

Wells, Vermont Local Hazard Mitigation Plan



Culvert Washout on Capron Lane – July 1, 2017 Storm Event

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1 Introduction

The impact of expected, but unpredictable natural events can be reduced through community planning. The goal of this Plan is to provide a natural hazards local mitigation strategy that makes Wells (the Town) more disaster resistant.

Hazard Mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects. FEMA and state agencies have come to recognize that it is less expensive to prevent disasters than to repeatedly repair damage after a disaster has struck. This Plan recognizes that communities have opportunities to identify mitigation strategies and measures during all the other phases of Emergency Management – Preparedness, Response and Recovery. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where the hazards are most severe, and identify local actions that can be taken to reduce the severity of the hazard.

2 Purpose

The purpose of this Plan is to assist the Town in identifying all natural hazards facing the community, ranking them according to local vulnerabilities, and identifying strategies to reduce risks from vulnerabilities of highest concern. Once adopted, this Plan is not legally binding; instead, it outlines goals and actions to prevent future loss of life and property.

The benefits of mitigation planning include:

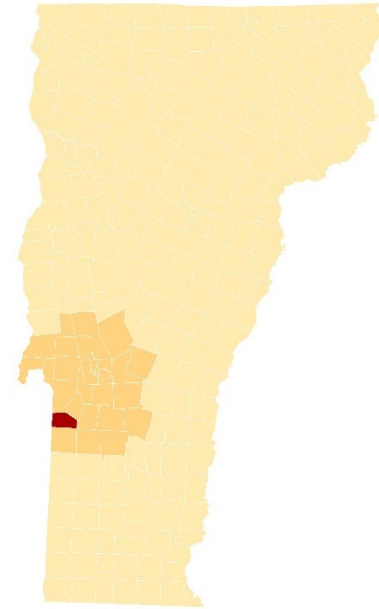
- Identifying actions for risk reduction that are agreed upon by stakeholders and the public;
- Focusing resources on the greatest risks and vulnerabilities;
- Increasing education and awareness of threats and hazards, as well as their risks;
- Communicating priorities to State and Federal officials; and
- Aligning risk reduction with other community objectives.

Furthermore, the Town seeks to be in accordance with the strategies, goals, and objectives of the 2018 State Hazard Mitigation Plan.

3 Community Profile

Land Use and Development Patterns

Wells is in the southwestern corner of Rutland County. The landforms in Wells vary widely with bands of hills and low mountains alternating with valley lands and upland terraces. Wells has a series of mountains with elevations in the 1,000 – 2,000 foot range.



Lake St. Catherine, located in the northerly half of the Town, is the most distinctive feature and influences the Town’s land use and economic base. In the last few decades, the Town has seen a shift in its economic base from dairy farming, to slate quarrying, recreational land uses, and small business.

The predominant land use in Wells is single-family residences, many of which were summer cottages that have been converted into year-round homes. Another major historic and current land use is slate quarries. In addition, there are several commercial uses – the largest concentration of which are located along Route 30 from the center of Town to the Pawlet border.

Demographics and Growth Potential

The 2017 American Community Survey Five-Year Estimates prepared by the U.S. Census Bureau shows an estimated population of 922 for Wells, and 863 housing units.

Of the population included in the survey, 17% were 19 or under, and 26% were 65 or over, with a median age of 53.8 years, significantly higher than Vermont’s median age of 42. Wells’ population peaked in 2012 at 1,431 and has been slowly declining since. It is worth noting, seasonal homes along the lake cause the population to nearly double in the summer. Significant growth is not anticipated within the foreseeable future.

Precipitation and Water Features

Precipitation in Wells is typical for the region. Average precipitation is 43 inches of rain; with July being the wettest month. Average snowfall is 66 inches; with January being the snowiest month.

Much of the Town is covered by water, most notably: Lake St. Catherine (Big Lake and Little Lake), Lake Lucidian, Wells Brook, Pond Brook (aka Mill Brook), Snow Brook, Endless Brook and their associated tributaries, marshlands, and wetlands.

Water and Sewer Supply

There are no municipal water or sewer utilities in Wells. Homes and businesses draw their water from shallow and drilled wells. The only exceptions are the community water supplies located at the condominium development (serving 7 units) and the Wells Village School. Also, some cottages along Lake St. Catherine take water from the lake and treat it for use as drinking water.

Sewage is disposed in individual on-site septic systems.

Transportation

With just under 50 miles of local roads of varying classifications, Wells has an extensive network of state and town highways. VT Route 30 is the Town’s main highway extending from Brattleboro to Middlebury, passing through the heart of Wells and along the shoreline of Lake St. Catherine. VT Route 31 is a second important route from Poultney to Granville, NY. The local road network is maintained by the Town highway maintenance crew whose garage is located on South Street.

Wells has a total of 12 bridges and ±315 culverts. Three bridges have a span of 20 feet or more; nine are less than 20 feet. One is part of the state system.

Electric Utility Distribution System

Electric service to approximately 985 customers is provided by Green Mountain Power via two circuits. Average annual outage statistics between 2015 and 2019 are summarized in **Table 1**.

Table 1: Power Outage Summary

5-Year Average (2015-2019)	
Avg # of times a customer was without power	2.03
Avg length of an outage in hours	3.00
# of hours the typical customer was without power	6.10
2019 only	
Avg # of times a customer was without power	2.34
Avg length of an outage in hours	2.34
# of hours the typical customer was without power	5.47

The longest power outage affecting the greatest number of customers between 2015 and 2019 was 15.06 hours long and impacted 40 customers. During this same time period, there was a 38.84 hour long outage, but it only impacted 3 customers.

Public Safety

Wells has a well-equipped Volunteer Fire Department. It is a member of the Washington County (NY) and Rutland County Fire Mutual Aid systems.

The Granville Rescue Squad provides emergency medical response and ambulance transportation. Medical services are available at nearby Mettowee Valley Family Care, Granville Family Health Care, and Castleton Family Health Center. The nearest hospitals are the Rutland Regional Medical Center and Glens Falls Hospital in New York, both within 30 to 45 minutes travel time from Wells.

Law enforcement is provided by one elected constable, who is supported by the State Police.

Emergency Management

The Town has an appointed Emergency Management Director (EMD) who works with others in town to keep the Local Emergency Plan up-to-date as well as to coordinate with nearby towns and regional emergency planning efforts.

4 Planning Process

Plan Developers

Steffanie Bourque, an Emergency Management Planner at the Rutland Regional Planning Commission (RRPC), assisted the Town with updating its Local Hazard Mitigation Plan. Hazard Mitigation Grant Program funds from FEMA supported this process.

The Hazard Mitigation Planning Team members who assisted with the update include the Town Clerk, Fire Chief (who is also the local Emergency Management Director), Road Foreman, and Selectboard members.

Plan Development Process

The 2019 Wells Local Hazard Mitigation Plan is the first single jurisdiction mitigation plan drafted for the Town. Previously, the Town had a town-specific Annex in the 2009 Rutland County, VT Hazard Mitigation Plan.

This Plan has been reconstructed as a single jurisdiction, stand-alone Wells Local Hazard Mitigation Plan that will be submitted for individual approval to FEMA. As such, several sections have been added or updated to include all necessary information. A summary of the process taken to develop this Plan is provided in **Table 2**.

Table 2: Plan Development Process

October 22, 2019: Hazard Mitigation Planning Team kick-off meeting. Planning Team members were confirmed. Discussed what a LHMP is; the benefits of hazard mitigation planning; current plan status; the planning process; outreach strategy; and plan sections.

November 7, 2019: Public notice posted on RRPC social media that the Town is engaged in hazard mitigation planning and updating their LHMP. Emailed notice to officials in neighboring towns of Poultney, Middletown Springs, Tinmouth, Danby, and Pawlet. Name and contact information provided in notices for more information. No replies to public outreach.

December 4, 2019: Planning Team meeting – confirmed the plan purpose and completed work on the community profile and community hazard risk assessment. Began work on storm history and identifying vulnerable assets for highest risk hazards.

December 10, 2019: Selectboard meeting – discussed the LHMP update process and the need to present the working draft of the plan at a future public meeting.

December 16, 2019: Working draft LHMP shared with Vermont Hazard Mitigation Planner for review and comment.

January 21, 2020: Working draft LHMP presented at joint public meeting of the Wells Selectboard and Planning Commission to encourage input from local government and public that could affect the plan’s conclusions and better integrate with related Town initiatives. Members of the public attended this meeting and attendees recommended corrections to the Community Profile and Hazard Profile for Flash Flooding/Fluvial Erosion. These corrections were incorporated into the Plan.

Work was suspended from February through May 2020 due to the COVID-19 pandemic.

June 16, 2020: Planning Team meeting – completed work on hazard identification and risk assessment. Began work on hazard mitigation strategy – confirmed mitigation goals and began identifying community capabilities.

July 8, 2020: Planning Team meeting – completed work on community capabilities; began work on mitigation action identification and evaluation, and changes since the 2009 plan.

August 3, 2020: Planning Team meeting – completed work on mitigation action identification, evaluation, and implementation; how mitigation priorities have changed since 2009; and the process for plan maintenance.

September 1, 2020: Complete draft LHMP discussed at joint public meeting of the Wells Selectboard and Planning Commission for input from local government and the public. A member of the public attended this meeting; however, no comments were received on the Plan.

September 1, 2020: Draft LHMP posted for 14-day public comment period on the Town and RRPC websites; emailed to above mentioned neighboring municipalities and Poultney Mettowee Conservation District with instructions to email comments to the RRPC. No comments received during the public comment period.

September 18, 2020: Draft LHMP submitted to VEM for Approval Pending Adoption.

In addition to the local knowledge of Planning Team members and other relevant parties, several existing plans, studies, reports, and technical information were utilized in the preparation of this Plan. A summary of these is provided in **Table 3**.

Changes Since the 2009 Plan

In 2009, flooding was the highest risk natural hazard. Hazard mitigation actions from 2009 are presented in **Appendix C**. The Hazard Mitigation Planning Team reviewed these actions and reported on the status of each.

There has been some change in Wells’ mitigation priorities between this Plan update and the 2009 plan. In addition to flash flooding and fluvial erosion, the Planning Team’s 2020 hazard identification risk assessment also identified vulnerabilities to winter storms and severe winds.

Although Wells remains vulnerable to these natural hazards, the community has taken several steps to reduce their long-term risk:

- In 2019, the Wells River/Lake St. Catherine Stormwater Master Plan was completed, which identifies a range of projects to mitigate stormwater inputs to the river and lake.
- In 2018, the Road Erosion Inventory was completed. This inventory is the first step in completing a customized, multi-year plan designed to stabilize the municipal road drainage system.
- The 2017 Town Plan update included information regarding flood resilience.
- In 2015, the municipal culvert inventory was completed. This inventory is the first step in completing a customized, multi-year plan designed to stabilize the municipal road drainage system.
- On an annual basis, culverts are systematically replaced, upsizing as necessary.

In addition to progress in local mitigation efforts, there have not been any significant land development changes in Wells since 2009 that would make the community more vulnerable to natural hazards.

Table 3: Existing Plans, Studies, Reports & Technical Information

2020 Local Emergency Management Plan
2020 FEMA NFIP Insurance Reports
2019 Poultney-Wells Stormwater Master Plan
2019-2015 Green Mountain Power Outage Data
2018 State of Vermont Hazard Mitigation Plan
2018 Wells Road Erosion Inventory Report
2017 Wells Town Plan
2017 American Community Survey Five-Year Estimate
2009 Rutland Region All Hazards Mitigation Plan
2008 Flood Hazard Area Regulations
RRPC Local Liaison Reports of Storm Damage
National Oceanic and Atmospheric (NOAA) National Climatic Data Center’s Storm Events Database
FEMA Disaster Declarations for Vermont
OpenFEMA Dataset: Public Assistance Funded Project Summaries for Vermont
U.S. Geological Survey National Water Information System- Stream Gage Data
“Climate Variability and Socioeconomic Consequences of Vermont’s Natural Hazards: A Historical Perspective” by Lesley-Ann Dupigny-Giroux, 2002, Vermont History 70: 19-39.
Rutland Herald Archives
FEMA Flood Insurance Rate Maps
Relevant Stream Geomorphic Assessments and/or River Corridor Plans

5 Hazard Identification and Risk Assessment

After engaging in discussions, the Town identified the following “highest risk hazards” that they believe their community is most vulnerable to:

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2015 Plan is the way hazards are assessed. To be consistent with the approach to hazard assessment in the 2018 State Hazard Mitigation Plan, the Hazard Mitigation Planning Team conducted an initial analysis of known natural hazard events¹ to determine their probability of occurring in the future.

- Thunderstorms with associated flash flooding, fluvial erosion, high winds, and/or hail.
- Winter Storms with associated extreme cold, snow, ice, and high winds.

Each of these “highest risk hazards” (orange in Table 4) are further discussed in this section and depicted in the Local Hazards and Vulnerabilities Map in Appendix B.

The Planning Team then ranked the hazard impacts associated with the known natural hazard events based on the probability of occurrence and potential impact to life, the economy, infrastructure, and the environment. The ranking results are presented in Table 4.

The “lower risk hazards” that are considered to have a low probability of occurrence and low potential impact are not discussed. For information on these hazards, consult the State Hazard Mitigation Plan.

Table 4: Community Hazard Risk Assessment

Hazard Event	Hazard Impacts	Probability	Potential Impact					Score
			Life	Economy	Infrastructure	Environment	Average	
Thunderstorm Tropical Storm/Hurricane	Flash Flooding/ Fluvial Erosion	4	1	2	2	2	1.75	7
Landslide Ice Jam	Inundation Flooding	1	1	1	1	1	1	1
Tornado	Wind/Hail	3	2	2	2	1	1.75	5.25
Winter Storm	Cold/Snow/ Ice/Wind	4	2	3	1	1	1.75	7
Drought	Heat	1	1	1	1	1	1	1
	Drought	1	1	1	1	1	1	1
Wildfire	Wildfire	1	1	1	1	1	1	1
Earthquake	Earthquake	1	1	1	1	1	1	1

*Score = Probability x Average Potential Impact

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, - multiple injuries or fatalities, significant economic impact

¹ This Plan defines natural hazards as atmospheric, hydrologic, geologic, and wildfire phenomena. Hazards not necessarily related to the physical environment, such as infectious disease, were excluded from consideration by the Planning Team.

High Risk Hazard Profiles

Flash Flooding/Fluvial Erosion

As noted in the State Hazard Mitigation Plan, “Flooding is the most common recurring hazard event in Vermont” (2018: 55). There are two types of flooding that impact communities in Vermont: inundation and flash flooding. Inundation is when water rises onto low lying land. Flash flooding is a sudden, violent flood which often entails fluvial erosion (stream bank erosion).

Flooding of land adjoining the normal course of a stream or river is a natural occurrence. If these floodplain areas were left in their natural state, floods likely would not cause significant damage.

Floods can damage or destroy public and private property, disable utilities, make roads and bridges impassable, destroy crops and agricultural lands, cause disruption to emergency services, and result in fatalities. People may be stranded in their homes for a time without power or heat or they may be unable to reach their homes. Long-term collateral dangers include the outbreak of disease, loss of livestock, broken sewer lines or wash out of septic systems causing water supply pollution, downed power lines, loss of fuel storage tanks, fires and release of hazardous materials.

While inundation-related flood loss is a significant component of flood disasters, the more common mode of damage in Vermont is associated with fluvial erosion, often associated with physical adjustment of stream channel dimensions and location during flood events. These dynamic and oftentimes catastrophic adjustments are due to bed and bank erosion, debris and ice jams, or structural failure of or flow diversion by human-made structures. An ice jam occurs when the ice layer on top of a river breaks into large chunks which float downstream and cause obstructions (State HMP 2018). The Town does not have a high incidence or high probability of ice jams.

Several major flooding events have affected the state in recent years, resulting in multiple Presidential Disaster Declarations. From 2003 to 2010, Rutland County experienced roughly \$1.4 million in property damages due to flood events.

The worst flooding event in recent years came in August of 2011 from Tropical Storm Irene (DR4022), which dropped up to 10-11 inches of rain in some areas of Rutland County. Irene caused 2 deaths and \$55,000,000 in reported property damages and \$2.5 million in crop damages in Rutland County. Although the storm was technically a tropical storm, the effects of the storms are profiled in this flooding section, since the storm brought only large rainfall and flooding to the Town, not the high winds typically associated with tropical storms. This caused most streams and rivers to flood in addition to severe fluvial erosion.

From 2012 to 2019, Rutland County experienced approximately \$3.5 million in property damages; with \$1.9 million due to a flash flood event in July 2017 (DR4330) and \$1 million due to a flash flood event in April 2019 (DR4445).

In Wells, flooding is a risk. Although damages from Tropical Storm Irene were minor compared to neighboring towns, it still resulted in ±\$17,000 in impacts, mostly to East Wells and Tunket Roads. In Wells, damage due to flooding usually consists of impacts to roads and culverts. As shown on the Local Hazards and Vulnerabilities Map in **Appendix B**, Wells is not particularly vulnerable to inundation flooding.

Currently there are 116 structures in Town located in the Special Flood Hazard Area. These include primarily residential dwellings and camps. However, Planning Team members expressed concern regarding the accuracy of the flood limits depicted in the current FIRMs. According to FEMA, there are seven flood insurance policies issued in Wells. In total, these policies cover \$1,193,500 in value. There are no repetitive loss properties.

Flash flooding can impact areas in Town that are located outside of designated floodplains, including along streams confined by narrow valleys. Flash flooding events periodically wash out sections of several roads – West Lake; Geer; Endless Brook; Saw Mill Hill; Lamb Hill; Butts Hill; Capron Lane; Little Lake E.; Town Park; and North St. To address this, culvert upsize mitigation projects were completed on Capron Lane and Little Lake E in 2019.



Approximately 200-foot long section of roadway on East Wells Road experiencing adjacent instability on a slope descending to Wells Brook.

In addition, there are several spots on East Wells Road (between Saw Mill Hill and Wells Brook Road) vulnerable to fluvial erosion in Wells Brook – see photos above and below.



Approximately 30 linear feet of embankment subject to repetitive damage from flood events. Town installed a segmental retaining wall after Tropical Storm Irene and repaired it again in 2019.

The Poultney River watershed has undergone Stream Geomorphic Assessment (SGA), and a River Corridor Management Plan has been developed. This plan is vital in determining river and stream alterations, which affect water flows and could potentially lead to future flood damage.

The SGA and River Corridor Plan suggest potential remediation actions that can be taken to reduce the risk of future flood damage including, planting stream buffers, stabilizing stream banks, removing berms, removing structures, and restoring incision areas.

In addition, a Stormwater Master Plan for the Wells River/Lake Saint Catherine watershed was completed in November 2019. This plan includes many projects that are designed to decrease stormwater flows and increase resilience to floods – such as ditch erosion and runoff projects.

Severe Wind/Hail

Severe thunderstorms can produce high winds, lightning, flooding, rains, large hail, and even tornadoes. Thunderstorm winds are generally short in duration, involving straight-line winds and/or gusts more than 50 mph. Thunderstorm winds can cause power outages, transportation and economic disruptions, significant property damage, and pose a high risk of injuries and loss of life. From 2004 to 2010, for thunderstorms that caused more than \$200,000 in damage, Rutland County experienced nearly \$2 million in property damage. From 2011 to 2019, thunderstorms resulted in just under \$2.2 million in property damage in Rutland County, with \$525,000 due to a high wind event in May 2017.

Hail is a form of precipitation composed of spherical lumps of ice. Known as hailstones, these ice balls typically range from 5–50 mm in diameter on average, with much larger hailstones forming in severe thunderstorms. The size of hailstones is a direct function of the severity and size of the thunderstorm that produces it. Much of the hail activity in Rutland County is scattered and varies in intensity, and the resulting damage usually takes form in uprooted trees, downed power lines, and crop damage.

Violent windstorms are possible here; Wells is susceptible to high directional winds, particularly along the western shore of Lake St. Catherine; Lamb Hill Rd; Saw Mill Hill Rd; and Wells Brook Rd. Many storms with high winds result in downed trees, damaged phone, and power lines. Wells is vulnerable to power outages. As a result, the following public buildings/critical facilities have been equipped with back-up power:

Town Office (serves as the primary local emergency operations center); Fire House (alternate local EOC); and Modern Woodsman Association Hall (primary local shelter). The Wells Village School does not have back-up power.

Extreme Cold/Snow/Ice/Wind

In the Rutland Region, most winter weather events occur between the months of December and March. Throughout the season, winter weather events can include snowstorms, mixed precipitation events of sleet and freezing rain, blizzards, glaze, extreme cold, the occasional ice storm, or a combination of any of the above. Events can also be associated with high winds or flooding, increasing the potential hazard.

The costs of these storms come in the form of power outages due to heavy snow or ice accumulations, damaged trees, school closings and traffic accidents. From 2002 to 2010, Rutland County experienced \$1.1 million in property and crop damages from winter storms. From 2011 to 2019, Rutland County experienced \$1.5 million in property damage, with \$300,000 due to a 10" to 20" heavy, wet snowfall across the county on December 9, 2014.

There have been four winter storm-related federally declared Disasters in the county (the ice storm of January 1998 – DR 1201; severe winter storms in December 2000 and 2014 – DR 1358 and DR 4207, respectively; and severe storm and flooding in April 2007 – DR 1698). Historically, the winter storm of December 1969 brought record snowfall amounts and snowdrifts to Vermont, and later freezing rain caused prolonged power outages (Dipugny-Giroux 2002:26).

Typically, towns' vulnerability to snow and ice storms are power outages and loss of road accessibility. As previously described, the Town is prepared for a power outage caused by ice/wet snow accumulation on power lines or trees falling on powerlines due to weight of ice accumulation, especially if the outage coincided with a large scale sheltering event. In general, snow accumulation has not made the Town vulnerable to loss of road accessibility. The Town's snowplows has ensured that roads are accessible, even in major snow events. Areas prone to drifting (West Lake Rd, North St (top of the hill), High Chapparral Rd, Mill Pond Rd) are maintained accordingly.

High Risk Hazard History

Note: These are the most up to date significant events impacting Wells. Federal declarations are depicted in **bold**.

Flash Flooding and Fluvial Erosion

4.15.2019: **DR4445** 1-2" rain with significant snow melt: **\$120,000 local damage**

7.1.2017: **DR4330** 3-4" rain the previous 3-4 days with flash flooding on 7/1/17: **\$168,000 local damage**

6.25-7.11.2013: **DR4140** with heavy rain over multiple days: **no damage reported**

8.28.2011: **DR4022** Tropical Storm Irene with +/-5" rain: **\$17,192 local damage** (\$5,153 Individual / \$12,039 Public)

10.7.2005: 3-4" rain: no reported impact

12.16.2000: **DR1358** 2-4" rain: **\$35,296 local damage**

9.16.1999: **DR1307** Tropical Storm Floyd with 4-5" rain: **no reported impact**

1.19.1996: **DR1101** snow melt/rain: **\$31,531 local damage**

Severe Wind/Hail

2.24.2019: 48 mph winds: \$25,000 regional damage

4.1.2018: 72 mph winds: \$50,000 regional damage

10.30.2017: 40 mph wind: \$100,000 regional damage

5.5.2017: 74 mph winds: \$500,000 regional damage

5.29.2012: Nickel-size hail: no reported impact

8.21.2011: 70 mph winds: \$75,000 local damage; \$10,000 crop damage

5.26.2010: Quarter-size hail with 70 mph wind; \$100,000 local damage

6.10.2008: Nickel-size hail; no reported impact

9.29.2005: 35 mph winds: \$100,000 regional damage

6.8.2005: 60 mph winds: \$50,000 local damage

8.20.2001: 37 mph winds: no reported impact

Extreme Cold/Snow/Ice/Wind

2.1.2015: Record cold month with 15 to 20+ days below zero: no reported impact

1.7.2015: 0 to 10 degrees with winds of 15-30 mph Creating wind chills colder than -20 to -30 below zero: no reported impact

12.9.2014: **DR4207** with 10-20" snow: **\$100,000 regional damage**

11.26.2014: 11" snow: \$25,000 regional damage

3.12-13.2014: 8-24" snow and wind gusts to 35-40 mph: **\$35,000 regional damage**

12.26.2012: Snowfall rate of 1-2" per hour with accumulations of 6-8": no reported impact

2.23.2010: 6-30" snow: \$100,000 regional damage

4.15-16.2007: **DR1698** "Nor'icane" with 3" snow and rain with winds of 60 to 80 mph: **\$1,000,000 regional damage**

2.14.2007: 18-30" snow: \$200,000 regional damage

12.6.2003: 12-18" snow: \$20,000 regional damage

Vulnerability Summary

Flash Flooding and Fluvial Erosion

Location¹: All gravel roads; particularly East Wells Road; Tunket Road; West Lake Road; Geer Road; Endless Brook Road; Saw Mill Hill Road; Lamb Hill Road; Butts Hill Road; North Street; Town Park

Vulnerable Assets¹: Roads and culverts

Extent: ±5" rain; extent data for fluvial erosion is unavailable

Impact: \$168,000 local damage

Probability: Highly Likely

Severe Wind/Hail

Location¹: West shore of Lake St. Catherine; Lamb Hill Road; Saw Mill Hill Road; Wells Brook Road

Vulnerable Assets¹: Houses, trees, power lines

Extent: Nickel-size hail and ±70 mph winds

Impact: \$75,000 local damage

Probability: Likely

Extreme Cold/Snow/Ice/Wind

Location¹: Town-wide; drifting on West Lake Road; North Street (top of the hill); High Chapparral Road

Vulnerable Assets¹: Roads, culverts, trees, power lines

Extent: Up to 30" of snow, glaze coating of ice, 80 mph winds, 15 to 20+ days below zero

Impact: \$1,000,000 regional damage

Probability: Highly Likely

¹ See **Appendix B**: Local Hazards and Vulnerabilities Map

6 Hazard Mitigation Strategy

The high risk hazards and vulnerabilities identified in the previous section of this Plan directly inform the hazard mitigation strategy outlined below, which the community will strive to accomplish over the coming years. The mitigation strategy chosen by the Town includes the most appropriate activities to lessen vulnerabilities from potential hazards.

Mitigation Goals

The Hazard Mitigation Planning Team discussed mitigation goals and identified the following as the community's main mitigation goals:

- Reduce or avoid long-term vulnerabilities to identified hazards;
- Reduce the loss of life and injury resulting from these hazards;
- Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters;
- Reduce the damage to public infrastructure resulting from these hazards;
- Encourage hazard mitigation planning as a part of the municipal planning process;
- Encourage the adoption and implementation of existing mitigation resources, such as River Corridor Plans and Fluvial Erosion Hazard Maps, if available;
- Recognize the connections between land use, stormwater, road design, maintenance, and the effects from disasters;
- Ensure that mitigation measures are sympathetic to the natural features of community rivers, streams, and other surface waters; historic resources; character of neighborhoods; and the capacity of the community to implement them.

Community Capabilities

Each community has a unique set of capabilities, including authorities, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability. Wells' mitigation capabilities that reduce hazard impacts or that could be used to implement hazard mitigation activities follow.

Administrative and Technical

In addition to the Emergency Management staff described in Section 3, municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: the Town Clerk/Treasurer, Assistant Town Clerk/Treasurer, Town Librarian, and Highway Department (foreman and two crew).

In addition to paid staff, there is a 5-member Selectboard and 7-member Planning Commission.

To augment local resources, the Town has formal mutual aid agreements for emergency response - fire, EMS, police, and public works. Technical support is available through the RRPC in the areas of land use planning, emergency management, transportation, GIS mapping, and grant writing. Technical support is available through the State for floodplain administration.

Strengths: Excellent communication and coordination between the Wells Fire Department and Highway Department; well-trained and experienced staff; routine maintenance programs for roadside ditching, tree trimming, and culverts help to reduce risk; excellent record keeping systems for tracking highway maintenance work; past success in securing grants for public infrastructure improvements; strong working relationships with neighboring communities to augment local resources.

Areas for Improvement: Periodic tabletop and field exercises to test and strengthen operational coordination; sheltering agreements with Red Cross need to be updated; develop an emergency communications plan because cell coverage is poor and there are not enough radios to communicate with all departments; few staff perform multiple functions – this lack of redundancy makes Town's administrative and technical capabilities vulnerable; Highway Department staff could benefit from training in online mapping and asset management resources – ANR Atlas, VTCulverts, MRGP REI Portal.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Examples of planning capabilities that can either enable or inhibit mitigation include land use plans, capital improvement programs, transportation plans, stormwater management plans, disaster recovery and reconstruction plans, and emergency preparedness and response plans. Examples of regulatory capabilities include the enforcement of zoning ordinances, subdivision regulations, and building codes that regulate how and where land is developed, and structures are built.

Strengths: Existing Flood Hazard Area regulations are effective at reducing hazard impacts and they are adequately administered and enforced; codes and standards are adequately administered and enforced; recently completed stormwater master planning.

Areas for Improvement: Protect river corridors from new encroachment (River Corridor Bylaws); capital planning for equipment replacement and infrastructure improvements needs to be documented.

Flood Hazard Area (FHA) Regulations: Adopted April 24, 2008

Description: Apply to all areas in the Town identified as areas of special flood hazard.

Relationship to Natural Hazard Mitigation Planning: Ensures the design and construction of development in flood and other hazard areas are accomplished in a manner that minimizes or eliminates the potential for flood loss or damage to life and property.

Road and Bridge Standards: Adopted on September 17, 2019

Description: Provide minimum codes and standards for the construction, repair, and maintenance of all town roads and bridges.

Relationship to Natural Hazard Mitigation Planning: The standards include management practices and are designed to ensure the safety of the traveling public, minimize damage to road infrastructure during flood events, and enhance water quality protections.

Fire Department ISO Rating: Issued in 2019

Description: The Wells Fire Department's ISO rating is 9. This rating is a score from 1 to 10 that indicates how well-protected the community is by the local fire department.

Relationship to Natural Hazard Mitigation Planning: Everyone wants to keep family, home, and business safe from fires. The ISO rating is a measure of the effectiveness of a community's fire services.

Municipal Plan: Adopted May 2, 2017

Description: A framework for defining and attaining community aspirations through public investments, land use regulations, and other implementation programs.

Relationship to Natural Hazard Mitigation Planning: The Emergency Management and Flood Resilience sections of the Town Plan include specific goals and policies related to natural hazards.

Local Emergency Management Plan: Last adopted on March 17, 2020

Description: Establishes lines of responsibility during a disaster as well as high risk populations, hazard sites, procedures, and resources.

Relationship to Natural Hazard Mitigation Planning: The LEMP includes actions for tracking events and response actions including damage reports to facilitate funding requests during recovery. This type of information can be essential to preparing hazard mitigation project applications for FEMA funding.

Road Stormwater Management Plan: December 2018

Description: Prioritizes those infrastructure projects necessary to improve transportation network resiliency and water quality.

Relationship to Natural Hazard Mitigation Planning: Improvements are designed to minimize or eliminate flood impacts on hydrologically-connected road segments.

Wells River/Lake Saint Catherine Watershed Stormwater Master Plan: November 2019

Description: Identify current stormwater inputs and develop prioritized projects to mitigate stormwater water quality problems.

Relationship to Natural Hazard Mitigation Planning: Many projects accomplish multiple goals – water quality and hazard mitigation.

Financial

Financial capabilities are the resources that a community has access to or is eligible to use to fund mitigation actions.

Wells’ current annual budget is approximately \$969,800, with \$537,420 to fund the Highway Department. Although the Town has not done so in the past, it is eligible to incur debt through general obligation bonds to fund mitigation actions.

Strengths: Maximize grant opportunities (FEMA, VTrans, other State funding programs); contingency funds to finance unexpected repairs; dedicated reserve funds for equipment replacement; tax revenues are sufficient for annual operation and maintenance needs.

Areas for Improvement: Capital improvement planning and budgeting needs to be documented.

Education and Outreach

Wells has several education and outreach opportunities that could be used to implement mitigation activities and communicate hazard-related information:

- Wells Volunteer Fire Department
- Wells Elementary School Newsletter
- Wells Public Library Website/Librarian Blogs
- Wells Town Website and Facebook Page
- Lake Saint Catherine Association Website/Newsletters
- Lake Saint Catherine Conservation Fund
- Our Neighbors Table – local food shelf

Strengths: Multiple programs/organizations are already in place in the community; Town Librarian has a strong social media presence and is willing to help with education and community outreach.

Areas for Improvement: Better coordination is needed to help implement future mitigation activities.

National Flood Insurance Program Compliance

The Town joined the National Flood Insurance Program (NFIP) in 1988. The Selectboard enforces NFIP compliance through permit review requirements in its Flood Hazard Area regulations. Wells’ regulations:

1. Require any new residential construction within the 100 year floodplain to have the lowest floor, including the basement, elevated above the 100 year flood elevation. The community must maintain a record of all lowest floor elevations or the elevations to which buildings in flood hazard areas have been flood proofed;
2. Allow non-residential structures to be elevated or dry flood proofed; and
3. Require anchoring of manufactured homes in flood prone areas.

The Town has discussed the following actions as possible actions the Town could take to continue NFIP compliance:

1. Provide information to residents on safe building initiatives and the availability of flood insurance;
2. Adopt river corridor protection language in the flood hazard regulations bylaw; and
3. Work with the RRPC to ensure that floodplain and river corridor maps are kept up to date.

State Incentives for Flood Mitigation

Vermont’s Emergency Relief Assistance Funding (ERAF) provides state funding to match FEMA Public Assistance after federally-declared disasters. Eligible public costs are generally reimbursed by FEMA at 75% with the State matching 7.5%. The State will increase its match to 12.5% or 17.5% of the total cost if communities take steps to reduce flood risk.

12.5% funding for eligible communities that have adopted four (4) mitigation measures:

1. NFIP participation;
2. Town Road and Bridge Standards;
3. Local Emergency Plan; AND
4. Local Hazard Mitigation Plan.

17.5% funding for eligible communities that also have:

1. FEMA’s Community Rating System (CRS) participation; OR
2. Fluvial Erosion Hazard (FEH) or other river corridor/floodplain protection bylaw that meets or exceeds the Vermont Agency of Natural Resources FEH model regulations and scoping guidelines.

Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2009 Plan, and identified possible new actions from the following categories for each of the high risk natural hazards identified in Section 5:

1. Local Plans and Regulations: These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
2. Structure and Infrastructure Projects: These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This applies to public or private structures as well as critical facilities and infrastructure. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance Program.
3. Natural Systems Protection: These are actions that minimize damage and losses and preserve or restore the functions of natural systems.
4. Education and Awareness Programs: These are actions to inform and educate the public about hazards and potential ways to mitigate them. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk is more likely to lead to direct actions.

Local Plans and Regulations

Integrate Mitigation into Capital Improvement Programs: Hazard mitigation can be included in capital improvement programs by incorporating risk assessment and hazard mitigation principles into the capital planning efforts.

Manage Development in Erosion Hazard Areas: The intent of River Corridor Bylaws is to 1) allow for wise use of property within river corridors that minimizes potential damage to existing structures and development from flood-related erosion, 2) discourage encroachments in undeveloped river corridors and 3) reasonably promote and encourage infill and redevelopment of designated centers that are within river corridors.

Improve Stormwater Management Planning: Rainwater and snowmelt can cause flooding and erosion in developed areas. A community-wide stormwater management plan can address stormwater runoff.

Reduce Impacts to Roadways: The leading cause of death during winter storms is from automobile or other transportation accidents, so it is important to plan for and maintain adequate road and debris clearing capabilities.

Structure and Infrastructure Projects

Remove Existing Structures from Flood Hazard Areas: Communities may remove structures from flood-prone areas to minimize future flood losses and preserve lands subject to repetitive flooding.

Improve Stormwater Drainage Capacity: Improving the stormwater drainage capacity can help to minimize inundation flooding and fluvial erosion by: 1) increasing drainage/absorption capacities with low impact development practices; 2) increasing dimensions of drainage culverts in flood-prone areas; 3) stabilizing outfalls with riprap and other slope stabilization techniques; and 4) re-establishing roadside ditches.

Conduct Regular Maintenance for Drainage Systems: Regular maintenance will help drainage systems and flood control structures continue to function properly. Techniques include: 1) routinely cleaning and repairing stormwater infrastructure – culverts, catch basins, and drain lines; 2) routinely cleaning debris from support bracing underneath low-lying bridges; and 3) inspecting bridges and identifying if any repairs or retrofits are needed to prevent scour.

Protect Infrastructure and Critical Facilities: Mitigation techniques can be implemented to help minimize losses to infrastructure and protect critical facilities from flood events by: 1) elevating roads above the base flood elevation to maintain dry access and 2) floodproofing critical facilities.

Protect Power Lines: Power lines can be protected from the impacts of natural hazards by: 1) incorporating inspection and maintenance of hazardous trees within the road right-of-way into the drainage system maintenance process and 2) burying power lines.

Retrofit Critical Facilities: Critical facilities can be protected from the impacts of high winds and winter storms. Techniques include: 1) retrofitting critical facilities to strengthen structural frames to withstand wind and snow loads; 2) anchoring roof-mounted mechanical equipment; and 3) installing back-up generators or quick connect wiring for a portable generator.

Natural Systems Protection

Protect and Restore Natural Flood Mitigation Features:

Natural resources provide floodplain protection, riparian buffers, and other ecosystem services that mitigate flooding. It is important to preserve such functionality. Possible projects include: 1) establishing vegetative buffers in riparian areas; 2) stabilizing stream banks; 3) removing berms; and 4) restore incision areas.

Education and Awareness Programs

Educate Property Owners About Freezing Pipes:

Extreme cold may cause water pipes to freeze and burst, which can cause flooding inside a building. Education and Awareness Programs for property owners may include: 1) educating building owners on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls and 2) informing homeowners that letting a faucet drip during extreme cold weather can prevent the buildup of excessive pressure in the pipeline and avoid bursting.

Assist Vulnerable Populations: Measures could be taken to ensure vulnerable populations are adequately protected from the impacts of natural hazards, such as: 1) organizing outreach and 2) establishing and promoting accessible heating or cooling centers in the community.

Mitigation Action Evaluation and Prioritization

For each mitigation action identified, the Hazard Mitigation Planning Team evaluated its potential benefits and/or likelihood of successful implementation. Each action was evaluated against a broad range of criteria, including a planning level assessment of whether the costs are reasonable compared to the probable benefits. Results of this evaluation are presented in **Table 5**.

Mitigation Action Implementation

After careful evaluation and prioritization, the Planning Team agreed upon a list of actions that are acceptable and practical for the community to implement. Those actions without overall public support/political will were not selected for implementation. Those actions whose costs were not reasonable compared to the probable benefits were also not selected.

For the selected actions, the Planning Team then 1) assigned a responsible party to lead the implementation of each action; 2) identified potential funding mechanisms; and 3) developed a timeframe for implementing each action. This action plan is presented in **Table 6**.

Note that the Town will make every effort to maximize use of future Public Assistance Section 406 Mitigation opportunities when available during federally declared disasters.

Table 5: Mitigation Action Evaluation and Prioritization

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Local Plans and Regulations									
Update Road Erosion and Culvert Inventories	1	1	1	1	1	1	6	1	Yes
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	1	1	1	1	1	1	6	1	Yes
Manage Development in Erosion Hazard Areas by Adopting River Corridor Bylaws	1	1	1	1	1	1	6	1	Yes
Integrate Mitigation into Capital Improvement Programs	0	1	1	1	1	1	5	1	Yes
Review VTrans Bridge Inspection Reports ¹ and Plan for Identified Repairs to Prevent Scour	0	1	1	0	0	1	3	1	Yes
Structure and Infrastructure Projects									
Re-establish Roadside Ditches	1	1	1	1	1	1	6	1-2	Yes
Protect Power Lines and Roadway by Inspecting and Removing Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1	Yes
Elevate Roads Above Base Flood Elevation to Maintain Dry Access	1	1	1	1	1	1	6	2	Yes
Increase Dimension of Drainage Culverts in Flood-Prone Areas	1	1	1	0	1	1	5	1-2	Yes
Implement Projects Identified in 2019 Wells River/Lake St. Catherine Watershed Stormwater Master Plan	0	1	1	1	1	1	5	1	Yes
Stabilize Outfalls	1	1	1	0	1	1	5	1	Yes
Increase Drainage/Absorption Capacities with Low Impact Development Practices	0	1	1	0	1	1	4	1	Yes
Bury Power Lines	Without local zoning regulations, the Planning Team did not believe there was any way to require this and therefore did not evaluate this action.								
Remove Existing Structures from Flood-Prone Areas	No existing structures in flood-prone areas, so the Planning Team did not evaluate this action.								
Routinely Clean and Repair Stormwater Infrastructure	No municipal stormwater collection system, so the Planning Team did not evaluate this action.								
Routinely Clear Debris from Support Bracing Underneath Low-Lying Bridges	No low-lying bridges (W. Lake Rd, South St., Mill Pond Rd), so the Planning Team did not evaluate this action.								
Install Back-up Generators or Quick Connect Wiring at Critical Facilities	All public buildings/critical facilities have back-up power (except for the Wells Village School), so the Planning Team did not evaluate this action.								
Floodproof Critical Facilities	No critical facilities that require floodproofing, so the Planning Team did not evaluate this action.								
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	No critical facilities that require retrofitting, so the Planning Team did not evaluate this action.								
Anchor Roof-Mounted Mechanical Equipment on Critical Facilities	No critical facilities with roof-mounted mechanical equipment, so the Planning Team did not evaluate this action.								
Natural Systems Protection									
Stabilize Stream Banks	1	1	1	1	1	1	6	2	Yes
Remove Berms	1	1	1	1	1	1	6	1	Yes
Establish Vegetative Buffers in Riparian Areas	0	0	0	1	1	1	3	1	Yes
Restore Incision Areas	No known incision areas, so the Planning Team did not evaluate this action.								
Education and Awareness Programs									
Keep the Ditches Clean Campaign	1	1	1	1	1	1	6	1	Yes
Assist Vulnerable Populations	The Town already has a system in place to assist vulnerable populations – see 2020 Local Emergency Management Plan.								
Educate Property Owners about Freezing Pipes	There is no municipal water system, so the Planning Team did not evaluate this action.								

¹ VTrans inspects all bridges 20-feet or more in length every two years. Bridge inspection reports are available on the VTrans website.

Evaluation Criteria:

Life Safety – How effective will the action be at protecting lives and preventing injuries?

Property Protection – How effective will the action be at eliminating or reducing damage to structures and infrastructure?

Technical – Is the mitigation action a long-term, technically feasible solution?

Political – Is there overall public support/political will for the action?

Administrative – Does the community have the administrative capacity to implement the action?

Other Community Objectives – Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation?

Rank each of the above criteria in Table 5 with a -1, 0, or 1 using the following table:

1= Highly effective or feasible

0 = Neutral

-1 = Ineffective or not feasible

Estimated Cost – 1 = less than \$75,000; 2 = \$75,000 to \$500,000; 3 = more than \$500,000

C/B – Are the costs reasonable compared to the probable benefits?

Table 6: Mitigation Action Implementation

Mitigation Action	Vulnerability Addressed	Community Lifeline Targeted ¹	Lead Party	Potential Funding	Timeframe
Local Plans and Regulations					
Update 2018 Road Erosion Inventory	Flooding	Transportation	Highway Foreman	VTrans Grant; Town Funds	2023 Field Season
Update 2015 Culvert Inventory – add driveway culverts	Flooding	Transportation	Highway Foreman	VTrans Grant; Town Funds	2020 Field Season
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	Severe Wind; Winter Storms	Transportation	Selectboard & Highway Foreman	Town Funds; Reserve Funds	Ongoing
Determine if There is Public Support to Manage Development in Erosion Hazard Areas by Adopting River Corridor Bylaws	Flooding	Transportation	Selectboard	Town Funds	Jan 2021 – Dec 2021
Incorporate Mitigation into Annual Budget and/or Capital Improvement Programs	Flooding; Severe Wind; Winter Storms	Safety and Security; Transportation	Selectboard	Town Funds	Ongoing
Examine current Town Plan to ensure identified hazards are addressed	Flooding; Severe Wind; Winter Storms	Safety and Security; Food, Water, Shelter; Energy; Communications; Transportation	Selectboard and Planning Commission	Town Funds	Prior to next Town Plan update in 2025
Review VTrans Bridge Inspection Reports and Plan for Identified Repairs to Prevent Scour: (1) Bridge #7 (2) Bridge #8 (3) Bridge #9	Flooding	Transportation	Highway Foreman	Town Funds	Ongoing
Meet with Poultney Mettowiee NRC to review 2019 Wells River/Lake St. Catherine Watershed Stormwater Master Plan and Determine Schedule for those Projects Selected for Implementation	Flooding	Transportation	Highway Foreman & Poultney Mettowiee NRC	Town Funds; Ecosystem Restoration Grant	Sept 2020 – Dec 2020
Structure and Infrastructure Projects					
Re-establish Roadside Ditches – reference Road Erosion Inventory for prioritized list of proposed projects	Flooding	Transportation	Highway Foreman	Town Funds; VTrans Grant	See Road Erosion Inventory
Protect Power Lines and Roadway by Inspecting and Removing Hazardous Trees in Road ROW	Severe Wind; Winter Storms	Energy; Transportation	Highway Foreman	Town Funds	Annually or as needed
Elevate Roads Above Base Flood Elevation to Maintain Dry Access: (1) Bull Frog Hollow / Hill Top Intersection: 300 LF Elevate 24” (2) Endless Brook Rd: 1,000 LF Elevate 14” (3) Ballard Farm Rd: 900 LF Elevate 18” (4) Lamb Hill Rd: 1,200 LF Elevate 12”	Flooding	Transportation	Highway Foreman	Town Funds; VTrans Grant; FEMA HMGP/BRIC	(1) 2020 (2) 2020 (3) 2021 (4) 2022
Increase Dimension of Drainage Culverts in Flood-Prone Areas: (1) Bull Frog Hollow / Hill Top Intersection: Upsize from 15” to 24”	Flooding	Transportation	Highway Foreman	Town Funds; VTrans Grant; FEMA HMGP/BRIC	2020 Field Season
Stabilize Outfalls on: (1) Saw Mill Hill Rd (2) Wells Brook Rd (3) Lamb Hill Rd	Flooding	Transportation	Highway Foreman	Town Funds; VTrans Grant	(1) 2021-22 (2) 2021-22 (3) 2022

Mitigation Action	Vulnerability Addressed	Community Lifeline Targeted ¹	Lead Party	Potential Funding	Timeframe
Increase Drainage/Absorption Capacities with Low Impact Development (Green Stormwater Infrastructure) Practices – see Stormwater Master Plan	Flooding	Transportation	Highway Foreman	Town Funds; VTrans Grant	See Above for Stormwater Master Plan
Replace and Clean-out Culverts	Flooding	Transportation	Highway Foreman	Town Funds	Ongoing
Natural Systems Protection					
Stabilize Stream Banks: (1) Wells Brook along East Wells Rd: Unstable bank on an outside bend of Wells Brook - Subsurface Investigation and Geotechnical Engineering Evaluation completed in 2018	Flooding	Transportation	Selectboard	Town Funds; Ecosystem Restoration Grant	2023 Field Season
Remove Berms: (1) Endless Brook along Saw Mill Hill Rd	Flooding	Transportation	Selectboard	Town Funds; Ecosystem Restoration Grant	2020 Field Season
Meet with Poultney Mettowee NRCD to identify areas to establish vegetative buffers in riparian areas.	Flooding	Transportation	Selectboard	Town Funds; Ecosystem Restoration Grant	Sept 2020 – Dec 2020
Education and Awareness Programs					
Keep the Ditches Clean Campaign	Flooding	Transportation	Selectboard	Town Funds	Annually

¹ A Community Lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security. The primary objective of lifelines is to ensure the delivery of critical services that alleviate immediate threats to life and property when communities are impacted by disasters. These critical services are organized into one of seven lifelines as seen in **Figure 1**.

Figure 1. FEMA Community Lifelines and Associated Components



1. Law Enforcement
2. Fire Service
3. Search & Rescue
4. Government Service
5. Community Safety



1. Food
2. Water
3. Shelter
4. Agriculture



1. Medical Care
2. Public Health
3. Patient Movement
4. Medical Supply Chain
5. Fatality Management



1. Power Grid
2. Fuel



1. Infrastructure
2. Responder Communications
3. Alerts, Warnings, and Messages
4. Finance
5. 911 & Dispatch



1. Highway/Road/Motor Vehicle
2. Mass Transit
3. Railway
4. Aviation
5. Maritime



1. Facilities
2. HAZMAT, Pollutants, Contaminants

Process for Incorporating Plan Requirements into Other Planning Mechanisms

For Wells to succeed in reducing long-term risks, the information and recommendations of this Plan should be integrated throughout government operations.

The following are specific examples of how the Town will incorporate this Plan into other plans, programs, and procedures:

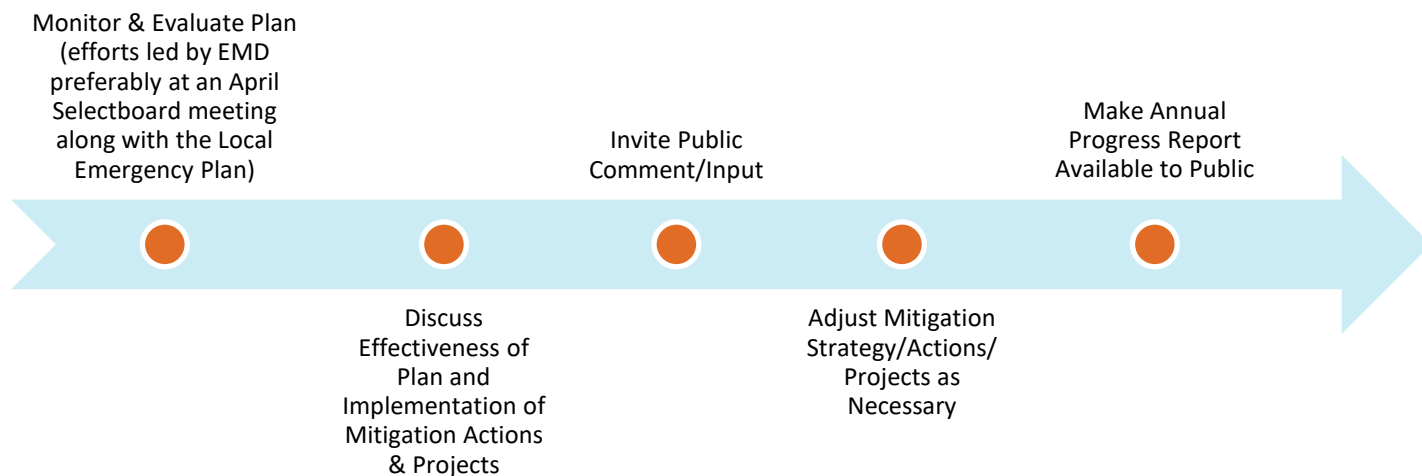
- The Selectboard will work with the Road Foreman to incorporate risk assessment and hazard mitigation goals into the capital planning efforts.
- The Planning Commission will integrate the hazard mitigation goals for disaster resiliency into the goals and objectives of the next Town Plan update in 2025.
- The Selectboard will consider the data, analysis, and maps from the risk assessment when they investigate adopting River Corridor Bylaws.
- The Road Foreman will implement several mitigation infrastructure projects (e.g., increase dimension of drainage culverts in flood-prone areas, re-establish/stabilize roadside ditches) through existing plans (2019 Poultney-Wells Stormwater Master Plan, 2018 Road Erosion Inventory Report).
- The Selectboard will work with the Poultney Mettowee Conservation District on future water quality planning projects to identify opportunities for natural system protection – specifically stream bank stabilization and riparian vegetated buffers.

7 Plan Maintenance

This Plan is dynamic. To ensure the Plan remains current and relevant, it is important it be monitored, evaluated, and updated periodically.

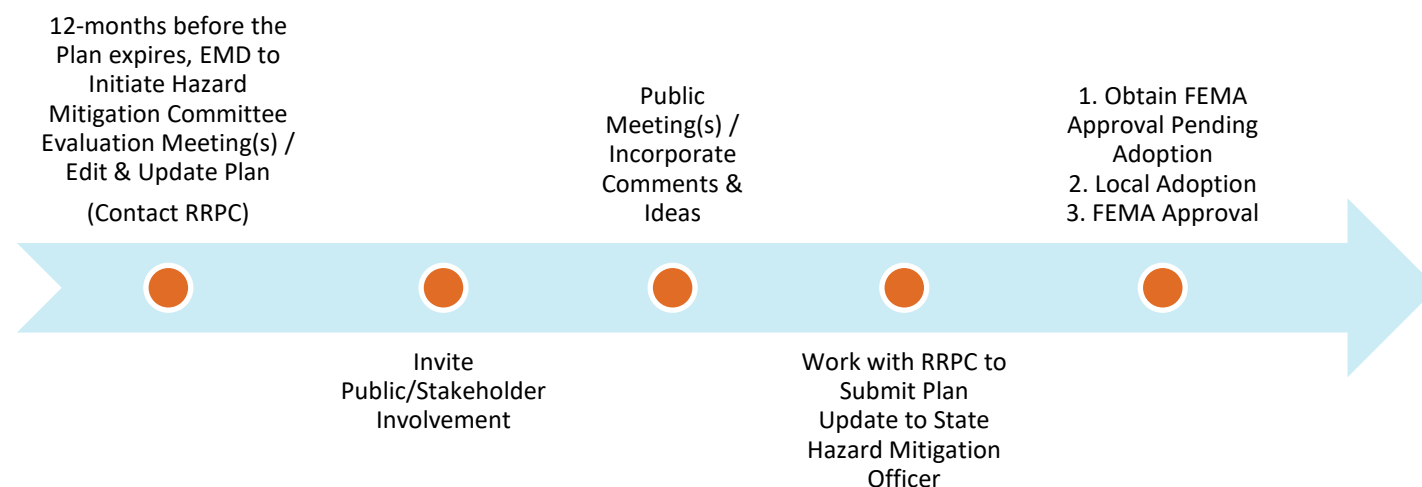
Monitoring and Evaluation

This Plan will be monitored and evaluated annually in accordance with the following process:



Updating

This Plan will be updated at a minimum every five (5) years in accordance with the following process:



**CERTIFICATE OF ADOPTION
TOWN OF Wells, Vermont Selectboard
A RESOLUTION ADOPTING THE Wells, Vermont 2020 Local Hazard Mitigation Plan**

WHEREAS, the Town of Wells has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2020 Wells, Vermont Local Hazard Mitigation Plan**, which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Wells has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **2020 Wells, Vermont Local Hazard Mitigation Plan (Plan)** under the requirements of 44 CFR 201.6; and

WHEREAS, the **Plan** specifically addresses hazard mitigation strategies, and Plan maintenance procedures for the Town of Wells; and

WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Wells with the effect of protecting people and property from loss associated with those hazards; and

WHEREAS, adoption of this **Plan** will make the Town of Wells eligible for funding to alleviate the impacts of future hazards; now therefore be it

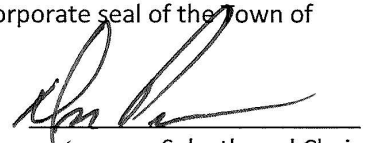
RESOLVED by Town of Wells Selectboard:

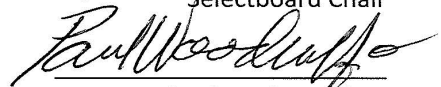
1. The **2020 Wells, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Wells;
2. The respective officials identified in the mitigation action plan of the **Plan** are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and **Plan** maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution; and
4. An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Emergency Management Director or Coordinator.

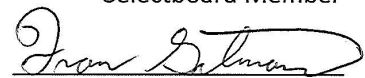
IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Wells this 27 day of OCTOBER 2020.

ATTEST

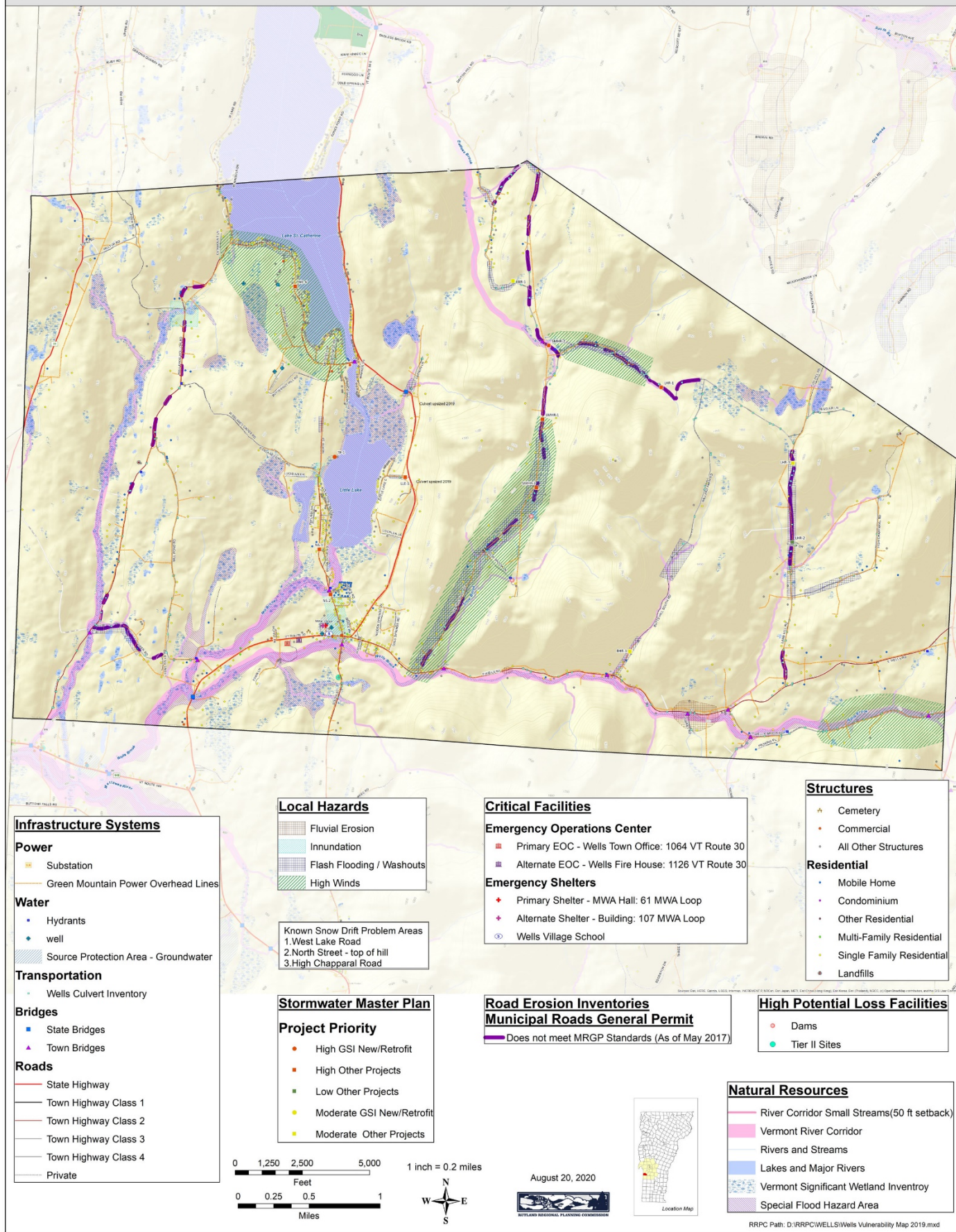

Town Clerk


Selectboard Chair


Selectboard Member


Selectboard Member

Wells, Vermont: Local Natural Hazards and Vulnerabilities Map



Mitigation Action	Who is Responsible	Approx. Time Frame & Potential Funding Sources	2020 Status Update
Purchase generators/install hook-ups for school	Town EMC	<ul style="list-style-type: none"> • Medium-term • HSU funds 	Incomplete – unknown if remains a priority
Replace/repair bridge on South Street	Road Commissioner	<ul style="list-style-type: none"> • Medium-term • State and Local resources 	Completed in 2012
Continue upgrade, replacement, and clean-out of culverts, as needed	Road Commissioner	<ul style="list-style-type: none"> • Short term 	Remains an ongoing priority
Complete culvert inventory	Road Commissioner	<ul style="list-style-type: none"> • Medium-term • Local Resources 	Initial inventory completed in 2015; update needed
Incorporate proposed strategies into Annual Budget and/or Capital Improvement Plan	Selectboard	<ul style="list-style-type: none"> • Short-Term • Local Resources 	Remains an ongoing priority
Install warning signs re: ice/snow on Route 30 trouble spots.	State AOT	<ul style="list-style-type: none"> • Short-term • State 	No longer addressed in this plan because it is a State highway
Examine Town Plan, bylaws and development regs to ensure identified hazard areas are addressed	Planning Commission/ Selectboard	<ul style="list-style-type: none"> • Med-term • Municipal Planning Grant 	Remains an ongoing priority

Note: In the table above, time frames are defined as follows: short term equals 6 months to one year. Medium term equals 1-3 years. Long term equals 4+ years