Adopted by the Town of Westford Selectboard on Month, Day, 2016

TOWN OF WESTFORD, Vermont
All-Hazards Mitigation Plan

Annex 16 to the
2016 Chittenden County Multi-Jurisdictional
All-Hazards Mitigation Plan

Prepared by:

The Chittenden County Regional Planning Commission

and the

Town of Westford, Vermont

Month 2016

Executive Summary

Hazard Mitigation is a sustained effort to permanently reduce or eliminate long-term risks to people and property from the effects of reasonably predictable hazards. The purposes of this updated Local All-Hazards Mitigation Plan are to:

- Identify specific natural, technological and societal hazards that impact the Town of Westford;
- Prioritize hazards for mitigation planning;
- Recommend town-level goals and strategies to reduce losses from those hazards; and
- Establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

This plan is a local annex to the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*. **In order to become eligible to receive various forms of Federal hazard mitigation grants, a Chittenden County municipality must formally adopt its Local All-Hazards Mitigation Plan along with the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*, or develop and adopt an independent, stand-along Local All-Hazards Mitigation Plan.**

Section 1: Introduction and Purpose explains the purpose, benefits, implications and goals of this plan. This section also describes municipal demographics and development characteristics, and describes the planning process used to develop this plan.

Section 2: Hazard Identification expands on the hazard identification in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan* with specific municipal-level details on selected hazards.

Section 3: Risk Assessment discusses identified hazard areas in the municipality and reviews previous federally-declared disasters as a means to identify what risks are likely in the future. This section presents a hazard risk assessment for the municipality, identifying the most significant and most likely hazards which merit mitigation activity. The most significant identified hazards for Westford are:

- Severe Winter Storm – 55
- Flooding – 36
- Fluvial Erosion – 36
- Crime – 30
- Epidemic – 28
- Economic Recession – 28
- Power Loss – 20
- Telecommunications Failure – 20

Section 4: Vulnerability Assessment discusses buildings, critical facilities and infrastructure in designated hazard areas, vulnerable populations and the issue of estimating potential losses.

Section 5: Mitigation Strategies is the heart of this All Hazards Mitigation Plan. This section begins with an overview of goals and policies in the *2015 Westford Town Plan* that support

hazard mitigation. This is followed by an analysis of existing municipal actions that support hazard mitigation, such as planning and zoning, emergency services and public works. This section presents the following municipal all-hazards mitigation goals:

1) Reduce at a minimum, and prevent to the maximum extent possible, the loss of life and injury resulting from all hazards.
2) Mitigate financial losses and environmental degradation incurred by municipal, educational, residential, commercial, industrial and agricultural establishments due to various hazards.
3) Maintain and increase awareness amongst the town's residents and businesses of the damages caused by previous and potential future hazard events as identified specifically in this Local All-Hazards Mitigation Plan and as identified generally in the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan.
4) Recognize the linkages between the relative frequency and severity of disaster events and the design, development, use and maintenance of infrastructure such as roads, utilities and stormwater management and the planning and development of various land uses.
5) Maintain existing municipal plans, programs, regulations, bylaws and ordinances that directly or indirectly support hazard mitigation.
6) Consider formal incorporation of this Local All-Hazards Mitigation Plan into the municipal comprehensive plan as described in 24 VSA, Section 4403(5), as well as incorporation of proposed new mitigation actions into the municipality's/town's bylaws, regulations and ordinances, including, but not limited to, zoning bylaws and subdivision regulations and building codes.
7) Consider formal incorporation of this Local All-Hazards Mitigation Plan, particularly the recommended mitigation actions, into the municipal/town operating and capital plans and infrastructure, utilities, highways and emergency services.

This section also identifies and provides a detailed discussion of the following Mitigation Actions:

- Action #1: Address identified vulnerable infrastructure.
- Action #2: Improve capabilities of existing road and stormwater management infrastructure to mitigate the following hazards and address the following vulnerabilities.
- Action #3: Based on completed fluvial geomorphology assessment, develop strategies in response to identified risk to mitigate the following hazards and address the following vulnerabilities.

Finally, this section provides an Implementation Matrix to aid the municipality in implementing the Mitigation Actions and annual monitoring of this Plan.

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SECTION 1: INTRODUCTION AND PURPOSE

1.1 Purpose and Scope of this Plan

The purpose of this Local All-Hazards Mitigation Plan is to assist this municipality in identifying all hazards facing their community and in identifying strategies to reduce the impacts of those hazards. The plan also seeks to coordinate the mitigation efforts of this municipality with those outlined in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan* as well as efforts of quasi-governmental organizations such as Local Emergency Planning Committee, District #1 and the Chittenden County Regional Planning Commission.

This annex, when used with the appropriate sections of the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan, constitutes an All-Hazards Mitigation Plan for the Town of Westford. Community planning can aid in significantly reducing the impact of expected, but unpredictable natural and human-caused events. The goal of this plan is provide hazard mitigation strategies to aid in creating disaster resistant communities throughout Chittenden County.

1.2 Hazard Mitigation

The *2013 Vermont State All-Hazards Mitigation Plan* defines hazard mitigation as

> *Any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. The Federal Emergency Management Agency (FEMA) and state agencies recognize that it is less expensive to prevent disaster or mitigate its effects 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, Mitigation Response and Recovery. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where they are most severe and to identify actions that can be taken to reduce the severity of the hazard.*

Hazard mitigation strategies and measures can reduce or eliminate the frequency of a specific hazard, lessen the impact of a hazard, modify standards and structures to adapt to a hazard, or limit development in identified hazardous areas.

1.3 Hazard Mitigation Planning Required by the Disaster Mitigation Act of 2000

Hazard mitigation planning is the process that analyzes a community's risk from natural hazards, coordinates available resources, and implements actions to reduce risks. According to 44 CFR Part 201, Hazard Mitigation Planning, this planning process establishes criteria for State and local hazard mitigation planning authorized by Section 322 of the Stafford Act as amended by Section 104 of the *Disaster Mitigation Act of 2000*. Effective November 1, 2003, local governments now have to have an approved local mitigation plan prior to the approval of a local mitigation project funded through federal Pre-Disaster Mitigation funds. Furthermore, the State of Vermont is required to adopt a State Pre-Disaster Mitigation Plan in order for Pre-Disaster

Mitigation funds or grants to be released for either a state or local mitigation project after November 1, 2004.

There are several implications if the plan is not adopted.

- After November 1, 2004, Flood Mitigation Assistance Grant Program (FMAGP) funds will be available only to communities that have adopted a local Plan
- For disasters declared after November 1, 2004, a community without a plan is not eligible for HMGP project grants but may apply for planning grants under the 7% of HMGP available for planning.
- For the Pre-Disaster Mitigation (PDM) program, a community may apply for PDM funding but must have an approved plan in order to receive a PDM project grant.
- Under the Emergency Relief Assistance Fund, contributions from the State of Vermont to cover the non-Federal share of Public Assistance project costs varies depending on whether a community has a plan. A community without a plan would have to cover 17.5% of the overall project cost, but a community with a plan would have to cover only 7.5% to 12.5% of the cost.

1.4 Benefits

Adoption and maintenance of this Plan will:

- Make certain funding sources available to complete the identified mitigation initiatives that would not otherwise be available if the plan was not in place.
- Ease the receipt of post-disaster state and federal funding because the list of mitigation initiatives is already identified.
- Support effective pre- and post-disaster decision making efforts.
- Lessen each local government's vulnerability to disasters by focusing limited financial resources to specifically identified initiatives whose importance has been ranked.
- Connect hazard mitigation planning to community planning where possible.

1.5 All-Hazards Mitigation Plan Goals (we may delete this section)

The Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan establishes the following general goals for the county as a whole and its municipalities:

1) Recognize the mixed urban-suburban-rural nature of Chittenden County and its position as the state's most populous and most economically powerful county and incorporate these facts in hazard mitigation planning.
2) Promote awareness amongst municipalities, residents and business in the county of the linkages between the relative frequency and severity of disaster events and the design, development, use and maintenance of infrastructure such as roads, utilities and stormwater management and the planning and development of various land uses.
3) Ensure that regionally-initiated mitigation measures are consistent with municipal plans and the capacity of municipalities to implement them.

4) Encourage municipalities to formally incorporate their individual Local All-Hazards Mitigation Plan into their municipal plan as described in 24 VSA, Section 4403(5), as well as incorporate their proposed mitigation actions into their various bylaws, regulations and ordinances, including, but not limited to, zoning bylaws and subdivision regulations and building codes.
5) Encourage municipalities to formally incorporate elements of their Local All-Hazards Mitigation Plan, particularly their recommended mitigation strategies, into their municipal operating and capital plans and programs, especially, but not limited to, as they relate to public facilities and infrastructure, utilities, highways and emergency services.
6) Educate regional entities on the damage to public infrastructure resulting from all hazards and work to incorporate hazard mitigation planning into regional land use planning, such as the Chittenden County Regional Plan, and regional transportation planning conducted by the Chittenden County Metropolitan Planning Organization.
7) Maintain existing mechanisms or develop additional processes to foster regional cooperation in hazard mitigation, specifically and emergency planning, generally.

1.6 Town of Westford: Demographics and Development Characteristics

The Town of Westford is located on the northern edge of Chittenden County and is bounded on the west by Milton and Colchester, on the south by Essex and Jericho, on the east by Underhill and on the north by Fairfax (in Franklin County) and Cambridge (in Lamoille County). Westford encompasses 39.12 square miles.

Based on U.S. Census data, the University of Vermont's Center for Rural Studies reports a population of 2,029 people in 2010. Selected population characteristics are as follows:

Table 1-1 Town of Westford, selected population characteristics

Category	Number	%
Total Population	2,029	--
Median Age	41.5 years	--
Population age 65 years and over	180	8.9
Population (and %) under 10 years old	242	11.9
Population (and %) in group quarters	0	0.0

Source: 2010 Census

The following shows the types of housing within Westford, also based on the 2010 U.S. Census data:

Table1-2 Town of Westford, selected housing unit data

Category	Number	%
Total Housing Units	787	--
Occupied housing units	757	96.2
Vacant housing units	30	3.8
Vacant housing units used for seasonal, recreational or occasional use	13	1.7

Detached 1-unit housing units	605	80.7
Housing units with 5 or more units in structure	3	0.4
Mobile homes	96	12.8
Housing structures built in 1939 or earlier	156	20.8

Source: 2010 Census

Population concentrations occur in the village center, along VT 15 in the northeast corner of town, around Cambridge Rd. and Plains Rd. on the north border, and along Old Stage Rd. and the Westford-Milton Rd west of the village. With the exception of limited commercial development and municipal buildings along VT 128 and VT 15, and in the small village area, the overwhelming use of the landscape in Westford is for large-lot residential and agricultural purposes.

Table 1-3 Town of Westford, Historic Population Trends

Year	Population
1980	1,413
1990	1,740
2000	2,086
2010	2,029

Source: US Census Bureau

1.7 Summary of Planning Process

As noted above, the update of this municipal All Hazard Mitigation Plan (AHMP) was part of the planned 2016 update of the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and the municipal AHMPs that are annexes to the Multi-Jurisdictional Plan. The CCRPC, with funding provided by the State of Vermont via a FEMA Hazard Mitigation Grant, began this update process in the spring of 2015.

1.7.1 Development of the 2016 Westford All Hazards Mitigation Plan

In August 2015, CCRPC Staff met with the Town Planner, Town Clerk and Road Foreman for Westford. The meeting focused on the following issues:

1. Reviewing the matrix used in 2011 to identify and prioritize hazards facing Westford, and determining whether the overall scoring still makes sense
2. Discussing any newly significant hazards in Westford and identifying any new actions that could be taken to address them.
3. Discussing any progress that has been made on the strategies and tasks from the 2011 plan.

Based on this meeting, CCRPC Staff developed memos for Westford's Selectboard and Planning Commission outlining proposed changes to the 2011 materials and summarizing the reported progress. The memos also clearly stated how CCRPC staff could be reached for comment. The Planning Commission reviewed the draft during September and October, and Selectboard

discussed the memo at their meeting held on November 12, 2015. The meeting was open to the public and was duly warned in compliance with the Vermont Open Meeting Law *(1 V.S.A. §§ 310-314).* The memos, as meeting materials, were also available to the public. Members of the public who attended the meeting were able to review the memo and provide comments on the development of the plan. The Planning Commission and Selectboard offered changes regarding the ranking of hazards and the prioritization of mitigation strategies, which were incorporated into the plan.

In addition, the following materials were reviewed:

1. The 2015 Westford Town Plan
2. River corridor plan for the Browns River

In February 2016…[To be updated as the process continues]

Boilerplate to be adapted in spring 2016:

The revised final draft annex was submitted to VEM and FEMA for formal review and approval pending municipal adoption. CCRPC staff made minor revisions to the multi-jurisdictional plan and municipal annexes in response to Month 2016 comments from Vermont Emergency Management. This version of the plan was resubmitted to the Federal Emergency Management Agency Region 1 for approval pending adoption.

Upon approval pending adoption, CCRPC staff provided final drafts of the Multi-Jurisdictional Plan and the Westford Annex to the selectboard members and the town clerk in Month 2016. CCRPC also provided draft language for a resolution of adoption to be discussed at a regularly scheduled and properly warned selectboard meeting on Month Day, 2016.

The revised annex was adopted by the Westford Selectboard on Month Day, 2016.

SECTION 2: HAZARD IDENTIFICATION

Detailed descriptions of the natural, technological, and societal hazards affecting the municipalities of Chittenden County are contained in the *Multi-Jurisdictional All-Hazards Mitigation Plan*. Designated and non-designated hazard areas are described in Section 3 of this annex. Vulnerability of structures and infrastructure to hazards is also described in Section 4 and depicted on Map 3-1. As Westford contains no locations that store above 10,000 gallons of fuel or extremely hazardous substances, no further discussion of hazardous materials is warranted.

2.1 Transportation Incident

2.1.1 High Crash Locations

The following High Crash Locations have been identified by the Vermont Agency of Transportation in Westford.

Table 2-1 Town of Westford, high crash road sections, 2010-2014

Road	Road Type	Section (miles)	Severity Index $/crash
Westford-Milton Rd	Major Collector	0.000 - 0.300	$43,900
VT 128	Major Collector	5.498 - 5.798	$22,900

Source: Vermont Agency of Transportation

2.1.2 Road Infrastructure Failure

Of the four bridges inventoried by VTrans for Westford, none are rated functionally or structurally deficient. None of the bridges in Westford are rated Scour Critical with regards to fluvial undermining of bridge structure. Details on the bridges in the town are found in Table 4-4.

SECTION 3: RISK ASSESSMENT

3.1 Designated Hazard Areas

3.1.1 Flood Hazard Areas

In 2004, Westford began participation in the NFIP, and has been issued official FEMA Floodplain maps including most recently issuance of Digital Flood Insurance Rate Maps (DFIRM) by FEMA in 2011. The town is participating in the regular NFIP as of 2016. Westford's most recent Zoning Regulations, adopted in 2011, designate a Water Resources Overlay District for the area 100 feet from top-of-bank along the Browns River and 50 or100 feet from the center of all named and unnamed streams, ponds and lakes shown on the Town Plan Water Resources, Wetlands & Floodplains map. Only uses such as low impact recreation, agriculture, forestry, open land maintenance, maintenance of man-made ponds, invasive species control, and wastewater and potable water systems are permitted within the overlay district.

A simple GIS intersection analysis reveals that portions of town roads are also located within the 100-year floodplain as well as culverts and bridges and utility poles. Unfortunately, this level of analysis does not take into account the fluvial geomorphology (volume, velocity, direction, etc.) nor, most critically, does it factor in the elevation of the road relative to flood elevation. Analysis also reveals farmland located within the floodplain, however, without detailed studies ~~an accurate fluvial geomorphology assessment~~ at each location it is not currently possible to predict how many cubic yards of productive soils would be a net loss during a flood event.

Map 3-1 shows the current extent of the FEMA-FIRM flood hazard area in Westford, as well as structures, infrastructure, and critical facilities located in the flood hazard area.

3.1.2 Fluvial Erosion Hazard and River Corridor Areas

During development and adoption of both the 2005 and 2011 Multi-Jurisdictional Plan and the municipal AHMPs, threats from stream erosion were identified as Fluvial Erosion Hazard (FEH) Areas through the analytical lens of Stream Geomorphic Assessment (SGA). The SGA approach is still used by the Vermont Agency of Natural Resources but two different hazard areas are now identified and mapped.

Fluvial Erosion Hazard Areas are now referred to as River Corridor Protection Areas. These areas encompass the extent of a river's meander belt, the area a river will move back and forth through as erosion and sediment deposition occur naturally. River Corridors are the River Corridor Protection Areas with an additional buffer of 50 feet.

Some level of geomorphic assessment has been completed for most of the streams that run through Westford. Fluvial Erosion Hazard areas have been identified for some of these waterways. Notably, sections along the banks of the Browns River have been identified as fluvial erosion hazard areas. *Map 3-2* shows the progress of geomorphic assessments and identified fluvial erosion hazard areas in Westford.

3.1.3 Repetitive Loss Properties

Repetitive loss properties are public or private buildings insured under the National Flood Insurance Program that have made at least two insurance claims of more than $1,000 each during a ten year period.

According to the National Flood Insurance Program there are no such properties located in the Town of Westford.

3.2 Non-designated Hazard Areas

The following hazards are not formally analyzed nor mapped due to the random nature of where such damage occurs. However they occur with some frequency and therefore are discussed here.

3.2.1 Ice Storm Damage

Only a small area in the southwest portion of the town, near Rollin Irish Road, suffered downed trees and limbs in the 1998 ice storm (DR-1201). The Town of Westford did not receive formal Public Assistance dollars as part of this disaster. Some smaller winter storm events have occurred since then, including most recently DR-4163, declared in January 2014. However, mapping the locations of potential future events is not feasible as their occurrence is a function of numerous climatic variables.

3.2.2 High Winds and Lightning

Ridgeline and hilltop homes, utility lines, and homes located in the midst of mature forests are the most vulnerable to damage from falling trees and tree limbs. Two high wind events have been specifically identified as affecting Westford by the National Climatic Data Center. According to the National Climatic Data Center, lightning has struck and damaged structures twice in Westford since 1993, although local officials indicate that many more lightning incidents have occurred than are recorded in the database.

3.2.3 Thunderstorms

In prior versions of this Annex and the County Plan, damage to roads, culverts and bridges from thunderstorm events was discussed as either the result of flooding or fluvial erosion. It was assumed that overflowing nearby streams, rivers or lakes were the cause of the damage. Analysis has shown that this damage is caused by intense, localized thunderstorms which cause excessive and rapid water flows on and over paved and gravel roads, roadside ditches, driveway culverts, stormwater systems, etc. In many cases, damaged infrastructure is located nowhere near a formally mapped Floodplain or Fluvial Erosion Hazard Area or River Corridor. This was the case in more recent FEMA-declared disasters in the summer of 2013 and 2015. Because of this new information, CCRPC has decided to add "Thunderstorm" to the 2016 Update to the County Plan and its annexed local AHMPs. While past damage locations can sometimes be mapped (depending upon the degree and accuracy of data collection efforts) this may or may not provide any degree of predictability of the potential locations for future events.

The Town of Westford's road infrastructure as well as the driveways of private homes and businesses consist primarily of gravel and/or dirt and are therefore susceptible to damage from intense thunderstorms. Damage occurring in DR#-4120 (noted below) included significant damage from thunderstorms.

3.3 Previous FEMA-Declared Natural Disasters and Snow Emergencies

3.3.1 Public Assistance

Since 1990, Westford has received public assistance funding from FEMA for the following natural disasters:

Table 3-1 Town of Westford, FEMA-declared disasters and snow emergencies, 1990-2015

Date (FEMA ID#)	Type of Event	Total repair estimates
June 1990 (DR 875)	flooding	$37,658
January 1996 (DR 1101)	flooding	$44,494
July 1998 (DR 1228)	flooding	$389,279
April 2001 (EM3167)	snow emergency	$11,050
August 2004 (DR 1559)	flooding	$70,321
December 2010 (DR 1951)	severe storm	$9,053
June 2011 (DR 1995)	Flooding	$5,631
June 2013 (DR 4120)	Flooding	$602,193
January 2014 (DR 4163)	Ice storm	$47,350
December 2014 (DR 4207)	Severe winter storm	$11,184

Sources: Vermont Department of Housing & Community Affairs; Vermont Agency of Transportation, FEMA
Dollar value figures represent the total estimated repair costs for damages suffered to municipal resources. This table does not include damage claims submitted to FEMA by non-municipal organizations or by private individuals or businesses.

The Town of Westford was reimbursed at a rate of 75 percent by FEMA for the estimated repair costs coupled with an additional dollars from the State's Emergency Relief Assistance Fund (ERAF) typically averaging 12.5%. Funds provided in response to these natural disasters were used as follows:

- June 1990: Money was spent on gravel only, to fix washouts throughout the Town.
- January 1996: Gravel washouts were repaired, and snow blocked culverts.
- July 1998: Gravel plus culvert repairs, bigger culverts and more ditching; new culverts: 3ft, 4ft, 5ft. All culverts upgraded to at least 18. On Seymour Road: high bridge, 10 houses at dead end street, installed 3 new 6ft culvert. Most severely damaged roads were Osgood Hill Road, Machia Hill Road. Damage also occurred on Woods Hollow Road and Rollin Irish Road; new culverts were installed at Huntley Road; Old #11 Road.
- April 2001: Increased contractual costs for snow removal.
- August 2004: Gravel replacement. Extensive damage reported on Woods Hollow and Rollin Irish Road; less damage on Chapin Road, Old Stage Road, Westford-Milton Road. New culverts added at Pettingill Road (1) and Rollin Irish (3).
- December 2010: 242 cubic yards of debris were removed from public roads. Costs of employee overtime was also covered.
- June 2011: Money was used to replace rip rap.
- June 2013: Culverts on Seymour Road were replaced and the road was repaired. A temporary bridge was employed on Seymour Road. Osgood Hill Road, Old Stage Road, Old #11 Road, Machia Hill Road, Cowie Road, and Covey Road and their associated ditches were repaired.
- January 2014: Money was spent on debris removal from an ice storm in December 2013.
- December 2014: Money was spent on debris removal from a severe winter storm.

Map 3.X details the locations of PA funded projects for disasters affecting the Town since 2010. As the map shows, damage has tended to be concentrated in upland areas (Map to be added).

3.3.2 Individual Assistance funds

As noted in Section 3.3 of the County Plan, due to privacy concerns, the individual homes or businesses which received Individual Assistance funds are not public information. However, the names of the streets

of such homes or businesses from which claims are filed is available as are the funds provided. With regards to the Town of Westford, data indicates funds were provided as follows in connection with various disasters:

- To be updated to link to Melanie's maps on assistance
- Format: DR-XXXX June 2015: 4 properties on Floodville Road, total damages equals $x,000

3.4 Future Events

Although estimating the risk of future events is far from an exact science, CCRPC staff used best available data and best professional judgment to conduct an updated Hazards Risk Estimate analysis, which was subsequently reviewed and revised by town officials in Fall 2015. This analysis assigns numerical values to a hazard's affected area, expected consequences, and probability. This quantification allows direct comparison of very different kinds of hazards and their effect on the county, and serves as a rough method of identifying which hazards hold the greatest risk. CCRPC staff applied the following scoring system:

Area Impacted, scored from 0-4, rates how much of the municipality's developed area would be impacted.

Consequences consists of the sum of estimated damages or severity for four items, each of which are scored on a scale of 0-3:

- Health and Safety Consequences
- Property Damage
- Environmental Damage
- Economic Disruption

Probability of Occurrence (scored 1-5) estimates an anticipated frequency of occurrence.

To arrive at the overall risk value, the sum of the Area and Consequence ratings was multiplied by the Probability rating. The highest possible score is 80.

As explained in detail in Section 3.4 of the Multi-Jurisdictional Plan, for the 2011 Plan, the following Hazards were considered to occur or have the potential to occur with sufficient frequency and/or severity for to be included in the Risk Estimation of this Plan:

Natural Hazards:

- Drought
- Flooding
- Fluvial erosion
- High winds
- Landslide
- Lightning
- Multi-structure urban fire
- Radiological (natural)
- Wildfire
- Winter storm

Technological Hazards:

- Gas service loss
- Hazardous materials incident
- Major transportation incident
- Military ordnance incident
- Power loss
- Radiological incident
- Sewer service loss
- Telecommunications failure
- Water service loss

Societal Hazards:

- Crime
- Civil disturbance
- Economic recession
- Epidemic
- Key employer loss
- Terrorism

For the 2016 update, the CCRPC and its All-Hazards Mitigation Plan Update Committee made slight changes to this list by consolidating some hazards or delineating hazards with more specificity as follows:

Natural Hazards:
- Flooding
- Fluvial erosion
- Severe Thunderstorm
- Wildfire
- Winter storm

Technological Hazards:
- Hazardous materials incident
- Major transportation incident
- Multi-structure urban fire
- Natural gas service loss
- Pollution
- Power loss
- Sewer service loss
- Telecommunications failure
- Water service loss

Societal Hazards:
- Crime
- Civil disturbance
- Economic recession
- Epidemic
- Key employer loss
- Terrorism

3.4.1 Natural Hazards

For the 2011 Hazard and Risk Estimation analysis for Westford, the following natural hazards received the highest risk ratings out of a possible high score of 80:
- Severe Winter Storm (45)
- Flooding (20)

For the 2016 update, the following natural hazards received the highest risk ratings out of a possible high score of 80 (see Table 3-2 below):
- Severe Winter Storm (55)
- Flooding (36)
- Fluvial Erosion (36)

While flooding and fluvial erosion are likely to have a significant impact over a smaller area, severe winter storms tend to affect the entire town and are more common, hence the higher rating.

Table 3-1 Natural hazards risk estimation matrix, Westford

	Risk Characteristic	Extreme Temperature	Flooding	Fluvial Erosion	Severe Thunderstorm	Wildfire	Winter Storm
	0 = No developed area impacted					0	
Area	1 = Less than 25% of developed area impacted	1	1	1	1		
Impacted	2 = Less than 50% of developed area impacted						
	3 = Less than 75% of developed area impacted						
	4 = Over 75% of developed area impacted						4
Health and	0 = No health and safety impact				0	0	
Safety	1= Few injuries or illnesses	1	1	1			1
Consequences	2 = Few fatalities but many injuries and illnesses						
	3 = Numerous fatalities						
	0 = No property damage	0					
Property	1= Few properties destroyed or damaged				1	1	
Damage	2 = Few destroyed but many damaged		2	2			2
	2 = Few damaged and many destroyed						
	3 = M any properties destroyed and damaged						
	0 = Little or no environmental damage				0		
Environmental	1= Resources damaged with short-term recovery	1				1	
Damage	2 = Resources damaged with long-term recovery						2
	3 = Resources destroyed beyond recovery		3	3			
	0 = No economic impact						
Economic	1= Low direct and/or indirect costs	1			1	1	
Disruption	2 = High direct and low indirect costs		2	2			2
	2 = Low direct and high indirect costs						
	3 = High direct and high indirect costs						
	TOTAL SCORE	4	9	9	3	3	11
	1= Unknown but rare occurrence						
Probability of	2 = Unknown but anticipate an occurrence						
Occurrence	3 = 100 years or less occurrence					3	
	4 = 25 years of less occurrence		4	4			
	5 = Once a year or more occurrence	5			5		5
	TOTAL RISK RATING	20	36	36	15	9	55

3.4.2 Technological Hazards

In the 2011 Hazard and Risk Estimation analysis for Westford, the following technological hazards received the highest risk ratings out of a possible high score of 80:

- Power Loss (55)
- Telecommunications Failure (30)

For the 2016 update, the following technological hazards received the highest risk ratings out of a possible high score of 80 (see Table X below):

- Power Loss (20)
- Telecommunications Failure (20)

Westford is vulnerable to power loss and telecommunications failure because the population is dispersed and repairing utility infrastructure in rural areas can take more time. Westford does not have municipal water service, but town residents and businesses rely on well water, so it should be noted that a power loss also results in a water service loss.

Power loss and telecommunications failure were both identified as the most significant technological hazards in the 2011 plan. Though cellular service is somewhat more reliable than it was five years ago, both issues remain significant for residents of rural areas.

Table 3-3 Technological hazards risk estimation matrix, Westford

	Risk Characteristic	Gas Service Loss	Hazardsous Materials Incident	Power Loss	Sewer Service Loss	Telecommunications Failure	Water Service Loss	Major Transportation Incident	Multi-Structure Urban Fire	Other Fuel Service Loss	Pollutoin (algal, etc.)	Invasive Species
	0 = No developed area impacted	0			0							
Area	1 = Less than 25% of developed area impacted		1					1	1	1	1	1
Impacted	2 = Less than 50% of developed area impacted			2		2	2					
	3 = Less than 75% of developed area impacted											
	4 = Over 75% of developed area impacted											
Health and	0 = No health and safety impact				0							0
Safety	1= Few injuries or illnesses	1	1	1		1	1		1	1	1	
Consequences	2 = Few fatalities but many injuries and illnesses							2				
	3 = Numerous fatalities											
	0 = No property damage	0				0	0				0	0
Property	1= Few properties destroyed or damaged		1	1	1			1	1	1		
Damage	2 = Few destroyed but many damaged											
	2 = Few damaged and many destroyed											
	3 = M any properties destroyed and damaged											
	0 = Little or no environmental damage	0		0		0	0		0	0		
Environmental	1= Resources damaged with short-term recovery		1		1			1				
Damage	2 = Resources damaged with long-term recovery										2	2
	3 = Resources destroyed beyond recovery											
	0 = No economic impact			0								
Economic	1= Low direct and/or indirect costs	1	1		1	1	1	1	1			1
Disruption	2 = High direct and low indirect costs									2	2	
	2 = Low direct and high indirect costs											
	3 = High direct and high indirect costs											
	TOTAL SCORE	2	5	4	3	4	4	6	4	5	6	4
	1= Unknown but rare occurrence	1			1					1		
Probability of	2 = Unknown but anticipate an occurrence							2	2			
Occurrence	3 = 100 years or less occurrence		3								3	
	4 = 25 years of less occurrence						4					4
	5 = Once a year or more occurrence			5		5						
	TOTAL RISK RATING	2	15	20	3	20	16	12	8	5	18	16

3.4.3 Societal Hazards

In the 2011 Hazard and Risk Estimation analysis for Westford, the following societal hazards received the highest risk ratings out of a possible high score of 80:

- Epidemic (21)
- Economic Recession (21)

For the 2016 update, the following societal hazards received the highest risk ratings out of a possible high score of 80 (see Table X below):

- Epidemic (28)
- Economic Recession (28)
- Crime (25)

Economic recession is highly ranked for both its direct impacts and its secondary effects on health, safety, and the environment. In a recession, property owners may not be able to maintain their properties, which are then more vulnerable to natural hazards. The likelihood of an epidemic is difficult to gauge, but given Westford's lack of medical facilities, its consequences could be severe. Major crime is rare in the town, but small crimes are very common.

Epidemic and economic recession were both identified as threats in the 2011 plan, and the risk of them remains low but still exists. The risk of crime is perceived as being higher now. This is related to Vermont's opioid epidemic. Drug use and crimes related to drug use, while still rare compared to the situation in major cities, are a major point of discussion in Vermont. Residents of small towns no longer feel immune to crime, increasing the ranking of this hazard.

Table 3-4 Societal hazards risk estimation matrix, Westford

	Risk Characteristic	Crime	Civil Disturbance	Terrorism	Epidemic	Economic Recession	Key Employer Loss
	0 = No developed area impacted						
Area	1 = Less than 25% of developed area impacted		1	1			1
Impacted	2 = Less than 50% of developed area impacted	2			2		
	3 = Less than 75% of developed area impacted					3	
	4 = Over 75% of developed area impacted						
Health and	0 = No health and safety impact						0
Safety	1= Few injuries or illnesses		1			1	
Consequences	2 = Few fatalities but many injuries and illnesses	2		2	2		
	3 = Numerous fatalities						
	0 = No property damage				0	0	0
Property	1= Few properties destroyed or damaged	1	1	1			
Damage	2 = Few destroyed but many damaged						
	2 = Few damaged and many destroyed						
	3 = Many properties destroyed and damaged						
	0 = Little or no environmental damage	0	0		0		0
Environmental	1= Resources damaged with short-term recovery			1		1	
Damage	2 = Resources damaged with long-term recovery						
	3 = Resources destroyed beyond recovery						
	0 = No economic impact						
Economic	1= Low direct and/or indirect costs	1	1				
Disruption	2 = High direct and low indirect costs						
	2 = Low direct and high indirect costs					2	2
	3 = High direct and high indirect costs			3	3		
	TOTAL SCORE	6	4	8	7	7	3
	1= Unknown but rare occurrence						
Probability of	2 = Unknown but anticipate an occurrence						
Occurrence	3 = 100 years or less occurrence						
	4 = 25 years of less occurrence				4	4	4
	5 = Once a year or more occurrence	5					
	TOTAL RISK RATING	30	0	0	28	28	12

3.4.4 Hazard Summary

According to the risk estimation analysis, the highest rated hazards for Westford are:

Natural Hazards
- Severe Winter Storm (55)
- Flooding (36)
- Fluvial Erosion (36)

Technological Hazards
- Power Loss (35)
- Telecommunications Failure (30)

Societal Hazards
- Epidemic (28)
- Economic Recession (28)
- Crime (25)

It should be noted that the three natural hazards on the list—flooding, fluvial erosion and severe winter storm—could be the cause of the highest-rated technological hazards, power loss and telecommunications failure. Winter storms are the highest rated hazard for Westford, due in large part to their widespread nature and frequent occurrence.

SECTION 4: VULNERABILITY ASSESSMENT

As discussed in Section 4 of the County Plan, typical vulnerabilities from the County's common hazards consist primarily of:
- Damage to public infrastructure especially roads and culverts;
- Temporary closures of roads and bridges including from debris;
- Temporary loss of power and/or telecommunications
- Temporary isolation of vulnerable individuals such as the elderly or those in poverty.

With regards to the vulnerability of critical facilities, infrastructure and vulnerable populations, quantitative and locational data for the Town of Westford is available as follows.

4.1 Critical Facilities

The Center for Disaster Management and Humanitarian Assistance defines critical facilities as: "Those structures critical to the operation of a community and the key installations of the economic sector." *Map 4-1* shows the geographic distribution of some critical facilities and utilities. Table 4-1 identifies critical facilities in Westford. This list includes all critical facilities, not only the facilities located in designated hazard areas.

Table 4-1 Critical facilities in the Town of Westford

Facility Type	Number of Facilities

Veterinary Hospital / Clinic	1
Education Facility	1
Fire Station	1
Emergency Shelters	1
Emergency Operations Center	1
Energy	1
Government and Military	2
Mail and Shipping	1
Water Supply and Treatment	1

Source: VCGI

None of these facilities are located in mapped Flood Hazard Areas
None of these facilities are located in mapped River Corridors.
None of these facilities are located in mapped River Corridor Protection Areas.

4.2 Infrastructure

4.2.1 Town Highways

The following is a statistical overview of roads in the Town of Westford. These tables show the range of road types within the town, from state highway to unimproved unpaved roads. Different road types have different hazard vulnerabilities. Unpaved roads are more vulnerable to washing out in a flood or storm, while traffic incidents are more likely to occur on large, arterial roads.

Table 4-2 Town highway mileage by class, Town of Westford

Class 1	Class 2	Class 3	Class 4	State Hwy	Fed Hwy	Interstate	Total 1, 2, 3, State Hwy
	12.467	26.860	1.710	9.374			48.701

Source: derived from VTrans TransRDS GIS data – surface class and arc length

Table 4-3 Town highway mileage by surface type, Town of Westford

Paved	Gravel	Soil or Graded	Unimproved	Impassable	Unknown	Total
11.854	34.124	3.056	0.935	0.545	4.82	55.334

Total Known	Total Unpaved	% Paved	% Unpaved
50.514	38.66	23.5%	76.5%

Source: derived from VTrans TransRDS GIS data – surface class and AOTmiles, 2015

4.2.2 Bridges, Culverts, and Dams

There are a variety of bridges, culverts and dams located in the municipality. The following bridges are contained in an inventory maintained by VCGI, VTrans and the CCRPC. A GIS intersection was performed to determine which bridges are located in the designated flood hazard area. This analysis does not take into account the fluvial geomorphology or the elevation of the bridge above the floodplain. Fewer data were available for the Town Short bridges.

Table 4-4 Inventoried bridges in the Town of Westford (Will be updated with most current data)

Type	ID	Year	Bridge Type	Deficiency	Bridge Features	Scour Critical	Located in

	Label	Built					Floodplain
STATE LONG	B17	1931	T BM WIDEN W/ SLAB	NO DEFICIENCY	BEAVER BROOK	5 - NOT SCOUR CRITICAL	
TOWN LONG	B2	2005	CONCRETE SLAB`	NO DEFICIENCY	ROGERS BROOK	8 - NOT SCOUR CRITICAL	
TOWN LONG	B22	1966	ROLLED BEAM	NO DEFICIENCY	BROWNS RIVER	8 - NOT SCOUR CRITICAL	YES
STATE LONG	B5	1930	ROLLED BEAM	NO DEFICIENCY	BROWNS RIVER	8 - NOT SCOUR CRITICAL	YES
TOWN SHORT	B2				WOODS HOLLOW RD		
TOWN SHORT	B3				OLD STAGE RD		
TOWN SHORT	B4				OLD STAGE RD		
TOWN SHORT	B5				CAMBRIDGE RD		
TOWN SHORT	B6				OLD NUMBER ELEVEN RD		
TOWN SHORT	B8				OSGOOD HILL RD		
TOWN SHORT	B11				BROOKSIDE RD		
TOWN SHORT	B12				CAMBRIDGE RD		
TOWN SHORT	B14				COVEY RD N		
TOWN SHORT	B15				OLD NUMBER ELEVEN RD		
TOWN SHORT	B16				OLD NUMBER ELEVEN RD		
TOWN SHORT	B17				OLD NUMBER ELEVEN RD		
TOWN SHORT	B18				SEYMOUR RD		
TOWN SHORT	B19				OSGOOD HILL RD		YES
TOWN SHORT	B20				OSGOOD HILL RD		YES
TOWN SHORT	B23				RUBAUD RD		
TOWN ULTRA-SHORT	B9				ROGERS RD		
TOWN SHORT	B27				ALLEN IRISH RD		
TOWN SHORT	B13				COVEY RD N		

Source: VTrans
Notes: ID Label used by municipality. Type: 1st character, T=Town, S=State; 2nd character, L=Long (20ft or greater, S=Short 6ft or greater, less than 20ft) Note: state inspection only conducted on "long" bridges.
Scour Critical Code: N-Bridge not over waterway; U-Bridge with "unknown" foundation that has not been evaluated for scour. Since risk cannot be determined, flag for monitoring during flood events and, if appropriate, closure; 9-Bridge foundations (including piles) on dry land well above flood water elevations; 8-Bridge foundations determined to be stable for assessed or calculated scour conditions; calculated scour is above top of footing; 7-Countermeasures have been installed to correct a previously existing problem with scour. Bridge is no longer scour critical; 6-Scour calculation/evaluation has not been made. (Use only to describe case where bridge has not yet been evaluated for scour potential; 5-Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles; 4-Bridge foundations determined to be stable for calculated scour conditions; field review indicates action is required to protect exposed foundations from effects of additional erosion and corrosion; 3-Bridge is scour critical; bridge foundations determined to be unstable for calculated scour conditions; 2-Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations. Immediate action is required to provide scour countermeasures; 1-Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic; 0-Bridge is scour critical. Bridge has failed and is closed to traffic.

As noted in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*, the CCRPC has conducted an inventory of culverts in many of the county's municipalities. The inventory collects data on the location, diameter, material, and length of each culvert, and makes subjective judgments on the condition of the culvert. [This will be discussed further with CCRPC transportation planners.]

Culverts located in the 100-year floodplain are listed below.

Table 4-5 Westford culverts located in 100-year floodplain. This will be updated to include analysis of bankfull width of culverts and geomorphic compatibility

Type	Local Reference	Road Name	Condition
Other Structures	2570	OSGOOD HILL RD	Good
Other Structures	2560	OSGOOD HILL RD	Good
Other Structures	2540	OSGOOD HILL RD	Poor
Other Structures	4680	HUNTLEY RD	Good

Source: VTrans

As noted in Section 4 of the County Plan, a large portion of the County's stream have had detailed Phase II Stream Geomorphic Assessments conducted. With regards to Westford, studies identify specific stream reaches where fluvial erosion is a concern as well as where infrastructure, primarily culverts, as noted in Table 4-5a, is at risk

Table 4-5a Westford infrastructure with a geomorphic compatibility rating of "Mostly Incompatible" or "Incompatible." This table will be updated with more recent data.

Stream Name	Reach/Segment ID	Structure Type	Road Name	Route Number	Percent Bankfull Width	Geomorphic Compatibility
Morgan Brook	T1.02-D	Culvert	Private Driveway	NA	24%	Mostly Incompatible
Rogers Brook	T2.01-C	Culvert	Farm Road	NA	15%	Most Incompatible

Source: Browns River Phase II Geomorphic Assessment, Fitzgerald Environmental Associates, 2010

Finally, the National Dam Inventory identifies one dam in the municipality, shown in Table 4-6.

Table 4-6 Dams located in the Town of Westford

Name	Owner	River	Description	Maximum Storage (acre/feet)	Hazard Potential
Westford	Clarke or Villaseca	Browns River	Dam noted as breached. No other data recorded. Approximately 8 to 10 ft. drop	0	Low-losses limited to owner's property.

Source: National Dam Inventory

4.2.3 Water, Wastewater and Natural Gas Service Areas

The town operates no wastewater or water delivery systems. All residents and businesses receive water from wells and dispose of wastewater through septic systems. There are no natural gas distribution facilities in the town.

4.2.4 Electric Power Transmission Lines and Telecommunications Land Lines

Two Green Mountain Power high-tension transmission lines run through Westford. One runs northeast from the Westford Substation to the Fairfax line east of VT Route 128. The other is in the northeast corner of town, paralleling VT Route 15.

4.3 Estimating Potential Losses in Designated Hazard Areas.

A simple GIS intersection of e-site data with the 2010 FIRM floodplain data indicates that 5 residential structures and no commercial/industrial structures are located within the 100-year floodplain. Based on the 2014 median grand list values, the estimated potential loss due to a major flood event inundating the floodplain is $190,400. However, the estimated potential loss due to an event in a river corridor is much higher: $3,600,600. This estimate only takes structures into account. It does not account for personal property or business losses.

Repair and replacement cost data was not available for all infrastructure located within the floodplain. Available repair and replacement costs to bridges in the hazard area (from VTrans) are as follows:

Table 4-7 Repair and replacement costs for bridges in 100 year floodplain, Westford. This will be updated with current data.

Bridge ID	Repair Cost	Replacement Cost
B22	$899,000	$1,049,000
B5	$908,000	$1,058,000
Total:	**$1,807,000**	**$2,107,000**

Source: VTrans Transportation Structure data, 2008

At this time, a more detailed analysis of potential losses to structures, infrastructure, and agricultural lands cannot be made. Such an analysis would require individual site visits and analysis conducted by both river geomorphologists and structural engineers which is beyond the capacity of the CCRPC due to funding limitations.

4.4 Vulnerable Populations

Like most of the County's rural communities, census data more detailed than the town boundaries is not available to see if there are concentrations of either elderly populations or low-income populations. In other words, the town's boundaries form one single census tract. Demographic information on the relative percentages of vulnerable populations is as follows:

Table 4-8 Vulnerable populations, Westford

	Westford	Chittenden County	Vermont	National
Percent Minority	4.1%	7.7%	4.8%	26.7%

(non-white)[1]				
Children <18 in poverty[1]	2.6%	11.1%	14.8%	21.6%
Families w/children in poverty[1]	3.1%	10.5%	13.4%	17.8%
Families w/ female householder, no husband present w/children in poverty[1]	18.6%	37.0%	37.4%	40%
Population, age 65+ in poverty[1]	1.6%	6.5%	7.5%	13.4%

[1]*US Census Bureau, 2010-2014 5-Year Estimates, American Community Survey*

4.5 Land Use and Development Trends Related to Mitigation

As noted in the Introduction, Westford's land use is primary residential and agricultural. An analysis of GIS data shows the following percentages for land use and the percentages of land allocated to each zoning district.

Table 4-7 Land use compared to zoning, Town of Westford

Westford Land Use (2015)		Westford Zoning (2011)	
Residential	63.18%	Common	0.32%
Commercial	0.71%	Rural 3	3.04%
Industrial	0.40%	Rural 5	9.78%
Institutional / Infrastructure	0.40%	Rural 10	84.55%
Mass Assembly	0.16%	Village	2.30%
Leisure / Recreation	0.00%		
Natural Resources	0.08%		

Source: 2015 e911 Data and 2011 Town of Westford Zoning Regulations

4.4.1 Conserved or Undevelopable Parcels

There are a handful of conserved parcels in Westford. Most parcels have been conserved for their scenic, agricultural or natural resource values.

Table 4-8 Conserved Land, Town of Westford

Total Acres	Acres of Public Land	Percent Public	Acres of Conserved Land	Percent Conserved	Total Public & Conserved	Percent Conserved Land
25,044.46	183.28	1%	800.30	3%	983.58	4%

Source: VLT Data and ANR Public Lands

In March 2004, the Town of Westford created a fund for use in land conservation or open space purchases. At present the fund only receives donations, not municipal funds. The rising price of land in Westford may slow the rate of land conservation, however, there is a strong degree of public support for land conservation among the town's residents.

Additionally, as noted below in Table 5.1, the Town's zoning bylaws include both a Water Resources Overlay District and a Floodplain District which preclude the construction of new homes or businesses and effectively act as conserved lands.

4.4.2 Future Development

At present and for the foreseeable future the current development pattern will continue: some residential and commercial growth in the Village District and continued, dispersed residential growth on 5 and 10 acre lots in the Agriculture/Forestry/Residential districts. At this time, the main way CCRPC has to predict future development is by analysis of municipal zoning bylaws. As the municipality participates in the NFIP, zoning bylaws heavily regulate development in designated flood hazard areas. As a result, little to no development is likely to take place in flood hazard areas. These zoning requirements mitigate flood hazards to future structures. Additionally, the Town has adopted a Water Resource Overlay District to prevent building in areas prone to fluvial erosion.

SECTION 5: MITIGATION STRATEGY

5.1 Existing *2015 Westford Town Plan* Implementation Tasks That Support Hazard Mitigation

These tasks are described in the 2015 Westford Town Plan's "Implementation Plan" (Chapter 11). The Implementation Plan lays out a number of tasks, all of which are based on multiple chapters of the plan, and assigns time tables and responsible parties to each.

5.1.1 Communication Tasks:

1. Encourage and seek to improve cell coverage for general community use, emergency response, public safety and economic development.

5.1.2 Emergency Preparedness and Response Tasks:

1. Review and update the Town Fire Ordinance to ensure public safety.
2. Draft a detailed, procedure-oriented Emergency Operations Plan to ensure its useful during times of disaster and efficient and effective emergency response.
3. Investigate enrollment in the Community Rating System (CRS) 1 year after enrollment in the NFIP.
4. Develop fluvial erosion hazard regulations using the maps provided by the State of Vermont/CCRPC.
5. Review and implement the goals and objectives of the All Hazards Mitigation Plan with a focus on flood resiliency.
6. Review and update the Emergency Operations Plan.
7. Provide key emergency operations individuals with National Incident Management System training.
8. Provide preparedness information and training to residents.

9. Continue to use the website and other outreach tools as a resource to educate residents about disaster risks and emergency, preparedness, response and relief.

5.1.3 Finances Tasks:

1. Include transportation capital improvements outlined in the 5 Year Road Plan in the Westford Capital Budget and Program.

5.1.4 Natural Resources Tasks:

1. Develop low impact development stormwater standards to ensure the quality of water not only in our local waterways but Lake Champlain.
2. Promote the re-vegetation of shores and stream banks.
3. Continue to severely limit the development on, and re-contouring of, steep slopes and ledge outcroppings.
4. Continue to prohibit development in the FHO and WRO.

5.1.5 Transportation Tasks:

1. Inform residents of the impacts of privately-owned undersized and/or or defective stormwater infrastructure. The Town shall not be held liable for the failure of private infrastructure and/or reporting inadequacies to private land owners.
2. When economically feasible, upgrade stormwater infrastructure (esp. bridges & culverts) to withstand large storm events.
3. Maintain an inventory of the road infrastructure (examples; bridge/culvert, flood damage sites, road surface issues, ditches) to determine issues, needs and priorities for road maintenance and other planning considerations.

5.2 Existing Town of Westford Actions That Support Hazard Mitigation

Table 5-1 Existing municipal actions that support hazard mitigation, Town of Westford

Type of Existing Protection	Description /Details/Comments	Issues or Concerns
Emergency Response		
Police Services	Vermont State Police	
Fire Services	Westford VFD	
Fire Department Personnel	18 Volunteers	
Fire Department Mutual Aid Agreements	Essex, Underhill-Jericho, Fairfax	
EMS Services	Essex Rescue, Fairfax Rescue	
EMS Mutual Aid Agreements	various through VT EMS District #3	
Other Municipal Services		
Highway Services	Town Highway Department	
Highway personnel	3 FTE field personnel.	
Water / Sewer Department	None	
Planning and Zoning personnel	1 FTE Planning, 1 FTE Zoning	
Residential Building Code / Inspection	No local building code.	
Emergency Plans		
Local Emergency Operations Plan (LEOP)	2015	
School Emergency/Evacuation Plan(s)	Yes	
Primary Shelter	Westford School, 400 capacity	
Replacement Power, backup generator	Generator and transfer panel for Westford School	
Secondary Shelter	None designated.	
Replacement Power, backup generator	N/A	
Municipal Plans		
Town / Municipal Comprehensive Plan	2015	
Zoning Bylaws and Subdivision Regulations	2011, currently being updated	
Hazard Specific Zoning (slope, wetland, conservation, industrial, etc.)	Water Resources Overlay District; Flood Hazard Overlay District	
Highway Access (curb cut) Policy	Application process, final decision by Selectboard	
Participation in National Flood Insurance Program (NFIP) and Floodplain/Flood Hazard Area Ordinance	Yes	In regular NFIP program as of May 1, 2016. Floodplain Hazard Areas are based on DFIRMs.
Type of Existing Protection	**Description /Details/Comments**	**Issues or Concerns**
Open Space Plans; Conservation Funds	Conservation fund since 2004. Donations only; Selectboard will have final say over	Several large parcels in Westford are conserved.

	expenditures based upon recommendations from Conservation Commission.	
Culvert Inventory	Will be updated with current data on total driveway culverts and total stream culvert crossings.	In addition to GPS point data, the inventory collects data on material, diameter, length and condition of the culvert. These inventories provide useful data to municipal highway departments to ensure consistent maintenance, repair, and replacement of culverts.

5.3 Town of Westford All-Hazards Mitigation Goals

The following goals were first developed and recommended by CCRPC staff in 2004, and approved by Town of Westford officials for their local 2005 and 2011 AHMPs and reaffirmed for this 2016 AHMP.

1) Reduce at a minimum, and prevent to the maximum extent possible, the loss of life and injury resulting from all hazards.
2) Mitigate financial losses and environmental degradation incurred by municipal, educational, residential, commercial, industrial and agricultural establishments due to various hazards.
3) Maintain and increase awareness amongst the town's residents and businesses of the damages caused by previous and potential future hazard events as identified specifically in this Local All-Hazards Mitigation Plan and as identified generally in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*.
4) Recognize the linkages between the relative frequency and severity of disaster events and the design, development, use and maintenance of infrastructure such as roads, utilities and stormwater management and the planning and development of various land uses.
5) Maintain existing municipal plans, programs, regulations, bylaws and ordinances that directly or indirectly support hazard mitigation.
6) Consider formal incorporation of this Local All-Hazards Mitigation Plan into the municipal comprehensive plan as described in 24 VSA, Section 4403(5), as well as incorporation of proposed new mitigation actions into the municipality's/town's bylaws, regulations and ordinances, including, but not limited to, zoning bylaws and subdivision regulations and building codes.
7) Consider formal incorporation of this Local All-Hazards Mitigation Plan, particularly the recommended mitigation actions, into the municipal/town operating and capital plans & programs especially, but not limited to, as they relate to public facilities and infrastructure, utilities, highways and emergency services.

5.4 Mitigation Actions

5.4.1 Current Capabilities and Need for Mitigation Actions

The Town Plan's policies that support hazard mitigation, and the existing mitigation actions, demonstrate the variety of policies and actions forming the foundation of this All Hazards Mitigation Plan. Generally, the Town considers its existing capabilities are adequate to address the identified priority hazards in this plan. However, the Town is approving some discrete strategies to address particular hazards and vulnerabilities that the Town has the capability and responsibility to address.

1) Severe Winter Storm – The Town regards its current hazard mitigation efforts carried out by the Town Highway Department as adequate to address winter storm impacts to local roads. Winter storms are often the cause of power loss and telecommunications failure.

2) Flooding – Existing structures in the floodplain are at risk. The Town's zoning restricts new development in the designated flood hazard areas. The capabilities of the Town Highway Department to mitigate flood impacts on town roads are considered adequate.

3) Fluvial Erosion—Existing structures, roads, bridges and other forms of transportation infrastructure in the river corridor are at risk. The Town is currently working to develop a River Corridor/Fluvial Erosion Hazard Zone to restrict development and/or disturbance in areas threatened by fluvial erosion.

4) Epidemic – The Town's abilities to mitigate an epidemic are limited. The Town relies on state and school efforts related to epidemic preparedness, prevention and mitigation, and medical facilities and services in neighboring communities for response.

5) Economic Recession – The Town considers its municipal plan as supportive of the goal of economic diversification which can serve to mitigate the impacts of a recession.

6) Crime – Minor crime is relatively common in the Town. However, the Town considers its protection from the Vermont State Police to be adequate for the current level of threat from crime.

7) Power Loss – The electric utility is responsible for restoring service. Tree trimming and vegetation management, coupled with maintaining adequate repair vehicles and personnel are the primary means of mitigation.

8) Telecommunications Failure – The landline and cellular service providers are responsible for restoring service. As with electric service, tree trimming and vegetation management, coupled with maintaining adequate repair vehicles and personnel are the primary means of mitigation.

5.4.2 Specific Mitigation Actions

Action #1: Address identified vulnerable infrastructure.

Hazards Addressed: Flooding, Fluvial Erosion and Thunderstorm

Vulnerabilities Addressed: damage to public infrastructure especially roads and culverts; temporary closures of roads and bridges including from debris; temporary loss of power and/or telecommunications and temporary isolation of vulnerable individuals such as the elderly or those in poverty.

Status: Ongoing

Primary Responsible Entity: Town of Westford Highway Foreman

Timeframe: August 2016-September 2021

Funding Requirements and Sources: FEMA or other hazard mitigation grants; FHWA grants; VTrans grants; Municipal Operating and Capital budgets only if sufficient. Contingent on available resources and funding.

Progress since 2011: In 2015 and 2011 respectively, two sections of Woods Hollow Road were dug up and new base were added, for a total of 3500 feet of new road. A 400 foot section of Old

Stage Road was dug up and given new base. The culverts along Old Stage Road just south of Manley Road mentioned in the 2011 plan have been replaced and upsized. The culverts along Machia Hill Road have been replaced and upsized. All culverts that are replaced are now upsized to be at least 18" across, as per VTrans requirements. The culvert under Huntley Road has been replaced with a box culvert. The culverts along Westford-Milton Road have been replaced and upsized. The Seymour Road Bridge and associated culverts washed out during May 2013, and a new bridge is being built as of the writing of this plan (2015).

Specific Identified Tasks**:**

1) Culvert Upgrades - Upgrade culverts and ditching along various roads to mitigate against repeated damages from stormwater or spring snowmelt. Specific project locations include:
    - Replacing the box culvert on Huntley Road, which is beginning to fail.
2) Plan for Repair of Vulnerable Infrastructure - Seek funds to develop cost estimates, plans and ideally construction funds to address various bridges and culvert locations that have erosion and scouring concerns. Specific project locations include:
    - Osgood Hill Road between Osgood Hill and Morris Hillside Farm had erosion on both sides of the road from nearby Morgan Brook
    - Seymour Road is eroding west of the bridge across Beaver Brook
    - Huntley Road is eroding where it runs parallel to the Browns River
3) Road Improvement - Within political and financial restraints, consider re-engineering certain sections of roads to lower overall maintenance costs and improve overall capability of roads to handle current and projected traffic volumes.
4) Erosion Mitigation - Undertake erosion mitigation projects at various locations where municipal roads regularly incur damage from adjacent rivers/streams. Specific locations for projects in the future include those listed under Task 2 above.

Rationale / Cost-Benefit Review:

These areas suffer low-level but consistent damage during heavy rains and snowmelt. Mitigating against these problems would reduce short and long term maintenance costs and improve the flow of traffic for personal and commercial purposes during damage events.

Action #2: Improve capabilities of existing road and stormwater management infrastructure.

Hazards Addressed: Flooding, Fluvial Erosion and Thunderstorm

Vulnerabilities Addressed: damage to public infrastructure especially roads and culverts; temporary closures of roads and bridges including from debris; temporary loss of power and/or telecommunications and temporary isolation of vulnerable individuals such as the elderly or those in poverty.

Status: Ongoing

Lead Responsible Entities: Town of Westford Highway Foreman; Westford Town Planner

Potential Partner Entities: VT ANR; Vermont Agency of Transportation (VTrans); CCRPC

Timeframe: August 2016-September 2021

Funding Requirements and Sources: Various Federal and State grants; municipal operating funds only if sufficient. Contingent on available resources and funding.

Progress since 2011: The town updates the ditch and culvert inventory annually. Bridges are inspected by the state, which sends town officials reports. The Town bylaws, revised in 2011, now prohibit development on steep slopes and ledge outcroppings.

Specific Identified Tasks:

1) Infrastructure Assessment for Stormwater Vulnerability – Funding and staff resources permitting, assess the vulnerability and operational capability of municipal-owned roads, culverts and other stormwater management infrastructure to predicted stormwater and snowmelt in areas with a documented history of recurring problems. The infrastructure will be evaluated regularly prior to replacement or upgrades of the existing infrastructure. Separate analyses of all infrastructure in each municipality is not intended or warranted.
    - The next Town *Road Report* should address stormwater vulnerability
2) Infrastructure Assessment for Fluvial Erosion Vulnerability – Funding and staff resources permitting, assess the operational capability and vulnerability of municipal-owned roads, culverts, bridges and other infrastructure to fluvial erosion of varying severity as determined by Strategy #3 below.
    - The next Town *Road Report* should address erosion/fluvial erosion

Rationale / Cost-Benefit Review: Conducting these vulnerability assessments will facilitate a targeted and effective approach to road and stormwater management infrastructure. This will prove useful in the development and implementation of municipal capital and operating plans as well as the development and implementation of grant-funded mitigation projects. In addition, the Vermont Clean Water Act, signed into law in the summer of 2015, authorized the development of a new Municipal Roads General Permit to lessen erosion from roads. Data collected from these assessments will aid towns in preparing to apply for these permits.

Action #3: Based on completed fluvial geomorphology assessments, develop strategies in response to identified risks.

Hazards Addressed: Flooding, Fluvial Erosion and Thunderstorm

Vulnerabilities Addressed: damage to public infrastructure especially roads and culverts; temporary closures of roads and bridges including from debris; temporary loss of power and/or telecommunications and temporary isolation of vulnerable individuals such as the elderly or those in poverty.

Status: Ongoing

Primary Responsible Entities: Westford Town Planner (for ordinance changes and other actions).

Timeframe: August 2016-August 2017

Funding Requirements and Sources: Work will be undertaken by the Westford Town Planner (funded by the municipal budget) and the volunteer Planning Commission and Selectboard.

Progress since 2011: Phase I assessments have been completed for Morgan Brook, Rogers Brook, Pond Brook and several tributaries of the Winooski. Phase II assessments have been completed for the Browns River, Alder Brook and parts of Morgan Brook. ANR has issued a River Corridor Plan for the Browns River.

Specific Identified Tasks:

1) Fluvial Erosion Hazard Mitigation Implementation – The Westford Selectboard and Planning Commission will continue their work to develop a River Corridor/Fluvial Erosion Hazard Zone overlay zoning district to restrict development/disturbance in areas threated by fluvial erosion.

Rationale / Cost-Benefit Review:

Because of past work to identify fluvial erosion hazard (FEH) zones and to map river corridors, Westford now has a better understanding of the hazard areas in the community, where they are located and what structures or infrastructure are impacted by them. Devising a River Corridor/Fluvial Erosion Hazard Zone is a relatively low-cost, highly effective strategy to mitigate fluvial erosion hazards.

5.4.3 Prioritization of Mitigation Strategies

The above mitigation actions were listed in order of priority. Descriptions of specific projects, where available, are listed in Section 5.4.2 and in Table 5-3 below. Because of the difficulties in quantifying benefits and costs, it was necessary to utilize a simple "Action Evaluation and Prioritization Matrix" in order to effect a simple prioritization of the mitigation actions identified by the jurisdiction. The following list identifies the questions (criteria) considered in the matrix so as to establish an order of priority. Each of the following criteria was rated according to a numeric score of "1" (indicating poor), "2" (indicating below average or unknown), "3" (indicating good), "4" (indicating above average), or "5" (excellent).

- Does the action respond to a significant (i.e. likely or high risk) hazard?
- What is the likelihood of securing funding for the action?
- Does the action protect threatened infrastructure?
- Can the action be implemented quickly?
- Is the action socially and politically acceptable?
- Is the action technically feasible?
- Is the action administratively realistic given capabilities of responsible parties?
- Does the action offer reasonable benefit compared to its cost of implementation?
- Is the action environmentally sound and/or improve ecological functions?

The ranking of these criteria is largely based on best available information and best judgment, as many projects are not fully scoped out at this time. The highest possible score is 45.

It is anticipated that, as municipalities begin to implement the goals and actions of their Mitigation Strategies, they will undertake their own analysis in order to determine whether or not the benefits justify the cost of the project. Also, all proposed FEMA mitigation projects will undergo a benefit-cost analysis using a FEMA BCA template and approved methodology.

Based on feedback from FEMA, CCRPC Staff have concluded that several strategies previously identified in 2011 by the Town of Westford as mitigation strategies are more accurately classified as preparedness, response and recovery strategies. These strategies are not intended to

mitigate against the hazards identified in Section 3, and should not be evaluated as such. As such, these strategies are not included in the prioritization below. However, they are discussed at the end of the plan to serve as a record of the strategies being undertaken by the Town in order to prepare for, respond to and recover from damage caused by those hazards.

Other than the reclassification of some strategies as non-mitigation strategies, there have not been significant changes in the prioritization of strategies between 2011 and now, with one notable exception. Strategies related to landslide assessment have been removed from the plan. CCRPC staff, in consultation with FEMA, have concluded that landslides are not a discrete threat in Chittenden County and are adequately captured in the plan's discussion of fluvial erosion. Additionally, further work on the development of a Vermont-specific landslide risk estimation protocol has not progressed making landslide-specific strategies inappropriate at this time for inclusion in the County plan and its annexes.

Table 5-2 Westford action evaluation and prioritization matrix

5 = Excellent 4 = Good 3 = Average 2 = below average (or unknown) 1 = poor

	Responds to significant (likely or high risk) hazard	Likelihood of funding	Protect threatened infra-structure	Implemented quickly	Socially/ Politically acceptable	Technically Feasible	Administratively Realistic	Reasonable cost to benefit	Environmentally sound	**TOTAL SCORE**
Complete fluvial geomorphology assessment and develop strategies in response to identified risk.	5	5	5	5	4	5	5	5	5	44
Continue and improve highway, culvert and bridge maintenance programs.	5	3	5	3	4	4	3	3	5	35
Evaluate capabilities and quality of existing highway, bridge, culvert and stormwater management infrastructure.	4	3	4	3	5	3	3	4	5	34

5.5 Implementation and Monitoring of Mitigation Strategies

The following table is intended to aid municipal officials in implementing the mitigation actions for Westford and to facilitate the annual monitoring of the plan as outlined in the Multi-Jurisdictional All-Hazards Mitigation Plan. The first table records the strategies from the 2011 Plan and progress that has been made towards them. The second table outlines the mitigation strategies that have been developed for implementation from 2016-2021.

Table 5-3 Westford All-Hazards Mitigation Plan Implementation Matrix

Mitigation Strategies and Actions: Progress Since 2011

Action	Primary Responsible Entity	Task	Progress
#1 Continue and improve highway, culvert and bridge maintenance programs.	Highway Foreman, Highway Dept.	Vulnerable Infrastructure Monitoring	• The Seymour Road Bridge and associated culverts washed out during May 2013, and a new bridge is being built as of the writing of this plan (2015)
	Highway Foreman, Highway Dept.	Culvert & Bridge Upgrades	• The culverts along Old Stage Road just south of Manley Road mentioned in the 2011 plan have been replaced and upsized. • The culverts along Machia Hill Road have been replaced and upsized. • All culverts that are replaced are now upsized to be at least 18" across, as per VTrans requirements. • The culvert under Huntley Road has been replaced with a box culvert. • The culverts along Westford-Milton Road have been replaced and upsized.
	Highway Foreman, Highway Dept	Highway Upgrades	• In 2015 and 2011 respectively, two sections of Woods Hollow Road were dug up and new base were added, for a total of 3500 feet of new road. • A 400 foot section of Old Stage Road was dug up and given new base
	Highway Foreman, Highway Dept	Erosion / Fluvial Erosion/Landslide Mitigation / Stabilization	Ongoing.
Action	**Primary Responsible Entity**	**Task**	**Progress**
#2 Evaluate capabilities and quality of existing highway, bridge, culvert and stormwater management infrastructure.	Highway Foreman & Road Committee	Stormwater Vulnerability & Mitigation Assessments Plans	Ongoing. The Highway Dept. continues to monitor areas vulnerable to stormwater inundation and damage.
	Highway Foreman & Road Committee	Erosion / Fluvial Erosion / Landslide Vulnerability & Mitigation Assessments Plans	Town bylaws prohibit development on steep slopes and ledge outcroppings. Ongoing. The Highway Dept. continues to monitor areas

			vulnerable to erosion.
#3 Complete fluvial geomorphology assessment and develop strategies in response to identified risk.	CCRPC, VT ANR	Fluvial Geomorphic Assessments	Phase I assessments have been completed for Morgan Brook, Rogers Brook, Pond Brook and several tributaries of the Winooski. Phase II assessments have been completed for the Browns River, Alder Brook and parts of Morgan Brook.
	CCRPC, VT ANR	Fluvial Erosion Hazard Mapping	Completed. Maps have been created for all assessed streams and waterways.
	TBD, determined by funding.	River Corridor Management Plans	Completed. A River Corridor Management Plan has been created for the Browns River.
	Planning Commission & Selectboard	Fluvial Erosion Hazard Mitigation Implementation	The Town has adopted Water Resource Overlay with no build, no cut zones located along all mapped waterways
	Town Planner	Flood Insurance Rating Map Updates	Completed.

Mitigation Strategies and Actions: 2016-2021

Action	Primary Responsible Entity	Task	Brief Description
Action #1: Address identified vulnerable infrastructure. Hazards Mitigated 1. Severe Thunderstorm 2. Flooding 3. Fluvial Erosion 4. Water Pollution Vulnerabilities Addressed: 1. Damage to public infrastructure 2. Temporary road and bridge closure 3. Temporary power or telecommunication loss 4. Temporary isolation of vulnerable individuals	Highway Foreman, Highway Dept	Plan for repair of vulnerable infrastructure	The Town should seek funds to develop cost estimates, plans and ideally construction funds to address various bridges and culvert locations that have erosion and scouring concerns. Specific project locations include: • Osgood Hill Road between Osgood Hill and Morris Hillside Farm had erosion on both sides of the road from nearby Morgan Brook • Seymour Road is eroding west of the bridge across Beaver Brook • Huntley Road is eroding where it runs parallel to the Browns River
	Road Foreman, Highway Department	Road Improvement	Within political and financial restraints, consider re-engineering certain sections of roads to lower overall maintenance costs and improve overall capability of roads to handle current and projected traffic volumes. [New idea, need to discuss with town.]
	Highway Foreman, Highway Dept	Erosion / Fluvial Erosion Mitigation / Stabilization	The Highway Dept. should continue to stabilize and mitigate areas prone to erosion to prevent road washout and water pollution. Specific areas to be stabilized include those listed under Task 2 above.

Action	Primary Responsible Entity	Task	Brief Description
#2 Improve capabilities of existing road and stormwater management infrastructure to mitigate the following hazards and address the following vulnerabilities: Hazards Mitigated 1. Severe Thunderstorm 2. Flooding 3. Fluvial Erosion 4. Water Pollution Vulnerabilities Addressed: 1. Damage to public infrastructure 2. Temporary road and bridge closure 3. Temporary power or telecommunication loss 4. Temporary isolation of vulnerable individuals	Highway Foreman & Road Committee	Infrastructure Assessment for Stormwater Vulnerability	The Highway Dept. should continue to monitor areas vulnerable to stormwater inundation and damage. Specific projects include: • The next *Road Report* should address stormwater vulnerability.
	Highway Foreman & Road Committee	Infrastructure Assessment for Fluvial Erosion Vulnerability	The Highway Dept. should continue to monitor areas vulnerable to erosion. Specific projects include: • The next *Road Report* should address erosion/fluvial erosion vulnerability
	CCRPC	Complete culvert assessment	CCRPC should complete a culvert assessment for the town, which will help the town prioritize culverts that should be replaced with larger sizes and/or better geomorphic compatibility. [New idea, need to discuss with town.]
#3 Based on completed fluvial geomorphology assessment, develop strategies in response to identified risk to mitigate the following hazards and address the following vulnerabilities: Hazards Addressed: 1. Severe Thunderstorm 2. Flooding 3. Fluvial Erosion 4. Water Pollution Vulnerabilities Addressed: 1. Damage to public infrastructure 2. Temporary road and bridge closure 3. Temporary power or telecommunication loss 4. Temporary isolation of vulnerable individuals	Planning Commission & Selectboard	Fluvial Erosion Hazard Mitigation Implementation	The Planning Commission and Selectboard will continue to work on developing a River Corridor/FEH overlay to restrict development/disturbance in areas threatened by fluvial erosion.

5.6 Implementation of Preparedness, Response and Recovery Strategies

Based on feedback from FEMA, CCRPC Staff have concluded that several strategies previously identified in 2011 by the Town of Westford as mitigation strategies are more accurately classified as preparedness, response and recovery strategies. These strategies are not intended to mitigate against the hazards identified in Section 3, and should not be evaluated as such. Rather, they are included here to serve as a record of the strategies being undertaken by the Town in order to prepare for, respond to and recover from damage caused by those hazards. The first table records the strategies from the 2011 Plan and progress that has been made towards them. The second table outlines the strategies that have been developed for implementation from 2016-2021.

Preparedness, Response and Recovery Strategies: Progress Since 2011

Action	Primary Responsible Entity	Task	Progress
#1 Raise public awareness of hazards.	Fire Department	School Programs	Ongoing strategy. The Fire Department continues to offer fire prevention education in schools and elsewhere.
	Fire Department	Child Safety & Restraint Programs	• Child Safety & Restraint programs are undertaken through coordination with Essex Rescue and the Jericho/Underhill Fire Departments.
	Fire Department, Emergency Coordinator, Emergency Committee, Town Administrator, Selectboard, Planning Coordinator	Other hazard awareness programs	• A page and a scrolling banner have been added to the Town's website to convey information to citizens to mitigate/prepare for, respond to, and recover during from disasters. The Town should continue and increase public outreach and education via the website, FPF, brochures and newsletters.

Preparedness, Response and Recovery Strategies: 2016-2021

Action	**Primary Responsible Entity**	**Task**	**Brief Description**
#1 Address local emergency/disaster mitigation, preparedness, response and recovery efforts.	Emergency Coordinator, Town Administrator, Selectboard	Emergency Mitigation, Preparedness, Response & Recovery Committee	The town should create an Emergency Mitigation, Preparedness, Response & Recovery Committee to ensure better coordination.
#2 Raise public awareness of hazards.	Fire Department	Fire prevention programs	Fire prevention programs in schools and other settings should continue.
	Fire Department	Child Safety & Restraint Programs	Child Safety & Restraint programs are undertaken through coordination with Essex Rescue and the Jericho/Underhill Fire Departments and should continue.
	Fire Department, Emergency Coordinator, Emergency Committee, Town Administrator, Selectboard, Planning Coordinator	Increased hazard awareness	The Town should continue and increase public outreach and education via the website, FPF, brochures and newsletters.
#3 Adequately protect vulnerable populations from extreme temperatures and disasters.	Emergency Coordinator, Emergency Committee	Vulnerable population safety	Organize outreach, tracking and wellness checks for vulnerable populations.