook, the Plainfield Fire Department, the Plainfield Rescue Squad, the Health Center, and Goddard College. 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 Select Board Chair.

Monitoring of plan progress, implementation, and the 5 year update process will be undertaken by the Select Board Chair. 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 undergo a formal update and submitted to FEMA for re-adoption following the process outlined the schematic found in the Attachments section.

Plainfield shall also incorporate mitigation planning into their long term land use and development planning documents. The Town will 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 shall also review future Upper Winooski Corridor and Great Brook planning documents for ideas on future mitigation projects and hazard areas.

5. Risk Assessment

5.1 Hazard Identification and Analysis

The following natural disasters were discussed and the worst threat hazards were identified based upon the likelihood of the event and the community's vulnerability to the event. 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
Dam Failures	Med	No	X
Drought	Low	No	X
Earthquake	Low	No	X
Flash Flood/Flood	Med	Yes	✓
Fluvial Erosion/Landslide	High/Med	Yes	✓
High Wind	Low	No	X
Ice Jam	Low	No	X
Hurricane	Low	No	X
Structure Fire	Med	No	X
Tornado	Low	No	X
Water Supply Contamination	Low	No	X
Wildfire/Forest Fire	Med	Yes	✓
Winter Storm / Ice Storm/Extreme Cold	High	No	X

The Town of Plainfield identified the following disasters as presenting the worst threat to the community:

- Landslide/Fluvial Erosion
- Flash flood/flood
- Wildfire/Forest Fire

Due to the frequent and severe nature of flooding events, Plainfield feels flooding is the worst natural hazard within the Town and will focus on mitigation efforts to reduce the impacts from flooding events.

Moderate threat hazards include:

- Dam Failure
- Structure Fire
- Extreme Cold/Winter Storm/Ice Storm

[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 significant 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	Likelihood
Type of hazard	General areas within municipality which are vulnerable to the identified hazard.	Types of structures impacted	Magnitude of event: scale depends on hazard	Dollar value or percentage of damages.	High: 10% to 100% probability within the next year or at least once in the next 10 years. Medium: 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

Fluvial Erosion/Landslide

Fluvial erosion is the natural process of degradation and aggradation of sediment in streams and rivers. Although the process is natural, fluvial erosion can be exacerbated by extreme flooding events or anthropogenic influences. A landslide is the sliding of a large mass of rock material, soil, etc., down the side of a mountain or cliff. Landslides can be caused by rainstorms, fires, alternate freezing or thawing and/or by the steepening of slopes by erosion or human modification. In Plainfield, landslides tend to occur or are exacerbated by fluvial erosion as most of the landslides occur on or near a stream bank, and are usually in the form of a stream bank failure.

In Plainfield, the Great Brook consistently floods and its banks are constantly moving. Flood damage along the banks of the Great Brook frequently re-occurs in the same area. In 1984 and 1989, two houses were washed away during flooding events, because of landslides under the houses. Overall, five bridges, four houses and road sections along Brook Road have been damaged, costing over $2 million. There have been over 25 known bank failures in the Great Brook as well. The extent of landslides/bank failures in Plainfield is not well documented in terms of cubic fill. In the future, Plainfield can record landslides and bank failures according to

the amount of cubic fill or when structures are involved use the Alexander Scale for Landslides Damage (see below):

Alexander Scale for Landslide Damage

Level	Damage	Description
0	None.	Building is intact
1	Negligible.	Hairline cracks in walls or structural members; no distortion of structure or detachment of external architectural details
2	Light.	Buildings continue to be habitable; repair not urgent. Settlement of foundations, distortion of structure, and inclination of walls are not sufficient to compromise overall stability.
3	Moderate.	Walls out of perpendicular by one or two degrees, or there has been substantial cracking in structural members, or the foundations have settled during differential subsidence of at least 15 cm; building requires evacuation and rapid attention to ensure its continued life.
4	Serious.	Walls out of perpendicular by several degrees; open cracks in walls; fracture of structural members; fragmentation of masonry; differential settlement of at least 25 cm compromising foundations; floors may be inclined by one or two degrees or ruined by heave. Internal partition walls will need to be replaced; door and window frames are too distorted to use; occupants must be evacuated and major repairs carried out.
5	Very Serious.	Walls out of plumb by five or six degrees; structure grossly distorted; differential settlement has seriously cracked floors and walls or caused major rotation or slewing of the building [wooden buildings are detached completely from their foundations]. Partition walls and brick infill will have at least partly collapsed; roofs may have partially collapsed; outhouses, porches, and patios may have been damaged more seriously than the principal structure itself. Occupants will need to be re-housed on a long-term basis, and rehabilitation of the building will probably not be feasible.
6	Partial Collapse.	Requires immediate evacuation of the occupants and cordoning of the site to prevent accidents with falling masonry.
7	Total Collapse.	Requires clearance of the site.

Source: http://www.es.mq.edu.au/NHRC/web/scales/scalespage14.htm

A fluvial erosion assessment of the Great Brook revealed surfacial deposits in the downtown Plainfield area are considered highly erodible. The extent of the possible erosion has yet to be calculated due to lack of funding for more studies/calculations and a lack of historical data. Plainfield can monitor the known trouble spots to possibly determine a more exact extent.

In Plainfield there are 9 properties in the fluvial erosion hazard zone. The properties are worth roughly $1.2 million.

The infrastructure over and around, and past uses and activities of the Brook are known sources of increased fluvial erosion. The 5 miles of the Brook closest to Plainfield village are in the worst condition. 13 bridges span this section of the Brook and cause the river channel to be constricted. Certain bridges are also located on severe meander bends of the Brook, the area where the force of water is the greatest. Activities such as channelization, hard armoring, gravel removal, undersized bridges/culverts, woody debris removal, roughness removal and floodplain encroachment in the past 25 years have had negative impacts on the health of the Brook and caused the water's velocity and force to increase. Urban land uses also exacerbate the fluvial erosion of the Brook.

After Hurricane Floyd in 1999, river management activates called for the removal of a large bend. It is believed that the removal of the bend caused a future road washout as the slope and velocity of the bed and water were increased. Rip rap was also placed to stabilize damaged banks. Instead of flowing around the rip rap, the water flowed beneath the rocks and further washed away the bank.

The fluvial geomorphic assessment in 2001 of the Great Brook makes several recommendations to reduce fluvial erosion effects. One recommendation is to avoid placement of infrastructure within the channel migration zone, especially on river bends. This area can be mapped by comparing historical aerial photography. Future management practices should avoid channelization, floodplain encroachment, removal of woody debris, and channel constriction. All of these activities create bank instability. A more effective management practice would be to create a continuous buffer of 25 feet along both sides of the Great Brook's banks. Future development practices should concentrate on maintaining this buffer, while also focusing growth on already built areas to maintain open lands and prevent development on bank areas.

The Fluvial Erosion Hazard area for the Winooski River is highlighted on the hazard analysis map. The Fluvial Erosion Hazard area on the Great Brook has yet to be mapped due to lack of funds.

Hazard	Location	Vulnerability	Extent	Impact	Likelihood
Fluvial Erosion/Landslide	Current and historic banks along most downstream 5 miles of Great Brook; along Brook Road	Structures in FEH zone, bridges, culverts, Brook Rd.	7 on Alexander Landslide Scale	>$2.2 million in past 25 yrs (combined landslide/fluvial erosion), $1.2 million private property (fluvial erosion)	Medium (landslide); High (fluvial erosion)

Flash Flood/Flood

History of Occurrences: Local and County Wide Data (from NCDC website and FEMA DR List) – nearest flood gauge is 15 miles downstream in Montpelier

Date	Event	Location	Extent
8/28/2011	Flash Flood (TS Irene)	Plainfield Washington County	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	Plainfield - Washington County	4" of rain; Montpelier gauge at 17.59' – DR4001
4/23-5/9/2011	Flash Flood	Washington County	DR 1995 – not a historical crest in Montpelier
8/2/2008	Flash Flood	Washington County	not a historical crest in Montpelier
7/11/2007	Flash Flood	Northeast Washington County	3-6" of rain in 2 hrs – DR 1715 - not a historical crest in Montpelier
6/26/2006	Flood	Washington County	3-4" of rain - not a historical crest in Montpelier
9/16/1999	Tropical Storm Floyd	County Wide	Montpelier flood gauge at 9.30 feet, 5-7" rain county wide DR 1307
6/17/1998	Flash Flood	County Wide	3-6" of rain over 2 day period - DR 1228 - not a historical crest in Montpelier
6/12/1996	Flash Flood	Plainfield	Data gap- $15k damage
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

Flooding/flash flooding/fluvial erosion is Plainfield's most commonly recurring hazard. Flooding is the overflowing of rivers, streams, drains and lakes due to excessive rain, rapid snow melt or ice. Flash flooding is a rapidly occurring flood event usually from excessive rain. Plainfield contains a variety of fast moving and landscape-defining rivers within its jurisdiction, most significantly the Winooski River, the Great Brook, Checkerberry Brook, and Potter Brook.

The Winooski River, the second longest river in Vermont, flows east to west through Plainfield Village south of Route 2 in the northern corner of town (Hazard Analysis Map). The Winooski converges with the Great Brook in the Village. The Great Brook originates southwest of Colby

Hill in the southwestern portion of town and flows in a northerly direction through the center of town, draining an area of 14.2 square miles (Town Plan).

> *The Great Brook has a history of numerous severe floods, most notably in 1973, 1984, 1989, and 1990 (Barg and Springston, 201a, 2001b). The flood of 1984 destroyed one home and caused extensive road damage, while the flood of 1989 destroyed another home, two bridges, and a long section of road. Between 1984 and 2002, the total cost of bridge replacement and road maintenance along the Brook has exceeded two million dollars. Besides the damage to roads and property, aquatic habitat in the brook has also been impacted. A recent study of riverside erosion hazards along the brook (Barg and Springston, 201a, 2001b) concludes that in order to decrease the potential for damage from future floods and landslides and to improve aquatic and riverside habitat in the brook, it will be necessary to undertake a carefully planned river restoration project.* - Plainfield Town Plan, 2002

The majority of the Town's National Flood Insurance Program (NFIP) designated 100-year floodplain is located along the Winooski River and the Great Brook. Based on the results of overlaying the FIRM flood maps with the location of the E911 points, there are 23 structures in the 100 year floodplain valued at $23,382,000. This estimate is based off the grand list median value. There are no repetitive loss properties. There are 14 active NFIP policies in Plainfield for a total coverage of $1,677,400. The effective FIRM date of the Town map is 7/16/1996. The effective FIRM date of the village map is 8/1/1983. The Zoning Administrator is responsible for enforcement of the flood hazard regulations.

As previous events have made clear, areas beyond the NFIP designated 100-year floodplain may be particularly vulnerable to these types of 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 Hazard Analysis Map identifies the Fire Station, Town Garage, Water Treatment Plant and Town Offices as outside the designated floodplain, but near the river. Despite the low likelihood of flooding levels reaching these properties, ingress/egress is likely to be an issue during a major flooding event.

Specific extent data for flood levels in Plainfield is lacking as the closest flood gauge is located in Montpelier. During Tropical Storm Irene, the Montpelier flood gauge was 4 feet above flood stage. The worst flooding event in Plainfield's history was the 1927 event; however, exact data from that event is not available. In 1927 event, the Montpelier flood gauge was at 27.10 feet; however, since the 1927 flood a number of flood control dams have been installed in the region to prevent the same flooding extent. Lesser but more regular flooding occurs in Plainfield, with generally 1 foot of water in areas designated on the areas of concern map. For the next update,

Plainfield can better monitor flood waters by having individuals record flood water levels and submit to the Town Clerk for the Town's records.

Bridges and roads are particularly susceptible to damage in the event of a flash flood. The Areas of Local Concern Map (attached) identifies 9 bridges that have washed out, or given their age and surrounding conditions, are susceptible to washout. These bridges consist of the Main Street Bridge over the Winooski, the Mill Street Bridge over the Great Brook, and the 7 oldest Brook Road bridges over the Great Brook (constructed between 1920 and 1929). The highlighted bridges are crucial to the proper evacuation of the community and the ability for proper emergency services deployment. The entire length of the Brook Road was highlighted because of its history and susceptibility to washouts.

Roads, culverts and structures town-wide suffered substantial damage in the May, 2011 flood – amounting to roughly $500,000 in repair costs. Damage to roadways and residences was most severe along the lower reaches of the Great Brook.

Major future projects identified as a result of the May, 2011 storm include: replacing two undersized highway bridges over the Great Brook in Plainfield village (bridges # 20 and # 21) where debris jams cause washouts which damage homes; and replacing four undersized culverts on Maxfield, Lower, Gonyeau and Upper roads. The estimated cost of these projects is $1,000,000.

Hazard	Location	Vulnerability	Extent	Impact	Likelihood
Flooding/Flash flooding	Properties adjacent Great Brook, downtown Plainfield	Bridges, roads, structures in floodplain	7" of rain during TS Irene in 24 hrs, Montpelier gauge 4' above flood stage	$500,000/bridge, $23,382,000 in private property damage possible	Medium

Forest Fire/Wildfire

FEMA indicates there are three classes of wild land fires – surface fires, ground fires and crown fires, with the most common type indicated as a surface fire. Surface fires burn slowly along the forest floor, killing and damaging trees. Ground fires burn on or below the forest floor and are usually caused by lightning. Crown fires move quickly by jumping along the tops of trees. Crown fires can spread quickly during windy conditions.

The eastern quarter of Plainfield contains Groton and LR Jones State Forest. Groton State Forest is roughly 26,000 acres. LR Jones State Forest is adjacent to Groton State forest and is 642 acres. Both forests are very dense with limited access. There are several logging operations

within Groton State Forest. Access to both forests is very limited within the town of Plainfield. There are two main vehicular entrances to LR Jones forest and one multi use trail which leads halfway through the forest. 2 small streams and one spring are the water resources within LR Jones State forest.

Town officials are worried about the development which has sprung up around the perimeter of the forest, the lack of access to water within the forest, and the density of the trees. To date there has been no history of a forest fire. The greatest threat of fire comes from human error – cigarettes, improper campfire etiquette and logging operations. The Fire Chief feels fire resources for Plainfield and surrounding towns would be maxed out if a wildfire were to occur. To date there have been no large forest fires. The extent of a forest fire in Plainfield could be greater than 27,000 acres.

Hazard	Location	Vulnerability	Extent	Impact	Likelihood
Wildfire/Forest Fire	State Forest lands	Private homes around the perimeter, logging operation equipment	To date – 0 acres; total forested area -over 27,000 acres	$2 million	Medium

5.3 Moderate Threat Hazards

Dam Failure

Marshfield Dam, Cabot – The Marshfield Dam is a hydroelectric facility operated by Green Mountain Power (GMP). On August 28, 2011, due to the large amount of rain from TS Irene, officials were afraid the dam would breach. Officials were considering releasing a large amount of water to ease pressure behind the dam; however, the rain subsided and the release was called off. Massive flooding would have occurred downstream in Plainfield had the dam been released. Evacuation of downstream homes and businesses occurred. GMP is now working with adjacent towns to improve communications with businesses and residents in times of emergency. GMP is also working with the Army Corps of Engineers to develop inundation models to simulate dam failure and identify what sites will be impacted.

Bancroft Road beaver dam – Beavers periodically dam the Checkerberry Brook which flows out of Bancroft Pond, which has a 14-acre lake area. In May, 2007, the dam gave way, resulting in significant damage to East Hill Road and to the Brook Road because the water flowed around the culverts. In 2009, the state installed beaver baffles at the lake outflow.

The extent of flooding from dam failure in Plainfield is unknown. There have been no inundation studies performed and there are few historical records to base estimates. For the

next plan update, Plainfield can work with Green Mountain Power and State to determine the extent of flooding if a dam were to breech.

Hazard	Location	Vulnerability	Extent	Impact	Probability
Dam Failure	Area downstream from Marshfield Dam	Private property, roads, culverts, bridge infrastructure	Marshfield dam during TS Irene – 542 ft above sea level (normally at 536 feet)	$20 million based on potential residential home loss (average grand list value $200,000)	Medium
Beaver Dam	Bancroft Pond	Same as above	1.25 miles of riverside property; 14 acres of water – depth unknown	$20,000 in road repairs (2007)	Medium

Extreme Cold/Winter Storm/Ice Storm in Conjunction with Power Failure
History of Occurrences

Snow and/or ice events occur on a regular basis during the winter months. Recent significant events have included:

Date	Event	Location	Extent
3/6/2011	Winter storm	Plainfield, County wide	12-18" of snow, 10,000 customers lost power statewide
2/23/2010	Winter Storm	Plainfield, County wide	20" of snow and 50,000 customers lost power statewide
2/22/2009	Winter Storm	Plainfield, County Wide	16" of snow, 30 mph wind gusts
2/1/2008	Winter storm	Plainfield, County wide	3-7" of snow and ice ¼-1/2"thick, 50 mph wind gusts
2/14/2007	Winter storm	Plainfield, County wide	22" of snow
2/14/2006	Winter storm	Plainfield, County Wide	30" of snow
1/4/2003	Winter storm	Plainfield, County wide	19" of snow
3/5/2001	Winter storm	Plainfield, County wide	15-30" of snow
12/31/2000	Winter storm	County wide	10" of snow

1/15/1998	Winter storm	Plainfield, County wide	10-12" snow (not a DR in Washington County)
12/29/1997	Winter storm	Plainfield, County wide	21" of snow
12/7/1996	Winter Storm	Plainfield, County wide	12" of snow
3/21/1994	Winter storm	Plainfield, County Wide	5-11" of snow
11/1/1993	Winter storm	Plainfield, County wide	15" of snow
1/3/1993	Freezing Rain	Plainfield, Statewide	¼-1/2" freezing rain

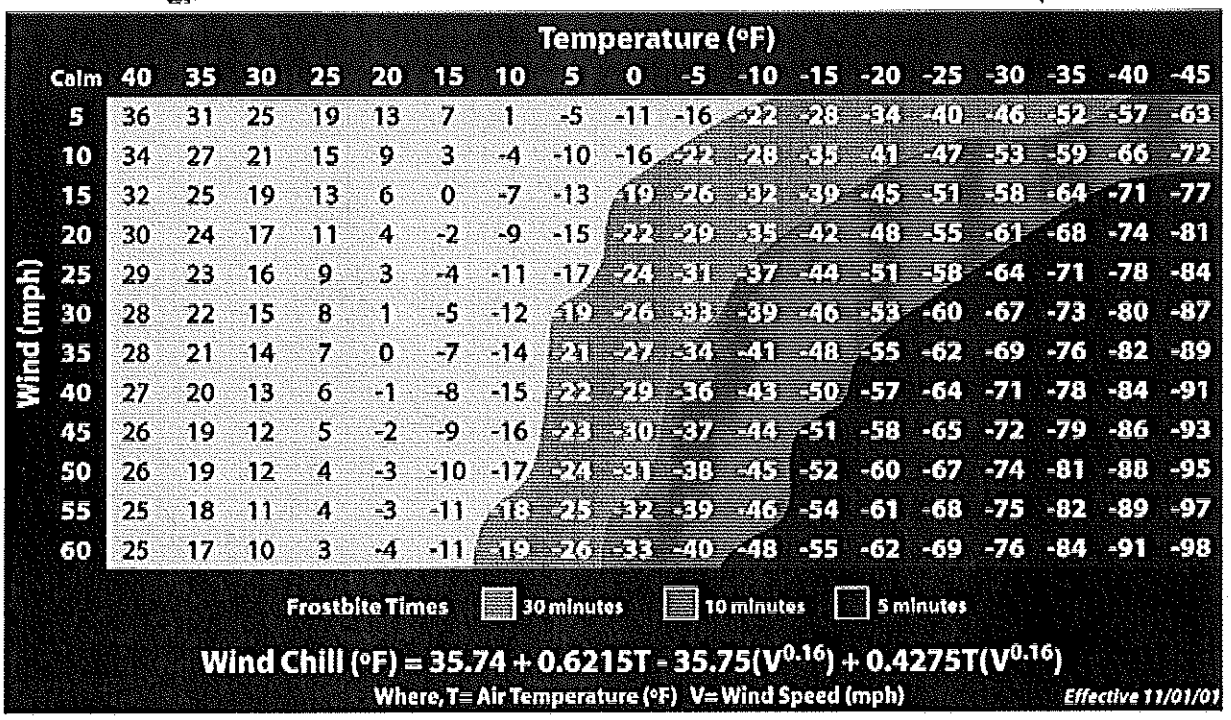
A winter storm is defined as a storm that generates sufficient quantities of snow, ice or sleet to result in hazardous conditions and/or property damage. Ice storms are sometimes incorrectly referred to as sleet storms. Sleet is similar to hail only smaller and can be easily identified as frozen rain 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, tress, 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. For the next plan update, Plainfield will more closely monitor winter storms to determine the worst impacts possible on the Town. Based on past occurrences, the worst anticipated winter weather Plainfield could experience would be 2-3' in 24 hrs of snow with more at higher elevations and several days of power outages. 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 – Plainfield 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 – Plainfield 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 – Plainfield is significantly affected when they experience ice accumulations of ¼" or greater.

Wind Chill Extent Scale

NWS Windchill Chart



Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Calm																		
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph) Effective 11/01/01

Plainfield is served by two energy utilities, Green Mountain Power for customers within the village and Washington Electric Cooperative for customers in the rest of town. The power generation of both entities is based upon substations, which are not set by jurisdictional lines. Although the frequency and specific dates of power shortage/failure could not be attained, the March 2, 2006 community meeting provided some insight. It was stated that the majority of the storm related power outages take place in the Washington Electric Cooperatives service area, given the rural placement of power lines. Approximately a ¼ of the community experienced extensive power outages in relation to the October 24th, 2005 winter storm, with some residents without power for five days.

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 problems include closed roads and restricted transportation.

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 Plainfield. 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. Plainfield 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. Twinfield Union School is the town shelter.

Hazard	Location	Vulnerability	Extent	Impact	Likelihood
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+" snow in March 2011 storm	$15,000 - additional plowing/sheltering costs	High

Structure Fire

Structure fire is when a building is partially damaged or destroyed by a fire. Plainfield's fire department received 200 calls in 2010, many of which were fire related incidents – chimney fires, smoke alarms, and carbon monoxide alarms. Rates of these calls rose in the winter months. Although many structures in Plainfield are less than 100 years old, many residents heat their homes with wood or pellet burning stoves. The remoteness and distance from fire and emergency services of many homes also increases the likelihood of a home being completely, opposed to partially, destroyed by a fire. The last large structure fire occurred in Plainfield in 1947.

Lack of water pressure for fighting structure fires on the Goddard College campus is a concern. Goddard's pond-based water supplies have dropped and the municipal waterline running from Route 2 along Route 214 to Goddard is undersized.

The extent of structure fires in Plainfield

Hazard	Location	Vulnerability	Extent	Impact	Probability
Structure	Town Wide	Wood structures, especially older	About 1/3 of fire related	$150, 000 per home based on	Medium

Fires	Goddard College	than 100 yrs, homes that use wood burning stoves for heat Wood structures	calls – rates higher in winter months – Data gap as there are limited historical occurrences Dormitories, Offices	median grand lis value	

6. Mitigation

6.1 Town Plan (2007) Goals that Support Local Hazard Mitigation

- Improve the stability of the bed and banks of Plainfield's streams by preserving and restoring floodplains, ensuring that riparian buffer zones are maintained and restored throughout the watersheds, and practicing good stormwater management.
- Develop a policy for traffic management on Rt. 2 and Village roads that supports the economic health of Village businesses, as well as the safety and well-being of Village residents.

The Town of Plainfield is currently updating its Town Plan and is considering adding additional mitigation goals.

The goal of this local hazard mitigation plan is:

- To take actions to reduce or eliminate the long-term risk to human life and property from fluvial erosion/landslide, flash floods/floods, and forest fires.

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

- Ensure existing and future drainage systems are adequate and functioning properly
- Ensure that all residents and business owners are aware of the hazards that exist within Plainfield 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
- Provide adequate communication systems for emergency personnel and response units
- Provide residents with adequate warning of potential hazards

6.2 Proposed Hazard Mitigation Programs, Projects & Activities

Hazard mitigation programs, projects and activities that were identified for implementation at the Town local hazard meeting:

Hazards Mitigated	Mitigation Action	Local Leadership	Prioritization (High, Med)	Possible Resources	Time Frame
Flooding, Fluvial Erosion/ Landslide	Replace and/or repair all bridges over Great Brook starting with the bridges at Mill Street and the next one up the Brook Road (# 20 & # 21)	S.B, Road Foreman	High	HMGP, General Fund	2 years
Flooding, Fluvial Erosion/ Landslide	Purchase 25 ft buffer along Great Brook	P.C, S.B	Med	HMGP, General Fund	4 years
Flooding, Fluvial Erosion	Install four larger culverts – one on each of the following roads: Lower, Gonyeau. Maxfield and Upper.	S.B, Road Foreman	High	VTrans	1 year
Flooding, Fluvial Erosion	Flood proof waste water treatment plant	S.B	Low	HMGP, USACE	4-5 years
Flooding, Fluvial Erosion/ Landslide	Select projects from Upper Winooski Corridor Plan	S.B, CVRPC, Friends of the Winooski	High	HMGP	2-3 years
Wildfire/Forest Fire	Build dry hydrants near State Forest boundary	S.B, Fire Dept.	Med	VT NRCS	3 years
Wildfire/Forest Fire	Distribute public education materials about reducing wild fire risk	Fire Dept, S. B	Med	USDA	3-4 years
Structure Fire	Develop alternate water supplies in town	Water Dept, S.B	Med	Water Dept. Grants	4 years

Structure Fire	Fire resistant building codes for new construction built near forest area	P.C	High	Municipal Planning Grant	2 years
Structure Fire	Install sprinkler system in fire house and town hall	Fire Dept, S.B	Med	Dept. of Homeland Security	4 years
Winter Storms/ Severe Cold	Provide training to residents on how to insulate homes (pipes, attics) for extreme cold spells	SB, PC, Fire Dept	Medium	EMGP	2 years
Winter storms/ extreme cold/ice storms	Upgrade electrical systems in municipal buildings and shelters to prevent surge/equipment damage from fluctuating current during ice and wind storms	Fire Dept, SB	Med	General Funds, EMGP, DPIG	3-4 years
NFIP Compliance, Flooding, Fluvial Erosion	Revise/adopt subdivision regulations, erosion control regulations, board of health regulations to improve floodplain management in community	S.B, P.C	High	Municipal Planning Grant	2 years
NFIP Compliance	Work with elected officials, the State and FEMA to correct existing compliance issues and prevent any future NFIP compliance issues through continuous communications, training and education	PC, ANR	Med	HMGP	2 years

Structure Fire	Improve water pressure to Goddard College Campus	Water Dept, Fire Dept, Goddard College	High	Water Dept., Goddard College	2 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.

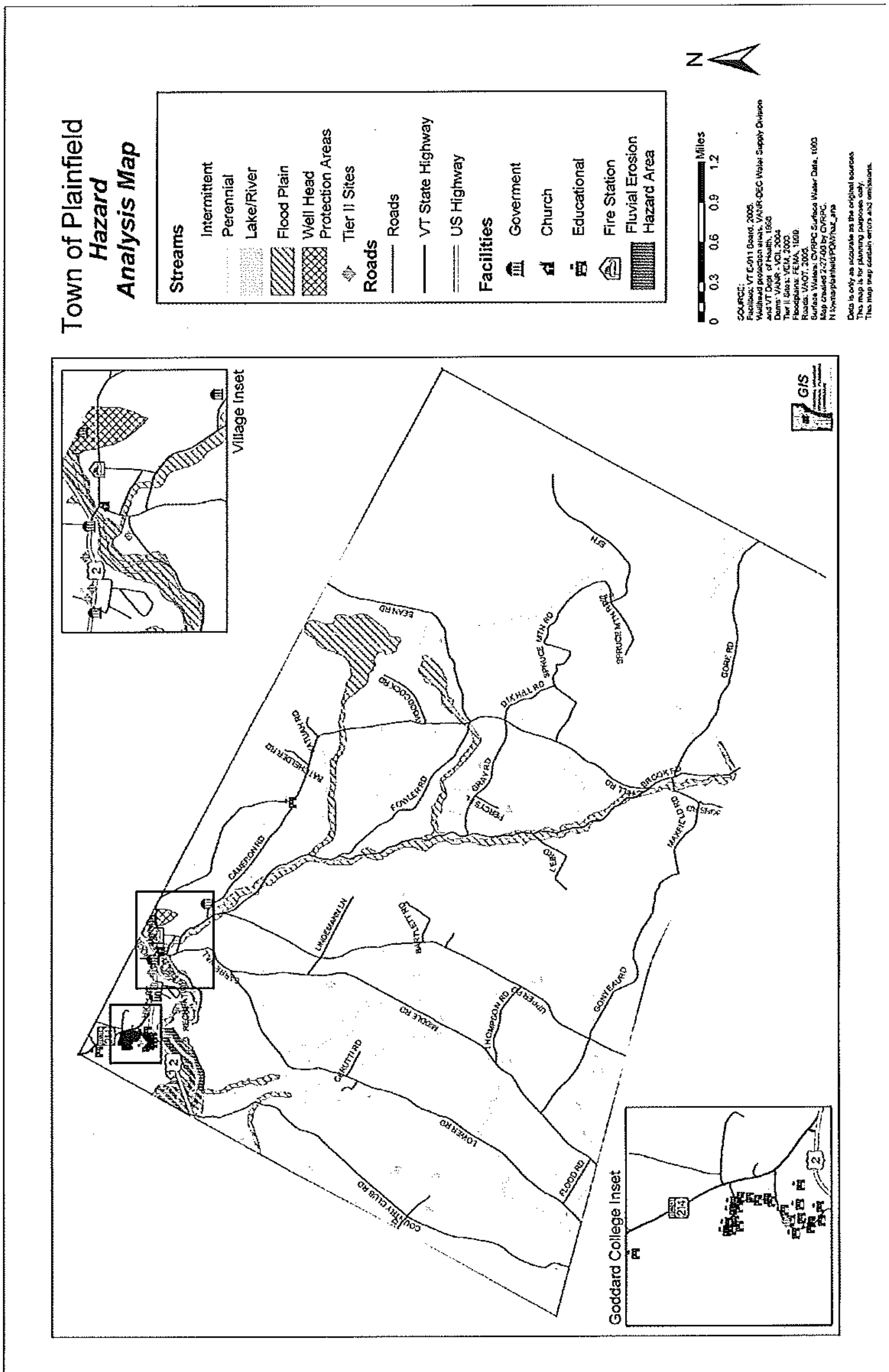
The Hazard Mitigation Activities Matrix (Attached) lists mitigation activities in regards to local leadership, possible resources, implementation tools, and prioritization. Prioritization was based upon the economic impact of the action, the Community's need to address the issue, the action's cost, and the availability of potential funding. The action's cost was evaluated in relation to its benefit as outlined in the STAPLEE[3] guidelines.

Plainfield 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
Hazard Analysis Map
Local Concerns Map
Upper Winooski Corridor Strategies
5 year plan maintenance/review process
Adoption Resolution

[3] A method of evaluating mitigation actions based on Social, Technical, Administrative, Political, Economic, Environmental criteria


Town of Plainfield
Hazard
Analysis Map
Streams
Intermittent
Perennial
Lake/River
Flood Plain
Well Head
Protection Areas
Tier II Sites
Roads
Roads
VT State Highway
US Highway
Facilities
Goverment
Church
Educational
Fire Station
Fluvial Erosion
Hazard Area
0 0.3 0.6 0.9 1.2 Miles
Village Inset
Goddard College Inset
N

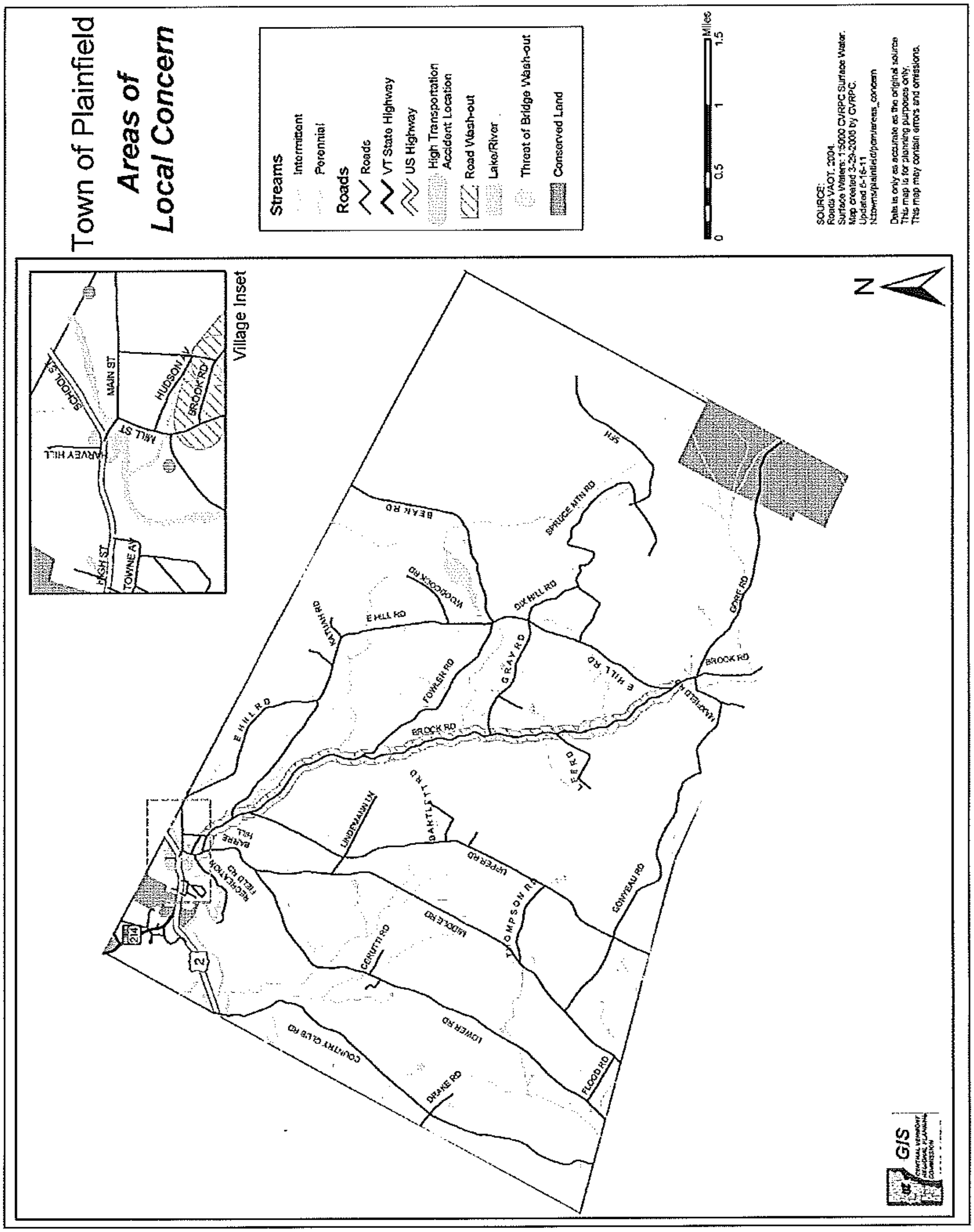
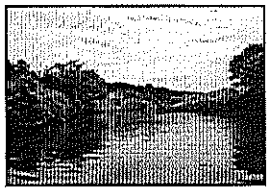
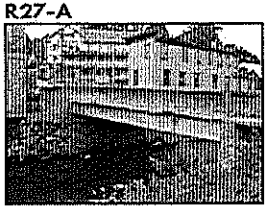
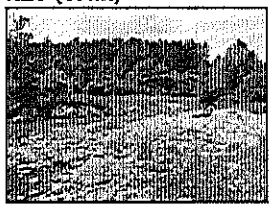

Town of Plainfield
Areas of Local Concern
Streams
Intermittent
Perennial
Roads
Roads
VT State Highway
US Highway
High Transportation Accident Location
Road Wash-out
Lake/River
Threat of Bridge Wash-out
Conserved Land
0
0.5
1
1.5
Miles
Village Inset
SCHOOL ST
MAIN ST
HUDSON AV
BROOK RD
MILL ST
HARVEY HILL
HIGH ST
TOWNE AV
N
BEAR RD
SPRUCE MTN RD
WOODCOCK RD
E HILL RD
DIX HILL RD
GRAY RD
FOWLER RD
BROOK RD
E HILL RD
MAXFIELD RD
BARTLETT RD
UPPER RD
THOMPSON RD
GONYEAU RD
MIDDLE RD
CERUTTI RD
LOWER RD
COUNTRY CLUB RD
DRAKE RD
FLOOD RD
GORE RD
BARRE HILL
RECREATION FIELD RD
214
2
GIS

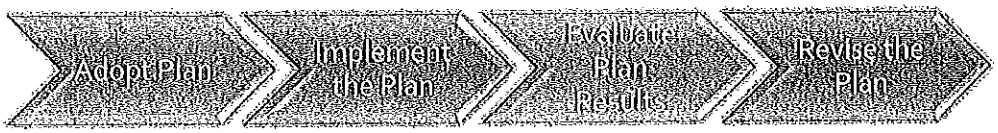
TABLE 8: Reach and Site Level Projects

REACH NUMBER	METHOD	BENEFIT	DESCRIPTION	FEASIBILITY/ CONSTRAINTS	COST	LANDUSE CONVERSION	PARTNERS	PRIOR -ITY
R27-B 	Protect River Corridor	Sediment Attenuation Area (Conserve and Enhance) and Fluvial Erosion Hazard Reduction	This fairly undeveloped reach is already attenuating floodwaters and fine sediment. Due to its proximity upstream of Plainfield Village and along Route 2 it is conceivable that development may occur in the future in the river corridor. Long term river corridor protection would reduce future conflict and ensure these watershed services are served for future generations.	Few major structures along river. Relatively few landowners.	Unk.	Open land and forest remains structure free	Landowners Town, CVRPC, VTANR	Low
	Restore Riparian Buffer	Long term channel stability, reduced flood velocities, nutrient uptake, habitat and other ecosystem services.	Buffer on the right and left bank could be improved to protect water quality (especially thermal pollution in this slow moving reach). Additionally roughness in the floodplain will slow floodwaters and alleviate potential flows downstream.	Few major structures along reach. River stability is good overall which will allow trees to grow.	Low	Unforested land to forest. Productivity shift to other economic, ecologic, and social gains.	Landowners FWR, WNRCD, FWS	Low
R27-A 	Protect River Corridor	Fluvial Erosion Hazard Reduction	High development in the corridor contributes stormwater, reduces, habitat and is a potential hazard for property owners due to flooding. Long-term reduction of building impacts and possible further protection of land along the banks would provide numerous community and ecosystem benefits.	Would need to be coordinated in town-wide planning effort.	High	Commercial/residential land to public space.	Landowners Town, CVRPC, VTANR FWR FEMA	Low

REACH NUMBER	METHOD	BENEFIT	DESCRIPTION	FEASIBILITY/ CONSTRAINTS	COST	LANDUSE CONVERSION	PARTNERS	PRIOR -ITY
R26 	Protect River Corridor	Sediment Attenuation Area (Conserve and Enhance) And Fluvial Erosion Hazard Reduction	This mostly undeveloped reach is already attenuating floodwaters and coarse sediment. Due to its proximity downstream of Plainfield Village and along Route 2 it is conceivable that further development may occur in the future in the river corridor. Long term river corridor protection would reduce future conflict and ensure these watershed services are served for future generations.	Few structures near the river. Driveway on left bank in river corridor. Water treatment is on the left bank and rec fields. Housing development on the right bank on valley wall. Agricultural field on left bank near end of reach.	High	Open land and forest remains structure free	Landowners Town, CVRPC, VTANR	Med
	Restore Riparian Buffer	Long term channel stability, reduce flood velocities, nutrient uptake, habitat and other ecosystem services.	Buffer on the left bank could be improved to protect water quality and improve habitat in this already important recreational fishing reach. Relocation of the road should be investigated as part of a comprehensive restoration project.	Recreational field requires certain size, Recreation Field Road on left bank and agricultural activities on left bank.	Low	Agriculture and Residential Land to Forest	Landowners FWR, WNRCD, FWS	Med
	Remove Berms	Allow for flood flows to disperse and move laterally across a forested floodplain	A channel blocking berm lays perpendicular to the channel across from the Wastewater treatment facility. Its origin and purpose are unknown, however it appears to have the potential to cut off flood flows from accessing the right bank and should be examined as its removal may have potential benefit.	Access through private land. May be a very simple project or may be more involved depending on further analysis.	Unk.	Opening forest back to floodplain.	Landowners Town VTANR	High

REACH NUMBER	METHOD	BENEFIT	DESCRIPTION	FEASIBILITY/ CONSTRAINTS	COST	LANDUSE CONVERSION	PARTNERS	PRIOR -ITY
R26 (cont.) 	Remove Berms	Allow for flood flows to disperse and move laterally across a forested floodplain. Allow for trees to develop on bank and shade river and provide habitat.	A second separate berm removal project would be the relocation, reconfiguration of the Rec. Field Road/private driveway. Investment in maintaining this driveway has been historically high (based on the extensive armoring) and is likely to continue with detrimental effects to channel stability, fish habitat, and the ability of the river to access historic floodplain on the left bank.	This road appears to serve a single residence/farm which would need to have viable access for maintaining its operation/ occupancy.	Unk.	Road/berm to floodplain forest.	Landowners Town VTANR	High
R25 	Restore Riparian Buffer	Long term channel stability, reduce flood velocities, nutrient uptake, habitat and other ecosystem services.	This is a highly dynamic reach whose movement has likely been excerbated by the historic removal of riparian vegetation. Long term management towards equilibrium condition as well as provision of ecosystem services to the community and towns downstream would be improved through reforestation.	Plantings should be at the margin of the river corridor and where oxbows are being formed as this reach is still actively adjusting laterally.	Mod.	Open Land and Ag fields to Forest	Landowners FWR, WNRCD, FWS	High
	Replace Undersized Structure	Open the river channel to allow for sediment transport, channel migration, and riparian habitat connectivity.	Replace highly undersized Route 2 bridge which is currently creating excessive instability upstream.	Project will need to ensure protection of house downstream.	High	Remains a bridge crossing, opens up transport and riparian area connectivity which is currently pinched by the structure.	Landowners VTRANS, Town, VTANR	High

5-Year Plan Review/Maintenance



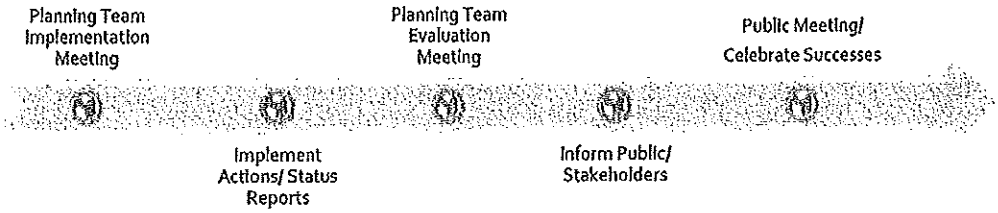
- •Brief local leadership on plan approval
- •Formally adopt plan
- •Publicize plan approval and adoption
- •Celebrate success

- •Confirm/clarify responsibilities
- •Integrate mitigaction actions
- •Monitor and document implentation of projects and actions
- •Establish indicators of effectiveness or success

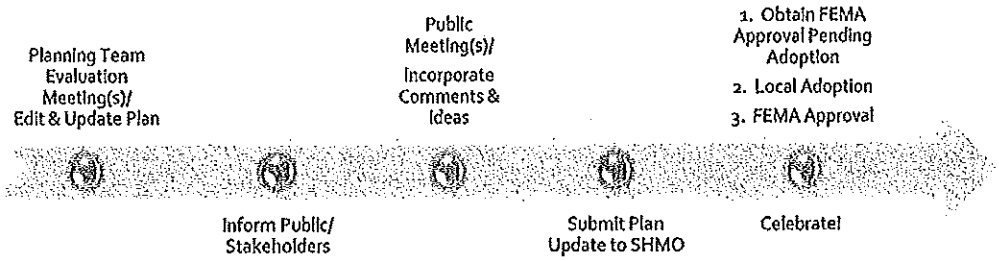
- •Effectiveness of planning process
- •Effectiveness of actions
- •Document success & challenges of actions
- •Update and involve community
- •Celebrate successes

- •Review factors affecting community's context
- •Analyze findings; determine whether to revise process or strategy
- •Incorporate findings into the plan

After Plan Adoption-Annually
Implement and Evaluate



Fifth Year, and After Major Disaster
Evaluate and Revise



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CERTIFICATE OF ADOPTION

The Town of Plainfield
Select Board
A Resolution Adopting the Local Hazard Mitigation Plan
Dec 18, 2012

WHEREAS, the Town of Plainfield has 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 Plainfield Hazard Mitigation Plan contains several potential projects to mitigate damage from disasters that could occur in the Town of Plainfield; and

WHEREAS, a duly-noticed public meeting was held by the Town of Plainfield Select Board on Dec 18, 2012 to formally adopt the Plainfield Local Hazard Mitigation Plan;

NOW, THEREFORE BE IT RESOLVED that the Plainfield Select Board adopts the Plainfield Local Hazard Mitigation Plan Update.

Chair of Select Board

Member of Select Board

ATTEST

Plainfield Clerk