

ANNEX 2008 Update:

Westminster, VT

Westminster Town-Specific Plan

INTRODUCTION AND PURPOSE

This appendix, when used with the appropriate sections of the Windham Region Multi-Jurisdictional Pre-Disaster Hazard Mitigation Plan, is an All-Hazard Mitigation Plan for the town of Westminster. The purpose of this plan is to assist the town of Westminster in identifying all of the hazards facing the town and to identify strategies to begin reducing risks from identified hazards.

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 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, averting 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, and could include projects such as:

- Flood-proofing structures
- Tying down propane/fuel tanks in flood-prone areas
- Elevating furnaces and water heaters
- Identifying and modifying high traffic incident locations and routes
- Ensuring adequate water supply
- Elevating structures or utilities above flood levels
- Identifying and 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
- Establish and enforce appropriate building codes
- Public information

Local Planning Process

The local planning process followed the steps listed in the Regional All-Hazard Mitigation Plan in Section 2. Work commenced with the Local Emergency Management Organization of Westminster, acting as the local Hazard Mitigation Planning Committee in 2005. A series of meetings between WRC staff and town officials were conducted, several proposed mitigation projects were identified and have been completed. A key priority was to comply with prevailing federal and state requirements following a change in policy by FEMA in the spring of 1999, which required the adoption of codes and standards before a disaster declaration date in order to be eligible for certain FEMA benefits regarding facility upgrades. To this end in 2005 Westminster completed an inventory of bridge and culverts.

At key points public participation was encouraged in mitigation activities such as changes to land use planning (zoning), and flood hazard area regulation (updated NFIP approved regulations) Public hearings were held in the fall of 2004 when the Town made revisions to the Zoning Bylaw. Several residents commented on the Zoning Revisions which helped to shape the eventual final draft that was adopted on September 19, 2005. Revisions to the Zoning Bylaw expanded the existing commercial districts and provided for new commercial districts on the north end of Westminster West Rd., the south end of US Rt. 5 and at the Rt. 121/ Back Westminster Road

intersection. A new zone, The Connecticut River Conservation zone, was adopted to protect large parcels along the Connecticut River.

The Town's Flood Hazard Bylaw was updated in 2007 to reflect new Digital Flood Insurance Rate Maps and a Public Hearing was held on August 13, 2007 where no objections were made. The updated regulations were adopted by the Town on September 11, 2007. In the process of preparing the final draft of this plan, meetings were conducted between town officials and WRC staff in early 2008.

In 2008, each section of the plan was reviewed by all participants and changes were made throughout the plan to update community background information and development trends. The community hazard inventory and vulnerability assessments were reviewed and consensus reached on vulnerability impacts and likelihood of events.

Community Involvement was minimal in this process as meeting times were difficult to establish where fire department representatives could sit down at the same time and not be on call. In the future, greater effort will be made coordinate emergency plan updates to involve public participants where meeting times can be more amenable to the process.

The Town of Westminster will continue to work with the Windham Regional Commission to monitor, evaluate, and update the plan throughout the next 5 year cycle. This will take active involvement on the part of the Town Emergency Management Director working with Windham Regional Commission staff to identify and plan for ongoing hazard mitigation work and coordination among stakeholders to identify structures and engineering projects that can help mitigate future hazardous events; e.g. bridge and culverts replacements, road replacements and grading, as well as any repetitive loss structures that may be in the Special Flood Hazard Area as identified on FEMA Flood Maps (e.g. FHBM and FIRM maps). Public Meetings will be held annually to solicit public participation from residents on what they feel to be the most imminent hazards affecting the Town. Town Meeting Day could also be a possibility for discussion of this plan.

The following hazard mitigation planning meetings were held for the creation of this updated plan:

- July 16, 2008 Westminster Town Office, Westminster VT
- August 20, 2008 Westminster Town Office, Westminster VT
- There was also email and phone correspondence during drafting between Josh O'Neill and Westminster Town Manager Sonia Alexander from July to September

Hazard Mitigation Goals

- Reduce the loss of life and injury resulting from all hazards.
- Reduce the impact of hazards on the town's waterbodies, natural resources, and historic resources.
- Reduce the economic impacts from hazard events.
 - Minimize disruption to the road network and maintain access
 - Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters.
 - Ensure that community infrastructure is not significantly damaged by a hazard event.
- Encourage hazard mitigation planning to be incorporated into other community planning projects, such as the Town Plan, Capital Improvement Plan, Rapid Response Plan and Town Emergency Plan.
- Ensure that members of the general public continue to be part of the hazard mitigation planning process.

Acknowledgements

The following people were involved in the hazard mitigation planning process:

- Glenn Smith, Town Manager, Emergency Management Director, 2005 to 2007
- Sonia Alexander, Interim Town Manager, 2007, Town Manager, 2008, Emergency Management Director 2007, Emergency Management Co-Director 2008.
- Doreen Woodward, Emergency Management Co-Director 2008.
- Mark Lund, Highway Department Foreman,
- Cole Streeter, Fire Chief
- Josh O'Neill, Windham Regional Commission

TOWN PROFILE

Community Background

Westminster has a population of 3,210 people as of 2000 Census. The town lies on the Connecticut River, north of Putney, South of Rockingham and east of Brookline, it is comprised of three villages, Westminster, Westminster West and North Westminster, yet it is estimated that more than half the population lives in the lower density rural areas outside these villages. The area of Westminster is 45.32 square miles. The soils over much of the Town originate from glacial till derived from granite, gneiss, schist and shale. They are mostly very stony loams low in silt and clay, often acidic and usually well drained but sometimes shallow. Those soils in the major stream valleys are alluvial or outwash origin and are commonly quite deep. There are also a few pockets of organic soils of bog origin. During much of the late 19th century and early to mid 20th century the Connecticut River was a dumpsite for many factories and mills.

Westminster has an average precipitation of forty-four (44) inches per year. There are roughly one hundred twenty (120) days per year of measurable precipitation. The Town receives an average of eighty (80) inches of snow per winter. There are roughly thirty (30) days per year in which one inch or more of snow falls and there are an average of one hundred (100) days per year when the ground is covered with at least one inch of snow. Most winters have several snowstorms dropping five (5) inches or more of snow, and at least one freezing rain can be expected each winter. Westminster lies in the region of the prevailing westerlies, northwest winds in the winter and southwest winds in the summer. Several major storms, including northeasters and tropical can be expected each year, summer or winter. Evacuation routes are detailed on Map x.

Development Trends

The 2000 Census indicates a population of 3,210, and a growth rate of 6. percent over the 1990 population. This is lower than the 8.2 percent growth rate for the State, but higher than the 5 percent growth rate for Windham County during the same period. Since 1980, Westminster has experienced a 29 percent increase in population. New residential and commercial building growth has been moderate in recent years. Since 2003, there have been between 10 and 17 permits issued for new residential structures per year. This growth has not noticeably increased the community's vulnerability to any identified hazards.

COMMUNITY HAZARD INVENTORY AND VULNERABILITY ASSESSMENT

Methodology

A **vulnerability analysis** for each community begins with an inventory of possible hazards and an assessment of the risk that they pose. These are the questions to be answered. What hazards can affect your community? How bad can it get? How likely are they to occur? What will be affected by these hazards? How will these hazards affect you? The **magnitude** (percentage of the community affected) of the impact of the hazard can be classed as follows:

- Negligible: < 10% of properties damaged/Minimal disruption to quality of life.
- Limited: 10% to < 25% of properties damaged/Loss of essential facilities/services for up to 7 days/few (< 1% of population) injuries possible.
- Critical: 25% to 50% of properties damaged/Loss of essential facilities/services for > 7 days < 14 days/Major (< 10% of population) injuries/few deaths possible.
- Catastrophic: > 50% of properties damaged/loss of essential facilities/services for > 14 days/Severe (> 10% of population) injuries/multiple deaths possible.

The **frequency** of occurrence (Likelihood) is classified as shown:

- Unlikely: < 1% probability in the next 100 years.
- Possible: 1% to 10% probability in the next year, or at least one chance in the next 100 years.
- Likely: 10% to 100% probability in the next year, or at least one chance in the next 10 years.
- Highly Likely: Near 100% probability in the next year.

Additionally, seasonal patterns that may exist are considered, what areas are likely to be affected most, the probable duration of the hazard, the speed of onset (amount of warning time, considered with existing warning systems).

The combination of the **magnitude** of the hazard and the **frequency** was used to determine the **community vulnerability** as HIGH, MODERATE or LOW. For example, a flood event is highly likely (nearly 100% probability in the next year) in many communities but the degree of impact varies. A highly likely flood with critical or catastrophic impact rates the community vulnerability as HIGH. Another community with a highly likely or likely (at least one chance in the next 10 years) flood with a limited impact would receive a vulnerability rating of MODERATE. The vulnerability of a community having the occurrence of an event as possible or unlikely with limited or negligible impact would be LOW.

Likelihood:

U = unlikely

P = possible

L = likely

HL = highly likely

Impact:

N = negligible

L = limited

CR = critical

CA = catastrophic

Possible Hazard	Likelihood	Impact	Community Vulnerability	Most vulnerable facilities and populations
Tornado/Microburst	P	L	LOW	Village Areas
Flood	P	L	MOD.	Whole Town, Roads, and Bridges
100-year flood	P	CR	MOD.	Whole Town, Roads, and Bridges
Flash flood	L	L	HIGH	Whole Town, Roads, and Bridges
Hazardous materials	P	L	LOW	w/in 100' of Rt 5, I91
Radiological Incident	P	L	MOD	w/in 100' of Rt 5, I91, Reception Center for VY incident located in town
Structure Fire	L	N	LOW	All Facilities
Power Failure	HL	L	MOD.	All Facilities
Winter & Ice Storm	HL	L	MOD.	All Facilities
High Wind	HL	L	MOD.	All Facilities
Air crash	P	N	LOW	Schools, Farms and Fields
Water Supply Contamination	N/A	N/A	N/A	Depends on the contaminated area
Hurricane	P	L	LOW	All Facilities
Earthquake	U	N	LOW	All Facilities
Dam Failures	P	N	LOW	Critical Facilities in the Floodplain
Drought	U	N	LOW	All facilities
Highway Accidents	HL	N	LOW	Traveling Public
Railroad Accidents	N/A	N/A	N/A	Farmland residents along Rail corridor
Wildfire	L	L	MOD	Residences
Landslide	L	N	LOW	Homes on steep slopes
School Safety Issues	P	CR	MOD	School

Terrorism	U	CR	MOD	VTANG barracks, transport infrastructure
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Detailed Hazard Analysis - Highest Hazards

Flash Floods

There are no recent records of ice jams or 100-year flood events in Westminster; however, flash floods are a locally probable hazard event. Flash floods typically occur during summer when a large thunderstorm or a series of rain storms result in high volumes of rain over a short period of time. Higher-elevation drainage areas and streams are particularly susceptible to flash floods. Flash floods are likely in Westminster, and potential damage to Westminster Road could limit access to Town, as it is the only road into the community.

NFIP Continued Compliance

The Town of Westminster currently participates in the National Flood Insurance Program. The Town adopted amendments to their flood Hazard Overlay Bylaw, which is Article 7 in their current Zoning Bylaw, to include revised Flood Hazard maps, consisting of the most current flood insurance studies and maps published by the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP) , as provided by the Secretary of the Agency of Natural Resources pursuant to 10 V.S.A. § 753.

The new Zoning Administrator for the Town of Westminster recently attended a workshop for Zoning Administrators and Floodplain Managers entitled “Working with Digital Flood Insurance Rate Maps” where Zoning Officials were introduced to several methods of accessing Digital Flood Insurance Rate Maps and FEMA’s Flood Insurance Studies. Participants were introduced to paper, PDF, GIS, and KML formats. The workshops included work with GIS data and the process of making determinations of flood hazard. This workshop occurred on Wednesday, November 12, 2008 2-4 p.m. and was co-sponsored by the Vermont Department of Environmental Conservation’s River Management Program and the Windham Regional Commission.

According to information compiled from FEMA’s SQAnet database and sent to Windham Regional Commission by Vermont Emergency Management, there are currently no repetitive loss properties located in the Town of Westminster.

Winter Storms

Winter storms, with snow, ice and freezing temperatures in varying combinations, are fairly commonplace in Westminster and occur townwide. Heavy wet snows of early fall and late spring, as well as ice storms, often result in loss of electric power, leaving people without adequate heating capability. The other threat from these storms is downed trees, resulting in power failures and impassable roads or driveways.

Wildfire / Structure Fire

Wildfires can spread to residential areas, thus forcing whole communities to evacuate. When fires are followed by heavy rains, the potential for mudslides and flooding is increased. Most of Westminster is heavily forested. Hence, the potential, given the right conditions, for widespread forest fires is great. Downed trees, as result of the 1998 ice storm, greatly increase the potential for a large, devastating forest fire in this area. However, wildfire conditions do not occur frequently due to the relatively high annual precipitation level. Northern New England did experience some large forest fires in the late 1940s. Portions of the Vermont forest are now beyond the natural burn cycle. Communities or residents located in or along the edges of forested areas are particularly at risk. Wildland fires are most likely in the summer and fall months.

Structure fires are highly likely but not common in Westminster. Structure fires can result in loss of property and/or life. They can affect a single residential structure or spread to other homes, businesses or apartment complexes. Residential fires kill more people in the U.S. each year than

all natural disasters combined. In Vermont, 12 fatal fires resulting in 22 civilian deaths occurred in 2000. The most significant common factor in fire fatalities in Vermont continues to be the absence of a functioning smoke detector in the sleeping area of residential structures. Fires can be caused by improperly disposing of ashes with live coals from wood stoves or faulty electrical wiring.

Power Failure

Power failure is a common event in Westminster and can occur anywhere in town. Power failures are typically the result of power lines damaged by high winds or heavy snow/ice storms. Power failures may also result from disruptions in the New England or national power grid, as indicated by the widespread power outages in 2003. Dead or dying trees in close proximity to power lines pose a particular threat for power failure.

High Wind

High wind events are highly likely in Westminster, with the potential for limited resulting damage. The mostly likely local threats for high winds are from nor'easters, hurricanes, downbursts or wind shear. Trees downed by high winds can block roads, and down power and communications lines. Mobile home parks and houses on ridge lines are at greater risk from wind damage. Most high winds events in Westminster have resulted in minor damage from downed trees and power lines.

Risk Assessment - Potential Loss Estimates

In order to determine potential dollar losses to vulnerable structures due to natural and man-made hazards, each higher-risk hazard type was analyzed below. Human losses are not calculated during this exercise, but could be expected to occur depending on the type and severity of the hazard. Potential loss estimates are based on vulnerability and risk discussions held during Westminster Hazard Mitigation Committee meetings.

Flash floods

Flash floods typically occur in high elevation drainage areas as a result of summer thunderstorm activity. Damage from flash floods is difficult to predict since, flash flood areas are not mapped at this time. Infrastructure and structures along higher elevation streams and drainage areas are most susceptible to damage from flash flooding. Drainage ditches and culverts are the biggest concern for local flash flooding events.

NFIP Continued Compliance

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Wildfires / Structure Fires

Damage from wildfires is difficult to project. Forest fires are more likely during years of drought or during drier seasons (late summer or fall). Fire danger is generally universal and can occur practically at any time. Damage would depend upon the extent of the fire, the number and type of buildings damaged and the contents destroyed within the structures.

Structure fires are highly likely, but are typically not an annual event in Westminster. With an average assessed residential value of approximately \$177,633 in April 2008, and assuming one structural fire resulting in the total loss of a structure happens on average once every two years, structural fires could result in \$88,816.50 in damage in an average year.

Winter / Ice Storms

Damage from heavy snow and ice storms can vary depending upon wind speeds, snow or ice accumulation, storm duration, and structural conditions (such heavy snow and ice accumulation on large, flat roofed structures). The assessed value of all residential and commercial property is approximately \$204,516,690.00. Assuming a range of town-wide damage of 1% to 5%, a heavy snow or ice storm could result in \$2,045.167 \$10,225,835 of total damage.

Power Failure

Potential loss estimates are difficult to predict for power failures, which typically are isolated in geographic area and short in duration. Therefore, they often have only minimal impact to people and property. Power failures usually result in minor inconveniences to residents; however, longer duration events might result in the loss of perishable items (with attendant health risks from spoiled medicine(s) for at risk populations) and business losses. Power outages in winter months could result in the loss of home heating, bursting water pipes and resulting structural water damage.

Existing Hazard Mitigation Programs, Projects and Activities

The following policies, programs and activities related to hazard mitigation are currently in place and/or being implemented in the town of Westminster. The Committee analyzed these programs for their effectiveness and noted improvements needed.

Type of Existing Protection	Description	Effectiveness/Enforcement/Hazard that is addressed	Gaps in Existing Protection/Improvements Needed
Town Plan	Plan for coordinated town-wide planning for land use, municipal facilities, etc.	Flooding Addressed	Town Plan was updated in 2007
Emergency Operations Plan	Municipal procedures for emergency response	N/A	N/A
Town of Westminster Rapid Response Plan (RRP)	Basic municipal procedures for emergency response	RRP	NIMS compliance
School Emergency Response Protocol	School procedures for emergency response	Complete	Continued drilling
LEPC 6 Hazardous Materials Plan	Procedures for hazmat emergency response at regional level	LEPC 6 has the plan	Continued involvement with the LEPC
Mutual Aid – Emergency Services	Agreement for regional coordinated emergency services	Keene (NH) Mutual Aid – written agreement/contract for Fire/Ambulance and HazMat	None identified
Mutual Aid – Public Works	Agreement for regional coordinated emergency highway maintenance services	Public Works MAA signed in 2003	None identified
Road Standards	Design and construction standards for roads and drainage systems	Updated with VTrans standards	None identified
Subdivision Regulations	Regulates the division of land, standards for site access and utilities	In Effect	None identified
Sewage Regulations	On-site sewage systems are regulated by the State of Vermont	See State Agency	None identified
Flood Hazard Area Regulations	Regulates development in FEMA flood hazard areas	Article VII Zoning Regulations	N/A
Site Plan Review (SPR)	Site development standards	See zoning and Subdivision regulations	Included in current draft zoning update

National Flood Insurance Program (NFIP)	Provides ability for residents to acquire flood insurance	NFIP member updated March 2007	None Identified
Maintenance Programs	Bridge & Culvert Inventory	Updated in 2005	Ongoing
Building Code	Regulates building construction standards	No enforcement for single or 2 family dwellings Public Buildings are covered by some Labor & Industry Codes	N/A
Wetland protection – VT Wetland Rules	Protected by 1990 Vermont Wetland Rules	OK	None identified

Identified Hazard Mitigation Programs, Projects, and Activities

The Westminster Hazard Mitigation Committee identified the following new hazard mitigation activities based on an evaluation of hazard event vulnerability not addressed by existing hazard mitigation initiatives and the feasibility of new activities.

Engineering Projects

In 2007 fiscal year the Town Line Road culvert was replaced with a pipe arch at a cost of \$59,500. The work was completed with town funds of \$5,950 and a \$53,550 grant from Vermont Agency of Transportation.

In October 2007, the Town also received a \$21,215 grant from Vermont Agency of Transportation to replace the wooden deck and side rails on the East Putney brook Bridge.

For 2008 the Town will apply for grants to replace a culvert on Cross Road and for help paving class 2 roads

Equipment Purchase

A new 2008 Freightliner dump truck and plow equipment was purchased in 2007 to replace a 1999 Freightliner dump truck.

Implementation Schedule for Prioritized Mitigation Projects¹

The following implementation schedule was developed by the Westminster Hazard Mitigation Committee. Mitigation actions are listed in priority order, with the most critical needs listed at the top of the list. The following criteria were used in establishing project priorities. Each criterion was rated according to a numeric scale, with each score indicating the potential benefits of each project:

“0”	Not Applicable
“1”	Poor
“2”	Average
“3”	Good

- Does the action reduce damage?
- Does the action contribute to community objectives?
- Does the action meet existing regulations?
- Does the action protect historic structures or structures critical to town operations?
- Can the action be implemented quickly?
- Is the action socially acceptable?
- Is the action technically feasible?
- Is the action administratively possible?
- Is the action politically acceptable?
- Is the action legal?
- Does the action offer reasonable benefits compared to its cost of implementation?
- Is the action environmentally sound?

The ranking of these criteria is largely based on the best available information and best judgment as many projects are not fully scoped out at this time. The actions are listed in the table below in order of how they scored based upon this ranking system (36 is the highest possible score). The full scoring matrix used is located at the end of this annex.

¹ Adapted from Windham Regional Pre-Disaster Mitigation Plan

MITIGATION ACTION	WHO (LEADERSHIP)	WHEN (DEADLINE)	HOW (FUNDING SOURCE)	Project Priority
Regrade Adams Brook Rd	Selectboard	As funding allows	Grant	1
Annual culvert program based on inventory	Selectboard	Ongoing	General Fund	2
Maintain ditches	Selectboard	Ongoing	General Fund	2
Emergency Services Personnel Training	Emergency Management Committee	Ongoing	General Fund	3
Interoperable Communication	Emergency Management Committee	2009/2010	Grants/Budget	4
Replacement of Emergency Response Equipment through Capital Budget Planning	Selectboard and Emergency Management Committee	Ongoing	General Fund/Capital Investments	4
Participate in NFIP Training offered by the State and/or FEMA addressing Flood Hazard Planning and Management	Town Manager and Zoning Administrator	Ongoing	General Fund/State Funding	4