ANNEX 11: TOWN OF RICHMOND

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MAP

Chartered: 1775
Land Area: 32.7 sq. mi.
2020 Population: 4,167
Government Address: 203 Bridge St. P.O. Box 285, Richmond, Vermont 05477
Households: 1,504
Mitigation Focus: Fluvial Erosion, Flooding, Severe Winter Storm

This section presents the jurisdictional annex for the Town of Richmond, which provided the following information for the 2022 update to the *Chittenden County, Vermont Multi-Jurisdictional All Hazards Mitigation Plan:*

- Jurisdiction Information (Contact Information and Hazard Mitigation Planning Role)
- Jurisdiction Planning Process
- Hazard Event History
- Hazard Risk Ranking
- Community Assets

- Capabilities Assessment
- Resiliency to Hazards
- Mitigation Actions and Action Plan for Implementation

11.1 HAZARD MITIGATION PLAN – POINT OF CONTACT

Type	Primary Point of Contact	Secondary Point of Contact
Name	Ravi Venkataraman	Josh Arneson
Title	Town Planner	EMD/ Town Manager
Agency	Town of Richmond	Town of Richmond
Address	203 Bridge St, P.O. Box 285	203 Bridge St, P.O. Box 285
City, State, Zip	Richmond, Vermont 05477	Richmond, Vermont 05477
Phone	802-434-2430	802-434-5170
Email	rvenkataraman@richmondvt.gov	jarneson@richmondvt.gov

11.2 JURISDICTION PROFILE

- Geographic Region: Champlain Valley
- Persons per household: 48.0 sq. mi.
- Persons per Square mile: 129.4
- Median Age: 37
- Elevations: Near sea level- 289ft

Location

Richmond is bisected by the Winooski River, with its tributary, the Huntington River, crossing the southeast corner of the town. Richmond is located in the western foothills of the Green Mountains.

History

The area that is now the Town of Richmond was first settled in 1775 but proved unsuccessful. It was later successfully settled following the Revolutionary War in 1784 and incorporated by the General Assembly on October 27, 1794, then organized in 1795. Industries such as water mills and manufacturing established facilities along The Winooski River and Huntington River, and the population by 1859 reached 1,453.

Demographics, Economy, and Governance

The Town of Richmond population has steadily increased over the past several decades, showing slight growth. The greatest segment of the population (34.1 percent) is between the age of 25 to 44, with another 29.3 under the age of 18.

Table 11.1: Demographics, Economy, and Governance in Town of Richmond[1]

Demographics	Economy	Governance
Population Growth Rates • 1980: 3,159 • 1990:3,729 • 2000: 4,090 • 2010: 4,081 • **2020:** 4,090 • 2020-2030 (Projected): 4,238 **Race and Ethnicity** Percentage of population identifying as: • White: 98.36% • Asian/Pacific Islander: 0.51% • Hispanic/Latino: 0.83% • Black/African American: 0.05 • Two or more races: 0.86% • American Indian: 0.12%	• Median household income (2019): $57,750 • Unemployment rate (Sept. 2021): • Per capita income (2019): $44,987 • Median home value (2021): $363,514 • Percentage below poverty (2019): 5.1%	• Select Board (5) • Town Manger • Town Clerk • Treasurer •

[1] **U.S Census (1970-2020),** www.city-data.com, www.census.gov-**QuickFacts**[1]

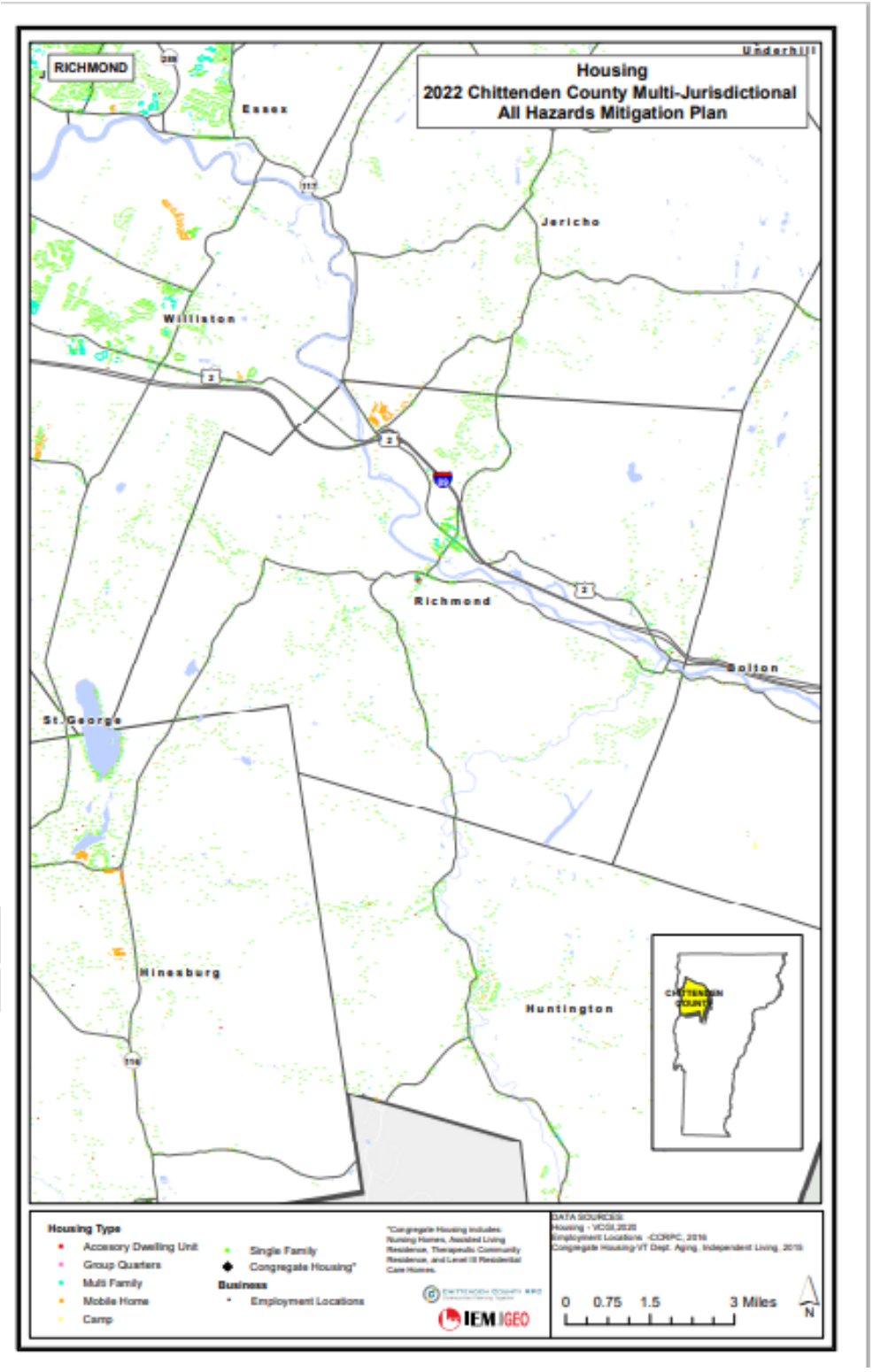

Figure 11.1: Housing and Employment, Town of Richmond[2]

[2] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

Built Environment and Community Lifelines

According to the 2018 Town Plan, the completion of the interstate in the 1960s Richmond became more readily accessible from Burlington, Montpelier and other major centers of employment. This coincided with the development of the IBM facility in Essex Junction. Together, these two factors translated into a significant increase in residential development in Richmond in the 1970s and 1980s. Some of this newer development has followed the typical linear pattern along rural roadsides. However, several subdivisions of 20 lots or more have also been constructed in the last two decades. Generally, these subdivisions offer a more compact pattern of development, in some cases incorporating open space to be protected for the future. Many land parcels in Richmond have been broken up into tracts of 5 acres and less. Large parcels still exist in town, principally in floodplain areas, where most of the land is devoted to agriculture or recreation, and in steep upland areas which are not suited to development. The upland parcels are most commonly managed for timber production. Land suitable for development has become scarce in Richmond and surrounding towns because of growth and topography, resulting in more pressure to subdivide large parcels.

Richmond still has an active agricultural community, with 13 parcels classified as “Farm” in the 2021 Grand List. These include dairy farms, beef farms, vegetable and fruit farms, and other agricultural operations. Several farm properties have more than one product. In addition, several landowners in Richmond harvest timber periodically from their land. Richmond Village is the hub for the town and contains a variety of housing types, including apartment buildings, single-family dwellings that have been converted into duplexes or multi-unit housing, and single-family houses. Outside of the village, most of Richmond’s housing consists of single-family homes along the five main roads—Jericho Road, Main Street, Huntington Road, Hinesburg Road, and Hillview Road.

The Town of Richmond has identified seventeen (17) critical facilities that serve as Community Lifelines.

Table 11.2: Number of Community Lifelines and Critical Assets in Town of Richmond

SECTOR	Safety and Security	Food, Water, Shelter	Health and Medical	Energy	Communications	Transportation	Hazardous Materials	Education	Cultural/ Historical	High Hazard Dams
No. Assets	4	3	1	1	0	1	5	2	1	0

Safety and Security

There is one fire station and one Emergency Operations Center located in the Town of Richmond. The town also identifies two government/military assets as critical facilities.

Food, Water, Shelter

Food commodities are available throughout Chittenden County from public retail providers, wholesalers, and contracted services for specific institutions and facilities. Additional contracts may be entered into for post-disaster needs. There is one emergency shelter within the town.

Private residents and commercial uses are required to provide their own water supply and permitted wastewater treatment. With one exception (for a limited capacity water supply and wastewater system serving municipal properties in the West Village), The Town of Richmond does not provide both water services and sewer services to the community.

Health and Medical

There are no public health care facilities in town. Residents must travel to Hinesburg, Williston or Burlington to access primary health care practices.

Energy

Energy distribution is via Green Mountain Power. VELCO transmission lines and a substation are also located in town. The town operates a water system and wastewater system that serves the village area along Route 2 and surrounding streets. Residents and businesses outside of this service area receive water from wells and dispose of wastewater through septic systems. The private utility, Vermont Gas, does provide natural gas to homes and businesses in the village.

Communications

FairPoint Communications and Comcast provide services countywide. Champlain Valley & Waitsfield Telecom is the local wired telephone and internet access provider. In addition, the town identifies six communication towers/ transmission facilities. There are several VELCO high-tension power lines in the Town. One parallels the rail lines, another runs due west along the hills north of the rail line, and a spur runs south in the western half of the Town into Hinesburg. Above ground telecommunication land lines run along the street grid.

Most communications and information systems and infrastructure in the United States are privately-owned; however, the Town maintains authority and control over public safety communications for fire, police, and other responding agencies. In recent years, the Federal government has taken a stronger role in protecting information and communications infrastructure, which may also present a challenge in relation to disaster impacts. Increasing reliance on this infrastructure by individuals, businesses, and government could cause vulnerabilities which emergency managers should take into consideration in pre-and post-incident planning and operations.

Transportation

The town garage has been identified as a transportation critical facility located within the Town of Richmond. Additionally, Highway 7, also known as Ethan Allan Parkway, runs parallel to Lake ~~to~~ Champlain in a north-south direction. Prominent paved secondary town roads serving residential neighborhoods include Spear St., Mt. Philo Rd., Church Hill Rd., Dorset St., Greenbush Rd., Thompson's Point Rd., and Hinesburg Rd. Many businesses and community

amenities are located near or along these roadways. The town is also served by Vermont Railways, a freight line that parallels Rte. 7 through town, which (starting in July 2022) also carries daily Amtrak passenger service linking Burlington to New York City, and by a private passenger & motor vehicle ferry service linking Charlotte to Essex, New York.

Hazardous Materials

There are twelve facilities identified as using, storing, or transporting hazardous materials and fuels in excess of 10,000 pounds within the Town of Richmond.

Education

Richmond Elementary School and Camel's Hump Middle School are located within the Town.

Recreational, Cultural and Historic Sites and Assets

Richmond is rich with its historic architecture ranging from the Round Church to the downtown business area to bridges and farms, Richmond's historic sites and structures contribute to its distinctive small-town character. These places have retained their vitality because their owners have maintained and adapted them to serve evolving needs without obscuring their ties to the past. Upholding Richmond's character as a vibrant small town that is both forward-looking and grounded in tradition will depend in part on preserving the integrity of these historic structures as the town continues to evolve.

The Round Church's more than 200-year history is deeply woven into the life of the community. For 160 years, it served as Richmond's Town Meeting Hall, site of many difficult decisions regarding how to keep the community safe and strong. As a place of marriages, christenings and funerals, the Round Church has touched the lives of thousands of families, leaving indelible memories. Over the years, thousands more have collected memories of church services, concerts, the annual Carol Sing, the sledding hill, etc. Others have come as tourists, seeking out a historic landmark and finding an attractive town.

More than 100 sites in Richmond are listed in the Vermont Register of Historic Places. Most of these were identified in a Historic Sites and Structures Survey conducted in 1976 by the state's Division for Historic Preservation. The survey designated North (West) Main Street and Bridge Street as historic districts, with 28 and 34 sites, respectively, meeting its historic significance criteria. It also identified 50 historically important sites outside the two districts. Eight of these state-recognized historic places also appear in the National Park Service's National Register of Historic Places. These include the Round Church (which has been designated a National Historic Landmark as well), the Jonesville Academy building, the Winooski River Bridge (Checkered House Bridge), the Martin Bates farmstead (Birdseye Building and Anand properties), the Richmond Underwear Factory (Goodwin-Baker Building), the M.S. Whitcomb farm (Venture Farm/Monitor Barn farm), Gray Rocks (Andrews Farm), and the Richmond Congregational Church. The Town also maintains two historic cemeteries dating back to the

early 1800s: the Village Cemetery on Bridge Street and the Hill (Fays Corner) Cemetery accessed from Cemetery Road.[3]

In addition to the historic structures, the town maintains a handful of parks, trails, and outdoor recreational areas, including Volunteers Green, Browns Court Ballfield, the Andrews Community Forest, and Over rockers Park.

Natural Environment

According to the 2018 Town Plan, Richmond's natural and working lands form the landscape of the community. This landscape provides ecological services, diverse natural communities, outdoor education laboratories for local schools, and a wide range of economic, recreational, and scenic benefits. Richmond natural areas may include forests, waterbodies, wetlands, vernal pools, floodplains, river corridors, cliffs, gorges, and steep slopes. These areas provide benefits such as habitat, waterbody buffering, groundwater protection, recreational opportunities, and scenic views. Richmond contains portions of the Mount Mansfield Forest Block and Camels Hump State Forest.

Forests and prime agricultural lands and soils are natural resources that contribute directly to Richmond's economy and quality of life. Forests and fields also provide ecosystem services such as air and water filtration and flood storage. While some traditional dairies are still thriving, the agricultural community as a whole in Vermont is diversifying due to changing market demands, declining milk prices, and increased regulation. Richmond is home to a very unique natural landscape, thanks to its location between the high peaks of the northern Green Mountains and the fertile lowlands of the Champlain Valley and Winooski River Basin. Riparian areas are ecosystems comprised of rivers, streams, lakes, and ponds, as well as the land directly adjacent to these surface waters such as river corridors and floodplains. Fragmentation of existing forest can cause cascading effects on the environment and economy such as decreased biodiversity, increased erosion, and the disappearance of forestry, agricultural, and recreational businesses. Richmond also has a large amount of existing contiguous forest that has not been fragmented either by happenstance or through parcel conservation efforts by local organizations and landowners.

[3] MergedFile (richmondvt.gov)

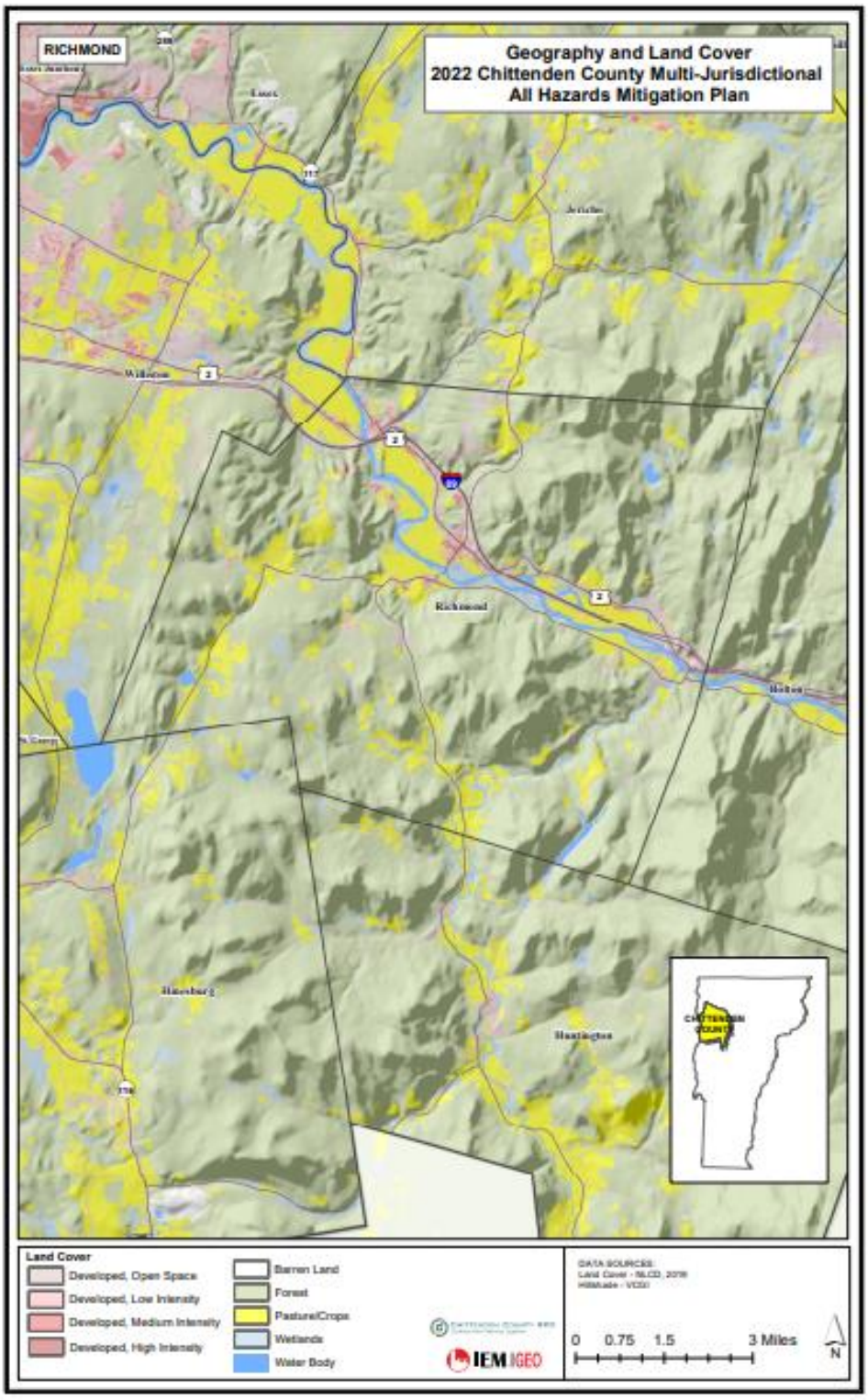

Figure 11.2: Geography and Land Cover, Town of Richmond[4]

[4] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

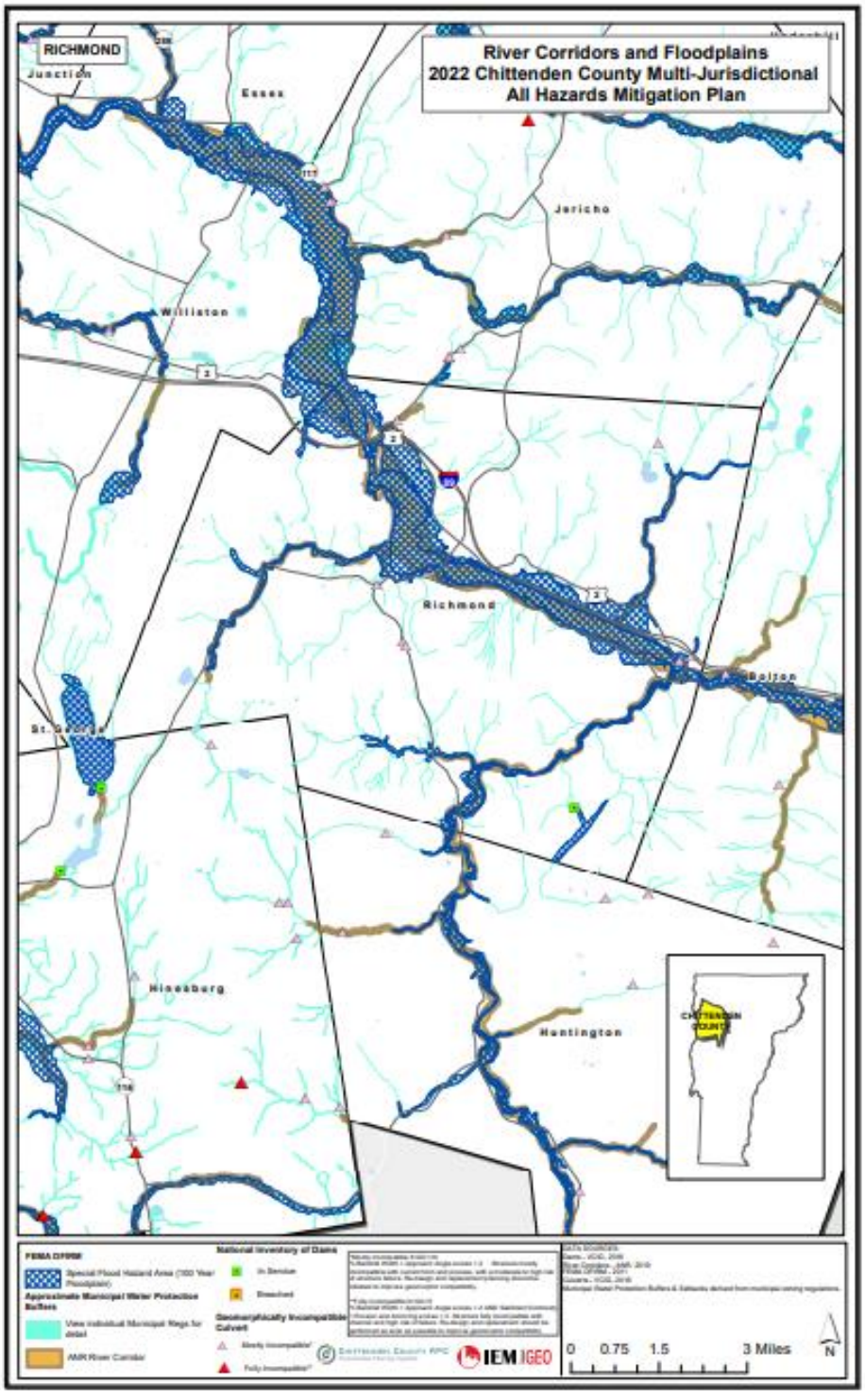

Figure 11.3: River Corridors and Floodplains, Town of Richmond[5]

[5] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

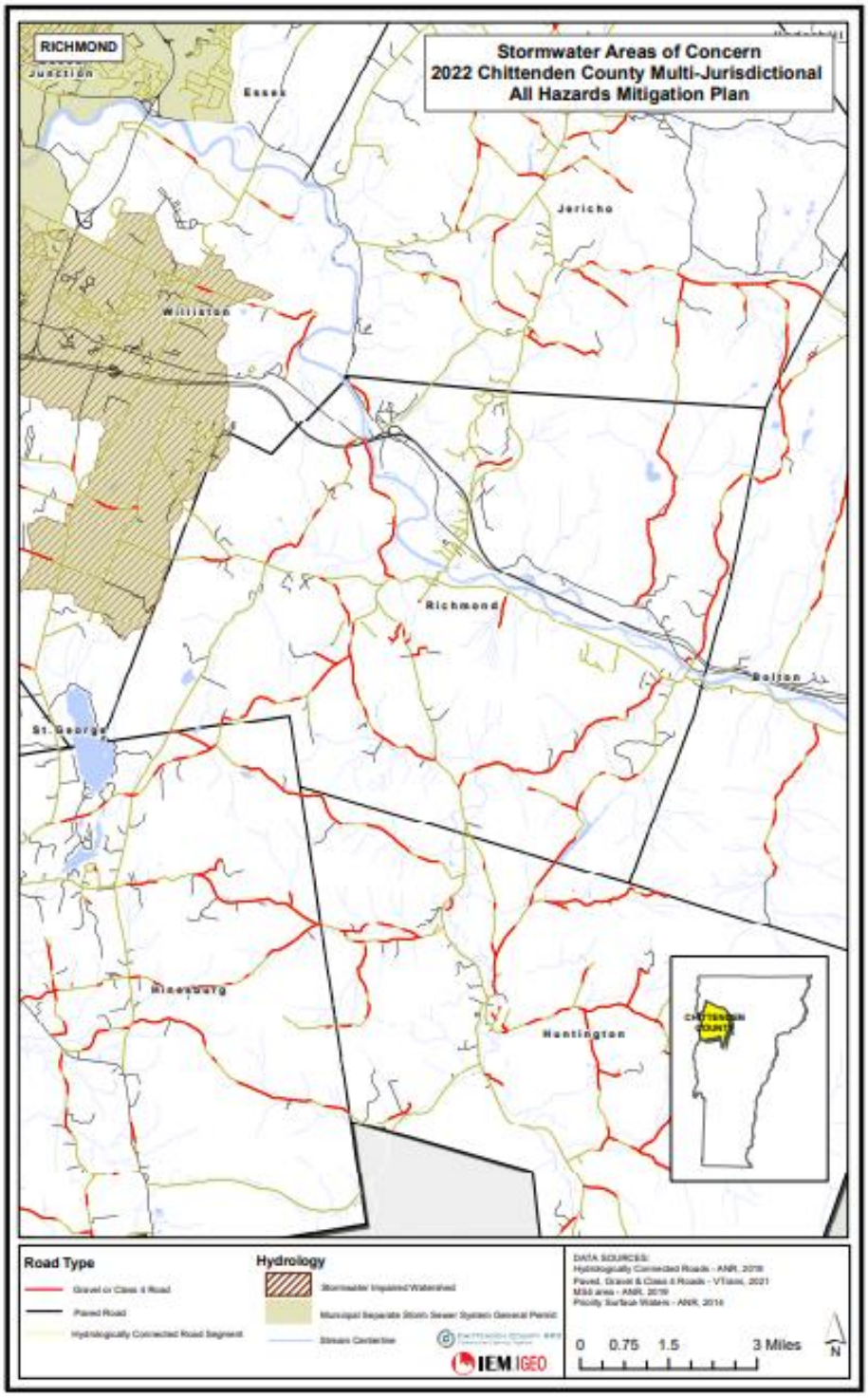

Figure 11.4: Stormwater Management System, Town of Richmond[6]

[6] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

Growth and Development Trends

The Town of Richmond's population is relatively stable, showing only a slight increase in the past decades. It is likely that the current development pattern will continue, driven by the Town's easy access to Interstate 89. Residential growth is anticipated within Richmond Village in the High-Density Residential district as well as in scattered locations throughout the Agricultural/Residential District that encompasses most of the town. At this time, the main way CCRPC has to predict future development is by analysis of municipal zoning bylaws. As the municipality participates in the NFIP, zoning bylaws heavily regulate development in designated flood hazard areas. Additionally, the Town also regulates development near other waterbodies and wetlands. As a result, little to no development is likely to take place in flood hazard areas or river corridor protection areas. These zoning requirements effectively mitigate damages from Flood and Fluvial Erosion hazards to future structures.

There are several conserved parcels in Richmond, most conserved for their scenic, agricultural or natural resource values. In 2010, the Town of Richmond created a Conservation Reserve Fund for uses in the conservation of natural, agricultural, and historic resources. Money for the fund comes from property taxes at a rate of $10 per $100,000 of assessed value

Table 11.3: Population Trends, 2010-2020, Town of Richmond

2010 Population	2020 Population	Net Change 2010-2020	% Change 2010-2020
4,081	4,167	+86	.02%

The primary method to predict future development is by analysis of municipal zoning bylaws. As the municipality participates in the National Flood Insurance Program (NFIP), zoning bylaws heavily regulate development in designated flood hazard areas. Additionally, the Town also regulates development near other waterbodies and wetlands. As a result, little or no development is likely to take place in flood hazard areas or river corridor protection areas. These zoning requirements effectively mitigate damages from Flood and Fluvial Erosion hazards to reduce risk of flood hazards impacting future structures. Further, with a five-acre minimum lot size for residential structures, and with nearly one-third of the land base in some form of conservation protection, these also serve to limit the amount of new development that can occur.

Table 11.4: Population Projections 2020 to 2030, Town of Richmond

2020 Population	2030 Population	Net Change 2000 -2020	Percent Change 2000-2020
4,167	4,238	71	1.7%

Future population growth within the town is primarily dependent on the economic stability and planned development for the county and region which shows no significant change in the near future. The Planning Area concept adopted by the Chittenden County jurisdictions indicates limited areas within the Village land use category which maintains the compact, mixed-use character of a Vermont village and limits density increases.

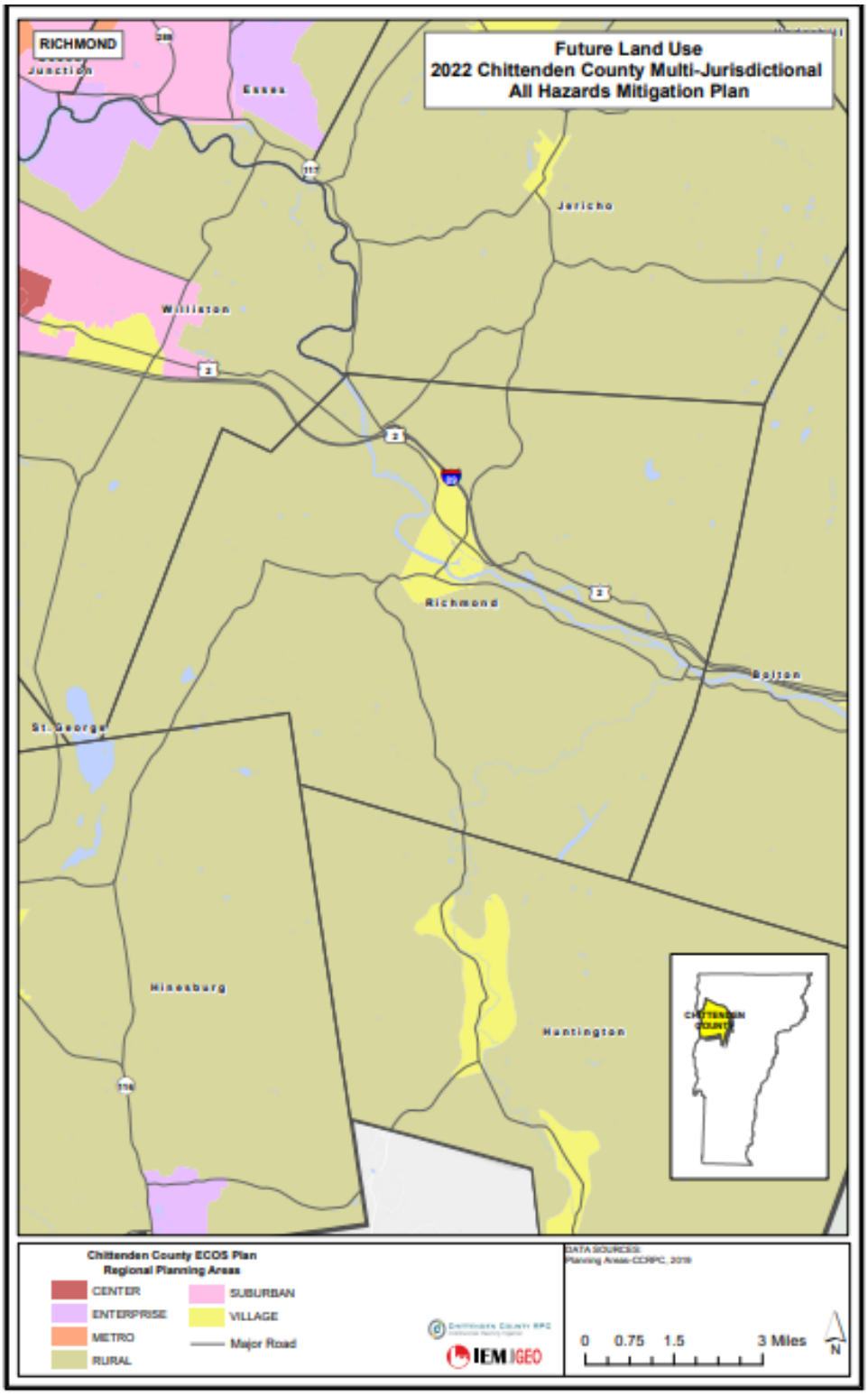

Figure 11.5: Future Land Use, Town of Richmond[7]

[7] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

11.3 JURISDICTION PLANNING PROCESS

Table 11.5: Points of Contact for Hazard Mitigation Planning, Town of Richmond

Name	Position/Title	Department/Agency
Ravi Venkataraman	Town Planner	Town of Richmond
Josh Arneson	EMD/ Town Manager	Town of Richmond
Dan Albrecht	Senior Planner	Chittenden County RPC

The jurisdiction identified its chief hazard mitigation planning responsibility as participating in the planning process and providing data and information through the Chittenden County All Hazards Mitigation Plan Update Committee (AHMPUC). The county also identified the following tasks as part of its mitigation planning responsibilities:

- Jurisdictional Planning Committee
- Planning Group resource/subject matter expert
- Hazard risk and vulnerability assessment
- Provide technical data and hazard information
- Capabilities assessment
- Mitigation strategy development
- Sponsor mitigation actions
- Review Plan drafts and provide input
- Public outreach activities
- Implement the Plan
- Maintain the Plan

Public Participation

Several opportunities for public involvement were provided during the planning process, including a Public Hazard Survey and access to the draft plan for review and input. The Public Hazard Survey was released through a web link posted on the Chittenden County Regional Planning Commission's (CCRPC) "Front Porch" e-newsletter.

In addition to the survey, the public was offered the opportunity to review and provide input to the Draft 2022 Plan update. Notification of the Draft Plan release was made through the same county web link. Documentation of the public survey and draft plan review is included in **Attachment 3** of this annex.

11.4 JURISDICTION-SPECIFIC HAZARD EVENT HISTORY

The Town of Richmond has been included in fourteen Federal Disaster or Emergency Declarations since 1990, all but four as a result of severe storms or flooding.

Table 11.6: Federal Disaster and Emergency Declarations (1990-2021), Town of Richmond

Declaration	Date	Hazard	Assistance Type
EM 3567	August 2021	Tropical Storm Henri	P(B)
DR-4532	April 2020	Vermont Covid-19 Pandemic	IA, PA(B)
EM-3437	March 2020	Vermont Covid-19	PA(B)
DR-4474	January 2020	Severe Storm and Flooding	-PA (A-G)
DR-4380	May 2018	Severe Storm and Flooding	PA (A-G)
DR 4232	June 2015	Severe Storm and Flooding	PA (A-G)
DR 4163	January 2014	Severe Winter Storm	PA (A-G)
DR 4140	August 2013	Severe Storms and Flooding	PA (A-G)
DR 4022	September 2011	Tropical Storm Irene	IA, PA(A-G)
DR 1995	June 2011	Severe Storms and Flooding	IA, PA(A-G)
EM 3167	April 2001	Snowstorm	PA(B)
DR 1228	July 1998	Severe Storms and Flooding	IA, PA(A-G)
DR 1101	January 1996	Ice Jams and Flooding	PA(A-G)
DR 875	June 1990	Flooding	PA(A-G)

Table 11.7: Summary of Storm Events in the Town of Richmond 1950-2021

Event Type	Number of incidents	Direct Deaths	Indirect Deaths	Direct Injuries	Indirect Injuries	Property Damage ($)	Crop Damage ($)
Cold/Wind Chill	10	0	0	0	0	0	0
Extreme Cold/Wind Chill	5	0	0	0	0	0	0
Flash Flood	4	0	0	0	0	1,515,000	0
Flood	12	0	0	0	0	98,000	0
Frost/Freeze	2	0	0	0	0	0	25,000
Hail	4	0	0	0	0	0	0
Heat	2	0	0	0	0	0	500,000
Heavy Rain	6	0	0	0	0	50,000	0
Heavy Snow	5	0	0	0	0	107,000	0
High Wind	25	0	0	1	0	2,161,000	0
Ice Storm	1	0	0	0	0	200,000	0
Lightning	1	0	0	0	0	0	0
Strong Wind	35	0	0	0	0	412,000	0
Thunderstorm Wind	12	0	0	0	0	181000	0
Winter Storm	90	0	0	2	0	1,658,000	15,000
Winter Weather	98	1	0	0	0	683,500	0
Total	**312**	**1**	**0**	**3**	**0**	**$7,065,500**	**$540,000**

Table 11.8: Significant Hazard Events Identified by Town of Richmond, 2017-2021

Date	Hazard	Event and Description

05/31/2017	**Thunderstorm Wind**	Several trees and wires down on utility lines in Richmond.

High Hazards of Concern to the Jurisdiction

The Town of Richmond indicated that Fluvial Erosion, Flooding, and Severe Winter Storms were the highest natural hazards of concern for the jurisdiction. These hazards are fully profiled in **Section 4, Base Plan**; however, further information was provided by the town in relation to the following hazards.

Flood/Flash Flood

There are a number of river and streams that flow throughout the jurisdiction, primarily the Huntington River, which flows from south to north as a tributary of the Winooski River. Analysis in the 2017 *MHAHMP* identified intense, localized thunderstorms as a cause of excessive and rapid water flows on and over paved and gravel roads, roadside ditches, driveway culverts, stormwater systems, rather than overflowing nearby streams, rivers, or lakes as the primary cause of damage to these assets.

In many cases, damaged infrastructure is located outside formally mapped floodplains and Fluvial Erosion Hazard Areas. This was the case in FEMA-declared disasters in the summer of 2013 and 2015. While past damage locations can sometimes be mapped (depending upon the degree and accuracy of data collection efforts) this may or may not provide any degree of predictability of the potential locations for future events.

The Town of Richmond Road infrastructure as well as the driveways of private homes and businesses consist primarily of gravel and/or dirt and are therefore susceptible to damage from excessive rainfall events.

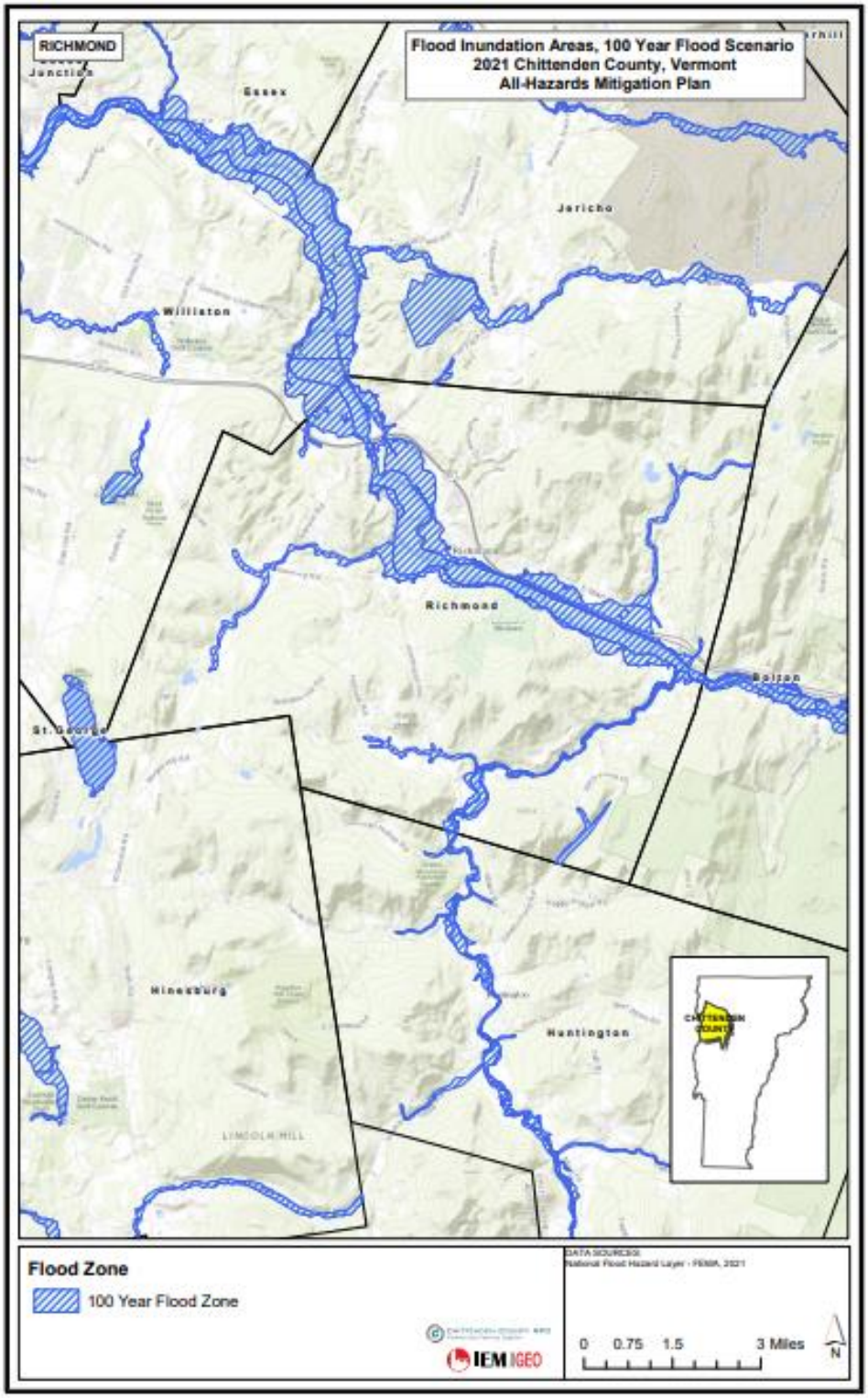

Figure 11.6: 100-Year Flood Scenario, Town of Richmond[8]

[8] Hazus, 100-Year Flood Scenario Run, October 14, 2021.

Fluvial Erosion

During development and adoption of both the 2005 and 2011 Multi-Jurisdictional Plans, threats from stream erosion were identified as Fluvial Erosion Hazard (FEH) Areas through the analytical lens of Stream Geomorphic Assessments (SGA). The SGA approach is still used by the Vermont Agency of Natural Resources, but the Vermont Agency for Natural Resources (ANR) now focuses on and maps River Corridors which serve as a buffer of the naturally stable channel for minimizing fluvial erosion hazards.

SGA work has been completed for Snipe Island Brook, Owls Head Brook, and the Jericho Road/Southview Drive tributary of the Winooski. Phase II assessments have been completed for all of the Johnnie Brook and Huntington River, parts of the Governor Peck Road tributary of the Winooski and parts of the Stage Road tributary of the Winooski. A corridor management plan for the Huntington River has been developed. No assessments have been completed of the main branch of the Winooski.

Although fluvial erosion is considered a significant hazard in the municipality, the number of feet-acres of soil lost in any one event has not been recorded nor is there a record with such data. Fluvial erosion hazard areas are identified within the town, based on the River Corridor criteria.

Of the 25 bridges inventoried by Vermont Department of Transportation for Richmond, six are rated functionally deficient and four are rated structurally deficient. One bridge in Richmond over the Huntington River is rated Scour Critical with regards to fluvial undermining of bridge structure. Some of the most vulnerable infrastructure is road culverts.

Severe Winter Storm

Severe winter storms are not formally analyzed or mapped for the Town due to the random nature of where such damage occurs; however, these events do occur with some frequency and are addressed in **Section 4.8, Base Plan**.

Dam/Levee Failure

There are no dams in the Town of Charlotte under the jurisdiction of Vermont Department of Environmental Conservation (DEC)[9] pursuant to 10 VSA Chapter 43 §1081 and subject to 10 VSA Chapter 43 §1082 Authorization (i.e., dams capable of impounding more than 500,000 cubic feet of water or other liquid).

The National Dam Inventory shows two dams located in the municipality.

[9] Information on dams is available from two sources: a database of dams regulated by the Vermont Department of Environmental Conservation, and the National Dam Inventory, maintained by the U.S. Army Corps of Engineers.

Table 11.9: Dams in Town of Richmond, as of May 2021[10]

Name	Owner	River	Description	Impoundment Capacity (acre-feet)	Hazard Potential
Richmond Pond	Prelco, Inc.	Snipe Island Brook	Material, original purpose and date of construction unrecorded	0	Low (Losses limited to owner's property)
Gillette Pond	Private	N/A	Stone and earthfill, built in 1900 for water storage	-	Low

Non-Natural Hazards

The Town of Richmond identified the following information related to technological and societal hazards.

Table 11.10: Technological and Societal Hazards of Concern to the Town of Richmond

Hazard	Risk/Vulnerability Issue
Power Loss	Outage data is broad, referring to total customers within a county and outage locations are not mapped.
Telecommunications Failure	Information for this rare occurrence is not publicly available.
Water Pollution	Phosphorus-loading for general locations is known but non-point sources are varied and dispersed.
Economic Recession	Longer lasting impacts are hard to measure below the county level.
Key Employer Loss	The town has no major employers and depend on the regional economy. No formal database of key employer loss is maintained.

11.5 HAZARD RISK RANKING

After developing hazard profiles, the Town of Richmond Planning Committee conducted a two-step quantitative risk assessment for each hazard that considered population vulnerability, geographic extent/location, probability of future occurrences, and potential impacts and consequences. The numerical scores for each category were totaled to obtain an **Overall Risk Score**, which is summarized as one of these risk and vulnerability classifications:

- Low: Minimal potential probability and impact. Minimal or no property damage or loss of life expected.

[10] National Inventory of Dams, U.S. Army Corps of Engineers. 2021.

- Medium: Moderate probability and potential impact; moderate threat level to the general population and/or the built environment. The potential damage is more isolated and less costly than a widespread disaster.

- High: Significant probability and widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past, causing significant impact.

The two-step hazard risk ranking methodology is detailed in **Section 4, Base Plan**. The Hazard Risk Ranking scores for Town of Richmond are provided in **Attachment 2** of this annex.

The **Overall Risk Score** for each hazard served as the basis for determining whether a vulnerability assessment should be conducted. Natural hazard profiles are presented within the hazard sub-sections in **Section 5, Base Plan**, and local detail is provided in the Jurisdiction Annexes. Non-natural hazard profiles are presented in **Volume II** of this Plan.

Table 11.11: Hazard Risk Ranking Summary Natural Hazards, Town of Richmond

Hazard	Sum-Impact/ Consequence Score	Probability	Total Risk Rating (Impact/ Consequences x Probability)	Hazard Ranking
Fluvial Erosion	10	5	50	High
Flooding	9	5	45	High
Severe Winter Storm	8	5	40	High
Human Infectious Disease	7	3	21	Medium
Severe Rainstorm	4	4	16	Low
Invasive Species	3	4	12	Low
Wildfire	3	4	12	Low
Extreme Temperatures	3	4	12	Low
Dam/Levee Failure	[Not Ranked]			

Table 11.12: Hazard Risk Ranking Summary Technological Hazards, Town of Richmond

Hazard	Sum-Impact/ Consequence Score	Probability	Total Risk Rating (Impact/ Consequences x Probability)	Hazard Ranking
Major Transportation Incident	8	5	40	High
Power Loss	5	5	25	Medium
Other Fuel Service Loss	5	4	20	Medium
Water Pollution (algal bloom, etc.)	5	4	20	Medium
Water Supply Loss	6	3	18	Low
Telecommunications Failure	4	4	16	Low

Hazard	Sum-Impact/ Consequence Score	Probability	Total Risk Rating (Impact/ Consequences x Probability)	Hazard Ranking
Sewer Service Loss	5	3	15	Low
Hazardous Materials Incident	6	2	12	Low
Multi-Structure Fire	4	3	12	Low
Natural Gas Service Loss	6	1	6	Low

Table 11.13: Hazard Risk Ranking Societal Hazards, Town of Richmond

Hazard	Sum-Impact/ Consequence Score	Probability	Total Risk Rating (Impact/ Consequences x Probability)	Hazard Ranking
Economic Recession	6	4	24	Medium
Crime	4	4	16	Medium
Key Employer Loss	3	3	9	Low
Civil Disturbance	4	2	8	Low
Terrorism	6	1	6	Low

11.6 VULNERABILITY ASSESSMENT

The methodology for calculating loss estimates presented in this annex is the same as that described in **Section 4, Base Plan**. Quantitative loss estimates are provided when available. Qualitative measurement considers hazard data and characteristics, including the potential impact and consequences based on past occurrences. Accompanying the data is a discussion of community assets potentially at risk during a hazard event.

Typical vulnerabilities from common hazards consist primarily of:

- Damage to public infrastructure especially roads and culverts
- Temporary closures of roads and bridges including from debris
- Temporary loss of power and/or telecommunications
- Temporary isolation of vulnerable individuals such as the elderly or those in poverty

More specifically, these vulnerabilities typically occur in association with the hazards profiled in **Section 4, Base Plan**.

Table 11.14: Typical Vulnerabilities of Natural Hazards of Highest Concern, Town of Richmond

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Extreme Temperatures	• Damage to public infrastructure • Loss of water service	• Budget impacts due to needed repairs
Flooding	• Temporary closures of roads and bridges including from debris • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals • Damage to public infrastructure	• Budget impacts from road/bridge closures and repairs to public infrastructure • Damages to individuals' properties and businesses
Fluvial Erosion	• Temporary closures of roads and bridges including from debris • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals • Damage to public infrastructure	• Budget impacts from road/bridge closures and repairs to public infrastructure • Damages to individuals' properties and businesses
Human Infectious Disease	• Temporary closures of schools, businesses, places of assembly • Increased demand on medical services •	• If an epidemic is widespread and long-lasting, impact could be severe
Invasive Species	• Small but ongoing cost to monitoring level of occurrence	• If repeat events, impacts to tourism-based businesses.
Severe Rainstorm	• Temporary closures of roads and bridges including from debris • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals • Damage to public infrastructure	• Budget impacts from road/bridge closures and repairs to public infrastructure • Damages to individuals' properties and businesses
Severe Winter Storm	• Temporary closures of roads and bridges including from debris • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals	• Budget impacts from debris cleanup
Wildfire	• Damage to private property	•

Relative to the county as a whole, the Town of Richmond has a higher vulnerability to the following natural hazards:

- Fluvial Erosion due to high amount of gravel roads and mountainous terrain.

- Flooding due to the presence of the Winooski River (although it is mitigated by several dams) and the Huntington River.
- Severe Winter Weather

Vulnerabilities with regards to **Technological Hazards** are harder to project as these incidents occur with less frequency and less predictability.

Table 11.15: Typical Vulnerabilities of Technological Hazards of Highest Concern, Town of Richmond

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Gas Service Loss	• Temporary loss of service • Temporary impacts to vulnerable individuals	• If extensive loss, potential budget impacts to service providers
Hazardous Materials Incident	• Temporary closures of roads and bridges during cleanup	• If large event, potential high cleanup costs • Injuries to persons
Major Transportation Incident	• Temporary closures of transportation infrastructure • Injuries, deaths	• If major event, potential long-term closure of infrastructure
Power Loss	• Temporary loss of electrical service • Temporary impacts to vulnerable individuals • Damage to public infrastructure	• If extended event, damage to perishable good or business income • If extensive loss, potential budget impacts to service providers
Other Fuel Service Loss	• Temporary loss of service • Temporary impacts to vulnerable individuals	• If extensive loss, potential budget impacts to service providers
Sewer Service Loss	• Temporary loss of service • Temporary impacts to vulnerable individuals	• If extensive loss, potential budget impacts to service providers
Telecommunications Failure	• Temporary loss of service • Temporary impacts to vulnerable individuals	• If extensive loss, potential budget impacts to service providers
Water Service Loss	• Temporary loss of service • Temporary impacts to vulnerable individuals	• If extensive loss, potential budget impacts to service providers
Water Pollution	• Ongoing budgetary impacts due to permit requirements	• If repeat events, impacts to tourism-based businesses

Relative to the County as a whole, the Town of Richmond has a slightly higher vulnerability to the following technological hazards:

- Major Transportation Incident due to the transit of a railroad line, US 2 and Interstate 89 through the Town.

With regards to **Societal Hazards**, vulnerabilities are typically more dispersed among individuals and societal sectors compared to the natural environment and to technology which is fixed.

Table 11.16: Typical Vulnerabilities of Societal Hazards of Highest Concern, Town of Richmond

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Civil Disturbance	• Injuries to persons • Damage to public and private property	• Budget impacts to police services depending upon severity of event • Deaths
Crime	• Increased demands on police services and social services	• Injuries • Deaths
Economic Recession	• Loss of economic activity • Increased demands on social services • Some loss of tax revenue	• Effects increased if event is of extended duration
Key Employer Loss	• Loss of economic activity • Loss of portion of tax base • Increased demands on social services	• Effects increased if employer is of significant size
Terrorism	• Injuries to persons • Damage to public and private property	• Budget impacts to police services depending upon severity of event • Deaths

Relative to the County as a whole, there is insufficient data to conclude whether the town is more vulnerable to one of the Societal Hazards noted above.

The Town *MJAHMP* Planning Committee noted the following as critical assets to the jurisdiction:

- People – The health, safety and welfare of the Town officials, staff, and volunteers, including the Road Crew, Fire people, first response, Search and Rescue Team, as well as the general public.
- The Winooski River, Parks and Trails (includes Volunteers Green, the Round Church and Cochrans Ski Area),
- Bridge Street Commercial Block (Includes Town Center Library and Post Office)
- Highway and Road Department

Additional town assets and related vulnerabilities are described in relation to population, built environment, natural environment, the economy, and cultural and historical assets.

Population

The Centers for Disease Control and Prevention's (CDC) **Social Vulnerability Index (SVI)** is a tool that can be used to identify specific vulnerable populations. The CDC SVI depicts the vulnerability of communities at census tract level, by county, into fifteen census-derived factors grouped into four themes—socioeconomic status, household composition/disability, race/ethnicity/language, and housing type/transportation. Social vulnerability refers to a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as toxic chemical spills.

Based on the Overall SVI for Chittenden County, the Town of Richmond is in an area of lowest vulnerability.

Table 11.17: Vulnerable Population in the Town of Richmond

Population Category	Percent
Children Under 5	-
Population age 65+	6.8%
Disabled Population	-
Population Below Poverty Level	5.1%

Built Environment

Although a vulnerability analysis was conducted utilizing the Hazus modeling scenarios, it was conducted at the county level and no additional Hazus data is available for specific jurisdictions. Based on information provided by the jurisdiction the following Community Lifeline sites or facilities potentially at risk.

Bridges and Culverts

There are a variety of bridges and culverts located in the municipality. The following bridges are contained in an inventory maintained by Vermont Center for Geographic Information, Vermont Department of Transportation and the Chittenden County Regional Planning Commission (CCRPC). A GIS intersection was performed for the 2017 Plan to determine which bridges are located in the designated flood hazard area. This analysis was determined to still be current, but does not take into account the fluvial geomorphology or the elevation of the bridge above the floodplain. There are a variety of bridges, culverts and dams located in the municipality. As noted in Section 4 of the County Plan, a large portion of the County's stream have had detailed Phase II Stream Geomorphic Assessments conducted. With regard to Richmond, studies identify specific stream reaches where fluvial erosion is a concern as well as where infrastructure, primarily culverts are at risk.

Table 11.23 Culverts with a Geomorphic Compatibility Rating of "Mostly Incompatible" or "Incompatible", Town of Richmond[11]

Bankfull Width	Compatibility Score	Location	Road Name	Stream Name
52.17	7	Structure located farthest up Snipe Ireland Road	Snipe Ireland Rd	Snipe Ireland Brook
37.50	8	Access to Marcelino Quarry	Private Quarry Access	Governor Peck Rd. tributary
36.91	9	Under I-89 bridges on Stage Road	I-89	Trib. to Winooski River
50.00	9	@ Taft corners sign on I-89	I-89	Trib. to Winooski River
58.82	9	Crossing of railroad that parallels the Winooski River	Railroad	Stage Road Tributary
58.82	9	Besaw Road and Junction with Huntington Road	Besaw Rd	Trib. to Johnnie Brook
57.14	10	Junction of Hinesburg Road & Huntington Road	Hinesburg Rd	Trib. to Johnnie Brook
47.37	10	Just above Besaw Road	Huntington Rd	Trib. to Johnnie Brook

Road Infrastructure

The statistical overview of roads in the Town of Richmond, shows the range of road types within the town, from highways to unpaved roads. A significant portion of the Town of Richmond's road infrastructure as well as the driveways of private homes and businesses consist of gravel and/or dirt and are therefore susceptible to damage from intense severe rainstorms. The different road types have different hazard vulnerabilities. Unpaved roads are more vulnerable to being washed out in a flood or heavy storm, while traffic incidents are more likely to occur on large, arterial roads. Municipal highways, bridges and dams are well mapped in Chittenden County. The state divides municipal (town) highways into three classes (described in **Section 4, Base Plan**) for purpose of highway maintenance and state aid.

Table 11.18 High Accident Road Sections Based on 2012-2016 Data, Town of Richmond High Crash Locations[12]

Road	Road Type	Section (miles)	Severity Index ($/crash)
US-2, I-89	Major Collector (r)	1.100-1.180	$45,350
US-2, FSA 0209	Major Collector (r)	2.690-2.770	$11,300
VT-117, FSA 0213	Minor Arterial (r) Major Collector (r)	0.650-0.750	$16,447

[11]

[12] Vermont Department of Transportation, High Crash Location Report: Sections and Intersections, 2021-2016

Table 11.19 Highway Mileage by Class, Town of Richmond

Class 1	Class 2	Class 3	Class 4	State Hwy	Total 1, 2, 3, State Hwy
-	15.630	32.18	3.11	14.327	62.137

Table 11.20 Highway Mileage by Surface Type, Town of Richmond

Paved	Gravel	Soil or Graded	Unimproved	Impassable	Unknown	Total
39.948	20.678	1.78	0	2.81	0.83	66.046
Total Known	**Total Unknown**	**% Paved**	**% Unpaved**			
65.216	25.268	61.3%	38.7%			

Table 11.21 Fuel Storage in Excess of 10,000 lbs., Town of Richmond

Owner/Facility	Type of Substance
Blue Flame Gas/Amerigas	Propane and Methanol
Cumberland Farms #8016	Fuels, Gasoline
Harrington's In Vermont Inc	Propane, Various Cleaning Chemicals
River Road LLC's, DBA Patterson Fuels	Kerosene, Diesel Fuel, Fuel Oil, Propane
Rogers Road LLC, DBA Patterson Propane	Propane
Heat Ltd., BDA Patterson Fuels	Kerosene, Diesel Fuel, Fuel Oil, Propane
Milton-Cat, Inc.-Richmond Facility	Propane, Various Oils
Richmond Mobile	Fuels, Gasoline

Table 11.22 Extremely Hazardous Substances Storage Sites, Town of Richmond

Owner/Facility	Type of Substance
Green Mountain Power Corporation-Richmond Substation #51	Lead Actid Batteries
Milton-CAT inc.- Richmond Facility	Sulfuric Acid
Richmond Verburg Lane	Lead, Sulfuric Acid
Verison Wireless	Sulfuric Acid

Analysis of the town's development pattern indicates that Richmond village has typical small town housing density with interspersed business and commercial units. Approximately 275 (or

17%) of the Town's 1,600 dwelling units are located in the central village. This village has seen a revival of its commercial core in recent years, with the renovation of the Goodwin Baker Building for offices, several new businesses and restaurants along Bridge Street, new commercial and residential development in the Railroad Street area, and new residential development at the end of Church Street. Riverview Commons, the Town's largest mobile home community, has approximately 150 units.

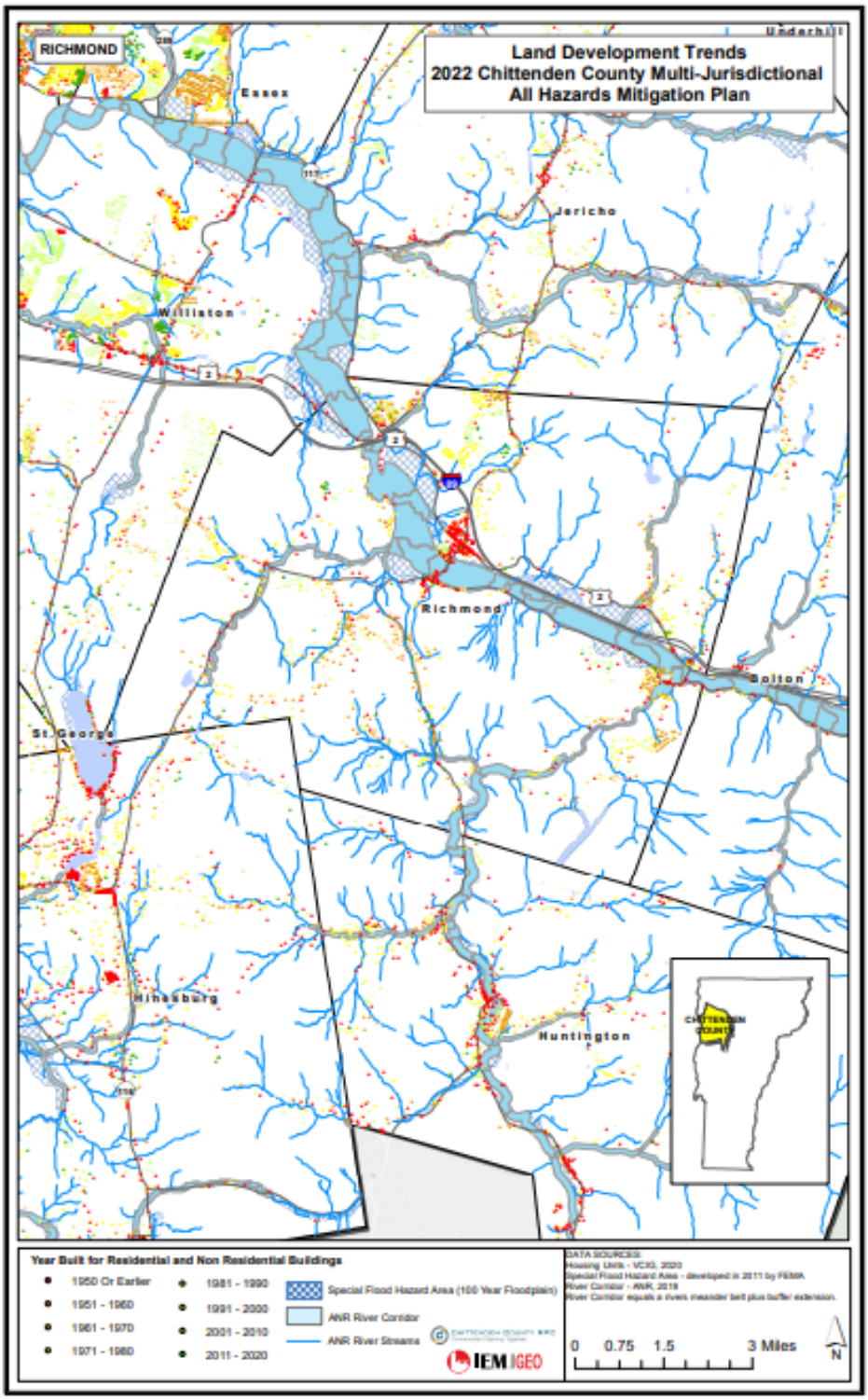

Figure 11.7: Historic Development, Town of Richmond- 1950-2020[13]

[13] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

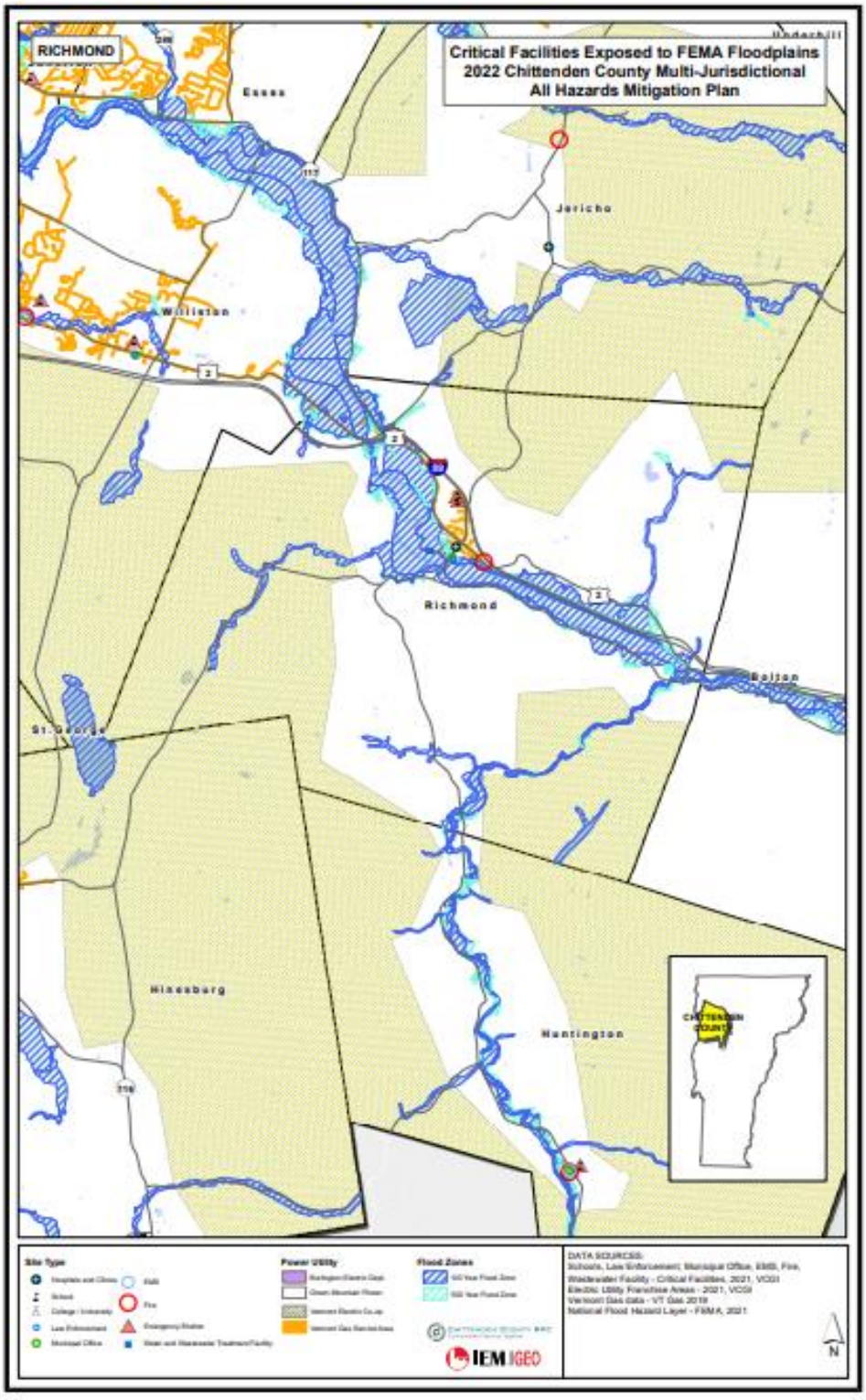

Figure 11.8: Critical Facilities, Town of Richmond[14]

[14] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

The Town's AMJUHMP Planning Committee noted the following buildings or sites as its top assets:

- Town Center,
- Library,
- Richmond Water Resources Department,
- Volunteers Green,
- Richmond Fire Department,
- Richmond Highway Department,
- Richmond Rescue

Table 11.24: Critical Facilities Exposed to FEMA Floodplains, Town of Richmond

Total Facilities	In 100-year Floodplain	In 500-year Floodplain
2	**4** **Municipal Office** **Fire** **Emergency Medical Service** **Water/Wastewater**	**0**

The Town's Water and Wastewater Treatment Plan is the only critical facility located within a mapped SFHA. It is located just within the SFHA and fully within the River Corridor.

Historical/Cultural Assets

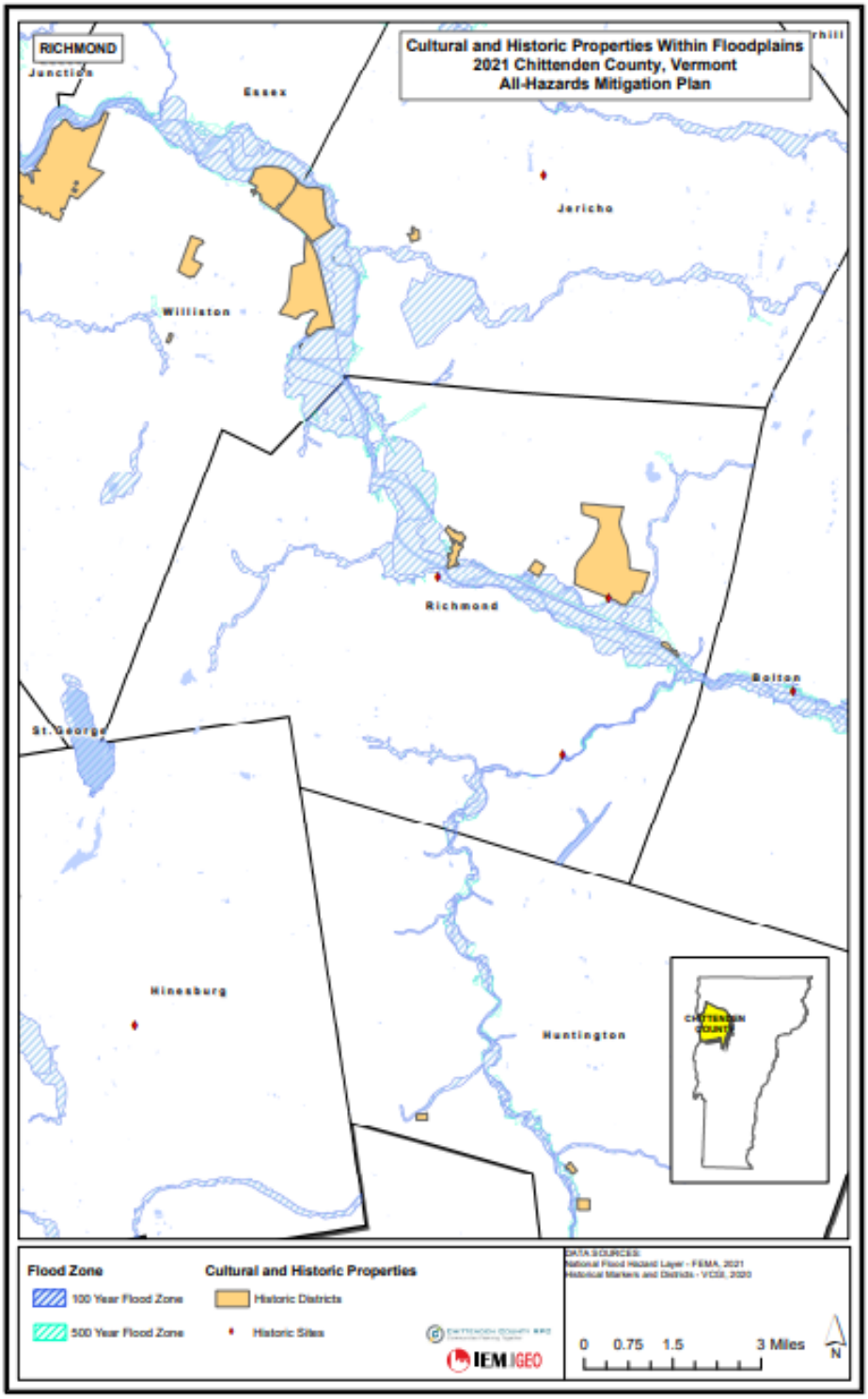

Figure 11.9: Cultural and Historic Properties Exposed to FEMA Floodplains, Town of Richmond[15]

[15] National Flood Hazard Layer, FEMA 2021; Vermont Center for Geographic Information, 2022.

11.7 CAPABILITY ASSESSMENT

Capabilities Assessment Summary Ranking and Gap Analysis

Planning and Regulatory Capabilities

The Town of Richmond has identified the following planning and regulatory capabilities that support and address hazard mitigation:

- Comprehensive Plan - 2018
- Stormwater Master Plan - 2018
- Public Improvement Standards, 2016, which includes stormwater management standards.

Table 11.25: Summary of Planning and Regulatory Capabilities, Town of Richmond

Comprehensive Plans	X
Capital Improvements Plans (Highway Dept.)	X
Economic Development Plan	-
Local Emergency Operations Plan	-
Continuity of Operations Plan	-
Transportation Plan (Town Plan, MRGP, Bridge Capital)	-
Stormwater Management Plan	-
Community Wildfire Ordinances	-
Zoning Ordinance	X
Subdivision Ordinance	X
Total	4

The Town identified the following areas for enhancement of its planning and regulatory capabilities:

- Portions of the Subdivision and Zoning Ordinances are outdated and/or ineffective and could be strengthened for reducing hazard impacts.
- Specific plans need to be established for hazard mitigation. The zoning ordinance can be amended to force stronger hazard mitigation requirements, such as stormwater, erosion prevention, open space requirements, and no cut areas. Zoning ordinance and subdivision ordinance can also be amended to include a town engineer to review details and specifications to ensure hazard mitigation.

Administrative and Technical Capabilities

The Town of Richmond has identified the following administrative and technical capabilities that support and address hazard mitigation:

- Professional staff trained in construction practices that reduce hazard impacts related to buildings and infrastructure.

- Planners/engineers with an understanding of natural and/or manmade hazards.
- Full-time personnel for emergency management, floodplain administration, GIS; and grant writing/management.
- Notification and warning system to inform residents and visitors
- Continue to work with the CCRPC to expand municipal capabilities.

Table 11.26: Summary of Administrative and Technical Capabilities, Town of Richmond

Planner(s) or engineer(s) with knowledge of land development and land management	X
Engineer/professionals trained in construction practices related to buildings and/or infrastructure	-
Planners/ Engineer(s) with an understanding of natural and/or manmade hazards	X
Floodplain manager Mutual Aid Compacts	X
Surveyor(s) Building Inspection	-
Staff with education or expertise to assess the community's vulnerability to hazards	X
Emergency Manager	X
Personnel skilled in GIS and/or HAZUS	X
Scientist familiar with hazards of the community	-
Civil Engineer Emergency Manager	-
Grant Writer(s)	X
Warning systems or services (automated callout, sirens, etc.)	-
Total	7

The Town of Richmond has significant administrative and technical capabilities and has identified the following areas for improvement:

- Establishment of plans and policies to define approaches and procedures to common town-wide risks and hazards. Better communication between town departments regarding ongoing and future projects.

Fiscal Capabilities

The Town of Richmond has identified significant fiscal capabilities that support and address hazard mitigation.

Table 11.27: Summary of Fiscal Capabilities, Town of Richmond

Capital improvements project funding	X
Authority to levy taxes for specific purposes	-
Fees for water, sewer, gas, or electric services	X

Impact fees for new development	X
Stormwater utility fee	-
Incur debt through general obligation bonds and/or special tax bonds	X
Incur debt through private activities	-
Community Development Block Grant (CDBG)	X
Other Federal funding programs, Historical Preservation	X
State funding programs	X
Public/Private partnership funding sources	-
Total	7

The Town of Richmond has significant fiscal capabilities and has identified the following areas for improvement:

- Increased awareness of the need for planning and construction for hazard mitigation

Program/Organization Capabilities

The Town of Richmond has identified program or organizational capabilities that currently support hazard mitigation.

Table 11.28: Summary of Program/Organization Capabilities, Town of Richmond

Civic groups serving special community needs	X
Ongoing public education or information program	X
Natural disaster or safety related school programs	-
StormReady certification	-
Firewise Communities certification	-
Public-private partnership initiatives addressing disaster-related issues	-
Other	-
Total	2

The Town of Richmond has minimal program or organizational capabilities that currently support hazard mitigation; however, it has identified the following areas for improvement:

- The Richmond Climate Action Committee, and Conservation Commission (advisory body for the Planning Commission and Selectboard) take on projects to protect natural resources within the town and can help implement future mitigation activities.

NATIONAL FLOOD INSURANCE PROGRAM CONTINUED COMPLIANCE

Richmond has participated in NFIP regular program since 1988 and has a designated Floodplain Manager. The last Community Assistance Contract (CAC) was conducted on April 6, 2016, with no outstanding deficiencies. There are fifty-one NFIP policies with total insurance coverage of $14,103,300; and there are six **repetitive loss properties** reported. The Town does not participate in the voluntary Community Rating System (CRS).

Although program participation is not a hazard mitigation action to be included in the mitigation strategy per se, the Town will continue to participate in NFIP and enforce the Town's Floodplain Management regulations. The Town Zoning Administrator and the Town's Development Review Board (DRB) monitor compliance with the National Flood Insurance Program. The Development Review Board (DRB) reviews and adjudicates applications for development within the floodplain including any proposed new construction in the Special Flood Hazard Area (SFHA), which is highly regulated. The Town also works with Vermont Department of Environmental Conservation (DEC) to respond to any local requests for Floodplain identification including questions about mapping. Additionally, the Town continues:

- Identifying the purpose of the floodplain regulation(s), as well as current and proposed ways to reduce flood losses.
- Serving as a mechanism for identifying flood hazard areas and related flood mapping issues.
- Oversees permit requirements for current and projected development projects.
- Inspect all development for continued compliance with town code.
- Applies development standards for flood-prone areas that minimize personal injury and property damage; and maintains documentation and risk analyses required for projects developed in these areas.
- Assist residents in obtaining information on flood hazards, flood maps, flood insurance and proper mitigation measures.

In an effort to meet NFIP requirements, the Town of Richmond will make updates and revisions to Floodplain Management regulations as it deems necessary. These updates and revisions may be prompted by changes in local demographics; shifts in land use; trends such as the frequency and intensity of flood events; and other factors that may warrant municipal action. The Town will also continue to incorporate into future planning documents, including HMP updates, changes to the locations and designations of mapped floodplains.

Table 11.29: National Flood Insurance Program Status, Town of Richmond

Current Eff. Map Date	Number of Policies	Total Premiums (in dollars)	Total Coverage (in dollars)	Total Number of Claims Since 1978	Value of Claims Paid Since 1978 (in dollars)	Number of Repetitive Loss Properties

08/04/2014	51	$72,435	$14,103,300	39	$502,329	6

Repetitive loss properties are public or private buildings insured under the National Flood Insurance Program that have made at least two insurance claims of more than $1,000 each during a ten-year period. According to the National Flood Insurance Program, there are five such properties located in the Town of Richmond. All eight are residential properties.

Repetitive Loss Properties by Type

Community Name	County Name	Mitigated	Occupancy 1
RICHMOND, TOWN OF	CHITTENDEN COUNTY	YES	SINGLE FMLY
RICHMOND, TOWN OF	CHITTENDEN COUNTY	NO	OTHR-NONRES
RICHMOND, VILLAGE OF	CHITTENDEN COUNTY	YES	SINGLE FMLY
RICHMOND, TOWN OF	CHITTENDEN COUNTY	NO	SINGLE FMLY
RICHMOND, TOWN OF	CHITTENDEN COUNTY	NO	SINGLE FMLY
RICHMOND, TOWN OF	CHITTENDEN COUNTY	NO	SINGLE FMLY

Support for Municipal Capabilities

It should be noted that the Chittenden County Regional Planning Commission (CCRPC) provides multiple support services to the municipalities to assist in supplementing planning and regulatory, administrative and technical, and education and outreach capabilities. In addition, the CCRPC assists municipalities with identifying and managing funding opportunities through grants and other sources.

Table 11.30: Capability Assessment Summary Ranking for Town of Richmond

Planning and Regulatory	Administrative and Technical	Financial	Education and Outreach
Moderate	High	High	Low

New Hazard Risk Challenges or Obstacles to be Monitored in the Next Planning Cycle

- Establishment of plans and policies to define approaches and procedures to common town-wide risks and hazards. Better communication between town departments regarding ongoing and future projects.
- Increased awareness of the need for planning and construction for hazard mitigation.

- The risk of cyber related incidents on Critical Infrastructure and Key Resource sites
- Climate change
- Increases in the number of excessive rainfall events that impact new areas with flood
- The zoning ordinance can be amended to force stronger hazard mitigation requirements, such as stormwater, erosion prevention, open space requirements, and no cut areas. Zoning ordinance and subdivision ordinance can also be amended to include a town engineer to review details and specifications to ensure hazard mitigation.

11.8 MITIGATION ACTIONS

Changes in Priorities

Richmond has experienced moderate increase in population growth; however, it continues to be concerned about the availability of affordable housing and increase demand on existing infrastructure (road system). The town's priorities have not changed since the last plan update and continues to make progress on mitigation actions.

Goals and Objectives

The Town of Richmond adopted the five regional goals defined in Section 6, Mitigation Strategy. In addition, the following objectives were defined during the mitigation strategy development process for this Plan update:

- Have more diverse housing options
- Develop alternative transportation corridors and means for improved multimodal traffic flow
- Expand infrastructure to align water/sewer service with the current excess capability of water/sewer services.

Status of Previous Actions

The Town of Richmond reviewed its Mitigation Actions described in the 2017 *MHAHMP* and noted the status.

Table 11.31: Status of Previous Mitigation Actions, Town of Richmond

Action Date	Action Number	Title of project	Hazard(s)	2022 Status Update
2017	**A-1**	**Complete Geomorphic assessment and corridor management plan for the Winooski River.** The CCRPC will partner with the Town and with the Vermont DEC to seek funds to complete a geomorphic assessment for the main branch of the Winooski through Richmond and develop a river corridor plan	Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution	Some progress, ongoing, incorporated into 2022 Mitigation Actions

2017	**A-2**	**Hazard Mitigation Project Implementation** One of the most effective means to directly mitigate impacts to homes from flood waters is to move them out of harm's way.	Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution	Some progress, ongoing, incorporated into 2022 Mitigation Actions
2017	**B-1**	**Culvert Upgrades** Upgrade culverts and ditching along roads to mitigate repeated damages from stormwater or spring snowmelt	Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution	Some progress, ongoing, incorporated into 2022 Mitigation Actions
2017	**B-2**	**Drainage Improvement** For 2017-2021, the Town anticipates rebuilding approximately 2 miles of gravel roads each year to ensure good quality of the base and top layers which will improve drainage and reduce the likelihood of damage in hazard events.	Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution	Some progress, ongoing, incorporated into 2022 Mitigation Actions
2017	**B-3**	**Road Improvement** Within political and financial restraints, consider re-engineering certain sections of roads to lower overall maintenance costs and improve overall capability of roads to handle current and projected traffic volumes. Research costs and options and consider paving certain road sections to lower overall maintenance costs, improve snow plowing speeds and improve overall capability of roads to handle current and projected traffic volumes. Several roads in town would be candidates for paving as they are gravel roads connecting two paved roads.	Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution	Some progress, ongoing, incorporated into 2022 Mitigation Actions
2017	**C-1**	**Develop Roads Stormwater Management Plan** The Town will first complete an Inventory of Priority Road Segments (PRS)[aka "hydrologically-connected" road segments] both currently meeting and not meeting MRGP standards. The CCRPC has already conducted an inventory of Richmond's in the summer of 2016 and has hired a consultant to begin to develop cost estimates for various erosion-reduction projects. The Town will then apply for MRGP coverage starting in July 2018. After issuance of the permit by the State, the Town will then work to use this information to develop a formal Roads Stormwater Management Plan for submission to the VT-DEC in 2019. The Plan will include a remediation	Water Pollution, Fluvial Erosion, Severe Rainstorm,	Some progress, ongoing, incorporated into 2022 Mitigation Actions

		plan (capital budget) and implementation schedule for each site not currently meeting standards.		
2017	**C-2**	**Begin Roads Stormwater Management Plan implementation** Obtain funding for and complete projects as identified in the Roads Stormwater Management Plan. Submit annual reports to DEC, documenting progress in remediation efforts towards meeting schedule to be in compliance with the MRGP. Reports will briefly describe which segments have been improved, practices installed, and whether segments now meet MRGP standards. The MRGP standards must be implemented on all priority road segments as soon as possible, but no later than 20 years from permit issuance.	Water Pollution, Fluvial Erosion, Severe Rainstorm,	Some progress, ongoing, incorporated into 2022 Mitigation Actions

Acronym Key:	Dam Failure: **DF**
	Extreme Temperatures: **ET**
	Flood: **F**
	Fluvial Erosion: **FE**
	Human Infectious Disease: **HID**
	Invasive Species: **IS**
	Severe Rainstorm: **SR**
	Severe Winter Storm: **SWS**
	Wildfire: **WF**

The locations of previous FEMA Public Assistance Projects in the Town of Richmond demonstrate that disaster costs related to recovery and mitigation activities include damage to roads and bridges; protective measures; and recreational or other site impacts.

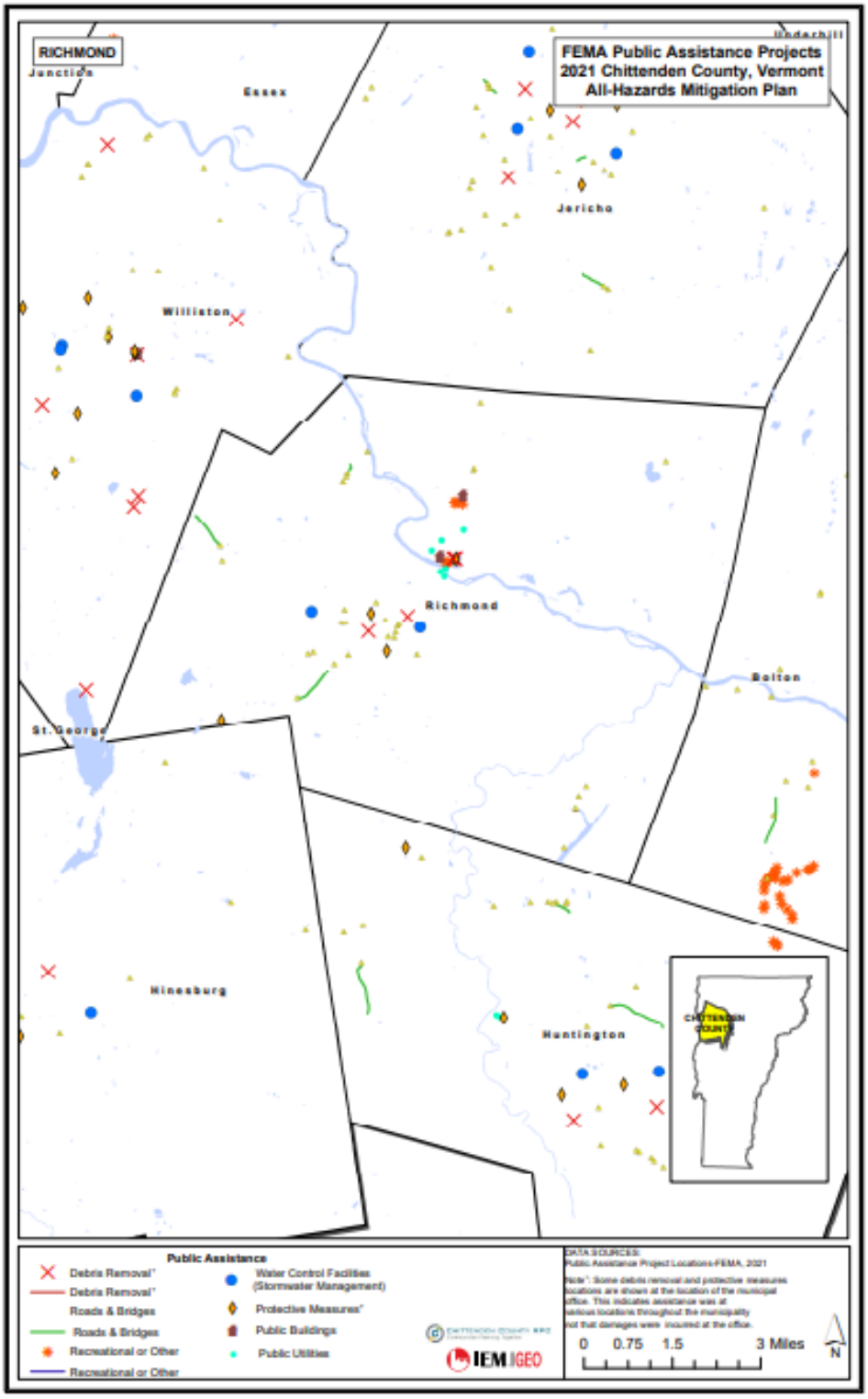

Figure 11.10: Previous FEMA Public Assistance Projects, Town of Richmond[16]

[16] Chittenden County Regional Planning Commission, GIS Database; October 14, 2021.

New Mitigation Actions

The Town of Richmond identified five mitigation actions that were prioritized based on the Mitigation Action Ranking System described in **Section 6, Base Plan**.

Table 11.32: 2022 Prioritized Mitigation Actions, Town of Richmond

Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	2022Status	Ranking
2022-1	Complete Geomorphic assessment and corridor management plan for the Winooski River.	Planning	Addresses damage to new/existing public infrastructure and buildings; Mitigates temporary road and bridge closure and budgetary impacts	Flood, Severe Winter Storm, Severe Rainstorm	High: $100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027	Medium
Action #	**Proposed Action**	**Agency/ Departments**	**Risk Reduction Benefit**	**Hazard(s) Addressed**	**Estimated Cost**	**Funding Source**	**2022Status**	**Ranking**
2022-2	Drainage Improvement and culvert update to mitigate repeated damages from identified hazards.	Town Highway Forman,	Addresses damage to new/existing public infrastructure and buildings; Mitigates temporary road and bridge closure and budgetary impacts	Flood, Severe Winter Storm Severe Rainstorm	High: $100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027	Medium
Action #	**Proposed Action**	**Agency/ Departments**	**Risk Reduction Benefit**	**Hazard(s) Addressed**	**Estimated Cost**	**Funding Source**	**2022Status**	**Ranking**
2022-3	Develop and implement a Roads Stormwater Management Plan	Town Highway Forman	Addresses damage to new/existing public infrastructure and buildings; Mitigates temporary road and bridge closure and	Flood, Severe Winter Storm Severe Rainstorm,	High: $100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027	Medium

Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	2022Status	Ranking
			budgetary impacts					
Action #	**Proposed Action**	**Agency/ Departments**	**Risk Reduction Benefit**	**Hazard(s) Addressed**	**Estimated Cost**	**Funding Source**	**2022Status**	**Ranking**
2022-4	Retrofit new and existing critical fatalities to withstand the impacts of identified hazards	Town Highway Forman	Addresses damage to new/existing public infrastructure and buildings.;	Flood, Severe Winter Storm Severe Rainstorm, Wildfire	High: $100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027 New	High
Action #	**Proposed Action**	**Agency/ Departments**	**Risk Reduction Benefit**	**Hazard(s) Addressed**	**Estimated Cost**	**Funding Source**	**2022Status**	**Ranking**
2022-5	Update existing Flood Insurance Rate Maps (FIRMs) and floodplain maps (RiskMAP program through FEMA)	Town Highway Forman,	Addresses damage to new/existing public infrastructure and buildings.	Flood, Severe Rainstorm	Low: Less than $10,000	State VANR Grants, HMA, Municipal funds	2022-2027	Medium
Action #	**Proposed Action**	**Agency/ Departments**	**Risk Reduction Benefit**	**Hazard(s) Addressed**	**Estimated Cost**	**Funding Source**	**2022Status**	**Ranking**
2022-6	Retrofit flood-prone structures to include repetitive loss structures	Town Highway Forman	Addresses damage to new/existing public infrastructure and buildings.ts	Flood, Severe Winter Storm	High: $100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027 New	High
Action #	**Proposed Action**	**Agency/ Departments**	**Risk Reduction Benefit**	**Hazard(s) Addressed**	**Estimated Cost**	**Funding Source**	**2022Status**	**Ranking**
2022-7	Modernization of Zoning Regulations	Planning	Addresses damage to new/existing public infrastructure and buildings.	Flood, Severe Winter Storm	Low: Less than $10,000	State VANR Grants, HMA, Municipal funds	2022-2027	Medium

Action Plan for Implementation and Integration

The Town of Richmond identified several existing plans or planning processes that can serve to integrate hazard mitigation during the 2022-2027 planning cycle. The town will incorporate the mitigation actions outlined in this plan into the town plan during the next plan update process in 2026. The town plan update will be led by the Planning Commission, who will review this plan and determine those mitigation actions/strategies/goals that should be included in the town plan.

Table 11.33: Action Plan for Implementation and Integration, Town of Richmond

Existing Plan or Procedure	Description of How Mitigation will be Incorporated or Integrated
Integrate goals into local Comprehensive Plan	Continue to coordinate with Planning and Zoning and other applicable departments to incorporate current and emerging risks and actions into planning efforts.
Review/update land development regulations for consistency with mitigation goals	Continue coordination with Planning and Zoning regarding future land use projects.
Review/update building/zoning codes for consistency with mitigation goal	Work with Planning and Zoning regarding county zoning ordinances and consistency with mitigation goals.
Maintain regulatory requirements of floodplain management program (NFIP)	Support Floodplain Manager who is responsible for floodplain management.
Enhance floodplain management through Community Rating System (CRS)	Work with Floodplain Manager and Public Works on reviews of floodplain management and mapping.
Review/Update economic development plan and policies for consistency with mitigation goals	Work with the local Economic Development Authority to ensure consistency in plans.
Continue public engagement in mitigation planning	Continue to promote awareness of hazards and incorporate public feedback into planning processes.
Identify opportunities for mitigation education and outreach	Identify opportunities to conduct community outreach to promote the importance of mitigation projects.
Review/update stormwater plans and procedures for consistency with mitigation goals	Work with Public Works and Road Department to discuss plans and procedures on a more frequent basis.
Maintain ongoing enforcement of existing policies	Support municipal Departments with any applicable enforcement policies.
Monitor funding opportunities	Office of Emergency Management will continue to monitor funding sources and coordinate with Departments on projects that support mitigation actions.
Incorporate goals and objectives into day-to-day government functions	Municipal Departments will incorporate the concept of mitigation into day-to-day government functions, including continual monitoring of the action items identified in the 2022 update.
Incorporate goals into day-to-day development policies, reviews & priorities	Continue work with Planning and Zoning to incorporate mitigation into day-to-day activities.

11.9 ANNEX MAINTENANCE PROCEDURES

The method and schedule for maintaining, evaluating, and updating the MJAHMP is described in **Section 7, Base Plan**. The Town of Richmond will maintain its participation in the All-Hazard Mitigation Plan Update Committee (AHMPUC) throughout the planning cycle, consistent with its role and responsibilities. The Town of Richmond has designated the Town Planner as lead responsible for all Plan Maintenance related activities.

Table 11.34: Plan Maintenance Responsibilities for the *Chittenden County*, Vermont Multi-Jurisdictional All-Hazards Mitigation Plan, Base Plan, Town of Richmond

Monitoring the Plan	• Participate in the monitoring process as requested by the CCRPC staff • Assist in collecting and analyzing data • Assist in disseminating reports to stakeholders and the public • Maintain records and documentation of all jurisdictional monitoring activities • Promote the mitigation planning process with the public and solicit public input.
Evaluating the Plan	• Participate in the evaluation process as requested by the CCRPC staff • Assist in collecting and analyzing data • Assist in disseminating reports to stakeholders and the public • Maintain records and documentation of all jurisdictional monitoring activities • Promote the mitigation planning process with the public and solicit public input
Updating the Plan	• Represent the jurisdiction and participate in the cycle, including plan review, revision, and update process • Collect and report data to the Update Coordinator • Maintain records and documentation of all jurisdictional plan review and revision activities • Promote the mitigation planning process with stakeholders and the public and solicit public input

Maintenance of the Jurisdiction Annex

The municipalities of Chittenden County will coordinate with the CCRPC for changes or updates to its jurisdictional annexes. Local participating jurisdictions have the authority to approve/adopt changes to their own Action Plans for Implementation without approval from the CCRPC or the Committee; however, the Committee and CCRPC should be advised of all changes as a courtesy and in consideration of potential changes or modifications to the regional *MJAHMP* that may conflict with the proposed annex changes. The CCRPC will be responsible for verifying that the proposed change will not affect the jurisdiction's compliance with current State and Federal mitigation planning requirements.

Municipalities may make administrative changes or updates to their mitigation actions and Action Plans for Implementation in their jurisdiction annexes at any time in coordination with the CCRPC staff.

A municipality may choose not to re-adopt the updated *MJAHMP* and its respective jurisdiction annex; however, it should be stated that the jurisdiction will no longer be eligible for FEMA hazard mitigation grants. A municipality may choose to develop, adopt, and submit its own Local All-Hazards Mitigation Plan to FEMA Region I, consistent with the requirements of the Disaster Mitigation Act of 2000 and regulations contained in 44 CFR Part 201.6 in order to maintain eligibility.

The relative strength and depth of this method and schedule for monitoring and evaluating the plan is contingent upon funding from Emergency Management Planning grants, Hazard

Mitigation Assistance grants, or similar sources. Adherence to the monitoring, evaluation, and update process schedule will ensure that the Plan is kept current throughout its five-year cycle.

Table 11.35: Jurisdiction Annex Maintenance Procedure, Town of Richmond

Activity	Procedure and schedule	Outcome
Monitoring the Annex	Schedule the annual plan review with jurisdiction planning team. Review the status of all mitigation actions, using the *Mitigation Action Implementation Worksheet* (**Section 7, Attachment B, Base Plan**).	Produce an annual report that includes the following: Status update of all mitigation actions Summary of any changes in hazard risk or vulnerabilities and capabilities Summary of activities conducted for the Action Plan for Implementation and Integration
Evaluating the Annex	1. Schedule the annual plan evaluation with jurisdiction planning team. 2. Evaluate the current hazard risks and vulnerabilities, and hazard mitigation capabilities using the *Planning Considerations Worksheet*, (**Section 7, Attachment C, Base Plan**).	Submit the annual report to the *MJAHMP* AHMPUC Point of Contact
Updating the Annex	1. Coordinate with the AHMPUC to identify the method and schedule for the five-year update of the *MJAHMP*. 2. Participate in the planning process. 3. Provide input related to the plan components. 4. Following FEMA designation of Approvable Pending Adoption (APA), adopt the updated plan.	Adoption of the FEMA-approved plan every five years will maintain the jurisdiction's eligibility for federal post-disaster funding.

11.10 ANNEX ADOPTION

The Town of Richmond Jurisdiction Annex will be adopted by the municipality's governing body concurrently with the *2022 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan.*

Following adoption, a copy of the Adoption Resolution will be maintained in this annex as **Attachment A,** and a copy will be forwarded to Vermont Emergency Management (VEM) to submit to FEMA for final approval of the plan. The plan will expire five years (minus one day) from the date of FEMA's final approval letter.

11.11 ATTACHMENTS

ATTACHMENT 1: Adoption Resolution

ATTACHMENT 2: Planning Worksheets and Documentation

ATTACHMENT 3: Documentation of Public Participation

ATTACHMENT 4: Mitigation Actions

ATTACHMENT 1: Adoption Resolution

CERTIFICATE OF ADOPTION
<<DATE>>
TOWN OF _____, Vermont Selectboard
A RESOLUTION ADOPTING THE _____, Vermont 20__ Local Hazard Mitigation Plan

WHEREAS, the Town of _____ has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **20**__ _____**, 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 _____ has developed and received conditional approval from Vermont Emergency Management (VEM) for its **20**__ _____**, 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 _____; and

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

RESOLVED by Town of _____ Selectboard:

1. The **20**__ _____**, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of _____;

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 _____ this ____ day of _____ 201__.

_____
Selectboard Chair

_____
Selectboard Member

ATTEST

_____
Town Clerk

ATTACHMENT 2: Planning Worksheets and Documentation

Natural Hazards Risk Estimation Raking Matrix										
Richmond		**Dam/Levee Failure**	**Extreme Temperatures**	**Flooding**	**Fluvial Erosion**	**Human Infectious Disease**	**Invasive Species**	**Severe Rainstorm**	**Severe Winter Storm**	**Wildfire**
Area Impacted										
Key:	0= No developed area impacted									
	1= Less than 25% of developed area impacted		1	1			1	1		1
	2= Less than 50% of developed area impacted									
	3= Less than 75% of developed area impacted				3					
	4= Over 75% of developed area impacted								4	
Consequences										
Health & Safety Consequences										
Key:	0= No health and safety impact		0				0	0		
	1= Few injuries or illnesses				1				1	1
	2= Few fatalities or illnesses			2						
	3= Numerous fatalities									
Property Damage										
Key:	0= No property damage						0			0
	1= Few properties destroyed or damaged		1					1	1	
	2= Few destroyed but many damaged			2	2					
	3= Few damaged and many destroyed									
	4= Many properties destroyed and damaged									
Environmental Damage										
Key:	0= Little or no environmental damage									
	1= Resources damaged with short-term recovery		1				1	1	1	1

	2= Resources damaged with long-term recovery			2	2					
	3= Resources destroyed beyond recovery									
Economic Disruption										
Key:	0= No economic impact		0							0
	1= Low direct and/or indirect costs						1	1	1	
	2= High direct and low indirect costs			2	2					
	3= Low direct and high indirect costs									
	4= High direct and high indirect costs									
Sum of Area & Consequences Scores			**3**	**9**	**10**		**3**	**4**	**8**	**3**
Probability of Occurrence										
Key:	1= Unknown but rare occurrence									
	2= Unknown but anticipate an occurrence									
	3= 100 years or less occurrence									
	4= 25 years or less occurrence		4				4	4		4
	5= Once a year or more occurrence			5	5				5	
Total Risk Rating										
	Total Risk Rating=		**12**	**45**	**50**		**12**	**16**	**40**	**12**
	Sum of Area & Consequences Scores									
	x Probability of Occurrence									

Low =	**Hazard Risk Level 0-18**
Medium =	**Hazard Risk Level 19-37**
High =	**Hazard Risk Level 38-60**

Technological Hazards

Richmond		Hazardous Materials Incident	Major Transportation Incident	Multi-Structure Fire	Natural Gas Service Loss	Other Fuel Service Loss	Pollution (algal bloom, etc.)	Power Loss	Sewer Service Loss	Telecommunications Failure	Water Pollution	Water Supply Loss
Area Impacted												
Key:	0= No developed area impacted											
	1= Less than 25% of developed area impacted	1	1	1	1	1			1	1	1	
	2= Less than 50% of developed area impacted							2				2
	3= Less than 75% of developed area impacted											
	4= Over 75% of developed area impacted											
Consequences												
Health & Safety Consequences												
Key:	0= No health and safety impact											
	1= Few injuries or illnesses	1		1	1	1		1	1	1	1	
	2= Few fatalities or illnesses		2									2
	3= Numerous fatalities											
Property Damage												
Key:	0= No property damage									0		0
	1= Few properties destroyed or damaged	1	1	1		1		1	1		1	
	2= Few destroyed but many damaged				2							
	3= Few damaged and many destroyed											
	4= Many properties destroyed and damaged											
Environmental Damage												
Key:	0= Little or no environmental damage			0		0		0		0		0
	1= Resources damaged with short-term recovery				1				1		1	
	2= Resources damaged with long-term recovery	2	2									
	3= Resources destroyed beyond recovery											
Economic Disruption												
Key:	0= No economic impact											
	1= Low direct and/or indirect costs	1		1	1			1	1		1	
	2= High direct and low indirect costs		2			2				2		2
	3= Low direct and high indirect costs											

	4= High direct and high indirect costs											
Sum of Area & Consequences Scores		**6**	**8**	**4**	**6**	**5**		**5**	**5**	**4**	**5**	**6**
Probability of Occurrence												
Key:	1= Unknown but rare occurrence				1							
	2= Unknown but anticipate an occurrence	2										
	3= 100 years or less occurrence			3					3			3
	4= 25 years or less occurrence					4				4	4	
	5= Once a year or more occurrence		5					5				
Total Risk Rating												
	Total Risk Rating=	**12**	**40**	**12**	**6**	**20**		**25**	**15**	**16**	**20**	**18**
	Sum of Area & Consequences Scores											
	x Probability of Occurrence											
Low =	**Hazard Risk Level 0-18**											
Medium =	**Hazard Risk Level 19-37**											
High =	**Hazard Risk Level 38-60**											

Societal Hazards							
Richmond		**Civil Disturbance**	**Crime**	**Economic Recession**	**Epidemic**	**Key Employer Loss**	**Terrorism**
Area Impacted							
Key:	0= No developed area impacted						
	1= Less than 25% of developed area impacted	1	1			1	1
	2= Less than 50% of developed area impacted			2	2		
	3= Less than 75% of developed area impacted						
	4= Over 75% of developed area impacted						
Consequences							
Health & Safety Consequences							
Key:	0= No health and safety impact					0	
	1= Few injuries or illnesses	1	1	1			
	2= Few fatalities or illnesses				2		2

	3= Numerous fatalities						
Property Damage							
Key:	0= No property damage			0	0	0	
	1= Few properties destroyed or damaged	1	1				1
	2= Few destroyed but many damaged						
	3= Few damaged and many destroyed						
	4= Many properties destroyed and damaged						
Environmental Damage							
Key:	0= Little or no environmental damage	0	0	0	0	0	0
	1= Resources damaged with short-term recovery						
	2= Resources damaged with long-term recovery						
	3= Resources destroyed beyond recovery						
Economic Disruption							
Key:	0= No economic impact						
	1= Low direct and/or indirect costs	1	1				
	2= High direct and low indirect costs					2	2
	3= Low direct and high indirect costs			3	3		
	4= High direct and high indirect costs						
Sum of Area & Consequences Scores		**4**	**4**	**6**	**7**	**3**	**6**
Probability of Occurrence							
Key:	1= Unknown but rare occurrence						1
	2= Unknown but anticipate an occurrence	2					
	3= 100 years or less occurrence				3	3	
	4= 25 years or less occurrence		4	4			
	5= Once a year or more occurrence						
Total Risk Rating							
	Total Risk Rating=	**8**	**16**	**24**	**21**	**9**	**6**
	Sum of Area & Consequences Scores						
	x Probability of Occurrence						

Low =	**Hazard Risk Level 0-18**
Medium =	**Hazard Risk Level 19-37**
High =	**Hazard Risk Level 38-60**

Jurisdiction *Town of Richmond* **Date:***10/26/2021*

Participants:

Name: *Ravi Venkataraman* **Position/Title:** *Town of Richmond* **Department/Agency:** *Planning and Zoning*

WORKSHEET: CAPABILITY ASSESSMENT

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	• Yes or No? • Year	• Does the plan address hazards? • Does the plan identify projects to include in the mitigation strategy? • Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Yes; 2018	• Yes, under "Emergency Resilience" • Yes • No
Capital Improvements Plan	Yes, 2017	• No • No • No
Economic Development Plan	No	
Impact fees for new development	Yes, 2004	• No • No • No
Local Emergency Operations Plan	No	
Continuity of Operations Plan	No	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other special plans (e.g., brownfields redevelopment, disaster recovery, Local Waterfront Redevelopment Plan, climate change adaptation, etc.)	Yes	• Stormwater Master Plan, 2018 • Public Improvement Standards, 2016, which includes stormwater management standards

Building Code, Permitting, and Inspection	**Yes or No?**	**Are codes adequately enforced?**
Building Code	No	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO rating	Yes	Yes
Site Plan review requirements	Yes	Yes
Land Use Planning and Ordinances	**Yes or No?**	• **Is the ordinance an effective measure for reducing hazard impacts?** • **Is the ordinance adequately administered and enforced?**
Zoning ordinance	Yes	• Somewhat. Portions of the Zoning Ordinance are outdated and/or ineffective and could be strengthened for reducing hazard impacts. • Yes
Subdivision ordinance	Yes	• Somewhat. Portions of the Subdivision Ordinance are outdated and/or ineffective and could be strengthened for reducing hazard impacts. • Yes
Floodplain ordinance	Yes	• Yes • Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	• Stormwater – Nonexistent; Steep slope – yes; wildfire - nonexistent
Flood insurance rate maps	Yes	• Yes • Yes
Acquisition of land for open space and public recreation uses	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Specific plans need to be established for hazard mitigation. The zoning ordinance can be amended to force stronger hazard mitigation requirements, such as stormwater, erosion prevention, open space requirements, and no cut areas. Zoning ordinance and subdivision ordinance can also be amended to include a town engineer to review details and specifications to ensure hazard mitigation.		

Administrative and Technical

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. If your jurisdiction does not have local staff resources, please indicate if these are available through agreement with other entities, or at the county level to provide the services or technical assistance.

Staff/Personnel Resources	Have Capability Y/N	Department/ Agency and Position	Effective Coordination?	Adequate Staffing?	Integrated into Mitigation Planning?
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning and Zoning/Town Planner, Zoning Administrator	Yes	Yes	Somewhat
B. Engineer/professionals trained in construction practices related to buildings and/or infrastructure	N				
C. Planners/Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning and Zoning/Town Planner, Zoning Administrator, CCRPC	No	No	No
D. Floodplain manager	Y	Vermont Department of Environmental Conservation	No	No	No
E. Surveyor(s)	N				
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Planning and Zoning/Town Planner	No	Yes	No
G. Personnel skilled in GIS and/or HAZUS	Y	Planning and Zoning/Town Planner; CCRPC/GIS Data and IT Manager	Yes	Yes	No
H. Scientist familiar with hazards of the community	N				
I. Emergency manager	Y	Town Administration/Town Manager			
J. Grant writer(s)	Y	Planning and Zoning/Town Planner	No	Yes	No
k. Warning systems or services (automated callout, sirens, etc.)	N				
How can these capabilities be expanded and improved to reduce risk?					
Establishment of plans and policies to define approaches and procedures to common town-wide risks and hazards. Better communication between town departments regarding ongoing and future projects.					

Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in the past and for what type of activities/	Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Yes, for large equipment purchases and for major town projects	Yes
Authority to levy taxes for specific purposes	N		
Fees for water, sewer, gas or electric services	Y	Water/sewer fees used to sustain water/sewer department	Yes
Impact fees for new development	Y	No	Yes
Storm water utility fee	N		
Incur debt through general obligation bonds and/or special tax bonds	Y	Yes, for stormwater and other infrastructure	Yes
Incur debt through private activities	N		
Community Development Block Grant	Y	Unsure	Unsure
Other federal funding programs	Y	Unsure	Unsure
State funding programs	Y	Unsure	Unsure
Public/Private partnership funding sources			
How can these capabilities be expanded and improved to reduce risk?			
Increased awareness of the need for planning and construction for hazard mitigation.			

Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	Richmond Climate Action Committee – Education and outreach about climate change impacts. Can somewhat help implement future activities. Conservation Commission – Advisory committee for Planning Commission and Select board. Takes on projects to protect natural resources within town. Can help implement future mitigation activities.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education, household recycling, etc.)	Yes	Richmond Climate Action Committee; Conservation Commission
Natural disaster or safety related school programs	Unsure	
StormReady certification	No	
Firewise Communities certification	No	
Public-private partnership initiatives addressing disaster-related issues	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Jurisdiction: Buel's Gore_____ Floodplain/NFIP Administrator_____

Phone:_____Date:_____ Email: _____

Jurisdiction Participants:

_____

Please provide the information below to document your community's participation in and continued compliance with the NFIP, as well as to identify areas for improvement that could be potential mitigation actions. Indicate the source of information, if different from the one included.

NFIP Topic	Source of Information	Comments
Insurance Summary		
How many NFIP policies are in the community? What is the total premium and coverage?	State NFIP Coordinator or FEMA NFIP Specialist	
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	FEMA NFIP or Insurance Specialist	
How many structures are exposed to flood risk within the community?	Community Floodplain Administrator (FPA)	
Describe any areas of flood risk with limited NFIP policy coverage	Community FPA and FEMA Insurance Specialist	
Staff Resources		
Is the Community FPA or NFIP Coordinator certified?	Community FPA	
Is floodplain management an auxiliary function?	Community FPA	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Community FPA	
What are the barriers to running an effective NFIP program in the community, if any?	Community FPA	
Compliance History		
Is the community in good standing with NFIP?	State NFIP Coordinator, FEMA NFIP Specialist, community records	
Are there any outstanding compliance issues (i.e., current violations)?		
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?		

ATTACHMENT 3: Documentation of Public Participation

Hazard Mitigation Planning for Chittenden County

Hazard mitigation planning is a process that identifies hazards and their risks to you community. Over the next several months, your community's Hazard Mitigation will be updated.

Read below about how to learn more and participate!

This is your community's plan!	Disasters can happen anytime, anywhere, and any place.
To have value, the plan must represent the current needs and values of your community and be useful for officials, stakeholders, and citizens. Consider the critical importance of mitigation to: • Protect public safety and prevent loss of life and injury. • Lessen impact to existing and future development. • Prevent damage to a community's unique cultural, historical, and environmental assets.	They cause loss of life, damage buildings and infrastructure, and have devastating consequences on a community's economic, social, and environmental well-being. Hazard mitigation planning is a process that identifies hazards and their risks to your community and assesses the vulnerability of people, property, the environment, and the economy to one or more hazards. The end result is a comprehensive mitigation strategy that presents recommended sustained actions to reduce disaster-related damages and minimizes long-term community risk to the hazards. In the June 2021, Chittenden County municipalities initiated a collaborative planning effort to develop the 2022 update of the Chittenden County Multi-Jurisdictional Hazard Mitigation Plan. The benefits derived from the planning process, and the recommended mitigation actions that will ultimately be implemented, will significantly improve community resilience and sustainability.
Take the Survey >>	

Over the next several months staff of IEM, an international disaster and crisis management firm will be working with emergency management, planning and public works staff of your local municipality to update your municipality's local Hazard Mitigation Plan.

Your knowledge on local hazards is critical to good planning.

Participate in our online survey!

- Take the survey to provide your opinion on local hazard events and their impact on you, your family, and the community. The survey will be open from October 1 through October 30.
- Contact your local city or town officials to learn how to provide comment on the draft municipal Local Hazard Mitigation Plan to ensure it reflects your experience and concerns.

Questions & Contact	More Information
If you have questions, contact Dan Albrecht, CCRPC Senior Planner at dalbrecht@ccrpcvt.org or 802-861-0133 Or	To view the current mitigation plan for your community please visit the CCRPC website. This planning project is funded by a FEMA grant provided through Vermont Emergency Management (VEM). The project is a joint effort

Leroy Thompson, IEM Senior Planner at leroy.thompson@iem.com or 850-570-9867	between IEM and the Chittenden County Regional Planning Commission (CCRPC) to assist Chittenden County municipalities.

Published

County Hazard Mitigation Plan Survey

Five Sisters – No. 6205 • **Emma Vaughn** • Communications Manager, Chittenden County Regional Planning Commission

Posted to: Centennial, Downtown, ONE Central, ONE East, ONE West, Appletree Point, Crescent Woods, Ethan Allen, Far North End, Lakewood, Village Green, Birchcliff, Five Sisters, Hill Section, King Maple, Lakeside, Oakledge, Redstone Quarry, South Union, The Addition, Charlotte, Hinesburg, Shelburne, Bay Creek, Clay Point, Colchester Village, Colchester West, Malletts Bay, Milton, Butlers Corner, Countryside, Essex Center, Essex West, Fairview Farms, Five Corners North, Five Corners South, Rural Essex, The Fort, Jericho, Underhill, Westford, Bolton, Huntington, Richmond, Chamberlin, East Terrace, Eastwoods, Kennedy, Mayfair Park, Queen City Park, SWSB, Southeast Quadrant, The Orchards, Brennan Woods, Williston, Winooski show less

Oct 4, 2021

Announcement

Hazard mitigation planning is a process that identifies hazards and their risks to your community and assesses the vulnerability of people, property, the environment, and the economy to one or more hazards. The end result is a comprehensive mitigation strategy that presents recommended sustained actions to reduce disaster-related damages and minimizes long-term community risk to the hazards.

In June 2021, Chittenden County municipalities initiated a collaborative planning effort to develop the 2022 update of the Chittenden County Multi-Jurisdictional Hazard Mitigation Plan. The benefits derived from the planning process, and the recommended mitigation actions that will ultimately be implemented, will significantly improve community resilience and sustainability.

Over the next several months staff of IEM, an international disaster and crisis management firm, will be working with emergency management, planning and public works staff of your local municipality to update your municipality's local Hazard Mitigation Plan.

Your knowledge on local hazards is critical to good planning: Participate in our online survey!

- Take the survey: https://www.surveymonkey.com/r/KLB6RMX to provide your opinion on local hazard events and their impact on you, your family, and the community. The survey will be open from October 1 through October 30.
- Contact your local city or town officials to learn how to provide comment on the draft municipal Local Hazard Mitigation Plan to ensure it reflects your experience and concerns.

Contact:
Dan Albrecht, CCRPC Senior Planner
dalbrecht@ccrpcvt.org | (802) 391-6809
or
Leroy Thompson, IEM Senior Planner
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Chittenden County Multi-Jurisdictional Hazard Mitigation Plan website:
https://www.ccrpcvt.org/our-work/emergency-management/hazard-mitigation-plan/

Attachment 4: Mitigation Actions

(S) Social	
Definition	**Considerations**
The public must support the overall mitigation implementation strategy and specific mitigation actions. The mitigation action is evaluated in terms of community acceptance and impact on the population.	• **Community acceptance:** will the action disrupt housing or cause the relocation of people? Is the action compatible with present and future community values? • **Impact on population:** will the proposed action adversely affect one segment of the population?
(T) Technical	
Definition	**Considerations**
It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. This category evaluates whether the action is a whole or partial solution, or not a solution at all.	• **Technical feasibility:** how effective is the action in avoiding or reducing future losses? • **Long-term solution:** does the action solve the problem or only a symptom? • **Secondary impacts:** will the action create more problems than it solves?
A. **Administrative**	
Definition	**Considerations**
This category examines the anticipated staffing, funding, time, and maintenance requirements for the mitigation action to determine if the jurisdiction has the personnel and administrative capabilities to implement the action or whether outside help will be necessary.	• **Staffing:** does the jurisdiction have the capability (staff, technical experts, and training) to implement the action? • **Funding allocated:** does the jurisdiction have the funding to implement the action or can it readily be obtained? • **Time:** can the action be accomplished in a timely manner? • **Maintenance/Operations:** can the community provide the necessary maintenance? It is important to remember that most federal grants will not provide funding for maintenance.
(P) Political	
Definition	**Considerations**
This category considers the level of political support for the mitigation action.	• **Political support:** is there political support to implement and maintain this action? Have political leaders participated in the planning process so far? • **Local champion or proponent:** is there a respected community member willing to help see the action to completion? • **Public and stakeholder support:** is there enough public support to ensure the success of the action? Have all stakeholders been offered an opportunity to participate in the planning process?
(L) Legal	
Definition	**Considerations**

Whether the jurisdiction has the legal authority to implement the action or whether the jurisdiction must pass new laws or regulations is important in determining how the mitigation action can be best carried out.	• **Commonwealth authority:** does the Commonwealth have authority to implement the action? • **Existing local authority:** are proper laws, ordinances, and resolutions in place to implement the action? • **Potential legal challenge:** is there a technical, scientific, or legal basis for the mitigation action (i.e., does the mitigation actions "fit" the hazard setting)? Are there any potential legal consequences? Is the action likely to be challenged by stakeholders who may be negatively affected?
(E) Economic	
Definition	**Considerations**
Economic considerations must include evaluation of the present economic base and projected growth. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are more likely to be implemented than actions requiring general obligation bonds or other instruments that would incur long-term debt to a community.	• **Benefits of action:** what financial benefits will the action provide? • **Cost of action:** does the cost seem reasonable for the size of the problem and the likely benefits? What burden will be placed on the tax base or local economy to implement this action? • **Contribution to economic goals:** does the action contribute to community economic goals, such as capital improvements or economic development? • **Outside funding required:** are there currently sources of funding that can be used to implement the action? Should the action be considered "tabled" for implementation until outside sources of funding are available?
(E) Environmental	
Definition	**Considerations**
The impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities. Also, statutory considerations, such as the National Environmental Policy Act (NEPA), need to be kept in mind when using federal funds.	• **Impact on land/water bodies:** how will this action impact land/water? • **Impact on endangered species:** how will this action impact endangered species? • **Impact on hazardous materials and waste sites:** how will this action impact hazardous materials and waste sites? • **Consistency with community environmental goals:** is this action consistent with community environmental goals? • **Consistency with federal laws:** is the action consistent with federal laws, such as NEPA?

Prioritization Worksheet

JURISDICTION: Town of Richmond **Person(s) Completing Form:**

Date Submitted: 1/18/2022 **Ravi Venkataraman**

Project Description			Project Benefits								
A	B	C	1	2	3	4	5	7	8	9	
Project #	Mitigation Action	Hazard/ Project Type*	Protect Life, Safety, & Property	Funding is Availabl e	Matching Funds Available	Stron g BCA	Environm ental Benefits	Technicall y feasible	Short- term or Long- term	TOTAL SCORE	Ranki ng
2022-1	Stormwater improvements to major roadways	SIP	4	2	4	4	2	4	ST	20	M
2022-2	Modernization of Zoning Regulations	LPR	4	2	4	4	2	4	LT	20	M