

Ira, Vermont
Local Hazard Mitigation Plan



Pyka Road Washout – May 2019

FEMA Approval Pending Adoption Date: June 28, 2022
Municipal Adoption Date: July 19, 2022
FEMA Formal Approval Date: July 20, 2022

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Other Key Partners

Poultney Mettowee Natural Resources Conservation District

Rutland Natural Resources Conservation District

Western Vermont Floodplain Manager

Vermont Department of Health

Vermont Agency of Transportation District 3 Program Manager



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1 INTRODUCTION

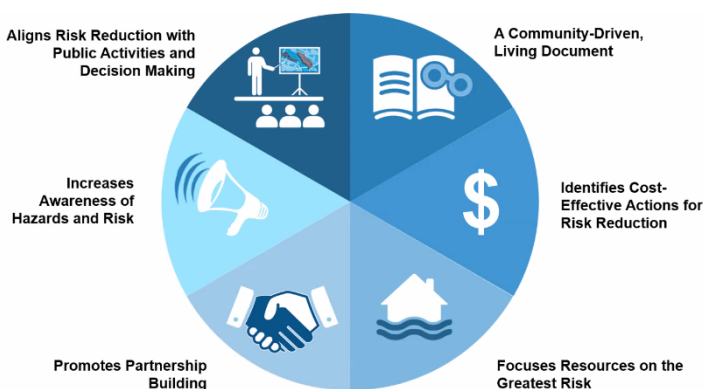
The impact of expected, but unpredictable natural events can be reduced through community planning and action. The goal of this Plan is to provide a natural hazards local mitigation strategy that makes Ira (the Town) more disaster resistant and more resilient after a disaster.

Hazard Mitigation is any sustained policy or 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 and policies that can be implemented 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 developing strategies to reduce risks from those hazards. 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:



Source: FEMA LHMP Skill Share Workshop 2021

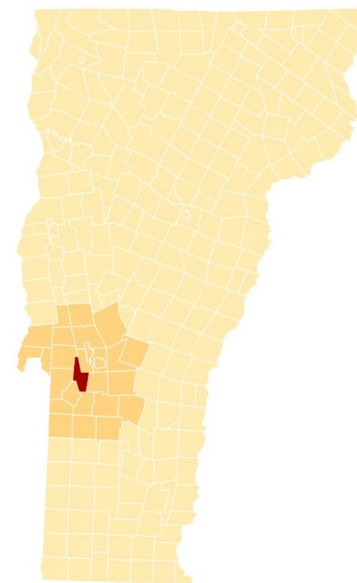
Furthermore, the Town seeks to be in accordance with the strategies, goals, and objectives of the 2018 State Hazard Mitigation Plan.

3 COMMUNITY PROFILE

Land Use and Development Patterns

The patterns of land use and development seen in Ira today closely reflect those which existed 200 years ago. The Town’s development reflects an economy that was based on agriculture — principally farming, and to a lesser extent, logging.

There are two settled areas - North Ira, in the Castleton River valley, and along VT Route 133 near the Town Hall in the Ira Brook valley. Travel from one settled area to the other within town is practically impossible and can only be accomplished by traveling through abutting towns.



Much of Ira is ringed with high mountain peaks and ridges, which have never been settled except for hill farms. Today, five of the six remaining operating farms are hill farms.

The Town’s meeting hall, Clerk’s office, and Baptist church are centrally located in the Ira Brook valley. This area is the Town’s civic focal point and State-designated Village Center.

Much of the rest of Ira is in its rural state, with farming and logging occurring in accessible areas. Throughout the town’s history, less accessible or developable lands have lent themselves to other activities including maple sugaring, hunting, fishing, and recreation.

Today most residents work outside the Town. Within Town, farms, a used car dealership, and radio/communications shop comprise Ira’s economic base.

Land Features

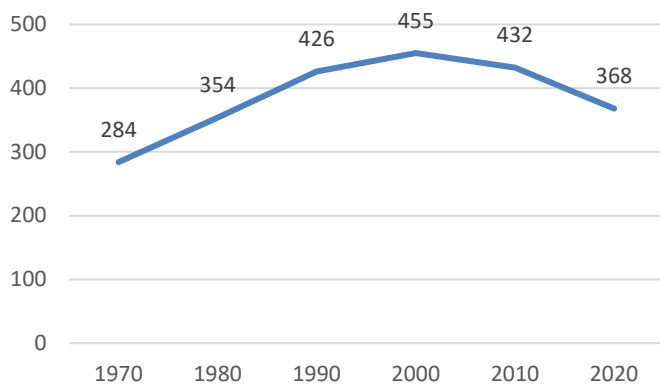
Ira is located at the northern edge of the Taconic Mountain Range, which greatly influences its landscape. Much of the Town consists of steep, rugged terrain that ranges in approximate elevation from 3,000 feet to less than 500 feet.

The spine of mountains bisecting the Town directs precipitation into two separate watersheds – the Castleton River watershed to the north and Otter Creek watershed to the south.

The lower elevation valleys contain much of Ira’s development and roadways in addition to the Castleton River and Ira Brook.

Demographics and Growth Potential

The 2020 American Community Survey Five-Year Estimates prepared by the U.S. Census Bureau shows an estimated population of 368 and 195 housing units. Ira’s population peaked in 2000 and has been in steady decline for the past 20 years.



Between 2010 and 2020, the median age of Ira residents increased from 43.8 to 55.4; higher than the Vermont median age of 42.8. The portion of the population over 65 is 26%, compared to 19% in Vermont and 16% in the country. The population density of the Town is 20 people per square mile compared to an overall state density of 68.

The Town has a unique and special character based on the historic rural nature of the community. This character tends to retain the multi-generational Vermonter while welcoming others who also appreciate this sense of community and quiet lifestyle. This is not compatible with rapid growth and intrusive development.

Ira’s demographics and low population density make it unattractive to retail and industrial development. Growth potential is also limited by several other factors including lack of public water/sewer utilities; challenges finding reliable sources of potable water; and significant amount of land within floodplains, on mountain sides, and/or conservation programs.

Precipitation and Water Features

Average precipitation is 43 inches of rain; with July being the wettest month. Average snowfall is 78 inches; with January being the snowiest month.

Ira has limited water resources. Ira Brook in the southern half of Town and the Castleton River located in North Ira along with their associated wetlands are the predominant water features in Ira. FEMA designated floodplains have been mapped for the Ira Brook and Castleton River.

Drinking Water and Sanitary Sewer

All properties in Ira rely on private springs and drilled wells for potable water. A low water table in much of the Town, makes it challenging to find reliable sources of potable water and directly affects the capabilities of the land to support development. Similarly, all properties are served by private septic systems.

Transportation

Ira is about 21 square miles in size with primary access via VT Route 133 – a state highway and major arterial route connecting West Rutland to Pawlet – or VT Route 4A.

The 2018 VTrans Town Highway data indicates that Ira has a total of 18.3 miles of road: 7.40 miles of Class 3; 3.66 miles of Class 4; and 7.25 miles of State/US highway. Several roads have been identified as locally important for use as throughways, detours, short-cuts, and access to critical facilities such as the Town Office, Town Garage, Town Hall, Ira Volunteer Fire Department, and alternate local shelter at the West Rutland School. These are shown in orange in **Figure 1**.

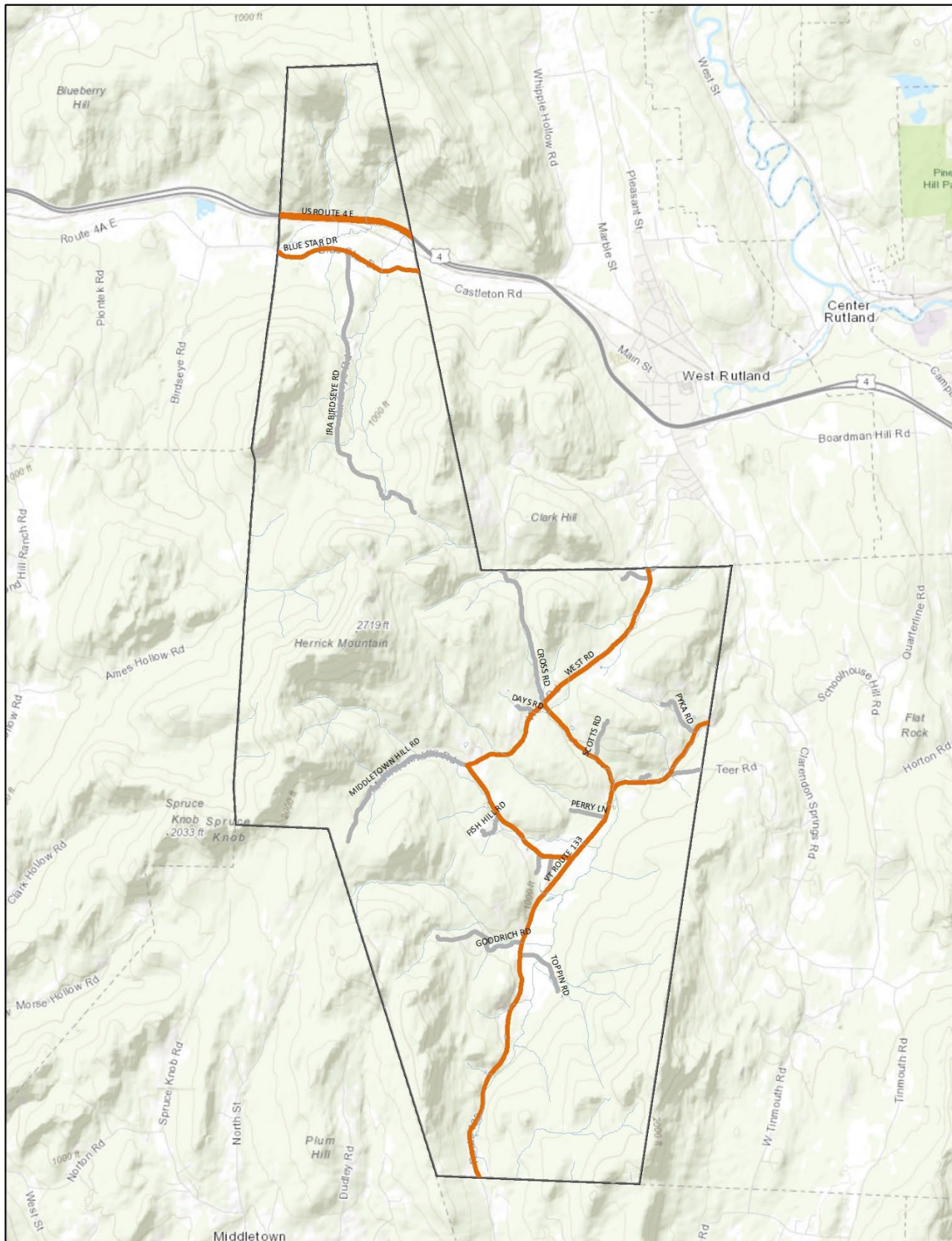


Figure 1: Locally Important Routes for Through-Ways, Detours, Short-Cuts, and Access to Critical Facilities
Shown in orange

According to the Town's Road Erosion Inventory, nearly 100% of the Town's road mileage is hydrologically connected - meaning it is within 100-feet of a water resource (i.e., stream, wetland, lake, or pond). Proximity to water resources can make these sections of road more vulnerable to flooding and fluvial erosion.

There are 15 bridges in the Ira roadway network. Of these, six are town-owned. One of the town-owned bridges, with a span over 20 feet, is part of the VTrans Town Highway Bridge Program – B16.

Ira has a total of 98 culverts, all of which were inventoried in 2017. Of the 98 culverts, 23 are listed as poor, critical, or urgent condition and should be scheduled for replacement and/or upgrade in accordance with the Town Road and Bridge Standards. The local road network is maintained by part-time municipal employees and contractors.

Electric Utility Distribution System

Electric service to approximately 220 accounts is provided by Green Mountain Power via one primary circuit. Average annual outage statistics between 2016 and 2020 are summarized in **Table 1**.

Table 1: Power Outage Summary

Average Annual (2016-2020)	
Avg # of times a customer was without power in a year	2.89
Avg length of each outage in hours	3.99
# of hours the typical customer was without power	11.54
2020 only	
Avg # of times a customer was without power in a year	3.04
Avg length of each outage in hours	1.66
# of hours the typical customer was without power	5.06

The longest power outage affecting the greatest number of accounts between 2016 and 2020 was 2.54 hours long and impacted 125 accounts. There was an outage lasting 45.63 hours in 2017, but it affected only 6 accounts.

Public Safety

The Ira Volunteer Fire Department is located on VT Route 133. The Fire Department is an active member of Rutland County Fire Mutual Aid. Law Enforcement is provided by the Vermont State Police, local constable, and Rutland County Sheriff's Department. Local first response is provided by Ira EMS, while ambulance service is provided by the Regional Ambulance Service. The nearest hospital is the Rutland Regional Medical Center.

Emergency Management

Ira has an appointed Emergency Management Director (EMD) and Emergency Management Coordinator (EMC) who work 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. Pre-Disaster Mitigation Program funds from FEMA supported this process.

Hazard Mitigation Planning Team members who assisted with the update include a Selectboard member/EMD, Town Clerk, Health Officer, and local resident.

Plan Development Process

The 2022 Ira Local Hazard Mitigation Plan is an update to the 2017 single jurisdiction mitigation plan. A summary of the process taken to develop the 2022 update is provided in **Table 2**.

Table 2: Plan Development Process

August 12, 2021: 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. Planning Team meetings were not open to the public.

August/Sept 2021: Notice posted on RRPC and Town websites/social media, Town bulletin boards, and local newsletter (Bird's Eye View – **Appendix D**) that the Town is engaged in hazard mitigation planning and updating their LHMP. Emailed notice to officials (Selectboard and Planning Commission chairs, Town Managers and Clerks, Emergency Management Directors) in neighboring towns of Castleton, West Rutland, Clarendon, Tinmouth, Middletown Springs, and Poultney as well as Key Partners (Rutland and Poultney Mettowee Natural Resources Conservation Districts, Western VT Floodplain Manager, Dept of Health Regional Emergency Preparedness Specialist, VTrans District 3 Projects Manager). Notices included instructions to contact the RRPC for more information on the planning process and opportunities for public input – see **Appendix E**.

Sept 21, 2021: Planning Team meeting – confirmed plan purpose and completed work on community profile. Began work on community hazard risk assessment, storm history, and identifying assets vulnerable to the highest risk natural hazards.

October 21, 2021: Planning Team meeting – completed work on hazard identification and risk assessment. This is a critical milestone in the plan development process and the draft plan was readied for public Selectboard meeting on November 16, 2021.

November 16, 2021: Draft LHMP presented at joint meeting of the Ira Selectboard and Planning Commission to encourage public input from local government and the public that could affect the plan's conclusions and better integrate with Town initiatives. Draft shared with Key Partners for input on vulnerable locations and assets. Draft posted for comment period with instructions to email comments to Town Clerk, Karen Davis. Comments accepted until November 30, 2021 – see **Appendix E**.

December 2, 2021: Planning Team meeting – discussed comments received on November draft; completed work on hazard identification and risk assessment. Began work on hazard mitigation strategy – confirmed mitigation goals, discussed community capabilities, and updating the status of 2017 mitigation actions.

January 6, 2022: Planning Team meeting – continued work on hazard mitigation strategy – completed community capabilities; updated status of 2017 mitigation actions; and evaluated range of possible mitigation actions.

February 3, 2022: Planning Team meeting – completed work on hazard mitigation strategy; plan maintenance; and changes since the 2017 plan. Draft LHMP finalized for public Selectboard meeting on April 19, 2022.

April 19, 2022: Final draft LHMP presented at joint meeting of the Ira Selectboard and Planning Commission for review and comment. Plan emailed to officials in neighboring towns and Key Partners. Notice of final draft and comment period published in Bird's Eye View (**Appendix D**) and posted online with instructions to email comments to Town Clerk, Karen Davis – see **Appendix E**. Copy of Plan also available at the Town Office for public comment period through May 4, 2022.

May 5, 2022: Final draft LHMP submitted to Vermont Emergency Management 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**.

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

2021 Local Emergency Management Plan
 2021 FEMA NFIP Insurance Reports
 2020-2016 Green Mountain Power Outage Data
 2020 Ira Town Plan
 2020 American Community Survey Five-Year Estimate
 2018 Road Erosion Inventory Report
 2018 State of Vermont Hazard Mitigation Plan
 2008 Flood Hazard Area Regulations
 2008 Phase 2 SGA Castleton River Watershed
 2007 Phase 1 SGA Tributaries to the Otter Creek – Clarendon River, Ira Brook, Mill Brook
 VTrans Town Highway Bridge Inspection Reports
 VTrans Highway Flood Vulnerability and Risk Map
 VTrans Transportation Resiliency Planning Tool
 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: PA Funded Project Summaries
 FEMA Flood Insurance Rate Maps

Changes Since the 2017 Plan

The goals and recommendations in the Ira 2020 Town Plan are meant to preserve and protect the town's assets while providing for improvements and growth that support the community. The stated goal in the Flood Resilience section of the Town Plan is:

“The citizens, property and economy, and the quality of the Town's natural resources are protected by sound planning practices to address flood risks; development in the Town that does not interfere with natural river functions and will not worsen flooding; and other measures that increase the Town's flood resilience.”

As described in the Community Profile section of this Plan, the Town's population has remained relatively stable over the past decade. With a 2020 population estimate of 368, Ira is one of the smallest municipalities in the Rutland Region.

Ira does not have local zoning to regulate development in the community. However, the Ira Listers track development for the Grand List. During the past five years the Town added 4 new single family homes, 1 seasonal home, and 10 outbuildings such as garages and barns. Two barns and 1 house were torn down. None of this development occurred in the floodplain or mapped river corridor.

Development in Ira since 2017 has not made the community more vulnerable to natural hazards.

The Town's mitigation priorities have shifted. In 2017, Ira's highest risk natural hazards were Floods and Fluvial Erosion, Severe Thunder/Windstorms, and Winter Storms.

Like the 2017 Plan, the 2022 Plan update focused exclusively on natural hazards defined 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.

The Town again ranked severe thunderstorms (with associated inundation, flash flooding, fluvial erosion, and high winds) and winter storms (with associated extreme cold, snow, ice, and high winds) as some of the community's highest risk natural hazards.

They also ranked ice jams with associated flooding, drought, and wildfire as additional highest risk natural hazards.

In 2022, the Town did not formally assess the risks associated with invasive species; however, they did discuss the potential hazards and risks associated with the Emerald Ash Borer (EAB) given the confirmed detection in Rutland County in October 2020. Invasive species were not included in the 2017 Plan.

Ira has made significant progress completing the mitigation actions identified in the 2017 Plan – see **Appendix C**. With respect to mitigating flood impacts on municipal roads, the Town has been especially successful in maximizing State grant opportunities to replace and upside drainage culverts over the past five years. They propose to continue with these mitigation efforts over the next five years.

Actions taken by Ira since 2017 have made the community more prepared and less vulnerable to future natural hazard impacts.

Nonetheless, due to an increase in the frequency and intensity of weather events, the Town remains vulnerable to severe winter storms, high winds, flooding and fluvial erosion, ice jams, drought, wildfire, and invasive species (particularly the Emerald Ash Borer).

As a result, the Town has identified a range of mitigation actions to address extreme cold/snow/ice, high winds, flooding, fluvial erosion, drought, wildfire, and the Emerald Ash Borer – see **Table 6**.

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 2017 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.

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**.

- **Extreme cold, snow, ice, and high winds associated with winter storms**
- **Inundation, flash flooding, fluvial erosion, high winds associated with thunder/tropical storms**
- **Inundation flooding associated with ice jams**
- **Drought**
- **Wildfire**

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

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	Flash Flooding/ Fluvial Erosion	4	2	3	4	4	3.25	13.00
Ice Jam	Inundation Flooding	3	2	3	3	4	3.00	9.00
Tropical Storm/Hurricane	Wind	4	3	3	4	4	3.50	14.00
Tornado	Hail	2	1	2	3	1	1.75	3.50
Landslide	Landslide	2	1	1	2	2	1.50	3.00
Winter Storm	Cold/Snow/Ice/ Wind	4	4	4	4	4	4.00	16.00
Drought	Heat	2	2	2	2	3	2.25	4.50
	Drought	3	3	3	3	4	3.25	9.75
Wildfire	Wildfire	3	2	2	2	4	2.50	7.50
Earthquake	Earthquake	1	1	1	1	1	1.00	1.00

*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.

Invasive Species

The Planning Team did not formally assess the risk associated with invasive species; however, they did discuss the potential hazards and risks associated with the Emerald Ash Borer (EAB) specifically.

Vermont's EAB infestation was first detected in 2018 in northern Orange County. In October 2020, a new detection of EAB in West Rutland was confirmed. This is the first confirmed detection in Rutland County, making Ira a town in the confirmed infested area. An inventory of trees within the road right-of-way is needed to determine how many Ash trees are at risk. The potential risk to private woodlots and impacts on the local economy have not been quantified.

While inundation-related flood loss can be 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 of naturally occurring unstable stream banks, 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).

Ira is vulnerable to ice jams on a tributary to Ira Brook, which crosses VT Route 133 just south of the Ira Volunteer Fire Department. Ice jams in this area can lead to inundation flooding of VT Route 133, a State bridge (B12), the Ira Fire Station, and Goodrich Road (a private road). Road closures here would significantly disrupt commuter traffic on VT Route 133 and limit access to the Fire Station as well as the Town office and garage if travelling from the south.

Highest Risk Hazard Profiles

Inundation/Flash Flooding/Fluvial Erosion

Floods can damage or destroy property; disable utilities; destroy or make impassable roads and bridges; 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, heat, or communication 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.

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 Vermont communities: 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).

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



Ice Jam Flooding at VT Route 133 State Bridge (B12)
(photo taken from front of Ira Fire Station)

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 \$2.6 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 widespread and severe fluvial erosion.

From 2012 to 2020, 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 Ira, flooding is a risk. Damages from Tropical Storm Irene were significant, resulting in just under \$63,000 in impacts. In Ira, damage due to flooding usually consists of impacts to roads, culverts, bridges, and buildings.

As shown on the Local Natural Hazards and Vulnerabilities Map in **Appendix B**, Ira's vulnerability to inundation flooding is limited to the areas around Toppin Road and VT Route 133 near Goodrich Road. Toppin Road routinely floods in the spring with water pooling up to four inches deep. Homes on Toppin and Goodrich Roads can become isolated.



Seasonal Floodwaters Encroaching on Toppin Road

Two structures, the Ira Volunteer Fire Station and a single family dwelling, are in the Special Flood Hazard Area (1% of community structures). According to FEMA, both properties have flood insurance. In total, these policies cover \$208,000 in value.

There are no repetitive loss properties.

State bridge (B12) is also vulnerable to inundation flooding. The carrying capacity of the bridge has been reduced due to significant deposition. Water quickly rises to the bottom of the bridge deck during heavy rain events and spring melt and threatens to flood VT Route 133.



VT Route 133 State Bridge (B12) – 2018
(Ira Fire Station shown in background)

Flash flood can occur any time the area has heavy rain. It can impact areas in Town that are located outside of designated floodplains, including along streams confined by narrow valleys. Sections of several roads are periodically washed out – Bird's Eye, West, Cross, Fish Hill, Middletown Hill, Weaver Hill, and Pyka roads. Any gravel road with a hill can be impacted by flash floods. Flash flooding impacts roads, culverts, bridges – Kahle Road bridge (B16), Cross Road bridge (B10), Fish Hill Road bridge (B15), and West Road bridge (B9).

Impacts can be exacerbated by undersized culverts, inadequate ditching, and that time of year when snow begins to melt and spring rains arrive (commonly known as “mud season” in Vermont).



Flash Flooding Damage on Bird's Eye Road

The seasonal freeze and thaw cycles are natural in the region. But during mud season, gravel roads can only hold so much water before they give way to muddy and rutting conditions. In extreme cases, the soil saturation can make gravel roads impassable and require road closures. This was the case on a section of West Road in 2019.

While a rare occurrence, dam failure and resulting flash flooding is a concern in Ira. There are two large ponds with flooding potential – one upslope of Middletown Hill Road and one at the Ira Brook headwaters along VT Route 133.

As shown in **Figure 1**, VT Route 133, West Road, and Cross Road are locally important routes for resident commuters and are heavily travelled. When these roads are impacted by flooding, the Selectboard (acting as Road Commissioner) coordinates with the Fire Department and state dispatch to close the roads and set up detours. The road closures create longer commute times for residents and longer emergency service response times.

VT Route 133 and West Road are also important routes to access Ira's critical facilities – the Town Office (also the Local Emergency Operations Center); Town Hall (primary local shelter); Town Garage; and Fire Station.

The inventory of hydrologically-connected roads completed in 2017 for the Municipal Roads General Permit also identified areas vulnerable to flash flooding and included recommended corrective actions to make these areas more resilient.



Flash Flooding Damage on Bird's Eye Road

In February 2007, Phase I Geomorphic Assessment of tributaries to the Otter Creek, including Ira Brook, was completed. The primary objective of the study was to provide an overview of the general physical characteristics of certain tributaries to the Otter Creek watershed and determine which reaches may be in adjustment. A secondary objective was to select reaches to be recommended for Phase 2 Assessment, which can be used for watershed planning and restoration activities. Much of the main stem of Ira Brook was recommended for Phase 2 assessment.

Ira Brook experienced significant fluvial erosion and deposition within the river corridor during Tropical Storm Irene. This impacted surrounding agricultural lands and residential properties off VT Route 133 near the Pyka Road intersection.

Other assets vulnerable to fluvial erosion along Ira Brook and its tributaries include Fish Hill Road, Kahle Road bridge (B16), Cross Road bridge (B10), and VT Route 133 bridge (B12).



Fluvial Erosion on Ira Brook Tributary

High Wind

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 and communication 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 2020, thunderstorms resulted in just under \$2.4 million in property damage in Rutland County, with \$525,000 due to a high wind event in May 2017.

As weather patterns shift and we see larger storms and more frequent freeze-thaw cycles, the Town will monitor for signs that rivers that have historically been stable becoming less stable, with increased erosion, widening, trees falling in from its banks, etc.

Violent windstorms are possible here; Ira is susceptible to high directional winds town-wide. Many storms with high winds result in downed trees, damaged phone and power lines, buildings, and other property. Ira is vulnerable to power outages, which pose a potentially significant risk to many residents.

Flooding Hazard History

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

8/24/2020: 2-3" rain: minor local damage

4/15/2019: DR4445 1-2" rain with significant snow melt: no local damage; \$70,000 private property damage; \$1,010,000 regional damage

7/1/2017: DR4330 3-4" rain the previous 3-4 days with flash flooding on 7/1/17: no local damage; \$1,970,000 regional property damage and \$100,000 regional crop damage

6/25-7/11/2013: DR4140 with heavy rain over multiple days: no local damage; \$420,000 regional damage

8/28/2011: DR4022 Tropical Storm Irene with ±5" rain: \$62,743 local damage (\$49,841 Public Assistance / \$1,402 Individual Assistance / \$11,500 NFIP)

1/18/2006: 1-2" rain with snow melt: \$50,000 regional damage

10/7/2005: 3-4" rain: no reported damages

4/13/2002: 1-3" rain with significant snow melt: \$30,000 regional damage

12/16/2000: DR1358 2-4" rain: \$14,500 local damage

9/16/1999: DR1307 Tropical Storm Floyd with 4-5" rain: \$11,240 local damage

Downed trees within and outside of the road right-of-way are the root cause of many power outages. When a power outage occurs, communication systems become compromised. Much of the Town is served by a land line phone service that has converted from copper wire to fiber optic service. An in-home battery provides the electricity necessary to make a call. The battery life is less than eight hours, whether the phone is used or not.

Cell service in Ira is spotty. In the event of an emergency during a power outage, many cannot contact the fire department, police, or ambulance service. This is of great concern given Ira's remote and isolated homes.

To mitigate the impacts of power outages, the following public buildings/critical facilities have been equipped with back-up power or generator hook-up: Town Office, Fire Station, and Town Hall (primary local shelter).

The only critical facility lacking back-up power is the Town Garage.

The Town Office serves as the local Emergency Operations Center (EOC). During a disaster, the municipal response is managed from the EOC, this would include all communications – from phone calls to internet browsing and 2-way radio.

Connectivity is crucial in times of crisis. Telecommunications are needed for warning systems before disaster, as well as for response during and recover after. Power outages are the main reason for stopping communications. Back-up power at this critical facility will ensure operations at the EOC are not compromised.

High Wind Hazard History

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

3/1/2021: 39 mph wind: \$20,000 regional damage
 8/4/2020: 45 mph wind: \$35,000 regional damage
 2/24/2019: 48 mph wind: \$25,000 regional damage
 4/1/2018: 63 mph wind: \$50,000 regional damage
 10/30/2017: 40 mph wind: \$100,000 regional damage
 5/5/2017: 64 mph wind: \$500,000 regional damage
 5/29/2012: 55 mph wind: \$25,000 local damage
 12/1/2010: 52 mph wind: \$100,000 regional damage
 9/29/2005: 35 mph wind: \$50,000 regional damage
 10/6/2001: high wind: \$50,000 regional damage

Extreme Cold/Snow/Ice

In the Rutland Region, most winter weather events occur between 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 2001 to 2010, Rutland County experienced \$2.7 million in property and crop damages from winter storms. 2011 to 2020 experienced \$1.58 million in property damage, with \$300,000 due to a 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).

Typically, towns’ vulnerability to snow and ice storms are power outages and loss of road accessibility. Except for the serious issue of loss of land line phones, the Town is prepared for a power outage, even if the outage coincided with a sheltering event.

In general, snow accumulation has not made the Town vulnerable to loss of road accessibility. The Town’s fleet of snowplows ensures most roads are accessible, even in major snow accumulation events. Roads adjacent to critical facilities are well maintained. The following are prone to significant drifting and are maintained accordingly: Bird’s Eye Road, Toppin Road, and the flats on West Road.



Ice Storm January 2019

Extreme Cold/Snow/Ice Hazard History

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

1/16/2021: 3-6” heavy, wet snow: \$10,000 regional damage
 2/7/2020: 8-12” snow; ¼” ice: \$20,000 regional damage
 3/14/2017: 18” snow: \$25,000 regional damage
 2/1-2/2015: Record cold month with 15 to 20+ days below zero and 12” snow: \$15,000 regional damage
 1/7/2015: 0 to 10 degrees with winds of 15-30 mph creating wind chills colder than -20 to -30 below zero: local damages unknown
12/9/2014: DR4207 10-20” snow: \$100,000 regional damage
 3/12-13/2014: 8-24” snow and 35-40 mph wind gusts: \$35,000 regional damage
 12/26/2012: Snowfall rate of 1-2” per hour with accumulations of 8-18”: \$20,000 regional damage
 2/23/2010: 6-30” snow: \$100,000 regional damage
 12/11/2008: 5-9” snow, sleet, and freezing rain resulting in glaze coating of ice: \$50,000 regional damage
4/15-16/2007: DR1698 “Nor’icane” with 3” snow and rain with 60 to 80 mph wind: \$3,500,000 regional damage
 10/25/2005: 2-5” heavy, wet snow: \$20,000 regional damage
 12/6/2003: 12-18” snow: \$20,000 regional damage
 4/4/2003: 18” snow: \$40,000 regional damage
3/5/2001: EM3167 20-30” snow: \$100,000 regional damage

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Drought is a natural phenomenon that has unique characteristics that make it different from other hazards. Reference the 2018 State Hazard Mitigation Plan for a full discussion of how drought differs from other natural hazards and extreme heat trends in Vermont.

In addition to the obvious effects on the quantity and quality of drinking water, drought and extreme heat can compromise food and nutrition; increase incidents of illness and disease; and diminish the ability of water ecosystems to properly function.

Municipal water supply and delivery, municipal wastewater, transportation systems, and parks and recreational facilities can all be adversely impacted by drought.

There may be situations where water-intensive industries and agricultural production shift to different locations due to lack of water. Other industries directly affected include energy, tourism, and fisheries. The wide-ranging impacts of drought can include job losses, business failures, and lost investments.

When different natural hazards overlap, such as drought and flood, it can lead to cascading hazards, with one event compounding the other. Drought is likely to be part of a cascading hazard because it can cover a large area and go on for a long time.

In the Rutland region, there have been several instances of moderate drought (D1) and one instance in the last 20 years of severe drought (D2). In November 2020, the USDA issued a drought disaster declaration for that crop year.

Drought

Drought, in a general sense, is a period of lower-than-average precipitation that results in a water shortage. High winds, low humidity, and extreme heat can all amplify the severity of drought.

It is typically a slow-onset natural hazard that can last for months or years. Drought is a natural part of the climate cycle.

Higher temperatures, water demands that exceed availability, low winter snowpack and lack of rainfall are all causes that can lead to a significant drought.

The USDA rates droughts from D0-D4, depending on the severity of the drought, the amount of time it will take for vegetation to return to normal levels, and the possible effects of the drought on vegetation and water supply:

Drought impacts of concern in Ira include:

- Interruption of water supply with minor to moderate impacts on drinking water supplies and surface waters for fire suppression.
- Crop and agricultural losses with minor to moderate impacts on maple syrup production and minor impacts on hay production, perennial fruit and orchards, and livestock.
- Low water level and poor water quality in local water bodies with minor impacts on water recreation.
- Increases in human/wildlife conflict with minor impacts due to shift from natural food systems (mast crops, etc.) to human food sources and habituation.

Drought Hazard History

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

Mar – Apr 2021: D1 drought in 100% of county

11/11/2020: USDA Disaster S4869 2020 Crop Year

7/7-10/2020: Heat index values of mid-90°F-100°F

Jun – Sept 2020: D1 drought in 50-100% of county

6/18-23/2020: Heat index values in mid-upper 90s;
second longest heatwave in modern history

Jun – Sept 2018: D1 drought in 50-100% of county

6/30-7/5/2018: Heat index values of 95°F-110°F

Sept 2016 – Feb 17: D1 drought in 50-100% of county

Oct – Nov 2016: D2 drought in 60% of county

6/5/2012: USDA Disaster S3249 2012 Crop Year

3/17/2012: Record heat across all of VT with max temps
30-40° above normal; \$300,000 regional crop damage

7/20-23/2011: Heat index values of 100°F - 108°F

8/1-2/2006: Heat index values of 100°F - 105°F

Sept 2001 – Mar 02: D1 drought in 50-100% of county

In Ira, smaller brush fires, typically burning less than ¼ acre, are fairly common with at least one every couple of years. Additional wildfire event specific data, such as locations, dates, and area burned, is not available.

Wildfires can result in widespread damage to property and loss of life. Once a wildfire threatens a community, it is often too late to protect nearby structures, and people must be evacuated.

According to the 2018 Vermont Hazard Mitigation Plan, Vermont has a reliable system of fire suppression infrastructure coordinated at the State-level. Furthermore, Vermont's climate, vegetation type, and landscape tend to discourage major wildfire resulting in a wildfire threat in Vermont that is relatively low based on historical occurrences.

Although wildfires are currently uncommon, the Town believes there is a risk for wildfire in Ira given the fact that fire has been absent from the landscape for quite some time and a significant amount of undeveloped land in the community is forested.

Any occurrence of a larger wildfire in Ira would likely be the result of local weather conditions (e.g., long period of drought followed by a large scale wind event increasing the fuel loading), but the average return interval of catastrophic large fires range upwards to 600 years.

The vulnerability to wildfire is thought to be higher in the wildland-urban interface – the area where infrastructure interacts with undeveloped land, creating the potential for fire to move from a forested environment to residential development.

Wildfire

A wildfire is any outdoor fire that is not controlled, supervised, or prescribed. Wildfire probability depends on local weather conditions (lightning, drought, extreme heat); outdoor activities (camping, debris burning, construction); and the degree of public cooperation with fire prevention measures. The 2017 Vermont Wildland Fire Program Annual Report notes that most fires in Vermont are caused by burning debris.

Vulnerability Summary

Inundation/Flash Flooding/Fluvial Erosion

Location¹: *Inundation Flooding* – VT Route 133, Toppin and Goodrich roads along Ira Brook tributary
Flash Flooding – Bird’s Eye, West, Cross, Fish Hill, Middletown Hill, Weaver Hill, Pyka, and Kahle roads
Fluvial Erosion – Ira Brook and its tributaries near Fish Hill, Kahle, Cross, and VT Route 133

Vulnerable Assets¹: Roads, culverts, bridges, residential homes, Ira Fire Station, agricultural lands

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

Impact: \$62,743 local / \$1,970,000 regional property / \$100,000 regional crop damage

Probability: Flash flooding/fluvial erosion: >75% chance per year; Inundation flooding: >10% but <75% chance per year

High Wind

Location¹: Town-wide

Vulnerable Assets¹: Power lines, telecommunications systems, buildings, trees

Extent: 64 mph winds

Impact: \$25,000 local / \$500,000 regional damage

Probability: >75% chance per year

Extreme Cold/Snow/Ice

Location¹: Town-wide; Drifting on Bird’s Eye, Toppin, and the flats on West Road

Vulnerable Assets¹: Roads, culverts, bridges, trees, power lines, telecommunications systems

Extent: Up to 30” of snow; glaze ice; 80 mph winds; 15-20+ days below zero

Impact: \$3,500,000 regional damage

Probability: >75% chance per year

Drought

Location¹: Town-wide

Vulnerable Assets¹: Public and private wells, natural ecosystems, agriculture

Extent: D2 drought in 60% of county for 2 months

Impact: Data on financial impacts is unavailable

Probability: >10% but <75% chance per year

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

Hazards

- Location
- Extent (Magnitude/Strength)
- Previous Occurrence
- Future Probability

RISK

Community Assets

- Population
- Built Environment
- Natural Environment
- Economy

The Hazard Identification and Risk Assessment is the foundation for the mitigation strategy to reduce future losses.

6 HAZARD MITIGATION STRATEGY

The highest risk natural 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 management, 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; existing land use 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. Ira's mitigation capabilities that reduce hazard impacts or that could be used to implement hazard mitigation activities are listed below.

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: Town Clerk.

In addition to paid staff, there is a 3-member Selectboard (who acts as the Road Commissioner), 5-member Planning Commission, Fire Warden, Health Officer, and Tree Warden.

To augment local resources, the Town has formal mutual aid agreements for emergency response – fire and public works. Technical support is available through the RRPC for land use planning, emergency management, transportation, GIS mapping, and grant writing. Technical support is also available through the State ANR for floodplain administration and VTrans Districts for hydraulic analyses.

Strengths: good communication and coordination between local officials ● success in securing grants for improvements (roads and emergency shelter) ● active tree warden and crew in place for tree trimming /removal ● new loader equipped for ditching ● Fire Dept is active member of Rutland County Fire Mutual Aid

Areas for Improvement: need more people to do the jobs

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.

Flood Hazard Area (FHA) Regulations: Adopted 2008

Description: Apply to all areas in Ira 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 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 2020

Description: The Ira Fire Department's ISO rating is 10. 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 April 21, 2020

Description: A framework for guiding future growth and development in a way that is both economically feasible and environmentally acceptable.

Relationship to Natural Hazard Mitigation Planning: Includes specific goals and policies related to mitigating natural hazards.

Local Emergency Management Plan: Adopted March 16, 2021

Description: Establishes lines of responsibility and procedures to be implemented during a disaster and identifies high risk populations, hazard sites, and available resources.

Relationship to Natural Hazard Mitigation Planning: 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 Erosion Inventory Report: 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.

Strengths: plans, policies, and ordinances are reviewed on a periodic basis and updated as needed ● roads are evaluated after storms for damage/erosion ● road erosion inventory for hydrologically-connected road segments

Areas for Improvement: enhance record keeping on road work ● develop a long-term (5 to 10 year) plan for road infrastructure improvements

Financial

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

Ira's current annual town budget is approximately \$314,840, with \$190,040 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: reserve funds in place for equipment replacement ● active at seeking grants

Areas for Improvement: none at this time

Education and Outreach

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

- Town website and email listserv
- Birdseye View local newsletter
- Fire Dept Facebook page
- Community Potluck Dinners
- Bone Builders Group
- Yoga Group
- Historical Society
- Cemetery Committee

Strengths: a lot of active groups for a community of our size to share information

Areas for Improvement: better coordination is needed to help implement future mitigation actions

National Flood Insurance Program Compliance

The Town joined the National Flood Insurance Program (NFIP) in 1985. The effective date of the current Flood Insurance Rate Map (FIRM) is August 28, 2008. The Administrative Officer enforces NFIP compliance through permit review requirements in its Flood Hazard Area regulations. Ira's regulations outline detailed minimum standards for development in flood hazard areas defined as FEMA Special Flood Hazard Areas and Floodway Areas.

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

- 1) Prepare, distribute, or make available NFIP insurance explanatory pamphlets or booklets.
- 2) Adopt river corridor protection language in the flood hazard regulations bylaw to improve flood hazard planning and management.
- 3) Participate in NFIP training offered by the State and/or FEMA.

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 as described below.

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
- 4) Local Hazard Mitigation Plan

17.5% funding for eligible communities that also participate in FEMA's Community Rating System OR adopt Fluvial Erosion Hazard or other river corridor protection bylaw that meets or exceeds the Vermont ANR model regulations.

Ira's current ERAF rate is 12.5% because they have adopted all four mitigation measures. Ira could increase their ERAF rate to 17.5% by adopting river corridor protection bylaws.

Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2015 Plan, and identified possible new actions from the following categories for each of the highest 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 community support for 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 allow for wise use of property within river corridors that minimizes potential damage to existing structures and development from flood-related erosion.

Improve Stormwater Management Planning: Rain 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 and injury 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.

Develop a Road Right-of-Way Vegetation Management Plan: Identify community priorities and plan of action for site-specific tree and roadside forest management to increase roadside resilience.

Develop a Drought Contingency Plan: A strategy for monitoring the progression of a drought and preparing a response to potential water supply shortages resulting from severe droughts or other water supply emergencies.

Map and assess Vulnerability to Wildfire: Identify wildfire hazard areas and assess overall community vulnerability.

Develop a Wildland-Urban Interface Code: Develop specific design guidelines and development review procedures for new construction, replacement, relocation, and substantial improvement in wildfire hazard areas.

Develop a Community Wildfire Protection Plan: A CWPP 1) identifies and prioritizes areas for hazardous fuel reduction, 2) recommends types and methods of treatment to protect an at-risk community and essential infrastructure, 3) recommends measures to reduce structural ignitability. May address wildfire response, community preparedness, and structure protection.

Structure and Infrastructure Projects

Remove Existing Structures from Flood Hazard Areas: Removal of 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 green stormwater management practices; 2) increasing dimensions of undersized 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 maintain integrity or 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; 2) armoring the banks of streams near roadways to prevent washouts or 3) rerouting a stream away from a vulnerable roadway; and 4) floodproofing critical facilities.

Protect Power Lines: Power lines can be protected from the impacts of natural hazards by 1) inspecting and maintaining hazardous trees in the road right-of-way during drainage system maintenance and 2) burying power lines.

Protect Critical Roadways: Use snow fences or living snow fences (e.g., rows of trees or other vegetation) to limit blowing and drifting of snow.

Retrofit Critical Facilities: Critical facilities can be protected from the impacts of high winds and winter storms by 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.

Retrofit At-Risk Structures with Ignition-Resistant Materials: Protect existing structures in wildfire hazard areas using non-combustible materials and technologies.

Create Defensible Space Around Structures and Infrastructure: Local governments can implement defensible space programs to reduce risk to structures and infrastructure.

Retrofit Water Supply Systems: Consider investing in infrastructure (like dry hydrants) to expand water supplies for fire suppression to ensure adequate supply during times of drought.

Natural Systems Protection

Protect and Restore Natural Flood Mitigation Features: Natural conditions often provide floodplain protection, riparian buffers, groundwater infiltration, 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; 4) minimizing impervious area development; and 5) restore incision areas.

Implement a Fuels Management Program: To reduce hazards vegetation fuels on public lands, near essential infrastructure, or on private lands by work with landowners. The program can include 1) performing fuel management techniques; 2) using prescribed burns to reduce fuel loads; 3) sponsoring local “slash and clean-up days” to reduce fuel loads along the wildland-urban interface.

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. Consider 1) educating owners how to protect their pipes and 2) informing them that letting a faucet drip may prevent freezing and the buildup of excessive pressure, avoiding 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.

Increase Wildfire Awareness: Target citizens and businesses to increase awareness of wildfire risk and strategies for protecting homes and infrastructure. Consider 1) offering online GIS hazard mapping; 2) working with Vermont Department of Forests, Parks, and Recreation to provide wildfire safety information to area residents.

Educate Residents on Drought-related Hazards and Water Saving Techniques: Increase awareness of drought-related hazards - brush fire, diminished water quality and quantity. Encourage residents to take water-saving measures, such as 1) install low-flow water saving showerheads and toilets; 2) check for leaks in plumbing or dripping faucets; and 3) install rain-capturing devices for irrigation.

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.

Actions without overall public support/political will were not selected for implementation. Actions whose costs were not reasonable compared to 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									
Recommended for Implementation									
Integrate Mitigation into Capital Improvement Programs	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
Update Road Erosion and Culvert Inventories	1	1	1	1	1	1	6	1	Yes
Review VTrans Bridge Inspection Reports ¹ and Plan for Identified Repairs to Prevent Scour	1	1	1	1	1	1	6	1	Yes
Improve Stormwater Management Planning by Completing a Stormwater Management Plan	1	1	1	1	0	1	5	1	Yes
Plan for Road Right-of-Way Vegetation Management	1	1	1	1	0	1	5	1	Yes
Not Recommended for Implementation									
Manage Development in Erosion Hazard Areas with River Corridor Bylaws	1	1	1	-1	0	1	3	1	Yes
Develop a Drought Contingency Plan	1	1	1	-1	0	0	3	1	Yes
Map and Assess Vulnerability to Wildfire	1	1	1	-1	-1	0	1	1	Yes
Develop a Wildland-Urban Interface Code	1	1	1	-1	-1	0	1	1	Yes
Develop a Community Wildfire Protection Plan	1	1	1	-1	-1	0	1	1	Yes
Structure and Infrastructure Projects									
Recommended for Implementation									
Routinely Clean and Repair Stormwater Infrastructure	1	1	1	1	1	1	6	1	Yes
Install/Re-establish Roadside Ditches	1	1	1	1	1	1	6	1	Yes
Increase Dimension of Drainage Culverts in Flood-Prone Areas	1	1	1	1	1	1	6	1	Yes
Stabilize Outfalls	1	1	1	1	1	1	6	1	Yes
Install Sub-Surface Road Drainage Practice	1	1	1	1	1	1	6	1-2	Yes
Floodproof Critical Facilities	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
Use Snow Fence on Critical Roadways	1	1	1	1	1	1	6	1	Yes
Expand Water Supplies for Fire Suppression	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									
Increase Drainage/Absorption Capacities with Green Stormwater Management Practices	Planning Team did not evaluate this action due to lack of information about appropriate locations for these practices. If the Town completes a Stormwater Management Plan, appropriate locations may be identified and addressed accordingly.								
Routinely Clear Debris from Support Bracing Underneath Low-Lying Bridges	No low-lying bridges with support bracing, so the Planning Team did not evaluate this action.								
Install Back-up Generators or Quick Connect Wiring at Critical Facilities	All critical facilities, except for the Town Garage, have back-up power options. Since a new Town Garage is a current capital need, investing in back-up power for the existing garage is not recommended.								
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	No critical facilities that need structural retrofits, so the Planning Team did not evaluate this action.								

¹ VTrans inspects all town-owned bridges in the State's Town Highway Bridge Program every two years. Bridge inspection reports are available on the VTrans website.

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Structure and Infrastructure Projects (cont.)									
Not Recommended for Implementation (cont.)									
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.								
Elevate Roads Above Base Flood Elevation to Maintain Dry Access	1	1	1	-1	0	1	3	1-2	No
Remove Existing Structures from Flood-Prone Areas	1	1	1	-1	0	1	3	2	No
Create Defensible Space Around Structures and Infrastructure	1	1	1	-1	-1	0	1	1	No
Retrofit At-Risk Structures with Ignition-Resistant Materials	1	1	1	-1	-1	0	1	1-2	No
Bury Power Lines	1	1	1	-1	-1	1	2	3	No
Natural Systems Protection									
Recommended for Implementation									
Stabilize Stream Banks	1	1	1	1	1	1	6	1-2	Yes
Remove Berms and/or Accumulated Debris from Stream to Restore Flood Capacity	1	1	1	1	1	1	6	1-2	Yes
Not Recommended for Implementation									
Establish Vegetative Buffers in Riparian Areas Restore Incision Areas	Planning Team did not evaluate these actions because there are no known areas; however, the Town will collaborate with the Natural Resources Conservation Districts to identify and implement natural systems protection projects that meet the goals of this Plan.								
Implement Fuels Management Program	1	1	1	-1	-1	0	1	1	No
Education and Awareness Programs									
Recommended for Implementation									
Educate Residents about Winter Preparedness	1	1	1	1	1	1	6	1	Yes
Keep the Ditches Clean Campaign	1	1	1	1	1	1	6	1	Yes
Educate Residents on Drought-related Hazards and Water Saving Techniques	1	1	1	1	1	1	6	1	Yes
Increase Wildfire Awareness	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									
Assist Vulnerable Populations	Town already has a plan in place to identify and assist vulnerable populations – see current Local Emergency Management Plan.								

Table 5 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 \$50,000; 2 = \$50,000 to \$100,000; 3 = more than \$100,000

C/B – Are the costs reasonable compared to the probable benefits? Yes or No

Table 6 Community Lifelines Description: 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:








 Safety and Security	 Food, Water, Shelter	 Health and Medical	 Energy (Power & Fuel)	 Communications	 Transportation	 Hazardous Materials
<ol style="list-style-type: none"> 1. Law Enforcement 2. Fire Service 3. Search & Rescue 4. Government Service 5. Community Safety 	<ol style="list-style-type: none"> 1. Food 2. Water 3. Shelter 4. Agriculture 	<ol style="list-style-type: none"> 1. Medical Care 2. Public Health 3. Patient Movement 4. Medical Supply Chain 5. Fatality Management 	<ol style="list-style-type: none"> 1. Power Grid 2. Fuel 	<ol style="list-style-type: none"> 1. Infrastructure Responder 2. Communications 3. Alerts, Warnings, & Messages 4. Finance 5. 911 & Dispatch 	<ol style="list-style-type: none"> 1. Highway/Road/Motor Vehicle 2. Mass Transit 3. Railway 4. Aviation 5. Maritime 	<ol style="list-style-type: none"> 1. Facilities HAZMAT, Pollutants, Contaminants

Table 6: Mitigation Action Implementation

Plan for and Maintain Adequate Road and Debris Clearing Capabilities: A leading cause of death and injury during winter storms is from auto accidents so it is important to plan for and maintain adequate road and debris clearing capabilities. This includes capital planning and annual funding to support the facilities (garage and equipment) and appropriate number of staff needed to maintain the transportation network in Ira. A new Town Garage is a current capital need.

ADDRESSED HAZARDS

-  **Winter Storm**
Primary Hazard
-  **High Winds**

Lead Party

Selectboard

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

-  **Safety & Security**
-  **Transportation**
Primary Lifeline

Area of Impact

Town-wide; ±18 mile road network
Town Garage, 2054 West Rd

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Town Clerk

BENEFIT SCORE = 6

PROJECT TIMELINE

To coincide with preparing annual Town budget each Dec-Jan
Town Garage Capital Plan by Dec 2027

Update Road Erosion and Culvert Inventories: These inventories were completed in 2017 and serve as the basis for asset management and should be kept up-to-date annually, with a full re-assessment every 5 years.

ADDRESSED HAZARDS

-  **Flooding**

Lead Party

Selectboard

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

-  **Safety & Security**
-  **Transportation**
Primary Lifeline

Area of Impact

Town-wide; ±18 miles of hydrologically-connected roads and ±98 culverts

FUNDING SOURCES

- Local funding
- VTrans Grant Programs

PARTNERSHIPS

- Rutland RPC
- Town Clerk

BENEFIT SCORE = 6

PROJECT TIMELINE

2023 construction season

Plan for Bridge Repairs: Several town bridges are vulnerable to flash flooding and/or fluvial erosion – Kahle Road (B16), Cross Road (B10), Fish Hill Road (B15), and West Road (B9). The Town will implement a **Bridge Inspection Program** to ensure the VTrans inspection report for B16 will be reviewed and used to plan for needed flood-related bridge repairs such as scour. In addition, the Town will inspect all other town-owned bridges every two years and plan for any needed flood-related repairs.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**Town-owned Bridges: Kahle Rd (B16);
West Rd (B9) and (B11); Cross Rd (B10);
Toppin Rd (B14); Fish Hill Rd (B15)**FUNDING SOURCES**

- Local funding
- VTrans Structures Program

PARTNERSHIPS

- VTrans
- Town Clerk

BENEFIT SCORE = 6**PROJECT TIMELINE**

Review B16 VTrans Report Jun 2022
Develop Plan for B16 by Dec 2022
Inspect other town bridges Jun 2022
Develop Plan(s) by Dec 2022

Develop a Stormwater Management Plan: Ira lacks a community-wide, comprehensive assessment of flooding and erosion in its developed areas caused by rain and snowmelt. A Stormwater Management Plan can guide the town in planning, funding, and implementing a comprehensive program for addressing current and future requirements for managing stormwater runoff, flooding problems, and the Town's natural resources. Ira will explore the feasibility of developing this Plan.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Rutland Natural Resources Conservation District (NRCD)
- Poultney Mettowee NRCD
- Town Clerk

BENEFIT SCORE = 5**PROJECT TIMELINE**

NRCDs outreach Jul 2022

Develop a Road Right-of-Way (ROW) Vegetation Management Plan: Hazard trees in the road ROW can contribute to power and communication outages as well as debris in the roadway during winter storms and high wind events. This hazard is exacerbated by the possibility of an Emerald Ash Borer infestation. To increase roadside resilience, Ira will develop a plan to identify 1) community priorities and 2) plan of action for site-specific tree and roadside forest management.

ADDRESSED HAZARDS**Winter Storm****High Winds**
Primary Hazard**Invasive Species****Lead Party**

Selectboard

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED**Energy**
Primary Lifeline**Transportation****Communications****Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Vermont Urban & Community Forestry Program (UCF)
- Tree Warden
- Town Clerk

BENEFIT SCORE = 5**PROJECT TIMELINE**

UCF Outreach Jan 2023
Complete Plan by Dec 2023

Routinely Clean and Repair Stormwater Infrastructure: Regular maintenance is one of the most effective ways to mitigate the impacts of flooding. Routine cleaning and repairs of ditches and culverts will be done according to the Highway Department’s maintenance schedule and the Municipal Roads General Permit (MRGP).

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

Town-wide; ±18 mile road network and ±98 culverts

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Town Clerk

BENEFIT SCORE = 6**PROJECT TIMELINE**

See Highway Department’s Maintenance Schedule and MRGP

Install/Re-work Roadside Ditches: Properly installed and stabilized roadside ditches are critical to protect the integrity of the road. Although Ira has an extensive network of ditches, the areas noted below either need new ditches or have ditches that need to be re-worked to bring them up to current municipal Road Standards.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

- 1) Upper Cross Rd
- 2) Lower Cross Rd-bridge to Moore
- 3) Upper Pyka Rd-172 to end of Class 3
- 4) Others as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Grant Programs

PARTNERSHIPS

- Town Clerk
- VTrans

BENEFIT SCORE = 6**PROJECT TIMELINE**

- 1) 2022 construction season
- 2) 2023 construction season
- 3) 2024 construction season
- 4) See MRGP

Adequately Size Drainage and Perennial Stream Culverts in Flood-Prone Areas: Undersized culverts can lead to road washouts and flooding. Ira has identified several locations where upsized or new culverts are needed.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

- 1) New Drainage Culvert-892 West Rd
- 2) New Drainage Culvert-1964 West Rd
- 3) Drainage Culvert and Junction Box-West Rd/Route 133 in conjunction with replacement of culvert across Route 133 by State
- 4) Others as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Grant Programs
- FEMA Hazard Mitigation Grant

PARTNERSHIPS

- VTrans
- ANR Stream Engineer
- US Army Corps of Engineers

BENEFIT SCORE = 6**PROJECT TIMELINE**

- 1) 2023 construction season
- 2) 2024 construction season
- 3) 2025 construction season
- 4) See MRGP

Stabilize Culvert Outfalls: Erosion at culvert outlets is common and can cause structural failure with serious downstream consequences. Properly stabilized outfalls protect channel bank stability and reduce erosion. Ira has identified the following locations where culvert outlet stabilization is needed.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

- 1) Culvert #81 (892 West Rd)
- 2) Culvert #139 (Upper Pyka Rd)
- 3) Others as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Grant Programs
- FEMA Hazard Mitigation Grant

PARTNERSHIPS

- VTrans
- ANR Stream Engineer
- US Army Corps of Engineers

BENEFIT SCORE = 6**PROJECT TIMELINE**

- 1) 2023 construction season
- 2) 2024 construction season
- 3) See MRGP

Install Sub-surface Road Drainage: Flooding impacts on gravel roads can be exacerbated during that time of year when snow begins to melt and spring rains arrive, commonly known as “mud season” in Vermont. In extreme cases, soil saturation due to poor sub-surface drainage and a high water table can make gravel roads impassable and require road closure. Ira has identified the following location where installation of a sub-surface road drainage practice, such as a French mattress, may be appropriate.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

West Rd (approximately 325 feet between 157 and 2832 West Rd)

FUNDING SOURCES

- Local funding
- VTrans Grant Programs
- FEMA Hazard Mitigation Grant

PARTNERSHIPS

- VTrans
- Town Clerk

BENEFIT SCORE = 6**PROJECT TIMELINE**

Complete Scoping Study by December 2024

Floodproof Critical Facilities: The Ira Fire Station is located near a tributary to the Ira Brook and State bridge (B12) over VT Route 133. The southeast corner of the building is in a FEMA-mapped floodplain. The carrying capacity of bridge (B12) has been reduced due to significant deposition, making it vulnerable to ice jams and inundation flooding. These factors combine to make the station and access to it vulnerable to flooding. Due to the age of the building, floodproofing alone may not be cost-effective. New construction outside of the floodplain may be a more appropriate solution. A new Fire Station is a current capital need.

ADDRESSED HAZARDS**Flooding****Lead Party**

Ira Volunteer Fire Dept.

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security**
Primary Lifeline**Area of Impact**

Ira Fire Station, 2659 VT Route 133

FUNDING SOURCES

- Local funding
- FEMA Hazard Mitigation Grant

PARTNERSHIPS

- Selectboard
- Town Clerk

BENEFIT SCORE = 6**PROJECT TIMELINE**

Fire Station Capital Plan by Dec 2026

Remove Hazard Trees in Road Right-of-Way (ROW): Hazard trees in the road ROW can contribute to power and communication outages as well as debris in the roadway during winter storms and high wind events. This hazard is exacerbated by the possibility of an Emerald Ash Borer infestation. Ira will remove hazard trees within their road ROW and/or request removal by Green Mountain Power if also within the power line ROW in accordance with their Road ROW Vegetation Management Plan.

ADDRESSED HAZARDS**Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Tree Warden
- Green Mountain Power
- Town Clerk

BENEFIT SCORE = 6**PROJECT TIMELINE**

See Road ROW Vegetation Management Plan

Use Snow Fence or Equivalent Technique on Critical Roadways: VT Route 133 is a critical roadway and a section of road is vulnerable to blowing and drifting of snow. Using snow fence or an equivalent technique (e.g., living snow fence) to limit snow drifting can reduce the risks of auto or other transportation accidents. Because VT Route 133 is maintained by the State, Ira will work with VTrans to install a living snow fence as part of the State's safety and maintenance of Route 133.

ADDRESSED HAZARDS**Lead Party**

Selectboard

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Area of Impact**

VT Route 133 just south of 1254 to Perry Rd

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- VTrans
- Town Clerk

BENEFIT SCORE = 6**PROJECT TIMELINE**

Outreach to VTrans by Jul 2022

Expand Water Supplies for Fire Suppression: Lacking municipal drinking water infrastructure, Ira relies exclusively on dry hydrants for fire suppression. During times of drought, surface water sources could become compromised. To improve fire suppression, Ira will assess functionality of all existing dry hydrants and explore locations for additional hydrants, if needed.

ADDRESSED HAZARDS**Lead Party**

Ira Fire Department

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED**Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding
- Rural Fire Protection Program

PARTNERSHIPS

- Selectboard
- Town Clerk
- Fire Warden

BENEFIT SCORE = 6**PROJECT TIMELINE**

Complete assessment during 2023 construction season

Stabilize Stream Banks: An eroding section of stream bank on Ira Brook is encroaching on residential properties off VT Route 133 near the Pyka Road intersection. Ira will work with project partners to explore options to stabilize the stream bank.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Natural Systems Protection

COMMUNITY LIFELINES**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

Residential properties off VT Route 133 near Pyka Road intersection

FUNDING SOURCES

- Local funding
- VANR Water Quality Grants
- FEMA Hazard Mitigation Grant

PARTNERSHIPS

- ANR Stream Engineer
- US Army Corps of Engineers
- Rutland NRCDC
- Private Property Owners

BENEFIT SCORE = 6**PROJECT TIMELINE**

Outreach to Partners by June 2022

Remove Accumulated Debris to Restore Flood Capacity: VT Route 133, Goodrich Road, and Ira Fire Station are vulnerable to flooding because the carrying capacity of State bridge B12 has been reduced by significant deposition in the tributary to Ira Brook. Ira will work with project partners to explore options to restore the flood capacity of the stream channel.

ADDRESSED HAZARDS**Flooding****Lead Party**

Selectboard

Type of Project

Natural Systems Protection

COMMUNITY LIFELINES TARGETED**Safety & Security**
Primary Lifeline**Transportation****Area of Impact**

Ira Brook Tributary at B12

FUNDING SOURCES

- Local funding
- VANR Water Quality Grants
- FEMA Hazard Mitigation Grant

PARTNERSHIPS

- VTrans
- ANR Stream Engineer
- US Army Corps of Engineers
- Rutland NRCDC
- Private Property Owners

BENEFIT SCORE = 6**PROJECT TIMELINE**

Outreach to Partners by June 2022

Educate Residents about Severe Winter and Drought-related Hazards; Wildfire Risks; and Keep the Ditches Clean Campaign: Ira will undertake education and awareness efforts by publishing information on the Town website, Fire Department Facebook page, and in the Bird's Eye View on 1) severe winter storm-related hazards (e.g., freezing pipes); 2) drought-related hazards (e.g., brush fires, diminished water quality, water conservation); 3) best practices for preventing wildfires; and 4) the importance of keeping the municipal ditches free of yard waste and other debris.

ADDRESSED HAZARDS**All Hazards****Lead Party**

Selectboard

Type of Project

Education and Awareness

COMMUNITY LIFELINES**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Fire Warden
- Ira Vol Fire Dept
- Town Clerk
- Ready.gov

BENEFIT SCORE = 6**PROJECT TIMELINE**

Jan 2023 – Dec 2023

Process for Incorporating Plan Requirements into Other Planning Mechanisms

Information and recommendations from the 2017 Ira Local Hazard Mitigation Plan were incorporated into the following plans, programs, and procedures:

- Ira Town Plan, adopted in April 2020
- Local Road and Bridge Standards, adopted in July 2019
- Local Emergency Management Plan, including a Vulnerable Populations Communication Protocol, adopted in March 2021
- Road Erosion Inventory Report, completed in December 2018
- Highway Department maintenance schedule and procedures

Key municipal regulations, like flood hazard area regulations, have not been updated since 2008.

For Ira 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 the 2022 Plan update into other plans, programs, and procedures:

- The Selectboard will incorporate risk assessment and hazard mitigation goals into capital planning efforts and improvement programs, including those for a new Town Garage and Fire Station.
- The Planning Commission will integrate the hazard mitigation goals for disaster resiliency, including NFIP compliance, into the goals and objectives of the next updates to the Town Plan and Flood Hazard Area Regulations.
- The Selectboard (acting as Road Commissioner) will implement several mitigation infrastructure projects (e.g., upsize perennial and drainage culverts in flood-prone areas, install/re-work roadside ditches) through existing plans (2018 Road Erosion Inventory and Report for hydrologically-connected road segments).

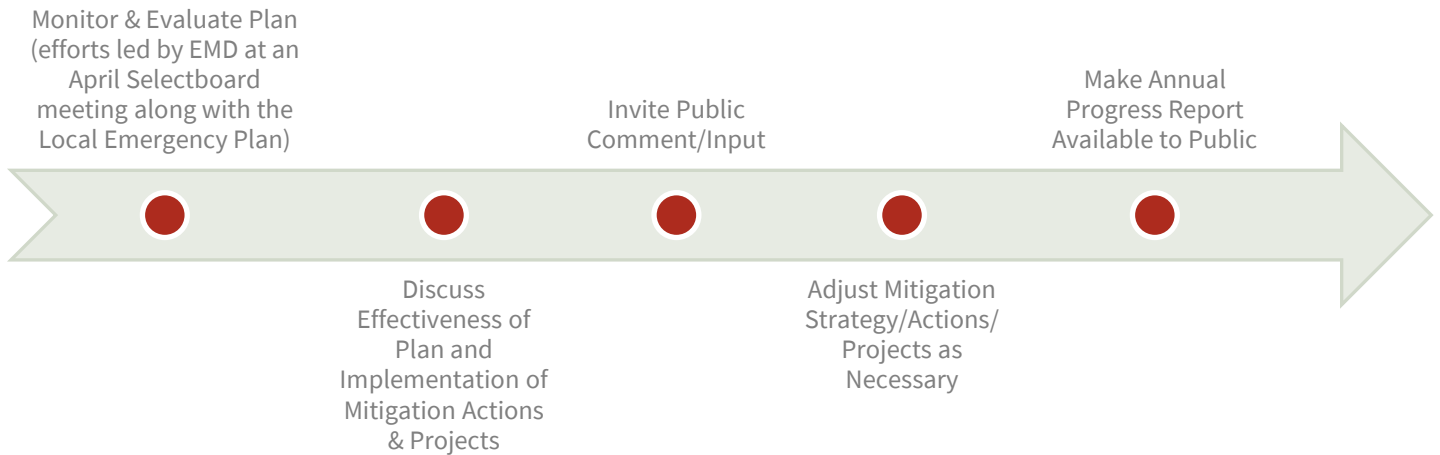
- The Selectboard (or an appointed committee) will work with the Rutland and/or Poultney Mettowee Natural Resources Conservation Districts to identify opportunities to collaborate on implementing natural resources protection projects that meet the goals of this Plan.
- The Selectboard will work with the Vermont Agency of Transportation (VTTrans) to address the flooding risk on VT Route 133 at State Bridge B12.
- The Selectboard will work with the Town Clerk to provide NFIP information materials at the Town Office and on the Town's website – including promotion of flood insurance, public safety information, and development regulations.
- The Selectboard will encourage the Administrative Officer for the Flood Hazard Area Regulations to participate in regular NFIP-related trainings.

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 starting in 2023 in accordance with the following process:



The status (e.g., in progress, complete) of each mitigation action should be recorded in **Table 7**. If the status is “in progress” note whether the action is on schedule. If not, describe any problems, delays, or adverse conditions that will impair the ability to complete the action.

Updating

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

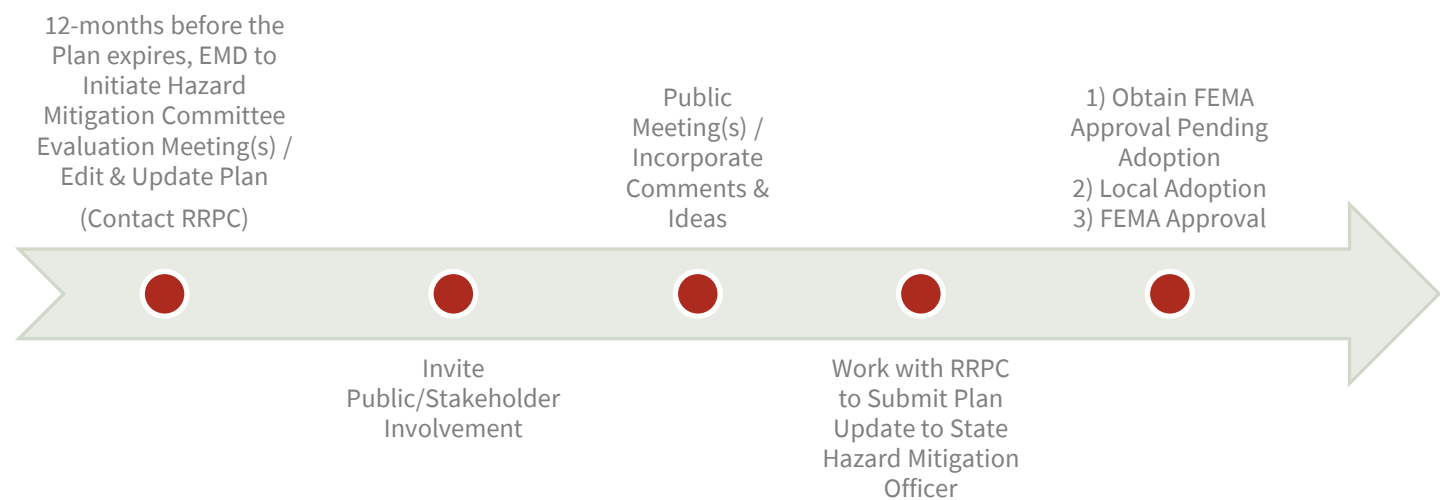


Table 7: Mitigation Action Status

Mitigation Action	2023	2024	2025	2026	2027
Local Plans and Regulations					
Plan for and Maintain Adequate Road and Debris Clearing Capabilities					
Update Road Erosion and Culvert Inventories					
Plan for Bridge Repairs					
Develop a Stormwater Management Plan					
Develop a Road ROW Vegetation Management Plan					
Structure and Infrastructure Projects					
Routinely Clean and Repair Stormwater Infrastructure					
Install/Re-work Roadside Ditches					
Adequately Size Drainage and Perennial Stream Culverts in Flood-Prone Areas					
Stabilize Culvert Outfalls					
Install Sub-surface Road Drainage					
Floodproof Critical Facilities					
Remove Hazard Trees in Road ROW					
Use Snow Fence or Equivalent Technique on Critical Roadways					
Expand Water Supplies for Fire Suppression					
Natural Systems Protection					
Stabilize Stream Banks					
Remove Accumulated Debris to Restore Flood Capacity					
Education and Awareness Programs					
Severe Winter Storm Preparedness Outreach					
Drought-related Hazards Educational Outreach					
Wildfire Prevention Educational Outreach					
Keep the Ditches Clean Campaign					

CERTIFICATE OF ADOPTION
Town of Ira, Vermont Selectboard
A Resolution Adopting the Ira, Vermont 2022 Local Hazard Mitigation Plan

WHEREAS, the Town of Ira has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2022 Ira, 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 Ira has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **2022 Ira, 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 Ira; and

WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Ira 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 Ira eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by Town of Ira Selectboard:

1. The **2022 Ira, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Ira;
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 Ira this 19th day of July 2022.



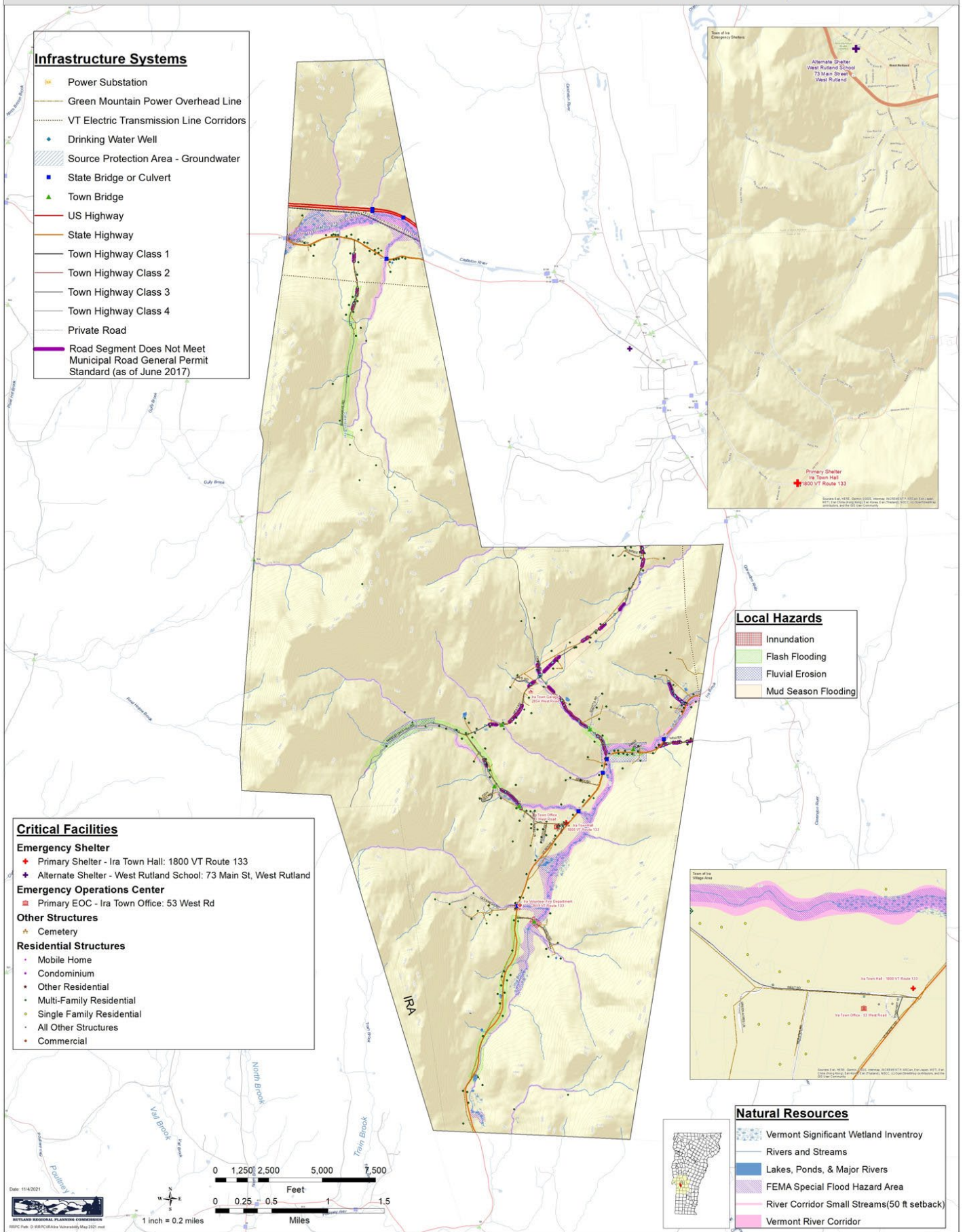
Selectboard Chair

ATTEST



Town Clerk

Ira, Vermont: Local Natural Hazards and Vulnerabilities Map



MITIGATION ACTIONS FROM 2017 PLAN

Vulnerability: Flooding of Bridges and Low Lying Areas

- 1) **Culvert replacement on West, Cross, and Birdseye Road Roads.** One culvert per road will be replaced in the 2017 field season. The culverts will be upsized, so as to allow for greater water passage capacity, and to reduce the occurrence of water flooding the roads

Who: Select Board. **When:** May 2017-September 2018 **How:** VTrans Structures Grant, HMGP **Priority:** High

2022 Status: The Town exceeded the proposed action by replacing seven (7) culverts on West Road, four (4) culverts on Cross Road, two (2) culverts on Weaver Hill Road, three (3) culverts on Pyka Road, one (1) culvert on Fish Hill, and six (6) culverts on Ira Birdseye Road. This action remains a priority and additional culvert projects are recommended for implementation in the 2022 plan update.

- 2) **Ensure New Development will not be Vulnerable to Flooding or Erosion.** This includes adopting State River Corridor Protection Language

Who: Planning Commission. Select Board **When:** 2018-2019 **How:** HMGP **Priority:** High

2022 Status: This action is incomplete. Based on the mitigation action evaluation performed in 2022, this action does not have political will/public support to implement at this time. Therefore, it is not recommended for implementation in the 2022 plan update.

Vulnerability: Power Outages to Homes and Critical Facilities

- 1) **Generator for Town Hall.** The town hall is Ira's emergency shelter. A generator will keep the facility heated and operable in times of power outages.

Who: Select Board, Planning Commission **When:** 2018 -2019 **How:** HMGP **Priority:** High

2022 Status: Complete – the facility has a generator hook-up, which is sufficient for the back-up power needs at this location.

- 2) **Exhaust system for emergency shelter kitchen.** Currently the town cannot use the kitchen facilities in the Town Hall, which serves as the town emergency shelter, because the kitchen does not have an exhaust system.

Who: Select Board, Planning Commission **When:** 2021 -2023 **How:** EMPG **Priority:** Medium-High

2022 Status: This action is incomplete and no longer a priority because the kitchen will be used to heat up rather than cook food.

- 3) **Repairs to emergency shelter building.** The Town Hall, or emergency shelter, needs the following repairs to function at its utmost capacity: handicap access, heat, second egress from the upstairs, electric, and sprinklers.

Who: Select Board, Planning Commission **When:** 2018-2021 **How:** EMPG **Priority:** Medium-High

2022 Status: Complete - a heat pump was installed and electric has been updated. The Town obtained a permit from the Division of Fire Safety to occupy the upstairs (up to 49 people).

SELECTBOARD NEWS

Have you noticed? Five culverts were replaced on the West Road & Cross Road this summer. Two were paid for by the State Better Back Roads grant. Chris Lanphere and his crew did the work. The culvert installations located by Karen Rarick's and Sara Meling's were a challenge. Dig Safe identified buried lines that had to be carefully worked around. Lots of shovel work. The culverts that had to be replaced were old metal ones and they had rusted out or were plugged. A culvert on the bottom of the Cross Road was replaced because it was plugged and also undersized. The fourth and fifth culverts were on the West Rd in the middle of Murro Hill and by the ATV parking area. All the culverts that were replaced are gray plastic. The gray type culverts are heavier duty and should last longer than the black ones that were used previously. Currently the town is re-doing its culvert inventory to keep the drainage systems in good shape.

As we speak a new electrical line is being installed into the town garage. The current overhead line runs to the old shed and the shed is not in good shape. Likewise, dump trucks have to unload the winter sand under the low hanging wire. This will be fixed shortly.

LOCAL HAZARD MITIGATION PLAN

This is a public notice that the town of Ira is currently engaged in hazard mitigation planning and is updating the Ira, Vermont local hazard mitigation plan.

For more information on the planning process or opportunities for public input, contact Steffanie Bourque at the Rutland Regional Planning Commission at sbourque@rutlandrpc.org or 802-775-0871 x206.

Comments can also be sent to:

Karen Davis
Town Clerk
iraclerk@vermontel.net
802-235-2745

HOW TO REACH THE SELECTBOARD

Bob Toppin 235-2361
Nathan Hewitt 235-1052

IRA GAME NIGHT

Ira game night had a break in the summer weather. It was a clear cool evening for playing outdoor games. Everyone had fun and enjoyed the variety of games and the delicious snacks!



A fall potluck supper is planned for Nov. 13 at 5pm. Please bring a dish to share and your choice of beverage.

IRA SCHOOL BOARD NEWS

The Ira School Board September 14th meeting has been moved from 5pm to 6pm. Members of the public can attend in person at the Town Office or via on-line link.

IRA YOGA CLASS

Yoga classes with Kellie Etori are ongoing at the Town Hall on Wednesdays at 4pm. The cost is \$36 for a six-week series or \$6 per session. Yoga mats and blankets are available if needed. Kellie provides options for all ability levels. Come join us for this relaxing and refreshing activity! If you have questions call Mary Ann at 235-2446.

IRA VOLUNTEER FIRE DEPARTMENT

The Ira Volunteer Fire Department would like to say thank you for supporting our department this year! The fire department is always looking for people to help out with administrative duties, building duties, and also EMS and Fire Service duties at the Ira Volunteer Fire Department.

A sign that you need to replace the batteries in your smoke or carbon monoxide detector is a high-pitched chirping noise coming from your device. It is best to be proactive and change the batteries in your smoke detectors before that noise occurs. When you change the batteries in one alarm, make sure you change the batteries in the rest of the alarms in your home as well. A helpful reminder to check your smoke alarms and to change the batteries every 6 months is Daylight Saving Time. Check and test your smoke and fire detectors when you change your clocks.

We would like to remind everyone as the weather gets better that conditions can turn quickly as it dries out. If you are looking to burn, please remember to call Nick Cupoli for a permit. Thank you to the people who have reached out and we appreciate your cooperation.

The fire department has acquired a Physio control lifepack15 cardiac monitor. The cardiac monitor will be used to respond to EMS calls. This is the same cardiac monitor that is currently being used by Regional Ambulance Service. The Fire department would like to thank Jim Finger and Mike Tarbell from Regional Ambulance Service for making this a possibility.

As always it is our goal to serve the townspeople with Emergency services and support the surrounding communities as part of Mutual Aid.

FOREST FIRE WARDEN
NICK CUPOLI 802-558-4853
In case of a fire or emergency call 911

LOCAL HAZARD MITIGATION PLAN

The Planning Team has been working over the past several months to update the Ira Local Hazard Mitigation Plan. We have completed a final draft and will present the Plan to local officials and the public at the April 2022 Selectboard meeting.

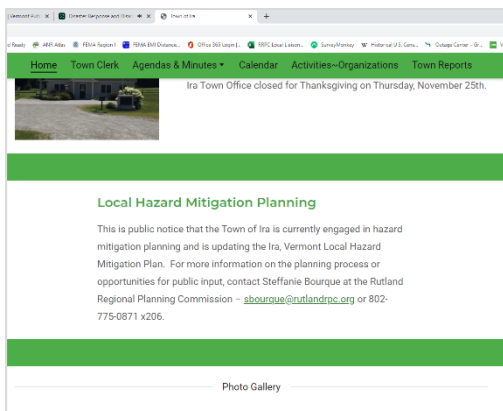
The Plan contains interesting information about the types of natural hazards that Ira is most vulnerable to. Although these hazards cannot be eliminated, the Plan identifies local actions that can be implemented to reduce their severity and make the community more resilient.

We value your experiences and perspectives as residents, and request your input as to any corrections, additions, or suggestions that you may have to improve this Plan before it is finalized. A copy of the Plan will be available on the Town website (<https://townofira.com/>) as well as at the Town Office for a 14-day public comment period following the April 2022 Selectboard meeting. Town Clerk and Planning Team member, Karen Davis, is the local point of contact accepting comments via email at iraclerk@vermont.net.

MUNICIPAL PLANNING GRANT OUTREACH MEETING
APRIL 14, 2022, 6PM

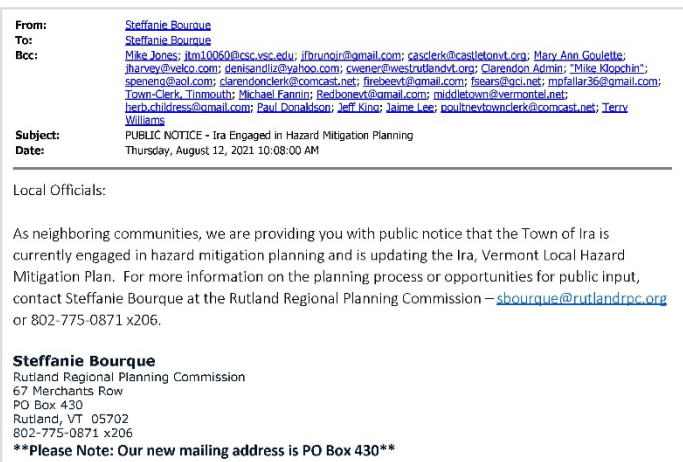
The Town of Ira is hosting a community event at the Town Hall on April 14 at 6PM to present and gather public feedback on the Public Works Facility Scoping Study, which includes the firehouse, town garage, and salt shed. The Scoping Study was funded by a Municipal Planning Grant from the VT Department of Housing and Community Development and can be found at: https://ottercreekengineering-my.sharepoint.com/:f/g/personal/jewett_ottercreek.com/EtA72TQWmbpPq4aORw4LmsMBajcD3rBlikRn1BJAU1AEZQ?e=nhalM4

SUMMARY OF PUBLIC COMMENTS ON DRAFT PLAN



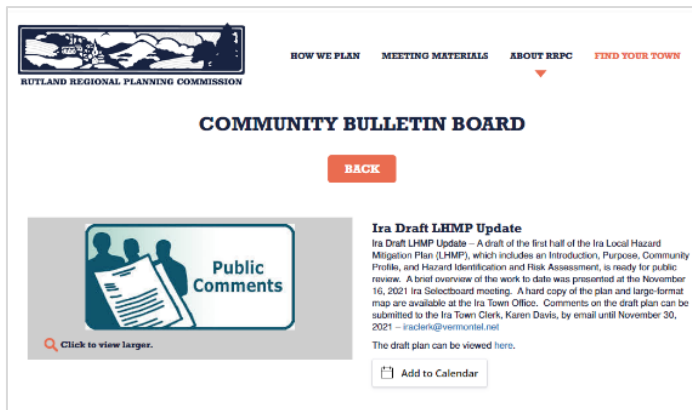
Example plan update kick-off public notice from Ira Town website.

No inquiries received from the public in response to the kick-off notice.



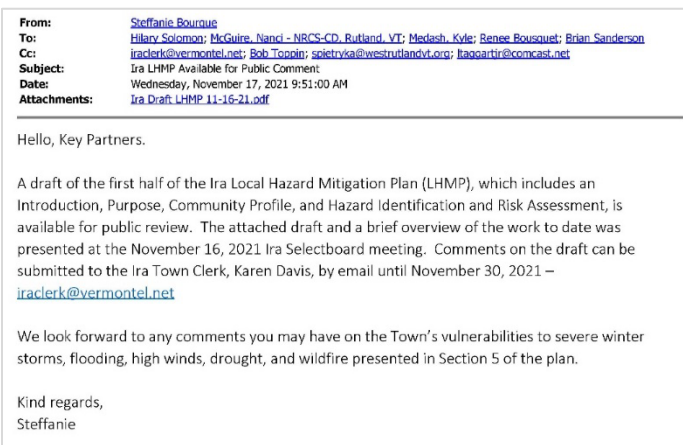
Email to local officials in neighboring communities announcing LHMP update kick-off – dated August 12, 2021. Similar email sent to Key Partners.

No inquiries received from neighboring communities or Key Partners.



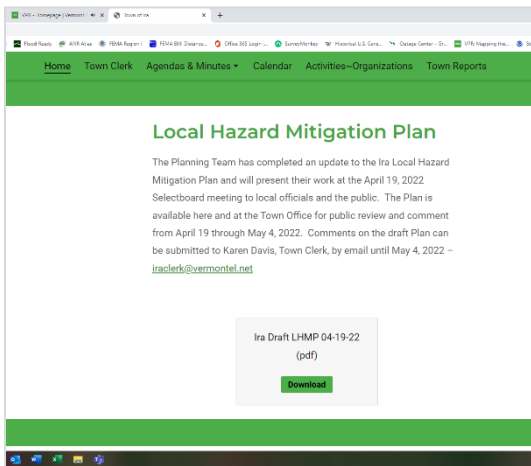
Example notice of draft plan available for public comment from Rutland Regional Planning Commission website posted on November 17, 2021.

No comments on the November draft were received during the public comment period.



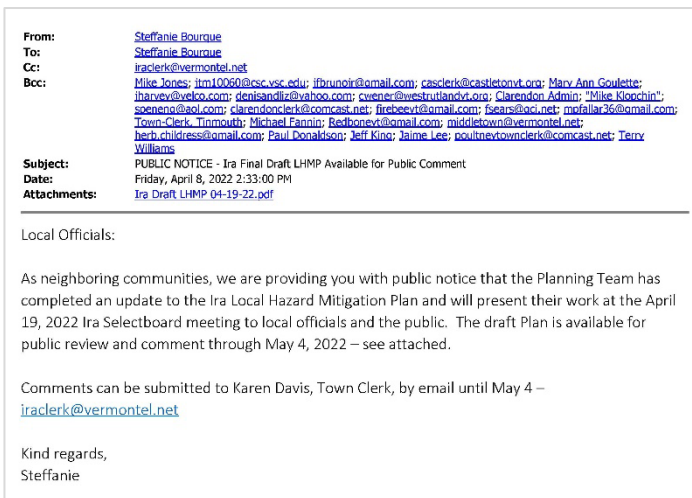
Email to Key Partners seeking comments on draft plan, specifically Town vulnerabilities to highest risk natural hazards presented in Section 5 of the plan – dated November 17, 2021.

No comments on the November draft were received from Key Partners.



Example notice of final draft plan available for public comment from Town of Ira website posted on April 8, 2022.

No comments on the April draft were received from the public during the comment period. See below for comments received from Key Partners.



Example email to local officials in neighboring communities announcing final draft plan available for public comment – dated April 8, 2022. Similar email sent to Key Partners.

Comments received from Poultney Mettowee Natural Resources Conservation District: I just reviewed the new Ira Local Hazard Mitigation Plan and thought that it looked really good. I really enjoyed reading that you have a lot of active groups for a town the size of Ira... that's great! The Ira Brook projects sounded good, too. If you ever need any help with projects in the Castleton River watershed, please feel free to contact me, as we might be able to help in the future.

Comments received from the Vermont Department of Health Emergency Preparedness Specialist: I didn't see a mention of Memorandums of Understanding (MOUs) in the plan, and was wondering if Ira has any in place with the surrounding towns for hazard mitigation services?

Planning Team Response: Towns in our region typically do not use MOUs or mutual aid agreements for things like hazard mitigation projects. However, there are mutual aid agreements in place for emergency response. The Town of Ira is a member of the Rutland Region Public Works Mutual Aid Agreement and the Ira Fire Department is a member of the Rutland County Fire Mutual Aid Association. We reference this on page 16 of the plan in the Administrative and Technical Community Capabilities.