Bridgewater Annex

Introduction

This appendix, when used with the Regional (multi-jurisdictional) PDM Plan, is an All-Hazard Pre-Disaster Mitigation Plan for the Town of Bridgewater.

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. Previous FEMA, State and Regional Project Impact efforts demonstrate the fact 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. 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 Mitigations strategies and measures **avert** the hazard by redirecting its impact by means of a structure or land treatment, **adapt** to the hazard by modifying structures or standards or **avoid** the hazard through improved public education, relocating/removing buildings in the flood zone, or ensuring development is disaster resistant. Measures and strategies could include projects such as:

- Flood-proofing structures
- Tying down propane/fuel tanks in flood-prone areas
- Elevating furnaces and water heaters
- Identifying & modifying high traffic accident locations and routes
- Ensuring adequate water supply
- Identifying & upgrading undersized culverts
- Proactive land use planning for floodplains and other flood-prone areas
- Proper road maintenance and construction
- Ensuring critical facilities are safely located
- Buyout & relocation of structures in harms way
- Establish & enforce appropriate building codes
- Public information and education

Purpose

The purpose of this Pre-disaster Mitigation Plan is to assist Bridgewater in identifying all hazards facing the town and list strategies to begin reducing risks from known hazards.

Two Rivers-Ottauquechee Regional Hazard Mitigation Goals

- Reduce the loss of life and injury resulting from all hazards.
- To lessen financial losses and property damage incurred by municipalities, businesses and private citizens due to disasters.

These overarching goals can be further refined as follows:

- The impacts of hazards should be first avoided, then reduced where they cannot be reasonably avoided. For flooding and riverine erosion, this can best be achieved by precluding development from hazard areas, and where development exists through property buyouts or flood protection sympathetic to the natural and human resources of the area.
- The connections between land use, development siting, drainage systems, building standards, and road design and maintenance and the effects of disasters on the Region should be recognized and incorporated into policy so that there is no adverse impact (increased hazard) from development.
- Mitigation actions should be part of larger, systematic efforts at disaster reduction based on the highest threats. Flooding should be addressed on a watershed scale. Structural fire and technological hazards should be lessened through statewide safety education and code compliance.

Bridgewater Town Plan (adopted 1/22/08) – Objectives/Goals that support Hazard Mitigation

- To protect the rural residential environment of Bridgewater
- To preserve and protect areas and sites of historic interest
- To protect steep slopes, soils, forests, water and other natural resources and provide open spaces for wildlife habitat
- To provide areas for commercial and light industrial use
- To encourage the healthful and reasonable distribution of population and employment opportunities
- To protect residential, agricultural and other areas from undue concentrations of population and from traffic congestion, inadequate parking and invasion of through traffic (page i).

Community Background

The Town of Bridgewater is situated in the central portion of Windsor County, Vermont. It comprises an area of approximately 28,657 acres or 44.8 square miles. Bridgewater is located within two physiographic areas. The major portion of the Town is characterized by mountainous terrain, narrow valleys, and a few peaks with elevations over 2,500 feet. A small part of the Town, to the east of the ridge formed by Pinnacle, Montague, and Ohio Hills, is characterized by a more subdued terrain, where the valleys are less narrow, and the slopes less steep.

Near the southern edge of the Town flows the Ottauquechee River, from west to east. It rises several miles away in Killington, and flows through Bridgewater, Woodstock, Hartford and Hartland on its way through the famous Quechee Gorge and into the Connecticut River. Almost all of Bridgewater, except for the northeastern section, is drained by this river and the streams that run into it.

U.S. Route 4 and Vermont Route 100 serve the town from West Bridgewater to Bridgewater Corners. However, from Bridgewater Corners east through Bridgewater Village, Route 4 is very busy, narrow and winding, and in need of some improvement to provide better safety and convenience. As one would expect, Route 4 serves as a major commuting facility for residents leaving town for their jobs and those working in Bridgewater living elsewhere.

Bridgewater, like its neighboring towns and the entire state, has been steadily growing for the past generation, but it has a relatively slow growth rate compared to other towns nearby. During the period 1990 to 2000, Bridgewater's population increased by 9.5%, a rate of increase slightly less than the State average.

The majority of Town lies within the service area of Central Vermont Public Service (CVPS), which supplies electrical power to the town.

Bridgewater is serviced by the Bridgewater Volunteer Fire Department, which is a member of the Connecticut River Valley Fire Mutual Aid Association, where towns provide assistance to one another in the case of a serious fire. With volunteer members, two pumper trucks and 2 - 4 wheel drive tanker trucks, the Department is doing a commendable job for its size. Funding is provided through fund raising activities plus annual support from the Town. All future development within the Town should be in accord with the capabilities of this Department to service the development.

An elected constable provides limited police security and traffic control services when needed. All other police functions are performed by the Windsor County Sheriff or Vermont State Police, Troop “D” located in Bethel.

Ambulance services are provided in cooperation with the Woodstock Ambulance Association and the Bridgewater Fast Squad. The Squad consists of nine volunteers and is available to respond to accidents as needed. The closest hospitals are Mount Ascutney Hospital and Health Center, located in Windsor, and Rutland Regional Medical Center in Rutland. Medivac services are available by the DHART helicopter.

In 2001, federal funds were used to acquire emergency generators to service public buildings or shelters. In 2000, a Rapid Response Plan was developed in cooperation with the Vermont Department of Emergency Management.

Community Hazards Inventory and Risk Assessment

In Bridgewater, the interviews and hazards analysis indicate that the following hazards are listed as probable (frequent to unusual) – Flash Flood, HAZMAT (Transportation Accidents), Winter Storm/Ice Storm and Structural Fire. In terms of potential severity of damage, the following hazards are rated as having the potential to produce serious to locally catastrophic damage – Flash Flood, HAZMAT, Hurricane/Tropical Storm, Drought, and Structural and Wildfire/Forest Fire. Hazards to which the town is vulnerable (probable and damaging) include Flash Flood, HAZMAT, and Fire. Therefore, the mitigation measures in this Plan focus on these three hazards.

Flash Flood (Risk = Med-High/High)

Based on the results of overlaying the FIRM flood maps with the location of the E911 points, there are 56 residences and 5 commercial businesses in the town that are vulnerable to potential flooding. The estimated loss for damage to these properties from the 100 year flood, assuming average residential and commercial values (derived from 2008 Annual Report by the Vermont Department of Taxes, Division of Property Valuation and Review) would be $12,577,516. This is about 6% of the grand list.

Recent flooding that had led to federal disaster declarations for Windsor County occurred from June 17, 1998 to July 13, 1998 (DR 1228 VT), Sept. 16 through Sept. 21, 1999 (DR 1307 VT), July 14, 2000 through July 18, 2000 (DR 1336 VT), July 21, 2003, through August 18, 2003 (DR 1488 VT), April 15-21, 2007 (DR 1698 VT), July 9-11, 2007 (DR 1715 VT) and July 21 through August 12, 2008 (DR 1790 VT). This list does not include flood events that were not federally declared.

Several small, steep streams also have no mapped flood areas but could have flash flooding, especially in remote forested areas with large fallen trees. No development projects are planned in Bridgewater in areas that would be vulnerable to flooding. There are no repetitive loss properties in Bridgewater on FEMA's NFIP list.

Hazardous Materials (HAZMAT) - Transportation Accidents (Risk = Med-High/High)

Based on available VT Tier II data, there are 2 sites in town that have sufficient types and/or quantities of hazardous materials to require reporting. Bridgewater's village is located along Route 4, which sees a fair amount of truck traffic by Vermont standards. There are 237 residential and 33 commercial buildings within 1,000 feet of a potential HAZMAT spill along Route 4. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be $2,871,923. It should also be noted that the State of Vermont currently has one fully trained HAZMAT response team, with vehicles located in Essex Junction, Brandon, and Windsor. The HAZMAT crew chief is available within minutes of a call for the team but on-scene response would be a matter of hours. In the event of a serious accident in town, there would be little time for evacuation and response would be difficult.

Fire (Risk = Med-High/High)

Poor access to fires, limited water supply for firefighting outside the Village area, and distances of homes from the Fire Station are a few of the challenges that leave Bridgewater vulnerable to the impacts of structure fires. Wildfires are possible during late spring, late summer, and early fall. The forests contain potential fuel for a serious conflagration, with many wooded acres and difficult terrain. Some recreational and retirement homes with single access roads and no fire-fighting water supply are in jeopardy.

Existing Hazard Mitigation Measures in the Community

Ongoing efforts to mitigate hazards in the community include:

1. ditch and culvert maintenance.
2. administration of flood hazard regulations

National Flood Insurance Program

Bridgewater's initial Flood Hazard Boundary Map was identified on 8/16/74. The Town's initial Flood Insurance Rate Map (FIRM) was dated 7/2/80. The Town's FIRM has been updated, and the current effective map date is 9/28/07.

The Bridgewater Administrative Officer serves as the NFIP Administrator. Bridgewater is located in Windsor County and completed an update of its flood hazard regulations in 2007. Aside from the Town's NFIP program, there are no additional erosion control or flood management regulations that apply in Bridgewater. There are no plans to enroll the community in the CRS program.

Based on the regional and local hazard assessment and analysis, this Annex identifies actions related to continued compliance with the NFIP. These actions are prioritized, along with the other actions developed in this Annex, using the method described on Page 21 of the Regional PDM Plan. The actions are included in the Implementation Schedule for Prioritized Mitigation Projects, which follows.

Areas of Local Concern

1. The Mill building in Bridgewater is the location for a number of retail shops. In the event of a major emergency, evacuation and fire suppression would be a concern.
2. Any potential hazards that might be created by the Long Trail Brewery plant or the Sewage Treatment plant are unknown and should be investigated.
3. Small, steep streams in remote, heavily forested areas (such as the Chateauguay No-Town Area) have no mapped flood areas but could have flash flooding due to culverts blocked by large fallen trees.
4. Riverbank erosion is threatening sections of Chateauguay Road.
5. Wayside Road embankment is in danger of failing.

Implementation Schedule for Prioritized Mitigation Projects

Tasks currently under way or under consideration – in order of priority:

MITIGATION ACTION	WHO (LEADERSHIP)	WHEN (TIMEFRAME)	HOW (FUNDING/ SUPPORT)	IMPLEMENTATION THROUGH EXISTING PROGRAMS
ALL HAZARDS 1. Ensure that RRP is current	Selectboard	Yearly	With TRORC assistance	
2. Use PDM plan for Hazard Identification and Mapping.	Emergency Management Coordinator	Ongoing	Local resources	
3. Re-write and update existing Emergency Operations Plan.	Emergency Management Coordinator	2009	Local resources	
4. Encourage the utilities to continue a regular schedule of tree trimming along power lines.	Emergency Management Coordinator	Ongoing	Local resources	
FLASH FLOOD 5. Continue the planned road maintenance program that addresses culvert survey and upgrade and ditching.	Highway Department	Ongoing	Local resources	
6. Work with State staff to plan removal of fallen trees in areas with remote, steep streams.	Highway Department	2010	Local resources	
7. Stabilize Wayside Road in area used as a dam.	Highway Department	2010	Local and state resources	
8. Stabilize riverbanks along Chateauguay Road.	Highway Department	2010	Local and state resources	
HAZMAT 9. Ensure that all emergency response and management personnel continue to receive HAZMAT awareness training.	Fire Department	2009	Funded by Fire Service Training Academy	
10. Analyze potential hazards that might be associated with the Long Trail Brewery and the Sewage Treatment Plant	Emergency Management Coordinator	2010	Local resources	
FIRE 11. Outfit town buildings with smoke detectors and emergency lights.	Fire Department	2009	Local resources	
12. Develop additional dry hydrant sites in rural locations.	Fire Department	Ongoing	Local resources, George Aiken RC&D	