

TOWN OF BALTIMORE, VERMONT:
LOCAL HAZARD MITIGATION PLAN

ADOPTED: SEPTEMBER 5, 2018

*PREPARED BY THE TOWN OF BALTIMORE AND
THE SOUTHERN WINDSOR COUNTY REGIONAL
PLANNING COMMISSION*

Town of Baltimore 2018-2023 Local Hazard Mitigation Plan
September 5, 2018

CERTIFICATE OF ADOPTION

Town of Baltimore, VT
Selectboard

**A Resolution Adopting the
Town of Baltimore 2018-2023 Local Hazard Mitigation Plan**

WHEREAS, the Town of Baltimore has worked with the Southern Windsor County Regional Planning Commission to prepare an updated hazard mitigation plan for the town, to identify natural hazards, analyze past and potential future damages due to natural and man-made caused disasters, and identify strategies for mitigating future damages; and

WHEREAS, duly-noticed public meetings were held on June 28, 2018 to present and receive public comment on the draft Plan; and

WHEREAS, the updated 2018-2023 Baltimore Local Hazard Mitigation Plan was submitted to Vermont Emergency Management and Homeland Security and the Federal Emergency Management Agency for review on July 20, 2018; and

WHEREAS, the updated 2018-2023 Baltimore Local Hazard Mitigation Plan demonstrates the community's commitment to implementing the mitigation strategy and authorizes responsible agencies to execute their actions; and

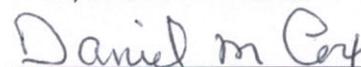
NOW, THEREFORE BE IT RESOLVED that the Town of Baltimore Selectboard hereby adopts the 2018-2023 Baltimore Local Hazard Mitigation Plan for municipal use and implementation.

Duly adopted this 5th day of September, 2018.

Baltimore Selectboard:



Chair, Baltimore Selectboard



Member



Member

Member

Member

TABLE OF CONTENTS

INTRODUCTION

PURPOSE

TOWN PROFILE

PLANNING PROCESS

PUBLIC PROCESS

PLAN UPDATE PROCESS

PLAN MAINTENANCE PROCESS

RISK AND VULNERABILITY ASSESSMENT

HAZARD IDENTIFICATION

DETAILED HAZARD ANALYSIS

MITIGATION PROGRAM

GOALS AND STRATEGIES

EXISTING PROGRAMS

MITIGATION STRATEGIES

INTEGRATION

MAP 1: ROAD NETWORK DAMAGE FROM TROPICAL STORM IRENE

APPENDIX A

MAP 2: EMERGENCY MANAGEMENT

MAP 3: TRANSPORTATION

MAP 4: WATER RESOURCES AND ELEVATION

MAP 5: CURRENT LAND USE

ACKNOWLEDGEMENTS

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SOUTHERN WINDSOR COUNTY REGIONAL PLANNING COMMISSION

VERMONT AGENCY OF TRANSPORTATION

VERMONT EMERGENCY MANAGEMENT

VERMONT AGENCY OF NATURAL RESOURCES

FEDERAL EMERGENCY MANAGEMENT AGENCY

NATIONAL WEATHER SERVICE

1. INTRODUCTION

The goal of this stand-alone Local Hazard Mitigation Plan is to help the community identify risks and provide local mitigation strategies it can take to make Baltimore more disaster resilient.

What is Hazard Mitigation?

Hazard mitigation is an action taken to reduce or eliminate the long-term risk to human life and property from both natural and man-made hazards. The work done to minimize the impact of hazard events to life and property is called Hazard Mitigation Planning.

2. PURPOSE

The Federal Emergency Management Agency (FEMA), the Vermont Division of Emergency Management (VEM) and local towns have come to recognize that it is less expensive to prevent disasters than to repeatedly repair damage after a disaster has struck. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where the hazards are most severe, what is most likely to occur and identify what local actions can be taken to reduce the severity of the hazard and reduce their impacts on the community.

Hazard mitigation planning and strategies include the following benefits:

- structural or land improvements
- increased public education and awareness of hazards
- altering the hazard area to remove the hazard occurrence
- reducing the hazard frequency through structure or land treatment
- increased community support for specific actions to reduce future losses
- reduction in financial and physical losses caused by hazard events
- eligibility for hazard mitigation grants and aid
- strengthened partnerships

The Town of Baltimore Local Hazard Mitigation Plan is a stand-alone plan to assist the town in identifying hazards within the town and identify strategies to reduce or eliminate these hazard risks.

Previously, the Town of Baltimore All Hazard Mitigation Plan was an annex to the Southern Windsor County Regional Planning Commission Multi-Jurisdictional All Hazard Mitigation Plan. The updated plan is intended to serve as a 'stand-alone' plan for the Town of Baltimore and will focus on the hazards and mitigation programs best suited for the town.

A partial list of revisions that have been made include:

- Reorganization/restructuring of the plan
- Revaluation of hazards using new methodology
- Update of data, tables and charts
- Review and update status of mitigation strategies
- Identification of current mitigation strategies
- Maps

3. TOWN PROFILE

The towns of Weathersfield, Springfield, Chester, and Cavendish surround the town of Baltimore. The town consists of approximately 3,000 acres of woodland, pasture, homes, and rural farms. The land that is now the town of Baltimore was once part of the town of Cavendish. Hawks Mountain created a natural division between the two parts of town. Baltimore broke away from Cavendish by an act of the legislature in 1793.

In 1795 there was no road connecting the northern and southern parts of the Town. Baltimore currently has only dirt roads, with one main road called Baltimore Road. The town is nestled in the southeastern face of Hawks Mountain. The land is a mix of open pastures, woodland, and residential development.

The climate is generally temperate with moderately cool summers and cold winters; as in the rest of Vermont. Average annual precipitation is around 40 inches, and snowfall generally ranges from a minimum of 70 inches to as much as 200 inches in the Green Mountains. The weather is unpredictable, and large variations in temperature, precipitation, and other conditions may occur both within and between seasons.

Elevations in town rise to a high point of 2,092 feet at the summit of Hawks Mountain near the Baltimore town line.

The U.S Census Bureau indicates a 2010 population of 244, resulting in a -2.4% percent growth rate since the 2000 census. This is lower than the -1.3% percent growth rate for Windsor County and lower than the 2.8% growth rate for the state during the same period. The negative growth rate coupled with adopted regulatory tools help prevent future development in identified hazard areas. Several large tracts of land in Baltimore are owned by a small percentage of residents. There is some development potential if these large tracts were subdivided and built on. Currently, although a decrease in development has occurred, mitigation priorities remain unchanged. There has been no development since the adoption of the previous Plan that impacts vulnerability, and therefore vulnerability has remained the same.

The ongoing growth and expansion of Okemo Mountain Resort and other ski areas may put some development pressure on the town of Baltimore. In light of this development pressure, the residents of Baltimore have expressed a desire to maintain traditional patterns of development in the town.

4. PLANNING PROCESS

The local planning process used to develop this hazard mitigation plan follows guidance by the Federal Emergency Management Agency (FEMA) and the Vermont Division of Emergency Management and Homeland Security (DEMHS). Beginning in the spring of 2017, Southern Windsor County Regional Planning Commission (SWCRPC) staff reviewed the 2013 Baltimore All Hazard Mitigation Plan, which at the time was an annex to the 2012 Southern Windsor County Regional Planning Commission Multi-Jurisdictional All Hazard Mitigation Plan to identify key areas for updates. The State of Vermont also

recently adopted an updated Hazard Mitigation Plan in November of 2013 (Vermont HMP 2013), which was consulted during this update.

Previously, the Town of Baltimore All Hazard Mitigation Plan was an annex to the Southern Windsor County Regional Planning Commission Multi-Jurisdictional All Hazard Mitigation Plan. This updated plan is intended to serve as a 'stand-alone' plan for the Town of Baltimore and will focus on the hazards and mitigation programs best suited for the town.

4.1 PUBLIC PROCESS

The Town of Baltimore in partnership with the Southern Windsor County Regional Planning Commission established a plan of completion for the Baltimore Local Hazard Mitigation Plan which included public meetings to discuss and complete the following:

- Complete hazard analysis and hazard extent
- Review hazard history and identify additional data to be included
- Review plan and identify mitigation strategies to address each high hazard
- Review past completed or on-going mitigation projects and actions
- Identify new mitigation projects and actions

4.2 PLAN UPDATE PROCESS

On June 15, 2017, SWCRPC staff met with the Baltimore Hazard Mitigation Committee to begin the town process for this plan.¹ Participants discussed the purpose and timeline for updating the plan and groups/individuals that should be invited to meetings and made aware of the plan update. Most were familiar with the process, as the previous plan had been adopted only a few years prior. Changes discussed with the Town included new grouping of some hazards, new identified hazards, and new methodology for assessing and scoring each hazard which is described below in Section 5.1- Hazard Identification and Analysis. Attendees of the meeting collaborated in creating the hazard analysis seen in **Table 2: Hazard Identification and Analysis**. Hazards scoring below a 7 are identified but *not covered* in this plan. The reader is directed to the State Hazard Mitigation plan for these hazards. A brief discussion on why they are not included in this plan follows the analysis.

SWCRPC staff began the process of writing the new plan update by reviewing and updating hazard data used in the previous version of the Hazard Mitigation Plan. Revisions include updates to the town profile section; all data charts, tables and maps; incorporation of hazard events that occurred since the last plan revision, and integration of new relevant reports and documents, and the Town of Baltimore-Flood Hazard Area Regulations.

Further publicly noticed Hazard Mitigation Committee meetings were held on July 13, 2017, August 31, 2017, October 19, 2017 and June 28, 2018. Participants at the 13 of July meeting reviewed and revised the 2017 Hazard Analysis scoring methodology, and reviewed the Town Plan and other relevant policies.

¹ See Sign-in sheet and agenda

Participants also reviewed past completed or on-going mitigation projects and actions and compiled a new list combining the previous and new strategies.² The 31 of August meeting opened with a review of the then current draft of the Plan, paying particular attention to the Hazard Analysis section (5.2). Then, those present discussed the prioritization of mitigation strategies and established a maintenance process for the plan.³ No members of the public attended the meetings.

Following the draft completed by SWCRPC, a publicly noticed meeting was held at Baltimore Town Hall on October 19, 2017⁴. The meeting opened with a review of the prior plan and major changes in the update. Those present, including members of the Town Hazard Mitigation Committee, discussed the current status of each of the Hazard Mitigation and Preparedness Project and Actions identified in the previous plan (see **Table 1** below), updated the list of Resources for Hazard Mitigation (see **Section 6**), and discussed recovery projects from Tropical Storm Irene, other current mitigation efforts and foremost hazard concerns. On November 2, 2017 the draft plan and a call for review and comments was sent to neighboring communities. The request was specifically sent to all Town Clerk's and asked for forwarding to appropriate review party. The request also specifically stated comments should be sent via phone or email to SWCRPC, with contact information provided. 30 days after the plan was sent no comments had been received from the adjacent communities. After the October meeting, and subsequent neighboring community comment period, the initial draft of the plan was sent to VEM for comments. The SWCRPC and the Town Hazard Mitigation Committee reviewed and addressed the comments, as well as involving neighboring communities in reviewing the draft plan, at the June 28, 2018 meeting.

As part of the process in determining mitigation strategies, the group reviewed and incorporated mitigation ideas from the FEMA Mitigation Ideas guidebook, the State of Vermont Hazard Mitigation Plan, Baltimore 2013 Annex Plan, and earlier planning discussions. New goals, objectives and potential future actions were identified, discussed, and prioritized, based on need, feasibility, cost/benefit and effectiveness in reducing hazard impact. The Hazard Mitigation Committee followed up with a meeting to consolidate this input and determine a list of specific goals and associated objectives and actions for this update which are identified in **Section 6**.

SWCRPC incorporated input from these meetings into a revised draft plan which was submitted to the Hazard Mitigation Committee for review and comment prior to their meeting on October 19, 2017.⁵ Member comments were discussed and incorporated into the draft. This revised draft plan was distributed to the members of the Baltimore Selectboard and Hazard Mitigation Committee for review on July 9, 2018. An electronic copy was posted on the town and SWCRPC websites and a hard copy of the plan was advertised and made available at the town office for public review and comment. Instructions included contacting Allison Hopkins at SWCRPC by phone or email, email address was provided. No comments were received from the website postings.

Input was solicited by SWCRPC staff through meetings, email and digital postings in order to reach as many members of the community as possible including members of the Baltimore Planning Commission,

² See Sign-in sheet and agenda

³ See Sign-in sheet and agenda

⁴ See Sign-in sheet

⁵ See Sign-in sheet

Selectboard, Emergency Management Director, Springfield Fire, town personnel, and members of the Baltimore public and surrounding towns. The meeting agendas included a section by section review of the previous plan with an emphasis on identifying the highest hazards facing the town and mitigation actions specific to the town. The previous version of the Baltimore Hazard Mitigation Plan annex, Baltimore Town Plan, a draft plan from a neighboring town, and the recently updated SWCRPC Regional Plan, were provided as examples to facilitate the discussion.

Participants were given an opportunity to voice their concerns and discuss areas of town most likely to be affected by these hazards, and comment on future goals and mitigation strategies that may be undertaken to reduce the risk of future harm and cost to the town. Changes in priorities, development, and local mitigation efforts were also considered throughout the revision process. The implementation schedule at the end of this document in **Table 4**, reflects the **2017-2022 Mitigation and Preparedness Actions and Projects** as determined during this process. Following the meetings, SWCRPC staff made the revisions and drafted a new, updated plan which is available for review at the Baltimore Town Office and posted on the SWCRPC website (www.swcrpc.org). The final adopted Baltimore Local Hazard Mitigation Plan will also be posted on the SWCRPC and town websites and available at the Baltimore Town Offices.

Table 1 lists the mitigation and preparedness actions and projects from the previous 2013 Multi-Jurisdictional All Hazard Mitigation Plan for Baltimore. Mitigation actions, listed in order of priority set at that time, are shown here with an additional column to indicate the status of each as identified by the Town. Some of these action items have not been implemented or have been reevaluated and/or carried over to the 2017-2022 Projects and Actions in **Table 4, Section 6.3**. As a result, certain mitigation priorities have changed since the last planning period, while others have remained the same.

The following projects are completed annually and remain a regular priority for the Town:

- Complete annual culvert upgrade based on inventory
- Conduct annual maintenance program on ditches
- Develop procedures and planning for pre-winter activities
- Develop an action plan for removing high risk trees from along power lines
- Maintain a LEOP

The following projects have been completed since the last planning period and are no longer a priority for the Town:

- Continued stone lining of drainage ditches – in accordance with VTrans guidelines
- Conduct hydraulic studies to assess the locations of undersized culverts
- Coordinate with electrical providers to develop strategies to limit the loss of power
- Review 2011 Commodity Flow Study to assess hazardous materials vulnerability
- Install back-up power supply for town critical facilities

The following projects are ongoing and/or have not yet been completed. They remain a priority for the Town:

- Install additional dry hydrant (from 2006 Annex B)

- Maintain standing with National Flood Insurance Program
- Make available 'Firewise' practice materials to interested residents

The Following projects were not completed since the last planning period and are no longer a priority for the Town. Due to cost, feasibility, or jurisdiction, they have not been carried over to the 2018-2023 Projects and Actions listed in **Table 4, Section 6.3.**

- Conduct an engineering study to identify the vulnerability of critical facilities to earthquake, high winds, and snow load (removed due to costs)
- Encourage the installation of tie-downs for external features on new and renovated structures (removed due to feasibility)
- Tie down mobile homes within Baltimore (removed due to jurisdiction)

Table 1: Status of Actions and Projects in Prior 2013 All Hazard Mitigation Plan for Baltimore

ACTION	TYPE OF ACTION	HAZARD ADDRESSED	RESPONSIBLE PARTY	TIME FRAME	FUNDING SOURCE	STATUS
Complete annual culvert upgrade based on inventory	Mitigation	Transportation Disruption, Flooding	Selectboard, Road Foreman	Annual	Town funds, VTrans Structures Grant, HMGP	COMPLETED
Continued stone lining of drainage ditches	Mitigation	Transportation Disruption, Flooding	Selectboard, Road Commissioner	2012-2014	Town budget, HMGP grant	COMPLETED In the Summer 2017
Install additional dry hydrant (from 2006 Annex B)	Mitigation, Preparedness	Structure Fire, Wildfire	Selectboard, Springfield Fire Department	2013-2015	HGMP grant, Dry Hydrant grant program	NOT COMPLETED REFINED AND ADDED TO TABLE 4
Conduct annual maintenance program on ditches	Mitigation, Preparedness	Transportation Disruption, Flooding	Road Commissioner, Selectboard	Annual	Town budget, VTrans grants	COMPLETED BY SECTIONS
Conduct an engineering	Mitigation	Earthquake, Severe Winter	Selectboard	2015-2016		NOT COMPLETED

study to identify the vulnerability of critical facilities to earthquake, high winds, and snow load		Weather, High Winds			HMGP grant	CHOSE NOT TO INCLUDE DUE TO COSTS
Encourage the installation of tie-downs for external features on new and renovated structures	Mitigation	High Winds	Planning Commission	Annual, Ongoing	No cost	NOT COMPLETED NOT INCLUDED DUE TO FEASIBILITY
Develop procedures and planning for pre-winter activities	Preparedness	Severe Winter Weather	Road Commissioner	2012-2013	No cost	COMPLETED annually and added to table 4
Maintain standing with National Flood Insurance Program	Preparedness	Flooding	Selectboard, Zoning Administrator	Ongoing	No cost	COMPLETED AND ADDED TO TABLE 4
Develop an action plan for removing high risk trees from along power lines	Mitigation	Severe winter weather, high wind events, power loss	Selectboard, tree warden, CVPS	2012-2014	No Cost	COMPLETED Annually and added to table 4
Conduct hydraulic studies to assess the locations of undersized culverts	Mitigation	Transportation Disruption, Flooding	VTrans, Road Commissioner, Selectboard	2012-2016	Town Budget, HMGP, VTrans Structure Grants	COMPLETED AT SAME TIME AS INSPECTION
Maintain a BEOP	Preparedness Mitigation	All Hazards	Emergency Management Director, Selectboard	Annually	No Cost	COMPLETED AND ADDED TO TABLE 4
Coordinate with electrical providers to develop strategies to limit the loss of	Mitigation	Severe winter weather, high wind events, power loss	Selectboard, Tree Warden, CVPS	2012-2015	No Cost	COMPLETED

power						
Review 2011 Commodity Flow Study to assess hazardous materials vulnerability	Preparedness Mitigation	Hazardous Materials	Selectboard, Springfield Fire Department	2013-2014	No cost to town	COMPLETED
Provide 'Firewise' practice materials to home and property owners	Mitigation	Structure Fire, Wildfire	Selectboard, Emergency Management Director, Town Office	2013-2015	No cost to town	NOT COMPLETE; ADDED TO TABLE 4
Tie down mobile homes within Baltimore	Mitigation	Earthquake, High Wind, Flooding	Selectboard	2014-2017	HMGP grant	NOT COMPLETED AND NOT ADDED TO TABLE 4 DUE TO JURISDICTION
Install back-up power supply for town critical facilities	Preparedness Mitigation	All Hazards	Selectboard, Emergency Management Director	2013- 2016	DEMHS Generator Grant	COMPLETED FOR THE TOWN OFFICE

The following plans, studies, reports, and technical information was consulted during the preparation of this plan:

- Vermont Hazard Mitigation Plan. Adopted November 2013.
- FEMA Mitigation Ideas Guidebook. Adopted January 2013.
- Southern Windsor County Regional Planning Commission Multi-Jurisdictional All-Hazard Mitigation Plan with Baltimore, VT Annex. Adopted October 12, 2012.

4.3 PLAN MAINTENANCE PROCESS

The future method for monitoring and evaluating the Baltimore Local Hazard Mitigation Plan is discussed in detail here after agreement from appropriate parties occurred. A meeting will be held of the identified Hazard Mitigation Review Committee in partnership with the Baltimore Selectboard on a biennial schedule based on plan adoption date. The purpose of these meetings will be to formally note status or progress in implementing strategies and evaluate current plan. An opportunity to provide public input will also be scheduled for all of the meetings. These efforts will be coordinated by the Assistant Town Clerk, Emergency Management Director and Selectboard representative. An effort will be made to involve representatives from the Planning Commission, Springfield Fire Department, EMD

and current Hazard Mitigation Committee, along with local volunteer boards and interested members of the public.

Additional outreach will continue to garner input from community members which have not been included in previous hazard mitigation planning efforts. The Town of Baltimore and SWCRPC recognize the importance of public participation in hazard mitigation planning and will continue to provide opportunities for public comment and review during future plan revisions and updates.

The Hazard Mitigation Committee, with assistance from SWCRPC, will be responsible for monitoring this plan to assess whether the goals of the plan are being achieved, to ensure that progress is made on identified mitigation actions, and that resources and funding opportunities are sought. To accomplish this, the Hazard Mitigation Committee has included the following action items to formalize the process for monitoring and evaluating the Hazard Mitigation Plan. This may include the following tasks following plan adoption:

- Coordinate responsible parties to review adopted plan action items and implementation process.
- Meet as a committee on a yearly schedule to review and assess progress on the plan.
- Outline chronological tasks and timeline for implementing each action.
- Confer with SWCRPC to compile a comprehensive list of all available funding opportunities.
- Seek guidance on matching funding options with the Town's mitigation plan.
- Request assistance with grant applications where appropriate.
- Whether progress had been made toward each goal with the implementation of at least one associated action item as identified in **Table 4**, and
- Percentage of strategies fully implemented compared to prior plan period following adoption of plan. Over the prior plan period, over **60%** of identified strategies were fully implemented.

Four years into the five year plan revision process, the SWCRPC and Local Emergency Planning Committee 3 (LEPC3) will assist the Baltimore Hazard Mitigation Committee in revising and updating this plan to incorporate issues which have been identified during the ongoing mitigation meetings. The Baltimore Local Hazard Mitigation Plan update process will begin in December 2021 assuming a February 2018 plan adoption, with the first public meeting of the Hazard Mitigation Committee. All public meetings will be warned following town protocols.

Following the meeting, a draft plan will be made available for public comment. The plan will be available on the SWCRPC website www.swcrpc.org, Baltimore town website <http://www.Baltimorevt.com/>, and paper copies will be available at the town office. A second publicly warned meeting will be held no later than March 2022 in which any substantial revisions gathered during the public input period will be discussed. The SWCRPC will make all necessary edits to the plan and provide the Hazard Mitigation Committee with a revised version for final review. Subsequently, the plan will be sent to the Vermont State Hazard Mitigation Officer for referral to FEMA for Approval Pending Adoption (APA). Following APA, the town may then adopt the Baltimore Local Hazard Mitigation Plan and forward a copy of the adoption resolution for FEMA to complete the plan approval and adoption process.

4.4 PLAN INTEGRATION PROCESS

It is the intent of the town, once this plan is formally approved by FEMA, to incorporate recommended mitigation strategies in the town's future planning activities and planning resources as indicated in **Table 3: Existing Baltimore Resources for Mitigating Hazards** under 'Opportunities for Improving Effectiveness'. The Baltimore Hazard Mitigation Committee will encourage the assimilation of hazard mitigation strategies by providing guidance through cross-board communication in the development and implementation of updates to the Town Plan, Local Emergency Operations Plan, annual capital budget planning, road standards and maintenance programs, and in the update of town bylaws and ordinances. Additionally, SWCRPC will assist the Town of Baltimore in incorporating hazard mitigation, in general, and these specific mitigation actions, in particular, into the next Town Plan rewrite.

It is anticipated that formal and effective communication on the implementation of these mitigation actions, as proposed under Plan Maintenance Process in Section 4.3, will not only help to ensure their completion but will serve to increase awareness of the importance of mitigation, as well as preparedness, in dealing with natural hazards.

5.0 RISK AND VULNERABILITY ASSESSMENT

The following assessment addresses the Town of Baltimore's vulnerability to all of the hazards identified by the Hazard Mitigation Committee during the hazard analysis. The likelihood of occurrence and impact to the town were used to assess the town's vulnerability to each hazard.

5.1 HAZARD IDENTIFICATION AND ANALYSIS

A hazard vulnerability assessment for the town began with an inventory of all possible hazards, both natural and man-made. The assessment considers the frequency of occurrence, the anticipated amount of warning time and potential impact to the community of each hazard to determine the relative risk each poses. The ranking methodology used for the analysis ranked the frequency of occurrence, warning time, and potential impact on a scale from 1 to 4, as detailed below the table. A new addition of Probability over the Plan Cycle rounds out the final hazard score. The overall final hazard score provided is a sum of these scores. Due to limited personnel resources, the Hazard Mitigation Committee agreed to concentrate mitigation efforts for this plan on the most critical hazards which scored a eight, or greater, in the Hazard Analysis below. This is a change from the process used in the previous plan. Some hazards were identified as low vulnerability and rare occurrence to the town during this update process. These hazards, which scored below eight, are not covered in this plan but may still occur. The results of this analysis is shown in **Table 2: Baltimore Hazard Identification and Analysis** on the next page. A discussion of each of these hazards is given in the proceeding subsections including regional and local data records with a narrative description and its historical impact on Baltimore.

Table 2: Baltimore Hazard Identification and Analysis

Hazard	Frequency of Occurrence	Potential Impact	Warning Time	Hazard Score	Probability of Occurrence over Plan Cycle	Final Hazard Score
Flood/Fluvial Erosion	2	1	1	4	1	5
Severe Weather (Thunderstorm, Lightning, High Wind, Micro/Marco Bursts)	4	2	3	9	3	12
Hail Storms	2	1	3	6	1	7
Landslide	1	1	4	6	1	7
Hurricanes/Tropical Storms	2	1	1	4	1	5
Wildfire	2	1	4	7	1	8
Extreme Temperatures	1	1	1	3	2	5
Structure Fire	3	2	4	9	2	11
Dam Failure	N/A					
Ice Jams	N/A					
Drought	2	2	4	8	2	10
Earthquake	1	1	4	7	1	7
Tornado	1		4	6	1	

		1				7
Severe Winter Weather	4	1	1	6	3	9

*Note: We have defined 'Severe Weather' to include two or more of the above hazards.

METHODOLOGY

Frequency of Occurrence: Probability

- 1 = Unlikely <1% probability of occurrence in the next 100 years (less than 1 occurrence in 100 years)
- 2 = Occasionally 1–10% probability of occurrence per year, or at least 1 chance in next 100 years (1 to 10 occurrences in 100 years)
- 3 = Likely >10% but <100% probability per year (at least 1 chance in next 10 years)
- 4 = Highly Likely 100% probable in a year (an annual occurrence)

Probability of Occurrence over Plan Cycle (5 years)

- 1 = Unlikely
- 2 = Occasionally
- 3 = Likely

Warning Time: Amount of time generally given to alert people to hazard

- 1 = More than 12 hours
- 2 = 6–12 hours
- 3 = 3–6 hours
- 4 = None–Minimal

Potential Impact: Severity and extent of damage and disruption

- 1 = Negligible Isolated occurrences of minor property damage, minor disruption of critical facilities and infrastructure, and potential for minor injuries
- 2 = Minor Isolated occurrences of moderate to severe property damage, brief disruption of critical facilities and infrastructure, and potential for injuries
- 3 = Moderate Severe property damage on a neighborhood scale, temporary shutdown of critical facilities, and/or injuries or fatalities
- 4 = Major Severe property damage on a town-wide or regional scale, shutdown of critical facilities, and/or multiple injuries or fatalities

5.2 DETAILED HAZARD ANALYSIS

While the town may be affected by many hazards, the detailed hazard analysis and potential loss estimates listed in this plan have been identified as having a 'high' likelihood of occurrence within Baltimore. The community has identified and chosen to focus mitigation action items on the following hazards: Severe Weather (thunderstorm, lightning, high wind, micro/macro bursts), wildfire, drought, severe winter weather and structure fire. These are the hazards that are more common in Baltimore and the Town has chosen to develop mitigation actions around.

All the hazards identified in the state hazard mitigation plan were considered. Several of the hazards were studied in depth. The Committee decided it is not feasible to study each in depth again as many of the hazards were considered unlikely or rare. Those hazards that are not considered in the local plan may have been profiled in the State Hazard Mitigation Plan. The town may choose to address them in the future. The hazards not addressed in this plan update along with the justification for not including them are outlined here:

Hazard Not Profiled	Justification
Flood/Fluvial Erosion	Only small brooks. Historically no events. Not a concern for the town.
Hail Storms	Historically not an issue. Generally small in diameter.
Extreme Temperatures	The Committee agreed that extreme temperatures are a non-issue because they are brief in duration, if they occur at all. They are a way of life in Baltimore and not a concern.
Dam Failure	There are no dams in Baltimore. This is not an issue for the town and causes no concern.
Hurricanes/Tropical Storms	The Town is too far north from the Atlantic coast. Vermont does not have any coastline. Baltimore is especially protected due to its elevation.
Ice Jams	There are no rivers in town. Ice Jams are not a risk.
Invasive Species	Considered rare. Town would rely on state to assist individuals and commercial ag producers in mitigation and response to invasive outbreak.
Earthquake	Incredibly low occurrence in Baltimore and low magnitude on the Richter Scale. Not a concern in town.

Rockslide/Landslide

Historically have not occurred in Town. No areas where rockslides are an issue.

I. Severe Weather (Thunderstorm, Lightning, High Wind, Micro/Macro Bursts)

Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground⁶. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. As lightning can strike up to 50 miles away from a thunderstorm, can carry up to 100 million volts of electricity, and can reach temperatures upward of 50,000 degrees Fahrenheit it proves extremely hazardous to human life. Lightning can also damage infrastructure, plants, and property, and can start forest fires. Lightning is the most unpredictable weather-related event. Although there are no historical records on the impact of this hazard, a combination of a severe lighting storm during a severe drought or dry spring conditions can ignite wildfires which can be devastating. According to the National Weather Service, lightning is the first thunderstorm hazard to arrive and the last to leave.

High wind events are infrequent events in the Town of Baltimore; therefore, there is an acknowledged lack of previous occurrence data. That said, it is important to note that the entire town is equally at risk from the threat. High wind events can down numerous trees within minutes. Resulting in falling limbs and/or trees with vulnerabilities to power loss, telecommunications loss, structural damage, crop damage, residential and seasonal homes, public building, and utilities.

High winds can result from hurricanes, tropical storms, summer thunderstorms, and tornadoes. The 2013 Vermont Hazard Mitigation Plan does not delineate high winds as a separate hazard, the plan states *'high winds pose a threat to the safety of Vermont's citizens and property.'* The National Weather Service issues wind advisories when sustained winds of 31-39 miles per hour are reached for at least one hour or gust between 46-57 miles per hour. In Vermont, high winds are most often seen accompanying severe thunderstorms. In fact, straight-line winds are often responsible for most of the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. The Beaufort Wind Scale **shown below** can be used to predict damage based upon wind speeds.

⁶ NOAA.gov

Beaufort Scale

Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

In Baltimore, the most common issues associated with high winds are the combination of heavy snowfall and high wind. These two circumstances combine to create widespread drifting along most north/south roads in town. There are two different transmissions in town and users are not effected equally. Power failure is a common occurrence on the line that extends east, with frequent interruptions of power. Service has been interrupted most recently ranging from a loss of a couple of hours extending to several days.

Damage from summer thunderstorms in Baltimore has been historically limited in both scope and cost. **Thunderstorms** are caused by an updraft, which occurs when warm, moist air rises vertically into the atmosphere. The updraft creates a cumulus cloud, which will eventually be the thunderstorm cloud. Severe thunderstorm winds are brief in duration and bring gust in excess of 50 mph. Severe thunderstorms are capable of producing high winds, large hail, lightning, flooding, rains, and tornadoes.

Damaging wind from thunderstorms is much more common than damage from tornadoes. In fact, many confuse damage produced by "straight-line" winds and often erroneously attribute it to tornadoes. The source for damaging winds is well understood and it begins with the downdraft. Downbursts are defined as strong winds produced by a downdraft over a horizontal area up to 6 miles (10 kilometers). When the downdraft hits the ground, the air is forced to spread outwards in all directions, causing extremely powerful and damaging winds to fan out in all directions. Downbursts are further subdivided into microbursts and macrobursts.

Microbursts are downdrafts from thunderstorm that may reach speeds in excess of 80 mph. (State of Vermont Hazard Mitigation Plan 2013). Microbursts last for about five minutes. Because of their extremely fast winds, incredible wind shear and relatively small size, microbursts prove hazardous to aircraft and have been the cause of tragic airplane crashes⁷.

⁷ FAA: http://lessonslearned.faa.gov/ll_main.cfm?TabID=1&LLID=32&LLTypeID=2

Conversely, downbursts that span greater than 2.5 miles in radius are called *macrobursts*. Macrobursts can last nearly half an hour and produce wind speeds in excess of 130 mph. According to NOAA, macrobursts can produce wind damage comparable to and EF-3 tornado.

Impact and Geographic Area of the Hazard

The Town has experienced a variety of strong thunderstorm systems that develop that track from the West and from Canada. Typically, high winds accompany strong thunderstorms. Lightning is a typical accompanying hazard. Micro bursts with high wind speeds and high precipitation accumulations over brief periods often down trees and branches and power lines and can overwhelm local drainage networks for brief periods. There are rare instances where lightning has caused barn fires and grass fires during dry periods. Power outages may occur resulting in significant loss of business as well as threatening public safety. Cleaning up debris following high wind events can be costly depending on the severity of the event.

There are no loss estimates for lightning because it is extremely difficult to predict where the event will occur and the type of associated structural damage. Damages could come in the form of destroyed electrical appliances, structure fires, or wildland fires. Death or serious injury could occur to individuals exposed to lightning. Private properties in neighboring communities, such as Chester, have experienced residential lightning strikes. High elevations and areas around bodies of water such as lakes and ponds are more susceptible. Baltimore's road crew is equipped with some minimal associated debris removal equipment like a chainsaw, chipper and truck.

Extent / Probability

There have been 137 severe thunderstorm events in the County since 1980 according to the National Climatic Data Center. Of those, 83 are classified as severe thunderstorms with wind speeds of 50 kts or greater. Severe thunderstorms can cause power outages, property damage, transportation interruptions, affect businesses and can cause loss of life. Micro bursts with high wind speeds and high precipitation accumulations over brief periods often down trees and branches and power lines and can overwhelm local drainage networks for brief periods. Microburst have occurred more frequently in the past 10 years according to project participants.

Lightning strikes in Windsor County average between 4-6 strikes per square mile each year based on data collected by NASA satellites between 1995 and 2002. There is very little data on lightning strikes in Town. In neighboring towns there have been instances where lightning has caused barn and house fires and grass fires during dry periods.. Private property in neighboring town, Chester, has recently experienced lightning strikes. Higher elevations and lake shore areas are more susceptible. Lightning is the most unpredictable weather-related event.

Loss estimates for lightning are difficult to ascertain because it is extremely difficult to predict where the event will occur and the type of associated structural damage. Damages could come in the form of destroyed electrical appliances, structure fires, damaged roofs, damage vehicles, or wildland fires. Death or serious injury could occur to individuals exposed to lightning.

Past Occurrences

- Damaging lightning strike within the last 20 years that heavily impacted a local Baltimore dairy operation. Loss of majority of milking herd.

- Repeated power outages on 1 transmission line from high wind events.
- Microburst in 2014 years sheered ½ mile of pines on Hawks Mountain.
- Macrobust in 2009 years impacted over 2.5 miles of sugarbush.

II. Wildfire

Wildland Fires, which include forest, brush, crop or grassland fires, are relatively uncommon events in the State of Vermont, particularly large wildfire events. A wildfire is defined as ‘*An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.*’⁸

The State Hazard Mitigation Plan’s analysis of wildfire threat states that “*Wildfire conditions in Vermont are typically at their worst either in spring when dead grass and fallen leaves from the previous year are dry and new leaves and grass have not come out yet, or in late summer and early fall when that year’s growth is dry*”.

In addition to precipitation, a particular town’s vulnerability to large wildfires is directly related to the proportion and continuity of acreage that is forested, pasture and cropland. In Baltimore, this represents over 95% of total town land cover. Wildfire typically comes in the form of grass fires. Forest fires are rare however the fuel potential for large fires exist. Grass fires occur in spring and early summer as fields are cleared of fall and winter debris. It can be anticipated that small brush and wildfires will continue to occur throughout the Town of Baltimore at a similar rate in coming years, however, given the current land cover and correct seasonal conditions the threat of a large wildfire remains.

Both structure fires and wildfires are reported in the annual Vermont State Fire Marshal report which provides yearly fire statistics from reporting departments and by county. Note that mutual aid is included under total responses which is significantly higher than the number of fire incidents occurring in the Town of Baltimore.

Impact and Geographic Area of the Hazard

An assessment of town structures vulnerable to structural fire would be based on age and proximate location to other high risk structures. Community assets are not particularly vulnerable to wildfires as they are typically located in town centers and away from large tracts of forested and vegetative land. However, with expectations of more frequent drought conditions and increased wildfire risk, the town will plan to use available resources, like Firewise programs, to educate community on how to minimize the risk of brush and wildfires and to issue dry weather alerts when the risk wildfire is high.

Firewise, a community outreach program through the National Fire Protection Association provides guidance, resources, and training on protecting homes and property from wildfire hazards. The Firewise website (www.firewise.org) is an excellent resource for literature and

⁸ 2013 Vermont Fire Marshal Annual Report

community mitigation actions. Also, the Annual Fire Marshal Report offers informational resources for municipalities and property owners on fire safety.

Extent / Probability

Throughout Baltimore, there are large tracks of forested land that could be at risk during sustained dry periods. The entire Town has minimal wildfire protection due to the on-call basis of the Fire Department. The potential for wildfire increases with the increase of fuel loads. Structures in forested areas without adequate fire breaks are difficult to access due to their remote nature, and are more susceptible than others. A wildfire complex similar to what occurs in Florida, Texas, and western states during dry periods, has not occurred in the Town.

Fire assistance is provided to protect people, property, and natural resources from uncontrolled wildfire events by working with town Forest Fire Wardens, regional partners, and federal agencies. A report from the *2015 Spring Fire Season Summary* published by the *Vermont Department of Forests, Parks, and Recreation* provided Fire Statistics below for the State of Vermont which indicates that the average number of acres burned per wildfire incident over a 10 year period (2005-2014) was 2.2 acres. Using this average to estimate the extent of wildfire hazard for Baltimore would give an annual loss of about 9 acres. This can be compared with large fire activity in the spring of 2015 including a 26-acre forest fire in Andover caused by a re-kindled brush fire; a 47-acre forest fire in Brattleboro, sparked by a downed powerline; and a 137-acre forest fire in Norwich, also caused by a downed powerline. These incidents occurred during a moderately dry spring for Windsor County when red flag warnings were issued by the National Weather Service.

Fire Statistics

	2015 Fire Statistics		10-Year Average 2005-2014	
<i>Official reports – reports have been verified by warden or FPR</i>				
	#Fires	#Acres	#Fires	#Acres
March	2	1	9	29
April	38	50	62	142
May	51	284	19	30
Year to date	91	335	90	201

2015 Spring Fire Season Summary/Vermont Dept. of Forests, Parks and Recreation.

Although wildfire incidents in Baltimore have been low in recent years, the probability of occurrence remains high, particularly with the projection of more extreme temperatures due to climate change. With expectations of more frequent drought conditions and increased wildfire risk, the town will plan to use available resources to educate community on how to minimize the risk of brush and wildfires and to issue dry weather alerts when the risk of wild fire is high.

Past Occurrences

- 1957 – major wildfire “burned over” Hawks Mountain. Burned for a week and required National Guard, nearby fire departments and countless volunteers.

III. Structure Fire

Structural fires were specifically identified as having one of the highest possible risk to the town, with a Hazard Assessment Score of 11, due to their high probability of occurrence, short warning time and potential for catastrophic loss. Structure fires are common throughout Vermont during the winter months as residents heat their homes with wood or wood pellet burning stoves. With little or no warning, these fires can affect a single residential structure or spread to other homes, or barns and can result in loss of property and life.

Structure fires can occur anywhere. There are wood frame buildings susceptible to structure fire scattered throughout the Town. Many of these buildings were built before modern fire-resistant construction materials and methods were developed. Some of the newer residences may have been built to state fire code standards. The risk of general property damage due to structure fire is highest at agricultural businesses with farm buildings often built close by each other and susceptible to fire passing from one structure to another.

In 2016 the Springfield Fire Department (mutual aid) responded to 1160 **total** calls, 2357 calls in 2015, 2111 calls in 2014 and 2134 calls in 2013. The Department has noted a steady increase in motor vehicle and fire related incidents each year.⁹

In Vermont, during 2016, there were 44,085 emergency incidents to which fire departments responded. National Fire Protection Association (NFPA) estimates show, while residential structure fires account for only 25 percent of fires nationwide, they account for a disproportionate share of losses: 83 percent of fire deaths, 77 percent of fire injuries, and 64 percent of direct dollar losses.

According to the 2013 Vermont Annual Fire Marshal Report, although the fire death rate in Vermont has improved significantly over the past few years, historically, it has been disproportionately high based on population. This is due, in part, to the large percentage of residents that live in small rural communities where emergency response time is delayed. Other characteristics of Vermont that lend toward greater loss from fire compared to other states are-

- 2nd highest percent of housing built before 1940
- 7th coldest state
- 2nd oldest median age where elderly are at higher risk
- 1st for per capita use of wood for heating

In 2013, Vermont reported a **total** of 2,739 incidences relating to structure and wildland (forest and brush) fires, 77% of which were structural fires. The leading cause of structure fires in Vermont are the result of heating incidents (39%) followed closely by cooking incidents (28%). Windsor County reported a total of 315 related fires, 73% of which were structure fires. Fires can be caused by improperly disposing of ashes with live coals from wood stoves or by faulty

⁹ 2016 Vermont Fire Marshal Annual Report

electrical wiring. The most significant common factor in fire fatalities in Vermont continues to be the absence of a functioning smoke detector in the sleeping area of residential structures.

While the fire problem varies across the country, there are several common contributing factors such as poverty, climate, education, code enforcement, demographics and other factors that impact the statistics. Like the rest of the country, heating appliance and cooking fires in Vermont continue to be the leading causes of structure fires¹⁰. The leading factor contributing to home heating fires was failure to clean creosote from solid fueled heating equipment chimneys. The long cold Vermont winters put added stress on heating systems. Furthermore, fluctuating fuel prices can force people to use alternative heating sources that may not be safe. An improperly installed and maintained heating appliance is dangerous and can result in carbon monoxide poisoning or be the source of a fire.

Impact and Geographic Area of the Hazard

Structure fires can occur anywhere. There are wood frame buildings susceptible to structure fire scattered throughout the Town. The Town Office is the only public building. Most buildings were built before modern fire-resistant construction materials and methods were developed. Most of the new residences have been built to state fire code standards. The risk of general property damage due to structure fire is highest at agricultural businesses with farm buildings often built close by each other and susceptible to fire passing from one structure to another.

Extent/Probability

In 2016 the Springfield Fire Department responded to 1160 total calls, 2357 calls in 2015, 2111 calls in 2014 and 2134 calls in 2013. The structure fires range from residential smoke alarms, chimney fires from wood stoves, garage fires, and grease fires in residential kitchens and full on structure fires. Wildland fire calls range from less than 1 acre to 5 acres in size. Agriculture emergencies, such as barn fires, pose a unique risk for first responders. Animal behavior and barn fire logistics must be considered during response. Many agricultural buildings store a variety of hazardous materials. Structures that are relatively close raise the risk for multiple structure fire.

Data to support the extent of fire hazards for Baltimore is not available, but can be estimated. 2014 data compiled by the National Fire Incident Reporting System (NFIRS) for Vermont shows in the table below, a total Estimated Dollar Loss Reported by Fire Departments of \$30,048,139 from 2,114 reported structure fires, which is an average of \$14,213 per fire incident. Applying this average to Baltimore structure fire reporting would estimate the extent of annual town loss of, approximately, \$71,000 based on a recent maximum of 5 structure fires.

Baltimore residents remain particularly vulnerable to structural fires, which are more likely to cause physical harm and damage to homes, because many of the residents heat their homes

¹⁰ 2016 Vermont Fire Marshal Annual Report

using wood or pellet burning stoves and other riskier means. More rural residents are at additional risk due to a higher fire response time. Vermont responders and fire inspectors, more often than not, find homes and other buildings that have outdated, inoperable smoke and carbon monoxide alarms. An inoperable or missing smoke alarm significantly increases the risk of not being able to escape. Additionally, a delay in detecting a fire prevents timely notification to the fire department resulting in more extensive damage to the property and a higher risk of injury. Enhanced efforts to inform residents of safe home heating and installation of smoke and carbon monoxide detectors is the most effective way to help mitigate this threat.

Past Occurrences

- 2 structure fires in the last 20 years
- Loss of 2 barn structures in last 25 years due to fire
- 2-3 chimney fires in the last 15 years

IV. Drought

Drought is defined as a water shortage with reference to a specified need for water in a conceptual supply and demand relationship.

Impact and Geographic Area of the Hazard

It is a complex phenomenon what is difficult to monitor and assess because it develops slowly and covers extensive areas, as opposed to other disasters that have rapid onsets and obvious destruction. Also unlike most disasters, the effects of drought can linger long after the drought has ended. It is an inherent, cyclical component of natural climatic variability and can occur at any place and any time. It is difficult to determine the onset, duration, intensity and severity of drought, all of which affect the consequence and mitigation techniques. High winds, low humidity and extreme temperatures can all amplify the severity of the drought.

There are no public water systems in Baltimore. There are a limited number of small private water systems that serve up to as many as two homes each. No direct costs to the town due to drought have been recorded.

Extent and Probability

The Vermont State Hazard Mitigation Plan identifies four types of drought:

1. *Meteorological Drought*: A reduction in rainfall from a normal precipitation pattern in regard to the amount, intensity or timing of the event as well changes in the temperature, humidity and wind patterns.
2. *Agricultural Drought*: Deficient moisture conditions that cause a lasting effect on crops and non-natural vegetation.
3. *Hydrological Drought*: The effects of decreased precipitation on surface or subsurface water supply.

4. *Socioeconomic Drought*: Occurs when the consequences of drought start to affect the socioeconomic sector.

Local knowledge indicates dry spells are periodic in nature and would be considered severe about every 10 years on the average.

According to the State Climatologist, the State of Vermont experienced extreme severe drought conditions over a three year period in 1963, 1964, 1965. In 1999, the state experienced drought conditions for 9 months from January through September that caused concern as reservoirs began to dry and crops became damaged. In 2002, most of Vermont was categorized as being in a moderate drought for several months and many farm water shortages were being reported to the state.

While rare in occurrence and relatively brief in duration, droughts have impacted residential and commercial water supplies, and commercial agriculture operations. A drought for extended periods could cause significant impacts to the economy particularly in the agricultural sector.

Past Occurrences

- In 2016 five homes had their residential water supplies affected by drought conditions.

V. Severe Winter Weather

Winter storms and blizzards, with snow, ice, and freezing temperatures in varying combinations, are fairly commonplace in Baltimore and occur town wide. Residents are generally equipped to handle this weather. It is when the winter weather becomes extreme that a hazard is created. Severe winter storms bring heavy snow loads, ice, damaging winds, dangerous wind chills, below zero temperatures, power outages, downed trees and power lines, collapsed roofs and buildings, stranded motorists and vehicles, and school closings. Heavy wet snows of early fall and late spring, as well as ice storms, can result in property damage and in loss of electric power, leaving people without adequate heating capability. Power loss is often the result of downed trees, which can also disrupt traffic and emergency response by making roads and driveways impassable.

A winter storm is considered severe when there is a possibility of:

- Six or more inches of snow fall at a given location within 48 hours,
- There is property damage, injuries or deaths, or
- An ice/glaze storm which causes property damage, injuries or death.

A nor'easter is a large weather system traveling from South to North, passing along, or near the Atlantic seacoast. As the storm approaches New England and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds impact the coast and inland areas from a northeasterly direction. The sustained winds may meet or exceed hurricane force. The Dolan-Davis Nor'easter Classification Scale is utilized to determine the severity of Nor'easters:

Blizzards are defined by the National Weather Service as "the following conditions are expected to prevail for a period of 3 hours or longer:

- Sustained wind or frequent gusts to 35 miles an hour or greater; and
- Considerable falling and/or blowing snow (i.e., reducing visibility frequently to less than ¼ mile)¹¹

Damage from blizzards can vary depending upon wind speeds, snow accumulation, storm duration, and structural conditions (such as heavy snow and ice accumulation on large, flat roofed structures). The assessed value of all residential and agricultural property in Baltimore is \$249,419,411¹². Assuming a range of town-wide damage of 1% to 5%, a heavy snow or ice storm could result in \$2.49 million to \$12.47 million of total damage.

Ice Storms are defined by the National Weather Service as “occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of ¼" or greater.”¹³

Ice storms have a significant impact on Northern New England, with high elevation locations being the most severely impacted. Multiple sources state that a ¼ inch of ice accumulation from an ice storm can add 500 pounds of weight on the lines between two power lines.

Wind chills can be life threatening. The wind chill temperature is how cold a person or animal feels when outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As wind increases, it draws the heat from the body through exposed skin and reduces the body’s skin temperature and eventually the body’s core temperature. Often times exposed skin can freeze within minutes of exposure.

Sensitive populations such as the elderly or handicapped may be susceptible to **extreme cold** when power is lost and life support systems run on electricity (versus gas or natural fuels). If power is lost, some populations may need to be relocated to areas with power so that medical equipment can function. Additionally, limited mobility of some persons may make it difficult to relocate in general or in times of emergencies. The Town encourages neighbors to check on those neighbors who they may believe to be at risk during times of emergency.

Impacts from this hazards can be reduced by using precautions and practicing preparedness measures such as staying off the snow and ice covered roads until they are cleared, having vehicles equipped with proper winter gear and snow tires, using moderation and resting when removing snow and cleaning up from a storm, keeping heating pipes cleared and well ventilated, keeping roofs clean of heavy snow/ice loads, checking on and helping the elderly and disabled residents of the community, and listening to the local weather forecast for storm updates. Participating in the free VTAlert system is highly encouraged and an important resource in emergency preparedness.

Impact and Geographic Area of the Hazard

The entire Town is vulnerable, including road infrastructure, town and privately owned buildings, utility infrastructure. Heavy snow and wind occasionally down trees and power lines throughout town. Snow/ice contribute to hazardous driving conditions. However, in general,

¹¹ National Weather Service Glossary

¹² Baltimore Grand List as of 10/23/2014

¹³ National Weather Service Glossary

winter weather is most hazardous to travelers. Icy and snow-covered roads present multiple examples of dangerous driving conditions and situations. In Baltimore particularly, the mountainous terrain, steep slopes, and remoteness of some roads further complicate travel.

Extent and Probability

Snow fall has varied, from a few inches to well over a foot or more. The Town relies on Travel Advisories issued by the State of Vermont Department of Emergency Management and the National Weather Service to alert residents of dangerous travel weather. However, it is difficult to prohibit people from driving during winter weather events. As a result, emergency services personnel must always be prepared to provide assistance to stranded drivers or to those who have been in an accident. Baltimore experiences frequent occurrences of severe winter weather, extreme cold temperatures, and ice storms. Below, some of the more significant events from are identified. Information to complete the history of occurrences was taken from the NOAA NCEI, FEMA Declared Disasters in Vermont database, the State of Vermont Hazard Mitigation Plan dated November 2013, and town records. It is highly likely that a winter storm, ice storm, and extreme cold will occur over the plan cycle.

Past Occurrences

- February 2015 – Almost 20 days with below zero temperatures and -30 degrees with wind chill. \$1M statewide property damage frozen infrastructure.
- DR 4207 VT – 18 inches very wet heavy snow 2014; statewide power outages, roads closed, numerous accidents, schools closed, and building collapses.
- DR 1201 VT – ¾ inch ice accumulation 1198; tens of thousands of damaged trees, economic losses to dairy and timber operations, downed power lines, and structural damages.

6.0 MITIGATION PROGRAM

The following sections detail the mitigation goals, objectives, and potential mitigation actions identified by the Town and compiled and organized by the Hazard Mitigation Committee to reduce the impact of the hazards assessed in this plan. The implementation schedule that follows in **Table 4** is a comprehensive list of actions that the town has targeted for implementation during the five year cycle of this plan.

6.1 Goals and Objectives

The following sections detail the mitigation goals, objectives, and potential mitigation actions which the town has identified to aid in the reduction of threats posed by the hazards detailed in this plan. The implementation schedule that follows is a table of actions that the town has targeted for implementation during the five year cycle of this plan.

The 2016 Baltimore Town Plan identifies the following recommendations which support hazard mitigation. In general, there needs to be better integration of hazard mitigation planning in the Town Planning process.

- Continue routine maintenance on town hall.
- Provide safe and adequate town roads.
- Seek funding sources to improve the emergency preparedness conditions of the roads.
- To ensure that the community can respond to a local emergency.
- Review and correct the Local Emergency Operations Plan on an annual basis.
- Work with surrounding towns to complete mutual aid agreements.
- Have the road commissioner identify road sections, bridges, and culverts that need maintenance or replacement.
- Work with the Regional Planning Commission to seek funding for emergency preparedness in Baltimore.
- Maintain enrollment in the National Flood Insurance Program.
- Encourage the protection of river corridors, flood plains, wetlands and upland forest areas that attenuate and moderate flooding and erosion.
- Discourage the removal of in-stream debris except as necessary to protect public safety or prevent property damage.
- Structural deficiencies in transportation infrastructure should be addressed as soon as possible.
- Potential impacts on neighboring towns should be considered before new plans or regulations are adopted and before major projects are approved.
- Encourage on-going emergency preparedness and response planning.

Following the Hazard Analysis and the public involvement process for this update, the Hazard Mitigation Committee then reviewed the prior goals and strategies (**Table 1**), Existing Resources below (**Table 3**), and the Town Plan recommendations (above). The intent was to get a better overall sense of whether, and to what extent, hazard mitigation had been incorporated into current Town plan goals and programs. The Hazard Committee then formulated the following overarching goals below.

The following general goals and objectives were identified by the Hazard Mitigation Committee to reduce or avoid long term vulnerabilities to identified hazards:

Hazard Mitigation Goals and Associated Objectives

1. Provide protection to Baltimore community from impact of hazardous events.
 - a. Reduce potential for loss of life, injuries and property damage from hazard events.
 - b. Maintain and enhance Local Emergencies Operation Plan.
2. Improve efforts to raise municipal awareness of the Local Hazard Mitigation Plan and incorporate Plan goals, objectives and actions into other Town planning processes and related projects.
 - a. Ensure implementation through improved monitoring of 2017-2022 Hazard Mitigation Plan.

- b. Recognize and incorporate hazard mitigation in the Baltimore Town Plan, Unified Bylaws, Permits, Road Standards and Maintenance Programs.
- 3. Increase community resiliency to hazardous events.
 - a. Increase community awareness of local hazards and the Hazard Mitigation Plan.
 - b. Improve efforts to help minimize and address financial losses due to hazard events incurred by residents and business owners.
- 4. Reduce future economic impact and disruption caused by hazard events on public and historic infrastructure, and municipal programs.

6.2 Existing Programs

The following programs, policies, and regulations are currently being implemented throughout the Town of Baltimore and help to reduce the towns’ long-term susceptibility to hazards. These programs reduce the effects of hazards to existing, new, and future buildings, infrastructure, and critical facilities by preventing their location in identified and known hazard areas and by ensuring that the infrastructure and buildings are designed to minimize damage from hazard events.

The town currently participates in the NFIP program and will continue to regulate floodplain use through the Baltimore Flood Hazard Regulations last updated and adopted on August 5, 2009. As no Special Flood Hazard Areas have been established by Federal Emergency Management Agency (FEMA) for the Town of Baltimore, the bylaws designate Flood-Prone Areas in accordance with[44 CFR §60.3(a)] for the purposes stated in the bylaws. The town will continue to enforce these regulations to maintain future NFIP compliance. As outlined in the regulations, the Zoning Administrator and Zoning Board of Adjustment, is charged with implementing and advising residents on development, as well as regulating construction within Baltimore Flood-Prone Areas and NFIP compliance.

There have been no NFIP insurance claims filed, totaling \$0 dollars in payouts. There are no repetitive loss properties in the Town of Baltimore.

The following authorities, policies, programs, and resources related to hazard mitigation are currently in place and/or being implemented in the Town of Baltimore, in addition to the NFIP. These programs reduce the effects of hazards to existing, new, and future buildings, infrastructure, and critical facilities by preventing their location in identified hazard areas and ensuring that infrastructure and buildings are designed to minimize damage from hazard events. The Committee analyzed these programs for their effectiveness and noted any improvements that may be needed.

Table 3: Existing Resources for Mitigating Hazards: Authorities, Policies and Programs

Resource	Description	Effectiveness in implementing HM Goals	Opportunities for Improving Effectiveness
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Resource	Description	Effectiveness in implementing HM Goals	Opportunities for Improving Effectiveness
Town Plan	Plan for coordinated town-wide planning for land use, municipal facilities, etc.	Effectively addresses issues with flood-prone areas, transportation, safety, municipal and critical facilities; revised and adopted in 2016	Plan is updated on a eight year cycle, the next revision may be strengthened by incorporating the LHMP goals and strategies
Local Emergency Operations Plan	Basic municipal procedures for emergency response	Outlines procedures for call-outs, evacuations, etc.; last updated in 2017	Plan is reviewed and updated yearly following town meeting; statewide template can restrict additional functionality
LEPC 3 All Hazards Resource Guide	Outline resources available to town in emergency situations	Effective in providing data and resources to town first responders; updated late 2015	List of region resources should be made available to town upon request
Mutual Aid – Emergency Services	Agreement for regional coordinated emergency services	Effective in providing additional emergency support during a typical events	All mutual aid agreements are formalized
Road Standards	Design and construction standards for roads and drainage systems	Effective through continued use and implementation	Continued implementation of road standards is critical to effectiveness
Subdivision Regulations	Regulates the division of land, standards for site access and utilities	Effective through their continued implementation	Continued updates and enforcement are important for continued effectiveness
Flood Hazard Area Regulations	Regulates development in flood-prone areas	Effective at limiting development in known hazard areas	Continued updates and enforcement are critical to greater effectiveness
National Flood Insurance Program (NFIP)	Provides ability for residents to acquire flood insurance	Effective, Baltimore is compliant with the NFIP program	Town may pursue CRS rating
Maintenance Programs	Culvert Inventory	Effective at tracking and planning infrastructure upgrades	Inventories should be kept current when possible
Local Emergency Planning Committee 3	Volunteer organization involved in regional hazard mitigation efforts	Effective and important contributor in hazard mitigation planning	Greater town participation at the regional meetings would be beneficial

Resource	Description	Effectiveness in implementing HM Goals	Opportunities for Improving Effectiveness
Southern Windsor County Regional Planning Commission	Regional organization working to further emergency management and hazard mitigation goals	Effective in assisting towns in the adoption of new/updated regulations and the revision of planning tools	The RPC should focus on improving the planning process and investigate additional sources of historical and statistical data for identified hazards and communicate available funding opportunities for hazard mitigation and emergency preparedness

6.3 2017-2022 Mitigation and Preparedness Actions and Projects

The Baltimore Hazard Mitigation Committee discussed each mitigation strategy and found that many projects are still ongoing and/or are still relevant. In most cases, the past identified strategies have been left in place because of their ongoing and cyclic nature, for example, the incorporation of strategies into the town capital budget and planning documents. They identified the following **Mitigation and Preparedness Actions and Projects** for implementation during the 2017-2022 planning period. These mitigation actions have been chosen by the town as the most cost/effective and feasible actions to be taken during this plan period to lessen the impacts of both known and potential hazards identified in **Section 5**.

The instructions were to choose which should be included in the five year plan, based on cost (including considering the feasibility to complete or initiate in that time) versus benefit (or need). The Baltimore Hazard Mitigation Committee kept in mind the following benefits while creating **Table 4**:

- structural or land improvements
- increased public education and awareness of hazards
- altering the hazard area to remove the hazard occurrence
- reducing the hazard frequency through structure or land treatment
- increased community support for specific actions to reduce future losses
- reduction in financial and physical losses caused by hazard events
- eligibility for hazard mitigation grants and aid
- strengthened partnerships

Prioritization was primarily based upon the economic impact of the action, the feasibility of the action, the action’s cost, and the availability of potential funding. In evaluating potential benefit and or likelihood of successful implementation the committee ranked each criteria as to being highly effective or feasible, neutral, or ineffective or not feasible. The Team considered each prioritization in the scope of the other projects, LHMP priorities and overall community priorities.

Strategies given a “High” prioritization indicate they are either critical or potential funding is readily available, and should have a timeframe of implementation of less than two years. A “Medium” prioritization indicates that a strategy is less critical or the potential funding is not readily available, and has a timeframe for implementation of more than two years but less than four. A “Low” prioritization indicates that the timeframe for implementation of the action, given the action’s cost, availability of funding, and the community’s need to address the issue, is more than four years.

Time Frame and Priority are listed in the same column.

The following identified programs, projects and activities are future mitigation strategies for the Town of Baltimore. Proposed Mitigation Actions are prioritized on an ad-hoc basis by considering all of the following:

- Severity of need in terms of safety and previous hazard event experience.
- Projects with the greatest potential impact in terms of number of community members that would benefit.
- Availability of Town funding and Town personnel and/or availability of needed assistance from other groups.
- Availability of grant funding, and application assistance.
- Favorable cost/benefit based on logic or FEMA methodology. Higher priority projects would be those requiring low capital but have high community outreach potential for a high scored hazard, projects more likely to be eligible for grant funding, and projects where the estimated cost of repairs following a potential disaster (the benefit) is apparent, or likely higher than the cost of mitigation based on past experience. For example, the dollar benefit over the cost of proactively prioritizing and implementing culvert upgrades would include the cost of otherwise having to replace a washed out road.

The mitigation measures performed in the last several years have been a result of major events such as Tropical Storm Irene. It can be expected that an unforeseen disaster would most likely change these priorities. When considering maintenance and replacement of highway infrastructure each year, Baltimore refers primarily to its bridge and culvert inventory as well as its Road Surface Management Plan. Baltimore also takes into consideration grant funding that may be available to assist in these projects.

Table 4: Proposed Hazard Mitigation Programs, Projects and Activities

ACTION	TYPE OF ACTION	HAZARD ADDRESSED	RESPONSIBLE PARTY	TIME FRAME/PRIORITY	FUNDING SOURCE
Complete annual culvert upgrade based on inventory	Mitigation	Transportation Disruption,	Selectboard, Road Commissioner	Annually; beginning Spring 2019 / HIGH	Town funds, VTrans Structures Grant, HMGP

Monitor Drought Conditions – check pond levels and runoff	Preparedness	Drought	Road Commissioner	Annually; beginning spring and fall 2019 / LOW	Town funds
Research the installation of additional dry hydrant and funding sources – Bergeron site	Mitigation, Preparedness	Structure Fire, Wildfire	Selectboard, Springfield Fire Department	Spring 2020 / MED	HGMP grant, Dry Hydrant grant program
Conduct annual maintenance program on ditches	Mitigation, Preparedness	Transportation Disruption, Severe Weather	Road Commissioner, Selectboard	Annually; beginning Summer 2019 / HIGH	Town budget, VTrans grants
Increase awareness of extreme temperature risk & safety	Preparedness	Extreme Temperatures, Severe Winter Weather	Town Clerk, Selectboard	Winter 2019 / MED	Town Budget
Install and maintain additional surge protection on critical electronic equipment	Preparedness	Severe Weather	Town Clerk, Selectboard	Summer 2018 / MED	Town Budget
Develop procedures and planning for pre-winter activities	Preparedness	Severe Winter Weather	Road Commissioner	Annual; fall meeting / HIGH	Town Budget
Develop an action plan for removing high risk trees from along power lines	Mitigation	Severe winter weather, high wind events, power loss	Selectboard, tree warden, GMP	Annual Fall inspections and markings; Maintenance every 3 years / HIGH	Town Budget
Maintain a LEOP	Preparedness, Mitigation	All Hazards	Emergency Management Director, Selectboard	Annually; after Town Meeting and before May 1 st /	Minor cost

				HIGH	
Provide 'Firewise' practice materials	Mitigation	Structure Fire, Wildfire	Selectboard, Emergency Management Director, Town Office	Spring 2019 / MED	Minor cost

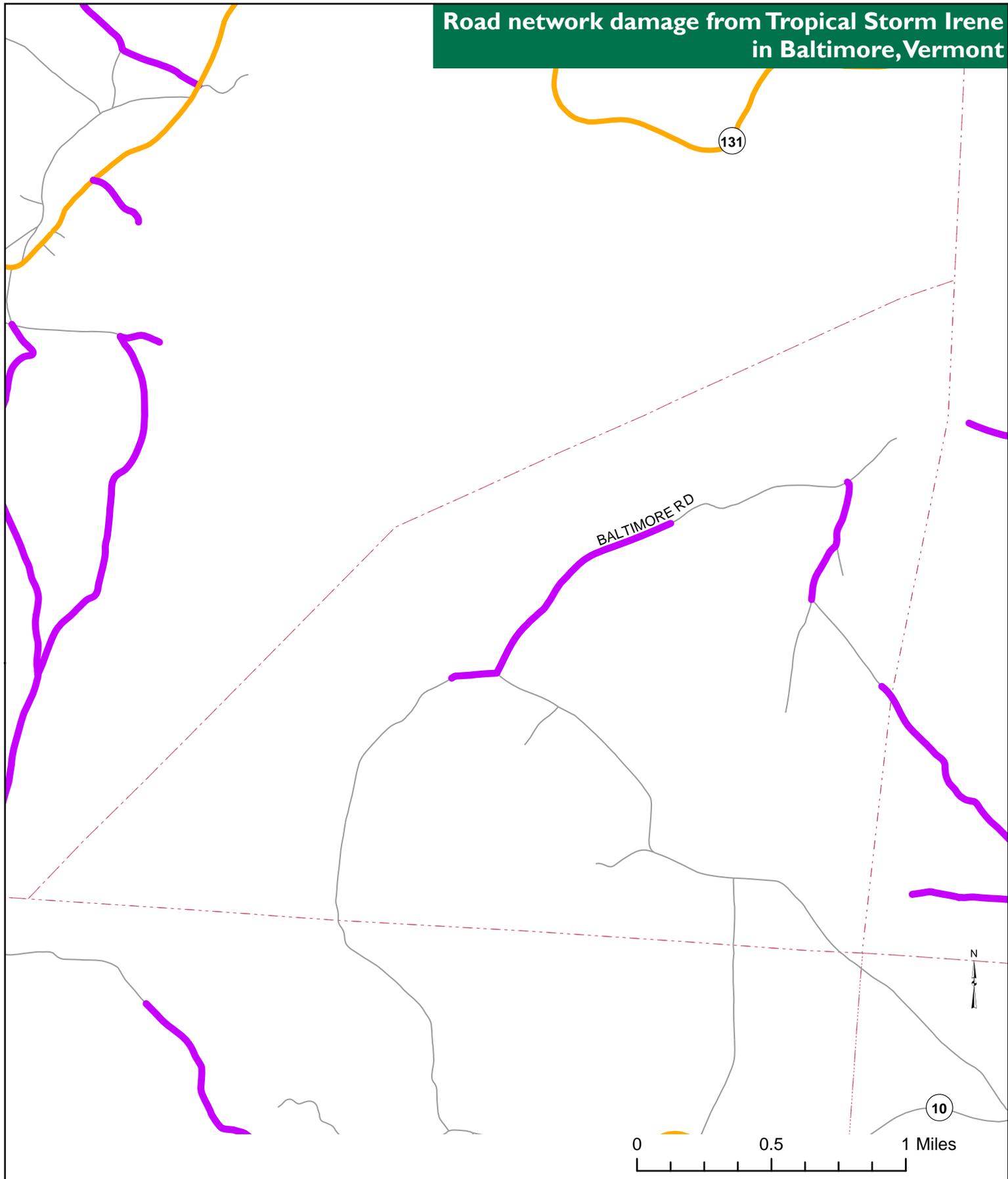
Mitigation Actions In-Progress

1. Culverts
 - a. 2016 – 3 culvert replacements
 - b. 2017 – 3 culvert replacements
 - c. 2018 – Identification of 2-3 culverts during application for Better Roads grant.
2. Annual tree trimming program started in 2016 and completed 3 times already.
3. CVPS checked all utility poles in the last 4 years. Replaced and repaired all rotted poles and assisted with utility tree trimmings.
4. Winter weather and ice mitigation – wing added to grader, purchased in 2017, to push back large quantities of snow and ice.
5. Provided brochures from VTrans and Road Foreman meetings – flyers left in Town Office for public.
6. Numerous miles of ditching fall of 2017.
7. 2-3 miles of gravel and road maintenance of the 7 miles of road.

6.4 Integration

Baltimore uses all of the tools listed throughout the plan for current and future activities with the town. For example: the Local Emergency Operation Plan has a contact list that is used for response purposes in the case of a hazard event, and is updated every year after Town Meeting. The list includes updates to vulnerable geographic locations, as well as important contact information. Town Road and Bridge Standards are followed by the town and Baltimore just completed updating their culvert inventory in 2015. The mitigation action and goals identified in this plan will be reviewed annually by the Selectboard at a meeting prior to Town Meeting Day. Additionally, the SWCRPC will work with the Baltimore Planning Commission to incorporate ideas into the next Town Plan rewrite. The goals of this hazard mitigation plan will be incorporated in the rewrite to ensure that emergency preparedness and mitigation planning efforts are included in the Town Plan, with particular attention to include the projects in the Mitigation Actions Table. As each referenced plans and regulations are updated, they will better incorporate hazard mitigation. This will assist with ensuring that this plan is utilized and project follow-through occurs.

Road network damage from Tropical Storm Irene in Baltimore, Vermont



-  Class I Local Road Damage
-  State Road Damage
-  Local Road Damage
-  Insignificant damage or undamaged road
-  Town boundary

Data sources:
 Road centerline (VTrans 2010)
 Town boundary (VCGI 2010)
 Town road damage (from Town staff collected by SWCRPC Sept- Oct 2011)
 State road damage (from VTrans, 2011)
 TS_Irene_BridgeAndHighwayClosureData.mdb

Map drawn January 13, 2012
 Map for planning purposes only.
 Not for regulatory interpretation.



SOUTHERN WINDSOR COUNTY
 REGIONAL PLANNING COMMISSION
 PO Box 320, Ascutney, VT 05030
 www.swcrpc.org

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: Baltimore All Hazard Mitigation Plan
DATE OF MEETING: April 24th, 2014
MEETING LOCATION: Baltimore Town Hall
TOPIC: Hazard Analysis
MEETING TIME: 7:00pm

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.565	\$20.00
1	Loreen Billings	Baltimore Planning Commission			-	-
2	Wayne Wheelock				-	-
3	Shepard Thomas	Baltimore Road Commissioner			-	-
4	Roland Doucette				-	-
5	Kevin Gould	Baltimore Selectboard			-	-
6					-	-
7					-	-
8					-	-
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
Sub Total			0.00	0.00	\$0.00	\$0.00

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE (08/01/08-)	TOTAL TIME
					0.565	\$20.00
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Sub Total			0.00	0.00	\$0.00	\$0.00

TOTAL MATCH	#REF!
TOTAL Non-Volunteer Match	#REF!
TOTAL VOLUNTEER MATCH	#REF!

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: May 3, 2017
MEETING LOCATION: Baltimore Town Office
TOPIC: LHMP Selectboard Meeting
MEETING TIME: 7-8:30 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.54	\$22.79
1	Sandy	Baltimore	4	1.5	2.16	34.19
2	Orson	Baltimore	4	1.5	2.16	34.19
3	Janet	Baltimore	4	1.5	2.16	34.19
4	Loreen	Baltimore	4	1.5	2.16	34.19
5	Wayne W.	Baltimore	4	1.5	2.16	34.19
6	Walter	Baltimore	4	1.5	2.16	34.19
7	Dan	Baltimore	4	1.5	2.16	34.19
8	John	Baltimore	4	1.5	2.16	34.19
9	Deb	Baltimore	4	1.5	2.16	34.19
10					-	-
11					-	-
12					-	-
13					-	-
14					-	-
15					-	-
16					-	-
17					-	-
18					-	-
Sub Total			36.00	13.50	\$19.44	\$307.67

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0	\$0.00
1	Tom Kennedy	SWCRPC	40	1.5	21.60	34.19
2					-	-
3					-	-
4					-	-
5					-	-
6					-	-
7					-	-
Sub Total			76.00	15.00	\$21.60	\$34.19

Total volunteer In-kind \$327.11

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: June 15, 2017
MEETING LOCATION: Baltimore Town Office
TOPIC: LHMP Committee Meeting
MEETING TIME: 6-8 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.54	\$22.79
1	Loreen Billings	Baltimore PC	4	2	2.16	45.58
2	Wayne Wheelock	Baltimore	4	2	2.16	45.58
3	Roland Coucette	Baltimore	4	2	2.16	45.58
4	John L.	Baltimore	4	2	2.16	45.58
5	Sandra Rich	Baltimore	4	2	2.16	45.58
6					-	-
7					-	-
8					-	-
9					-	-
10					-	-
11					-	-
12					-	-
13					-	-
14					-	-
15					-	-
16					-	-
17					-	-
18					-	-
Sub Total			20.00	10.00	\$10.80	\$227.90

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION				
					0	\$0.00
1	Allison Hopkins	SWCRPC	40	2	21.60	45.58
2					-	-
3					-	-
4					-	-
5					-	-
6					-	-
7					-	-
Sub Total			60.00	12.00	\$21.60	\$45.58

Total volunteer In-kind \$238.70

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: June 28, 2018
MEETING LOCATION: Baltimore Town Office
TOPIC: LHMP Committee / Public Meeting
MEETING TIME: 6:30 - 8:30 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.545	\$22.79
1	Wayne Wheelock	Town of Baltimore	3	1.5	1.64	34.19
2	Joan Whaley	Town of Baltimore	1	1.5	0.55	34.19
3	Loreen Billings	Town of Baltimore	4	1.5	2.18	34.19
4	Roland Doucette	Town of Baltimore	4	1.5	2.18	34.19
5	Walter Rich	Town of Baltimore	5	1.5	2.73	34.19
6	Sandra Rich	Town of Baltimore	5	1.5	2.73	34.19
7					-	-
8					-	-
9					-	-
10					-	-
11					-	-
12					-	-
13					-	-
14					-	-
15					-	-
16					-	-
17					-	-
18					-	-
Sub Total			22.00	9.00	\$11.99	\$205.11

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION				
					0	\$0.00
1	Allison Hopkins	SWCRPC	40	2	21.80	45.58
2					-	-
3					-	-
4					-	-
5					-	-
6					-	-
7					-	-
Sub Total			62.00	11.00	\$21.80	\$45.58

Total volunteer In-kind **\$217.10**

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: July 13, 2017
MEETING LOCATION: Baltimore Town Office
TOPIC: LHMP Committee Meeting
MEETING TIME: 6:30-8:30 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.535	\$22.79
1	Loreen Billings	Baltimore	4	2	2.14	45.58
2	Wayne Wheelock	Baltimore	4	2	2.14	45.58
3	Rolan Doucette	Baltimore	4	2	2.14	45.58
4	John Lomachinsky	Baltimore	4	2	2.14	45.58
5	Sandra Rich	Baltimore	4	2	2.14	45.58
6					-	-
7					-	-
8					-	-
9					-	-
10					-	-
11					-	-
12					-	-
13					-	-
14					-	-
15					-	-
16					-	-
17					-	-
18					-	-
Sub Total			20.00	10.00	\$10.70	\$227.90

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0	\$0.00
1	Allison Hopkins	SWCRPC	40	2	21.40	45.58
2					-	-
3					-	-
4					-	-
5					-	-
6					-	-
7					-	-
Sub Total			60.00	12.00	\$21.40	\$45.58

Total volunteer In-kind **\$238.60**

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: August 31, 2017
MEETING LOCATION: Baltimore Town Office
TOPIC: LHMP Committee / Public Meeting
MEETING TIME: 6:30 - 8:30 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.535	\$22.79
1	Roland Doucette	Baltimore	4	2	2.14	45.58
2	Mark Whaley	Baltimore	4	2	2.14	45.58
3	Sandra Rich	Baltimore	4	2	2.14	45.58
4	Wayne Wheelock	Baltimore	4	2	2.14	45.58
5	John Lomachinsky	Baltimore	4	2	2.14	45.58
6					-	-
7					-	-
8					-	-
9					-	-
10					-	-
11					-	-
12					-	-
13					-	-
14					-	-
15					-	-
16					-	-
17					-	-
18					-	-
Sub Total			20.00	10.00	\$10.70	\$227.90

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0	\$0.00
1	Allison Hopkins	SWCRPC	40	2	21.40	45.58
2					-	-
3					-	-
4					-	-
5					-	-
6					-	-
7					-	-
Sub Total			60.00	12.00	\$21.40	\$45.58

Total volunteer In-kind **\$238.60**

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: October 19, 2017
MEETING LOCATION: Baltimore Town Office
TOPIC: LHMP Committee / Public Meeting
MEETING TIME: 6:30 - 8:30 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.535	\$22.79
1	Wayne Wheelock	Town of Baltimore	4	2	2.14	45.58
2	Loreen Billings	Town of Baltimore	4	2	2.14	45.58
3	Roland Doucette	Town of Baltimore	4	2	2.14	45.58
4	Sandra Rich	Town of Baltimore	4	2	2.14	45.58
5						
6					-	-
7					-	-
8					-	-
9					-	-
10					-	-
11					-	-
12					-	-
13					-	-
14					-	-
15					-	-
16					-	-
17					-	-
18					-	-
Sub Total			16.00	8.00	\$8.56	\$182.32

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION				
					0	\$0.00
1	Allison Hopkins	SWCRPC	40	2	21.40	45.58
2					-	-
3					-	-
4					-	-
5					-	-
6					-	-
7					-	-
Sub Total			56.00	10.00	\$21.40	\$45.58

Total volunteer In-kind **\$190.88**

VOLUNTEER FORM TO DOCUMENT IN-KIND SERVICES - MATCH INFORMATION

PROGRAM: HMGP
DATE OF MEETING: September 5, 2018
MEETING LOCATION: Baltimore Town Office
TOPIC: Selectboard Adoption
MEETING TIME: 7:00 - 8:00 PM

VOLUNTEER ATTENDEES - CLAIMED

No.	NAME	AFFILIATION	MILEAGE ROUND TRIP	MEETING HOURS	TOTAL MILEAGE	TOTAL TIME
					0.545	\$22.79
1	Walter Rich	Town of Baltimore	2	1	1.09	22.79
2	Dan Cox	Town of Baltimore	2	1	1.09	22.79
3	John Lomachinsky	Town of Baltimore	3	1	1.64	22.79
4	Sandra Rich	Town of Baltimore	2	1	1.09	22.79
5	Orson Kendall	Town of Baltimore	2	1	1.09	22.79
6	Wayne Wheelock	Town of Baltimore	2	1	1.09	22.79
7	Loreen Billings	Town of Baltimore	3	1	1.64	22.79
8	Roland Doucette	Town of Baltimore	2	1	1.09	22.79
9	Deborah Bean	Town of Baltimore	2	1	1.09	22.79
10		Town of Baltimore			-	-
11		Town of Baltimore			-	-
12					-	-
13					-	-
14					-	-
15					-	-
Sub Total			20.00	9.00	\$10.90	\$205.11

FEDERALLY SUPPORTED PERSONNEL - CAN NOT CLAIM

No.	NAME	AFFILIATION			TOTAL MILEAGE	TOTAL TIME
					0	\$0.00
1		SWCRPC			-	-
2					-	-
3					-	-
4					-	-
5					-	-
Sub Total			20.00	9.00	\$0.00	\$0.00

Total volunteer In-kind **\$216.01**

Emergency Planning Map

All Hazard Mitigation Plan - Baltimore, VT

- | | | |
|----------------------------------|-----------------------------|-------------------------------|
| ★ Police | ▲ Dry Hydrant | ☎ Telecommunications Facility |
| ★ Ambulance/ Rescue | ▲ Municipal Hydrant | ⚡ Transmission Line |
| 🚒 Fire Station | ▲ Pressurized Hydrant | ⤵ VT State Highway |
| 🏥 Hospital/ Health Center | ▲ Other Hydrant | ⤵ Class 2 & 3 Town Highway |
| 🎓 School | ⚠ Hazardous Waste Site | 🌊 Rivers and Streams |
| 🏛 Town Hall and other government | 🚫 Hazardous Waste Facility | 🟦 Lakes and Ponds |
| | 🏠 Hazardous Waste Generator | 🔲 Town Boundary |
| | ▪ Building | |

Notes: Within the town boundaries there is no police, fire or ambulance station, school, hospital/ health center, or transmission lines. There are also no hazardous waste sites, generators or facilities.

Data Sources: Telecommunications Tower (Natural Resources Board 2007 and refined by SWCRPC 2013), Electric Transmission Line Corridor VCGI 2003 and refined by SWCRPC 2013), Hydrants (Vermont E-911, April 2017), Hazardous Waste Facilities (VT DEC 2006), Hazardous Waste Sites (VT DEC 2017), Hazardous Waste Generators (VT DEC 2015), Building (VT E911 2017), Waterbodies (VHD 2008), Road centerline (VTrans 2017), Town Boundary (VCGI 2016).

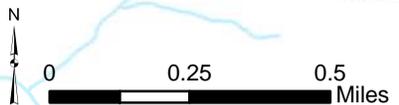
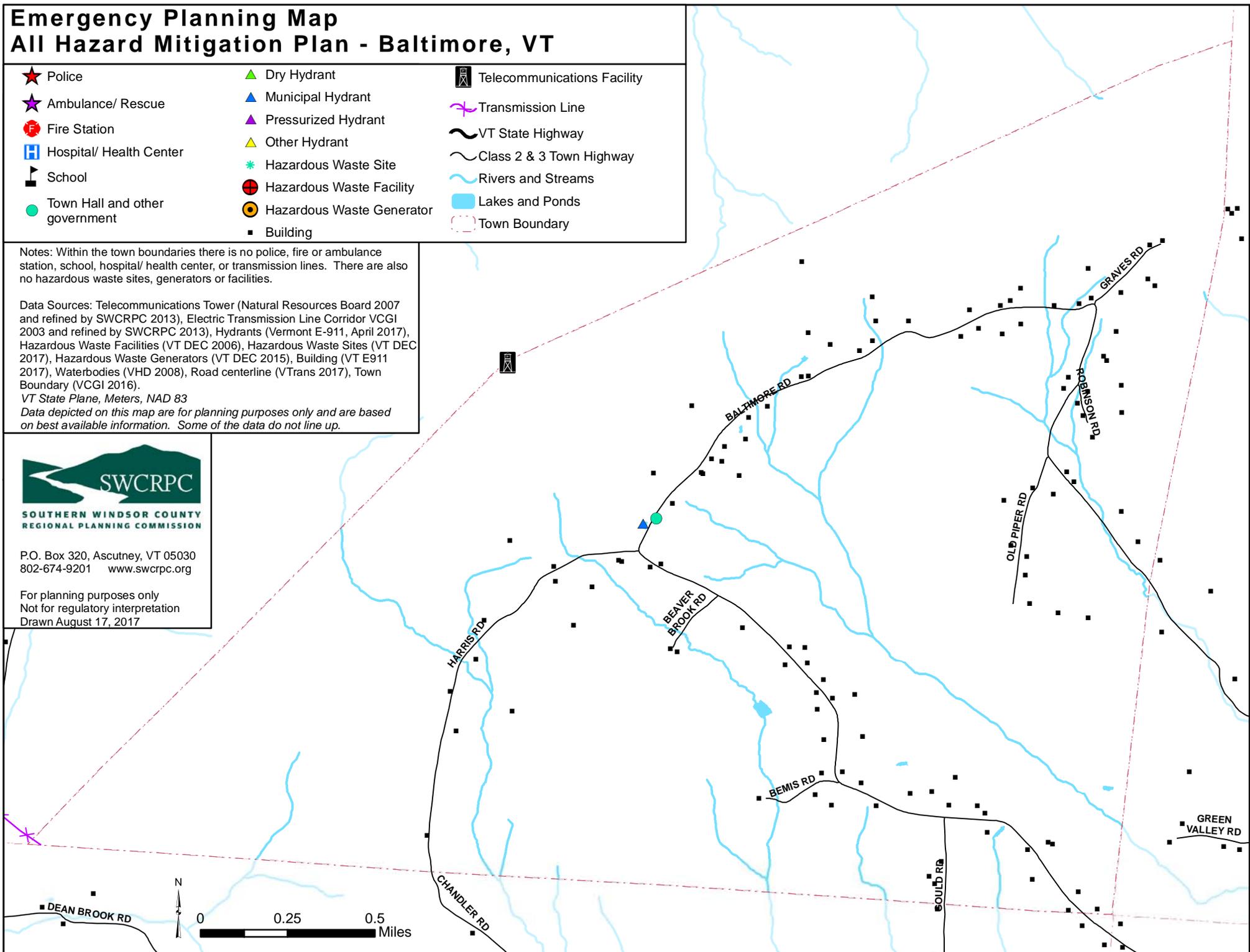
VT State Plane, Meters, NAD 83

Data depicted on this map are for planning purposes only and are based on best available information. Some of the data do not line up.



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For planning purposes only
Not for regulatory interpretation
Drawn August 17, 2017



Transportation Map

All Hazard Mitigation Plan - Baltimore, VT

- Culvert
- Building
- ~ VT State Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- - - Legal Trail
- - - Private Road
- ~ Rivers and Streams
- Lakes and Ponds

Notes: The town does not have any state highways, railroad, transit routes or bridges.

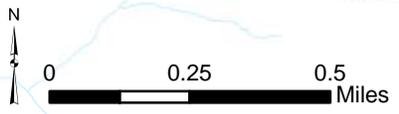
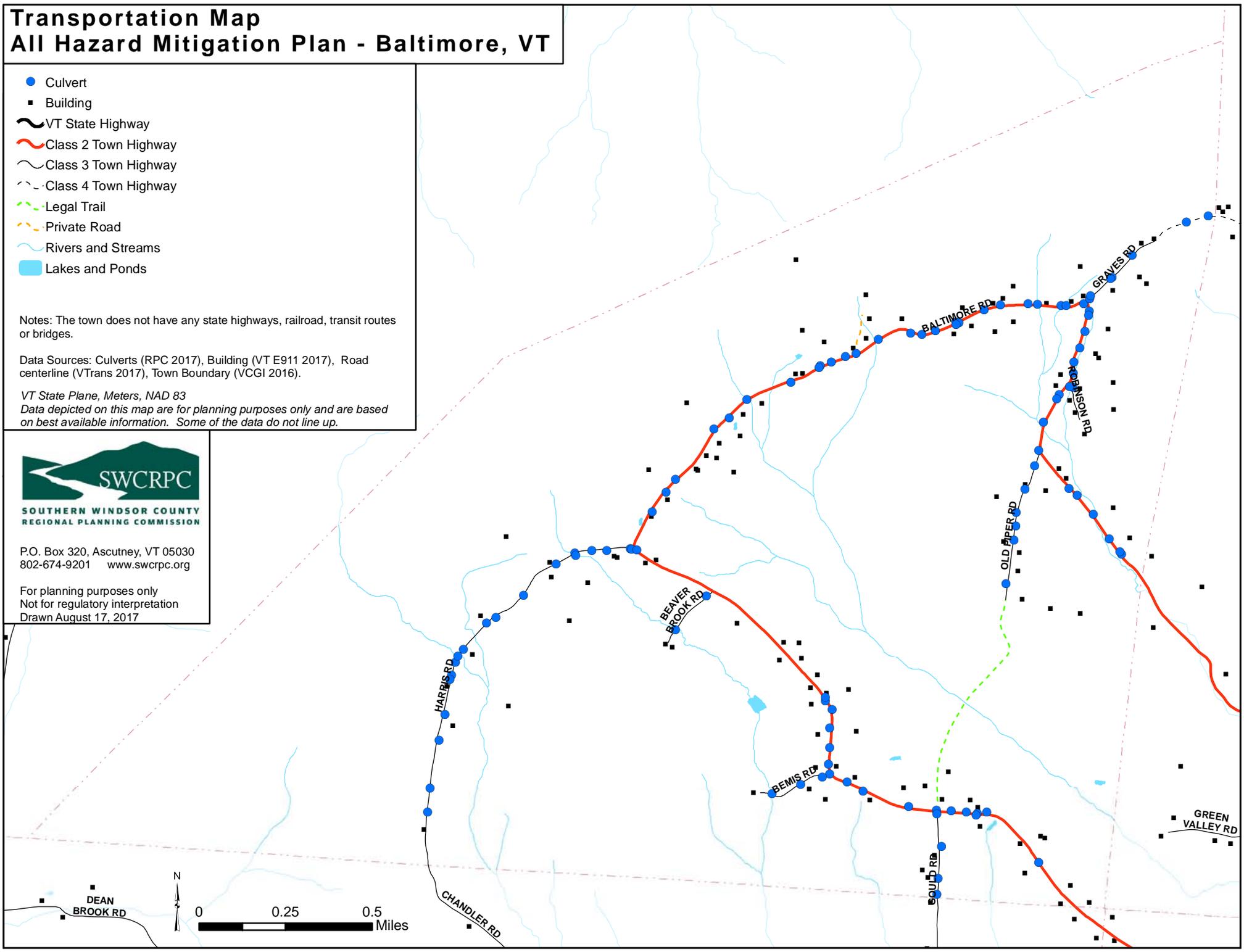
Data Sources: Culverts (RPC 2017), Building (VT E911 2017), Road centerline (VTrans 2017), Town Boundary (VCGI 2016).

VT State Plane, Meters, NAD 83
 Data depicted on this map are for planning purposes only and are based on best available information. Some of the data do not line up.



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 Drawn August 17, 2017



DEAN BROOK RD

CHANDLER RD

SOUND RD

GREEN VALLEY RD

Water and Elevation Map

All Hazard Mitigation Plan - Baltimore, VT

- Building
- ▲ Hill/ Mountain Summit
- ▭ Slope of 24% or above
- 100ft Contour Line
- ▭ Wetland
- VT State Highway
- Class 2 & 3 Town Highway
- Floodway (FEMA defined)
- ▭ Floodway fringe (Floodplain) (FEMA defined)
- ▭ Floodplain (Town defined)
- ▭ River Corridor Protection area
- Rivers and Streams
- ▭ Lakes and Ponds
- ▭ Town Boundary

Notes: The town does not have any FEMA defined Floodway or Floodway Fringe (Floodplain), or River Corridors.

This is not the official map for regulatory flood hazards.

The Town is fully within the Black River watershed.

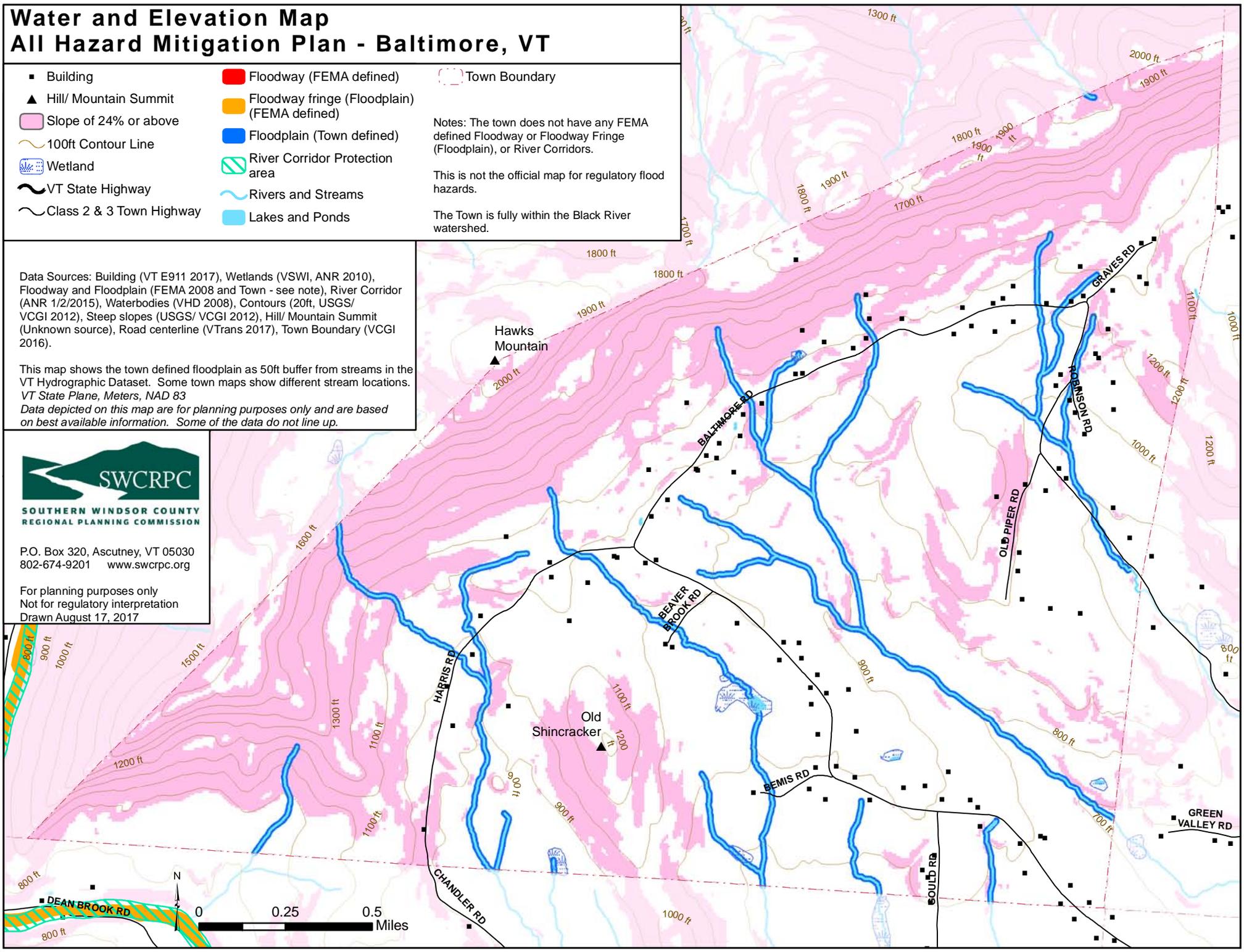
Data Sources: Building (VT E911 2017), Wetlands (VSWI, ANR 2010), Floodway and Floodplain (FEMA 2008 and Town - see note), River Corridor (ANR 1/2/2015), Waterbodies (VHD 2008), Contours (20ft, USGS/ VCGI 2012), Steep slopes (USGS/ VCGI 2012), Hill/ Mountain Summit (Unknown source), Road centerline (VTrans 2017), Town Boundary (VCGI 2016).

This map shows the town defined floodplain as 50ft buffer from streams in the VT Hydrographic Dataset. Some town maps show different stream locations. VT State Plane, Meters, NAD 83
Data depicted on this map are for planning purposes only and are based on best available information. Some of the data do not line up.



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For planning purposes only
Not for regulatory interpretation
Drawn August 17, 2017



Current Land Use and Facilities Map

All Hazard Mitigation Plan - Baltimore, VT

- Town Office
- Residential
- Camp
- ◆ Farm
- Commercial
- Other
- + Cemetery
- ▲ Hill/ Mountain Summit
- VT State Highway
- Class 2 & 3 Town Highway
- Class 4 Town Highway
- Legal Trail
- Private Road
- Rivers and Streams
- Lakes and Ponds
- Protected Lands
- Town Boundary

Notes: There are no transmission lines, telecommunication tower or state highways in town.

Data Sources: Buildings (E911 July 2015 and Town/RPC 2015), Cemeteries (Town/ RPC 2015), Protected Lands (includes conserved lands) (VCGI 2016), Waterbodies (VHD 2008), Hill/Mountain Summit (Unknown source), Road centerline (VTrans 2017), Town Boundary (VCGI 2016), Aerial (NAIP 2014).

VT State Plane, Meters, NAD 83

Data depicted on this map are for planning purposes only and are based on best available information. Some of the data do not line up.



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Not for regulatory interpretation
Drawn August 17, 2017

