

# **Town of New Haven, Vermont**



## **Single Jurisdiction All-Hazards Mitigation Plan**

Final Plan Adopted 04/03/2018

FEMA Approval: 7/17/2018 (valid until 7/17/2023)

## **New Haven, Vermont All-Hazards Mitigation Plan**

### **1. Planning Process**

#### **1.1. Current Plan Update Process**

The Addison County Regional Planning Commission applied for and was awarded a Hazard Mitigation Planning Grant in 2016 which included funding to support the Town of New Haven in updating its 2011 single jurisdiction hazard mitigation plan. On 4/4/2017 Tim Bouton of the ACRPC met with the New Haven Selectboard and proposed a plan update process which followed the existing plan's update process as approved by FEMA and adopted in 2012:

1. The New Haven Selectboard assembles a Review/Update Committee.
2. The Committee will discuss the process to determine if any modifications or additions are needed due to changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting/updating information will be assigned to members.
3. Other Town plans (Emergency Operations Plan, Town Plan, Road Plan, etc.) will be reviewed to ensure a common mitigation thread still exists throughout.
4. A draft update will be prepared based on these evaluation criteria:
  - a. Changes in community and government processes, which are hazard-related and have occurred since the last review.
  - b. Progress in implementation of plan initiatives and projects.
  - c. Effectiveness of previously implemented initiatives and projects.
  - d. Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report.
  - e. Evaluation of hazard-related public policies, initiatives and projects.
  - f. Review and discussion of the effectiveness of public and private sector coordination and cooperation.
5. Selectboard members will have an opportunity to review the draft update. Consensus will be reached on any changes to the draft.
6. The Selectboard will notify and schedule a public meeting to ensure adequate public input.
7. The Selectboard will recommend incorporation of community comments into the draft update.

Following a brief discussion of how the process would work, the Selectboard was asked to appoint a committee to spearhead the task of updating the plan. Committee members appointed were:

- John Roleau - Selectboard member and Road Commissioner
- Steve DuPoise - Selectboard member
- Barb Torian - Town Treasurer and Assistant Emergency Manager
- Dean Gilmore - New Haven Volunteer Fire Department
- Lisa Lauziere - New Haven First Response

An initial meeting of the committee was scheduled and notices were posted inviting the public to attend to provide input into the update. Preliminary edits to the original plan were drafted and provided to committee members prior to the meeting.

The initial meeting of the New Haven Local Hazard Mitigation Plan committee met on May 8, 2017 to introduce the members to hazard mitigation and to conduct a review Hazard Inventory and Risk Assessment. The HIRA was conducted to determine whether any town priorities had changed since 2011. No residents other than the appointed committee were in attendance.

A second public brainstorm meeting was held with committee members on 8/23/2017 for the purpose of reviewing the draft plan and identifying potential mitigation actions for each identified hazard. At this meeting, the committee reviewed projects previously identified in the 2012 plan, identified which had been completed, what effect, if any, they had on subsequent incidents, and what other changes had occurred in the community since the last plan update. (See evaluation criteria 4-b, c, d and e of the process) No members of the public attended.

On 9/12/2017 at a public Selectboard meeting, members were delivered a copy of the draft plan for review. Comments were received and incorporated from the Selectboard until 10/1/2017. A draft plan was submitted along with a completed plan review tool to the State of Vermont SHMO on 10/4/2017 for review and comments. Following receipt of those comments, the draft was further edited and forwarded to FEMA Region I on 10/20/2017 for comments and preliminary approval. Comments were received back from FEMA reviewers on 12/14/2017.

Changes were made to the draft plan based on FEMA recommendations and an updated draft was completed on 12/18/2017. This draft was submitted to the State reviewers for a second time, who found it to meet their standards and then forwarded to FEMA reviewers. Following review by FEMA reviewers, the plan was awarded the Approval Pending Adoption (APA) status and returned to the town on 2/7/2018. The plan was then adopted by the Goshen Selectboard on 04/03/2018.

## **1.2. Opportunities for public comment**

As indicated in 1.1.1, multiple opportunities for public comment were made available during the planning process. All persons reviewing the drafts including the public and neighboring communities were instructed to send comments to Tim Bouton [tbouton@acrpc.org](mailto:tbouton@acrpc.org) for review for possible inclusion.

- A plan review/update committee was appointed at its meeting on 4/4/2017 by the Town Selectboard.
- The plan was made available on the Town website <http://newhavenvt.com/> for public comment while in draft form. No comments were received
- Meetings of both the Town Selectboard and the Town Planning Commission were open for public comment throughout the planning and draft phases of this plan and public comments to drafts were requested
- A draft of the plan was posted in the ACRPC office for public comments on 6/22/2017.
- A draft of the plan was posted on the regional planning commission website at [www.acrpc.org](http://www.acrpc.org) on the Town of New Haven page.
- The public was noticed and invited to provide input throughout the update process via legal public notice and announcements in Front Porch Forum, the local online bulletin board.
- On 9/12/2017, copies of the draft plan were supplied to the Town Selectboard for corrections. Several corrections/suggested edits were supplied by a Selectboard member and included in a revised draft.
- On 10/3/2017, a copy of the draft plan was sent to the town clerks in the surrounding towns of Weybridge, Addison, Waltham, Ferrisburgh, Monkton, Bristol and Middlebury. The clerks were asked to distribute the plans to town officials for comment. No comments were received.

## **1.3. Opportunities for additional comments**

Additional opportunities for regional and state-level comments in the draft stage were provided throughout the planning process.

- A copy of the draft plan was provided to the State Hazard Mitigation Office for comments prior to beginning the update process which were received on 3/27/2017.
- An updated draft was sent to Stephanie Smith at the State Hazard Mitigation office for comments on 5/30/2017.
- Comments were received and edits made to reflect comments received.
- An updated copy was sent to Stephanie Smith for submission to FEMA on 10/4/2017
- A Local Mitigation Plan Review Tool was returned by the State reviewer on 10/17/2017 and edits were made to reflect the comments.
- FEMA Region 1 staff was sent a draft for comment.
- A copy of the draft plan was posted on the ACRPC website for regional review and notice was given during monthly meetings of ACRPC as to its availability.
- Comments were received from FEMA reviewers on 12/15/2017 and edits made.

## **1.4. Extent of review**

Throughout the plan update process all sections of the plan were reviewed and corrected for accuracy. Recently completed studies and newly developed data were included in the document. Examples of changes due to new data include addition of information from:

- 2017 Basic Emergency Operations Plan
- March 2017 Town Plan
- 2016 Addison County Regional Plan
- 2013 State of VT Hazard Mitigation Plan
- Disaster updates within Section 1.4 Community Risk Assessment
- A 2004 Geomorphic Assessment of the New Haven River
- 2016 Report of the State Fire Marshall
- 2012 Vermont's Fire History 1905-2011

## **2. Community Background/Maps**

### **2.1. Community Background**

The Town of New Haven, Vermont has three village centers, New Haven Streets, New Haven Junction and New Haven Mills. US Route 7 and VT Route 17 meet at New Haven Junction along with the tracks of the Vermont Railway. Route 7 divides the town East/West and Route 17 similarly divides the town North/South. New Haven has seen a steady increase in population from 1960 until now which is at the current level of 1738. Between 2000 and 2015, the increase in population was a total of just over 4%.

In New Haven, most homes are single-family wood structures (~78%), a little more than 10% are multi-family homes and nearly 10% are mobile homes. Development pressure is limited in New Haven primarily due to the agricultural use of its open land and the availability of developable land within the region.

In the Town, Green Mountain Power provides electrical power. Residents of New Haven provide for their own water and sewage needs through wells and springs as well as individual on-site septic systems. Community-owned water and septic are available only in the village area and is available only for town infrastructure (Beeman Elementary School, Town Hall, and Town Community Center).

In New Haven, fire coverage is provided in exchange for a tax donation by the independent New Haven Volunteer Fire Department, Inc. which provides for additional expanded capacity through a mutual aid agreement with other county fire departments. Calls for the fire department occur, on the average, 50 times per year. The Annual Report of the State Fire Marshal indicates that no structure fires were reported in 2016. The fire department includes a First Response unit which obtains EMS transport support from Vergennes, Middlebury or Bristol depending on the location of the incident. Law enforcement in the Town is provided by the Vermont State Police. Routine traffic enforcement is provided under contract to the town by the Addison County Sheriff.

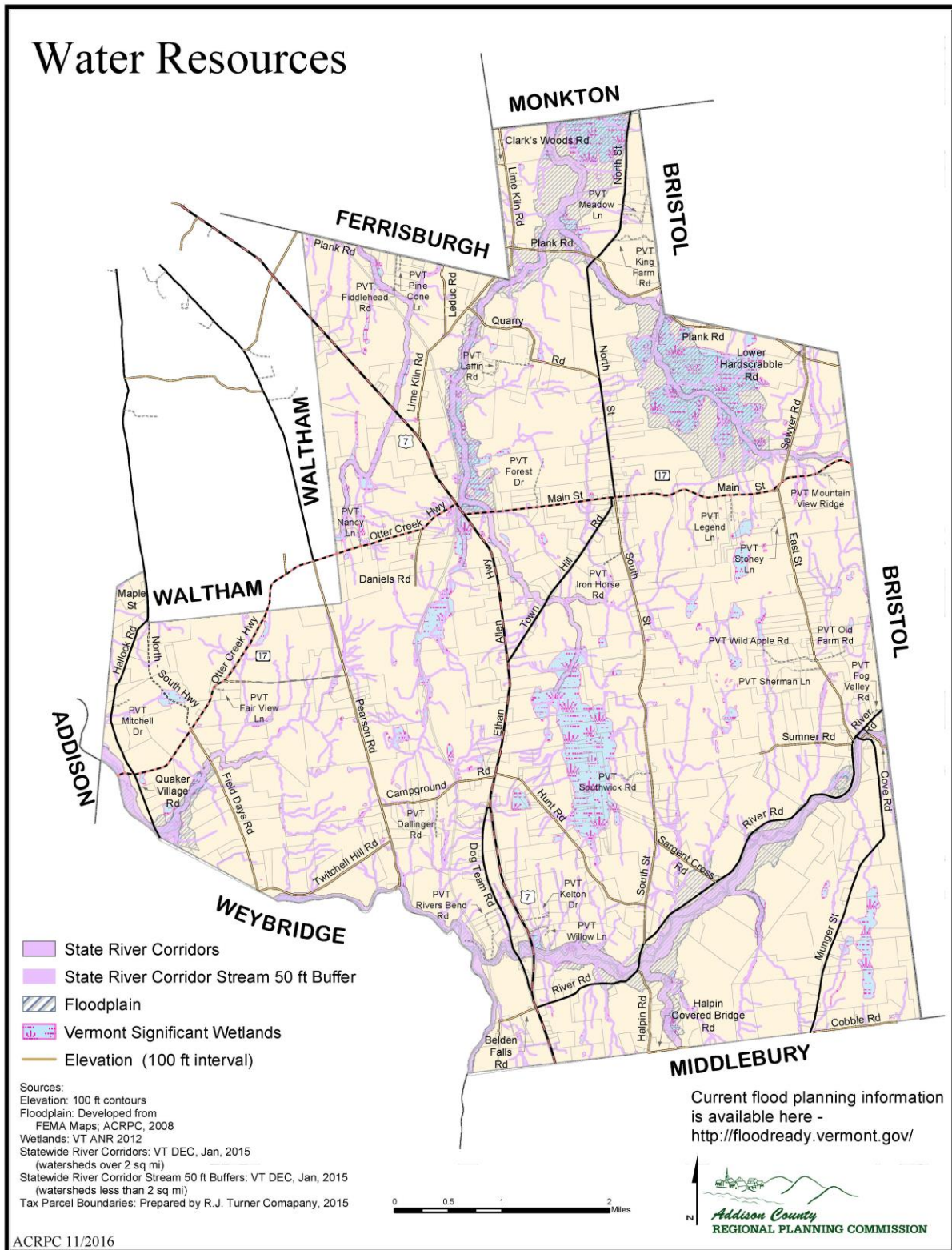
The Town has identified a Select Board member as Emergency Manager and uses a Local Emergency Operations Plan (LEOP) to coordinate response to larger incidents. The LEOP identifies the Town Office and Fire Station as emergency operations centers and the Town Hall, and Fire Station as community shelters. The LEOP also identifies high hazard areas and vulnerable sites primarily based on Flooding, HAZMAT and likely transportation incidents.

The Town has been a member in good standing of the National Flood Insurance Program since 1974. As a requirement for membership, the town has adopted zoning by-laws designating Flood Hazard Areas including associated regulations for administering those areas. Due to the inaccuracies of the existing FEMA flood maps last updated in the 1980s there is some variation in numbers of structures at risk. As of July, 2017, there are an estimated 19 structures in the mapped floodplain. Of those, 7 are enrolled in the NFIP insured to \$1,327,500 with no repetitive loss residential properties. Thirteen of these structures are considered single family dwellings with one multiple family dwelling. An earlier evaluation also included four commercial structures and a government structure. Several of these have since been removed via Letters of Map amendment issued by FEMA. The town's zoning administrator is also the town's NFIP administrator and all applications for development within the mapped floodplain are reviewed before the Development Review Board for conformance with the bylaws.

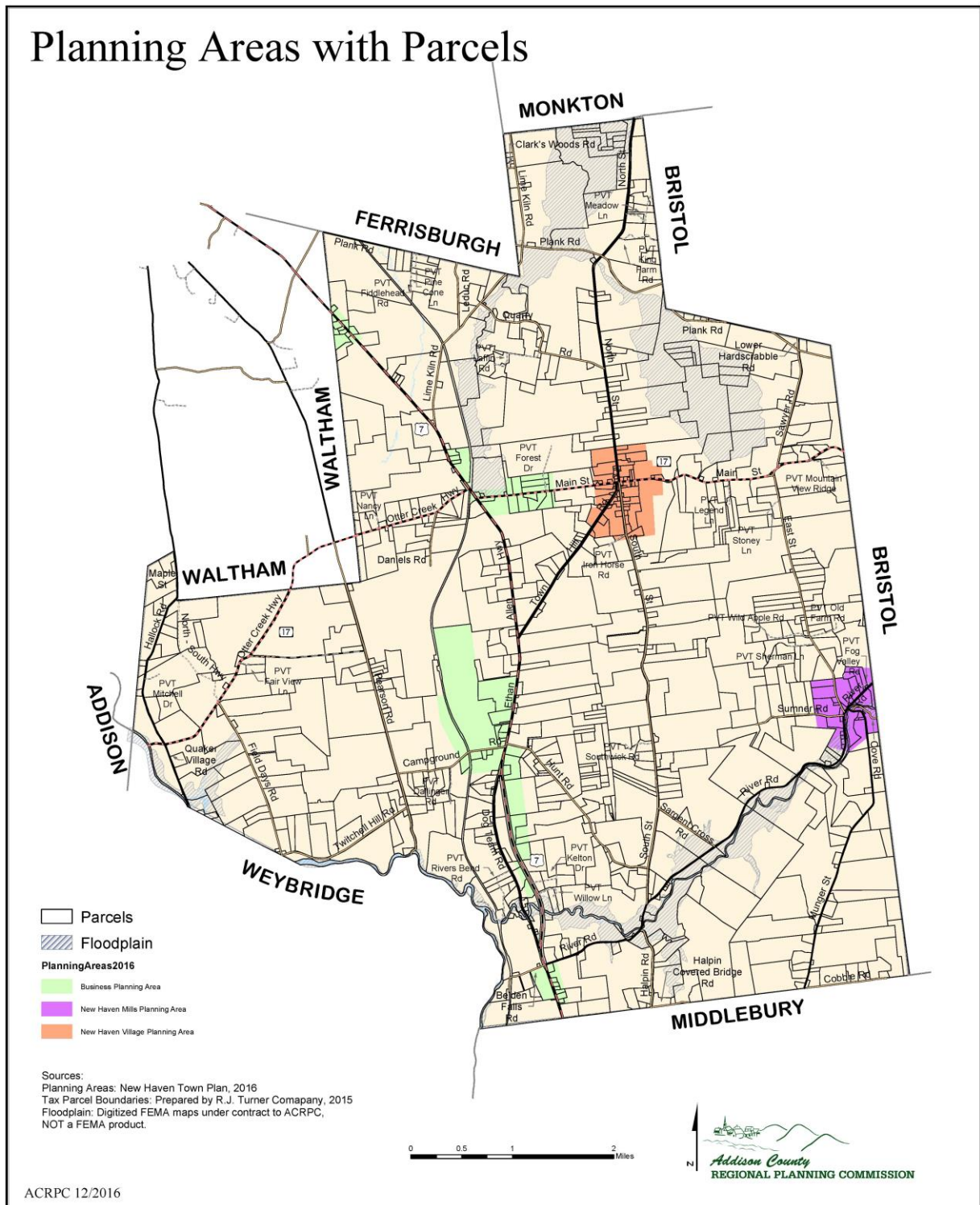
### 2.2.1. Road Names



## 2.2.2. Floodplain and River Corridor Map

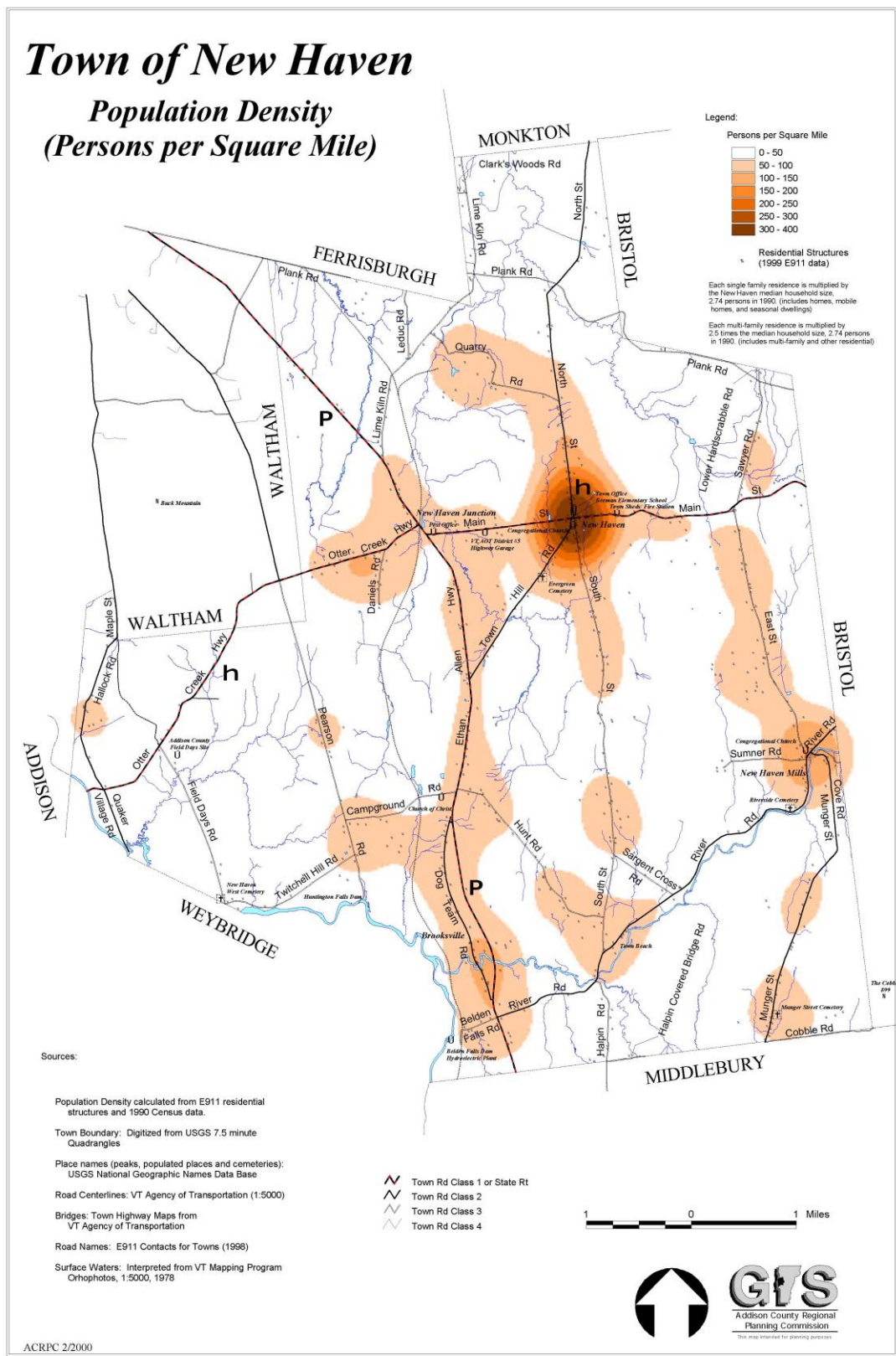


### 2.2.3. Planning areas with Parcels



ACRPC 12/2016

## 2.2.4. Population Density Map



### 3. Existing Adopted Plans which support Hazard Mitigation

The following plans are used to illustrate how the community, the Addison region and the State of Vermont have incorporated the 2011 mitigation plan into standard planning mechanisms. As planning efforts continue forward, this plan will continue to inform and be integrated into these and other future planning processes.

#### 3.1. *New Haven Local Emergency Operations Plan (Mitigation repairs identified)*

Site Type: (ex: dam, culvert, bridges, railway crossing, low-lying area)	Site Location (physical location)
Flooding	River Road (various places)
Flooding	Dog Team Road
Flooding	River's Bend Campground
Flooding	Belden's Road Underpass
Rail Crossings	Route #7 in New Haven Jct. and Campground Road
Explosives storage	Off Town Hill Road
VT Gas Pipeline gate station	Plank Rd and North St.

#### 3.2. *New Haven Town Plan (March 2017) Objectives and Statements supporting Hazard Mitigation*

- *Encourage the State to ensure that all rail-highway junctures be properly marked and maintained to limit their dangers, while retaining the current system of ground-level crossings.*
- *New Haven is committed to reducing known hazards through mitigation of those hazards through cost effective solutions. The Town has adopted an all-hazards mitigation plan, which identifies known hazards and proposes projects that will mitigate some of the effects of those hazards on the Town's residents.*
- *All new private roads and private driveways shall be constructed in a manner that allows safe access by emergency service vehicles.*
- *The Town will promote and encourage bicycling and bicycle safety by working with federal, state and private funding sources to make our roads safer and more bicycle-friendly whenever such opportunities arise.*
- *Utility and other §248 infrastructure must be developed and maintained with safeguards to preserve the health and safety of residents and visitors to New Haven. Developers of projects that pose unique or increased health or safety risks must provide public safety agencies serving the Town with training, equipment and compensation commensurate with the increased risks.*
- *With the exception of transmission and distribution lines, commercial projects and energy plants that are not attached to existing or permitted structures must not be located within special flood hazard areas, river corridors or within 50 feet of any surface waters, wetlands and any required buffers, or on steep slopes with a natural (pre-development) grade in excess of 15%.*

- *Appropriately vegetated shorelines contribute to maintenance of water quality and shoreline protection in the following ways:*
  - *Provide bank support and stabilization, preventing bank undercutting and collapse;*
  - *Provide food and shelter for fish and wildlife, and corridors for wildlife movement;*
  - *Intercept, absorb, and filter out pollutants such as silt, fertilizers, toxic chemicals, and livestock wastes and slow surface runoff;*
  - *Keep water temperatures cool during hot summer months when fish are susceptible to heat stress;*
  - *Reduce flood and ice damage to stream channels, and adjacent lands and structures; and*
  - *Preserve natural character of waters.*
- *Wetlands provide important environmental benefits including filtration of storm runoff, flood control and wildlife habitat.*
- *The Town also supports reducing hazards associated with flood events by protecting land within the floodplain and along highly erodible riverbanks from unrestricted development. By joining the National Flood Insurance Program and adopting flood hazard regulations, the Town has ensured that its residents may purchase flood insurance to protect their homes. Recent studies of fluvial geomorphology along the New Haven River have identified areas along the river outside of the floodplain where the erosive actions of floodwater could cause damage to buildings and infrastructure. The Town supports identifying these hazards areas and including them in future revisions to the zoning and subdivision bylaws.*
- *Prepare and adopt guidelines for all new driveway and road construction to ensure the adequacy and safety of emergency vehicle access.*

*New Haven Town Plan (March 2017) appendices in support of hazard mitigation:*

- *The 2011 New Haven Single Jurisdiction Hazard Mitigation Plan is incorporated into the New Haven Town Plan as Appendix C.*

**3.3. Addison County Regional Planning Commission Regional Plan (2016) Goals that support Hazard Mitigation**

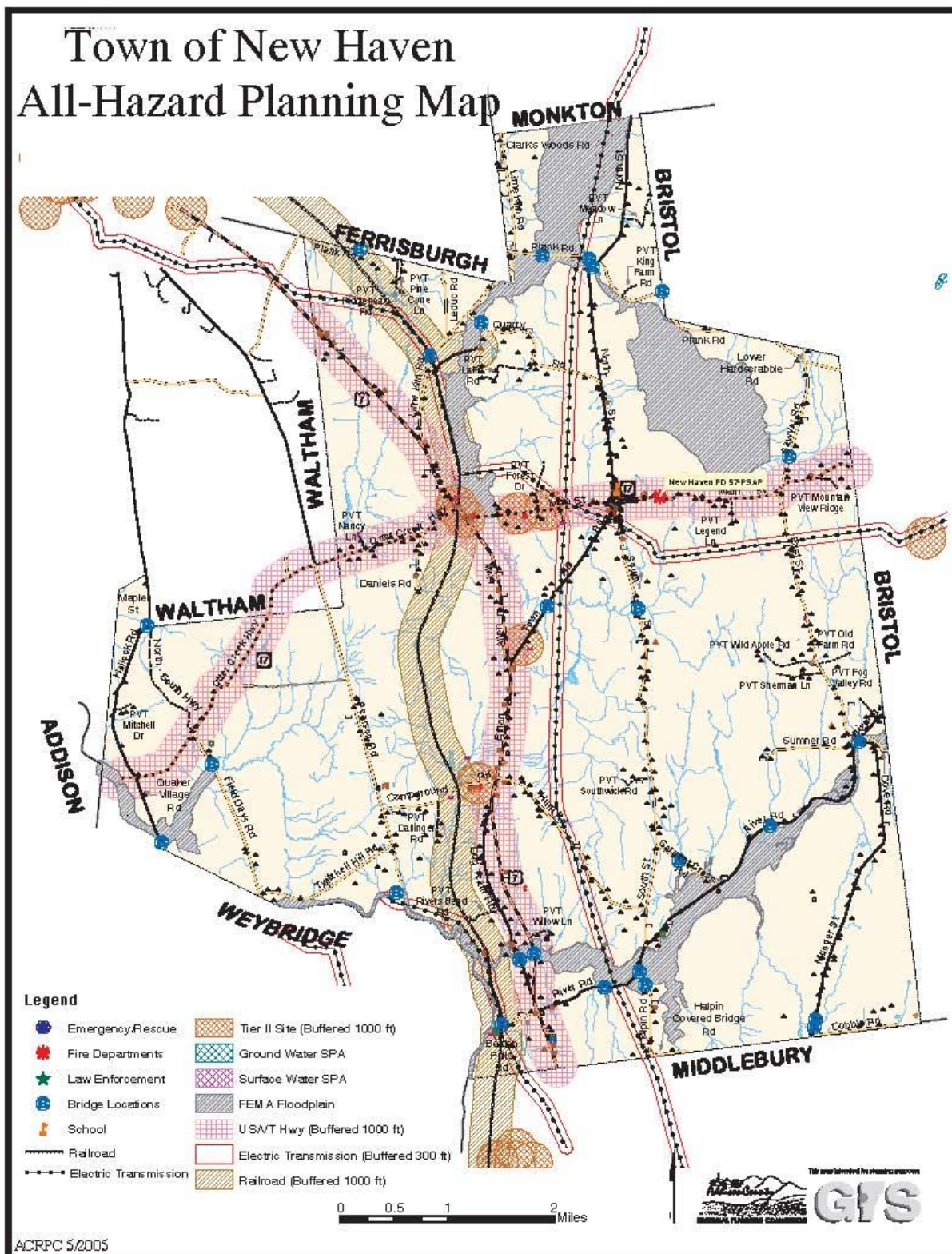
- *Work to restore and maintain stream equilibrium by developing and implementing river corridor plans.*
- *Reduce flooding and related damages through appropriate mitigation techniques.*
- *Encourage watershed-based cooperation and educate towns and the general public about water quality and stream dynamics*
- *Provide communities the support they need to be proactive in reducing flood and erosion hazards by adopting appropriate zoning regulations to limit development in hazardous areas.*
- *Encourage proper maintenance and sizing of bridges, culverts and other structures to accommodate flow from storm events and to mitigate flood hazards.*
- *Reduce the loss of life and injury resulting from all hazards.*
- *Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters.*
- *Reduce the damage to public infrastructure resulting from all hazards.*
- *Recognize the connections between land use, storm-water, road design/ maintenance and the effects from disasters.*
- *Ensure that mitigation measures are sympathetic to the natural features of the region's rivers, streams and other surface waters; historic resources; character of neighborhoods; and the capacity of the community to implement them.*
- *Encourage hazard mitigation planning as a part of the Municipal Planning Process.*

**3.4. State of Vermont Hazard Mitigation Plan (2013) Goals that support Hazard Mitigation**

- *Avoidance of Hazards*
- *Prioritize Public Safety*
- *Utilize Federal Funding to Support Hazard Mitigation Initiatives*
- *Integrate plans with other state and regional initiatives*

#### 4. Community Risk Assessment

##### Local All-Hazards Planning Map 2007



#### **4.1. Risk Prioritization Process/Results**

In New Haven, interviews used to create the original 2005 plan indicated the following hazards as High or Medium-High in terms of likelihood – Drought, Power Failure, Flooding, High Winds, Landslide, Lightning, HazMat Spill, Structure Fire, Wildfire and Winter Storm. In terms of overall impact should they occur, the town rated these hazards as High or Medium-High – Flooding, HazMat Spill, and Winter Storm. Combining impact with probability indicates that the highest risks to the community are Flooding, HazMat Spills and Winter Storms. A 2017 re-evaluation of the 2011 HIRA utilizing, a new methodology resulted in regional-level or highest priority concerns of Insect-borne Illness, Invasive species, HazMat spill and a new hazard, Gas Line Rupture. In this plan update, focus was moved from previous HIRA results to this newer assessment. The 2017 risk assessment shows changes in priorities in the community which are primarily due to changes in public opinion rather than any major changes to risk. Because the community is proactively mitigating its own hazards, those with regional or statewide impacts were of greatest concern to committee members and were profiled in this plan update.

With a population growth rate of only 4% in a 15-year period between 2000 and 2015, its impacts on New Haven's vulnerabilities are close to nil. Growth in the form of additional infrastructure such as the newly installed natural gas pipeline in town has risen to the top level of concern. Unrelated to growth, New Haven has seen other changes in perceived vulnerabilities between 2005 and 2017 indicated in the current HI/RA. Mitigation improvements have lessened the concerns of local residents in some cases like Flash Flood and new natural hazards of Insect-Borne diseases, and Invasive Species have expanded. These hazards have become of great concern as they have a greater impact on residents with a higher probability of occurrence.

# Town of New Haven Risk Assessment 5/8/17

Hazard	Damage Type	Probability	Warning	Geographic Impacts	Property Damage	Committee Concern	Vulnerability
Flash Flood	Water or Erosion	2	3	1	3	3	12/3
Inundation Flooding	Water Damage	2	1	1	1	1	6/1
Dam Failure	Water or Erosion	2	2	1	1	1	7/1
Ice Jam	Water Damage	2	3	1	1	1	8/1
Severe Snow	Closed Roads	3	1	4	1	1	10/2
Ice Storm	Power Outage or Fire	3	2	2	2	1	10/2
High Winds	Power Outage	4	2	1	3	1	11/3
Lightning Strike	Fire	2	4	1	2	3	12/3
Hail	Crop or property damage	2	4	1	1	1	9/2
Tornado	Power outage or structural damage	1	4	1	3	1	10/2
Drought	No drinking water/crop loss	1	1	1	2	1	6/1
Wildfire	Structure fire	3	4	1	2	2	12/3
Earthquake	Property damage	1	4	4	2	1	12/3
Infectious Disease	Health risk	2	1	1	1	3	8/1
Insect-borne Illness	Health risk	4	1	4	1	3	13/4
Invasive Species	Ecological damage	4	1	4	2	2	13/4
Extreme Temperature	Health risk/ structure damage	2	1	1	1	2	7/1
HazMat Spill	Health risk/contamination	2	4	2	3	3	14/4
Highway Accident	Human injury	4	4	1	1	2	12/3
Structure Fire	Property damage injury	3	4	1	2	2	12/3
Landslide/Rockslide	Property or Infrastructure	1	4	1	1	1	8/1
Gas Line Failure	Fire/Explosion	2	4	1	3	3	13/4

# Hazard Inventory/Risk Assessment Parameters

## Probability: Frequency of Occurrence

1= Unlikely	<1% in a given year
2= Occasionally	1%-10% probability in a given year
3= Likely	>10% but <100% in any given year
4= Highly Likely	100% probability in a given year

## Warning: Time available to give notice to the majority of the population

1= More than 12 hours
2= 6-12 Hours
3= 3-6 hours
4= <3 hours (minimal)

## Geographic Impacts: How much of the population is expected to be impacted

1= Isolated Locations/neighborhood	<20% of population impacted
2= Moderate impact	>20% and <75% of population impacted
3= Community-wide	>75% of population impacted within community
4= Region-wide	Level 2 & 3 impacts in surrounding communities

## Property Damage: Severity of damages and disruption

1= Negligible	Isolated property damage, minimal disruption to infrastructure
2= Minor infrastructure	Isolated moderate to severe property damage, brief disruption to
3= Moderate infrastructure	Severe damages at neighborhood level, temporary closure of
4= Major infrastructure	Severe damages town-wide, temporary to long-term closure of

## Level of Committee Concern

1= Low level of Concern	Not worth spending a lot of time with
2= Moderate Level of concern	Could happen, but mitigation costs are high and benefits are low
3= High Level of Concern	Worth exploring more, developing mitigation projects for
4= Extreme Concerns	Town is generally mitigating as much as they can, really need assistance.

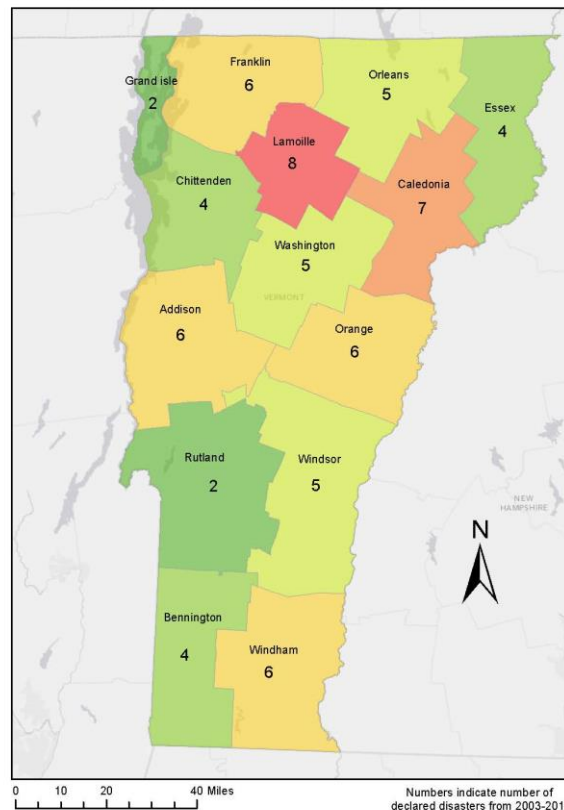
## Vulnerability: Total score of Probability, Warning, Geographic Impact, and Property Damage

1= Low Priority	≤ 8 total score, low cost –no cost mitigation projects only
2= Medium Priority	>8 and ≤10 total score
3= High Priority	>10 and ≤12 total score
4= Regional/State-wide Priority	>12 total score

**Table #1: Disaster Damage History for the Town of New Haven**

Year	Date	Description	Dec. #	County Est.	New Haven
1973	7/6/1973	Severe Storms, Flooding, Landslides	DR397	\$ Unavailable	\$ Unavailable
1976	8/5/1976	Severe Storms, High Winds, Flooding	DR518	\$ Unavailable	\$ Unavailable
1977	9/6/1977	Drought	EM3053	\$ Unavailable	\$ Unavailable
1989	8/4-5/1989	Severe Storms, Flooding	DR840	\$ 31,033.00	\$ Unavailable
1993	4/24-5/26/1993	Flooding, Heavy Rain, Snowfall	DR990	\$ 17,639.00	\$ Unavailable
1996	1/19-2/2/1996	Storms, Flooding	DR1101	\$ 130,529.00	\$ Unavailable
1998	1/6-16/1998	Ice Storms	DR1201	\$ 662,388.00	\$ Unavailable
1998	7/17-8/17/1998	Severe Storms and Flooding	DR1228	\$ 2,146,484.00	\$ Unavailable
2000	7/14-18/2000	Severe Storms and Flooding	DR1336	\$ 738,127.27	\$ 0.00
2001	3/5-7/2001	Snowstorm	EM3167	\$ 138,333.08	\$ 6,866.98
2004	8/12-9/12/2004	Severe Storms and Flooding	DR1559	\$ 430,551.00	\$ 290,698.75
2008	6/14-17/2008	Severe Storms and Flooding	DR1778	\$ 1,114,515.70	\$ 0.00
2008	7/21-8/12/2008	Severe Storms and Flooding	DR1790	\$ 2,273,481.42	\$ 179,245.37
2011	4/23-5/9/2011	Severe Storms and Flooding	DR1995	\$ 384,416.53	\$ 0.00
2011	8/26-9/2/2011	Hurricane Irene	EM3338	\$ Unavailable	\$ Unavailable
2011	8/27-9/2/2011	Tropical Storm Irene	DR4022	\$ 1,175,911.20	\$ 0.00
2012	5/29/2012	Severe Storm, Tornado and Flooding	DR4066	\$ 172,847.70	\$ 0.00
2014	12/9-12/13/2014	Severe Winter Storm	DR4207	\$ 184,715.05	\$ 0.00
2015	6/9/2015	Severe Storm and Flooding	DR4232	\$ 893,310.63	\$ 0.00
2017	7/1/2017	Severe storms and flooding	DR4330	\$ Unavailable	\$ Unavailable
		<b>Since 2000</b>		<b>\$ 7,506,209.58</b>	<b>\$ 476,811.10</b>

**Declared Disasters by County 2003-2013**



## 4.2. Hazard Type, Location, Extent and Vulnerability

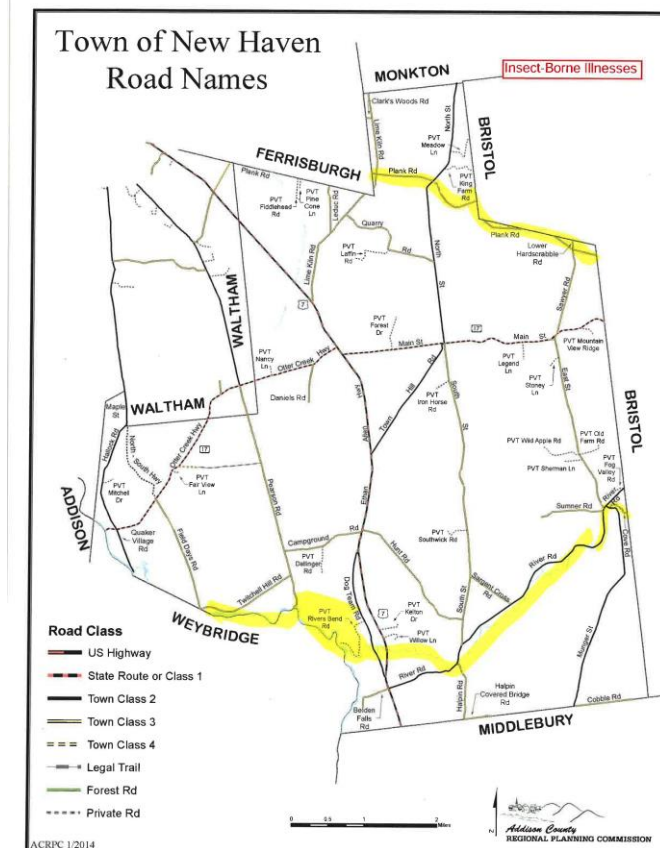
The following Hazard types identified in the Town's 2017 HI/RA as either of Regional/Statewide Priority or High Priority for the town have been profiled for this update:

### 4.2.1. Insect-Borne Illness

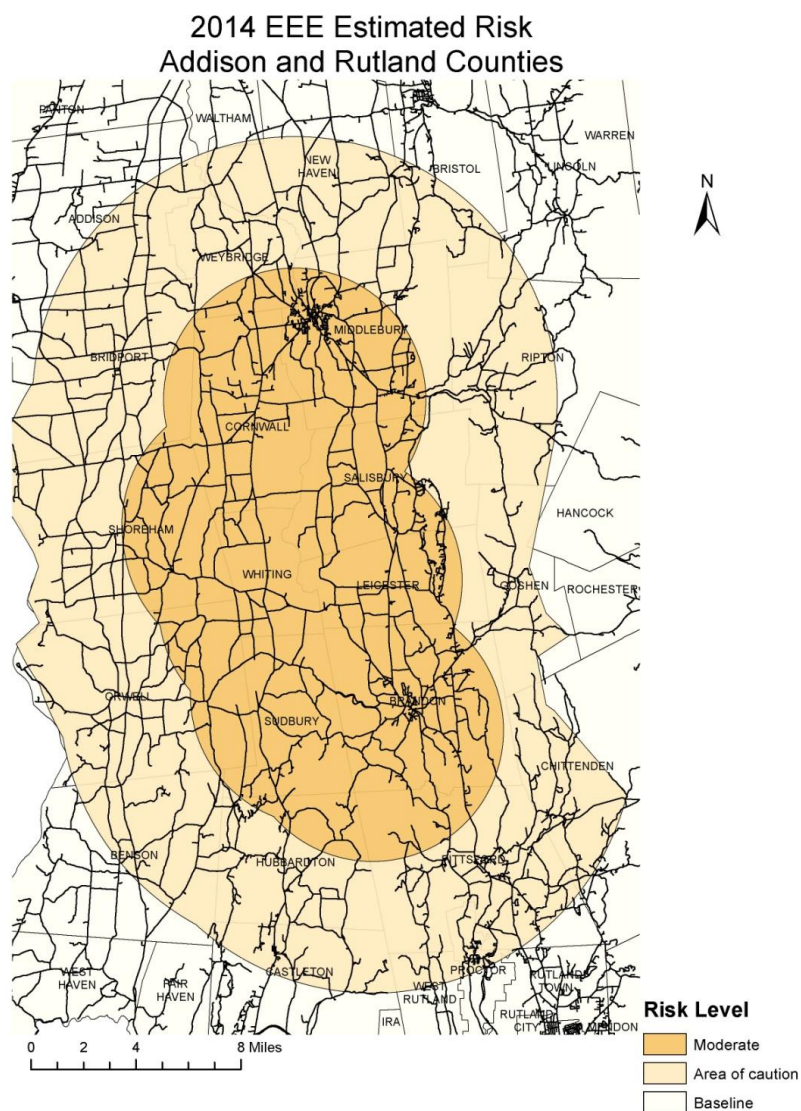
**Location:** Mosquitoes are common throughout New Haven and the surrounding towns due to the large acreages of swamp and poorly drained soils. *Culiseta melanura* (CM), the specific vector for Eastern Equine Encephalitis (EEE), lives in hardwood swamps. Trapping efforts funded by the Vermont Agency of Agriculture and the Vermont Department of Health have not yet identified populations of CM carrying EEE in the Town of New Haven mostly due to the predominance of softwood rather than hardwood swamps in town. However, other mosquito species as a vector for West Nile Virus and the ever-present Lyme disease-carrying Deer tick make all areas of town at risk.

**Extent:** The discovery of West Nile Virus (WNV) in mosquito populations in the Addison region and a 2012 outbreak of Eastern Equine Encephalitis (EEE) have elevated the awareness of risks associated with mosquito bites. Due to the endemic mosquito populations, infection from either of these arboviruses is highly likely and could result in multiple deaths in the Town of New Haven. Similarly, the presence of Deer ticks and the spread of Lyme Disease and the recently highlighted Powassan virus are the cause of great concern.

## New Haven Hazard Mitigation Committee Insect-borne Disease Concerns



**Previous Occurrences:** A 2012 EEE outbreak resulted in two deaths in the Addison/Rutland region due to the disease which was first recorded in animal populations in Vermont in 2010. Unfortunately, spraying of larvicides for the nuisance species normally conducted by the mosquito control district, has essentially no effect on this specific EEE carrier. In late summer of 2012, the State of Vermont conducted targeted aerial spraying of known population centers in an effort to knock down these populations. While no human cases of EEE were reported in Addison County in 2017, it is assumed that the disease is endemic in the local mosquito population. Lyme disease was first identified in the Town of Lyme Connecticut in the 1970s and has spread steadily into Vermont to the point it is now considered endemic in the local tick population. Recent announcements (Spring 2017) by the CDC and VT Dept of Health warn that the Powassan virus is expected to become much more common as well.



**Future Probability:** Mild winters and a high-water table have led to an increased population of ticks and mosquitoes which carry WNV, Lyme, Powassan and EEE in the State of Vermont. Two conflicting assumptions can be made to forecast the current trend. If the current global climate change is a temporary spike, populations of many of these disease-carrying insects would be expected to be reduced as the trend reverses itself. On the obverse, if the current trend continues over the next few decades, these and other disease carrying insect populations will likely increase. This increase in populations will result in an ever-increasing risk to residents.

**Vulnerability Summary:** Concerns about the hazards related to mosquito bites and the transmission of diseases resulting from those bites have accelerated in the Addison region over the past few years. Mosquitoes have been a known nuisance pest and have limited the enjoyment of outdoor for years. In 2006, the towns of Bridport, Cornwall and Weybridge created the Lemon Fair Insect Control District to help combat this nuisance problem. Ongoing programs that monitor populations and spray larvicides have been successful in keeping overall nuisance populations to within acceptable levels. Recently, however, public concerns have evolved from nuisance issues to life safety issues associated with insect bites. Calls for the community to “do something” have not risen to levels where New Haven has taken any action but as concerns rise, the banding together of towns into spray districts may be the only answer.

The community vulnerability score for Insect-Borne Illness is 4 and would be considered a REGIONAL or STATEWIDE PRIORITY. Assuming recent conditions projected forward, there is a high likelihood of occurrence with a high economic impact to the community.

#### 4.2.2. Invasive Species

**Location:** Invasive species are becoming a widespread problem throughout New Haven and the rest of Vermont. Damages range from skin blistering and scarring in the case of poison parsnip, to the devastating effect the Asian Longhorn Beetle could have on Vermont's famous maple sugar industry.

The New Haven hazard mitigation committee pointed out that much of the spread of unwanted invasive plants is along roadsides and has entered the town via state highways. (see map) Flying insect invasives will be far more widespread due to the mobility of these pests and could strike anywhere in the community where their hosts live (Ash for Emerald Ash Borer and Maple for Asian Longhorned Beetle). From small woodlots to large-tract forests, all treed land is susceptible.

**Extent:** Widespread establishment of Wild or Poison Parsnip (*Pastinaca sativa*) along roadsides and/or open fields can effectively remove those areas for recreational purposes through much of the summer months. Once they have been exposed, many are quite hesitant to venture far from cleared paths. Given the non-developed nature of much of Vermont's attraction for tourists, this hesitancy to venture off the beaten path could heavily impact future visits.

Ash trees are the source for hardwood that can bend and withstand considerable stress. Historically, ash has been the source for axe handles, hockey sticks and baseball bats. It is a component of timber harvesting in Vermont and provides that industry with a moneymaking product. Spread of the Emerald Ash Borer (*Agrilus planipennis*) (EAB) into Vermont's forests would have a significant impact on timber values.

A third invasive of immediate concern to Vermont is the Asian Longhorned Beetle (*Anoplophora glabripennis*) (ALB) which attacks and kills maple trees. Vermont is famous for its maple syrup and is the largest producer of maple products in the United States. Widespread loss of maple trees could result in the collapse of this iconic industry and a severe impact to the state's economy.

Other invasives include Purple Loosestrife, Japanese Knotweed, Rock Snot and many others which all have a detrimental impact on the state's native populations and the state's ecological balance.

**Previous Occurrences:** The most noticeable impact of invasives in Vermont began when a load of elm lumber was imported to the New York City area from Europe in the early 1900s. Embedded in this load were spores of what we now call Dutch elm disease. At the time, elm was the most popular street tree in the US due to its hardiness in many types of conditions. Now, elm is uncommon in most of the north east and the disease continues to spread westward.

Other examples include the importation of gypsy moth to attempt to create locally grown silk, the spread of zebra mussels which threaten water intakes on infested water bodies and the unintentional importation of the Norway Rat in ships holds with early colonists. Each of these has had its own impacts on the economy and ecological stability of the US and Vermont.

**Future Probability:** With an increasing global economy, new and unknown invasives are sure to be imported from other countries in the future. In recognition of the inevitable spread of EAB and ALB into Vermont, trapping is being conducted by foresters and biologists along the border areas of Vermont. Both EAB and ALB are expected in Vermont within the next few years and damage caused by their spread is already anticipated by the Vermont Agency of Natural Resources.

**Vulnerability Summary:** New Haven is extremely vulnerable to the economic impacts of invasives and is limited in its ability to combat their spread. The community does what it can but is highly dependent on State and Federal agencies to slow down the spread of invasives. With a portion of the local economy highly focused on the forests and forest products, the community is highly at risk. The hazard mitigation committee scored Invasives as its second highest risk with a score of 13 and a vulnerability rating of 4 reflecting the regional nature of the hazard and its importance.

#### 4.2.3. HazMat spill

**Fixed Locations:** There are 13 sites in town that have sufficient types and/or quantities of hazardous materials to require Tier II reporting.

D&F Excavating & Paving:	195 Campground Rd.	Diesel Oil
GMP Belden Falls Hydro	402 Belden Falls Rd.	Lead/Acid batteries
Jiffy Mart #28	56 Ethan Allen Highway	Diesel Fuel
Level 3 Communications	Rte. 17	Lead
Maplefields @ New Haven	1908 Ethan Allen Hwy.	Diesel, Kerosene, Propane
Independent Explosives	1605 Town Hill Rd.	Powernell 1500
New Haven Garage	490 Main St.	Asstd. Garage chemicals
Phoenix Feeds & Nutrition	5482 Ethan Allen Hwy.	Diesel, Oil, coolant
Pike Industries Inc	326 Campground Rd.	Petroleum, Acid, CNG, Gasses
RCC New Haven	North St.	Lead/Acid Batteries
VELCO Substation	760 Main St.	Lead/Acid Batteries, Sulfur Hexafluoride
Verizon Wireless	314 Lime Kiln Rd.	Lead/Acid Batteries
VT DPS	2490 Ethan Allen Highway	Lead/Acid Batteries

**Transportation Accidents:** The presence of US Route #7, VT Rte. 17 and the Vermont Railway in New Haven increases the probability that at some time a transportation accident will occur, resulting in the release of a hazardous material. In addition to the likelihood of a release on these routes, all town highways experience an ongoing risk of a spill as fuels are transported to individual homes on an almost daily basis

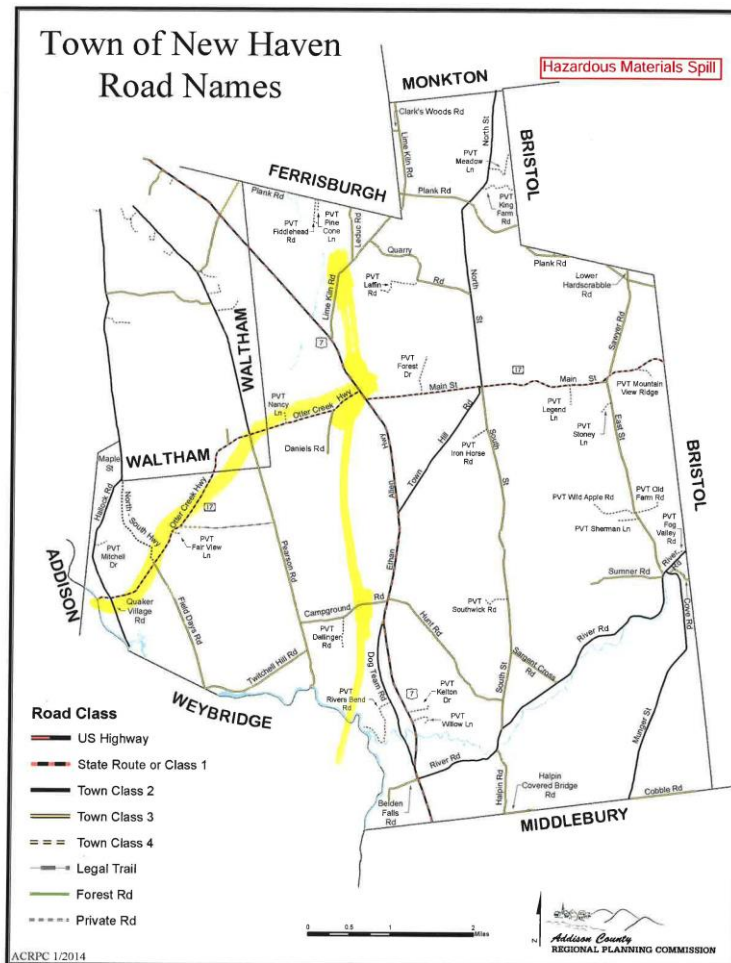
**Extent:** Based on the recommended Public Safety evacuation distance from the 2016 Emergency Response Guidebook, a 1000-foot circle has been drawn around those sites. Structures inside the circle are those that may need to be evacuated if an incident were to occur.

Of the approximately 821 buildings (E911 locations) in New Haven, there are 36 residential, 12 commercial facilities, 5 industrial facilities, 2 churches and the Post Office, or 6.8% of the structures in town that might be impacted based on this 1000-foot hazard circle.

Utilizing the same 1000ft distance, essentially every building in the community is within an evacuation zone should a spill occur on a road or on the rails.

**Previous Occurrences:** No recent hazardous materials spills have been reported at any of the facilities. Highway accidents responded to by the New Haven Volunteer Fire Department routinely include spills of gasoline or oil from the vehicles involved. No reports of chemical cargo spillage were recorded.

## New Haven Hazard Mitigation Committee Hazardous Materials Spill Concerns



**Future Probability:** Increased demand for products whether they be hazardous or non-hazardous, shows up as increased freight traffic on Route #7 and the Vermont Railway. An increase in traffic is generally followed by an increase in accidents, leading to an increasing probability that some type of large hazardous material spill will occur within the Town of New Haven.

**Vulnerability Summary:** Route #7 is the primary north/south route on the western side of the state and trucks carry a mix of hazardous materials through New Haven along this highway. The addition of the Vermont Railway which daily carries gasoline and propane through the community makes for a relatively high vulnerability to transportation accident involving a hazardous material.

The numbers of public buildings and critical infrastructure within easy exposure to spillage at any of the fixed facilities shows a high vulnerability should a spill occur. Fortunately, the manner in which many of the reportable chemicals are contained (in Batteries) lessens the likelihood that a spill will occur.

With a community vulnerability score of 4 for a hazardous materials incident, this hazard would be considered a **REGIONAL/STATEWIDE PRIORITY** based on the high probability of an incident and its potential for critical impact to town infrastructure.

#### **4.2.4. Gas Pipeline Failure**

**Location:** A recent installation of a natural gas pipeline follows an electric transmission corridor through New Haven owned by VELCO. The pipeline, owned by VT Gas Systems was pressurized in the spring of 2017. Appurtenant distribution lines are expected to be constructed along North Street from the gate station off Plank Rd to the village area and then on to Bristol. Another distribution line has been built from the same gate station, along Plank Rd. to the City of Vergennes.

**Extent:** While the majority of the transmission line lies away from most homes and infrastructure, a small stretch skirts around the VELCO substation off Rte. #17. If a catastrophic failure were to occur in this location, the worst-case scenario would include extensive damage to the substation which, in turn could cause major fluctuations in the power grid in northwestern VT. Distribution line failure could result in gas explosions which could totally destroy the affected home.

**Previous Occurrences:** The Town has no previous experience with natural gas as it has not previously been available except in Chittenden and Franklin counties in VT. National news reports of gas explosions and gas line failures are the cause of some concern in town. News stories depict massive loss of lives and property in the event of a pipeline failure. Due to the existence of new or nearly new lines, failures in Vermont are a rare occurrence.

**Future Probability:** The riskiest times for gas pipeline failures are at the beginning and end of the pipeline's service period. Newly installed lines run the risk of a poorly constructed weld or gate station but new construction and inspection methods are reducing that risk. Old lines such as are found in older cities (Boston, New York, etc.) are a constant headache for local responders and gas company employees as they can never know when a 100-year-old line will suddenly fail due to years of corrosion. The only other likely cause of line failure lies with damage due to construction and/or farm equipment. A shallowly buried line might be hit by a plow or careless excavation without knowing exactly where the line is buried could both result in damage to a line. Extensive training by the gas company should reduce those risks and the town has insisted that a program of training and equipment purchases for its first responders be conducted.

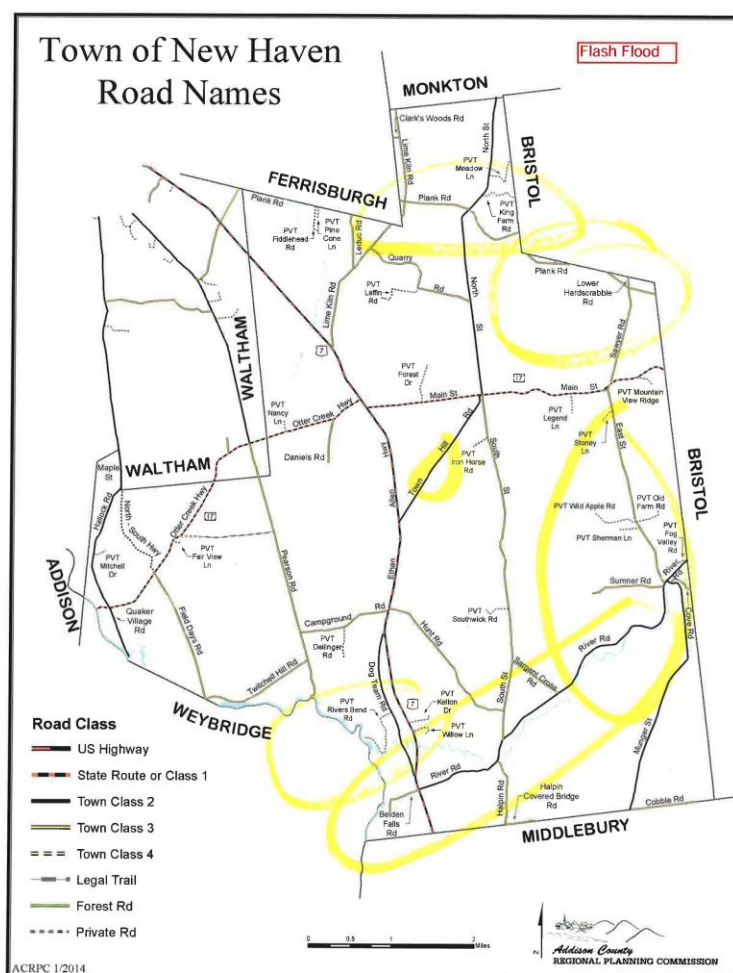
**Vulnerability Summary:** Due to the recent installation of the pipeline, the Town of New Haven is most at risk in these early years. Inexperienced responders could result in a greater rather than reduced risk should a response be needed. Over time, as local responders become more experienced and more familiar with monitoring equipment, safety levels will improve. The committee scored Gas Pipeline failure/explosion at a "13" which would be considered a concern of regional importance. Given that the entire Addison Region is new to the natural gas hazard, this is to be expected. One would also expect that the vulnerability concern level will drop off as gas becomes more commonplace. Fortunately, recommendations by regional emergency organizations in addition to town concerns has resulted in a better equipped and trained first response community.

#### 4.2.5. Flash Flood

**Location:** Flash flooding in New Haven is generally associated with the New Haven River watershed, as the rather large drainage which extends into the mountains of Bristol and Lincoln can rapidly transport heavy rain events into the valley. Occasionally, downpours can occur in isolated areas which can cause flash flooding in smaller streams and even roadside ditches.

**Extent:** Based on the results of overlaying the FIRM flood maps with the location of the E911 points, there are 15 single-family residential, 1 multi-family residential, 1 governmental and 3 commercial units in the town that are vulnerable to potential flooding. The governmental unit is the US Post Office located at 73 Main Street which is located on an elevated parcel for which there is a LOMA. The estimated loss for damage to these properties ranges from a low of \$1,759,387 to \$2,540,652. This represents 5.9% of the grand list. Readings at the New Haven River stream gauge in Brooksville show a low peak of 2,000 CFS in 1993 to the highest peak of 22,000 CFS in 1998.

### New Haven Hazard Mitigation Committee Flash Flood Concerns



**Past Occurrences:** The Town of New Haven has been hit with three presidentially declared disasters since 1998, each as a result of flash flooding. In 1998, heavy rains caused the New Haven River to flood, washing out several town roads and causing over \$35,000 in damages including evacuations along River Road.

In 2004, a stalled summer storm dropped large amounts of rain onto the Towns of Bristol and New Haven. Reports of 11" of rain in a 2-hour period were recorded. The 2004 storm caused over \$150,000 in damage to the Town of New Haven, much of which was reimbursed through State and Federal sources.

In 2017, heavy summer rains on top of already saturated soils caused minor flooding of the New Haven River and ditches. The damages associated with this event were relatively minor at \$3-5,000 but when combined with more severe damages in the mountainous towns of Addison County, were sufficient to meet the standards for a declaration.

Tropical storm Irene in 2011 DR4022 was a "watershed" event for Vermont causing widespread damages throughout the state. Fortunately for New Haven, mitigation practices carried out as the result of previous disasters resulted in only limited damages compared to other areas of the state.

**Future Probability:** The NOAA storm events database identifies 26 flash flood events over the past 25 years with the majority of the damages occurring in a 10-year period starting in 1998. Mitigation strategies implemented since 1998 have reduced the overall impacts of flash floods but unless communities are vigilant, old style construction could make a return and result in an increase in damages.

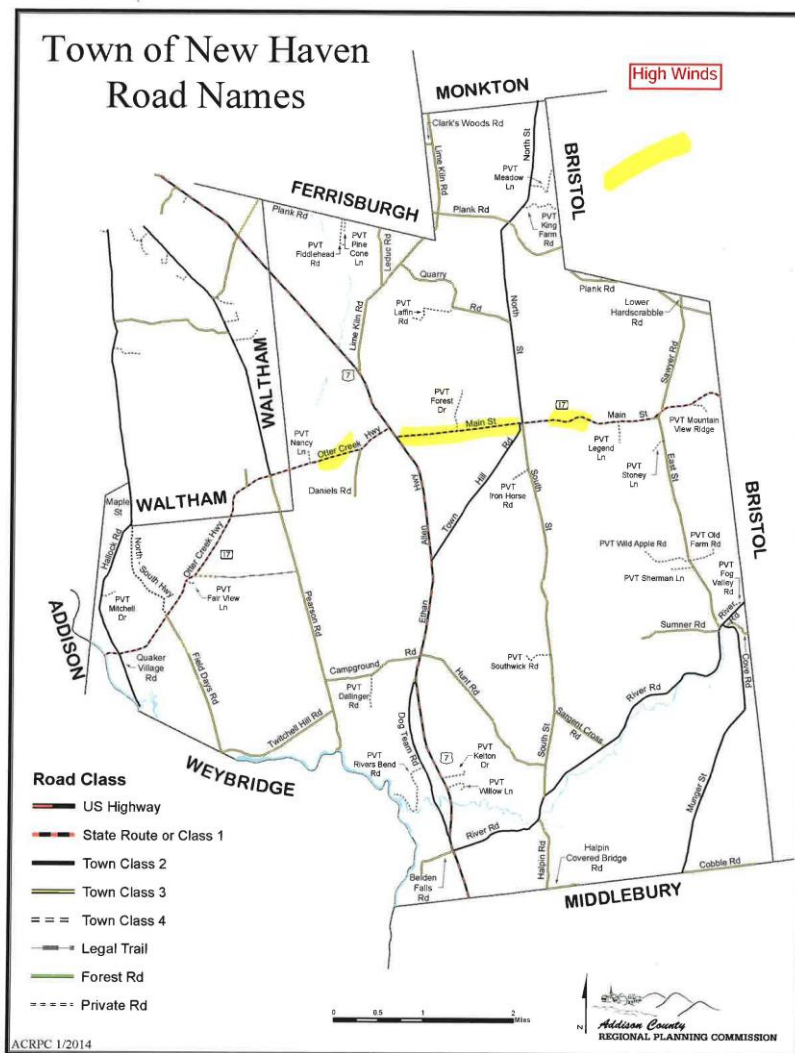
Since the desirability of a "home on the water" is quite high, pressure to develop additional lands along our rivers and floodplains is increasing. Limitations for development in floodplains alone may not sufficiently address the hazards associated with proximity to the river and further limitations that address erosion and flash flood hazards should be considered.

**Vulnerability Summary:** The 2017 committee scored Flash Flood as a HIGH priority in its Hazard Inventory/Risk Assessment exercise. Ongoing efforts by the town road crew and adoption of Vermont's road and bridge standards should eventually have the effect of lessening the risk to infrastructure should all other influences remain the same. Unfortunately, these efforts may not, themselves, be enough should severe storms increase as predicted.

#### 4.2.6. High Winds

**Location:** High winds come in many forms in Addison County and are included in damages associated with Hurricane, Tornado and Hail Storms. In addition to these specific events, high winds are often associated with collisions of major weather fronts when high pressure and low-pressure systems create extreme gradients between them. Locally developing thunderstorms due to convective forces in the atmosphere can also generate high winds. In New Haven, high winds generally are felt on ridgetops and similarly high locations throughout town

# New Haven Hazard Mitigation Committee High Winds Concerns



**Extent:** Hurricane force winds in excess of 75 mph have been recorded twice in the past 25 years in the Addison region. Another 3 wind events exceeded 70 mph. The Beaufort Wind Scale would categorize these storms as a 10 or 11 which would result in widespread structural damages. The State can also experience tornadoes, which are capable of damaging or destroying structures, downing trees and power lines and creating injuries and death from collapsing buildings and flying objects.

### Beaufort Wind Scale

0-1	0	Calm	Calm; Smoke rises straight up
1-3	1	Light Air	Wind motion causes smoke to drift slowly
4-7	2	Slight Breeze	Leaves rustle, wind is felt on exposed skin
8-12	3	Gentle Breeze	Leaves and small twigs in constant motion
13-18	4	Moderate Breeze	Small branches move; dust and loose paper raised
19-24	5	Fresh Breeze	Small trees sway;
25-31	6	Strong Breeze	Large branches sway; overhead wires “whistle”
32-38	7	Near Gale	Whole trees in motion; walking into wind takes effort
39-46	8	Gale	Twigs break off trees; cars veer on the road
47-54	9	Severe Gale	Branches break; Light structural damages
55-63	10	Whole Gale	Trees blown over; considerable structural damage
64-73	11	Storm	Widespread structural damages
74+	12	Hurricane	Considerable and widespread damage to structures

**Past Occurrences:** In 2008, a severe wind gust destroyed a historic home in New Haven which had been recently moved to a new location. Since the structure which had been moved in two sections had not yet been tied together, the second story collapsed into the first story and was destroyed. More recently, a severe downburst in May of 2017 occurred in the nearby Town of Addison which not only toppled trees but also removed roofs and turned one home upside-down injuring the occupant. Other, more common annual events result in downed trees and limbs causing brief disruptions to power and closing roads.

Remnants of Hurricanes striking New England are a rare but possible occurrence in all of Vermont and New Haven has not been spared. Hurricanes in 1938 and 1950 are still remembered by older residents when barns collapsed and animals needed to be rescued or put down due to injuries.

34 tornadoes were recorded in the State between 1950 and 1999, injuring 10 people and causing over \$8.4 million dollars in estimated property damage. Nearly all of these occurred from May through August and most of these occurred in the afternoon.

While New Haven has managed to avoid many of the larger events, localized strong winds have resulted in occasional loss of roofs on lesser maintained structures.

**Future Probability:** Climatologists predict an increase in frequency and severity of storms into the future. Personal observations confirm this prediction as severe wind shear events appear to be on the increase. The NOAA storm events database shows an almost annual occurrence of high wind events which would be expected to continue.

**Vulnerability Summary:**

The community vulnerability to a High Wind incident is a HIGH Priority based on the 2017 hazard vulnerability assessment. Many buildings in the community were built during a period of milder wind and were not designed necessarily with high wind in mind. Modern farm structures are particularly vulnerable to high wind as the large roof areas and open design are quite conducive to kite-like behavior.

#### **4.2.7. Lightning**

**Location:** Severe storms which include lightning along with wind and rain events are a common occurrence throughout New Haven during summer months. The highest frequency, however, occur at the highest points of land along ridgetops especially those with exposed ledge.

Town buildings are located at the height of land on North Street (Beeman School, Town Hall, Town Office) and Rte. 17 (Fire Station, Town Garage) and are therefore more highly susceptible to lightning strike than most residential structures.

**Extent:** Lightning strikes routinely cause fires to trees along ridge tops and less commonly start fires in structures. Fires associated with lightning strikes to inhabited buildings occur fewer than once every five years on average. More common is loss of power and damage to electronic equipment in homes where there has been a proximity strike. Anecdotally, there are multiple reports each year of electronic equipment unprotected by surge suppressors which are damaged by lightning strikes. Generally, these homeowners file insurance claims for damages and total annual damages in the entire community likely do not exceed \$10,000.

**Past Occurrences:** NOAA's Storm events database indicates three major lightning events occurred in Addison County in the past 25 years. One of these was centered in New Haven on June 6, 2005 with damages estimated at \$100,000. Another county-wide event occurred in 2003 which had no recorded damages and another in 2011 struck West Addison and resulted in \$100,000 in damages.

**Future Probability:** The increasing frequency and severity of storms in recent years would point toward more damage due to lightning as well. Of the three recorded lightning events in the past 25 years, all were recorded within the past 15 years.

**Vulnerability Summary:** Community vulnerability to lightning strike was rated as a HIGH priority by the 2017 mitigation committee. This score reflected the general lack of warning associated with a strike and the committee's overall concern coupled with the community's ability to mitigate at relatively low cost.

#### **4.2.8. Wildfire**

**Location:** In spite of an active agricultural base, much of the Town of New Haven is forested. Consequently, many structures in the town would fall within an urban/wildfire interface. In addition to fire risk within forested areas, overgrown farm fields are often burned in springtime to promote fertility. As a primarily rural and agricultural based community, the threat of uncontrolled burning exists throughout New Haven.

**Extent:** An uncontrolled burn during the driest time of the year from March through May could result in the loss of multiple structures. Many garages and sheds abut open fields which are often burned in spring. A dry year coupled with a medium to high wind event would be the highest risk for structures exposed to open fields. A dry fall with similar winds could put homes bordering the woods at greatest risk given the high fire load associated with dry leaves. While these events would normally be within the capacity of the fire department to respond, simultaneous fires throughout the region could overwhelm them resulting in widescale damages to multiple structures. Figures derived from indicate wildfire in Vermont has ranged from an average of 84 Acres per fire between 1905-1910 with the largest being 150 acres to an average of less than 2 Acres per fire between 2001 and 2011.

**Past Occurrences:** No records of wildfire were found in the NOAA storm events database within the past 25 years. The State Report of the Fire Marshall, however, reports that 36 wildfire calls were responded to by fire departments in Addison County in 2015 alone. The difference between the data may be that none of the fires resulted in damages which NOAA considered reportable or that their connections to the fire service are not as robust as those to the weather service.

The increased risk for wildfire due to proximity of structures is moderated by the so-called “Teflon Forest” conditions of the Northeastern US. While moisture levels generally tend to be higher than in the fire-plagued western forests, scattered periods of drought can increase fire danger levels to *Extreme* particularly during spring and fall seasons when dry leaves cover much of the forest floor.

Within the past 50 years, forests have been closed to recreation state-wide 3 times due to extreme fire conditions. While these incidents have not resulted in large-scale damage in the Town of New Haven, the conditions existed for widespread forest fires. In addition, an unusually dry spring will often result in a no-burn proclamation most recently seen in 2009.

**Future Probability:** Increased development within the urban/wildfire interface continues throughout the state and New Haven has not escaped that trend. As a way to minimize the visual and agricultural impacts of development, zoning regulations often call for new homes to be located “in the woods” or clustered to allow maximum protection of agricultural lands. Without protections in place, the unintended result of these practices could result in uncontrolled fires putting multiple structures at risk at the same time. It is becoming increasingly important that residences and essential facilities be constructed with an eye toward wildfire resistance by establishing a no-burn zone around structures and by providing suitable water supplies for firefighting to more remote residences.

**Vulnerability Summary:** The community vulnerability to wildfire was considered a HIGH priority by the mitigation committee because the risk was perceived as real and the ability to make changes was reasonable.

#### **4.2.9. Earthquake**

**Location:** Surprising as it is to some, Vermont is classified as an area with “moderate” seismic activity. This can be compared to the west coast of the U.S., which is classified as “very high” and the north-central states classified as “very low.”

**Extent:** Based on information provided by the Vermont Geological Survey, Department of Environmental Conservation, Agency of Natural Resources, HAZUS outputs for the region are summarized as follows using the commonly accepted Richter Scale:

The Middlebury Once-in-500-year earthquake (5.7 magnitude) could cause significant damage in Addison County. The Goodnow, NY Once-in-500-year earthquake (6.6 magnitude) could cause shaking just above the lower limit for building damage. The Montreal, Quebec (6.8 magnitude) and the Tamworth, NH (6.2 magnitude) Once-in-500-year earthquakes probably would not cause damage in Addison County. Only the loss data from the Middlebury and Goodnow events are shown below:

##### **Middlebury Scenario:**

- Building damage – HAZUS estimates that over 1600 buildings will receive at least moderate damage. This is a little more than 13% of the total number of buildings in the county. (16% of buildings in New Haven would be 102). HAZUS also estimates that all essential facilities (hospital, schools, police stations and fire stations will receive at least moderate damage. 7 families would be predicted to be displaced from their homes and will need temporary shelter in New Haven.
- Transportation & utility systems – HAZUS estimates minimal disruption of the transportation and utility systems. However, over 9000 households in the region are expected to be without electrical power for up to three days.
- Casualties – Minimal casualties are also expected with less than twenty-five requiring medical attention and less than three needing hospitalization in the region.
- Economic loss – Direct building losses are estimated at > \$83 million and business interruption losses are expected to be as much as \$105 million. HAZUS estimates that although there was minimal damage to the transportation system the loss would still be close to \$15 million. Approximately \$4.4 million would be needed to repair damaged communications systems.

##### **Goodnow Scenario:**

- Building damage – HAZUS estimates that over 600 buildings will receive at least moderate damage. This is a little more than 5% of the total number of buildings in the county. (5% of buildings in New Haven would be 34) HAZUS also estimate that all essential facilities (hospital, schools, police stations and fire stations will receive at

least moderate damage. 3-4 families are predicted to be displaced from their homes and will need temporary shelter.

- Transportation & utility systems – HAZUS estimates minimal disruption of the transportation and utility systems. However, over 4000 households are expected to be without electrical power for up to three days in the region.
- Casualties – Minimal casualties are also expected with less than six requiring medical attention and only one needing hospitalization.
- Economic loss – Direct building losses are estimated at > \$17 million and business interruption losses are expected to be as much as \$24 million. HAZUS estimates that although there was minimal damage to the transportation system the loss would still be close to \$3.6 million. Approximately \$0.9 million would be needed to repair damaged communications systems.

**Past Occurrences:** Sixty-three known or possible earthquakes have been centered in Vermont since 1843 (*Ebel et al. 1995*). The two strongest recorded quakes measured in Vermont were of a magnitude 4.1 on the Richter scale. One was centered in Swanton and occurred on July 6, 1943, and the second occurred in 1962 in nearby Middlebury. The Swanton quake caused little damage, but the Middlebury quake did result in broken windows, cracked plaster and falling objects (*VEM, 1995*).

Earthquakes centered outside the state have also occasionally been felt in Vermont. Twin quakes of 5.5 occurred in New Hampshire in 1940. In 1988, an earthquake with a magnitude 6.2 on the Richter scale took place in Saguenay, Quebec and caused shaking in the northern two thirds of Vermont (*Ebel, et al 1995*).

In May 2001 and again in the summer of 2010, earthquakes in the 5.0-5.5 range have been felt in New Haven with epicenters in New York and Quebec respectively.

**Future Probability:** Since earthquakes are a common occurrence in Vermont and the Northeast, the future would be expected to follow similar patterns. If only large and destructive quakes are considered, the quake which occurred off Cape Cod in the early 1600s and the New Madrid quake would be the bell-weather events. Notable quakes appear to happen on a 200-year average which would put the next catastrophic event in the east within the next 50 years.

**Vulnerability Summary:** Because the type of quakes generally seen in the eastern US are small and result in little damage, most Vermonters do not consider earthquake to be a hazard worth mitigating. Few public structures are constructed with an eye toward quake damage and schools have recently tied down bookcases not as a mitigation action for earthquake rather as a safety measure to prevent toppling when climbed. However, due to the potential for severe damages over a widespread area, the New Haven mitigation committee scored earthquake as a HIGH priority.

#### 4.2.10. Highway Accident

**Location:** With over 60 miles of either town or state-owned highway in town, locations for highway accidents cover much of the length and breadth of the town. The town mitigation committee mapped several multiple accident locations based on fire dept. and first response records.

Main St. at the foot of “Firehouse Hill” (2)

The intersection of Rte. #17 and Rte. #7 in New Haven Junction (3)

The intersection of Rte. #7 and River Road/Belden Falls Road (2)

The intersection of Rte. #7, Hunt Rd. and Campground Rd. (2)

The North intersection of Rte. #7 and Dog Team Rd. (2)

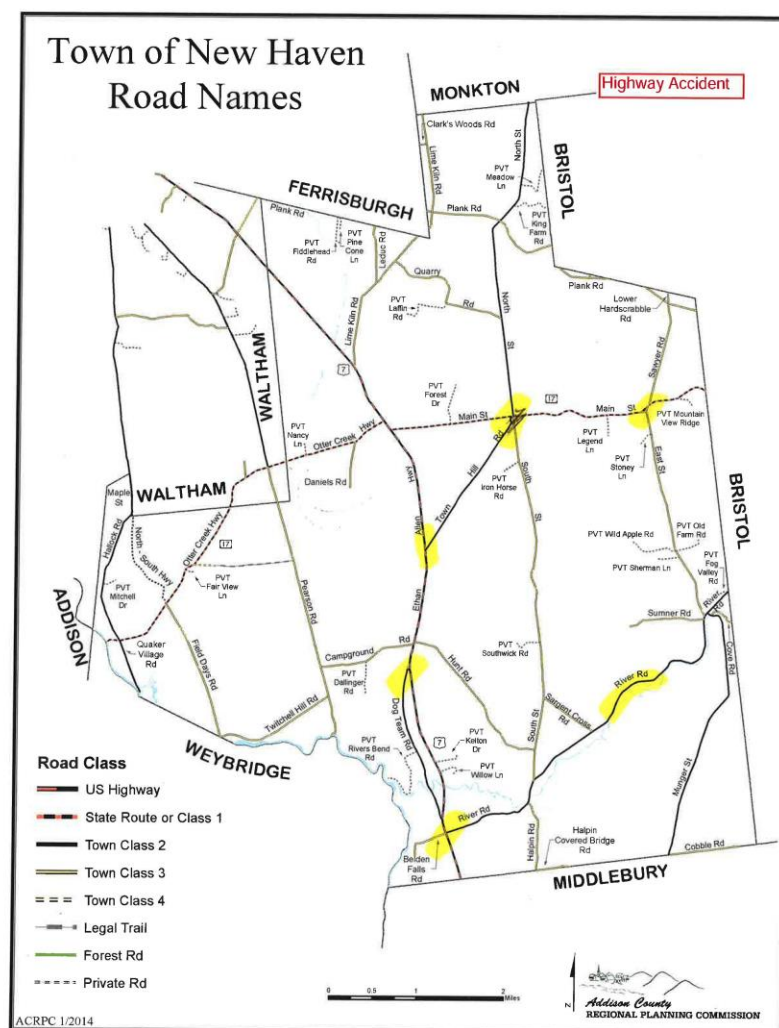
The South intersection of Rte. #7 and Dog Team Rd. (3)

The intersection of Rte. #7 and Town Hill Rd. (2)

On North Street by “Martin’s” (3)

These locations are confirmed by records at VTrans who keeps an ongoing database of accidents reported by the State Police and local responders.

### New Haven Hazard Mitigation Committee Highway Accident Concerns



**Extent:** While property damage in the form of vehicles and structural damages are most common, the highest concerns are centered around injuries and fatalities. Fortunately, while the fire department and first response are called out weekly to reports of vehicular accidents, the majority do not involve either injury or death. The combination of ground level rail crossings and higher speeds of trains could produce the worst imaginable of incidents where a multi-passenger vehicle collides with a train resulting in a mass casualty incident. Equally concerning would be a highway or rail accident which combines vehicles carrying hazardous materials, similar to a derailment which occurred in nearby Middlebury in 2007.

**Past Occurrences:** Multiple vehicle accidents with death resulting have occurred occasionally in New Haven. Car/car head-on collisions and car/train collisions in New Haven Junction have both been seen over the past 25 years. Nearby Middlebury saw a 14-car derailment with 7 of those cars carrying gasoline in 2007. Only extreme good luck saved the downtown area and first responders from the total destruction that would have occurred had any of the cars ruptured and caught fire.

**Future Probability:** Increases in highway traffic and deteriorating roads coupled with an increase in traffic and speeds via rail would predict an increase in severe highway accidents. Fortunately, safety is a priority in both highway and rail operations leading to ongoing improvements. Unfortunately, improvements are often delayed due to lack of funding until after the predicted “big one” has occurred.

**Vulnerability Summary:** With unprotected ground level rail crossings at campground Road and Rte. 7, rail accidents are highly likely until ongoing improvements including signalization/lights and gates are fully implemented. Similarly, the conversion from gravel roads to pavement over the past 25 years has increased the speed and therefore risks along town highways. Efforts to slow traffic via speed limits has met with mixed results to date. Additional sheriff’s patrols are effective in temporarily reducing the speed of vehicles but only as long as the patrols are in force. The committee considers highway accidents as a HIGH priority and worthy of expending effort to try to mitigate their effects.

#### **4.2.11. Structure Fire**

**Location:** With well over 95% of structures in New Haven built out of wood, structure fire is of great concern to the town. Zoning regulations encourage home construction along town roads generally reachable by fire apparatus. Unfortunately, homes built off of town roads are at higher risk due to the reduced ability of an effective response by fire personnel. The highest concentrations of structures are located in 4 areas of town; Brooksville, New Haven Mills, New Haven “streets” and New Haven Jct. These areas were built up around industrial or commercial areas over a century ago and now exist primarily as residential concentrations.

**Extent:** The highest concentration of structures including the highest concentration of town-owned buildings is contained in the New Haven Village area. This area includes the wooden two story Beeman Elementary School the Town Hall, and Town Offices in close proximity along North Street. A south wind fanning a large fire in the elementary school has the potential to spread north to the other two town structures. While unlikely, this would cause a huge impact on the town’s ability to function. Water supplies in the area are limited to one pond approximately ¼ mile from the school and two additional ponds one mile distant.

**Past Occurrences:** Fire has played a significant role in the growth of New Haven and surrounding towns. Major fires in nearby Vergennes and Bristol destroyed entire blocks in downtown areas. A huge fire in Middlebury over 100 years ago destroyed the bridge connecting two sides of the village and multiple commercial buildings resulting in a new “fireproof” stone bridge and predominantly brick commercial buildings. Barn fires have had the most impact in recent New Haven memory with these large structures nearly impossible to extinguish once in flames.

**Future probability:** Increases in numbers of homes and businesses also increase the likelihood of fire incidents. So far, improvements to construction and education in local schools has kept any increases at bay but it is unknown how long that trend will last.

**Vulnerability Summary:** Fortunately, state regulations requiring smoke and C/O detectors in residential structures are slowly reducing the likelihood of fatalities in home fires. Fire department installation of “dry hydrants” in accessible ponds has increased the availability of water supplies for firefighting. Unfortunately, a few new construction materials have not been developed with fire risk in mind and can give off toxic gasses when burned. While frequency of fire has dropped due to active fire education, risks have not dropped equally.

## 5. Community Mitigation Strategies

### 5.1. Hazard Mitigation Goals by Hazard Type

Each hazard type identified in Section 1.4 “Community Risk Assessment” can be mitigated dependent on the willingness to do so at the local, state or federal level. For example, the mitigation of flood damage is basically a simple fix- don’t allow anything in the floodplain that can’t afford to be lost and when it is lost, don’t replace it. This would include all forms of infrastructure whether it be homes, highways, dams or croplands. Unfortunately, political will can rarely stand up to the simplicity of mitigation.

The Town of New Haven has identified that its goals for hazard mitigation are to reduce and/or avoid all long and short-term vulnerabilities to the hazards identified in section 1.4. In doing so, it also recognizes that political will and lack of funding stand in the way of many mitigation projects. The town particularly supports local residents’ efforts to mitigate their personal risks. The Town also supports projects that lead to a positive benefit vs. cost evaluation and which the voters can afford.

Identified Hazard	Primary Mitigation Goal
Insect-Borne Illness	Protect the health and safety of the public
Invasive Species	Reduce the spread and effects to health and the economy
HazMat Spill	Protect the health and safety of the public
Gas Pipeline Failure	Protect the health and safety of the public
Flash Flood	Reduce exposure to and effects of flash flooding
High Wind	Ensure that essential services can function during disaster
Lightning	Ensure that essential services can function during disaster
Wildfire	Reduce impacts to life and property
Earthquake	Ensure that essential services can function during disaster
Highway Accident	Protect the health and safety of the public
Structure Fire	Protect the health and safety of the public

## **5.2. Authorities, Policies, Programs, Resources (and the ability to expand upon these)**

### **44CFR 201.6(c)(3)**

#### **Authorities of Town Officials:**

**Selectboard:** The Selectboard is responsible for the basic administration of the town. They take care of roads, make appointments to other boards and commissions, and authorize expenditures of voted budgets. The Selectboard may enact ordinances and rules in many areas including traffic regulation, regulating nuisances, managing solid waste, dogs and recreation, and establishing bike paths.

**Planning Commission:** The Planning Commission is responsible for long range planning in a town particularly as it relates to future land uses, transportation, energy and resilience. They prepare a municipal plan and zoning bylaws which are adopted by the Selectboard. Planning Commission members are appointed by the Selectboard.

**Zoning Administrator:** The Zoning Administrator (ZA) is appointed by the town's Selectboard with consideration given to the recommendation of the planning commission. Their responsibilities include administration and enforcement of a town's zoning bylaws, and usually also serve as the administrator of town floodplain regulations.

**Tree Warden:** The Town Tree Warden is responsible for the shade and ornamental trees within the town rights-of-way. They oversee tree health and removal when necessary. The tree warden is appointed by the Selectboard.

**Fire Warden:** The Town Forest Fire Warden has the responsibility for suppression of wildland fires, regulating open burning in the town by issuing burn permits, and wildfire education/prevention. The Town Fire Warden is appointed by the state Commissioner of Forests, Parks and Recreation with approval by the town's Selectboard.

**Health Officer:** The Town Health Officer is the executive officer of the local Board of Health. A local board of health may make and enforce rules and regulations...relating to the prevention, removal, or destruction of public health hazards and the mitigation of public health risks. The Town Health Officer is appointed by the Commissioner of Health with approval by the local Selectboard. They take direction from the state Department of Health in investigation and enforcement of public health issues.

**Town Service Officer:** The Town Service Officer's responsibilities are to coordinate aid for residents needing assistance during hours when State offices are closed. In many towns, this office has become redundant as State agencies have developed 24/7 emergency assistance programs.

**Emergency Manager or Coordinator:** By default, a towns Selectboard chair is the town's emergency management director (EMD) unless one is appointed. Many communities retain the authorities of an EMD within the Selectboard and appoint an emergency coordinator instead. The emergency manager is responsible for the organization, administration and operation of the local emergency management organization. Emergency managers prepare local emergency operations plans, coordinate a local emergency management group and perform emergency management functions at the local level.

### **5.3. Current policies, programs, resources and the ability to expand on these for identified hazards:**

#### **5.3.1. Insect Borne Illness**

The town does not currently have any programs which address insect-borne illness other than making pamphlets available from the Dept. of Health at the town office. The town's health officers have not found this hazard significant enough to warrant actions beyond making educational materials available. The committee has identified insect-borne illness as a region-wide hazard which could result in a more pro-active approach. Trainings on exposure to ticks and encouraging use of insect repellents would be a logical next step. Should a problem develop with a specific insect pest, the town could take an aggressive approach to control including spray programs and/or other pest reduction programs.

#### **5.3.2. Invasive Species**

The town currently follows state recommendations for roadside mowing which times mowings to prevent seed production. Unfortunately, mowing contracts and contractors are not always aware of important timings. Stricter observance of mowing cycles could help prevent the spread of noxious roadside weeds. An education program consisting of newsletter articles could also assist by informing residents of appropriate actions to prevent spread. The conservation commission could sponsor trainings to establish a cadre of "spotters" who would support early identification of unwanted species.

#### **5.3.3. HazMat Spill**

The New Haven Volunteer Fire Department trains all of its members to recognize and limit the spread of hazardous materials resulting from highway accidents. Reducing blind corners, "y" intersections and unmarked rail crossings would reduce the likelihood of spills at these locations. Additionally, training at the facilities which report chemical storage helps reduce the severity and impacts of spills when they do occur. Additional trainings could improve the department's response capability as could surveying local roads for hazardous areas.

#### **5.3.4. Gas Pipeline Failure**

This hazard has just presented itself over the past few months so any and all actions will mitigate its effects. To date, regional officials have required the gas company to provide gas meters for each response agency covering the territory through which the line flows. In addition to meters, training on their use and training for response to an incident are also being provided by the gas company. In addition to these preparedness actions, the town could increase its efforts to ensure all excavators understand the need to call Dig Safe before disturbing the ground.

#### **5.3.5. Flash Flood**

The Town has been a member in good standing of the NFIP for over 30 years. There are no identified "Repetitive Loss" properties located in New Haven. Nine flood insurance policies are in effect for residences in the town and are insured for just under \$1,000,000.

The Town of New Haven adopted a town-wide road plan in June of 2001 and has also adopted road and bridge standards as recommended by VT AOT. These documents address road and bridge construction standards designed to mitigate local traffic issues and are particularly designed to mitigate potential damages due to flash flooding. The standards address culvert

sizing, ditch treatments and driveway access to reduce flood caused erosion. This road plan and standards are attached as Annex F of this mitigation plan.

The Town supports continued compliance with the NFIP and would support Community Rating System (CRS) improvements where the benefits to the town's residents would outweigh the costs of additional administration and compliance.

Funding additional training for board members and administrators in flood program administration would help reduce vulnerabilities into the future. For properties within the floodplain, support for buyouts of damaged properties may be useful in the future.

#### 5.3.6. High Winds

Residents of the Town generally do not recognize high wind as a hazard which can be mitigated with the exception of the effects previously discussed under widespread power failure.

Newly constructed buildings may have tie downs between roof and side walls but no building codes exist within the community that require construction to any particular standard.

Where high wind hazards have been recognized, it is usually a function of damage that might be caused if a tree were to be blown over and its effect on a residents' home. For this reason, some trees are removed from the landscape to reduce their vulnerability to high wind events. The Town of New Haven supports removal of dead and hazardous trees in the town rights-of-ways to mitigate the hazards associated with their falling either on town highways or on power lines.

#### 5.3.7. Lightning

The town has mitigated potential damage to Town-owned structures due to lightning strike by installing lightning rods to channel the electrical energy directly to ground rather than through the structure's electrical system.

Most larger privately-owned structures in vulnerable locations have similarly installed lightning rod systems to protect them from lightning strike with the encouragement from insurance companies and extension agents.

The Town has no adopted building standards which would require this action but feels the risk to private residences should be borne by each resident on their own.

#### 5.3.8. Wildfire

Recent action by the town Selectboard has authorized billing for wildfire fire response by the fire department when a burn permit has not been requested prior to the fire. An active fire warden adds to the mitigation value of this action. The Selectboard is currently in the process of developing a burn ordinance which would allow for civil penalties in addition to response billing.

The town has no guidelines for home construction in place that would limit the risk to wildfire in New Haven. Actions taken as described above should limit the setting of uncontrolled outdoor fires and should result in an overall limited risk.

#### 5.3.9. Earthquake

Despite the probability of an earthquake within the next 50 years, most town residents do not even attempt to mitigate its hazard.

Though the hazard mitigation committee identified earthquake as a high priority, the town has not considered it a hazard it feels is imminent enough to justify much in the way of mitigation actions. A quick review of earthquake risk in the school and town buildings by the town fire and emergency management officials might decrease some of the risk associated with earthquake.

#### 5.3.10. Highway Transport Accidents

Representatives from the Town of New Haven are active members of the Local Emergency Planning Committee in planning for hazardous materials incidents.

The Town of New Haven in 2007 completed a road realignment, traffic calming and sidewalk project in its village area that resulted in a pedestrian crossing of State Rte. #17 designed to reduce accident risk at that location.

A representative from the town sits on the local Transportation Advisory Committee, a regional group whose purpose is to prioritize potential transportation related projects within the region. This group rates High Crash Locations (HCL) highly in prioritizing projects to mitigate the risks associated with these locations by changing alignments, added signage and reduced speeds. The Town of New Haven also participates in the state's road safety Program which has identified Plank Road from Vergennes to Bristol which passes through New Haven as a targeted hazardous stretch of local highway.

#### 5.3.11. Structure Fire

Mitigation actions by the Town Selectboard and fire department have improved the overall outlook for fire risk over the coming years. An active fire prevention/education program at the elementary school level reduces loss due to fire when students take the information home to their parents.

In addition, the installation of dry hydrants at water supply locations has increased the availability of and speed in which water can be accessed for firefighting purposes. Inquiries by the fire department to reevaluate its ISO rating could ultimately result in lower insurance costs to its residents by recognizing the high level of preparedness in the community.

#### **5.4 Project Prioritization Process**

Projects and actions included in Section 5.3 are conducted by the Town of New Haven or regional and State agencies where noted. The Town encourages its residents to adopt mitigation actions which could protect their personal property by making educational materials available to residents. Many of these potential actions are contained in Annex C as mitigation measures for individuals. Mitigation actions identified in Section 5.5, however, are considered the jurisdiction's priority mitigation actions.

The Town has established the following priorities for choosing mitigation projects: Life safety and the safety of its residents, keeping local roads and bridges open to ensure access for emergency vehicles, and protecting critical infrastructure facilities in the town. These actions/projects are constantly evaluated for benefit to the community, estimated project cost and political will to implement and will be implemented as those factors indicate. The actions identified in Section 5.5 under each hazard have passed a preliminary evaluation utilizing those general concepts by the hazard mitigation committee and are listed in their order of priority. Before undertaking these projects, they will additionally be prioritized based on their feasibility and a benefit vs. cost review. A minimum C/B result of 1.0 will be required prior to any request for federal mitigation funds. Annex D identifies only some of the available programs which can help to fund some of these actions/projects. All projects in section 5.5 will be reviewed for progress following any local disaster declaration and will be considered annually as part of overall town budgeting.

#### **5.5. Proposed Mitigation Actions identified by committee members as well as public comment and those previously identified in 2005 and 2012 plans and their status.**

In developing the following list of proposed mitigation actions and projects, care was taken to include only those projects which could be considered reasonable and feasible based primarily on cost and political willingness.

##### **Drought**

The Town supports recent changes to state rules which require a potable water supply and septic plans in place prior to granting a subdivision and supports groundwater protection efforts around both public and private water supplies.

***DRB requires water and wastewater as part of subdivision review. Cost: \$0***

***2017-DRB continues to require evidence of water and wastewater permits as part of its review process for subdivisions.***

***Benefit: an adequate, drought-resistant water supply is the common result of the state permitting process.***

##### **Widespread Power Failure**

Green Mountain Power (GMP), the utility servicing the Town of New Haven has an ongoing program of line clearing and relocation to ensure outages are kept to a minimum. The town balances its support for these efforts with residents' desires to keep the beauty of tree-lined streets and roads.

***No local action necessary-cost \$0***

***2017- Ongoing actions by the power company continue***

***Benefit: Lowered incidences of power outages have occurred since these efforts have been undertaken.***

### **Flood/Flash Flood**

The Town supports continued enrollment in the NFIP to allow residents the option of purchasing flood insurance on their properties. As a part of continued compliance, the Town supports participation in NFIP training for the Zoning Administrator when offered by the State or NFIP.

***Estimated cost: \$200-\$300***

***Source of Funds: Town General Fund Planning and Zoning budget***

***Responsibility: Town Zoning Administrator***

***Timeframe: Yearly ongoing***

***2017 – Town continues in good standing with the NFIP***

***2017 – Town zoning administrator has attended NFIP training as offered at regional planning.***

***Benefit: Both DRB members and Zoning administrator have improved their understanding of the NFIP and how to evaluate applications within the mapped floodplain. A recent example given was the review of a structure to be placed just above BFE required residents to produce a reasonable evacuation plan for the structure.***

The Town also supports exploring requirements for entry into the Community Rating System of the NFIP

***Estimated cost: Negligible***

***Source of funds: Town general fund.***

***Responsibility: Joint, planning commission, Zoning Administrator and Selectboard***

***Timeframe: start Q2 2018, end Q2 2020 or as time allows***

***2017 -No action has been taken to date. ACRPC has been funded to complete a CRS Quick Check within the next year.***

***Benefit: Entry to the CRS will reduce residents expense for flood insurance within the community***

The Town supports researching Costs vs. Benefits of adopting a River Corridor overlay district in its zoning rewrites.

***Estimated cost: \$2,000 as part of an overall rewrite***

***Source of funds: Municipal Planning Grants***

***Responsibility: Joint, planning commission, Zoning Administrator and Selectboard***

***Timeframe: start Q2 2018, end Q2 2020 or as time allows***

***2017 – New Project***

***Benefit: Adoption of a state approved river corridor overlay will increase the state share of funding to the Town for a federally declared disaster.***

The following specific road projects have been identified which will serve to mitigate the effects of flooding and/or flash flooding in the road network system to be implemented as funding allows:

- Stone Line ditches according to the town road plan when work is being completed on any road.  
*Estimated cost: Varies dependent on project*  
*Source of funds: Town highway budget.*  
*Responsibility: Joint Town Highway Dept and Selectboard*  
*Timeframe: Annual 0-5 years*

*2017 – ongoing*

*Benefit: Stone lined ditches prevent excess erosion during a flood event including additional sediment loading issues into nearby waters.*

- Commission a cross culvert study along East Street to determine appropriate placement and sizing for culverts to intercept sheet flow from the side hill.  
*Estimated cost: \$10,000,*  
*Source of funds: Town highway budget or Regional Planning funds.*  
*Responsibility: Joint Town Highway Dept and Selectboard*  
*Timeframe: Grant request Q2 2019, if awarded: Study start Q 3 2020*  
*Location: 44.114, -73.119 to 44.102, -73.115*

*2017 – No action has been taken on this project to date*

*Benefit: A study will identify options and costs for those options to mitigate damage on the road. This information will assist in qualifying a project for HMGP funding.*

- Commission a Halpin Road flood mitigation study to explore alternatives to current system of multiple culverts which do not handle the flow.  
*Estimated cost: \$5,000,*  
*Source of funds: Town highway budget or Regional Planning funds.*  
*Responsibility: Joint Town Highway Dept and Selectboard*  
*Timeframe: Grant request Q2 2019, if awarded: Study start Q 3 2020*  
*Location: 44.060, -73.148 to 44.159, -73.147*

*2017 – No action has been taken on this project to date*

*Benefit: A study will identify options and costs for those options to mitigate damage on the road. This information will assist in qualifying a project for HMGP funding.*

- Replace North Street Culvert at Plank Road with a larger structure to allow increased flood flows.  
*Estimated cost: \$350,000,*  
*Source of funds: HMGP*  
*Responsibility: Joint Town Highway Dept and Selectboard*  
*Timeframe: Start Q2 2020 as time and budget allows*  
*Location: 44.156, -73.1584*  
*ID #: R091722C*

*2017 – Higher priority projects have been undertaken. No action to date*

***Benefit: Replacing this culvert will allow a greater flow of water during a flood event. This location formerly was a bridge and the original cement abutments still exist. A basic deck will transform the current multi-plate into a box.***

- Raise Quarry Road Bridge by 3ft. to allow additional space for flood flow under the bridge. ***Estimated cost: \$300,000,***  
***Source of funds: State bridge and Culvert program or Town highway budget and matching funds.***  
***Responsibility: Joint Town Highway Dept. and Selectboard***  
***This project was identified in the last Hazard Mitigation Plan of 2005 as a project to be studied for B/C review. To date this has not been accomplished due to other priorities. The town reaffirms its commitment to exploring this recommendation.***  
***Timeframe: 3-5 years as funding allows***

***2017 - The Quarry Road Bridge was replaced in 2014 by a structure which provides for adequate passage of flood waters.***

- Replace Plank Road Bridge with larger structure to allow additional space for flood flow under the bridge.  
***Estimated cost: \$350,000,***  
***Source of funds: State bridge and Culvert program, HMGP or Town highway budget and matching funds.***  
***Responsibility: Joint Town Highway Dept. and Selectboard***  
***Timeframe: Start Q2 2021 or as funding allows***  
***Location: 44.15758, -73.16788***  
***Culvert ID #: None***

***2017 – New Project***

***Benefit: a larger structure will allow flood waters to flow naturally along the floodplain without backing up along the road. When floodwaters back up against the road, water overtops the road and causes damage to the town highway.***

- Replace paired culverts at Quaker Village Road with single span to permit better debris passage.  
***Estimated cost: \$250,000,***  
***Source of funds: State Bridge and Culvert program or Town Highway budget and matching funds***  
***Responsibility: Joint Town Highway Dept. and Selectboard***  
***Timeframe: Q3, 2017***  
***Location: 44.0787, -73.239***  
***ID# R091017A and R091017B***

***2017 – New Project***

***Benefit: Replacing two culverts with a single structure will reduce the incidence of debris blocking the current culverts which causes damage to the road.***

### **High Winds**

The town generally supports limiting damages due to high winds by removing dead and dying trees within the town right-of-way that could fall during a high wind event.

*Estimated cost: \$5,000 annual cost*

*Source of funds: Town highway budget.*

*Responsibility: Joint Town Highway Dept. and Selectboard*

*Timeframe: Ongoing*

*2017 – process ongoing*

*Removal of dead and dying trees eliminates the likelihood of them falling on power lines causing outages.*

### **Landslide/Erosion Hazard**

The Town supports adoption of a River Corridor Overlay district in its zoning bylaw rewrite.

*Estimated cost: \$2,000 as part of an overall rewrite*

*Source of funds: Municipal planning grants.*

*Responsibility: Joint Selectboard and Planning Commission*

*Timeframe: start Q2 2018, end Q2 2020 or as time allows*

*2017 – recent adoption (2017) of a new town plan has taken the attention of the planning commission away from this project. Zoning rewrite is expected as the next actions.*

*Benefit: Adoption of a river corridor overlay will increase state funding during a disaster and reduce vulnerability to homes constructed in an erosion hazard area.*

### **Lightning**

The Town feels the risk to private residences of lightning strike should be borne by each resident on their own.

*No local action necessary-cost \$0*

*2017 No action taken*

*Benefit: Encouraging homeowner responsibility for their residences increases the overall safety of the community.*

### **Hazardous Materials and Highway Transport Accidents**

The Town has identified the following high-risk locations on its highway system and supports mitigation of the hazard in any future construction/reconstruction activities:

- Nash Bridge on River Road should take into account visibility issues and the intersection with Halpin Bridge Road in its reconstruction.

*Estimated cost: \$1,500,000,*

*Source of funds: State bridge and Culvert program and Town highway budget.*

*Responsibility: Joint Town Highway Dept and Selectboard*

*Timeframe: 1-5 years*

*Location: 44.06079, -73.14852*

*2017 -Nash Bridge was replaced during 2016 with a larger single span structure which reduced the curvature of the bridge and allows for more room to pass flood waters. The visibility issues were addressed at the time and the bridge itself was widened to allow use of 2 lanes simultaneously with additional room along the sides.*

- The intersection of River Road and US Rte. #7 is a high accident location and efforts should be taken to reduce that risk.

*Estimated cost: None to town*

*Source of funds: State highway budget.*

*Responsibility: Joint Selectboard and State AOT*

*Timeframe: Selectboard consults with VTrans Q4 2018*

*Location: 44.05544, -73.16751*

*2017 - VTrans has changed the pavement markings at this intersection to account for northbound Rte. 7 drivers to slow if turning and others to pass by.*

- The intersection of Sawyer Road, East Street and State Rte. #17 is another high accident location that should be addressed through cooperation with State officials.

*Estimated cost: None to town*

*Source of funds: State highway budget.*

*Responsibility: Joint Selectboard and State AOT*

*Timeframe: Selectboard consults with VTrans Q4 2018*

*Location: 44.12570, -73.12333*

*2017 – No further actions have been taken on this item. The project is still in development stage.*

*Benefit: Improved sight lines for drivers turning at the intersection will reduce the number of traffic accidents at this location.*

- The intersection of Hallock Road, Quaker Village Road and State Rte. #17 is a high hazard location that should be addressed through cooperation with State officials.

*Estimated cost: None to town*

*Source of funds: State highway budget.*

*Responsibility: Joint Selectboard and State AOT*

*Timeframe: Q1 2018*

*Location: 44.08638, -73.24323*

*2017 – No actions taken but bridge is scheduled for replacement in 2018 and improvements could be added at that time.*

*Benefit: minor reconstruction of this intersection in the bridge replacement project will increase sightlines and reduce the numbers of accidents here.*

- Ground level Rail crossing at Campground Road may require basic signalization.

*Estimated cost: None to town*

*Source of funds: State highway budget.*  
*Responsibility: Joint Selectboard and State AOT*  
*Timeframe: 0-3 years*  
*Location: 44.08568, -73.18288*

*2017 – Construction of the ground level rail crossing at Campground Road is partially complete. The crossing improvements will include gates and lights in addition to roadbed construction improvements. Safety is a prime concern as this line is expected to begin passenger service within a few years.*

- Ground level Rail crossing at Plank Road may require basic signalization.

*Estimated cost: None to town*  
*Source of funds: State highway budget.*  
*Responsibility: Joint Selectboard and State AOT*  
*Timeframe: 0-3 years*  
*Location: 44.15869, -73.20573*

*2017 – Construction of the ground level rail crossing at Plank Road is expected in 2017. The crossing improvements will include gates and lights. Safety is a prime concern as this line is expected to begin passenger service within a few years.*

*Benefit: Increased rail speed and traffic numbers will be mitigated if appropriate protective measures are implemented.*

- The intersection of Hunt Road, Campground Road and State Rte. #7 is a high hazard location that should be addressed through cooperation with State officials.

*Estimated cost: None to town*  
*Source of funds: State highway budget.*  
*Responsibility: Joint Selectboard and State AOT*  
*Timeframe: Selectboard consults with VTrans Q4 2018*  
*Location: 44.08668, -73.17569*

*2017 – New Project*

*Benefit: Reduced numbers of accidents at this location.*

- The intersection of Town Hill Road and State Rte. #7 is a high hazard location that should be addressed through cooperation with State officials.

*Estimated cost: None to town*  
*Source of funds: State highway budget.*  
*Responsibility: Joint Selectboard and State AOT*  
*Timeframe: Selectboard consults with VTrans Q4 2018*  
*Location: 44.10219, -73.17346*

*2017 – New Project*

*Benefit: Reduced numbers of accidents at this location*

- The entrances to Home Health and Hospice on Rte. #7 is a high hazard location that should be addressed through cooperation with State officials. A “left turn only” lane should be established to reduce accidents.

*Estimated cost: None to town*

*Source of funds: State highway budget.*

*Responsibility: Joint Selectboard and highway dept.*

*Timeframe: Selectboard consults with VTrans Q4 2018*  
*Location: 44.04990, -73.16477*

**2017 – New Project**

*Benefit: Reduced numbers of accidents at this location.*

- Straightening of “Smiley’s Corner” on River Rd. (push back bank to allow larger radius and better sight lines.)

*Estimated cost: \$10,000*

*Source of funds: Town Highway Funds*

*Responsibility: Joint Selectboard and highway dept.*

*Timeframe: 3-5 years or as part of next pavement project at this location*

*Location: 44.08411, -73.11653*

**2017 – New Project**

*Benefit: improved sight lines and better air flow will reduce accidents and reduce icing at this location.*

- Conversion of “Y” intersections to “T” intersections at Quarry Rd/North St., South St./River Rd., Sargent Cross Rd/River Rd., and Campground Rd./Pearson Rd.

*Estimated cost: None when conducted during repaving projects*

*Source of funds: Town Highway Funds*

*Responsibility: Joint Selectboard and highway dept.*

*Timeframe: 3-5 years or as part of next pavement project at the location*

*Location: 44.14063, -73.15698; 44.07259, -73.13423; 44.06451, -73.14728; 44.08252, -73.19698*

**2017 – New Projects**

*Benefit: T intersections will direct drivers to come to a full legal stop rather than a rolling stop which will reduce accidents at these locations.*

## **Structure Fire**

The Town supports efforts by the fire department to install dry hydrants throughout town.

*Estimated cost: None additional beyond annual FD support*

*Source of funds: Federal Rural fire protection grants and town FD funds*

*Responsibility: NHVFD*

*Timeframe: Annual as grant funding allows*

*2017 - The NHVFD has continued to install dry hydrants annually with the assistance of rural fire protection grants. Most recent installations are located at McClay’s on Rte. 17, and improvements to hydrants are scheduled Q3 2017 to Higbee’s pond and Shortsleeve’s pond. Hydrants*

***Benefits: increased availability of water for firefighting reduces response time and reduces property damage due to fire.***

The Town supports upgrading of driveway standards in the planning commission zoning bylaw rewrite to support basic accessibility for emergency vehicles to all structures in town.

***Estimated cost: \$2,000 as part of an overall rewrite***

***Source of funds: Municipal planning grants.***

***Responsibility: Joint Selectboard and Planning Commission***

***Timeframe: start Q2 2018, end Q2 2020 or as time allows***

***2017 – Recent adoption of a new town plan will allow the zoning rewrites to take a higher priority.***

***Benefit: Adequate access to structures lying away from public roads will reduce fire damage caused by the inability to access these structures for fire and/or rescue response.***

The Town supports efforts by the fire department to improve its ISO rating beyond the base level for rural communities through testing and training activities.

***Estimated cost: None additional beyond annual FD support***

***Source of funds: Federal Rural fire protection grants and town FD funds***

***Responsibility: NHVFD***

***Timeframe: Start Q1 2018, end Q4 2019***

***2017 – No further action has been taken (improved recordkeeping is required)***

***Benefit: Testing for a better ISO rating will confirm the fire department's abilities and lower fire insurance throughout town.***

The Town supports zoning bylaw rewrites which will recommend adequate firefighting water supplies for “major” subdivisions.

***Estimated cost: None other than as part of an overall zoning rewrite***

***Source of funds: Town and/or State planning grants***

***Responsibility: Planning Commission***

***Timeframe: start Q2 2018, end Q2 2020 or as time allows***

***2017 – New Project***

***Benefit: Increased availability of water for firefighting reduces response time and reduces property damage due to fire.***

## **Wildfire**

The Town supports the fire warden system requiring outdoor burn permits prior to any outdoor burning.

***Estimated cost: None***

***Source of funds: Town General Fund***

***Responsibility: Joint Selectboard and Fire warden***

***Timeframe: Ongoing annual efforts***

***2017 - The Town is in the process of adopting an outdoor burn ordinance which will allow levying of fines for non-permitted burns.***

***Benefit: Increased supervision over outdoor burning will result in a reduction of wildfire.***

The Town believes it is the homeowner's responsibility to mitigate their susceptibility to wildfire through "firewise" practices.

***No local action necessary-cost \$0***

***2017 – No actions taken***

***Benefit: Encouraging homeowner responsibility for their residences increases the overall safety of the community.***

### **Winter Storm/Ice Storm**

The Town supports ongoing efforts by power companies to mitigate power outages due to ice storms by pruning and tree removal activities.

***No local action necessary-cost \$0***

***2017 – No actions taken***

***Benefit: Pruning and tree removal activities reduces the likelihood of falling trees damaging power lines during extreme weather events.***

The Town Planning Commission and Road Commissioner will conduct a needs assessment for each town highway to identify which may need to have development limited to allow for future abandonment.

***Estimated Cost: None as part of overall planning process***

***Source of funds: Town Highway Budget***

***Responsibility: Road Commissioner, Planning Commission***

***Timeframe start Q2 2018, end Q2 2020 or as time allows***

***2017 – New Project***

***Benefit: Abandonment of extremely rural roads when possible, reduces the town's responsibility to maintain them especially during extreme events.***

### **Earthquake**

The Town does not believe the risks associated with earthquake are large enough to require any town building retrofits at this time. However, safety reviews with earthquakes in mind should be conducted in all town buildings.

***Estimated cost- \$0 Volunteer inspections only***

***Source of funds: None required***

***Responsibility: Town Emergency managers and School officials***

***Timeframe: Q3-4 2017***

***Location: 3 buildings at 44.12582, -73.15356 and 1 building at 44.12524, -73.14559***

***2017 – New Project***

***Benefit: safety reviews of town buildings should identify possible earthquake mitigation actions which can be taken to reduce risk.***

The Town believes it is the responsibility of private homeowners to be ready for earthquakes. The town generally believes that building construction standards are the responsibility of each private homeowner.

*No local action necessary-cost \$0*

*2017 – No actions taken*

*Benefit: Encouraging homeowner responsibility for their residences increases the overall safety of the community.*

### **Dam Failure**

The Town of New Haven does not generally address dam failure mitigation in its day-to-day activities leaving the protection of the public up to State dam safety inspectors.

*No local action necessary-cost \$0*

*2017 No actions taken*

The Town Planning Commission, is considering writing water impoundment construction standards into its zoning regulations above and beyond state standards. The intent of such standards would be to limit the volume of water which could be stored in a man-made impoundment and therefore limit risk.

*Estimated cost: \$2,000 as part of an overall rewrite*

*Source of funds: Municipal planning grants.*

*Responsibility: Joint Selectboard and Planning Commission*

*Timeframe: start Q2 2018, end Q2 2020 or as time allows*

*2017 – No actions taken*

*Benefit: Construction standards would reduce the likelihood of a catastrophic failure of a poorly constructed dam.*

### **Insect-Borne Illness**

The Town of New Haven feels that due to the widespread nature of this hazard, it is dependent upon regional and/or statewide cooperation. Should the hazard become more imminent, the town would consider joining an insect control district with surrounding towns.

*Estimated cost: \$25,000 or more annually*

*Source of funds: Town general fund*

*Responsibility: Town Selectboard and voter approval*

*Timeframe: Unknown, depends on perceived risk.*

*2017 New Project*

*Benefit: Cooperative treatment among towns would reduce the overall cost to the community and ensure a greater overall view of the issue.*

The town believes increased education is the first step to reducing risk to its residents. Making educational materials available to residents in public places and inviting in speakers for public presentation could help further educational goals.

*Estimated cost: under \$500*

*Source of funds: Town recreation budget or general fund*

**Responsibility: Town Health Officer, or town recreation director, or Selectboard**  
**Timeframe: Q2, 2017-ongoing**

**2017 – New Project**

**Benefit: An effective education program increases the ability of residents to protect themselves.**

The committee believes an insect control reserve fund be established for emergency use if risks become imminent.

**Estimated cost: \$5,000 annual deposit for 2 years for a \$10,000 maximum**

**Source of funds: Town general fund**

**Responsibility: Town Health Officer, or Selectboard, (voter confirmation)**

**Timeframe: Q1, 2018-ongoing**

**2017 – New Project**

**Benefit: A reserve fund will reduce the impact on taxes to the community and increase the likelihood that a coordinated treatment could occur.**

**Invasive Species**

The town supports well timed roadside mowing to limit spread of roadside weeds

**Estimated Additional Cost: \$1-2,000 additional cost for contracted mowings**

**Source of funds: Town highway funds**

**Responsibility: Town Road Commissioner**

**Timeframe: Start immediately**

**2017 – New Project**

**Benefit: Well-timed mowing reduces spread of plant seeds by mowing before those seeds have a chance to mature.**

Conservation Commission will support a cadre of spotters to watch for spread of noxious weeds and for early identification of invasive insects

**Estimated Cost: \$0 Volunteer labor**

**Source of funds: Use of town property for trainings only**

**Responsibility: Selectboard/Conservation Commission**

**Timeframe: Fall 2018 – Ongoing**

**2017 – New Project**

**Benefit: Early detection of invasives allows for early treatment before they become established.**

**HazMat Spill/Gas Pipeline failure**

The town supports fire department hazmat training and identification of facilities which store hazardous materials.

Provide funding for fire department training and activities

**Estimated cost: None above regular annual appropriation**

**Source of funds; General fund budget**

**Responsibility: Selectboard as part of annual budgeting process**

***Timeframe: Annual appropriation***

***2017 – New Project***

***Benefit: Well trained and prepared fire personnel reduce the likelihood that any accident could result in a disastrous impact to the community.***

Provide educational materials in town offices and newsletter to highlight Dig Safe practices

***Estimated Cost: None, time only***

***Source of funds: Materials provided by VT Gas***

***Responsibility: Fire Department and Town Clerk***

***Timeframe: Q1 2018 – ongoing***

***2017 – New Project***

***Benefit: Dig safe training and education reduces the likelihood of pipeline damage due to digging accidents.***

Report Tier II chemical storage annually for town-owned properties

***Estimated Cost: No fees associated with reporting time only***

***Source of funds: Town Highway and school funds***

***Responsibility: School district for school, Road commissioner for town garage***

***Timeframe January 2018 and ongoing***

***2017 – New Project***

***Benefit: Chemical reporting allow first responders to reduce their risks when responding to an incident.***

Encourage town residents joining VTAlert messaging system for emergency alerts in case of spills.

***Estimated Cost: No fees associated with this action***

***Source of funds: None needed (outreach via town newsletter)***

***Responsibility: Town emergency management and Fire Dept.***

***Timeframe: Q4 2017***

***2017 – New Project***

***Benefit: Speedy and effective noticing systems reduce risk and increase response by the public to emergent situations.***

## **5.6. Mitigation activities undertaken since the original plan adoption in 2005**

Projects and Activities are grouped by Mitigation Strategy:

### Community Preparedness Activities.

- Current BEOP and active EMD
- Emergency Response and Management Staff attending professional training sessions. (Local EMD Roundtable attendance, ICS training, exercise attendance)
- Regularly scheduled maintenance programs ongoing (culvert survey & replacement, ditching along roadways, cutting vegetation to allow visibility at intersections).

### Financial and Tax Incentives.

- Using Federal funding for mitigation projects and activities.

### Hazard Control and Protective Works.

- Ongoing Maintenance Programs (culvert survey & replacement, ditching along roadways, cutting vegetation to allow visibility at intersections).
- Installation of sidewalks in town center for pedestrian crosswalk and traffic calming
- New Town Offices were constructed with document protection in mind.

### Insurance Programs.

- Member VLCT insurance for town employees and structures to include an active loss prevention program. (includes Flagger Training for town employees and fire dept.)

### Land Use Planning/Management

- New Town Plan adopted
- Highway access standards adopted by Select Board
- Change zoning classification in New Haven Jct. to reflect changes to flood map.

### Protection/Retrofit of Infrastructure and Critical Facilities.

- Adopted bridge and highway standards
- Auxiliary Power for Fire Station and Town Office.
- Installation of fire and security devices at Town Office, Fire Station and Town Garage.
- Rebuild of chronic washout section of Pearson Road with use of mitigation funds
- Construction of new salt shed in 2004 to limit potential hazard to groundwater through salt pollution
- Addition of a low temperature alarm on the town hall to alert when temperatures drop near the freezing risk range.

### Public Awareness, Training & Education.

- Hazard Identification and Mapping.
- School fire safety training conducted annually by the fire department

Public Protection.

- Auxiliary Power for Fire Station.
- Hazard Vulnerability Assessments.
- Funding local volunteer fire dept and rescue squad
- Contracting with county sheriff for traffic control

Science and Technology.

- Stream Geomorphic Assessment (Limited Phase 3 and Phase 2 on tributaries)
- Fire department was lead area agency in installing new repeater to improve radio coverage for county fire agencies

## **6. Routine Plan Maintenance Procedures**

Any Hazard Mitigation Plan is dynamic and should not be static. To ensure that the plan remains current and relevant, it is important that it be updated periodically. The plan will be updated at minimum every five years in accordance with the following procedure:

### **6.1. Plan Review/Update Process (5-year Cycle) 44CFR 201.6(c)(4)(i) and CFR 201.6(c)(4)(iii)**

1. The New Haven Selectboard assembles a Review/Update Committee.
2. The Committee will discuss the process to determine if any modifications or additions are needed due to changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting/updating information will be assigned to members.
3. Other Town plans (Emergency Operations Plan, Town Plan, Road Plan, etc.) will be reviewed to ensure a common mitigation thread still exists throughout.
4. A draft update will be prepared based on these evaluation criteria:
  - Changes in community and government processes, which are hazard-related and have occurred since the last review.
  - Progress in implementation of plan initiatives and projects.
  - Effectiveness of previously implemented initiatives and projects.
  - Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report.
  - Evaluation of hazard-related public policies, initiatives and projects.
  - Review and discussion of the effectiveness of public and private sector coordination and cooperation.
5. Selectboard members will have an opportunity to review the draft update. Consensus will be reached on any changes to the draft.
6. The Selectboard will notify and schedule a public meeting to ensure adequate public input.
7. The Selectboard will recommend incorporation of community comments into the draft update.

## **6.2. Programs, Initiatives and Projects Review**

Although the plan should be reviewed in its entirety every five years as described above, the Town will review and update its programs, initiatives and projects annually as the town budget is created. Creation of the town budget is a public process which takes place in January of each year when the town Selectboard develops next year's budget based on known needs and incorporating appropriate public input. This annual review will review the goals and projects from this plan and evaluate the community's success in meeting the intent of this plan. Also during this annual review, projects can be either added or removed from the towns work plan based on changing local needs and priorities. In the update of the municipal plan by the planning commission, concepts, goals and strategies from this plan will be used to inform the development of that plan and incorporated into that plan when appropriate.

## **6.3. Post-Disaster Review Procedures**

Should a declared disaster occur, a special review will occur in accordance with the following procedures:

1. Within six (6) months of a declared emergency event, the Town will initiate a post disaster review and assessment.
2. This post disaster review and assessment will document the facts of the event and assess whether existing Hazard Mitigation Plans effectively addressed the hazard.
3. A report of the review and assessment will be created by a Review/Update Committee.
4. The committee will make a determination whether the plan needs to be amended. If the committee determines that NO modification of the plan is needed, then the report is distributed.
5. If the committee determines that modification of the plan IS needed, then the committee drafts an amended plan based on its recommendations and forwards to the Selectboard for public input.
6. The Selectboard adopts the amended plan.

## 7. Plan Adoption Resolution

### TOWN OF NEW HAVEN, VERMONT SELECTBOARD ADOPTION RESOLUTION

WHEREAS, the Town of New Haven has occasionally experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Town of New Haven, Vermont Single Jurisdiction All-Hazards Mitigation Plan (Plan)**, which can result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of New Haven has developed the **Plan** and received conditional approval from the Federal Emergency Management Agency (FEMA); and

WHEREAS, the **Plan** identifies specific hazard mitigation strategies, and plan maintenance procedures applicable to the Town of New Haven; and

WHEREAS, the **Plan** identifies actions and/or projects intended to provide mitigation for specific natural hazards that impact the Town of New Haven; and

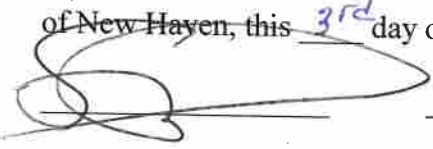
WHEREAS, adoption of this **Plan** will make the Town of New Haven eligible for additional funding to help alleviate the impacts of future hazards;


Now, therefore, be it RESOLVED by Town of New Haven Selectboard:

1. The **Town of New Haven, Vermont Single Jurisdiction All-Hazards Mitigation Plan** is hereby adopted as an official plan of the Town of New Haven, Vermont;
2. The respective Town officers identified in the action plan are hereby directed to pursue implementation of the recommended actions assigned to them.
3. Support agencies within the Town of New Haven are also requested to implement actions assigned to them within this plan;
4. Plan maintenance procedures described in Section 6 of this plan are also adopted as part of this resolution

IN WITNESS WHEREOF, the undersigned have affixed their signatures for the Town

of New Haven, this 3rd day of April 2018.

  
Selectboard Chair

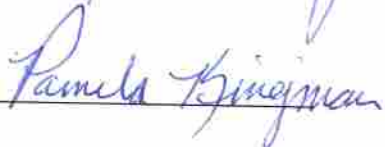
  
Selectboard Member

  
Selectboard Member

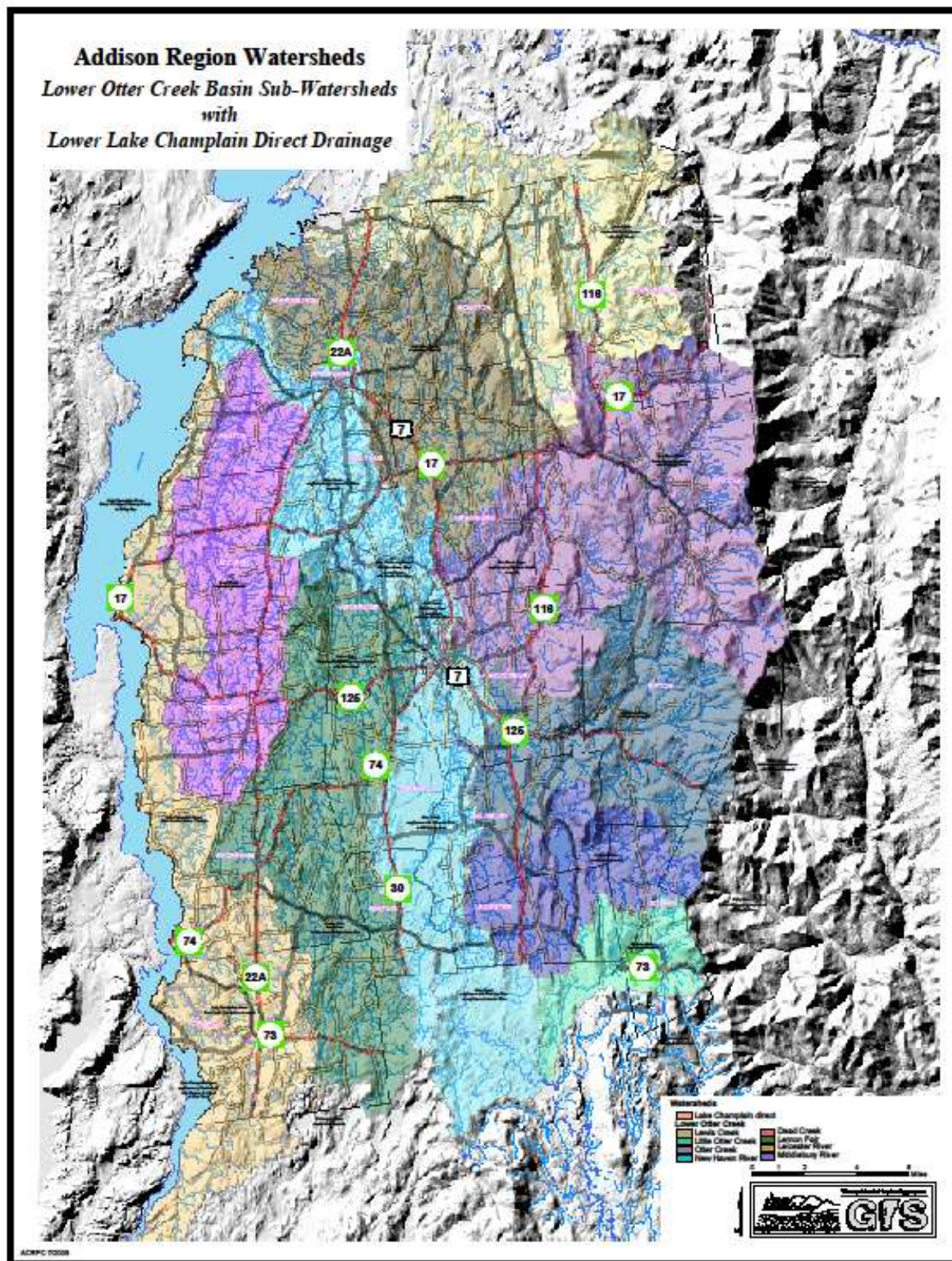
  
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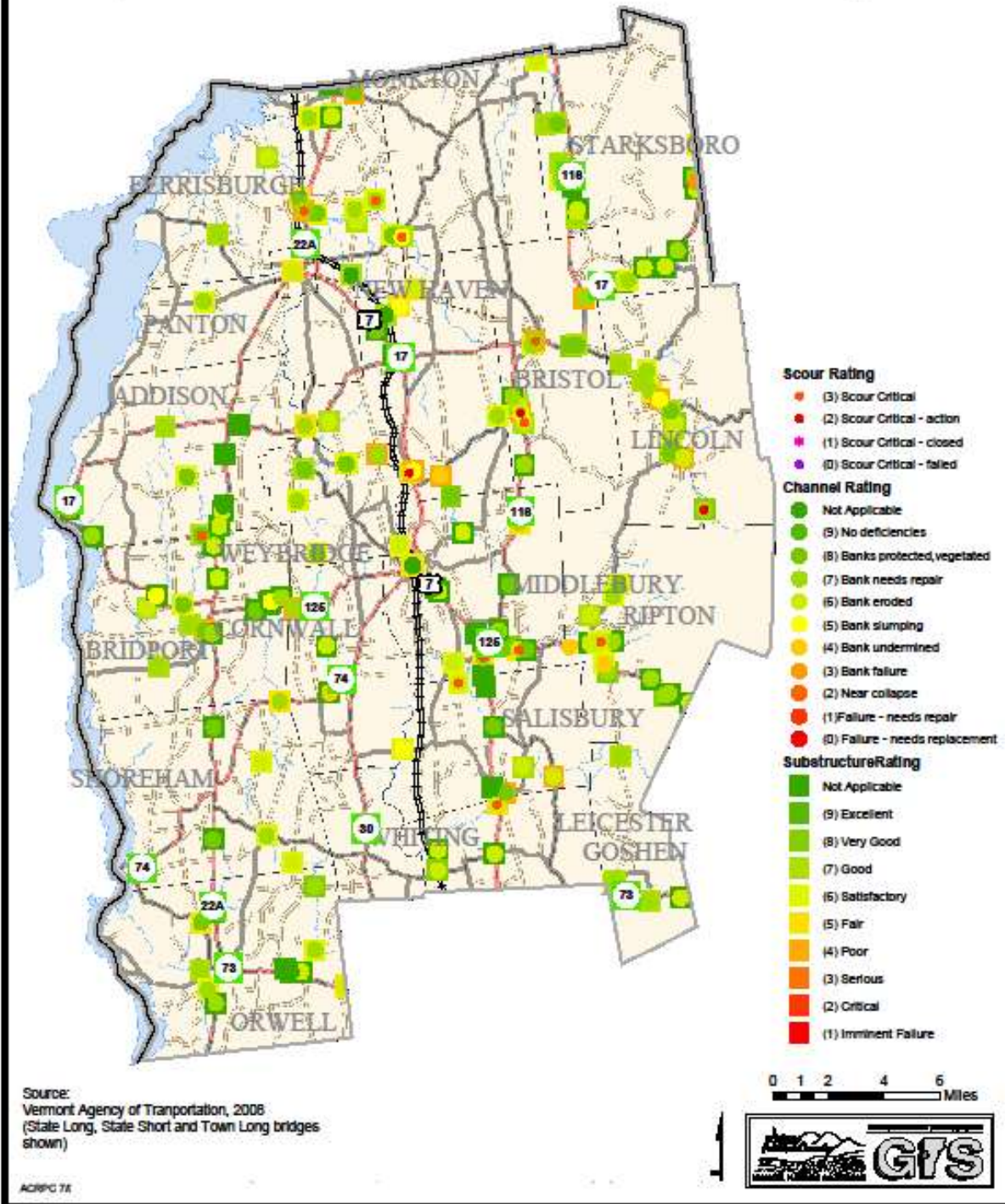
  
Pamela Kingman

## Annex A Regional Maps



# Addison Region

## Bridge Locations with fluvial associated ratings



**Annex B  
Local Documents**

XU 0

See Town Road Plan  
Page 1874

Book 6 page 208

**TOWN ROAD AND BRIDGE STANDARDS  
of the  
TOWN OF NEW HAVEN, VERMONT**

The town of New Haven hereby adopts the following Town Road and Bridge Standards which shall apply to all future road and bridge construction within the Town. (Unless State or Federal funding regulations govern over this document).

The standards listed here are considered minimum and are presented for purposes of guiding construction and maintenance personnel. The Select Board reserves the right to modify the standards for a particular project, where, because of unique physical circumstances or conditions, there is no possibility that the project can be completed in strict conformance with these provisions. Fiscal reasons are not a basis for modification of the standards.

Any new road, whether or not that road is proposed to be conveyed to the town, shall be constructed according to the minimums of these standards. If any federal and/or state funding is involved in a project the Vtrans district office will be notified prior to any field changes taking place that would alter the original scope of work.

Roadways

All gravel roads will have at least a 15 inch thick processed gravel subbase, with the top 3 inches being crushed gravel. Material will be graded so that water does not remain on the road surface, and have adequate space for proper ditching.

Ditches

Soil exposed during ditch and slope construction or maintenance will be treated immediately following the operation as follows:

- Seed and mulch slopes less than 2.5%
- Placing biodegradable matting and seed on slopes between 2.5% and 5 %
- Stone lining ditches with angular material on slopes greater than 5%

Culverts and Bridges

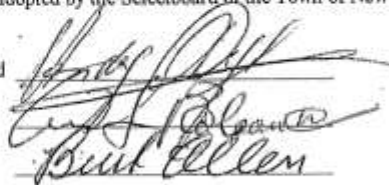
- All new driveway culverts will have a minimum diameter of 15 inches.
- All new roadway culverts will have a minimum diameter of 18 inches.
- Any culvert greater than or equal to 36 inches in diameter will be designed according to the latest Vtrans Hydraulics Manual. End treatment (inlet or outlet) will also be evaluated in accordance with this manual.
- All bridges (structures with spans greater than 6 feet) will have waterway openings designed in accordance to the latest Vtrans Hydraulics Manual.

Guardrail

When new road or culvert construction creates side slopes steeper than 1 on 3, guardrail will be installed according to AASHTO Roadside Design Guide.

Passed and adopted by the Selectboard of the Town of New Haven, State of Vermont on July 22, 2001.

Select Board

  
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\_\_\_\_\_  
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## **Annex C**

### **Mitigation Measures by Hazard Type**

Mitigation measures for “all-hazards” have been adapted from a flood mitigation approach developed by French Wetmore, of Wetmore and Associates in Park Forest, Illinois, into six categories:

- Prevention – measures intended to keep a hazard risk problem from becoming worse. They ensure that future development does not increase hazard losses. Examples would include: Planning and Zoning, Open space preservation, Land Development regulations, Storm water management.
- Property Protection – measures used to modify buildings, or their surroundings, subject to hazard risk rather than prevent the hazard from occurring. Examples are: Acquisition of vulnerable properties, Relocation from hazard prone areas, Rebuild or modify structures to reduce damage by future hazard events, Flood-proofing of flood-prone buildings.
- Natural Resource Protection – measures intended to reduce the intensity of hazard effects as well as improve the quality of the environment and wildlife habitats. Erosion and sediment control and Wetlands protection are examples.
- Emergency Services – measures that protect people before and after a hazard event. That would include: Warning, Response, Critical facilities protection, Health and safety maintenance.
- Structural Projects – measures that involve construction of man-made structures to control hazards. Some examples would include: dams, reservoirs, debris basins, channel modifications, storm sewers, elevated roadways.
- Public Information – activities intended to inform and remind people about hazardous areas and the measures to avoid potential damage and injury. Examples are: Outreach projects, Real estate disclosure, Technical assistance, Community education programs.

The following suggested Mitigation Measures were taken from the website of the Northeast States Emergency Consortium (NSEC).

#### **ALL HAZARDS**

- Map vulnerable areas and distribute information about the hazard mitigation strategy and projects.
- Provide information to contractors and homeowners on the risks of building in hazard-prone areas.
- Develop a list of techniques for homeowner self-inspection and implementation of mitigation activities.
- Organize and conduct professional training opportunities regarding natural hazards and hazard mitigation.
- Distribute NOAA weather radios.
- Develop sound land use planning based on known hazards.
- Enforce effective building codes and local ordinances.
- Increase public awareness of community hazards.

- Provide sites that are as free as possible from risk to natural hazards for commercial and industrial activities.
- Consider conservation of open space by acquisition of repetitive loss structures.
- Consider conservation of open space by acquisition of areas identified as “vulnerable or at risk”
- Ensure a balance between residential growth, conservation of environmental resources through a detailed analysis of the risks and vulnerability to natural hazards.
- Conduct joint planning and sharing of resources across regions, communities, and states.
- Establish a hazard mitigation council.
- For future proposed development design guidelines, incorporate hazard mitigation provisions, including improved maps.
- Consider adding a "safe room" requirement for all new buildings.
- Establish incentives to encourage business owners and homeowners to retrofit buildings with hazard resistant features.
- Teach disaster and hazard awareness in schools.

## **FLOOD**

### **Flood Hazard Mitigation Measures for Communities:**

- Developing and enforcing all-hazards building codes,
- Adopting incentives to encourage mitigation
- Developing administrative structures to support the implementation of mitigation programs
- Mitigation should be incorporated into future land use plans through riparian corridor protection, limiting flood hazard area development, and other measures.
- Developing and conducting public information campaigns on hazard mitigation should be a priority.
- Participate in the National Flood Insurance Program (NFIP).
- Conduct watershed geomorphic assessments.
- Encourage riparian corridor protection.

### **Flood Hazard Mitigation Measures for Individuals:**

#### *How to Protect Your Property:*

- Keep insurance policies, documents, and other valuables in a safe-deposit box. You may need quick, easy access to these documents. Keep them in a safe place less likely to be damaged during a flood.
- Avoid building in a floodplain. Some communities do not permit building in known floodplains. If there are no restrictions, and you are building in a floodplain, take precautions, making it less likely your home will be damaged during a flood.

- Raise your furnace, water heater, and electric panel to higher floors or the attic if they are in areas of your home that may be flooded. Raising this equipment will prevent damage. An undamaged water heater may be your best source of fresh water after a flood.
- Install check valves in building sewer traps to prevent flood water from backing up into the drains of your home. As a last resort, when floods threaten, use large corks or stoppers to plug showers, tubs, or basins.
- Seal walls in basements with waterproofing compounds to avoid seepage through cracks.
- Consult with a construction professional for further information if these and other damage reduction measures can be taken. Check local building codes and ordinances for safety requirements.
- Contact your local emergency management office for more information on mitigation options to further reduce potential flood damage. Your local emergency management office may be able to provide additional resources and information on ways to reduce potential damage.

## **HAZARDOUS MATERIALS**

### **Hazardous Material Hazard Mitigation Measures for Communities:**

FEMA's National Mitigation Action Plan suggests that state and local mitigation plans include the following:

- Developing and enforcing all-hazards building codes,
- Adopting incentives to encourage mitigation
- Developing administrative structures to support the implementation of mitigation programs
- Mitigation should be incorporated into land use management plans.
- Developing and conducting public information campaigns on hazard mitigation should be a priority.

Natural hazard events have often triggered technological hazards such as ruptured pipelines and building fires, clearly linking the natural and technological risks. Accordingly, the National Mitigation Strategy, as an all-hazards strategy, will build upon existing programs that mitigate technological hazards, and focus on the critical importance of coordination among efforts to mitigate hazards, regardless of the source of the risk.

- Recognize the dangers posed by hazardous materials.
- Identify places where hazardous materials are likely to be encountered.
- Understand when a hazard may exist.
- Contact the appropriate persons or agencies to give or receive specific hazardous materials information.
- Identify procedures to minimize personal and community exposure to hazardous materials.

Hazardous materials events can and do occur as independent events. Natural hazard events, however, have often triggered technological hazards such as ruptured pipelines and building fires, clearly linking the natural and technological risks. Accordingly, the National Mitigation Strategy, as an all-hazards strategy, will build upon existing programs that mitigate technological hazards, and focus on the critical importance of coordination among efforts to mitigate hazards, regardless of the source of the risk.

Communities can and should:

- Recognize and identify the dangers posed by hazardous materials in the community.
- Identify industries and other locations places where hazardous materials are stored and used.
- Develop a community hazardous materials emergency plan.
- Develop an early warning and notification system.
- Work with local businesses and industry to Identify procedures to minimize personal and community exposure to hazardous materials.

Hazardous Materials Hazard Mitigation Measures for Individuals: Individual and families should develop a personal plan of what to do in case of a hazardous materials accident.

*How to Plan for a Hazardous Materials Incident:*

- Learn to detect the presence of a hazardous material.
- Many hazardous materials do not have a taste or an odor. Some materials can be detected because they cause physical reactions such as watering eyes or nausea. Some hazardous materials exist beneath the surface of the ground and can be recognized by an oil or foam-like appearance.
- Contact your Local Emergency Planning Committee (LEPC) or local emergency management office for information about hazardous materials and community response plans.
- Find out evacuation plans for your workplace and your children's schools.
- Be ready to evacuate. Plan several evacuation routes out of the area.
- Ask about industry and community warning systems.
- Have disaster supplies on hand:
  - Flashlight and extra batteries
  - Portable, battery-operated radio and extra batteries
  - First aid kit and manual
  - Emergency food and water
  - Non-electric can opener
  - Essential medicines
  - Cash and credit cards

Eyeglasses

Sturdy shoes

- Develop an emergency communication plan. In case family members are separated from one another during a hazardous materials accident (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster. Ask an out-of-state relative or friend to serve as the "family contact." After a disaster, it's often easier to call long distance. Make sure everyone knows the name, address and phone number of the contact person.

## **STRUCTURE FIRE**

### **Fire Hazard Mitigation Measures for Communities:**

FEMA's National Mitigation Action Plan suggests that state and local mitigation plans include the following:

- Developing and enforcing all-hazards building codes,
- Adopting driveway and water supply standards for new development.
- Adopting incentives to encourage mitigation
- Developing administrative structures to support the implementation of mitigation programs
- Mitigation should be incorporated into land use management plans.
- Developing and conducting public information campaigns on hazard mitigation should be a priority.

The United States Fire Administration (USFA) serves as the national focus on reducing fire deaths, injuries, and property losses. In 1974, Congress passed the Federal Fire Prevention and Control Act which established the USFA and the fire research program at the National Institute of Standards and Technology (NIST). The USFA works to involve the public and private sector to reduce losses through public education, arson detection and control, technology and research, fire data collection and analysis and fire service training and education. NIST performs and supports research on all aspects of fire with the aim of providing scientific and technical knowledge applicable to the prevention and control of fires.

### **Fire Hazard Mitigation Measures for Individuals:**

#### *How to Protect Your Property:*

- Keep lawns trimmed, leaves raked, and the roof and rain-gutters free from debris such as dead limbs and leaves.
- Stack firewood at least 30 feet away from your home.
- Store flammable materials, liquids and solvents in metal containers outside the home at least 30 feet away from structures and wooden fences.
- Create defensible space by thinning trees and brush within 30 feet around your home.

- Landscape your property with fire resistant plants and vegetation to prevent fire from spreading quickly.
- Post home address signs that are clearly visible from the road.
- Provide emergency vehicle access with properly constructed driveways and roadways, at least 12 feet wide with adequate turnaround space.
- Make sure water sources, such as hydrants and ponds, are accessible to the fire department.
- Burning yard waste is a fire hazard. Check with your local fire agency on a non-emergency number for fire permit requirements and restricted burning times.
- Use fire resistant, protective roofing and materials like stone, brick and metal to protect your home. Avoid using wood materials that offer the least fire protection.
- Cover all exterior vents, attics and eaves with metal mesh screens no larger than 6 millimeters.
- Install multipane windows, tempered safety glass or fireproof shutters to protect large windows from radiant heat.
- Use fire-resistant draperies for added window protection.
- Have chimneys, wood stoves and all home heating systems inspected and cleaned annually by a certified specialist.
- Fire Alarm Safety requires checking on or installing fire alarms in your home.
- Residential sprinklers have become more cost effective for homes. Currently, they protect few homes.

*How to Prepare for a Fire Emergency:*

- Know how to contact fire emergency services in your area.
- Plan ahead. Make sure you and your family are prepared for a fire emergency.
- Develop and practice escape and evacuation plans with your family.
- Install carbon monoxide and smoke alarms on every level of your home including one in every bedroom. Test them monthly and change the batteries at least once a year. Consider installing the new long-life smoke alarms.

## **WINTER STORM**

### **Winter Storm Hazard Mitigation Measures for Communities:**

FEMA's National Mitigation Action Plan suggests that state and local mitigation plans include the following:

- Developing and enforcing all-hazards building codes,
- Adopting incentives to encourage mitigation

- Developing administrative structures to support the implementation of mitigation programs
- Incorporating mitigation into town land use plans.
- Developing and conducting public information campaigns on hazard mitigation should be a priority

In addition, FEMA recommends the following actions to further protect communities from the effects of Winter Storms:

- Building code development and enforcement of snow loads
- Develop a storm water management plan for snowmelt
- Assuring adequate supplies of sand and salt
- Maintaining snow removal equipment so that it is ready to be deployed
- Retrofitting public buildings to withstand snowloads and prevent roof collapse
- Clearing roofs of excessive snow accumulations
- Develop a winter storm plan or annex to the local emergency management plan
- Develop a capability to monitor weather forecasts, conditions and warnings issued by the National Weather Service
- Identify appropriate shelters for people who may need to evacuate due to loss of electricity, heat or coastal flooding due to storm surge
- Assure that critical facilities such as police and fire stations and schools are accessible and equipped
- Clearing streets and roads of snow to assure the passage of public safety vehicles and general traffic

### **Winter Storm Hazard Mitigation Measures For Individuals:**

#### *How to Protect Your Property:*

- Make sure your home is properly insulated. If necessary, insulate walls and attic. This will help you to conserve electricity and reduce your home's power demands for heat. Caulk and weather-strip doors and windowsills to keep cold air out, allowing the inside temperature to stay warmer longer.
- Install storm windows or cover windows with plastic from the inside. This will provide an extra layer of insulation, keeping more cold air out.
- To keep pipes from freezing:
- Wrap pipes in insulation or layers of old newspapers.
- Cover the newspapers with plastic to keep out moisture.
- Let faucets drip a little to avoid freezing.

- Know how to shut off water valves.
- If the pipes freeze, remove any insulation or layers of newspapers and wrap pipes in rags. Completely open all faucets and pour hot water over the pipes, starting where they were most exposed to the cold (or where the cold was most likely to penetrate). A hand-held hair dryer, used with caution to prevent overheating, also works well.
- Consider storing sufficient heating fuel. Regular fuel sources may be cut off. Be cautious of fire hazards when storing any type of fuel.
- Before winter, be sure you install and check smoke alarms.
- Consider keeping safe emergency heating equipment:
- Fireplace with ample supply of wood.
- Small, well-vented wood, coal, or camp stove with fuel.
- Portable space heater or kerosene heater. Check with your local fire department on the legality of using kerosene heaters in your community. Use only the correct fuel for your unit and follow the manufacturer's instructions. Refuel outdoors only, and only when cool. Keep your kerosene heater at least three feet away from furniture and other flammable objects.
- When using alternative heat from a fireplace, wood stove, space heater, etc., use fire safeguards and ventilate properly. Fire hazard is greatly increased in the winter because alternate heating sources are used without following proper safety precautions.
- Install snow fences in rural areas to reduce drifting in roads and paths, which could block access to homes, barns, and animals' feed and water.
- If you live in a flood-prone area, consider purchasing flood insurance to cover possible flood damage that may occur during the spring thaw. Homeowners' policies do not cover damage from floods. Ask your insurance agent about the National Flood Insurance Program if you are at risk.

#### *How to Plan for a Winter Storm:*

- Understand the hazards of wind chill, which combines the cooling effect of wind and cold temperatures on exposed skin. As the wind increases, heat is carried away from a person's body at an accelerated rate, driving down the body temperature. "Wind chill" is a calculation of how cold it feels when the effects of wind speed and temperature are combined. A strong wind combined with a temperature of just below freezing can have the same effect as a still air temperature about 35 degrees colder.
- Service snow removal equipment before winter storm season. Equipment should be available for use if needed. Maintain it in good working order.
- Keep your car's gas tank full for emergency use and to keep the fuel line from freezing.
- Get training. Take an American Red Cross first aid course to learn how to treat exposure to the cold, frostbite, and hypothermia.

- Discuss with your family what to do if a winter storm WATCH or WARNING is issued. Designate one household member as the winter storm preparedness leader. Have him or her discuss what to do if a winter storm watch or warning is issued. Have another household member state what he or she would do if caught outside or in a vehicle during a winter storm. Everyone should know what to do in case all family members are not together. Discussing winter storms ahead of time helps reduce fear and lets everyone know how to respond during a winter storm.

## **HIGH WINDS**

### **High Wind Hazard Mitigation Measures for Communities:**

FEMA's National Mitigation Action Plan suggests that state and local mitigation plans include the following:

- Developing and enforcing all-hazards building codes,
- Adopting incentives to encourage mitigation
- Developing administrative structures to support the implementation of mitigation programs
- Mitigation should be incorporated into land use management plans.
- Developing and conducting public information campaigns on hazard mitigation should be a priority.

FEMA also suggests that communities further reduce their vulnerability to hurricanes through the adoption and enforcement of wind- and flood-resistant building codes. Sound land-use planning can also ensure that structures are not built in the highest hazard areas.

### **High Wind Hazard Mitigation Measures for Individuals:**

- Make a list of items to bring inside in the event of a storm. A list will help you remember anything that can be broken or picked up by strong winds. High winds, often in excess of 40 miles per hour, can turn unanchored items into missiles, causing damage or injury when they hit.
- Keep trees and shrubbery trimmed. Make trees more wind resistant by removing diseased or damaged limbs, then strategically remove branches so that wind can blow through. High winds frequently break weak limbs and hurl them at great speed, causing damage when they hit property. Debris collection services may not be operating just before a storm, so it is best to do this well in advance of approaching storms.
- Remove any debris or loose items in your yard. High winds can pick up anything unsecured, creating damage to property when the debris hits.
- Install protection to the outside areas of sliding glass doors. Glass doors are as vulnerable as windows to breakage by wind-driven objects.
- If you live in a flood plain or are prone to flooding, also follow flood preparedness precautions. Nor'easters and severe thunderstorms can bring great amounts of rain and frequently cause floods.

## **EARTHQUAKE**

### **Earthquake Hazard Mitigation Measures for Communities:**

FEMA's National Mitigation Action Plan suggests that state and local mitigation plans include the following:

- Developing and enforcing all-hazards building codes,
- Adopting incentives to encourage mitigation
- Developing administrative structures to support the implementation of mitigation programs
- Mitigation should be incorporated into land use management plans.
- Developing and conducting public information campaigns on hazard mitigation should be a priority.

FEMA's Earthquake Program has four basic goals directly related to the mitigation of hazards caused by earthquakes. They are to:

- Promote Understanding of Earthquakes and Their Effects.
- Work to Better Identify Earthquake Risk.
- Improve Earthquake-Resistant Design and Construction Techniques.
- Encourage the use of Earthquake-Safe Policies and Planning Practices.

### **Earthquake Hazard Mitigation Measures for Individuals**

*How to Protect Your Property:*

- Bolt bookcases, china cabinets, and other tall furniture to wall studs. Brace or anchor high or top-heavy objects. During an earthquake, these items can fall over, causing damage or injury.
- Secure items that might fall (televisions, books, computers, etc.). Falling items can cause damage or injury.
- Install strong latches or bolts on cabinets. The contents of cabinets can shift during the shaking of an earthquake. Latches will prevent cabinets from flying open and contents from falling out.
- Move large or heavy objects and fragile items (glass or china) to lower shelves. There will be less damage and less chance of injury if these items are on lower shelves.
- Store breakable items such as bottled foods, glass, and china in low, closed cabinets with latches. Latches will help keep contents of cabinets inside.
- Store weed killers, pesticides, and flammable products securely in closed cabinets with latches, on bottom shelves. Chemical products will be less likely to create hazardous situations from lower, confined locations.

- Hang heavy items, such as pictures and mirrors, away from beds, couches, and anywhere people sit. Earthquakes can knock things off walls, causing damage or injury.
- Brace overhead light fixtures. During earthquakes, overhead light fixtures are the most common items to fall, causing damage or injury.
- Strap the water heater to wall studs. The water heater may be your best source of drinkable water following an earthquake. Protect it from damage and leaks.
- Bolt down any gas appliances. After an earthquake, broken gas lines frequently create fire hazards.
- Install flexible pipe fittings to avoid gas or water leaks. Flexible fittings will be less likely to break.
- Repair any deep cracks in ceilings or foundations. Get expert advice if there are signs of structural defects. Earthquakes can turn cracks into ruptures and make smaller problems bigger.
- Check to see if your house is bolted to its foundation. Homes bolted to their foundations are less likely to be severely damaged during earthquakes. Homes that are not bolted have been known to slide off their foundations, and many have been destroyed because they are uninhabitable.
- Consider having your building evaluated by a professional structural design engineer. Ask about home repair and strengthening tips for exterior features, such as porches, front and back decks, sliding glass doors, canopies, carports, and garage doors. Learn about additional ways you can protect your home. A professional can give you advice on how to reduce potential damage.
- Follow local seismic building standards and safe land use codes that regulate land use along fault lines. Some municipalities, counties, and states have enacted codes and standards to protect property and occupants. Learn about your area's codes before construction.

#### *How to Plan for an Earthquake:*

- Pick "safe places" in each room of your home. A safe place could be under a sturdy table or desk or against an interior wall away from windows, bookcases, or tall furniture that could fall on you. The shorter the distance to move to safety, the less likely you will be injured. Injury statistics show that persons moving more than 10 feet during an earthquake's shaking are most likely to experience injury.
- Practice drop, cover, and hold-on in each safe place. Drop under a sturdy desk or table, hold on, and protect your eyes by pressing your face against your arm. Practicing will make these actions an automatic response. When an earthquake or other disaster occurs, many people hesitate, trying to remember what they are supposed to do. Responding quickly and automatically may help protect you from injury.
- Practice drop, cover, and hold-on at least twice a year. Frequent practice will help reinforce safe behavior.

- Talk with your insurance agent. Different areas have different requirements for earthquake protection. Study locations of active faults, and if you are at risk, consider purchasing earthquake insurance.
- Inform guests, babysitters, and caregivers of your plan. Everyone in your home should know what to do if an earthquake occurs. Assure yourself that others will respond properly even if you are not at home during the earthquake.
- Get training. Take a first aid class from your local Red Cross chapter. Get training on how to use a fire extinguisher from your local fire department. Keep your training current. Training will help you to keep calm and know what to do when an earthquake occurs.
- Discuss earthquakes with your family. Everyone should know what to do in case all family members are not together. Discussing earthquakes ahead of time helps reduce fear and anxiety and lets everyone know how to respond.

## Annex D

### Potential Mitigation Project Funding Sources

#### Federal

##### **FEMA**

- **Pre-Disaster Mitigation Program.** As part of the Disaster Mitigation Act of 2000 (Section 322 of the Robert T. Stafford Disaster Relief and Emergency Act), FEMA's Pre-Disaster Mitigation Competitive (PDM-C) Grant Program provides funds to states, territories, and federally recognized tribes for pre-disaster mitigation activities. The grant program is administered by FEMA for pre-disaster mitigation planning and projects primarily addressing natural hazards. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. The intent of the PDM-C grant program is to provide a consistent source of funding for pre-disaster mitigation planning and projects.
- **Hazard Mitigation Grant Program.** The Hazard Mitigation Grant Program (Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act) is activated during Presidential Disaster Declarations to assist in identifying mitigation projects, and funding these projects on a 75% Federal/25% non-Federal cost share basis. Mitigation program funding is based on 20% of the federal funds expended for the Infrastructure and Individual Assistance Programs. The HMGP supports other program activities, i.e. participation the NFIP is required for recipients of HMGP funds.
- **Disaster Preparedness Improvement Grants.** Under the Disaster Preparedness Improvement Grants (Section 201 of the Stafford Act), FEMA provides up to 50% matching funds to states annually to improve or update their disaster assistance plans and capabilities. States can use these funds to: implement measures in a Hazard Mitigation Plan; develop pre-disaster Hazard Mitigation Plans; expand an existing Hazard Mitigation Plan; develop hazard specific annexes; or develop administrative plans for the implementation of the Hazard Mitigation Grant Program.
- **Hazard Mitigation Technical Assistance Program Contract.** HMTAP was established to provide FEMA with response capability for various post-disaster mitigation opportunities. The contractor has the capability to: (1) evaluate construction science techniques and practices, including build codes; (2) prepare environmental assessments or impact statements and historic preservation reviews and assessments; (3) conduct biological assessments and surveys, (4) conduct surveys, assessments, and reviews of other areas of impact such as water quality and wetland delineation; (5) conduct benefit/cost, social science, and public administration assessments; (6) conduct post-event assessments to identify mitigation opportunities; (7) Provide post-disaster land surveying, mapping services and cost estimates using GIS, GPS, and remote sensing; (8) Perform floodplain analyses; (9) conduct hazard identification and risk assessment to confirm accuracy

and specific actions or methodologies needed for disaster areas; (10) document estimated flood elevations to guide reconstruction and to compute flood frequency; and (11) provide training for benefit/cost analysis, retrofit options, the Hazard Mitigation Grant Program, and National Environmental Policy Act.

- **National Flood Insurance Program (NFIP).** The National Flood Insurance Program (NFIP) makes federally subsidized flood insurance available to property owners in locations agreeing to participate in the NFIP. If communities enter the NFIP, they are required to adopt floodplain ordinances meeting criteria established by FEMA. These criteria include: requiring permits for development within designated floodplains; review development plans and subdivision proposals to determine whether proposed sites will be reasonably safe from flooding; require protection of water supply and sewage systems to minimize infiltration of floodwater; obtain, review, and utilize all base flood elevation data; and assure the maintenance of flood carrying capacities within all watercourses.
- **The Community Rating System.** An element of the NFIP, is designed to promote the availability of flood insurance, reduce future flood damages, and ensure the accurate rating of flood insurance policies. Participating communities may receive credit for proven mitigation measures, thus reducing the cost of flood insurance within their jurisdictions.
- **The Individual Assistance Loss Prevention Program.** Available to provide eligible owner- occupants, who sustained damage and received Disaster Housing Minimal Repair Funds, the opportunity to participate in a voluntary program where additional 100% federal funds are made available to break the damage-rebuild-damage cycle and help homeowners reduce or eliminate losses from future weather-related damage.
- **The Individual and Family Grant (IFG) Minimization Program.** Available to provide IFG-eligible owner- occupants the opportunity to participate in a voluntary program where additional state and federal funds are made available to break the damage-rebuild-damage cycle, and help reduce or eliminate losses from future weather-related damage. In addition, FEMA's 800 series provides funding for low cost mitigation measures.
- **The Infrastructure Program (Section 406 of the Stafford Act).** Authorizes funding for the repair, restoration, or replacement of damaged facilities belonging to public and private non-profit entities, and for other associated expenses, including emergency protective measures and debris removal. The Infrastructure Program also authorizes funding for appropriate cost-effective hazard mitigation related to damaged public facilities.
- **The National Inventory of Dams (US Army Corps of Engineers project).** Identifies high-hazard dams and encourages the development of warning systems and emergency plans for many of these facilities.

- **Hazardous Materials Program.** FEMA's mission under this program is to provide technical and financial assistance to States and local jurisdictions and to coordinate with public and private sector entities to develop, implement, and evaluate HAZMAT emergency preparedness programs. FEMA supports State and local agencies in the design, implementation, and evaluation of HAZMAT- related training and planning exercises, and cooperates with the U.S. Department of Transportation in the maintenance of electronic bulletin boards to provide the latest information on HAZMAT planning, training, exercises, and conferences.
- **US Fire Administration (USFA).** Through the USFA, FEMA administers a nationwide program to enhance fire prevention and control activities and to reduce significantly the loss of life and property caused by fires. Programs are carried out by: National Fire Academy; Office of Fire Prevention and Arson Control; Office of Firefighter Health and Safety; Office of Fire Data and Analysis; Office of Federal Fire Policy and Coordination; Office of National Emergency Training Center Operations and Support, and Office of Educational Technology.
- **ARRA Fire Station Construction Grants (DHS)** The purpose of the ARRA SCG is to create or save jobs in recession-hit areas and achieve other purposes stated in ARRA, and achieve AFG goals of firefighter safety and improved response capability/capacity based on need through the construction, renovation or modification of fire stations.

**The Emergency Planning and Community Right-to-Know Act of 1986** imposed upon state and local governments planning and preparedness requirements for emergencies involving the release of hazardous materials. The role of the federal government in response to an emergency involving the release of hazardous materials is to support local and state emergency operations. Activation of the federal Regional Response Team (RRT) provides access to federal resources not available at the state and local levels. An on scene coordinator is designated to manage federal resources and support. The national warning and communications center for emergencies involving the release of hazardous materials is manned 24 hours a day, and is located at the U.S. Coast Guard headquarters in Washington, D.C.

**The National Weather Service** provides meteorological and hydrologic services that includes weather and hydrologic warnings, forecasts, and related information. The primary mission of the NWS is to save lives and reduce property damage through timely issuances of tornado and flood warnings and river stage forecasts. To cope with dangerous weather, the NWS interacts with emergency services personnel throughout the state by: issuance of tornado and flash flood watches or warnings for those areas in which a threat is posed; issuance of flood watches and warnings for major streams and rivers within the state. Addison County is within the coverage area of the NWS office in Burlington but also may receive information from the Albany, NY office.

**The U.S. Army Corps of Engineers** undertake a broad range of civil works projects to develop, manage, and conserve the nation's water resources. No work may be undertaken without authorization and funding from Congress, either from specific legislation or continuing authorities. Projects **are** planned to serve as many purposes as are feasible and

to protect or improve the environment as much as possible. The Corps is involved in developing and implementing plans for flood control, navigation, hydropower, recreation, and water supply. The Corps has authority for emergency operations, bank protection, permit administration, and technical assistance. Corps of Engineers assistance includes:

- Studies and Projects
- Discretionary Authority to implement certain types of water resources projects without specific Congressional approval. These projects are typically limited in cost and duration, and include:
  - Section 14 - Emergency Stream bank Protection of Public Facilities, limitation of \$500,000 per project.
  - Section 107 - Small Navigation Projects, usually for port facilities and navigation channels. Work on channels usually improves stream flow and aids flood control efforts.
  - Section 205 - Small Flood Control Projects, not to exceed \$5 million. Funds may be used for projects such as upgrading flood protection structures and channelization of streams.
  - Floodplain Technical Assistance, to include:
    - Conducting floodplain mapping surveys to provide either first-time mapping of an area or to correct older floodplain maps;
    - Conducting flood studies in cooperation with FEMA to determine actual flood levels for settlement of flood insurance claims;
    - Providing technical advice regarding proposed floodplain ordinances and building codes.
- Emergency operations to respond to flood emergencies, to include flood fighting, constructing advance temporary measures in anticipation of imminent flood, and the repair of damaged flood control works after the flood event.
- Permit authority, the Corps has the authority to issue Permits to cover construction excavation and other related work in or over navigable waterways; and Permits covering the discharge of fill material in all waters of the United States and adjacent wetlands.

### **Department of Housing and Urban Development**

- Community Development Block Grant Program. Funds are provided as grants to units of local government. Local governments can use the funds to: construct flood and drainage facilities; finance rehabilitation projects that include flood proofing, elevation, purchase of flood insurance, etc.; finance acquisition and relocation of homes to remove them from the floodplains.
- Rental Rehabilitation Program. Funds to rehabilitate rental properties can be used for flood proofing and repair to flood damage.
- Section 312 Loan Program. Provides funds to rehabilitate both residential and non-residential properties, including flood repair and flood proofing.

**Department of Agriculture Natural Resource Conservation Service (NRCS)** can provide technical assistance in the conservation, development, and productive use of water resources. In addition, the NRCS monitors use of prime farmland.

- **Watershed Protection and Flood Prevention.** Technical and financial assistance to local entities to plan and install works of improvement for watershed protection, flood prevention, agricultural water management, and other approved purposes.
- **Resource Conservation and Development.** Technical and financial assistance to local entities to plan and install works of improvement for watershed protection, flood prevention, agricultural water management, and other approved purposes.
- **Emergency Watershed Protection.** Provides assistance to reduce hazards to life and property in watersheds damaged by severe natural events. NRCS can provide 100% of the cost of exigency situations, and 80% of the cost for non-exigency situations, if funds are available.
- **Conservation Technical Assistance.** Provided to land users to control erosion, sediment, and to reduce upstream flooding.
- **River Basin Surveys and Investigations.** Includes Conservation River Basin Studies to assist in solving existing problems or meeting existing or projected needs, and Floodplain Management Studies to provide information and assistance for reducing future flood damages. Financial assistance is provided by sponsors.

**U.S. Geological Survey (USGS)** provides certain hazard studies and recommendations. A portion of the mission of the USGS is to collect and analyze data on the quantity of surface water through a network of gauging stations. The data is used in preparing flood frequency reports to evaluate the severity of floods. This data is useful in flood hazard mitigation studies, establishing flood prone areas, and potential flood heights near hydraulic structures.

**Economic Development Administration** was established to generate new jobs, to help protect existing jobs, and to stimulate commercial and industrial growth in economically distressed areas of the United States.

**Small Business Administration (SBA)** Disaster Assistance Programs provide loans to businesses and individuals affected by presidential and SBA disaster declarations. The program provides direct loans to businesses to repair or replace uninsured disaster damage to property owned by the business, including real estate, machinery, and equipment, inventory and supplies. Businesses of any size are eligible. Non-profit organizations are also eligible. Assistance to individuals comes in the form of low-interest loans for repair or replacing damaged real and personal property. The SBA administers the Disaster Assistance Programs.

## **State**

### **VTrans**

- Town Highway Grants Program. State aid grants for highways are made annually to the governing body based on the number of Class 1,2 or 3 miles in the Municipality. The General Assembly appropriates a lump sum annually for this purpose (19 V.S.A. Section 306(a)). Distribution is made quarterly, with no application required. There is no requirement that State funds be matched with local funds, other than a requirement that municipalities expend no less than \$300 per mile of local tax revenues of their highways (19 V.S.A. Section 307).
- Town Highway Bridge Program. State assistance for major rehabilitation or reconstruction of bridges with a span of six feet or more on class 1, 2 or 3 town highways is made available by the Secretary of Transportation from annual appropriations for that purpose (19 V.S.A. Section 306(b)). State assistance amounts are not limited for any one project. The State assistance requires 10 percent participation or match of total project cost with town funds for replacement projects and 5% for rehabilitation projects. The local match is capped at the amount raised by a municipal tax rate of \$0.50 on the Grand List (19 V.S.A. Section 309(a)).
- Town Highway Structures Program. State grants for bridges, culverts and retaining walls that are part of the municipalities highway (Class 1, 2 or 3) infrastructure are made by the Secretary of Transportation from annual appropriations for the purpose. State grant amounts are limited to \$150,000 for any one project. State funds are required to be matched, as follows:
  - By at least 20% of the total project cost, or
  - By at least 10% of the total project cost providing that town has adopted Town Highway codes and standards and the town has conducted a highway infrastructure study (not less than three years old), which identifies all town culverts, bridges and identified road problems.
- Town Highway Class 2 Roadway Program. State grants to provide for the preservation of any Class 2 highways by providing grants for resurfacing or reconstruction are made by the Secretary of Transportation or his/her designee from annual appropriations for that purpose. State grants are limited to \$150,000 for any one project and there are match requirements for the town similar to the Town Highway Structures Program.
- Town Road & Bridge Standards, Infrastructure Study. As a result of legislative action relating to the Town Aid programs an incentive program was created providing additional funding to towns meeting two requirements:
  - Adopted codes and standards.
  - Conducted a network infrastructure study.

### **Agency of Natural Resources**

- Ecosystem Restoration Grant Program. As part of a governor's initiative to improve water quality in Lake Champlain, Funds have been allocated to assist in clean-up. Funds from this source have paid for a large portion of recent geomorphic studies in the Addison region as well as supporting the development of Fluvial Erosion

Hazard Zones. Additionally, funds have been allocated to purchase development rights in hazardous locations.

### **Department of Public Safety, Division of Emergency Management**

- Hazard Mitigation Grant Program. Previously described under Federal Programs.
- Pre-Disaster Mitigation Program. Previously described under Federal Programs.
- Local Emergency Management Director Program. A continuing program of training for local emergency management directors to provide a consistent base of knowledge to understand their roles and responsibilities in Emergency Management.
- Generator Grant Program. VEM allocates funds from FEMA EMPG to allow towns to purchase back-up power sources for emergency shelters for continued use in the event of a power failure.

### **Regional**

The Addison County Regional Planning Commission (ACRPC) provides assistance to local governments concerning planning for future land use, business, transportation, emergency management and population.

In addition to the specific programs mentioned below, ACRPC has identified Municipal Development Plans and Capital Improvement Plans as appropriate local planning mechanisms suitable for incorporating many of the provisions of this plan. These plans, by statute, need to be updated on a 5 year rotation. In Addison County, each municipality adopts these new or updated plans according to their own timetable and therefore, each is at a different place in the planning and adoption process. At the time of each rewrite, ACRPC generally assists local planning commissions and will encourage inclusion of appropriate provisions of this plan into any new document.

One effective ongoing program is a local culvert survey and upgrade program, which is sponsored by the ACRPC. This program provides funding to communities for survey and location of installed culverts to determine condition and effectiveness. Those identified as needing repair and replacement are eligible for hazard mitigation funding.

Past regional mitigation projects and initiatives include:

Project Impact. FEMA and Vermont Emergency Management designated Addison County as a “Project Impact” community in 1999. The goal of “Project Impact” is to bring communities together to take actions that prepare for and protect themselves against disasters in a collaborative effort. “Project Impact” encourages communities to do these things:

- Identify Hazards and Community Vulnerability
- Prioritize Hazard Risk Reduction Efforts
- Build Community Partnerships for Risk Reduction Projects and Activities
- Communicate Successes and Establish Public Education

The list of projects that have all or a portion of the project cost supported by Project Impact include:

- Red Cross Schools Program
- Culvert Replacement/Stone Lined Ditch in Goshen
- Demonstration House in Cornwall
- Middlebury River Assessment
- Ripton Fire Station Move
- Weather Radio Purchases
- Shoreline Stabilization Handbooks for the Lakeside Towns
- Flood Warning Rain Gauges – Mountain Towns
- Monkton Evacuation Center
- Back-up Power Project

The Lewis Creek Study. Vermont Department of Environmental Conservation (VTDEC) River Management Program, in collaboration with academic, agency and watershed association partners, completed a pilot project in the Lewis Creek watershed. The project was intended to help develop remote sensing and rapid stream geomorphic assessment methodologies that would help to problem solve at the watershed level, gain a broader constituency for river management and to have a consistent statewide protocol.

PDM-C Planning Grants. Development and continued updating of this and other mitigation planning activities are supported through funding from FEMA's PDM-C, FMA, and EMPG grants.

Geomorphic Assessments, State of Vermont Agency of Natural Resources and PDM-C funding supported ongoing geomorphic assessments on the major flash flood prone streams and rivers in the Addison Region including the Middlebury River, New Haven River, Neshobe River, Leicester River, Lemon Fair, and Otter Creek. These studies have benefitted both mitigation of disasters and mitigation of ongoing surface water pollution.



**FEMA**

JUL 24 2018

Lauren Oates  
State Hazard Mitigation Officer  
Vermont Department of Public Safety  
45 State Drive  
Waterbury, Vermont 05671-1300

Dear Ms. Oates:

We would like to acknowledge the Town of New Haven and the State of Vermont for their dedication and commitment to mitigation planning. The Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region I Mitigation Planning Team has completed its review of the Town of New Haven, Vermont Single Jurisdiction All-Hazards Mitigation Plan and determined it meets the requirements of 44 C.F.R. Pt. 201.

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

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

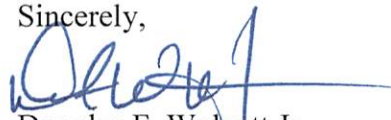
The Town of New Haven, Vermont Single Jurisdiction All-Hazards Mitigation Plan must be reviewed, revised as appropriate, and resubmitted to FEMA for approval within **five years of the plan approval date of July 17, 2018** in order to maintain eligibility for mitigation grant funding. We encourage the Town to continually update the plan's assessment of vulnerability, adhere to its maintenance schedule, and implement, when possible, the mitigation actions proposed in the plan.

JUL 24 2018

Lauren Oates  
Page 2

Once again, thank you for your continued dedication to public service demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please do not hesitate to contact Melissa Surette at (617) 956-7559.

Sincerely,



Douglas F. Wolcott Jr.  
Acting Deputy Regional Administrator

PFF: ms

cc: Ben Rose, Recovery and Mitigation Section Chief, VT DEMHS  
Stephanie Smith, Hazard Mitigation Planner, VT DEMHS

Enclosure