







**ANNEX 13: CITY OF SOUTH BURLINGTON**

	Chartered: 1865
	Land Area: 29.58 sq. mi
	2020 Population: 20,292
	Government Address: 180 Market Street, South Burlington, Vermont 05403
	Households: 8,764
	Mitigation Focus: Severe Winter Storm, Flooding, Fluvial Erosion, Human Infectious Disease

This section presents the jurisdictional annex for the City of South Burlington, 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

13.1 HAZARD MITIGATION PLAN – POINT OF CONTACT

Type	Primary Point of Contact	Secondary Point of Contact
Name	Paul Conner	Steven Locke
Title	Director of Planning and Zoning	EMD/Fire Chief
Agency	City of South Burlington	City of South Burlington
Address	180 Market Street	575 Dorset Street
City, State, Zip	South Burlington, Vermont 05403	South Burlington, Vermont 05403
Phone	802-846-4106	802-846-4147
Email	pconner@southburlingtonvt.gov	slock@southburlingtonvt.gov

13.2 JURISDICTION PROFILE

- Geographic Region: Champlain Valley
- Persons per household: 2.15
- Persons per Square mile: 1,230.5
- Median Age: 40.6 years
- Elevations: Near sea level- 328 ft.

Location

Located in western Chittenden County, South Burlington is bordered by the municipalities of Burlington to the northwest, Winooski and Colchester to the north, Essex and Essex Junction to the northeast, Williston to the east, Shelburne to the south, and Shelburne Bay on Lake Champlain to the west. A large portion of Lake Champlain west of Burlington (with 2 1.4 miles of shoreline), extending west to the New York state line, is also part of South Burlington.

The Winooski River runs east to west through the north side of the city, at Burlington.

According to the United States Census Bureau, the city has a total area of 29.58 square miles, of which 16.5 square miles is land and 13.1 square mile, or 44.25 percent, is water.

History

The area of South Burlington was first granted by the Province of New Hampshire as part of Burlington township on June 7, 1763.

The Town of Burlington was organized *circa* 1785. In 1865, the unincorporated village of Burlington was chartered as a city. The remaining area of the town of Burlington was incorporated by charter of the State of Vermont as a separate town with the name South Burlington in the same year, 1865. The Town of South Burlington was later incorporated as a municipality in 1971 becoming the City of South Burlington.

Demographics, Economy, and Governance

As of the census of 2020, the population density was 1,230.5 people per square mile . There were 8,429 housing units at an average density of 531.18 per square mile.

Table 13.1: Demographics, Economy, and Governance in City of South Burlington¹

Demographics	Economy	Governance
Population Growth <ul style="list-style-type: none"> 1980: 10,679 1990: 12,809 2000: 14,888 2010: 17,904 2020: 20,292 2020-2030 (Projected): 21,973 Race and Ethnicity Percentage of population identifying as: <ul style="list-style-type: none"> White: 90.0% Asian/Pacific Islander: 5.0% Hispanic/Latino: 3.7% Two or more races: 2.0% Black/African American: 1.25 American Indian: 0.5% 	<ul style="list-style-type: none"> Median household income (2019): \$73,065 Per capita income (2019): \$43,692 Median home value (2021): Number of Single Unit Residences: Population below poverty level (2019): 6.0 % 	<ul style="list-style-type: none"> City Council (5 members) City Manager City Council Clerk

¹ [South Burlington city, Chittenden County, VT - Profile data - Census Reporter](#)

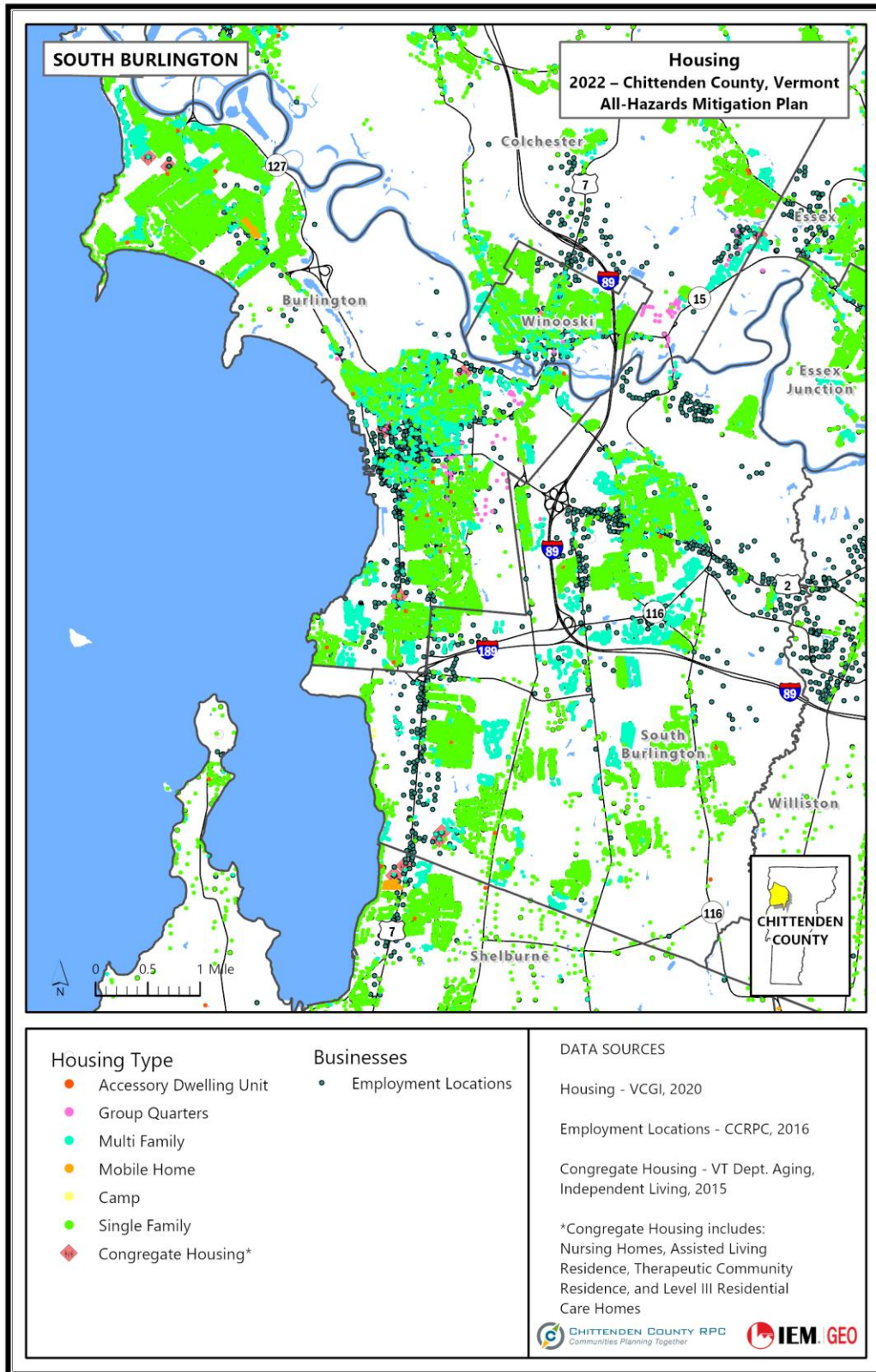


Figure 13.1: Housing and Employment, City of South Burlington²*Built Environment and Community Lifelines*

The concentration of residential development is heaviest in the following areas:

- Large neighborhoods located to the north and south of U.S. Route 2 and west of Burlington International Airport.
- East of U.S. Route 7 and west of Spear Street and in the area west of Route 116.
- East of Dorset Street and south of Interstate 89.

Table 13.2: Number of Community Lifelines and Critical Assets in City of South Burlington

SECTOR	Safety and Security	Food, Water, Shelter	Health and Medical	Energy	Communications	Transportation	Hazardous Materials	Education	Cultural/Historical	High Hazard Dams
No. Assets	11	7	2	3	3	7	77	7	2	0

Safety and Security

There are two fire stations/Emergency Medical Services (EMS), one police station, one Emergency Operations Center, and three military installations in the City of South Burlington. Along with these resources, the UVM rescue also works inside the City of South Burlington. Safety and security assets within the city also include the Air Guard Fire Department, Sheriff's Department and Chittenden County Correctional Center.

Food, Water, Shelter

Based on the Hazus database, there are two food production centers, two public shelters and three water supply and/or treatment facilities in the City of South Burlington.

Health and Medical

The Hazus database identifies there are two health and medical facilities in the City of South Burlington.

Energy

There are three energy facilities located in the City of South Burlington, one of which is Vermont Gas Services Company's administrative offices.

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

Communications

Most communications and information systems and infrastructure in the United States are privately-owned; however, the City maintains authority and control over public safety communications for fire, police, and other responding agencies. There are three local communications providers in the city, FairPoint Communications, Waitsfield/Champlain Valley Telecommunication and Burlington Telecommunication.

Transportation

Along with two interstates (I-89 and I-189), and two U.S. two highways (U.S. 2 and U.S. 7 that run through the City of South Burlington, there are two railways and the Burlington International Airport located within the city.

Hazardous Materials

There are 77 sites or facilities identified as using or storing fuel or hazardous materials in the City of South Burlington.

Education

In the City of South Burlington, there are seven kindergarten-through-twelfth-grade educational facilities, four public, and three private facilities.

Recreational, Cultural, and Historic Sites and Assets

There are several recreational parks located in the City of South Burlington. The largest and most heavily used are Veterans Memorial Park, Red Rocks Park, Farrell Park, Jaycee Park, Hubbard Nature Park, and Wheeler Nature Park

Natural Environment

The City of South Burlington is surrounded by land cover consisting of tree canopy and grass/shrubs. The lowest elevations within the city are adjacent to Lake Champlain and the Winooski River, as well as along the rivers and streams. The densest population areas are located on the western side of the City along Shelburne Road, in City Center along Williston Road, and along Kennedy Drive.

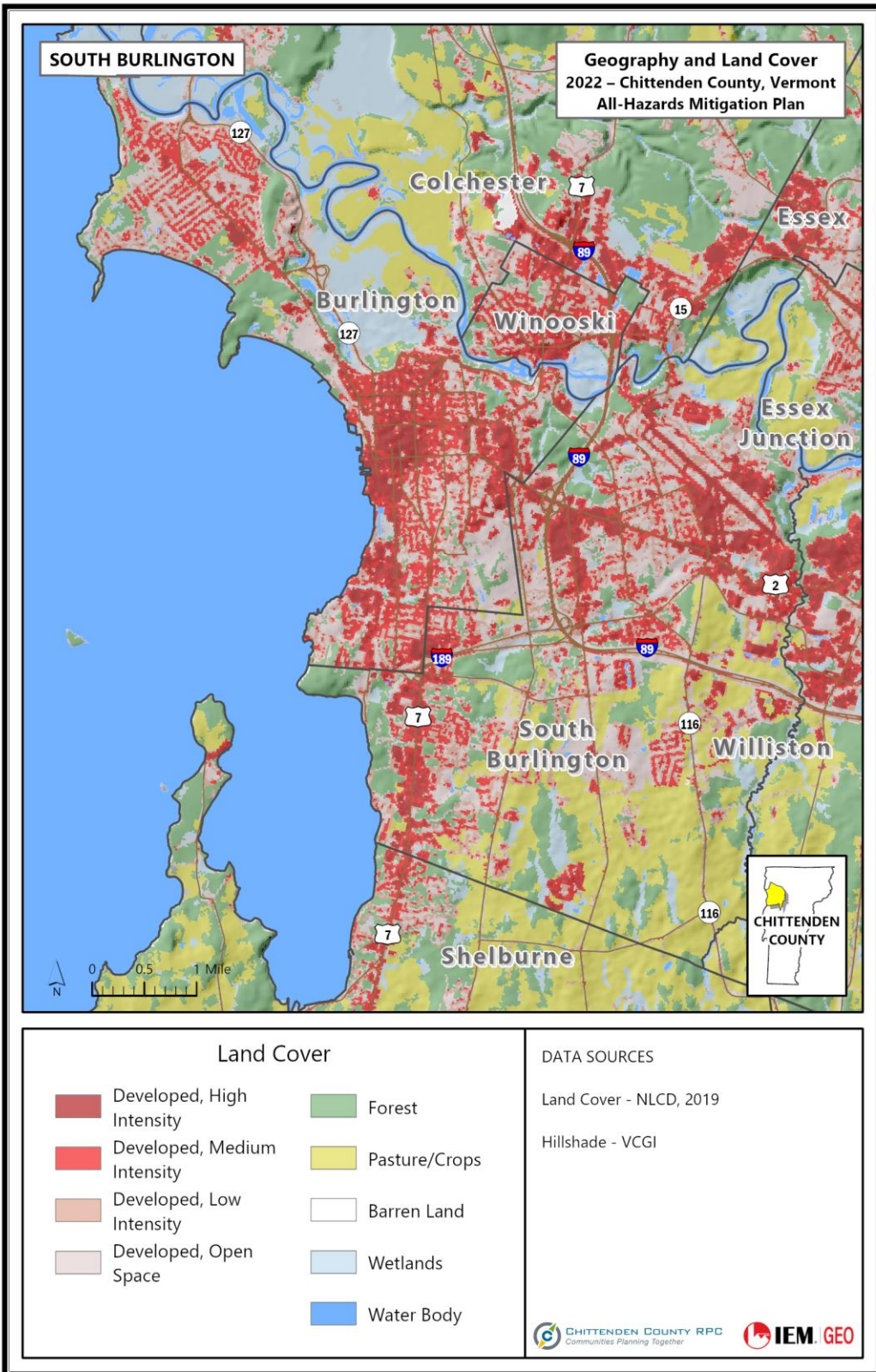


Figure 13.2: Geography and Land Cover, City of South Burlington³

³ Chittenden County Regional Planning Commission, GIS Database, October 14, 2021.

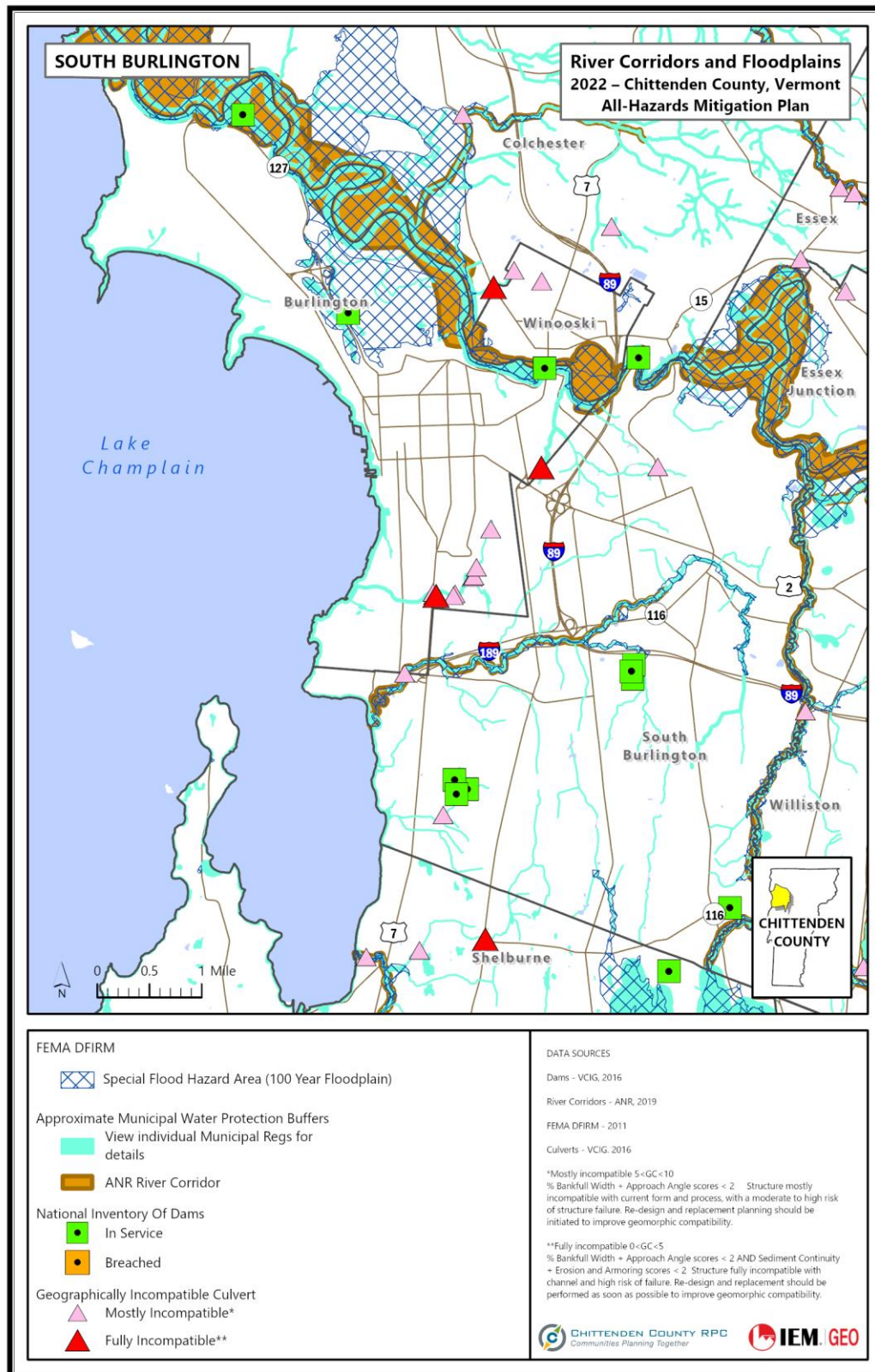


Figure 13.3: River Corridors and Floodplains, City of South Burlington⁴

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

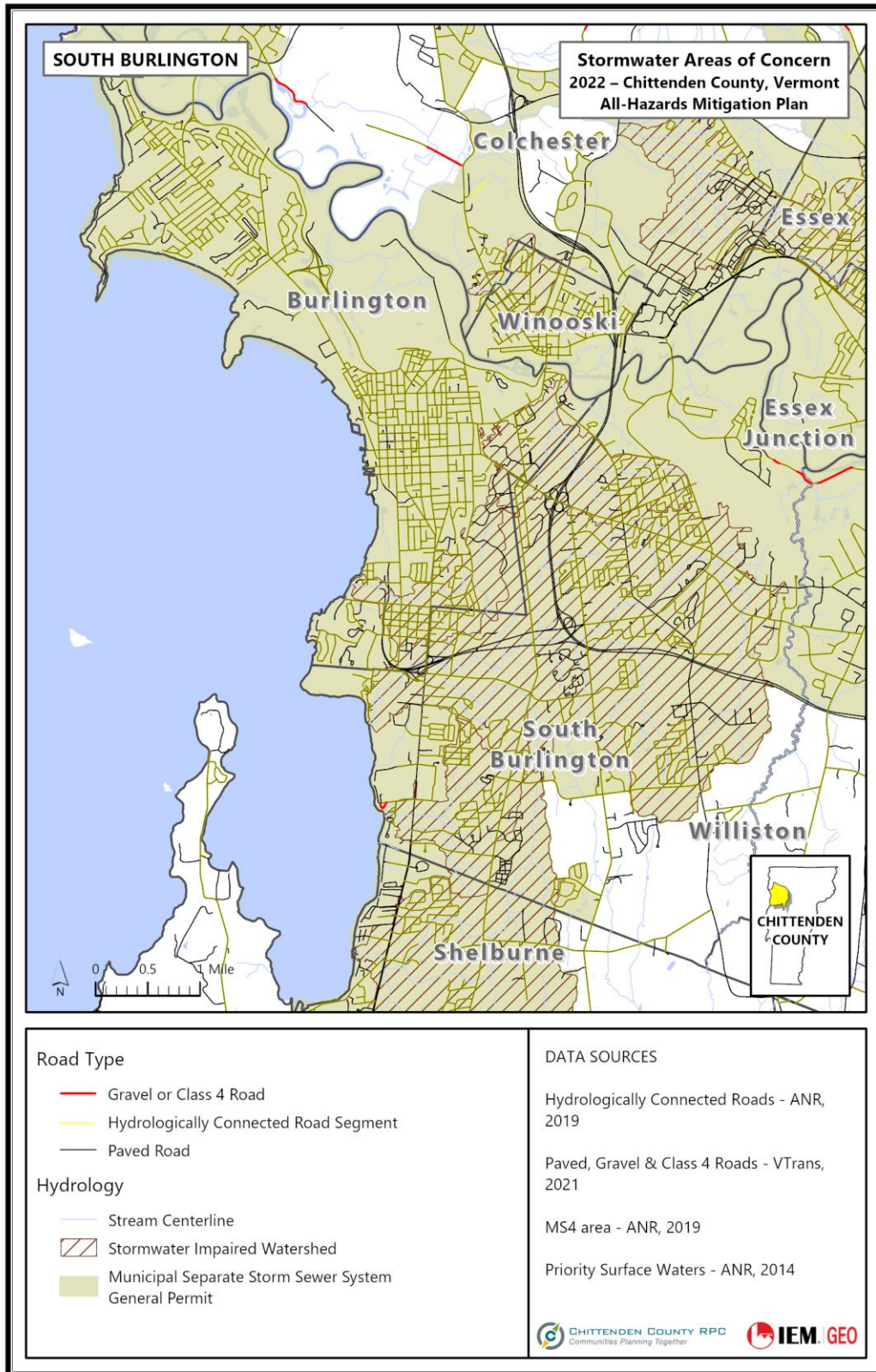


Figure 13.4: Hydrology and Stormwater Management lines, City of South Burlington⁵**Growth and Development Trends**

The population of the City of South Burlington more than doubled in the decades between 1980 and 2020 and is projected to maintain a slight increase in population for the next ten years.

Table 13.3: Population Trends, 2010-2020⁶

2010 Population	2020 Populations	Net Change 2010-2020	Percent Change 2010-2020
17,904	20,292	+2,388	.12%

Table 13.4: South Burlington Population Projections, 2020 to 2030⁷

2020 Population	2030 Population	Net Change 2020 -2030	Percent Change 2020-2030
20,292	22,650	2358	11.6%

Future population growth within the city 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 city has managed-growth projects currently in development, including the City Center Initiative, which is a proposal to create a walkable downtown for the City of South Burlington. The public is investing in infrastructure to support gathering spaces, mobility and economic vitality, and public infrastructure. The over 300-acre area targeted to be developed and redeveloped is zoned for mixed-use including residential, commercial, and cultural spaces. The main components under design or construction by the city are a city hall, senior center, public library, streets, and parks. Two main streets, Market Street and Garden Street, will be constructed and/or reconstructed to form the central routes through "City Center". These streets will be outfitted with bicycle and walking facilities, lined with trees, and include stormwater infiltration surfaces. Along these streets will be mixed-use buildings primarily for use by lower-level retail and upper-level residential units. In addition, a 7+ acre plot has been redeveloped as a public park, with walking paths through a forest, a children's discovery area, and natural art landmarks.

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

⁶ U.S. Census Bureau QuickFacts: Vermont. Retrieved at:

<https://www.census.gov/quickfacts/fact/table/chittendencountyvermont,VT/PST045221>

⁷ CCRPC-County & Municipal Population Estimates,

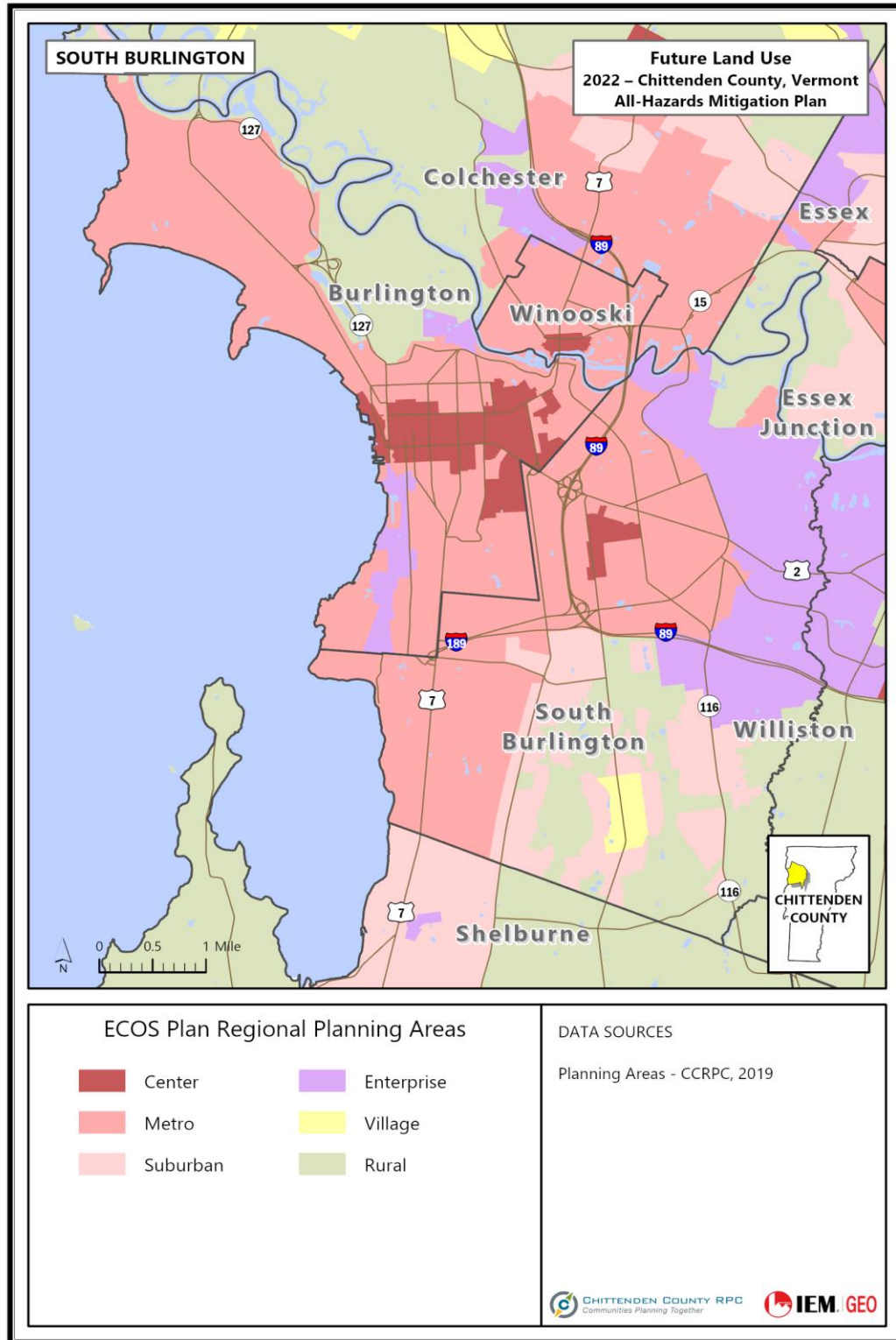


Figure 13.5: Future Land Use, City of South Burlington⁸**13.3 JURISDICTION PLANNING PROCESS****Table 13.5: Points of Contact for Hazard Mitigation Planning, City of South Burlington**

Name	Position/Title	Department/Agency
Paul Conner	Director of Planning & Zoning	City of South Burlington
Steven Locke	EMD/Fire Chief	City of South Burlington
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. 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 Forum" 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.

13.4 JURISDICTION-SPECIFIC HAZARD EVENT HISTORY

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

Table 13.6: Federal Disaster and Emergency Declarations (1990-2021), City of South Burlington

⁸ Chittenden County Regional Planning Commission, GIS Database, October 14, 2021.

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 13.7: Summary of Storm Events in the City of South Burlington 1950-2021

Event Type	# of incidents	Direct Deaths	Indirect Deaths	Direct Injuries	Indirect Injuries	Property Damage (\$)	Crop Damage (\$)
Cold/Wind Chill	10	0	0	0	0	100,000	0
Extreme Cold/Wind Chill	5	0	0	0	0	0	0
Flash Flood	3	0	0	0	0	30,000	0
Flood	13	0	0	0	0	268,000	0
Frost/Freeze	3	0	0	0	0	0	275,000
Hail	6	0	0	0	0	0	0
Heat	7	1	0	0	0	0	250,000
Heavy Rain	6	0	0	0	0	50,000	0
Heavy Snow	5	0	0	0	0	247,000	0
High Wind	14	0	0	1	0	1,440,000	0
Ice Storm	1	0	0	0	0	750,000	0
Lakeshore Flood	5	0	0	0	0	5,520,000	0
Lightning	3	0	0	0	0	20,000	0
Strong Wind	30	1	0	0	0	369,000	0
Thunderstorm Wind	8	0	0	0	0	125,000	0
Winter Storm	68	0	0	2	0	1,758,000	10,000
Winter Weather	97	1	3	0	0	951,000	0
Total	283	3	3	3	0	\$10,677,000	\$535,000

Table 13.8: Significant Hazard Events Identified by the City of South Burlington, 2017-2021⁹

Date	Hazard	Event and Description
September 8, 2021	Thunderstorm Wind	A slow-moving cold front moved across a modestly unstable airmass in VT during the late afternoon/evening hours. Scattered thunderstorms developed along this line with a few storms producing some isolated strong winds and most storms very heavy rainfall.
November 1, 2019	Flood	A developing area of low pressure moved from the Gulf of Mexico north into the eastern Great Lakes as it intensified during the evening of October 31st. As the surface low moved across Ontario, its associated cold front slowly edged across Vermont. The upper-level pattern was very strong and dynamic with a direct moisture feed from the Gulf of Mexico, thus delivering copious amounts of moisture into the northeast and NY. Steady rain developed during the mid to late evening of October 31st and became heavy at times through the early morning hours of November 1st. Rainfall amounts of 1.5 to 2 inches were common across much of Vermont with a swath of 2 1/2 to 4 inches across northwest and north central Vermont. Numerous flooded streams, and several washed-out roads were reported in northern Vermont. and several larger rivers flooded as well, including the Lamoille, Missisquoi basins and portions of the Winooski and Mad River basins. Urban street flooding occurred in the Burlington area. In addition, strong southwest-to-west winds, gusting to 40 to 50 mph and locally higher, developed around sunrise and continued through mid-afternoon before quickly diminishing by evening. These persistent strong winds combined with over-saturated soils, led to numerous downed trees, and structural damage and escalated power outages to their peak of more than 100,000 outages. Estimated public infrastructure damage in excess of \$5 million.

High Hazards of Concern to the Jurisdiction

The City of South Burlington indicated that Severe Winter Storms, Flooding, Fluvial Erosion and Human Infectious Diseases 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. In addition to these hazards, dam/levee failure was considered because of the presence of multiple dams inside or outside of the city.

Dam/Levee Failure

⁹ NOAA, National Centers for Environmental Information, Storm Events Database, January 1, 2017, to May 31, 2021.

In the City of South Burlington, there are seven dams inside or outside of the city limits. One dam is classified as a significant hazard and could cause major damage to the City of Burlington should a breach occur. The rest of the dams are of low or unknown status and pose little to no threat to the city.

Table 13.9: High Hazard Dams in City of South Burlington, as of May 2021

Name	Impoundment Capacity (acre-feet)	Use	Owner	Hazard Class
Village at Dorset Park Pond #3	11	Flood Risk Reduction	Dorset Park Community Association	Significant
Village at Dorset Park Pond #1	N/A	N/A	Private	Low
George No. 18	1,690	Hydroelectric	Green Mountain Power Corp	N/A
Auclaire	N/A	N/A	N/A	N/A
UVM (Upper)	4	Irrigation	N/A	N/A
UVM (Lower)	13	Irrigation	N/A	N/A
UVM (East)	8	Irrigation	N/A	N/A

Severe Rainstorms

In prior versions of this Annex and the County Plan, damage to roads, culverts and bridges from thunderstorm events was discussed as either the result of flooding or fluvial erosion. It was assumed that overflowing nearby streams, rivers or lakes were the cause of the damage. Analysis has shown that this damage is caused by intense, localized thunderstorms which cause excessive and rapid water flows and flash flooding on and over paved and gravel roads, roadside ditches, driveway culverts, stormwater systems, etc.

In many cases, damaged infrastructure is located nowhere near a formally mapped Floodplain or Fluvial Erosion Hazard Area or River Corridor Protection Area. This was the case in more recent 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 City of South Burlington's road infrastructure as well as many private driveways have very steep grades (>10%) and are therefore susceptible to damage from intense rainstorms

Flood/Flash Flood

According to the City's Comprehensive Plan, lands along the following drainages have been designated flood hazard areas (based upon 100-year floodplain data): the shoreline of

Shelburne Bay; the west bank of the Winooski River; the west bank of Muddy Brook; Potash Brook, and a small portion of a brook which flows southeast near the intersection of Dorset and Midland toward Shelburne Pond

A simple GIS intersection analysis reveals that portions of city roads are located within the 100-year floodplain, as are culverts, bridges, and utility poles. Unfortunately, this level of analysis does not take into account fluvial geomorphology (volume, velocity, direction, etc.) and does not factor in the elevation of the road relative to flood elevation. The analysis also reveals farmland located within the floodplain.

Note that a good portion of this area consists of the shoreland of Lake Champlain. The Base Flood Elevation of Lake Champlain established by FEMA is 102.0 feet while the flood stage established by the National Weather Service is 100 ft. These stages are defined as follows: 100 ft. Water begins to enter some lakefront properties. Water also begins to threaten low-lying roads, piers, and docks. Wave action can compound flooding on windward-facing shorelines.

- 101 ft. - Flooding becomes serious, and wave erosion on windward shores becomes a problem. If lake ice is present, structural damage can occur.
- 102 ft. - Severe flooding occurs, with widespread inundation of lakeside properties, and closure of low-lying roads.

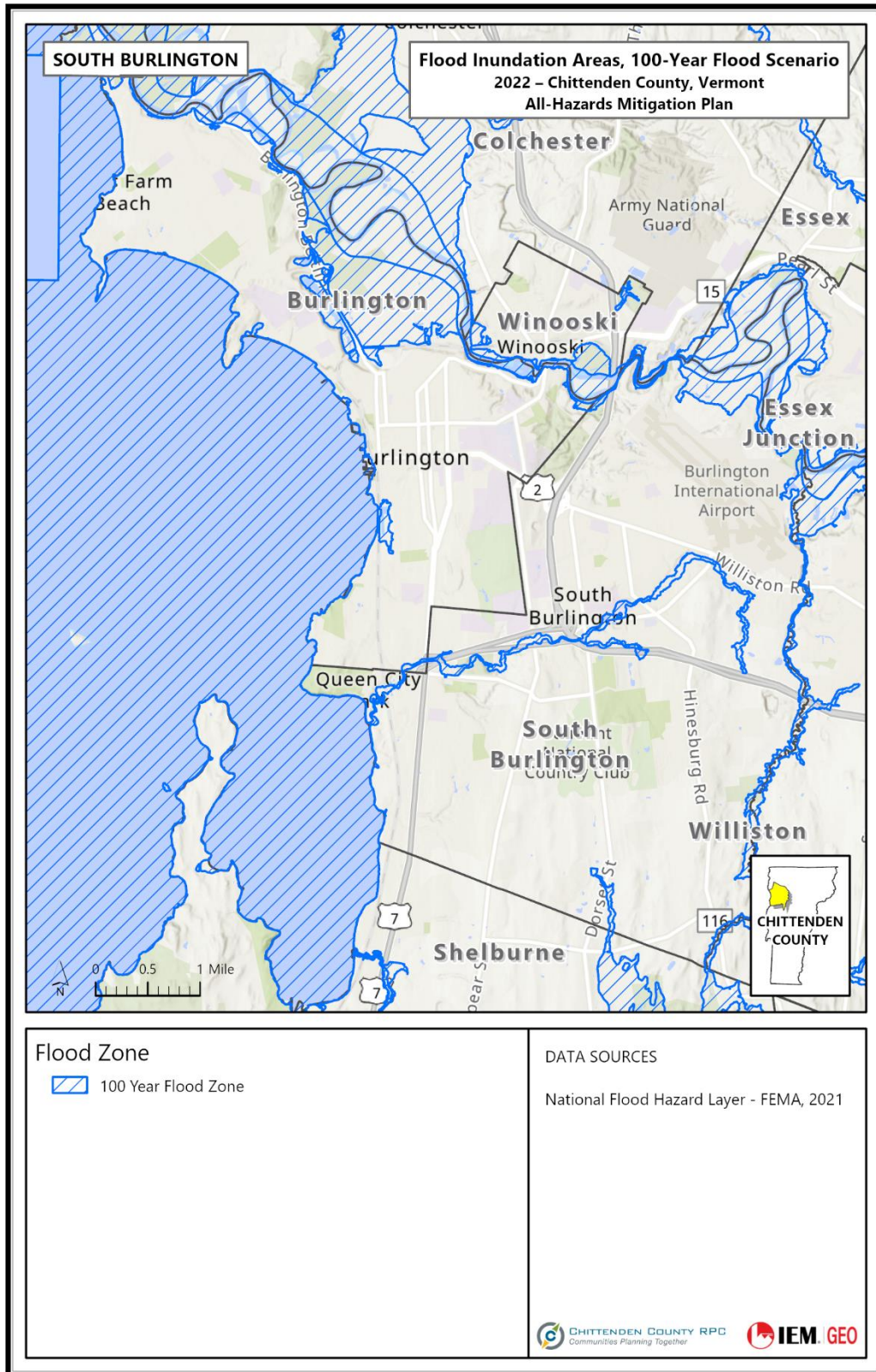


Figure 13.6: City of South Burlington 100-Year Flood Scenario¹⁰

Fluvial Erosion

During the development and adoption of the 2005 and 2011 MJAHMP's and the municipal annexes, threats from stream erosion were identified as Fluvial Erosion Hazard (FEH) Areas through the analytical lens of Stream Geomorphic Assessment (SGA). With the 2017 MJAHMP update, the SGA approach was highlighted as the method used by the Vermont Agency of Natural Resources, and the adoption of two related terms used in managing fluvial erosion hazards – River Corridors and River Corridor Protection Areas. As of the 2023 update, Vermont 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 in portions of the following streams: the Winooski River, Muddy Brook and Potash Brook. Phase 2 SGA-based River Corridor Protection Areas were developed for those portions of streams where SGA was completed. Additional portions of streams that did not have Phase 2 SGA work but have a watershed area greater than 2 sq. miles would also be included in the River Corridor Protection Area and/or River Corridor.

Non-Natural Hazards

The City of South Burlington identified the following information related to technological and societal hazards.

Table 13.10: Technological and Societal Hazards of Concern to the City of South Burlington

Hazard	Risk/Vulnerability Issue
Water Pollution	Water Pollution reflects the significant ongoing and projected financial impacts to City residents and businesses for the City to operate programs
Hazardous Materials Incident	The presence of numerous sites (gas stations, light manufacturing, etc.) in the city and the fact that minor spills of gasoline or chemicals (albeit typically in very low quantities) are an annual occurrence.
Power Loss	High density of residences and businesses that are affected.
Economic Recession	Direct impacts and its secondary effects on health, safety, and the environment.
Terrorism	A domestic or international terrorism incident is extremely unlikely, but its consequences could be severe.

13.5 HAZARD RISK RANKING

¹⁰ Hazus, 100-Year Flood Scenario Run, October 14, 2021.

After developing hazard profiles, the City of South Burlington 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 is expected.
- **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 4.3, Base Plan**. The Hazard Risk Ranking scores for the City of South Burlington 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 4, Base Plan**, and local detail is provided in the Jurisdiction Annexes.

Table 13.11: Hazard Risk Ranking Summary Natural Hazards, City of South Burlington

Hazard	Sum - Impact/ Consequence Score	Probability	Total Risk Rating (<i>Impact/ Consequences x Probability</i>)	Hazard Ranking
Severe Rainstorm	8	5	40	High
Severe Winter Storm	7	5	35	Medium
Human Infectious Disease	7	3	21	Medium
Fluvial Erosion	4	5	20	Medium
Flood	4	4	16	Low
Invasive Species	3	5	15	Low
Extreme Temperatures	3	4	12	Low
Wildfire	1	4	4	Low
Dam/Levee Failure	[Not Ranked]			

Table 13.12: Hazard Risk Ranking Summary Technological Hazards, City of South Burlington

Hazard	Sum - Impact/ Consequence Score	Probability	Total Risk Rating (Impact/ Consequences x Probability)	Hazard Ranking
Hazardous Materials Incident	5	5	25	Medium
Water Pollution (algal bloom, etc.)	5	5	25	Medium
Major Transportation Incident	8	3	24	Medium
Multi-structure Fire	6	4	24	Medium
Power Loss	6	4	24	Medium
Sewer Service Loss	5	4	20	Medium
Water Supply Loss	4	5	20	Medium
Telecommunications Failure	3	4	12	Low
Other Fuel Service Loss	3	3	9	Low
Natural Gas Service Loss	4	2	8	Low

Table 13.13: Hazard Risk Ranking Societal Hazards, City of South Burlington

Hazard	Sum - Impact/ Consequence Score	Probability	Total Risk Rating (Impact/ Consequences x Probability)	Hazard Ranking
Economic Recession	6	4	24	Medium
Terrorism	7	3	21	Medium
Crime	4	5	20	Medium
Civil Disturbance	4	4	16	Low
Key Employer Loss	3	3	9	Low

13.6 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 13.14: Typical Vulnerabilities of Natural Hazards of Highest Concern, City of South Burlington

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Extreme Temperatures	<ul style="list-style-type: none"> • Damage to public infrastructure • Loss of water service 	<ul style="list-style-type: none"> • Budget impacts due to needed repairs
Flooding	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Budget impacts from road/bridge closures and repairs to public infrastructure • Damages to individuals' properties and businesses
Fluvial Erosion	<ul style="list-style-type: none"> • Temporary closure of roads and bridges including from debris • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals • Damage to public infrastructure 	<ul style="list-style-type: none"> • Budget impacts from roads/bridge closures and repairs to public infrastructure • Damages to individuals' properties and businesses
Human Infectious Disease	<ul style="list-style-type: none"> • Temporary closures of schools, businesses, places of assembly • Increased demand on medical services 	<ul style="list-style-type: none"> • If an epidemic is widespread and long-lasting, the impact could be severe
Invasive Species	<ul style="list-style-type: none"> • Small but ongoing cost to monitoring level of occurrence 	<ul style="list-style-type: none"> • Unknown at this point
Severe Storm/Rainstorm	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Budget impacts from road/bridge closures and repairs to public infrastructure • Damages to individuals' properties and businesses

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Severe Winter Storm	<ul style="list-style-type: none"> Temporary closures of roads and bridges including from debris Temporary loss of power and/or telecommunications Temporary isolation of vulnerable individuals 	<ul style="list-style-type: none"> Budget impacts from debris cleanup
Wildfire	<ul style="list-style-type: none"> Damage to private property 	<ul style="list-style-type: none"> N/A

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

- Severe Rainstorms due to its extensive stormwater management system.
- Flooding due to its western boundary with Lake Champlain and the transit of the Winooski River along its northeastern boundary.

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

Table 13.15: Typical Vulnerabilities of Technological Hazards of Highest Concern, City of South Burlington

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Gas Service Loss	<ul style="list-style-type: none"> Temporary loss of service Temporary impacts to vulnerable individuals 	<ul style="list-style-type: none"> If extensive loss, potential budget impacts to service providers
Hazardous Materials Incident	<ul style="list-style-type: none"> Temporary closures of roads and bridges during cleanup 	<ul style="list-style-type: none"> If large event, potential high cleanup costs Injuries to persons
Major Transportation Incident	<ul style="list-style-type: none"> Temporary closures of transportation infrastructure Injuries, deaths 	<ul style="list-style-type: none"> If major event, potential long-term closure of infrastructure
Power Loss	<ul style="list-style-type: none"> Temporary loss of electrical service Temporary impacts to vulnerable individuals Damage to public infrastructure 	<ul style="list-style-type: none"> If extended event, damage to perishable goods or business income If extensive loss, potential budget impacts to service providers
Other Fuel Service Loss	<ul style="list-style-type: none"> Temporary loss of service Temporary impacts to vulnerable individuals 	<ul style="list-style-type: none"> If extensive loss, potential budget impacts to service providers

Sewer Service Loss	[Most homes and businesses are on public sewer.] <ul style="list-style-type: none"> • Temporary loss of service • Temporary impacts to vulnerable individuals 	<ul style="list-style-type: none"> • If extensive loss, potential budget impacts to service providers.
Telecommunications Failure	<ul style="list-style-type: none"> • Temporary loss of service • Temporary impacts to vulnerable individuals 	<ul style="list-style-type: none"> • .If extensive loss, potential budget impacts to service providers
Water Service Loss	<ul style="list-style-type: none"> • Temporary loss of service • Temporary impacts to vulnerable individuals 	<ul style="list-style-type: none"> • If extensive loss, potential budget impacts to service providers
Water Pollution	<ul style="list-style-type: none"> • Ongoing budgetary impacts due to permit requirements 	<ul style="list-style-type: none"> • If repeat events impacts to tourism-based businesses

Relative to the County as a whole, the City of South Burlington has a slightly higher vulnerability to the following technological hazards:

- Major Transportation Incidents due to the transit of Interstate 89 and rail through the city as well as the presence of the Burlington International Airport.
- Water Pollution due to the presence of three “impaired” streams.

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 13.16: Typical Vulnerabilities of Societal Hazards of Highest Concern, City of South Burlington

Hazard	Typical Vulnerabilities	Potential Cascading Vulnerabilities
Civil Disturbance	<ul style="list-style-type: none"> • Injuries to persons • Damage to public and private property 	<ul style="list-style-type: none"> • Budget impacts to police services depending upon the severity of event • Deaths
Crime	<ul style="list-style-type: none"> • Increased demands on police services and social services 	<ul style="list-style-type: none"> • Injuries • Deaths
Economic Recession	<ul style="list-style-type: none"> • Loss of economic activity • Increased demands on social services • Some loss of tax revenue 	<ul style="list-style-type: none"> • Effects increased if event is of extended duration
Key Employer Loss	<ul style="list-style-type: none"> • Loss of economic activity • Loss of a portion of the tax base • Increased demands on social services 	<ul style="list-style-type: none"> • Effects increased if employer is of significant size

Terrorism	<ul style="list-style-type: none"> • Injuries to persons • Damage to public and private property 	<ul style="list-style-type: none"> • Budget impacts to police services depending upon the severity of event • Deaths
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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.

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.¹¹ The CDC SVI depicts the vulnerability of communities at the 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 City of South Burlington is in an area of lowest vulnerability.

Table 13.17: Vulnerable Population in the City of South Burlington, by Age Group

Population Category	Percentage
Children Under 18	4.5%
Population age 65+	18.5%
Disabled Population	10.0%
Population Below Poverty Level	6.6%

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. The jurisdiction provided the following information related to Community Lifeline sites or facilities potentially at risk:

- With the exception of the Chittenden County Correctional Facility, no other facilities are located in mapped Flood Hazard Areas, River Corridors, or River Corridor Protection Areas.

¹¹ The Centers for Disease Control and Prevention's Social Vulnerability Index is presented in Section 4, Hazard Identification and Risk Assessment, Base Plan.

- Based on local knowledge, the Correctional Facility has not experienced flooding, nor do any FEMA disaster declarations since 1990 show any flood damages at the facility.
- Phase II SGA studies conducted for South Burlington identify specific stream reaches where fluvial erosion is a concern as well as where infrastructure, primary culverts, are at risk (See Table 13.22).

The statistical overview of roads in the City of South Burlington, shows the range of road types within the town, from highways to unpaved roads. 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 13.18: High Crash Road Sections 2012-2016, City of South Burlington

Route	System	Mileage	Severity Index (\$/Accident)
US-2, Dorset St., South Burlington	Principal Arterial (u)/Urban Collector (u)	0.490-0.500	\$16,949
US-2 Patchen Road, South Burlington VT-116	Principal Arterial (u)/Urban Collector (u)	0.990-1.010	\$21,167
US-2, White St., South Burlington	Principal Arterial (u)/Urban collector (u)	0.860-0.880	\$18,013
So. Burlington (FAP 121-1 Kennedy Drive), Dorset St., South Burlington I-89	Minor Arterial (u)/Urban Collector (u)	0.000-0.010	\$15,230
Patchen Road, South Burlington, White St., South Burlington	Urban Collector (u)	0.080-0.100	\$18,444
VT-116, CheeseFactory Rd., South Burlington	Principal Arterial (u)/Urban collector (u)	0.160-0.320	\$52,321
US-7, <0189>, Swift St., South Burlington	Principal Arterial (u)/Urban Collector (u)	1.720-0.010	\$12,587

Table 13.19: Highway Mileage by Class, City of South Burlington

Class 1	Class 2	Class 3	Class 4	State Hwy	Fed Hwy	Interstate	Total 1, 2, 3, State Hwy
2.289	19.107	60.00	1.17	17.017	-	-	98.413

Table 13.20: Highway Mileage by Surface Type, City of South Burlington

Paved	Gravel	Soil or Graded	Unimproved	Impassable	Unknown	Total
98	0	0	0	0.75	0	99.283
Total Known	Total Unpaved	% Paved	% Unpaved			
100	0.75	98%	2%			

Table 13.21: Hazardous Materials and Petroleum Storage and Usage Sites, City of South Burlington,

Facility Name	Street Address
Fairpoint Bacon St. PCH (FPT-VT4741089)	Bacon St
Fairpoint SLC-96 (HUT) (FPT-VT4741054)	100 Dorset St
Maplefields @ University	811 Williston Rd
Maplefields Airport	1801 Williston Rd
Burlington-Dorset Avenue Hannaford #8357	University Mall, 217 Dorset St
Dattilio's Sunoco	794 Shelburne Rd
Simon's Store	974 Shelburne Road
So. Burlington Hannaford #8303	218 Hannaford Drive
Suburban Propane	12 Berard Drive
TruGreen	49B Commerce Ave
Velco Lime Kiln Substation	32 Berard Drive
Wesco, Inc	32 San Remo Dr
344 Dorset St-ZX00Q9	344 Dorset St
AT&T-VT0065	4 Green Tree Dr
Avis Rent A Car Systems, LLC-Burlington International Airport	1890 Williston Roads
Bioresearch Center & Greenhouses	622 Spear Street
Budget Rent A Car System Inc.- Burlington International Airport	700 Airport Parkway
Burlington Int'l Airport-Rac-1730-11	1200 Airport Drive Suite 11
Champlain Oil Inc	45 San Remo Drive
Comcast of CT/GA/MA/NH/NY/NC/VA/VT LLC-43 Comcast Way	43 Comcast Way (Formerly 43 Adelphia Drive)

Facility Name	Street Address
Dave's Williston Road Sunoco	1241 Williston Road
Dynapower Corporation	85 Meadowland Drive
Enterprise Rent A Car #24HB (ELRAC LLC)	1116 Shelburne Road
Enterprise Rent A Car #24HU (ELRAC LLC)	1891 Williston Road
Fairpoint HUT (FPT-VT474BMS)	276 Eldredge Street
Fairpoint VT Headquarters RDC (FPT-VT474104)	800 Hinesburg Rd
Fairpoint Williston Road SLC (FPT-VT4741041)	1855 Williston Road
Fletcher Allen Health Care-Joy Drive Renal Dialysis	35 Joy Drive
Forest Services Complex	705 Spear Street
GE Healthcare (IDX Systems Corporation) 40 IDX Drive	40 IDX Drive
GMP Digital Substation #43	75 Community Dr
GMP Gorge Plant #18	Berard Drive
GMP Queen City Substation #32	303 Queen City Park Road
GMP South Burlington Substation #78	423 Dorset Street
Goss Dodge Inc	1485 Shelburne Road
Gracey's Storre & Deli	1333 Williston Road
Green Mountain Coffee Roasters-South Burlington	55 Community Drive
Heritage Aviation	228 Aviation Ave
Hertz Burlington International Airport-RAC-1730-11	1200 Airport Drive #3
Horticulture Research Facility (Blasberg)	65 Green Mtn Dr
Interstate Shell	1055 Williston Road
Jiffy Mart-Kennedy Drive	110 Kennedy Drive
Kaigle's Citgo	510 Shelburne Road
Lane Press	87 Meadowland Drive
Level 3 Communications-South Burlington-SBTNVTD	102 Kimball Avenue, Suite 6
Lowe's of S. Burlington, VT (#1913)	189 Hannaford Drive
Magic Hat Brewing Company	5 Bartlett Bay Road
Miller Research Complex	500 Spear St
National Car Rental #24BN (South Burlington International Airport) (ELRAC LLC)	182-248 Airport Circle
RCC-Contact-USID102875	2026 Williston Road
RCC-Dorset St	344 Dorset St
RCC-WCAX So Burlington- USID102991	30 Joy Drive
S.B. Collins Inc- (Jolley 1 Short Stop)	1110 Shelburne Road
S.B. Collins Inc- (Jolley Mobile North)	977 Shelburne Road

Facility Name	Street Address
S.B. Collins Inc- (Jolley Mobile South)	1830 Shelburne Road
S.B. Collins Inc- (Williston Road Short Stop)- South Burlington	1314 Williston Road
Shaw's #7517	570 Shelburne Road
Shelburne Rd Variety	1855 Shelburne Rd
Sherwin Williams #5732	1242 Shelburne Rd
South Burlington Shell	1800 Williston Road
Suburban Heating Oil Partners, LLC	12 Berard Drive
TestAmerica Inc	30 Community Drive, Suite 11
The Farrell Distributing Corp	5 Holmes Rd
TruGreen	49B Commerce Ave
UPS-Freight Burlington	2 Holmes Road
U-Save	1302 Williston Road
Velco Queen City Substation	10 Central Avenue
Verizon Wireless South Burlington (ID:54509)	Joy Drive
Verizon Wireless South Burlington 3 (ID:1227212)	1068 Williston Rd
Verizon Wireless South Burlington 4- New Build (ID:18066764)	1675 Shelburne Road
Verizon Wireless Williston 2 (ID:1227252)	850 Hinesburg
Vermont Air National Guard	105 NCO Drive
Vermont Army National Guard-Army Aviation Support Facility	141 Shamrock Road
W.W. Grainger Inc. Location #17	20 Gregory Drive
Weather Forecast Office Burlington Vermont- Department of Commerce/National Oceanic and Atmospheric Administration/National Weather Service	1200 Airport Drive

Table 13.22: Culverts with a Geomorphic Compatibility Rating of “Mostly Incompatible” or “Incompatible, City of South Burlington

Bankfull Width	Compatibility Score	Location	GIS Road Name	Stream Name
25.27	6	Just south of I-89 southbound lane	Quarry Rd	Muddy Brook
33.71	7	Struct_Num 7000031950414X	Airport Pkwy	Centennial Brook
62.5	7	Bike path crossing over a sewer line west of Keri Lane	Bike Path	Bartlett Brook

39.94	9	Queen City Park Rd crossing: Culvert also travels under the unfinished portion of I-189 in Burlington	Queen City Pk Rd	Potash Brook
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Analysis of the historical development pattern of the city, including the proximity to the 100-year floodplain, River Corridors, and River Streams, indicates that residential and non-residential development is spread throughout the jurisdiction; however, there are no residential properties located in Special Flood Hazard Areas (SFHAs) or (River Corridors). There is one commercial building (10 Farrell Street) and one governmental building (7 Farrell Street) located in the SFHA 100-year floodplain. The total value of these two properties is \$11,204,500¹².

¹² Estimated dollar value as of 2017.

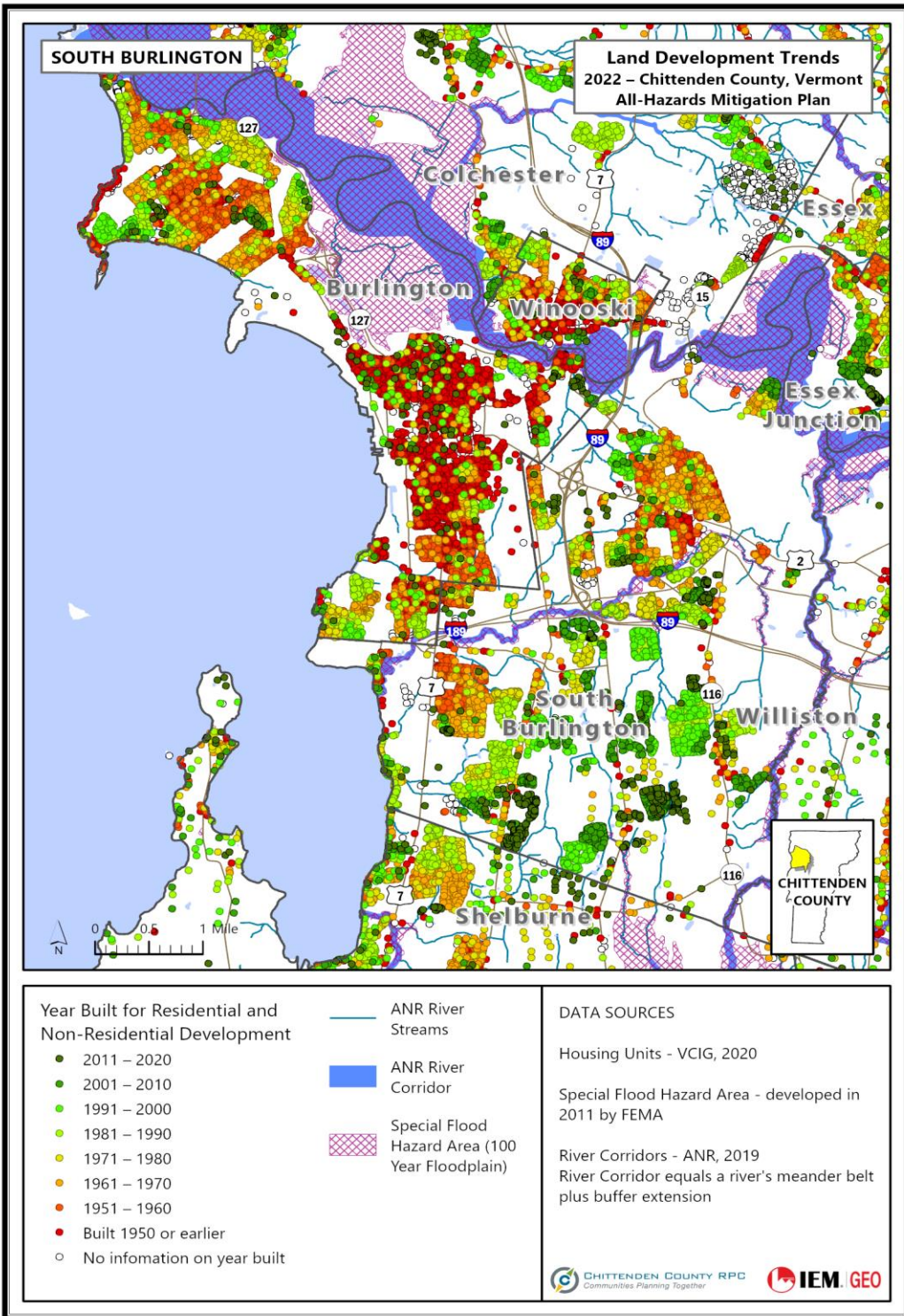


Figure 13.7: Land Development Trends, City of South Burlington- 1950-2020¹³

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

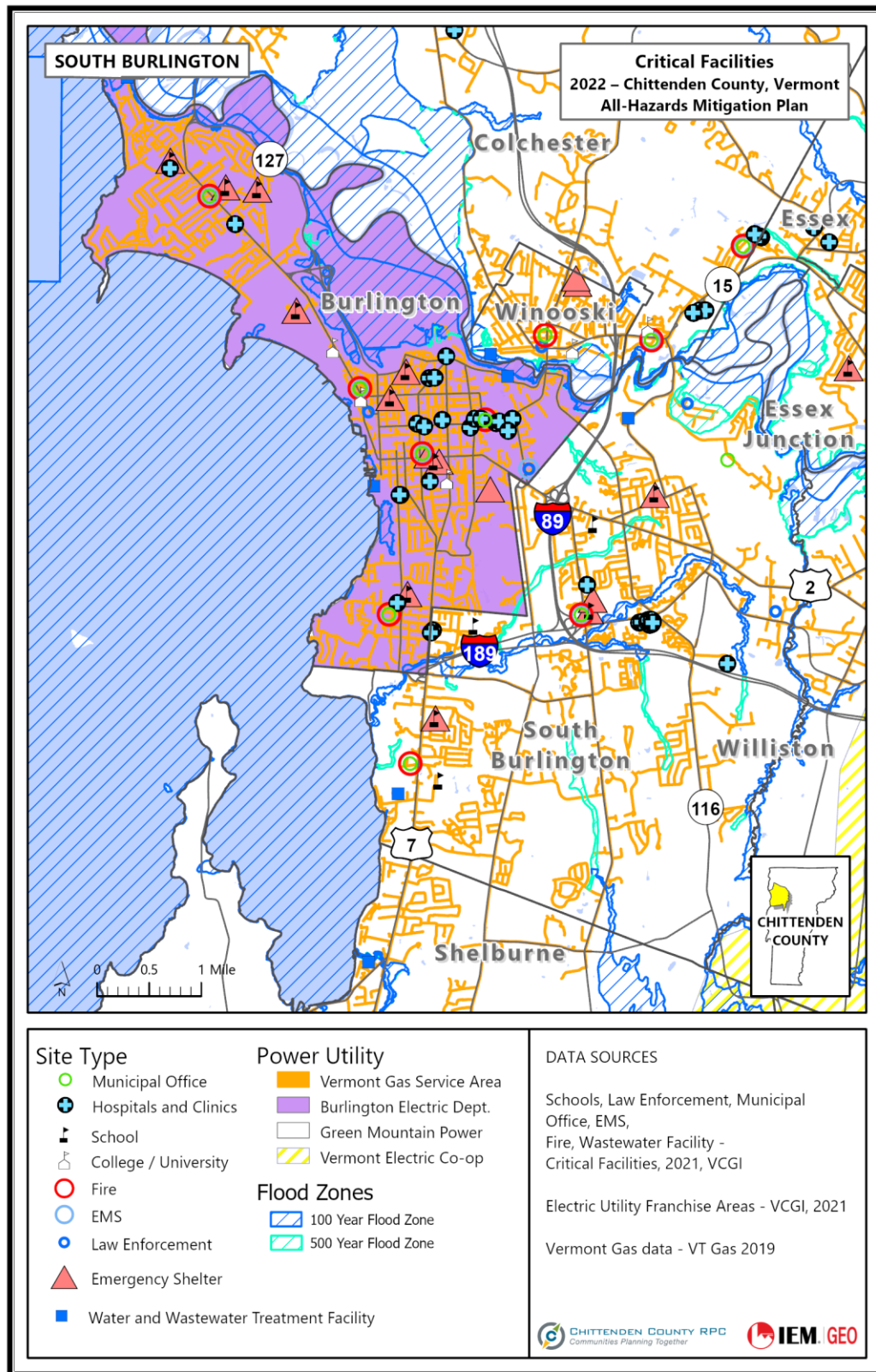


Figure 13.8: Critical Facilities, City of South Burlington¹⁴**Table 13.23: Critical Facilities Exposed to FEMA Floodplains, City of South Burlington**

Total Facilities*	In 100-year Floodplain	In 500-year Floodplain
0	0	0

Historical

The Chittenden County Correctional Facility is located in the 100-year Floodplain, and the Chittenden County Sheriff's Department is located in the 500-year floodplain.

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

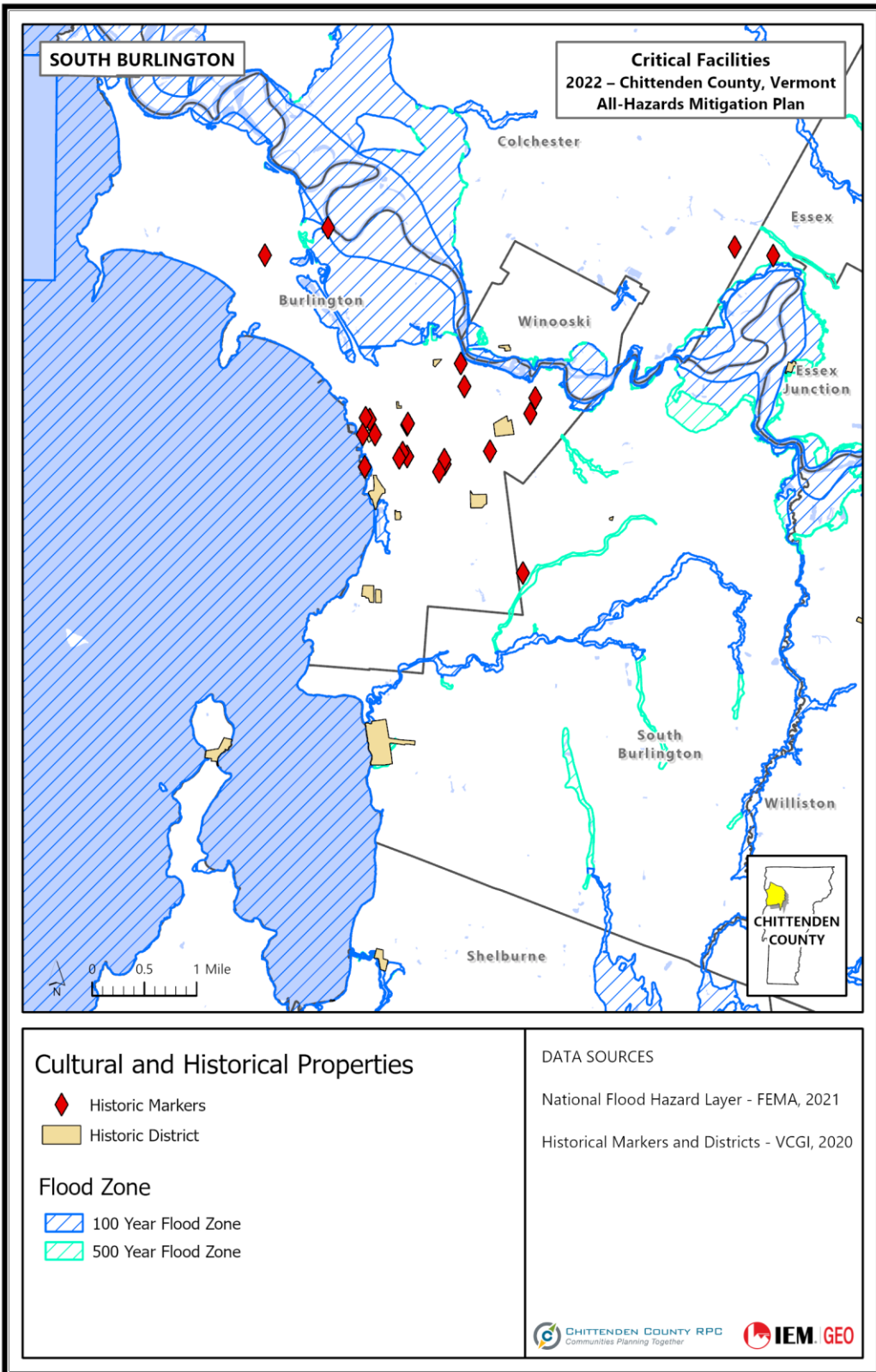


Figure 13.9: Cultural and Historic Properties Exposed to FEMA Floodplains, City of South Burlington¹⁵**13.7 CAPABILITY ASSESSMENT****Capabilities Assessment Summary Ranking and Gap Analysis***Planning and Regulatory*

The City of South Burlington has significant planning and regulatory capabilities. The city identified multiple planning and regulatory capabilities and their benefits in addressing hazard mitigation.

- In February 2022, the City Council adopted an amendment to the Land Development Regulations that updated Environmental Protection Standards, including new Habitat Block, Habitat Connector, Steep Slope, and 500-year Floodplain standards and upgrades to Wetland and River Corridor standards.
- Steep slope standards nearing completion in fall/winter 2021-2022

Table 13.24: Summary of Planning Regulatory Capabilities, City of South Burlington

Comprehensive Plans	X
Capital Improvements Plans (Highway Dept.)	X
Economic Development Plan	-
Local Emergency Operations Plan	X
Continuity of Operations Plan	X
Transportation Plan (Town Plan, MRGP, Bridge Capital)	X
Stormwater Management Plan	-
Community Wildfire Ordinances	-
Zoning Ordinance	X
Subdivision Ordinance	X
Total	7

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

- Adoption of regulations discussed above.

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

- Consider including “reduction of hazard impacts” as a specific metric in the evaluation of Capital Projects.
- Prepare cross-references between Hazard Mitigation Plan and Climate Action Plan.

Administrative and Technical Capabilities

The City of South Burlington identified the following department, agencies, and staff as critical to its hazard mitigation capabilities.

Table 13.25: Summary of Administrative and Technical Capabilities, City of South Burlington

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	X
Planners/ Engineer(s) with an understanding of natural and/or manmade hazards	X
Floodplain manager Mutual Aid Compacts	-
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 City of South Burlington has significant administrative and technical capabilities and has identified the following areas for improvement

- Stronger GIS connectivity to mitigation/hazard planning

Fiscal Capability

The City of South Burlington has been resourceful in leveraging limited public funding and has noted the following funding sources, projects, and partnerships to implement its mitigation strategy.

Table 13.26: Summary of Fiscal Capabilities, City of South Burlington

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	-
Stormwater utility fee	X
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	X
Total	8

The City of South Burlington has significant fiscal capabilities and has identified the following areas for improvement:

- Enhance capital planning and project delivery capacity, including hazard mitigation.

Program/Organization Capabilities

The City of South Burlington has a moderate program or organizational capabilities that currently support hazard mitigation, including:

- The city is part of Rethink Runoff in collaboration with other MS4-regulated Chittenden County communities that educates the public on our efforts as well as best management practices for a variety of land uses.
- We often partner on stormwater projects.

Table 13.27: Summary of Program/Organization Capabilities, City of South Burlington

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	X
Other	-

Total	3
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The City of South Burlington has significant program or organizational capabilities that currently support hazard mitigation; however, it has identified the following areas for improvement:

- Enhance capital planning and project delivery capacity, including hazard mitigation.

NATIONAL FLOOD INSURANCE PROGRAM CONTINUED COMPLIANCE

South Burlington 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 sixteen NFIP policies with total insurance coverage of \$4,458,000, and there are zero repetitive loss properties reported. The city 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 City's Floodplain Management regulations. This includes:

- 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 city 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 City of South Burlington 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 City will also continue to incorporate into future planning documents, including HMP updates, changes to the locations, and designations of mapped floodplains.

Table 13.28: National Flood Insurance Program Status, City of South Burlington

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
07/18/2011	16	\$7,625	\$4,458,000	4	\$8,188	0

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, technical, education, and outreach capabilities. In addition, the CCRPC assists municipalities with identifying and managing funding opportunities through grants and other sources.

Table 13.29: Capability Assessment Summary Ranking for City of South Burlington

Planning and Regulatory	Administrative and Technical	Financial	Education and Outreach
High	High	High	Medium

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

- Funding of municipal services (including maintenance of roads, bridges, and services) and the impact that has on property taxes for low-, moderate-, and fixed-income residents who are then threatened with housing affordability, food insecurity, and the impact on overall health and welfare.
- The impact of increasing climate events which cause flooding and erosion along the Huntington River and its tributaries causing loss of property (municipal buildings, private homes, farmland, roads, bridges, and townland), and impacts to water quality due to septic failures and sediment.
- Lack of sufficient broadband and cell service.

13.8 MITIGATION ACTIONS

Changes in Priorities

South Burlington has experienced moderate population growth; however, it continues to be concerned about the availability of affordable housing and increase demand on existing infrastructure (bridge and road system). The city's priorities continue to be updated and change since the last plan update to address increased vulnerabilities-based climate change. Additionally, the city continues to make progress on mitigation actions.

Goals and Objectives

The City of South Burlington adopted the five regional goals defined in Section 6, Mitigation Strategy. In addition, the following vision statements were defined during the mitigation strategy development process for this Plan update:

- Here and into the future, South Burlington is:
- Affordable & Community Strong: Creating a robust sense of place and opportunity for our residents and visitors.
 - Be affordable, with housing for people of all incomes, lifestyles, and stages of life.
 - Keep unique features and maintain or enhance the quality of life of existing neighborhoods.
 - Be a recognized leader in public education offerings and outcomes.
 - Provide quality public safety, infrastructure, health, wellness, and recreation services.
 - Ensure transparent and accessible government.
- Walkable. Bicycle and pedestrian-friendly with safe transportation infrastructure.
 - Develop a safe and efficient transportation system that supports pedestrian, bicycle, and transit options while accommodating the automobile.
 - Establish a city center with pedestrian-oriented design, mixed uses, and public buildings and civic spaces that act as a focal point to the community.
- Green & Clean. Emphasizing sustainability for the long-term viability of a clean and green South Burlington.
 - Promote conservation of identified important natural areas, open spaces, aquatic resources, air quality, arable land and other agricultural resources, historic sites and structures, and recreational assets.
 - Reduce energy consumption city-wide and increase renewable energy production where appropriate.
- Opportunity Oriented. Being a supportive and engaged member of the larger regional and statewide community.
 - Prioritize development that occurs within the community into the higher-intensity areas identified within this Plan.
 - Support a diverse and vibrant economy built on quality jobs, employment centers and a supportive educational and research system, support markets for local agricultural and food products.

Status of Previous Actions

The City of South Burlington reviewed its Mitigation Actions described in the 2017 *MHAHMP* and noted the status.

Table 13.30: Status of Previous Mitigation Actions

Action Date	Action #	Title of project	Hazard(s)	2022 Status Update
2017	A-1	Replace 2 undersized culverts in Oak Creek Village	F, FE, SR, SWS	Complete
2017	A-2	Replace culvert on Market Street	F, FE, SR, SWS	Complete
2017	B-1	Mitigate impacts of runoff such as excessive flow, sediment load, and excessive phosphorus discharge.	F, FE, SR, SWS	Ongoing activity and moved forward to 2022 Mitigation Actions.
2017	C-1	Consider addition/adoption of River Corridor or River Corridor Protection Area in Bylaws	F, FE, SR, SWS	Completed-Adopted
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			

Previous FEMA Public Assistance Projects in the Town of Huntington, demonstrate recovery and mitigation activities including damage to roads and bridges; protective measures; and recreational or other site impacts.

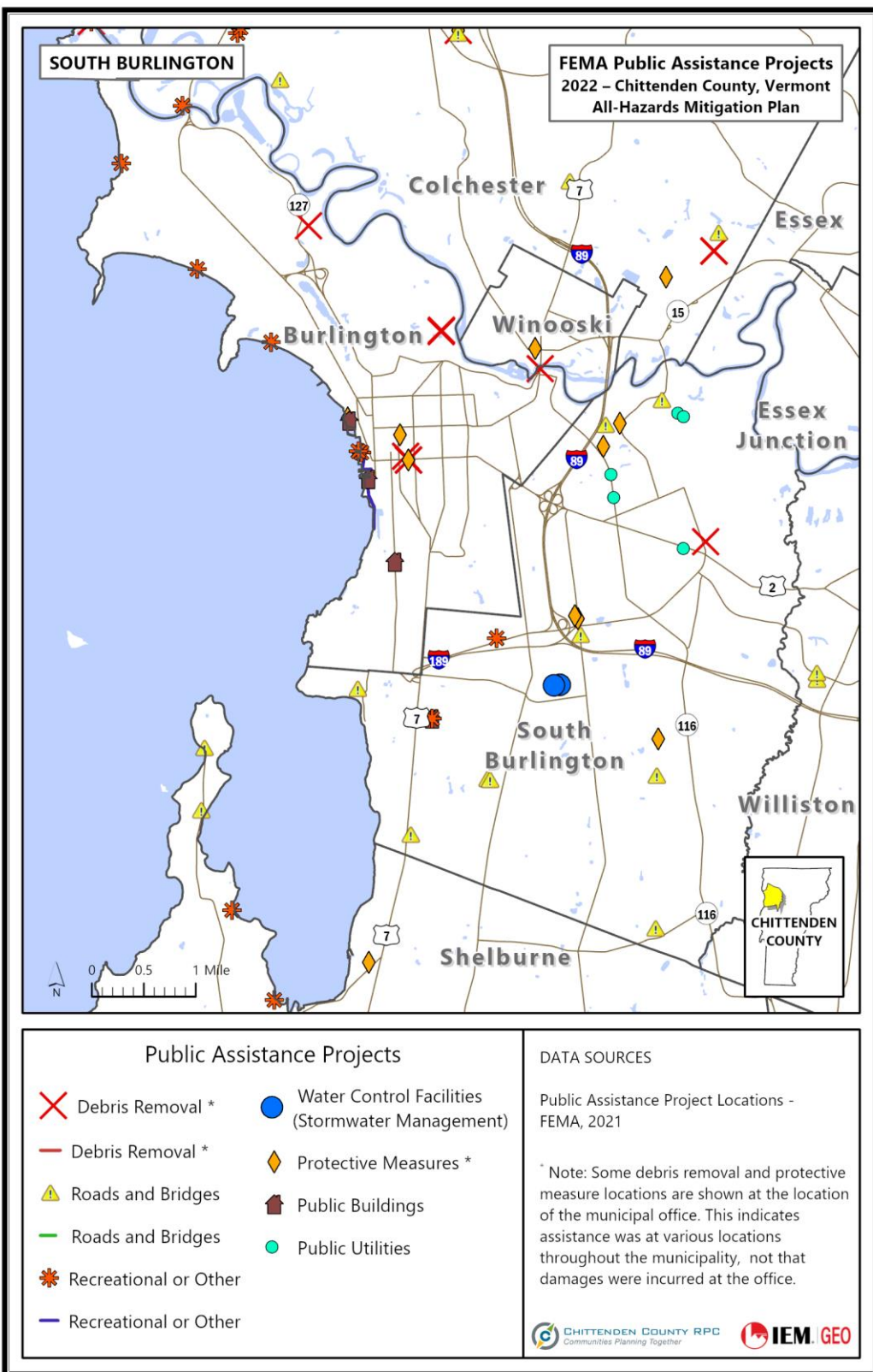


Figure 13.10: Previous FEMA Public Assistance Projects, City South Burlington¹⁶*New Mitigation Actions*

The City of South Burlington identified new actions that were prioritized based on the Mitigation Action Ranking System described in **Section 6, Base Plan**.

Table 13.31: 2022 Prioritized Mitigation Actions, City of South Burlington

Table 1.32 Town of Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	Timeframe	Ranking
2022-1	Retrofit of all new and existing critical infrastructure to withstand the impacts of identified hazards.	Public Works Stormwater Division	Addresses damage to new/existing public infrastructure and buildings.	Wildfire, Severe Rainstorm, Severe Winter Storm, Flooding, Fluvial Erosion	High: \$100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027 New	Medium
Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	Timeframe	Ranking
2022-2	Mitigate impacts of runoff such as excessive flow, sediment load and excessive phosphorus discharge.	Public Works Stormwater Division	Addresses damage to new/existing public infrastructure and buildings. Mitigates temporary road and bridge closure and budgetary impacts	Wildfire, Severe Rainstorm, Severe Winter Storm, Flooding, Fluvial Erosion	High: \$100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027 Cont'd	Medium
Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	Timeframe	Ranking
2022-3	Continued implementation of Flow Restoration Plans.	Public Works Stormwater Division	Addresses damage to new/existing public infrastructure and buildings.	Wildfire, Severe Rainstorm, Severe Winter Storm, Flooding, Fluvial Erosion	Medium: \$10,000 to \$100,00	State VANR Grants, HMA, Municipal funds	2022-2027 Cont'd	Medium

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

Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	Timeframe	Ranking
2022-4	Implementation of River Corridor Standards	Public Works Stormwater Division	Addesses damage to new/existing public infrastructure and buildings. Mitigates temporary road and bridge closure and budgetary impacts	Wildfire, Severe Rainstorm, Severe Winter Storm, Flooding, Fluvial Erosion	Low: Less than \$10,000	State VANR Grants, HMA, Municipal funds	2022-2027 New	Medium
Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	Timeframe	Ranking
2022-5	Review and update City Land Development	Planning,	Addesses damage to new/existing public infrastructure and buildings.	Wildfire, Severe Rainstorm, Severe Winter Storm, Flooding, Fluvial Erosion	None	Municipal funds	2022-2027 New	Medium
Action #	Proposed Action	Agency/ Departments	Risk Reduction Benefit	Hazard(s) Addressed	Estimated Cost	Funding Source	Timeframe	Ranking
2022-7	Retrofitting of hazard-prone structures	Public Works Stormwater Division	Addesses damage to new/existing public infrastructure and buildings.	Wildfire, Severe Rainstorm, Severe Winter Storm, Flooding, Fluvial Erosion	High: \$100,000 or greater	State VANR Grants, HMA, Municipal funds	2022-2027 New	Medium

Table 13.31: 2022 Prioritized Mitigation Actions, City of South Burlington*Action Plan for Implementation and Integration*

The City of South Burlington identified several existing plans or planning processes that can serve to integrate hazard mitigation during the 2022-2027 planning cycle. The city will incorporate the mitigation actions outlined in this plan into the city plan during the next plan update process in 2024. The city 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 city plan.

Table 13.32: Action Plan for Implementation and Integration, City of South Burlington

Existing Plan or Procedure	Description of How Mitigation will be Incorporated or Integrated
Integrate goals into the local Comprehensive Plan	Incorporate current and emerging risks and actions into planning efforts.
Review/update land development regulations for consistency with mitigation goals	Review Regulations for consistency with mitigation goals
Maintain regulatory requirements of the floodplain management program (NFIP)	Provide support and training for floodplain management.
Enhance floodplain management through Community Rating System (CRS)	Review floodplain management and mapping.
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.
Maintain ongoing enforcement of existing policies	Support applicable enforcement policies.
Monitor funding opportunities	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	Continue to incorporate 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	I Continue to incorporate mitigation into day-to-day activities.

13.9 ANNEX MAINTENANCE PROCEDURES

The method and schedule for maintaining, evaluating, and updating the MJAHMP are described in [Section 7, Base Plan](#). The City of South Burlington will maintain its participation in the All-Hazards Mitigation Plan Update Committee (AHMPUC) throughout the planning cycle, consistent with its role and responsibilities. The City of South Burlington has designated the Director of Planning & Zoning as the lead responsible for all Plan Maintenance related activities.

Table 13.33: Plan Maintenance Responsibilities for the *Chittenden County, Vermont* Multi-Jurisdictional All-Hazards Mitigation Plan, Base Plan, City of South Burlington

Monitoring the Plan	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Represent the jurisdiction and participate in the planning 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

Revisions to 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 13.34: Jurisdiction Annex Maintenance Procedure, City of South Burlington

Activity	Procedure and schedule	Outcome
----------	------------------------	---------

Monitoring the Annex	<ol style="list-style-type: none"> 1. Schedule the annual plan review with the jurisdiction planning team. 2. Review the status of all mitigation actions, using the <i>Mitigation Action Implementation Worksheet</i> (Section 7, Attachment B, Base Plan). 	Produce an annual report that includes the following: <ul style="list-style-type: none"> • 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	<ol style="list-style-type: none"> 1. Schedule the annual plan evaluation with the jurisdiction planning team. 2. Evaluate the current hazard risks and vulnerabilities, and hazard mitigation capabilities using the <i>Planning Considerations Worksheet</i>, (Section 7, Attachment C, Base Plan). 	Submit the annual report to the <i>MJAHMP</i> AHMPUC Point of Contact
Updating the Annex	<ol style="list-style-type: none"> 1. Coordinate with the AHMPUC to identify the method and schedule for the five-year update of the <i>MJAHMP</i>. 2. Participate in the planning process. 3. Provide input related to the plan components. 4. Following the 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.

13.10 ANNEX ADOPTION

The City of South Burlington 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.

13.11 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

Council Resolution #2022-18



south**burlington**

V E R M O N T

CERTIFICATE OF ADOPTION:
NOVEMBER 7, 2022

CITY OF SOUTH BURLINGTON, Vermont City Council
A RESOLUTION ADOPTING THE 2022 Chittenden County, Vermont Multi-Jurisdictional Hazard Mitigation Plan

WHEREAS, the City of South Burlington has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the 2022 Chittenden County, Vermont Multi-Jurisdictional Hazard Mitigation Plan, which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the City of South Burlington has developed and received conditional approval from Vermont

Emergency Management (VEM) for its 2022 Chittenden County, Vermont Multi-Jurisdictional 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 City of South Burlington; and

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

WHEREAS, adoption of this Plan will make the City Of South Burlington eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by City of South Burlington City Council:

I. The 2022 South Burlington, Vermont Local Hazard Mitigation Plan is hereby adopted as an official plan of the City of South Burlington;

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 City Council by the Emergency Management Director or Coordinator.

IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the City of South Burlington this 7th day of November 2022.

180 Market Street, South Burlington, Vermont 05403 | 802-846-4106 |
www.southburlingtonvt.gov

Council Resolution #2022-18



Helen Riehle, Chair

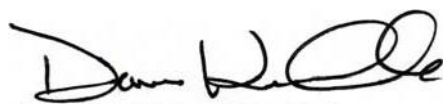
/ s / Meaghan Emery
Meaghan Emery, Vice-Chair

/ s/ Tim Ba ritt

Tim Ba ritt, Clerk



Tom Chittenden, Councilor


Matt Cota, Councilor

Donna Kinville
City Clerk

ATTACHMENT 2: Planning Worksheets and Documentation

Natural Hazards Estimated Risk Matrix										
South Burlington		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						0			0
	1= Less than 25% of developed area impacted		1	1	1					
	2= Less than 50% of developed area impacted									
	3= Less than 75% of developed area impacted									
	4= Over 75% of developed area impacted							4	4	
Consequences										
Health & Safety Consequences										
Key:	0= No health and safety impact			0	0		0			0
	1= Few injuries or illnesses		1					1	1	
	2= Few fatalities or illnesses									
	3= Numerous fatalities									
Property Damage										
Key:	0= No property damage		0				0			
	1= Few properties destroyed or damaged			1	1			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
	1= Resources damaged with short-term recovery			1	1		2	1		

	2= Resources damaged with long-term recovery									
	3= Resources destroyed beyond recovery									
Economic Disruption										
Key:	0= No economic impact						1			0
	1= Low direct and/or indirect costs		1	1	1			1	1	
	2= High direct and low indirect costs									
	3= Low direct and high indirect costs									
	4= High direct and high indirect costs						3			
Sum of Area & Consequences Scores			3	4	4			8	7	1
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			5			4
	5= Once a year or more occurrence				5			5	5	
Total Risk Rating										
	Total Risk Rating=		12	16	20		15	40	35	4
	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										
South Burlington		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

Area Impacted													
Key:	0= No developed area impacted												
	1= Less than 25% of developed area impacted	1	1	1	1	1			1	1	1	1	
	2= Less than 50% of developed area impacted							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		1	1	1		1	
	2= Few fatalities or illnesses			2									
	3= Numerous fatalities		3										
Property Damage													
Key:	0= No property damage									0	0	0	
	1= Few properties destroyed or damaged	1	1	1	1	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		0	
	1= Resources damaged with short-term recovery	1	1										
	2= Resources damaged with long-term recovery										2		
	3= Resources destroyed beyond recovery												
Economic Disruption													
Key:	0= No economic impact					0							
	1= Low direct and/or indirect costs	1			1					1			
	2= High direct and low indirect costs		2	2				2	2			2	
	3= Low direct and high indirect costs										2		
	4= High direct and high indirect costs												
Sum of Area & Consequences Scores		5	8	6	4	3		6	5	3	5	4	
Probability of Occurrence													
Key:	1= Unknown but rare occurrence												
	2= Unknown but anticipate an occurrence				2								
	3= 100 years or less occurrence		3			3							
	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=	25	24	24	8	9		24	20	12	25	20
	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							
South Burlington		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						
	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	
	1= Few injuries or illnesses	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	2	
	3= Low direct and high indirect costs						3
	4= High direct and high indirect costs						
Sum of Area & Consequences Scores		4	4	6	7	3	7
Probability of Occurrence							
Key:	1= Unknown but rare occurrence						
	2= Unknown but anticipate an occurrence						
	3= 100 years or less occurrence				3	3	3
	4= 25 years or less occurrence	4		4			
	5= Once a year or more occurrence		5				
Total Risk Rating							
	Total Risk Rating=	16	20	24	21	9	21
	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 South Burlington**Date: November 10, 2021****Participants:****Name: Paul Conner****Position/Title: Director of Planning & Zoning****Name: Terry Francis
Director****Position/Title: Fire Chief & Emergency Management****Name: Justin Rabidoux****Position/Title: Director of Public Works****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	<ul style="list-style-type: none"> • Yes or No? • Year 	<ul style="list-style-type: none"> • 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, 2016	River Corridors, Floodplains. Includes strategies but not individual projects.
Capital Improvements Plan	Yes, 2021	Yes, the City of South Burlington has an annually approved by City Council 10-year CIP that includes all aspects of our operations, including Stormwater management and hazard mitigation. The Stormwater CIP is informed by our ANR approved Flow Restoration and Phosphorus reduction plans.
Economic Development Plan	No	
Impact fees for new development	Yes	Not directly. Impact Fees for transportation may include improvements which themselves would be designed to be resilient
Local Emergency Operations Plan	Yes	Yes. Annual submission to LEPC
Continuity of Operations Plan	Yes	Yes, it addresses hazards. Updated to include Covid Pandemic
Transportation Plan	Within Comp Plan	See Comprehensive Plan
Stormwater Management Plan		See CIP discussion above.
Community Wildfire Protection Plan	N/A	No designated wildland area in jurisdiction

Other special plans (e.g., brownfields redevelopment, disaster recovery, Local Waterfront Redevelopment Plan, climate change adaptation, etc.)	Climate Action Plan	Under development 2021/2022. Will likely include resiliency pathways.
Building Code, Permitting, and Inspection	Yes or No?	Are codes adequately enforced?
Building Code	Yes, except owner-occupied Single and Two-Family	Yes
Building Code Effectiveness Grading Schedule (BCEGS) Score	Pending	
Fire Department ISO rating	Yes	Current rating 3.3. Last ISO visit was in 2019
Site Plan review requirements	Yes	Yes
Land Use Planning and Ordinances	Yes or No?	<ul style="list-style-type: none"> • Is the ordinance an effective measure for reducing hazard impacts? • Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes	<ul style="list-style-type: none"> - Yes, coupled with others in this section. - Yes.
Subdivision ordinance	Yes	<ul style="list-style-type: none"> - For the most part. The City has a draft set of amendments nearing completion in fall/winter 2011/2022 that will reinforce. - Yes
Floodplain ordinance	Yes	<ul style="list-style-type: none"> - Yes, and the City is updating with latest recommendations and establishing standards for development within the 500-year floodplain in fall/winter 2021-2022
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes*	<ul style="list-style-type: none"> - Yes for stormwater, river corridors, floodplains. - Steep slope standards nearing completion in fall / winter 2021-2022 - Yes
Flood insurance rate maps	Part of Floodplain Regulations	<ul style="list-style-type: none"> - See above under floodplains
Acquisition of land for open space and public recreation uses	Yes	<ul style="list-style-type: none"> - The City has a dedicated fund for acquisition & management of open space & public recreation land. - Use of the fund is broadly related to reducing hazard impacts in the context of overall goals
Other		
How can these capabilities be expanded and improved to reduce risk?		

- Adoption of regulations discuss above
- Consider including “reduction of hazard impacts” as a specific metric in evaluation of Capital Projects
- Prepare cross-references between Hazard Mitigation Plan and Climate Action Plan

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 & Zoning	Yes	Yes	Yes
B. Engineer/professionals trained in construction practices related to buildings and/or infrastructure	Y	Fire Department, DPW, Stormwater	Yes	~	Yes
C. Planners/Engineer(s) with an understanding of natural and/or manmade hazards	Y	P&Z, DPW, Stormwater	Yes	Yes	Yes
D. Floodplain manager	N				
E. Surveyor(s)	N				
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	DPW, Fire Dept, Stormwater	Yes	Yes	Yes
G. Personnel skilled in GIS and/or HAZUS	Y	DPW, Contracted	Yes	~	~
H. Scientist familiar with hazards of the community	N				
I. Emergency manager	Y	Fire Department	Yes	Yes	Yes
J. Grant writer(s)	Y	Throughout	Yes	~	Yes
k. Warning systems or services (automated callout, sirens, etc.)	N				
How can these capabilities be expanded and improved to reduce risk?					
Stronger GIS connectivity to mitigation / hazards planning					

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 stormwater management and transportation	Yes
Authority to levy taxes for specific purposes	N		As a Dillon's Rule state, municipalities in VT are only allowed to take actions enabled by the Legislature
Fees for water, sewer, gas or electric services	Y (water, sewer,	Yes, for maintenance and replacement of water & sewer facilities	Yes
Impact fees for new development		Not for mitigation, as Impact Fees can only be used for "new capacity"	
Storm water utility fee	Yes	Yes, for capital projects and for ongoing maintenance	Yes
Incur debt through general obligation bonds and/or special tax bonds	Yes	For specific capital projects	Yes
Incur debt through private activities	No		
Community Development Block Grant	Yes		We are eligible through the state pool of CDBG (locally known as Vermont Community Development Program grants)
Other federal funding programs	Yes	Yes, transportation, stormwater, other	Yes
State funding programs	Yes	When made available	Yes
Public/Private partnership funding sources	Yes	Have used for stormwater	Yes
How can these capabilities be expanded and improved to reduce risk?			

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	Local citizens groups exist on a number of topics. They can educate their memberships and share information & perspectives
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education, household recycling, etc.)	Yes	The city and several partner groups currently undertake many of these
Natural disaster or safety related school programs	Unsure – see School District	
StormReady certification		While we haven't heard of this specific program, the City is part of ReThink Runoff in collaboration with other MS4 regulated Chittenden County communities that educates the public on our efforts as well as best management practices for a variety of land uses.
Firewise Communities certification	No	
Public-private partnership initiatives addressing disaster-related issues	Yes	We often partner on stormwater projects
Other		
How can these capabilities be expanded and improved to reduce risk?		

National Flood Insurance Program (NFIP) Survey Form

Jurisdiction: South Burlington 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)?		

Safe Growth (Optional)

This worksheet identifies potential gaps in your community's growth guidance instruments and improvements that could be made to reduce vulnerability to future development.

Comprehensive Plan ****	Yes	No
Land Use		
1. Does the future land-use map clearly identify natural hazard areas?	Yes	
2. Do the land-use policies discourage development or redevelopment within natural hazard areas?	Yes, and see noted above	
3. Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?	Yes	
Transportation		
1. Does the transportation plan limit access to hazard areas?	Yes	
2. Is transportation policy used to guide growth to safe locations?	Yes	
3. Are movement systems designed to function under disaster conditions (e.g., evacuation)?	Yes	

Environmental Management		
1. Are environmental systems that protect development from hazards identified and mapped?	Yes	
2. Do environmental policies maintain and restore protective ecosystems?	Yes, and under development	
3. Do environmental policies provide incentives to development that is located outside protective ecosystems?	Yes, and under development	
Public Safety		
1. Are the goals and policies of the comprehensive plan related to those of the FEMA-approved Local Hazard Mitigation Plan?	Yes	
2. Is safety explicitly included in the plan's growth and development policies?	Yes	
3. Does the monitoring and implementation section of the plan cover safe growth objectives?	Not directly	
Zoning Ordinance	Yes	No
1. Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas?	Yes, and under development	
2. Does the ordinance contain natural hazard overlay zones that set conditions for land use within such zones?	Yes, and being enhanced	

3. Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?	Yes	
4. Does the ordinance prohibit development within, or fining of, wetlands, floodways, and floodplains?	Yes, and being enhanced	
Subdivision Regulations	Yes	No
1. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?	Yes, and being enhanced	
2. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?	Yes, and being enhanced	
3. Do the regulations allow density transfer where hazard areas exist?	Under considerations	
Capital Improvement Program and Infrastructure Policies	Yes	No
1. Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?	N/A	
2. Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?	Yes	
3. Does the capital improvement program provide funding for hazard mitigation projects identified in the FEMA-approved Local Hazard Mitigation Plan?	Yes, stormwater	
Other	Yes	No
1. Do small area or corridor plans recognize the need to avoid or mitigate natural hazards?	Yes	

2. Does the building code contain provision to strengthen or elevate construction to withstand hazard forces?	Yes additional Requirements are in SBFD ordinances and SOGs	
3. Do economic development or redevelopment strategies include provisions for mitigation of natural hazards?	Yes, especially for stormwater	
4. Is there an adopted evacuation and shelter plan to deal with emergencies from natural hazards?	Yes	

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.
<p>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:</p> <ul style="list-style-type: none"> • 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. 	<p>They cause loss of life, damage buildings and infrastructure, and have devastating consequences on a community's economic, social, and environmental well-being.</p> <p>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.</p>

	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	To view the current mitigation plan for your community please visit the CCRPC website.
Or	This planning project is funded by a FEMA grant provided through Vermont Emergency Management (VEM). The project is a joint effort between IEM and the Chittenden County Regional Planning Commission (CCRPC) to assist Chittenden County municipalities.
Leroy Thompson, IEM Senior Planner at leroy.thompson@iem.com or 850-570-9867	

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:

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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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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?

