Town of Leicester, Vermont

Single Jurisdiction All-Hazards Mitigation Plan

Final Plan Adoption Date: / /2024 *FEMA Approval Date: / /2024*

Leicester Local Hazard Mitigation Plan 2023
Executive Summary

The Town of Leicester began work on updating its All-Hazards Mitigation Plan in 2022 and town officials and citizens met in 2023 to conduct a hazards inventory and risk assessment matrix, identify locations where hazards are known to the community, and identify potential mitigation projects associated with the hazards identified.

The committee identified the following hazards as their highest priority, based on probability, warning time, geographic impacts, property damage, and other concerns:

- **Severe Windstorm**
- **Hazardous Materials Truck Accident**
- **Severe Lightning Storm**
- **Severe Winter Storm**

Four additional hazards received a high vulnerability score:

- **Invasive Species**
- **Hail Storm**
- **Tornado or High Wind**
- **Severe Cold**
- **Fluvial Erosion**

For each high-vulnerability hazard type, the committee described previous occurrences and extent, current vulnerability, future probability, and identified mitigation goals and actions.

Identified Hazard	Primary Mitigation Goal(s)
Severe Windstorm	Reduce overall vulnerability of residents and property to direct damage and the effects of potential power outages.
Hazardous Materials Truck Accident	Protect the health and safety of residents, and ensure that highway improvements result in safer conditions to reduce the potential for transportation accidents.
Severe Lightning Storm	Protect the health and safety of residents and critical infrastructure.
Severe Winter Storm (Ice and/or Snow)	Ensure that essential services can function during and after winter storm events and minimize potential resulting power outages to reduce vulnerability of residents.
Invasive Species	Reduce the introduction and spread of invasive species in order to protect the health of residents.
Hail Storm	Reduce overall vulnerability of residents and property to direct damage
Tornado or High Wind	Reduce overall vulnerability of residents and property to direct damage and the effects of potential power outages.
Severe Cold	Reduce resident's exposures to extreme cold conditions and ensure that residents have the knowledge and ability to protect themselves.
Infectious Disease Outbreak	Protect the health and safety of the public.
Fluvial Erosion	Protect the health and safety of residents and critical infrastructure.

The committee documented mitigation activities undertaken since the previous 2018 hazard mitigation plan adoption. The committee also developed a prioritized list of future mitigation actions and projects, with care taken to include only those projects which could be considered reasonable and feasible based primarily on capacity, cost, and political feasibility.

The future mitigation projects for 2024-2029 identified by the town included:

- **Severe Windstorm or Tornado**: Support the removal and replacement of dead and dying trees that threaten town rights-of-way; encourage GMP to bury power lines when possible; require installation of "hurricane clips" on all new mobile home installations.
- **Hazardous Materials Transportation Accident:** Encourage conversion to alternate heating sources to reduce overall transport of fuels; evaluate hazardous road locations and consider potential realignments and lower speed limits; maintain awareness of VT Alert to notify nearby residents in the event of an incident.
- **Severe Lightning Storm:** maintain accessibility for emergency vehicles to all structures; support the installation of a dry hydrant for fire suppression on the west side of town.
- **Severe Winter Storm:** provide education materials to town residents about emergency supplies and preparation measures; maintain facilities and supplies at Town Hall so that it can be used as a local warming shelter and coordinate with Brandon and Middlebury authorities to provide a regional shelter if needed.
- **Invasive Species:** provide education materials to town residents to discourage spread of aquatic and terrestrial invasives; support the removal of invasive plant species that have phytotoxic properties (e.g. wild parsnip); support the removal and replacement of dead and dying trees killed by invasive insects or pathogens that threaten public safety.
- **Severe Cold:** maintain facilities at Town Hall so that it can be used as a local warming shelter; coordinate with Middlebury and Brandon authorities to provide a regional shelter if needed.
- **Infectious Disease Outbreak:** Work with VT Department of Health to disseminate health information and protective supplies; adopt and update a town Continuity of Operations Plan.
- **Fluvial Erosion:** Line ditches with stone according to the town's road and bridge standards, Replace culverts along Route 53 east of Lake Dunmore with larger size
- **Severe Heat:** Adopt and update a Hot Weather Emergency Response Plan as an annex to the annual Local Emergency Management Plan (LEMP);

For many hazards, the town website will provide links to state educational and safety recommendation materials for many residents and property owners.

A Hazard Mitigation Plan is dynamic and should not be static. To ensure that the plan remains current and relevant, it is important that it be updated periodically. The hazard mitigation plan should be reviewed by all new town officials and revised and updated in its entirety every 5 years.

The Town of Leicester should monitor and evaluate its hazard mitigation goals, strategies and actions annually as the Town Budget is created and Local Emergency Management Plan is updated. In updates of the Municipal Plan by the planning commission, the concepts, goals and strategies from this hazard mitigation plan should be incorporated and used to inform the development municipal strategies.

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1. Planning Process

Requirement 44 CFR § 201.6(c)(1)
(Document the planning process)

1.1. Current Plan Development Process

The Town of Leicester received a Hazard Mitigation Assistance grant from FEMA in 2022. The town issued a Requests for Proposals on **September 14, 2022** and selected the Addison County Regional Planning Commission (ACRPC) as a consultant to update the Local Hazard Mitigation Plan and submit it to FEMA for approval.

The Town of Leicester Selectboard confirmed their intent to work through the process of writing an All-Hazards Mitigation Plan at a meeting of the Town Selectboard on **January 9, 2023**. After the confirmation of funding availability, the Selectboard further showed their support of the plan by appointing the following residents of Leicester to a mitigation planning committee:

- Diane Benware- Select Board Chair and Emergency Management Director
- Brad Lawes- Select Board
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The committee met **January 19, 2023** to review the Hazard Mitigation Plan components and requirements and develop a strategy for outreach to public and other community stakeholders. At a **February 16, 2023** meeting, the committee completed a hazards inventory and risk assessment matrix to determine highest vulnerability hazards and locations. Following the February meeting, the committee reviewed Previous Hazard Mitigation Actions (from the 2018 plan) and posters were placed at Town Meeting Day for citizen input and feedback. ACRPC reached out to other Leicester officials and Emergency Responders in Brandon for additional feedback on the hazards inventory and risk assessment. The committee met again on **April 11, 2024** to set overall mitigation goals, review existing policies, programs and resources, and to develop potential mitigation projects associated with the hazards identified.

The final plan draft was sent to the Town Selectboard for their **May 20, 2024** regular meeting. Input on the draft plan was requested from the Town Selectboard and Planning Commission during open meetings. The town also made the plan available on its website www.leicestervt.org/ to reach a broader distribution. A copy of the draft plan was sent via e-mail to the surrounding towns of Salisbury, Whiting, Goshen, and Brandon town clerks for distribution to appropriate town officials on **May 6, 2024** with a request for review and edits by **May 20, 2024**. No comments were received.

Based on comments from the complete public process, the draft plan was further edited and forwarded to Vermont's State Hazard Mitigation Officer for comments and preliminary approval on XXXXXX2024. Suggested edits were identified by the SHMO on **XXXXXXDATE**. Appropriate edits were made and the draft plan received tentative selectboard approval before being sent back to the SHMO for a second review before being passed on to FEMA reviewers. Comments were received back from FEMA reviewers on XXXXXX2024.

Changes were made to the draft plan based on FEMA recommendations and an updated draft was completed on XXXXXX2024. Upon completion of this draft, the plan was returned to FEMA for Approval Pending Adoption (APA) status. Upon receipt of the FEMA APA, the resulting document was adopted by the Leicester Selectboard on XXXXXX2024.

1.2. Opportunities for Public Involvement

Multiple opportunities for public comment were made available during the planning process:

- A planning committee was appointed from volunteers and town officers at an open meeting of the Town Selectboard.
- A set of posters with overview information about the Hazard Mitigation Plan and an interactive chart for communities to rank their own vulnerability priorities was displayed at Town Meeting, March 7 2023 (Appendix 1)
- A copy of the draft plan was made available along with a comment sheet at the Town Office on May 6, 2024. The Town Clerk was asked to encourage the public to read and comment on the draft plan. (No comments received)
- Meetings of both the Town Selectboard and the Town Planning Commission were open for public comment throughout the planning and draft phases of this plan. (No comments received)

Requirement 44 CFR § 201.6(b)(2) (Stakeholder Involvement)

1.3. Opportunities for Additional Comment

Additional opportunities for regional and state-level comments in the draft stage were provided throughout the planning process.

- A copy of the draft plan was posted on the ACRPC website www.acrpc.org for regional review and notice was given during the XXXXXX2024 ACRPC full commission meeting as to its availability. Commissioners were asked to review and pass along comments to (Andrew L'Roe) at ACRPC. No comments received.
- The May 2024 ACRPC newsletter included an announcement that a draft plan was available for public review and comment. That draft was posted in the ACRPC office and was available for public input during normal business hours with a comment sheet attached. No comments received.
- The neighboring Town Clerks of Salisbury, Whiting, Goshen, and Brandon were notified of the posting via e-mail on May 7, 2024. The clerks were instructed to share the notice with the select boards, planning commissions and the general public. Comments were requested to be sent to Andrew L'Roe at ACRPC. No comments were received.
- A copy of the draft plan was provided to the State Hazard Mitigation Office for comments on XXXXXXX 2024. Comments were returned on XXXXXXX 2024.
- An updated copy was sent to DEMHS for submission to FEMA on XXXXXXXDATE
- FEMA Region 1 staff was sent a draft for comment on XXXXXXXDATE
- FEMA reviewers returned the draft plan XXXXXXXDATE for further edits which were completed and the edited plan sent back.

Requirement 44 CFR § 201.6(b)(3)
(Review of existing plans)

1.4. Extent of Review

Throughout the plan development process information from the following documents and sources were incorporated into the plan either as data or to inform the committee's prioritization process:

- 2023 Leicester Local Emergency Management Plan
- 2017 Leicester Town Plan (support for the committee's prioritization process and section 2 narrative)
- 2022 Addison County Regional Plan (Goals related to public safety as well as energy and transportation resilience)
- 2018 State of VT Hazard Mitigation Plan (provided a listing of statewide hazard concerns)
- 2023 Draft State of VT Hazard Mitigation Plan
- 2022 Report of the State Fire Marshall (provided data to inform structure and wild fire risks)
- Federal Emergency Management Agency, www.fema.gov (provided official data on declared disasters)
- The Vermont Weather Book by David Ludlum (provided historic accounts of disasters for Section 4.3
- National Climatic Data Center website (provided information for Section 4.3)
- FEMA FIRMS dated 1986 (incorporated into maps)
- VT Center for Geographic Information data layers (incorporated into map products)
- State of Vermont Tier II reports, 2020-2022 (reviewed for Section 4.3)
- Leicester Annual Town Reports 2013-2023
- NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/) for previous hazard occurrence

2. Local Background
2.1. Community Background

The Town of Leicester, Vermont was chartered in 1761 by Benning Wentworth. The town center, known as Leicester Four Corners, contains the Town Hall, Town Office, Town Shed, Meeting House, Leicester Central School, and the Town Green.

Leicester Junction, located on the western side of town, served as a railroad stop dating back to the 1800's. The Junction once had a hotel, livery stable, general store, school, and post office. Today, the area is almost entirely residential – the only exception being a farm supply store and gas storage facility occupying the old rail stop. While it no longer serves as a gathering point for the town, the area is still referred to as 'Leicester Junction' or 'The Junction'.

The Town of Leicester includes Fern Lake, Silver Lake, and Lake Dunmore. Silver Lake is accessed by trails through the neighboring towns of Salisbury and Goshen. Fern Lake and Lake Dunmore, which also extends north into Salisbury, are home to numerous year-round and seasonal residences.

US Route 7 passes through Leicester Four Corners from north to south and bisects the town almost equally east and west. VT State Route 53 lies east of Lake Dunmore and Fern Lake in the eastern half of town and serves the lakeshore residents. East of Route 53 is primarily in the ownership of the Green Mountain National Forest. Also of significance, the Leicester-Whiting Road connects Leicester Four Corners, Leicester Junction and the Village of Whiting to the west. This local road is used as a detour when VT State Route 73 west of Brandon becomes flooded.

Population

Leicester grew steadily in population from 1970 to 2010 to a high of 1,100 residents. In the 2020 decennial census, the population dropped slightly to 990. The population shown on the census does not include many lakeshore residents, who may make their primary residences in other towns or states. Leicester has a workforce of about 500 workers based on the 2020 US Census and 95% of them work outside of the town in nearby communities. The town is quite dependent upon the income generated from these workers as there are limited economic opportunities within the town.

Housing and Utilities

According to the 2020 census, there are 655 housing units in Leicester. Of those units, 442 are year-round and 213 are seasonal. There has been a recent trend toward conversion of seasonal homes into year-round homes which is being monitored by the town planning commission to ensure public safety in the form of clean waters and adequate services are maintained. In Leicester, most year-round homes are single-family structures (~81%), a little more than 17% are mobile homes and less than 2% are multi-family homes.

According to e911 points, there are 346 single-family dwellings and 90 Mobile Homes in Leicester. There are 237 Camps. There are at least a dozen short term rentals listed on national house rental sites (Airbnb, VRBO), the majority along the Lake Dunmore shore.

Green Mountain Power Corp. is the sole provider of electrical power. Residents of Leicester provide for their own water and sewage needs through wells and springs as well as individual on-site septic systems. In the more rural areas of town this system has worked quite well but along the seasonal lake shore communities the limited ability to dispose of wastewater is a concern.

Communication Utilities

Like many rural Vermont towns, Leicester has an increasing need to have up-to-date communication technology. While some residents may be content to remain without high-speed internet and cable television, the majority of the population depends on these technologies for daily communication and information gathering. Increasingly these services are vital to the economic vitality of local businesses, including those based out of the home. Currently, the majority of Leicester's land-line services are provided by FairPoint. Cable services for high-speed internet, cable television, and digital phone options are primarily provided by Comcast. The town is a member of the Maple Broadband Communications Union District which is currently planning funding service to the several zone areas in Leicester.

Cellular phone reception is available in some areas of town but is very limited in others due to the limited number of towers. Cellular service by major carriers (AT&T, Sprint, US Cellular, Verizon) is generally available along the Route 7 corridor, but spotty long the southern edge of Lake Dunmore and almost non-existent at the southern edge of Fern Lake. Currently there are two cell phone towers. One of the towers is located off of Shackett Road on Mount Pleasant at the northern edge of town, and the other is an antenna on top of the Cole Barn on Route 7.

Emergency Services

The Town of Leicester is host to no first response agencies and is dependent upon response agencies located in surrounding communities for these services. Fortunately, the Town of Brandon lies just to the south and has both a fire department and a rescue squad. Fire services, averaging 25 calls per year, are provided through a contract with the Brandon Fire Department which expands its capacity; if needed, Brandon Fire Department can also call upon Salisbury and Whiting volunteer fire departments to the north and west of Leicester though no formal mutual aid agreements exist between the agencies. Calls for response to structure fires occur, on the average of fewer than 2 per year. Emergency Medical Services are provided by the Brandon Area Rescue Squad with support from the Middlebury Regional Ambulance. Patients are transported to either Porter Medical Center (10 miles) or the Rutland Regional Medical Center (22 miles). Law enforcement for the Town is provided by the Vermont State Police. The Town annually elects two constables who do not provide law enforcement services. On occasion, the Town has contracted the services of the Addison County Sheriff's Department for traffic control.

The Town has an appointed Emergency Management Coordinator and uses a Local Emergency Management Plan (LEMP) to coordinate response to larger incidents. The LEMP identifies the Town Office as its emergency operations center. Two emergency shelters are identified in the LEMP as the Town Hall.

Requirement 44 CFR § 201.6(c)(3)
(existing land use and development ordinances)

Zoning Regulations

The town of Leicester enforces a set of Zoning Regulations titled the Unified Development Regulations, most recently adopted on March 20 2017. The Town of Leicester Zoning Regulations are intended to provide for orderly community growth and to further the purposes established in the Leicester Town Plan. The regulations require that dwellings comply with all applicable State and Federal health and safety regulations. Where these regulations impose a greater restriction upon the use of a structure or land than are required by any other statues, ordinances, rules, regulation, permit, easement or agreement, the provisions of these regulations shall control.

The Unified Development Regulations are designed to prevent increases in flooding caused by uncontrolled development of land in areas of flood hazard and river corridors and to minimize loss due to floods by establishing zoning regulations governing areas of special flood hazard (UDR 2.4.7, 4.1.4, 4.1.6). These regulations apply to all lands in the Town of Leicester identified as areas of special flood hazard on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), dated November 1, 1985, and any revisions.

The Development Review Board (DRB) and Planning Commission (PC) are responsible for establishing zoning regulations. The DRB/PC also reviews subdivision requests and decides on exceptions to those regulations in the form of variances and conditional and special use permits. The Zoning Administrator receives, reviews, and issues standard building applications, and may only issue a required Certificate of Occupancy following inspection when a structure is completed.

The Zoning Administrator implements the substantial improvement/substantial damage provisions of the town's floodplain management regulations by prohibiting substantial improvement and post-event repairs that will result in any increase in flood levels. All new construction and substantial improvements require the granting of a conditional use permit. the Development Review Board uses available base flood elevation data as criteria for approval. See Appendix 3 for maps and zoning language.

Land Use and Development Ordinances

Five distinct areas within the town have been identified with concomitant guidelines for future planning in these areas. These Future Land Use Areas include the:

1) **Village Center Area-** designated village center area containing Leicester Central School, the Town Clerk's Office, the Meeting House, the Town Hall, and other historic structures.

2) **Lake Districts Area- t**he area around Lake Dunmore and Fern Lake, divided into a narrow inner ring, 150 feet from the mean water level of the lakes, and a contiguous outer ring that extends to 2500 feet from the mean water level.

3) **Residential Agricultural Commercial Area-** protects existing agricultural and residential land along Route 7, supporting scale-appropriate businesses that do not contributing to strip development.

4) **Industrial Area-** an area reserved for industrial use located in the southwest corner of town, just east of the rail line.

5) **Conservation Area–** comprised of two very different types of land: forested land and Silver lake within Green Mountain National Forest on the eastern side of town, and the extensive, privately owned wetlands and floodplains surrounding Otter Creek and the Leicester River on the western side of town.

6) **Residential and Agricultural Areas-** remainder of the land area used primarily for agricultural and year-round residential purposes.

The Town is a member of the National Flood Insurance Program and as such, has adopted zoning by-laws designating Flood Hazard Areas including associated regulations for administering those areas. The Flood Insurance Rate Maps (FIRMs) associated with Leicester date from November of 1985 are based on approximate studies as no detailed studies have been created within the Town of Leicester. In keeping with the approximate studies, no estimation of base flood elevation has been created. Fortunately, much of the floodplain shown on the FIRMs is associated with Otter Creek which floods regularly once or twice a year. This frequent flooding has effectively discouraged development in recent times due to difficulties in disposing of septage and the availability of alternative non-flooding sites in town.

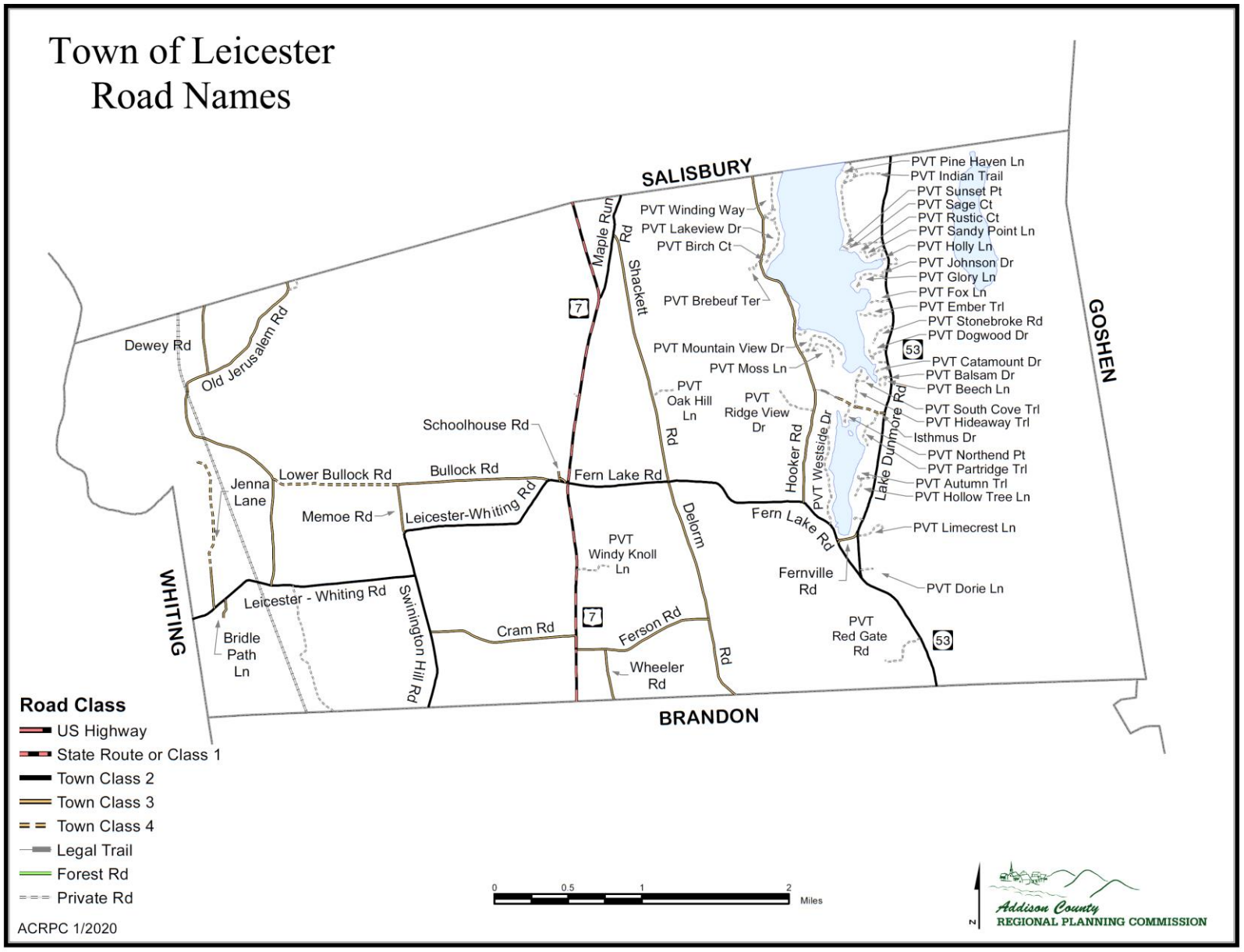
Unfortunately, development along the Otter Creek in Leicester Junction preceded the NFIP and current septic regulations. Structures in this area were built so as to take advantage of access to the railroad tracks which follow the creek. This area can be isolated by floodwaters which cause the Junction area itself to become an island. Emergency evacuation of these residents requires qualified water rescue personnel when roads become overtopped by flood waters. Fortunately for the residents of this area, the Otter Creek flooding is extremely predictable and can be forecast 2-3 days in advance, giving time to elevate belongings and evacuate in advance of the flood waters.

Requirement 44 CFR § 201.6(c)(2)(ii) (NFIP Repetitive Damage)

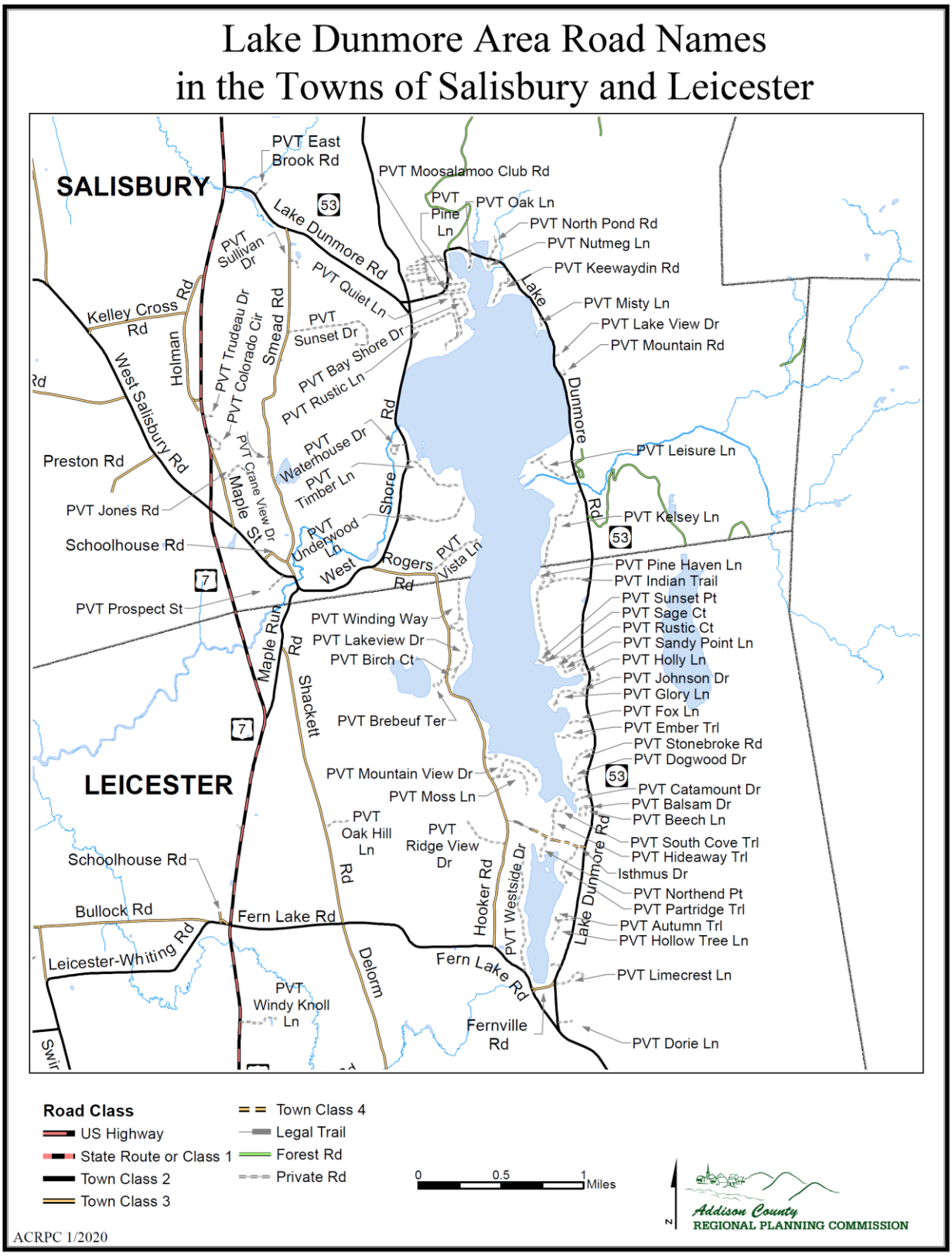
2.2. Community Maps

Requirement 44 CFR § 201.6(c)(3)(ii) (NFIP Participation and Compliance)

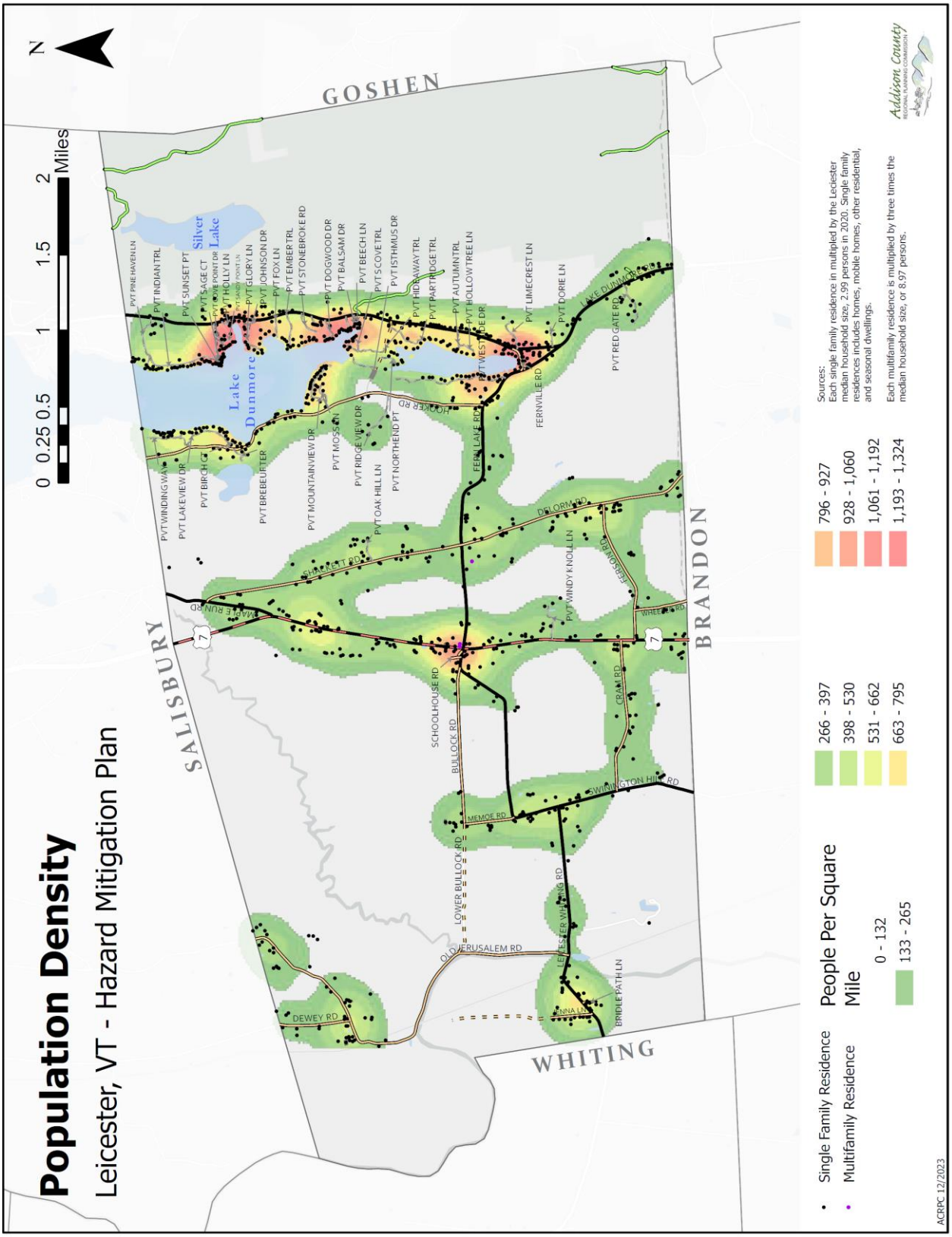
2.2.1. Municipal Road Names Map


Town of Leicester
Road Names
SALISBURY
GOSHEN
WHITING
BRANDON
Maple Run Rd
Shackett Rd
Dewey Rd
Old Jerusalem Rd
Schoolhouse Rd
Lower Bullock Rd
Bullock Rd
Fern Lake Rd
Jenna Lane
Memoe Rd
Leicester-Whiting Rd
Leicester - Whiting Rd
Swinington Hill Rd
Cram Rd
Ferson Rd
Wheeler Rd
Delorm Rd
Bridle Path Ln
PVT Winding Way
PVT Lakeview Dr
PVT Birch Ct
PVT Brebeuf Ter
PVT Mountain View Dr
PVT Moss Ln
PVT Oak Hill Ln
PVT Ridge View Dr
PVT Windy Knoll Ln
Hooker Rd
PVT Westside Dr
Lake Dunmore Rd
Fern Lake Rd
Fernville Rd
PVT Red Gate Rd
PVT Pine Haven Ln
PVT Indian Trail
PVT Sunset Pt
PVT Sage Ct
PVT Rustic Ct
PVT Sandy Point Ln
PVT Holly Ln
PVT Johnson Dr
PVT Glory Ln
PVT Fox Ln
PVT Ember Trl
PVT Stonebroke Rd
PVT Dogwood Dr
PVT Catamount Dr
PVT Balsam Dr
PVT Beech Ln
PVT South Cove Trl
PVT Hideaway Trl
Isthmus Dr
PVT Northend Pt
PVT Partridge Trl
PVT Autumn Trl
PVT Hollow Tree Ln
PVT Limecrest Ln
PVT Dorie Ln
7
53
Road Class
US Highway
State Route or Class 1
Town Class 2
Town Class 3
Town Class 4
Legal Trail
Forest Rd
Private Rd
0
0.5
1
2
Miles
N
ACRPC 1/2020
Addison County
REGIONAL PLANNING COMMISSION

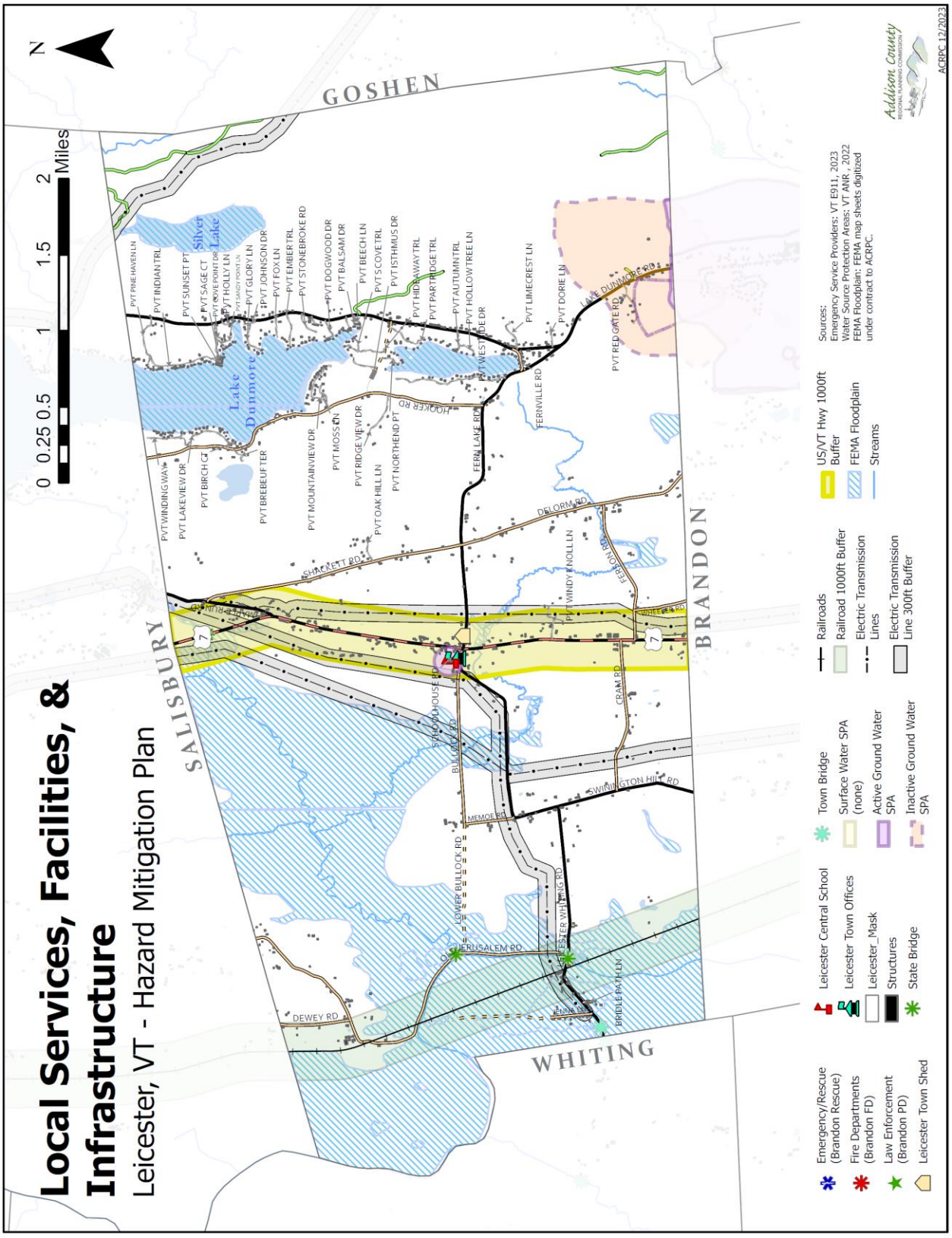
2.2.2. Lake Dunmore Area Road Names Map



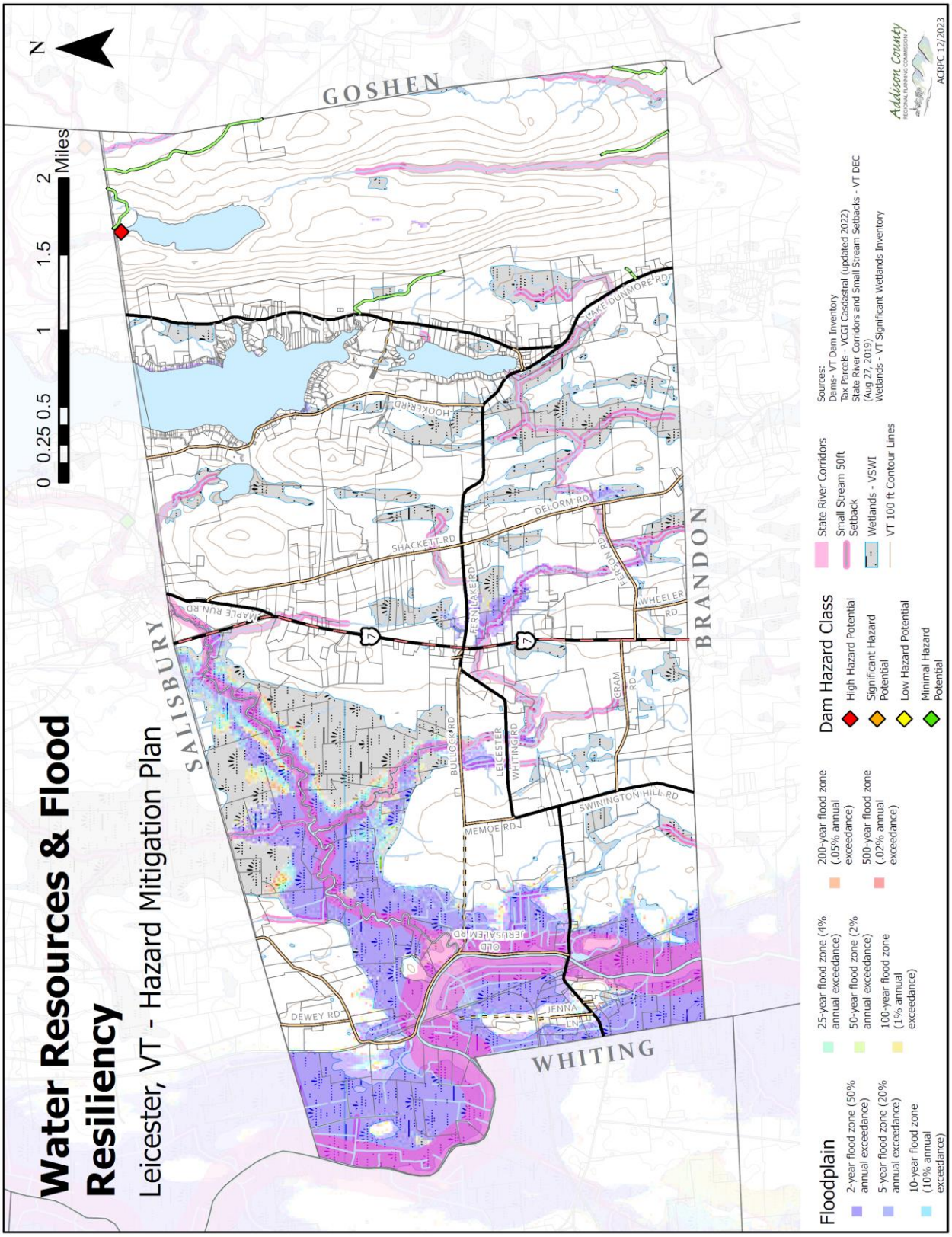
2.2.3. Population Density Map



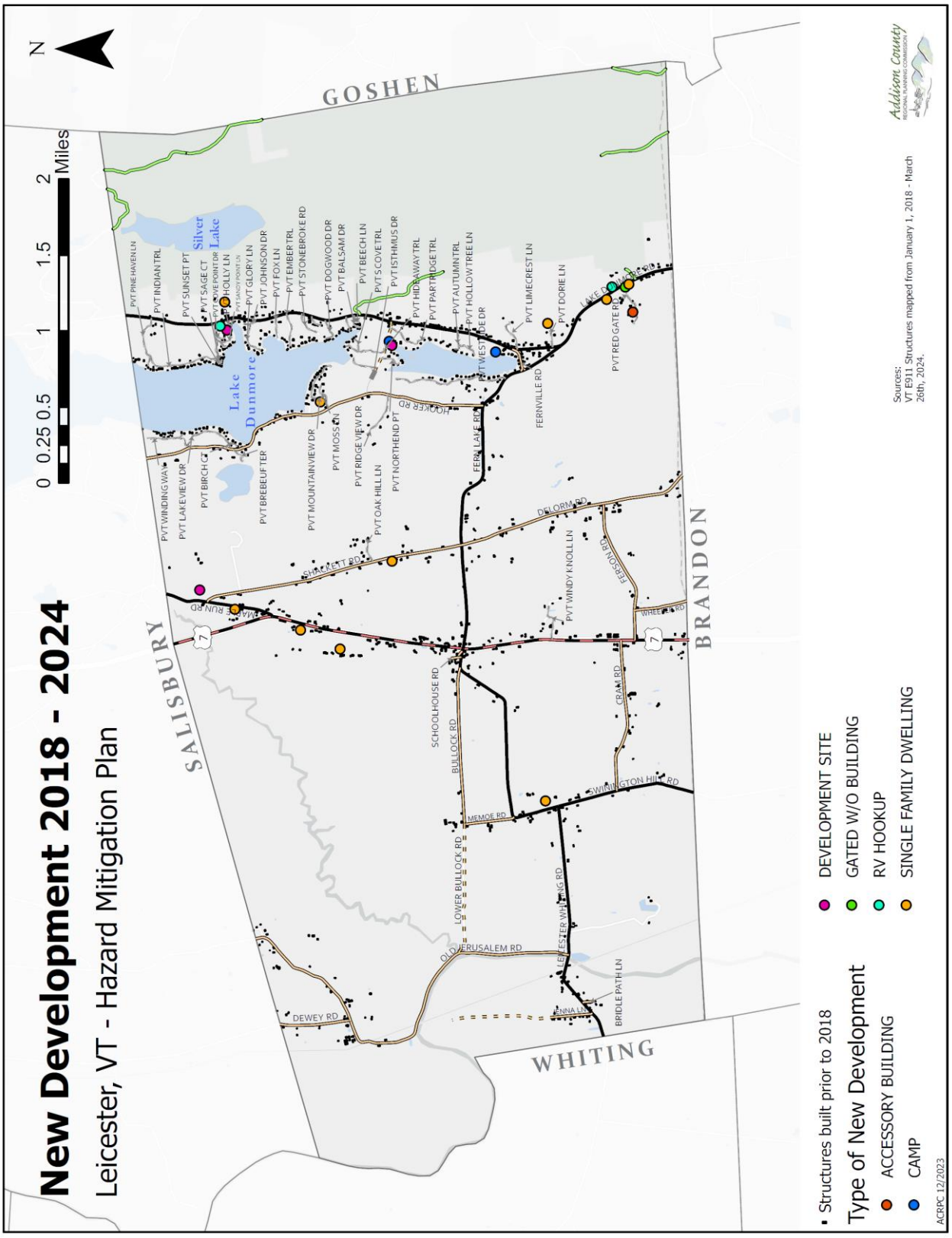
2.2.4. Local Services, Facilities, & Infrastructure Map



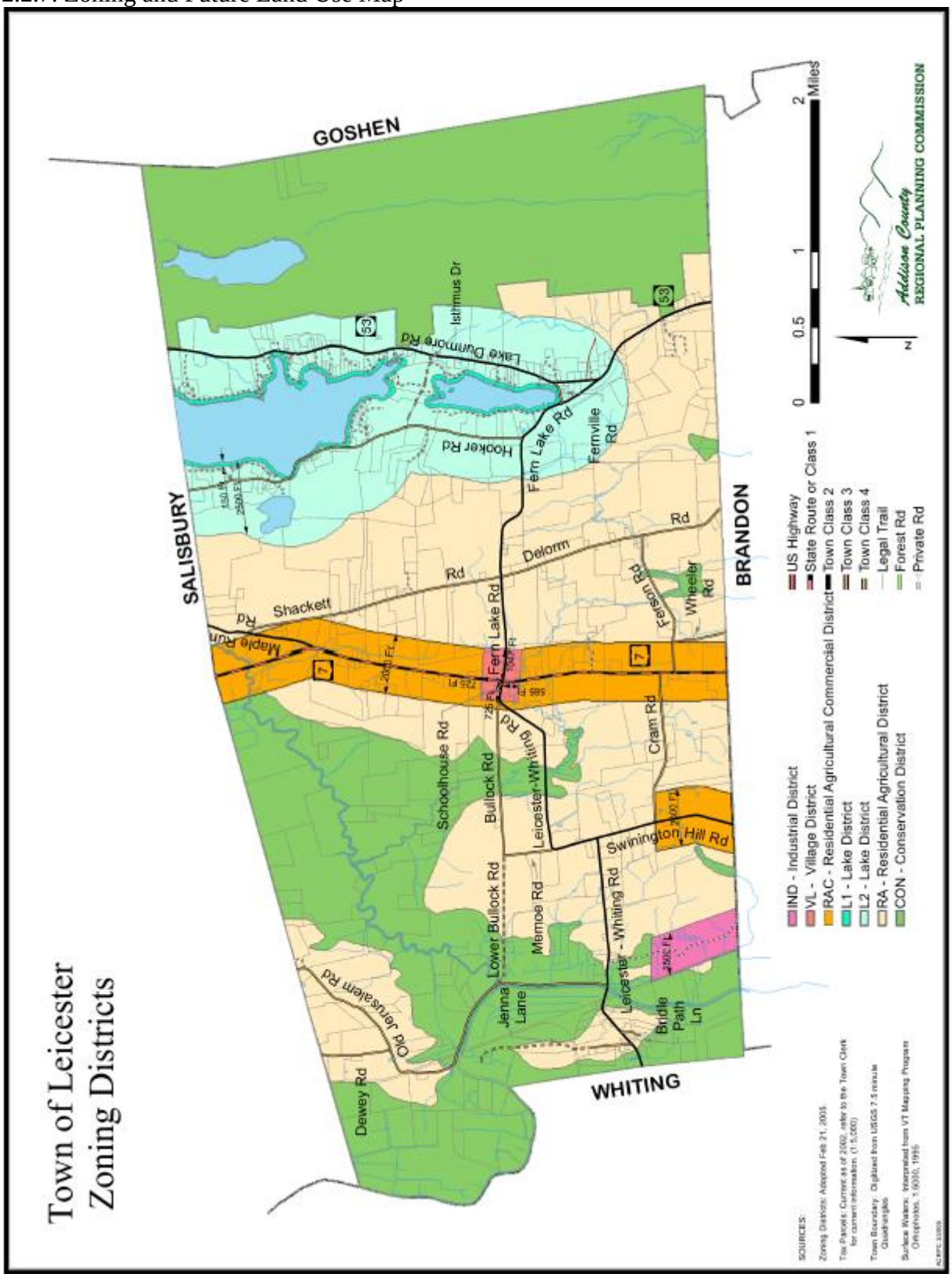
2.2.5. Water Resources & Flood Resiliency Map



2.2.6. New Development. 2018-2024



2.2.7. Zoning and Future Land Use Map



3. Existing Adopted Plans Which Support Hazard Mitigation

3.1. 2023 Leicester Local Emergency Management Plan

Adopted annually and before May 1st each year and includes all required elements:

- Emergency Management (EM) Planners
- Municipal Emergency Operations Center (EOC)
- Municipal Resources
- Public Information and Warning
- Vulnerable Populations
- Shelters
- Local and Regional Contacts

3.2. 2017 Leicester Municipal Plan and Land Use Plan Goals

Emergency Management:

- Ensure the health, safety and welfare of Leicester's residents and visitors.

Water Resources/Flood Resiliency:

- Capture and slow storm water in order to lessen its negative impacts on natural, scenic, recreational, and historic resources, and on infrastructure.
- Improve road infrastructure to minimize impact due to nutrient and sediment run off.

Transportation

- Provide residents and visitors with safe, well-maintained roads that support vehicular, bicycle, and pedestrian traffic.
- Continue to support alternative transportation options for residents of all ages and abilities.

Housing:

- Provide a diversity of housing options to meet the needs of a diverse population of Leicester residents, including young families and seniors.

Earth Resources

- Support resource extraction that maintains a high level of environmental quality for abutting land and preserves the character of the community.

Air Resources

- Seek to protect and enhance the air quality in Leicester to reduce associated health problems, and create enjoyable places for people to live, work and recreate.

Energy- Thermal Pathways to Implementation:

- Reduce annual fuel needs and fuel costs for heating structures, to foster the transition from non-renewable fuel sources to renewable fuel sources, and to maximize the weatherization of residential households and commercial establishments.

Energy- Electrical Pathways to Implementation:

- Reduce reliance on nonrenewable energy sources such as oil and gas, and shift reliance to renewable energy sources by encouraging conversion to electric heat pumps and cars.
- Plan for increased electric demand with the support of Green Mountain Power and Efficiency Vermont.

Natural Resources- Forestland:

- Support private landowners in improving the health of Leicester's forestlands in partnership with other organizations.
- Maximize the ecological services provided by our forestlands, such as soil protection, water filtration and wildlife habitat, while balancing their capacity as a recreational and economic resource.
- Prevent erosion on steep slopes.

Natural Resources- Wildlife:

- Manage natural resources in a way that supports the health and vitality of diverse wildlife populations.

Natural Resources- Soils:

- Support development and land use practices that are complementary to the soil capacities of the associated area to maintain healthy soils and minimize unwanted run-off throughout Leicester.

Land Use:

- Maintain the role of Leicester Four Corners as a municipal and community center which supports residential, commercial, and civic uses with a density matching those of traditional Vermont villages.
- Protect existing agricultural and residential land along Route 7.
- Promote business opportunities which capitalize on Leicester's railroad access and build the local economy.
- 2. Support business proposals that limit negative impacts on adjacent properties and the environment.

- Protect the most vulnerable and critical natural features of conservation areas, including wetlands, floodplains, steep slopes, significant habitat, and prime agricultural soils.

- Protect the rural landscape of Leicester while allowing the creative re-use and development of historic and commercial buildings.
- Support residential development that protects the town's natural, open spaces and permits the continuation of adjacent agricultural activities.

3.3. 2018 Addison County Regional Plan

Goals that support hazard mitigation:

- Work to restore and maintain stream equilibrium by developing and implementing river corridor plans.
- Reduce flooding and related damages through appropriate mitigation techniques.
- Encourage watershed-based cooperation and educate towns and the general public about water quality and stream dynamics
- Provide communities the support they need to be proactive in reducing flood and erosion hazards by adopting appropriate zoning regulations to limit development in hazardous areas.
- Encourage proper maintenance and sizing of bridges, culverts and other structures to accommodate flow from storm events and to mitigate flood hazards.
- Reduce the loss of life and injury resulting from all hazards.
- Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters.
- Reduce the damage to public infrastructure resulting from all hazards.
- Recognize the connections between land use, storm-water, road design/ maintenance and the effects from disasters.
- Ensure that mitigation measures are sympathetic to the natural features of the region's rivers, streams and other surface waters; historic resources; character of neighborhoods; and the capacity of the community to implement them.
- Encourage hazard mitigation planning as a part of the Municipal Planning Process.
- Encourage municipalities and landowners to consider VT Agency of Natural Resources riparian guidelines for habitat and flood protection.

3.4. 2018 State of Vermont Hazard Mitigation Plan

Identified Goals and Strategies that support Hazard Mitigation:

- Protect, restore and enhance Vermont's natural resources to promote healthy, resilient ecosystems.
    - Promote land management standards for State and private lands
    - Improve headwater storage
    - Reduce negative impacts of instream work
    - Improve flood resilience of agricultural lands
    - Promote drought resilience
    - Connect water quality, flood resilience and native habitat connectivity through co-benefits
- Enhance the resilience of our built environment – our communities, infrastructure, buildings, and cultural assets.
    - Locate new development outside of hazardous areas
    - Develop resilient design and construction standards
    - Incorporate flood resilience in transportation planning, engineering and programming
    - Assess seismic vulnerability
    - Identify and protect vulnerable structures and critical infrastructure
    - Reduce structural vulnerability to landslide hazards
    - Protect cultural and historic resources
    - Establish a statewide conservation and buyout program
    - Improve dam resilience
- Develop and implement plans and policies that create resilient natural systems, built environments, and communities.
    - Ensure State programs support hazard mitigation goals
    - Develop solutions to fund hazard mitigation
    - Improve incentives for local hazard mitigation planning and action
    - Improve local hazard mitigation planning
- Create a common understanding of – and coordinated approach to – mitigation planning and action.
    - Improve local leaders' understanding of hazard mitigation
    - Increase public knowledge and literacy of hazards and mitigation
    - Improve community resilience and local engagement

4. Community Risk Assessment

Requirement 44 CFR § 201.6(c)(2)(i)
(Description of all natural hazards)

4.1. Risk Prioritization Process

The Town of Leicester's Hazard Mitigation Planning Committee reviewed the following hazards in its Hazard Inventory/Risk Assessment, examining each of the 2018 State Hazard Mitigation Plan assessed hazards:

- Inundation Flooding,
- Fluvial Erosion
- Severe Snow Storm
- Ice Storm
- Tornado or High Winds
- Severe Cold
- Invasive Species
- Landslides
- Wildfire
- Drought
- Hail
- Infectious Disease outbreak
- Severe Heat
- Earthquake
- Dam Failure

While completely human-caused hazards were removed in the most recent State of Vermont's 2018 hazard mitigation plan, the Leicester committee felt that three additional hazards should be included in the assessment due to community concerns and potential impacts:

- Truck Transportation accident-causing hazardous materials release
- Railroad Transportation accident-causing hazardous materials release
- Pandemic

Leicester's Hazard Mitigation Planning Committee then assessed the town's vulnerability to each hazard for each of the following factors:

- **Probability,** or likely frequency of occurrence from historical trends and future projections
- **Warning**, or the projected time available to give notice to the majority of the population
- **Geographic impacts**, or how much of the population is expected to be impacted
- **Potential impacts**, or the potential severity of damages and disruption to lives and property.

Overall Vulnerability was then calculated by taking the total score of Warning, Geographic Impact, and Property Damage and multiplied by Probability. This score was divided by 4 to increase the scoring legibility and rank hazards on a 12-point scale.

In an effort to validate the risk assessment completed by the Steering Committee, community input was solicited through both an online survey and interactive display at Town Meeting Day to solicit input. The priority scores indicated by community members were very similar to those determined by the steering committee and comments supported including the additional hazards (See **Appendix 1**).

4.1.1 Hazard Inventory/Risk Assessment Parameters

Probability: Frequency of Occurrence

1= Unlikely	<1% in a given year
2= Occasionally	1%-10% probability in a given year
3= Likely	>10% but <100% in any given year
4= Highly Likely	100% probability in a given year

Warning: Time available to give notice to the majority of the population

1= More than 12 hours
2= 6-12 Hours
3= 3-6 hours
4= <3 hours (minimal)

Geographic Impacts: How much of the population is expected to be impacted

1= Isolated Locations/neighborhood	<20% of population impacted
2= Moderate impact	>20% and <75% of population impacted
3= Community-wide	>75% of population impacted within community
4= Region-wide	Level 2 & 3 impacts in surrounding communities

Potential Impact: Severity of damages and disruption to lives and property

1= Negligible	Isolated property damage, minimal disruption to infrastructure
2= Minor	Isolated moderate to severe property damage, brief disruption to infrastructure
3= Moderate	Severe damages at neighborhood level, temporary closure of infrastructure
4= Major	Severe damages town-wide, temporary to long-term closure of infrastructure

Vulnerability: Total score of Warning, Geographic Impact, and Property Damage, multiplied by Probability (and divided by 4 to increase legibility of scale)

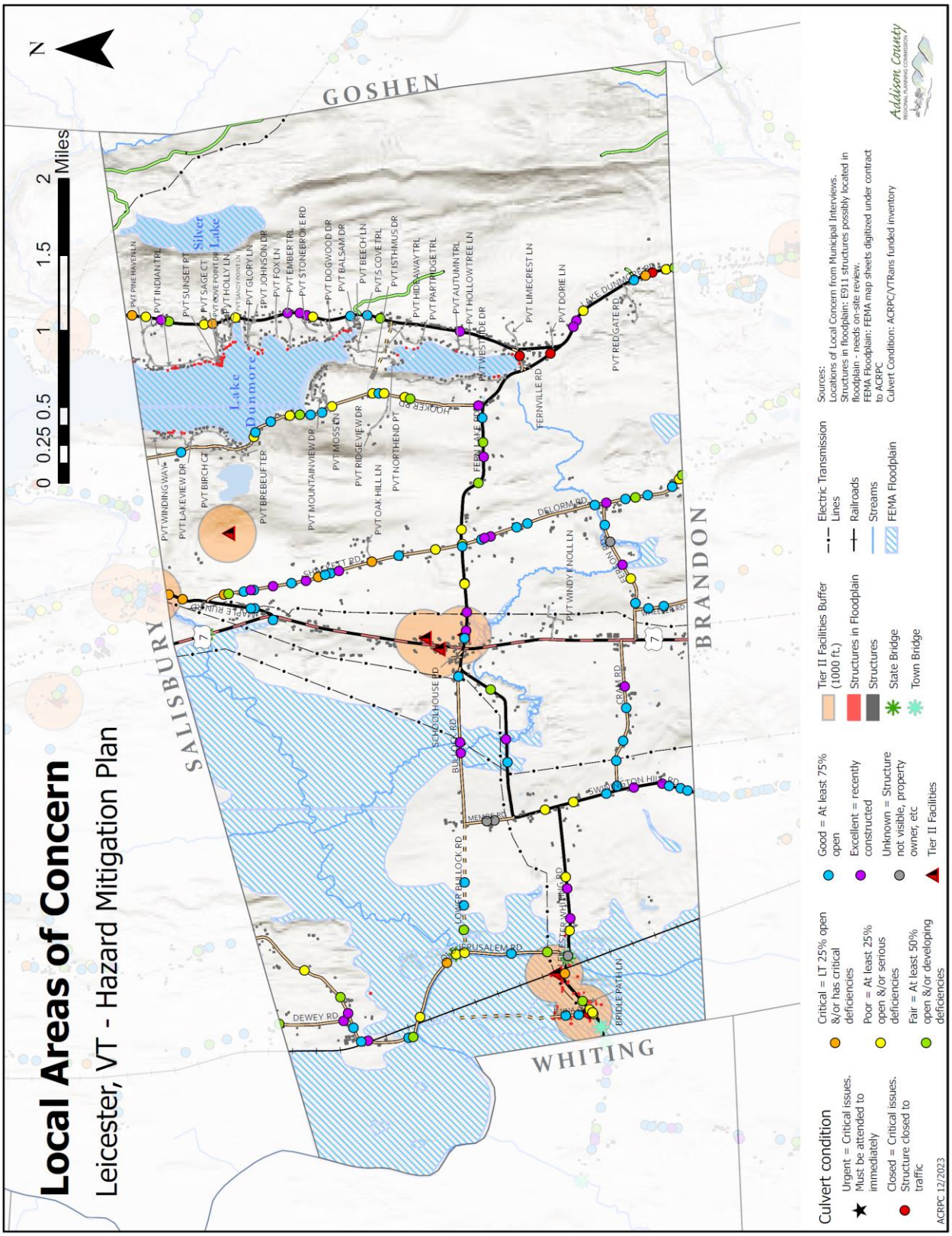
Community Priority:

Highest Priority	Vulnerability score > 6
High Priority	Vulnerability score > 4 and ≤ 6
Moderate Priority	Vulnerability score > 3 and < 4
Low Priority	Vulnerability score ≤ 3

4.1.2 Town of Leicester Risk Assessment Results 2023

New Evaluation	Hazard	Hazard Impact	Potential Occurrence Location	Probability	Warning Time	Geographic Extent	Potential Impact	Calculated Vulnerability Score	Community Priority
				1(Low)-4(High)	1(Low)-4(High)	1(Low)-4(High)	1(Low)-4(High)		
	Severe windstorm	Widespread Power Failure	Whole Town	3	4	3	2.5	7.13	Highest
*	Hazardous Materials Truck Accident	Injuries, Loss of Life, Property damage	Along Route 7	3	4	2	3	6.75	Highest
	Severe Lightning Storm	Fire or Electrical Damage to Property	High structures and ridges	3	4	2	3	6.75	Highest
	Severe winter storm	Snow and Ice	Whole town	3.5	1.5	4	2	6.56	Highest
*	Invasive Species	Injuries, Property Damage	Whole town	3.5	2.5	2	2	5.69	High
*	Severe Cold	Injuries, Loss of Life	Whole town	2.5	1	4	3.5	5.31	High
*	Hail Storm	Property and Crop Damage	Whole town	2.5	2	4	2.5	5.31	High
	Tornado or High Wind	Property Damage and Power Outage	Areas west of Green Mtns	3	4	1	2	5.25	High
*	Infectious Disease	Mosquito-borne Illness, Pandemic	Whole town	3	1	4	2	5.25	High
*	Fluvial Erosion	Water or Erosion Damage	Areas adjacent to rivers and streams	3	2.5	1	2.5	4.50	Medium
	Structure Fire	Structure Fire	Anywhere in Town	2	4	2	3	4.50	Medium
	Wildfire	Structure Fires and Property Damage	East of Route 7	3	4	1	1	4.50	Medium
*	Severe Heat	Injuries, Loss of Life	Whole town	2.5	1	3.5	2.5	4.38	Medium
	Inundation Flooding	Water Damage, Injuries, Loss of Life	Areas adjacent to Leicester River & Otter Creek	3	2.5	1	2	4.13	Medium
	Drought	Loss of drinking water, crop damage	Farms and Residences served by private wells	2	1	4	3	4.00	Medium
	Earthquake	Structure damage, injuries	Whole town	1	4	4	1	2.25	Low
*	Propane Storage Accident	Injuries, Loss of Life, Fire	Near Leicester-Whiting Depot	1	4	2	3	2.25	Low
	Railroad Accident	Injuries, Loss of Life, HazMat spill	Along Railroad	1	4	1.5	3	2.13	Low
	Aquatic Invasive	Property & Ecological Damage	Lake Dunmore	1	1	2	1	2.00	Low
	Ice Jams	Property & road damage	Along rivers	1	2.5	1.5	2.5	1.63	Low
	Dam Failure	Structure damage, injuries	Area below Silver Lake Dam- Branbury State Park	1	2.5	1	2	1.38	Low
	Landslide	Structure damage, injuries	High ridges and along rivers and streams	1	2.5	1	1.5	1.25	Low

4.1.3 Local Areas of Concern Map



4.2. Risk Prioritization Results

The committee calculated the following hazards as the highest in terms of overall vulnerability

- Severe Windstorm
- Hazardous Materials Truck Accident
- Severe Lightning Storm
- Severe Winter Storm

Four additional hazards received a high vulnerability score:

- Invasive Species
- Hail Storm
- Tornado or High Wind
- Severe Cold
- Fluvial Erosion

4.3 Hazards: Location, Extent, Previous Occurrences, Future Probability and Vulnerability

Addison County has experienced just over a dozen federally-declared disasters over the past decades (see Figure 1 and Table 1). Most of these have been due to severe storms and associated flooding.

The Town of Leicester has avoided most of the physical effects and financial damage of these disaster events.

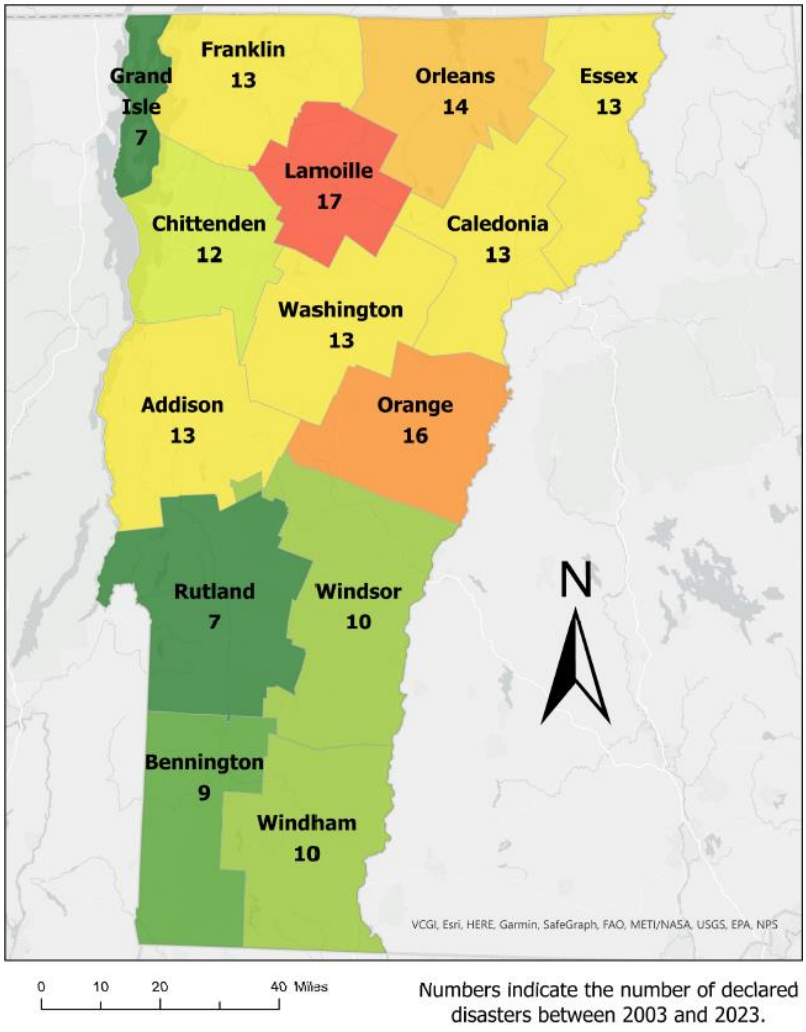


Figure 1. Federally Declared Disasters in Vermont by County, 2003-2023

Table 1. Federally declared disasters and costs affecting Addison County and Town of Leicester

Year	Incident Date	Description	Declaration #	County Cost	Leicester Cost
2023	Jul 7- 21, 2023	Severe Storms, Flooding, Landslides, and Mudslides	DR4720	Unavailable	Unavailable
2022	Dec 22- 24, 2022	Severe Storms and Flooding	DR4695	Unavailable	Unavailable
2021	July 29 - July 30, 2021	Severe Storms and Flooding	DR4621	Unavailable	Unavailable
2020	Jan 20, 2020 - May 11, 2023	Vermont COVID -19 Pandemic	DR4532	Unavailable	Unavailable
2019	April 15, 2019	Severe Storms and Flooding	DR4445	Unavailable	Unavailable
2019	October 31- November 1, 2019	Severe Storms and Flooding	DR4474	Unavailable	Unavailable
2017	Oct 29 - Oct 30, 2017	Severe Storms and Flooding	DR4356	Unavailable	Unavailable
2017	June 29 - Jul 1, 2017	Severe Storms and Flooding	DR4330	Unavailable	$0.00
2015	June 9, 2015	Severe Storms and Flooding	DR4232	$893,310.63	$0.00
2015	December 9 - 12, 2014	Severe Winter Storms	DR4207	$184,715.05	$0.00
2012	May 29, 2012	Severe Storm, Tornado and Flooding	DR4066	$172,847.70	$0.00
2011	August 26-September 2, 2011	Hurricane Irene	EM3338	Unavailable	$0.00
2011	August 27-9/2/2011	Tropical Storm Irene	DR4022	$1,175,911.20	$0.00
2011	April 23- May 9, 2011	Severe Storms and Flooding	DR1995	Unavailable	$0.00
2008	June 14-17, 2008	Severe Storms and Flooding	DR1778	$1,114,515.70	$0.00
2008	July 21-August 12, 2008	Severe Storms and Flooding	DR1790	$2,273,481.42	$0.00
2004	August 12- September 12, 2004	Severe Storms and Flooding	DR1559	$430,551.00	$0.00
2001	March 5-7, 2001	Snowstorm	EM3167	$138,333.08	$2,542.55
2000	July 14-18, 2000	Severe Storms and Flooding	DR1336	$738,127.27	Unavailable
1998	January 6-16, 1998	Ice Storms	DR1201	$662,388	Unavailable
1998	July 17-August 17, 1998	Severe Storms and Flooding	DR1228	$2,146,484	Unavailable
1996	January 19- February 2, 1996	Storms, Flooding	DR1101	$130,529	Unavailable
1993	April 24- May 26, 1993	Flooding, Heavy Rain, Snowfall	DR990	$17,639	Unavailable
1989	August 4-5, 1989	Severe Storms, Flooding	DR840	$31,033	Unavailable
1977	September 6, 1977	Drought	EM3053	$ Unavailable	Unavailable
1976	August 5, 1976	Severe Storms, High Winds, Flooding	DR518	$ Unavailable	Unavailable
1973	July 6, 1973	Severe Storms, Flooding, Landslides	DR397	$ Unavailable	Unavailable

The following hazard types have been identified, evaluated and listed in order of priority as identified by the Leicester Hazard Mitigation Committee as shown in their risk assessment: Severe Windstorm, HazMat Transportation Accident, Severe Lightning Storm, Invasive Species, Tornado or High Wind, and Severe Heat. Other hazards identified in Vermont's state hazard mitigation plan did not rise to the same level of concern by the local planning committee. Hazard types are listed in their order of priority with highest perceived vulnerability described first.

Requirement 44 CFR § 201.6(c)(2)(i) (Hazard information- Location, Extent, Previous Occurrences)
Requirement 44 CFR § 201.6(c)(2)(ii) (Hazard Impacts, Vulnerability)
Requirement 44 CFR § 201.6(c)(d)(3) (Development in hazard-prone areas)

4.3.1 Severe Windstorm (Vulnerability Score 7.13)

High wind events can be the result of any of the following:

- **Wind Storm:** events without precipitation with gusts sustained at more than 31 mph for at least an hour or any gusts greater than 46 mph.
- **Hurricanes/Tropical Storms**: often result in high winds greater than 39 mph, along with inundation flooding, and fluvial erosion impacts.
- **Thunderstorm**: storms with precipitation, lightning, and/or hail, that can be compounded by downburst high winds potentially in excess of 80 mph.
- **Tornado:** a violently rotating column of air extending from a thunderstorm with wind speeds capable of reaching in excess of 250 mph.

Location:

In Vermont, high winds are most often seen accompanying severe thunderstorms. In Addison County, these storms usually originate from the west, southwest, or south. Leicester has not experienced tornadoes, which generally occur further to the west by windstorms crossing the Champlain Valley, and Waterspouts– a tornado that originates over water instead of land- only occur close to Lake Champlain. However, Because Leicester spans the edge of the Green Mountains, it is extremely vulnerable to downslope windstorms and related hazards. Squall line thunderstorms from the southwest and wind dynamics caused by the abrupt change in topography, can significantly affect towns along the edge of the mountains. Large-scale hurricanes affecting the entire region are infrequent because hurricanes typically lose wind speed as they move inland and downgraded to tropical storms by the time they reach inland Vermont.

Extent:

Wind-producing storms can range significantly in size and type. Wind storms and hurricanes can affect the entire state in a single event. Squall line thunderstorms move in a line or front that can exceed 100 miles in length, with the strongest rains and winds at the front of the storm. Thunderstorms can produce downburst winds that affect the land immediately beneath a storm. These downburst winds are called microbursts, which move outward from the base of a thunderstorm. Tornado damage paths can be more than mile wide and 50 miles long. Straight-line winds from thunderstorms are more common, but usually more limited in scale.

Previous Occurrences:

In Vermont, high winds most often seen accompany severe thunderstorms. In fact, straight-line winds are often responsible for most of the wind damage associated with a thunderstorm. These winds are frequently confused with tornadoes because they exhibit similar wind speeds and cause similar damage but the winds do not rotate as they do in a tornado.

While thunderstorms and associated hazards can occur anywhere and at any time of the year in Vermont; spring and summer are the most common times for severe thunderstorms. Tornadoes typically occur in Vermont between March and August.

Since 1970 across Addison County, NOAA has documented wind-damage from over 150 thunderstorms and only 3 tornadoes, primarily during the spring and summer:

	January	February	March	April	May	June	July	August	Septembe	October	November	December
Tornado	0	0	1	0	0	0	2	0	0	0	0	0
Thunderstorm & Wind	0	1	2	0	21	32	72	35	9	3	3	1

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

Four significant windstorms have occurred in Leicester since 2006, causing $10,000 to $2,000 of private property damage. Additional events of similar magnitude (55-60 kts. EG) have occurred in neighboring Salisbury and Whiting.

Tornadoes can occur in Addison County but are rare. In July 2022 a storm system produced two tornado touchdowns: one in Addison (EF1) and one in Waltham (EF0). The tornadoes caused property damage, and uprooted and snapped several trees. The path length of the Addison tornado was 1 mile long and as much as 50 yards wide, while the second tornado path was 0.7 miles long and 25 yards wide.

Large-scale windstorms have affected wide portions of the state three times in the last decade: October 30, 2017, November 1, 2019, December 23, 2022. In each of these storms, strong winds affected all of Vermont's 14 counties, resulting in downed tree limbs, power outages, and uprooted trees which affected transportation routes.

Future Probability:

Wind events are considered Highly Likely in Vermont. The risk due to wind events is moderate for the built environment and minor for natural environment, people, and economy. Tornadoes are not common in Vermont. However, it is likely that as climate change accelerates, the area will see exacerbation of wind events such as hurricanes, tropical storms, and thunderstorms.

Vulnerability Summary:

People who live in rural, isolated communities like Leicester are particularly vulnerable to windstorms. High winds can take down trees and power lines, resulting in blocked transportation routes, cut off electricity and telecommunication networks, and property destruction. Lack of electricity is life-threatening for those relying on electric life supports systems and electrical heating and cooling systems. In addition, isolated populations may have limited access to information and communication resources that could prevent injury or death.

Vulnerability:

Severe Windstorms are considered one the **HIGHEST PRIORITY** hazards for the Town of Leicester, with an overall vulnerability score of 7.13 determined. Due to the risk to life and property represented by this hazard the Town expends considerable resources attempting to make its roads as safe as possible within a restricted budget.

4.3.2 Hazardous Materials Truck or Rail Accident (Vulnerability Score 6.75)

Location

There are several sites in town that have sufficient types and/or quantities of hazardous materials to require Tier II reporting.

Highway accidents, however, could result in a release of hazardous materials and accident locations of concern to the committee are identified in the section on Highway Accidents. Generally, with the constant movement of petroleum in the form of home heating oil, any location along a town highway or at a residence could be the site of a spill either as a result of an accident or during delivery. As previously mentioned, US Route 7 is a major route for fuel and gasoline transport along the western part of Vermont.

Highway accidents are possible along all highways in town but are particularly noticeable along US Route 7 as it passes through the eastern portion of Leicester. This highway has an Average Annual Daily Traffic (AADT) count of more than 5,100 trips per day through Leicester and is one of the highest use highways in the Addison Region. The rail line owned by Vermont Rail passes through western part of town and carries large quantities of materials, including fuel oil, as well as twice daily Amtrak-passenger trains.

Extent

Truck Traffic on Rte. 7 poses the highest risk in town due to both the volume and types of cargo being carried. A worst-case scenario of a truck rollover involved with other vehicles could result in fires, environmental damage, and road closure for hours or even multiple days. This could potentially detour traffic to Whiting or other residential areas along Lake Dunmore.

A 1000-foot buffer was superimposed over state highways and all class 1 and 2 town roads that represent a possible impact area should a large hazardous material spill occur on these highways. Based on this analysis, there are 90 structures that could be impacted should an incident with a vehicle carrying Hazardous Materials occur. These are primarily (76) residential structures. Essential public use facilities which could be impacted by such a spill include the Leicester Town Hall, Leicester Town Office, Leicester Central School, Leicester Town Shed, and Leicester Meeting House.

Previous Occurrences:

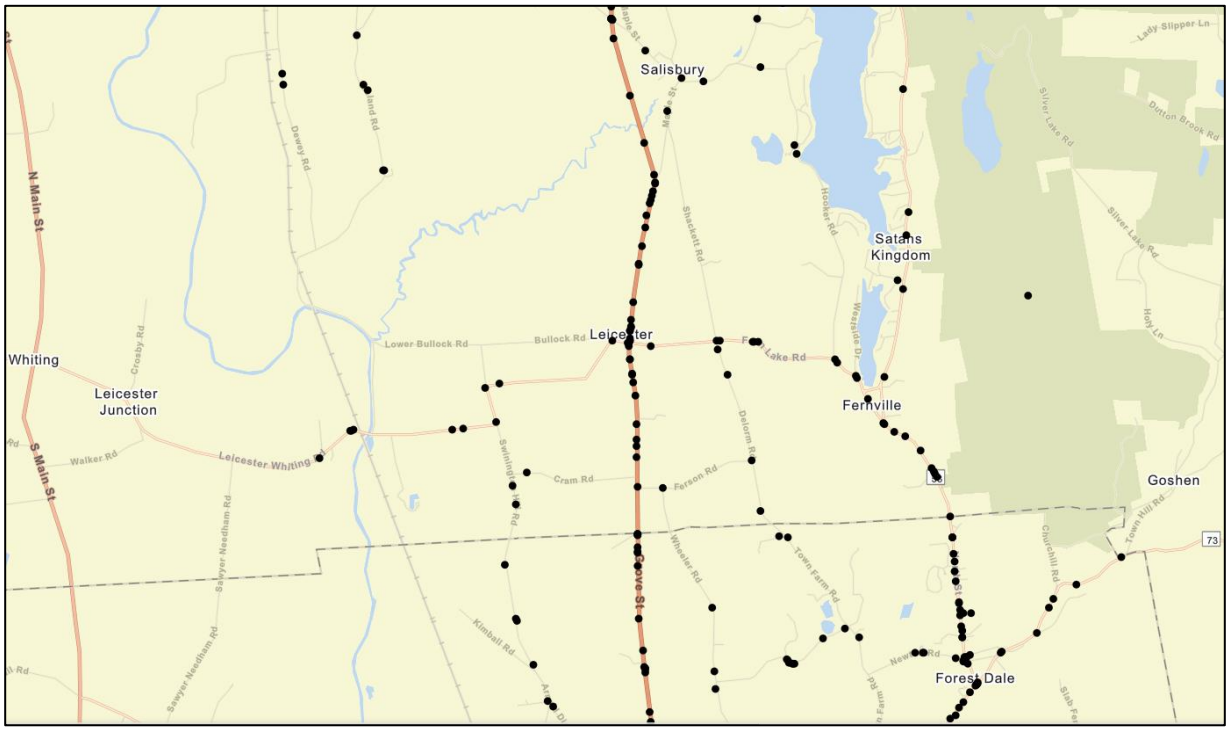
No major incidents involving large-scale hazardous materials spills have occurred in Leicester though numerous incidents have occurred elsewhere in the region and state. Vehicle crashes involving heavy trucks have only occurred on US Route 7, according to VTrans data (2013-2023). There have been three fatal car crashes in Leicester in recent years, two at intersections of US Route 7 and one on Lake Dunmore Road.

The intersection of Route 53 and the Fern Lake Road is the site of frequent accidents caused by poor visibility and confusing turning patterns. There has been an observable increase in cars not able to make the turn onto Old Jerusalem Road when coming from the west along the Leicester/Whiting Road since improvements to the bridge over Otter Creek were completed. The Town has made temporary improvements to this area by installation of a Jersey barrier to prevent cars from sliding off the road into the ditch.

In 2007 a freight train carrying fuel oil derailed along the Vermont Rail line a few miles to the north in Middlebury.

During 2023 flooding, the evening north-bound Amtrak train to Burlington was halted by flood waters potentially undermining rail tracks in Middlebury and passengers were unloaded at Leicester junction for bus transport.

Figure 2. Leicester area total vehicle crashes, 2013-2023



VTrans Total Crash Data, 1/2013-11/2023 (http://apps.vtrans.vermont.gov/CrashPublicQueryTool/)

Future Probability:

Route 7 will continue to be one of the primary north/south route on the western side of the state and trucks carry a mix of hazardous materials through Leicester along this highway. The Leicester/Whiting Road, along its length has been determined eligible under the VTrans High Risk Rural Road program due to a high traffic volume and status as an alternate route should Route 73 flood to the west of Brandon. Increases in truck traffic seem inevitable as long as the population demands more products and online shopping is more convenient and available that local stores.

A lessening of gasoline and fuel oil use is a goal of the State of Vermont energy plan, which may limit vehicle usage, as well as overall transportation of fuel by truck and rail.

Vulnerability:

While the Brandon Fire Department has training in hazardous materials response, the entire State of Vermont is highly dependent on the limited resources of the State's HazMat team. Fortunately, highway safety is improving both in alignments of the highways themselves and in safer vehicle designs. Until major overhauls of sections of highway can be completed, Leicester will need to continue to rely on signage and enforcement of speed limits to keep the numbers of accidents in check.

Hazardous Materials transportation accidents are considered one of the **HIGHEST PRIORITY** hazards for the Town of Leicester, with an overall vulnerability score of 6.75 determined. Due to the risk to life and property represented by this hazard the Town expends considerable resources attempting to make its roads as safe as possible within a restricted budget.

4.3.3 Severe Lightning Storm (Vulnerability Score 6.75)

Location:

Severe storms which include lightning along with wind and rain events are a common occurrence in Leicester during summer months. While unpredictable, lightning tends to be drawn to exposed areas of higher elevation or where there are sudden increases in elevation. Areas where elevation and ledge have resulted in more frequent lightning strikes are located primarily in the National Forest.

Lightning fatalities are most commonly associated with water-related activities such as fishing, boating, and swimming. Given Leicester's location along the shore of Lake Dunmore and Fern Lake, victims are most likely to be re recreationists located on the water.

Extent:

Lightning strikes in western Addison County, Vermont average between 4-6 strikes per square kilometer each year based on data collected by NASA satellites between 1995 and 2002. Within the Town of Leicester, these numbers would extrapolate into between 225 and 350 lightning strikes per year. Another common strike location is at a power line transformer.

Lightning strikes routinely cause fires to trees along ridge tops in Vermont and less commonly start fires in structures, though in 2007, lightning struck a house on Forest Dale Road in neighboring Brandon and started a fire in the roof and attic. Fires associated with lightning strikes to inhabited buildings occur fewer than once every five years on average. More common is loss of power and damage to electronic equipment in homes where there has been a proximity strike. Anecdotally, there are multiple reports each year of electronic equipment unprotected by surge suppressors which are damaged by lightning strikes. Generally, these homeowners file insurance claims for damages and total annual damages in the entire community likely do not exceed $10,000.

Previous Occurrences:

Relatively little information has been recorded of recent significant lightning strikes. Statewide, the National Lightning Safety Institute recorded 3 known fatalities due to lightning in the period from 1990-2003.

Given the estimated numbers of lightning strikes in Leicester, it is certain that there have been strikes on homes and barns resulting in fires.

Future Probability:

It is unlikely that lightning strikes will be reduced over the next few decades. However, if predicted increases in storm numbers and severity are true, increased numbers of lightning strikes would be expected. As newer buildings are built with fire resistant materials the likelihood of fire due to lightning however, is reduced.

Vulnerability Summary:

Leicester's susceptibility to lightning strike seems to be relatively limited. While historically, buildings may have been protected from lightning-caused fires by a lightning rod system, these have fallen out of favor in recent years. During that same time period, an increase in fire protection capability has allowed the community to keep their perceived risk at a constant level.

The highest risk area for lightning strikes with the highest resultant damage to the public infrastructure is where public buildings are scattered along Route 7 in the traditional village center. Loss, due to fire caused by lightning or electrical surge could be quite disruptive to the community if it were to strike either the Town Hall or church located in this area.

The community risk rating for a severe Lightning Storm is evaluated as 6.75 and is considered **HIGH PRIORITY.**

4.3.4 Severe Snow or Ice Storm (Vulnerability Score 6.56)

Location

Severe winter storms are common throughout Vermont and can occur geographically in any part of Leicester. Located at the edge of the Champlain Valley and Green Mountains, Leicester is at greater risk for more widespread Ice. Generally, ice storms strike within a particular elevation band depending on temperatures with higher elevations experiencing snow and lower elevations experiencing rain.

Extent

Because winter storms are extremely temperature and elevation dependent, they are notoriously difficult to predict. When conditions conducive to ice build-up are predicted, the National Weather Service issues a Winter Storm Warning with emphasis on ice accumulation.

The Winter Storm Severity Index (WSSI) (Appendix 5) is a categorization of overall severity based on six components:

- **Snow Amount:** to depict severity due to total amount of snow or rate of snowfall accumulation. (Adjustments are made based on climatology and urban areas, e.g. 4" of snow in Atlanta is more severe than 4" in Minneapolis.)
- **Snow Load:** to depict severity due to total weight of snow on trees and power lines.
- **Blowing Snow:** to depict severity mainly to transportation due to blowing and drifting snow.
- **Ice Accumulation:** to depict severity of transportation and downed trees/powerlines due to the accumulated ice in combination with wind.
- **Ground Blizzard:** to depict severity to mainly transportation of ground blizzards that develop due to a pre-existing snowpack and strong winds.
- **Flash Freeze:** to depict severity primarily to transportation of situations where temperatures rapidly fall below freezing during precipitation.

Previous Occurrences

The National Climatic Data Center reports that the Addison Region has experienced two major Ice Storm events over the past 25 years. During that period an estimated $850,000 in total property damages were recorded in the region. The highest recorded damages were incurred during the January 1998 Ice Storm which impacted most of the northeastern US and resulted in ice accumulations of up to ¾ inch, a loss of power for up to 2.5 weeks, and $750,000 in damages to Addison County. The Leicester hazard mitigation committee identified the 1998 ice storm as the worst that had occurred in the region. Fortunately, the residents of Leicester were largely spared the effects of this storm. On December 22-23, 2022, Addison County received high winds, downing power lines and closing roads, followed by cascading temperatures falling into the single digits, with wind chills of zero to the minus 0's, but again Leicester were largely spared the effects.

Since 1970, NOAA has documented winter storms across Addison County in a number of events, spanning the period from November to April:

	January	February	March	April	May	June	July	August	September	October	November	December
Ice Storm	1	0	0	0	0	0	0	0	0	0	0	1
Blizzard	0	0	1	0	0	0	0	0	0	0	0	0
Heavy Snow	0	7	1	0	0	0	0	0	0	0	0	1
High Wind	4	6	2	2	1	0	1	2	5	4	5	8
Strong Wind	11	9	4	7	3	0	0	3	0	9	7	7
Winter Storm	28	38	42	10	0	0	0	0	0	1	14	42
Winter Weather	54	32	27	12	0	0	0	0	0	7	11	44

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

The major impacts within the Town of Leicester are generally limited to residents impacted by loss of power and the occasional downed tree or branches in the road. Loss of power to the town hall and garage are of concern due to the frequency of losses at these locations. In March 2001 a string of storms hit Leicester and the rest of Vermont, beginning with 15-30" of snow on March 5-6, followed by 10-30" on March 22, and 10-20" on March 30.

Future Probability

Warmer temperatures such as might be anticipated with climate change would result in less snow and a higher likelihood of ice in winter. Other predictions indicate that climate change will bring more atmospheric moisture and snowfall, or jet stream alternations producing "Bomb Cyclones" that might increase sudden deep freezes or ice storms in early spring and late fall. In all cases, winter storms are predicted to increase in severity.

Vulnerability Summary

The Town of Leicester is a rural community with one major highway and dispersed population. Utility company priorities following storms are to repair the simplest fixes which impact the highest total populations as the highest priority. As a result, there is a high risk of extended power failures due to ice storm throughout the Town of Leicester.

The community vulnerability rating for Ice Storm and accompanying widespread power outage is 6.56 and is considered a **HIGH PRIORITY**. Widespread power outages have been extensively mitigated by service providers in the past few years following the disastrous Ice Storm of 1998 effectively reducing the community's vulnerability.

4.3.5 Invasive Species (Vulnerability Score 5.69)

Invasive species are non-native introductions to an ecosystem whose presence causes or is likely to cause economic or environmental harm or harm to human health. Due to their ability to outcompete native species in their natural environments without the threat of a predator that can keep their populations in check, invasive species can overwhelm native species and their habitats, forcing the native species out. They are considered to pose the second greatest threat to biodiversity globally.

The State of Vermont has a long history of invasive species infestation in several categories, including:

Aquatic Species

- Zebra Mussel
- Eurasian and Variable-Leaf Watermilfoil
- Water Chestnut

Forest Pests

- Emerald Ash Borer
- Hemlock Woolly Adelgid*
- Asian longhorned beetle*

Arbovirus-transmitting Arthropods

- Asian Tiger Mosquito (*Aedes albopictus*)*
- Asian Longhorned tick*

Disruptive Terrestrial Plants

- Japanese Knotweed
- Common Reed (Phragmites)
- Purple Loosestrife
- Garlic Mustard
- Buckthorn

Phototoxic Terrestrial Plants

- Giant Hogweed
- Wild Parsnip
- Wild Chervil

Tick Increasing Plants

- Japanese Honeysuckle
- Japanese Barberry

*Not yet present in Addison County

Aquatic Invasive Species- pose a serious threat to lakes, ponds, and rivers by choking out swimming holes and crowding out beneficial native species, drastically impacting aquatic foodwebs and limiting fishing, or covering lake bottoms with a layer of sharp shells.

Forest Pests- insects that cause irreversible impacts on tree health and biodiversity.

Arbovirus-transmitting Arthropods– a group of insects that transmit viral infections through their bites.

Disruptive Terrestrial Plants- These invasive plants can change soil composition, change water tables, and disrupt insect cycles, negatively affecting native plant regeneration, agricultural crops, ecosystem function, recreation and wildlife habitat, and human health.

Phototoxic Terrestrial Plants are invasive plants whose sap can cause a chemical reaction that makes skin hypersensitive to ultraviolet sunlight if it makes direct contact with human skin, potentially causing serious skin burns.

Tick Increasing Plants– these plants have proven to increase the incidence of Lyme disease by providing sheltered habitat that increases the abundance of small rodents, which act as hosts to the ticks that carry Lyme disease pathogens.

Location:

Invasive species are commonly introduced via travel routes, accidentally brought into Vermont with the transportation of people and goods. As a result, many are found along roadsides and in waterways across the entire state.

Aquatic Species have spread in parts of Lake Dunmore and Fern Lake (Eurasian Watermilfoil, Zebra Mussell). Additional species have become established in Leicester River and Otter Creek (Eurasian Watermilfoil, Water Chestnut). Silver Lake in the Green Mountain National Forest has no documented aquatic species.

Leicester contains significant forest cover susceptible to Forest Pest insects, in comparison to neighboring municipalities, especially those to the west. Leicester's largest forest blocks are located east of Route 7 and in the National Forest. Parts of Leicester are within the five mile "confirmed infested areas" of confirmed Emerald Ash borer locations in Middlebury and Bristol.

Phototoxic Terrestrial Plants like Wild Parsnip are especially common in abandoned yards, farmland, and along roadsides and other disturbed environments. They spread by seed via waterways, wind, mowers, and wildlife.

Extent:

Invasive species have a variety of effects on humans and the environment so characterizing the extent of their spread is a challenge.

Forest Pest insects threaten more than 14 different species of trees in Vermont, including: maple, elm, horse chestnut, willow, ash, poplar, European mountain ash, hackberry, and hemlock.

Wild parsnip secretes a toxic sap that contains furanocoumarins, chemicals that make the skin extremely sensitive to ultraviolet (UV) rays. The toxic sap, in combination with sun exposure, can cause a severe skin reaction called phytophotodermatitis, which usually starts within 24 to 48 hours of exposure. The reaction can turn into a severe rash or blistering burn and lead to discoloration of the skin or photosensitivity that can last for years.

Previous Occurrences:

Because invasive species often spread over a long period of time and have dispersed effects, identification of a hazard events concerning invasive species is difficult.

- The zebra mussel was discovered in Lake Champlain in the summer of 1993.
- The emerald ash borer was first discovered in Vermont in February 2018, and was detected in nearby Bristol (2019) and Middlebury (in 2021).
- Wild Parsnip was likely brought by early European settlers, but has escaped cultivation and populations have increased dramatically across the state in the last decade. In recent years it has been documented to cause 2nd degree burns to several individuals in parts of Vermont.

Future Probability:

Existing and new invasive species are expected to continue moving into Leicester through human transport and by natural reproductive spread.

Phototoxic Terrestrial Plants like Wild Parsnip can form dense stands which outcompete native species and become self-sustaining populations that continue to expand if not eradicated.

Some mobile species like Ticks and Wolly Adelgid are moving north from southern Vermont and are expected to continue moving as milder winter temperatures have allowed them to overwinter. The *Aedes albopictus* (Asian tiger) mosquito, which can carry and transmit Zika, dengue, and other arboviruses including West Nile Virus, has an estimated geographic range that includes southern Vermont and is anticipated to move into Addison County.

In addition to concerns over Vermont's Ash tree population, northern hardwood species like maple, yellow birch and American beech are anticipated to be nearly eliminated in the State, replaced by those tree species that thrive in warmer, drier conditions, like oak and pine. Additionally, the changing climate will allow for greater survival and reproduction of forest pest species, as trees that are stressed due to lower water availability reduce their ability to maintain sufficient defense mechanisms, making them more vulnerable to pest invasion and disease.

Vulnerability Summary:

Warming temperatures and an increase in mild winters can allow insect borne diseases greater access to Vermont with increased chances of overwintering. These introductions may not be invasive, but it is a shift in species distribution and range that could threaten human health in the state. As the global climate continues to shift at a rapid rate, species better adapted for warmer climates will continue to proliferate, with changes in ecosystem composition threatening to destabilize basic ecosystem functions. Monetary and health costs associated with the disturbances invasives cause will continue to increase.

Invasive species are considered a **HIGH PRIORITY** for the Town of Leicester, with an overall vulnerability score of 5.69 determined.

4.3.6 Hail Storm (Vulnerability Score 5.31)

Location:
Hail can occur anywhere in Vermont, but tend to be highly localized and limited to a relatively small area.

Extent:
Hail is considered a relatively infrequent occurrence in Vermont. Storms can be significant to local farmers, who can lose entire fields of crops in a single hailstorm. Large hail is also capable of property damage, including both structures and vehicles. Hailstone size can range from the size of a pea to the size of a melon.

Previous Occurrences:
There has only been one significant hailstorm documented in Leicester since 1970, at Lake Dunmore. There have been documented occurrences in neighboring Brandon (3), and Goshen (1), between 2001 and 2014 and all with magnitude of hail less than 1.75 inch in size. No property or crop damage was recorded as a result.

Hailstorms usually occur in Vermont during the summer months and generally accompany passing thunderstorms.

	January	February	March	April	May	June	July	August	September	October	November	December
Neighboring Towns	0	0	0	0	1	2	0	1	1	0	0	0
All Addison County	0	0	0	0	16	19	38	19	3	2	0	0

Source: https://www.ncdc.noaa.gov/stormevents/

Future Probability:
Significant hailstorms are likely to occur relatively infrequently, and have not shown significant change in frequency over time. According to the 2018 National Climate Assessment, changes in the frequency or severity of hail events are still uncertain.

Vulnerability Summary:
The impact from hail is considered to be negligible to infrastructure, life, the economy and the environment. However, hail can damage property, young and tender plants, and cause bodily harm to those individuals unfortunate enough to be caught outside. As a result, farmers and outdoor recreationists are more vulnerable to hailstorms than other groups of people.

Hail Storms are considered a **HIGH PRIORITY** for the Town of Leicester, with an overall vulnerability score of 5.31 determined.

4.3.7 Severe Cold (Vulnerability Score 5.31)

Location:

Severe cold events occur across the entire state, and are generally more severe at higher elevations. Temperatures in the lower, populated areas of Leicester are somewhat moderated by Lake Dunmore, but can still experience significant low temperatures.

Extent:

Vermont often experiences cold conditions during winters, however very cold temperatures remain a threat despite their regularity. The NOAA Wind Chill Chart identifies those temperatures and associated wind speeds that may cause frostbite if skin is exposed to the air over a certain period of time. In anticipation of extreme cold temperatures, the National Weather Service may issue the following watches, warnings or advisories, which are aimed at informing the general public as well as the agricultural industry:

- **Wind Chill Warning:** Dangerously cold wind chill values are expected or occurring
- **Wind Chill Watch:** Dangerously cold wind chill values are possible
- **Wind Chill Advisory:** Seasonably cold wind chill values but not extremely cold values are expected or occurring
- **Hard Freeze Warning:** Temperatures are expected to drop below 28°F for an extended period of time, killing most types of commercial crops and residential plants
- **Freeze Warning:** Temperatures are forecasted to go below 32°F for a long period of time, killing some types of commercial crops and residential plants
- **Freeze Watch:** Potential for significant, widespread freezing temperatures within the next 24-36 hours
- **Frost Advisory:** Areas of frost are expected or occurring, posing a threat to sensitive vegetation

Previous Occurrences:

Since 1970, NOAA has documented severe cold and wind chill events across Addison County in a number of events, exclusively in the period from December to February:

	January	February	March	April	May	June	July	August	September	October	November	December
Cold/Wind Chill	19	6	0	0	0	0	0	0	0	0	0	3

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

In January and March of 2007, several arctic cold fronts moved across Vermont on the 24th and delivered very cold temperatures as low as 15 degrees below zero along with blustery winds.

On January 14, 2009 an arctic cold front moved across Vermont during the early morning hours which delivered some of the coldest temperatures across the region in several years. As the arctic front passed across northern Vermont, temperatures dropped over 20 degrees within several hours. Temperatures averaged 20 to 25 degrees below normal values, which were already at climatological winter minimums. In parts of Addison County, minimum temperatures reached 20 degrees below zero. These extremely cold temperatures led to numerous cold weather-related problems including numerous dead vehicle batteries and broken home/business water pipes.

On January 7, 2015, early evening temperatures were zero to 10 above zero with winds of 15 to 30 mph that created wind chills colder than 20 to 30 below zero through the overnight into the morning hours of January 8th. Actual morning low temperatures on January 8th were 10 below to 20 below zero in Addison County, with temperatures dipping to 12 below zero in neighboring Salisbury

On December 22-23, 2022, Addison County received high winds, downing power lines and closing roads, followed by cascading temperatures falling into the single digits, with wind chills of zero to the minus 0's, but Leicester was largely spared the effects.

Future Probability:

Warmer temperatures associated with climate change may result milder winters but the possibility of jet stream alterations producing "bomb cyclones" that might increase sudden deep freezes or ice storms in early spring and late fall. As a result, some winter storms and severe cold events are predicted to increase in severity.

Vulnerability Summary:

Severe Cold events are considered a **HIGH PRIORITY** for the Town of Leicester, with an overall vulnerability score of 5.25 determined.

4.3.8 Infectious Disease Outbreak (Vulnerability Score 5.25)

An infectious disease as one that is caused by micro-organisms, such as bacteria, viruses or parasites. A vector-borne disease is an infectious disease that is transmitted to humans by blood-feeding arthropods, including ticks, mosquitoes and fleas, or in some cases by mammals (e.g. rabies). An epidemic emerges when an infectious disease occurs suddenly in numbers that are in excess of normal expectancy. Infectious disease outbreaks put a strain on the healthcare system, can cause continuity of operations challenges for local businesses, impact the economy, and interrupt daily life for everyone within a community. These outbreak incidents are a danger to emergency responders, healthcare providers, schools, and the public. Examples include Coronavirus 19 (COVID-19), influenza (e.g. H1N1), pertussis, West Nile Virus, and many other diseases.

The Vermont Department of Health has separated vector-borne and other infectious diseases into five threat categories:

Threat Classification	Disease
Diseases already present in Vermont that may be exacerbated by climate change	West Nile Virus
	Eastern Equine Encephalitis
	Lyme Disease
	Anaplasmosis
	Babesiosis
	Hard Tick Relapsing Fever
	Jamestown Canyon Virus
	Tularemia
	Powassan Virus
Diseases that may spread to Vermont even without contribution of climate change, whose spread to and transmission of Vermont could be exacerbated by climate change	St. Louis Encephalitis
	Western Equine Encephalitis
	La Crosse Encephalitis
	Ehrlichiosis
	Alpha-gal Syndrome
	Rocky Mountain Spotted Fever
Diseases with vectors that may spread to Vermont by the end of the century under a higher emission scenario	Dengue
	Zika Virus
	Chikungunya Virus
Diseases that have or may in the future have competent vectors in Vermont, but are unlikely to become established in Vermont despite a vector presence	Yellow Fever
	Malaria
	Chagas Disease
	Rift Valley Fever
Diseases that may be present in Vermont or may spread to Vermont in the future but whose link with climate changes expected in Vermont is tenuous.	Bartonellosis
	Rabies
	Hantavirus
	Leptospirosis
	Plague
	Valley Fever
	Anthrax
	Q Fever

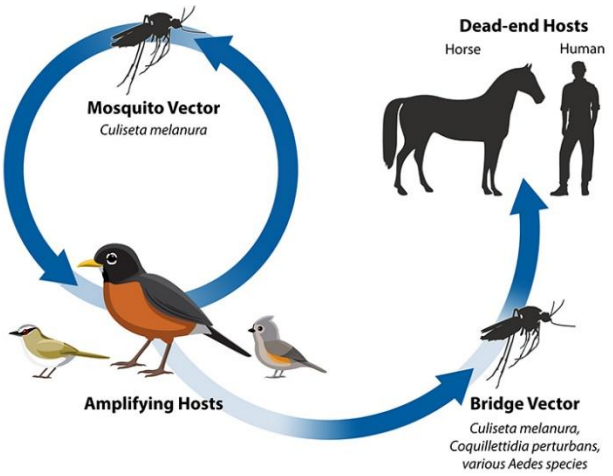
2016 Vermont Climate Health Report

Location:

Infectious disease cases have been dispersed throughout Vermont and likely in Leicester. Low population density in town may reduce the possibility of respiratory disease spread. Mosquitoes are common throughout Leicester and the surrounding towns due to the large acreages of swamp and poorly drained soils. The species-specific vector for Eastern Equine Encephalitis (EEE) is *Culiseta melanura* , which lives in hardwood swamps which are particularly prevalent along the Otter Creek in Leicester. Trapping efforts funded by the Vermont Agency of Agriculture and the Vermont Department of Health have identified populations of CM carrying EEE in the Town of Leicester.

Extent:

Infectious diseases come in a wide variety of types and have a broad range of effects. In most cases, only a few individuals are affected. However, more virulent infectious disease outbreaks have the potential to affect the entire community over a long period of time. Due to the endemic mosquito populations, infection from either West Nile Virus (WNV) or Eastern Equine Encephalitis (EEE) is highly likely and could result in multiple deaths in the Town of Leicester. Most recently, the COVID-19 pandemic beginning in 2020 led to a complete disruption of daily life and municipal operations across Leicester and the rest of Vermont.



Eastern Equine Encephalitis Transmission

The Eastern equine encephalitis virus **cycles between mosquitoes and birds.** The *Culiseta melanura* mosquito, which primarily bites birds, is responsible for spreading the virus among birds. The virus then multiplies in the birds' bloodstream.

People and other animals, like horses, become infected with the virus when mosquito species that feed on many kinds animals, feed on infected birds and then bite people. People and horses are considered **dead-end hosts** because unlike birds, they don't develop high levels of virus in their bloodstream and cannot pass the virus on to other biting mosquitoes.

CS 318140

Previous Occurrences:

Respiratory diseases have had the greatest impact and most widespread previous occurrences. Pandemic influenza, considered to be a global outbreak, spread quickly around the world and was observed in 1918, 1957, 1968 and in 2009 with the novel H1N1 strain. The 2009 H1N1 outbreak, though not considered a serious threat to Vermont, still affected some Vermonters. The great influenza epidemic of 1918 killed millions worldwide and would likely cause hundreds to thousands of deaths in Vermont should a similar outbreak occur today. It is anticipated that a more serious strain of the usual flu will occur some year and that vaccines might not be ready in time to combat rapid spread.

The COVID-19 pandemic beginning in 2020 led to a complete disruption of daily life within Vermont. A state of emergency was issued on March 13th, 2020 by Governor Phil Scott to help ensure Vermont had the resources necessary to respond to the COVID-19 public health

emergency. In the following weeks, a series of executive orders were issued restricting activities likely to result in transmission or use up valuable medical resources. Some of these included restricting visitor access to long term care facilities, suspending in person PreK-12 education, closure of bars and restaurants, suspension of elective and non-essential medical surgeries, interstate travel restrictions, and limits on non-essential gatherings. COVID-19 restrictions stayed in effect until June 14th, 2021 when 80% of Vermont's eligible population (those 12 and older) received at least one dose of COVID-19 vaccine, in accordance with the State's Vermont Forward Plan. There have been more than 150,000 cases and 900 deaths due to COVID-19 in Vermont.

Other vector-borne diseases continue to pose a significant and growing threat. Vermont, ranked highest in the United States for Lyme disease incidence in 2019 and is often at or near the top of incident rankings. Lyme disease cases have been tracked by the Vermont Department of health for several decades, though not at the town-level. Habitat shifts and changes in climate continue to create favorable conditions for pathogen-carrying ticks to proliferate. Other insect-borne diseases have also been present: West Nile Virus was confirmed in mosquito populations in Vergennes and New Haven in August and September, 2023.

Other vector-borne diseases have been noted recently in and near Leicester. Leicester has had 4 cases of rabies from 2005 to 2022, with a cat, a racoon, and two skunks. A handful of cases have been identified in neighboring Brandon, Whiting, and Salisbury during the same period.

Future Probability:

According to the Centers for Disease Control (CDC), the number of reported cases of vector-borne infectious disease more than tripled between 2004 and 2016 and can be expected to continue rising.

Climate change can increase the range of diseases and their vectors and increase rates of infection. Warmer temperatures allow more diseases and their vectors to expand and establish populations farther north, where harsh winters temperatures previously inhibited expansion.

Perhaps the most significant upward trend in infectious disease cases in Vermont is that of Lyme disease. The Vermont Department of Health reports that the number of reported cases of Lyme disease around the state have increased dramatically over the last decade, and with shortening winters, the potential for infection through tick bites continues to grow. Additionally, Vermont's increase in forest cover could provide a more suitable habitat for ticks and their hosts, which may lead to further spread of Lyme disease.

With both temperature and precipitation expected to increase in Vermont, mosquito vector activity will also likely increase, as well as the vector's period of activity, lengthening seasonal risk of mosquito-borne diseases.

Given increasing trends for global travel, several additional diseases not previously observed in Vermont may be introduced by infected travelers.

Vulnerability Summary:

People who are most vulnerable to infectious disease include immunocompromised individuals, elderly and young populations, and healthcare workers. Due to weakened immune systems or compounding factors of other illnesses or stressors these populations are at heightened risk of infection and death. Outdoor laborers and recreationalists are especially vulnerable to mosquito-vector transmission and tick bites that may cause Lyme disease.

Infectious Disease Outbreak events are considered a **HIGH PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.5 determined.

4.3.9 Fluvial Erosion (Vulnerability Score 4.50)

Location:
In the Town of Leicester, conditions susceptible to flash flooding generally only occur along the town's eastern border at the base of the Green Mountains. The remainder of town is much more a low-elevation, rolling landscape which doesn't usually lead to flash floods.

Extent:
Summer downpours and remnants of tropical storms can have the effect of concentrating flood waters into small and narrow areas, particularly in steeper geographic regions. According to NCDC statistics, the Addison Region has experienced 31 flash flood events over the past 25 years.

The highest record of damage was $1,000,000 during that period in July of 1998. During the period an estimated $32,310,000 in property damages and $1,500,000 in crop damages were incurred. None of this damage was experienced in Leicester due to the limited infrastructure located in susceptible terrain. Generally, the largest impact to Leicester from flash flooding is damage in its neighboring towns which restrict the flow of traffic along Rte #73.

Previous Occurrences:
In 2008, a series of summer downpours caused flash flooding in the nearby towns of Goshen, Ripton and Middlebury. This incident (DR1790) caused extensive damage to a bridge on Route 73 in the neighboring town of Salisbury. Previous declared disasters which included Addison County had little or no effect on the Town of Leicester.

Future Probability:
Since much of the eastern part of Leicester and its eastern neighbors is under the ownership of the Green Mountain National Forest, much of the flash flood susceptible portion of town is unavailable for future development. With the increased frequency of heavy rains experienced in the past 25 years, conditions for flash flooding would be more common. The lack of impact to Leicester from recent events, however, would indicate a similar result in spite of the increased frequency.

Vulnerability Summary:
Flash flooding is generally not a major concern for residents of the Town of Leicester. The limited area conducive to flash flooding and limited infrastructure in that area make the community relatively resistant to large scale damages caused by flash flooding.

Fluvial Erosion events are considered a **MODERATE PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.50 determined.

4.3.10 Structure Fire (Vulnerability Score 4.50)

Location:

Nationwide, civilian fatalities are correlated with populations living in rural areas and in older homes. As with much of Vermont, Leicester's housing stock is dominated by older, owner-occupied residential homes, which account for most structure fires. While multi-building fires are unlikely, given the dispersed geography of the town's structures, response time is extended. Access issues on the narrow roads and steep driveways around Lake Dunmore and Fern Lake could also cause challenges, especially with multiple departments and the need to coordinate a continuous stream of water tankers to deliver the needed volume for fire suppression in areas without a municipal water system.

The small population means that Leicester does not have its own fire department and instead contracts with the neighboring Brandon Fire Department for fire-response coverage, as well as motor vehicle accidents and a number of other types of emergency calls.

Extent:

The primary causes of structure fires are cooking fires and heating appliances, especially wood stoves and uncleaned creosote from solid-fueled heating equipment chimneys. Aging houses and cold Vermont winters put added stress on heating systems. Furthermore, the high cost of heating fuel can force people to use alternative heating sources that may not be safe. An improperly installed and maintained heating appliance can result in added fire risk and carbon monoxide poisoning. While fatalities from fires are rare, older adults have a greater risk of fire death than the overall population.

Previous Occurrences:

In the last decade, only small number of emergency calls in Leicester were for structure fires. Between July 1, 2022 and June 30, 2023, the Brandon Fire Department responded to 30 calls for assistance in Leicester, out of 160 total across the three towns it serves. Only one of these was a large structure fire.

However, structure fires do occur every year or two, with notable residential structure fires reported in 2023, 2022, 2020, and 2008. Several of these have occurred in the late evening or overnight and are due to wood stoves or unknown cause. They have all been single family residential structures or mobile homes, often in close proximity to Route 7. Multiple fire departments are often involved in response, from Brandon as well as Salisbury, Pittsford, Whiting, Proctor, and others via mutual aid.

Future Probability:

The risk of individual structure fire events is likely to continue. Education about safe practices and maintenance activities will prevent some incidents, but accidents and unforeseen occurrences will occur.

Vulnerability Summary:

The Brandon Fire Department covers three towns (Brandon, Goshen, and Leicester), currently with twenty-four volunteer members. As with other rural departments staffing issues have been a longtime problem and it often takes several departments to muster enough people to deal with a structure fire. Brandon Fire Department has invested significantly in recruiting and training new members and equipment, with a new a custom-built rescue pumper on order that should be delivered by the end of 2024.

Older adults have a greater risk of fire death than the overall population. In the past decade, more than a third of Vermont's fire deaths have been seniors over the age of 65. About 27% of Leicester's population is older 65, higher than the rest of Addison County (21%) and Vermont.

Due to these factors, structure-fire events are considered a **MODERATE PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.50 determined.

Firefighters from five towns establish water tanker-shuttle to control 2022 structure fire at Tarkey's Lodge property in neighboring town of Salisbury (Source: Addison Independent photo/Steve James)

4.3.11 Wildfire (Vulnerability Score 4.50)

Location: Severe wildfires are uncommon throughout Vermont, but minor fires are regular occurrences and could conceivably occur in any part of Leicester. Unmowed field edges and grass or shrub vegetation are the most likely locations for fires to start.

Extent:
A wildfire is the uncontrolled burning of woodlands, brush, or grasslands. These do not generally include prescribed fires that are intentionally set to burn for beneficial purposes.

Leicester's climate, vegetation types, and landscape discourage major wildfires. Wildfire conditions in the Champlain Valley are typically at their worst either in spring when dead grass and fallen leaves from the previous year are dry and new leaves and grass have not come out yet. The majority of fires in Vermont are caused by burning debris, though they can be a result of naturally occurring influences such as lightning, and exacerbated by drought and extreme heat. Open burning of natural and untreated wood, brush, weeds, or grass requires a 'Permit to Kindle Fire' from the Town Forest Fire Warden. When there is significant fire danger, open burns are banned entirely.

Previous Occurrences:
There has not been a major wildfire in Leicester or all of Vermont in the last 50 years. Most wildland fires occurring in vegetation or natural fuels in Vermont are quickly reported and contained. The Town Forest Fire Warden issues permits and local fire departments respond for wildland fire control with mutual aid assistance from other towns and the State, when necessary.

The greatest impacts to communities from wildfires are smoke from wildfires in Canada and the western United States. In 2023, Leicester and much of Vermont experienced substantial impacts from Canadian wildfire smoke from June 5 to 8. The entire state experienced poor air quality, with records for highest ever 24-hour average concentration of fine particulate matter (PM2.5, μg/m3), broken several times over multiple days and far exceeding the previous records. Air quality was worst in the south and west of Vermont, with the Air Quality Index exceeding 400 in some locations, considered "hazardous" for all populations, resulting in cancellations of outdoor activities and widespread distribution on N95 masks to the public.

Future Probability:
Although wildfires are currently uncommon in Vermont, the LHMPC acknowledged that extended periods of warming due to climate change have the potential to increase the occurrence of wildfire events. Unhealthy wildfire smoke from out-of-state wildfires is also expected to affect Vermont more frequently and severely in the future, as climate change is already increasing wildfire risks in the western United States and Canada.

Vulnerability Summary
Populations that are more vulnerable to wildfire include firefighters, isolated residents, and immunocompromised individuals. Wildfire events are considered a **MODERATE PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.50 determined.

4.3.12 Severe Heat (Vulnerability Score 4.38)

The frequency and intensity of hot weather is increasing in Vermont, resulting in greater numbers of heat-related emergency department visits and total deaths.

Location:

Heat waves occur across the entire state, and may be generally slightly lower risk in higher elevation mountain communities like eastern Leicester, and slightly higher risk in lower-lying areas western Leicester. During the summer, Lake Dunmore moderates temperatures with cooling breezes.

Extent:

A number of metrics demonstrate the extent of recent increase across the state:

- Days with a maximum temperature **above 95 degrees** Fahrenheit have increased from less than 1 per year (1950-2009) to **at least 2** per year (2010-2022)
- Days with a maximum temperature **above 90 degrees** Fahrenheit have increased from about 4 per year (1950-2009) to **more than 9** per year (2010-2022)
- Days with a **minimum temperature above 70 degrees** Fahrenheit have increased from about 2 per year (1950-2009) to **more than 7** per year (2010-2022)

Previous Occurrences:

Since 1970 across western Addison County, NOAA has seven documented heat events, primarily during July and August and all since the year 2006:

	January	February	March	April	May	June	July	August	Septembe	October	November	December
Heat Event	0	0	1	0	0	1	3	2	0	0	0	0

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

The March 2012 event saw record heat across all of Vermont with maximum temperatures 30° to 40° above normal. Some daily records that stood for more than 100 years were broken and several daily records were broken by 10° or more. The Winter of 2011-12 was atypical with temperatures that averaged 4°-5° above normal and snowfall that was 40-60 percent lower than normal. This combination caused snowpacks across the region to be well below normal or even non-existent by mid-March. The ski industry suffered significant revenue loss due to lack of snow, including early spring closures and the Vermont maple sugaring industry lost approximately $10M statewide.

From June 18-23, 2020 the second longest heatwave in modern history (1900-onward) occurred across portions of NY and VT. Temperatures exceeded 90° F for up to six consecutive days in portions of the Champlain Valley.

Future Probability:

Average temperatures in Vermont are projected to increase by an additional 3° to 12° F by 2100, suggesting that Leicester can expect more frequent and harmful hot weather in the future. A number of NOAA projections demonstrate the probability of future temperature increases in the Champlain Valley:

- Days with a maximum temperature **above 95 degrees** Fahrenheit will increase from 2 per year (2010-2022) to **between 3 and 6 per year** (2035-2064)
- Days with a maximum temperature **above 90 degrees** Fahrenheit will increase from 9 per year (2010-2022) to **between 13 and 19 per year** (2035-2064)

Vulnerability Summary:

Despite Vermont's northern location, data indicates that residents experience heat-related illnesses at lower temperatures than residents of other regions. This is likely related to the infrequency of hot weather in Vermont, which has several impacts:

- Vermonters do not experience enough hot weather for their bodies to adapt to hotter conditions;
- Many Vermont homes are not adequately weatherized and do not have air conditioning;
- The State and local communities have not developed plans and policies needed to be prepared for hot weather;
- Adapting behaviors to stay safe during hot weather can be challenging for individuals;
- Vermont has a large population of older adults, who are at higher risk for heat-related illnesses.

Other populations disproportionately impacted by heat can include outdoor workers and hobbyists with more exposure to hot conditions, populations that are particularly sensitive to heat exposure (older adults, young children, pregnant women, people that are overweight or have chronic medical conditions, people using drugs, alcohol, or some prescription medicines), and people with limited adaptation resources (living alone, unable to access community cooling sites, or unable to keep their home cool).

Between 2009 and 2019, there were an average of 104 heat-related emergency department (ED) visits per year and 12 heat-related deaths across the state.

Severe Heat events are considered a **MEDIUM PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.38 determined.

4.3.13 Inundation Flooding (Vulnerability Score 4.13)

Location:
The Town of Leicester is most susceptible to inundation flooding in mapped floodplains along Otter Creek and its tributaries. This area includes the Leicester-Whiting Road and Old Jerusalem Road which runs along the creek banks. Approximately ¼ of the land area in Leicester lies within this area. Otter Creek flows through the western side of town, forming part of the border with Whiting. It overflows its banks regularly during the spring snow melt. The area near the creek comprises the majority of the approximately 700 acres of the town's frequently flooded land. The Leicester River flows from Lake Dunmore to Otter Creek, passing through the Salisbury Swamp. The flow of the Leicester River is largely controlled by a dam located in the Town of Salisbury.

The largest wetland area is Salisbury Swamp, which is located in Leicester and Salisbury in the area surrounding the Leicester River. It is a 1,900-acre wetland composed of several forest types and shoreline grasslands. In the spring, this area is filled with floodwater and there is often a continuous body of water from Brandon to Middlebury as the Brandon, Salisbury, Whiting and Cornwall Swamps converge.

There are three major lakes in Leicester – Silver Lake, Lake Dunmore (shared with Salisbury), and Fern Lake. These lakes are controlled by dams and water levels do fluctuate.

Extent:

Previous Occurrences:
Annual flooding of Salisbury-Leicester Swamp

Future Probability:
In Vermont, average annual precipitation has increased by almost 7 inches over the past 50 years. The northeastern United States is projected to experience above average precipitation in the winter and spring, with even wetter conditions expected under a high greenhouse gas emissions scenario, and is also projected to experience more frequent, heavier rainfall events. These anticipated increases in both frequency and magnitude of precipitation in Vermont are expected to lead to alterations of hydrology and increased inundation flooding events.

Vulnerability Summary:
Leicester's Unified Development Regulations prohibit development of structures within 50 feet from the mean high water line of Lake Dunmore and Fern Lake, 50 feet from the top of bank of large rivers, and 50 feet from the boundary of Class II wetlands.

Inundation Flooding events are considered a **MEDIUM PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.13 determined.

4.3.14 Drought (Vulnerability Score 4.00)

Location
Drought is an inherent, cyclical component of natural climatic variability and can occur at any place at any time. They are often spread over a larger geographic area than other natural hazards, with gradation of impacts that are not as obvious as other hazards. Significant droughts would affect the entirety of the municipality of Leicester, as well as adjoining municipalities and likely extending to other counties and states during the same event.

Extent
The severity of a drought depends on the duration, intensity, and geographic extent of the water shortage, as well as the demands on the area's water supply. Droughts are rated in classifications from D0–D4, depending on the severity of the drought, the amount of time it will take for vegetation to return to normal levels, and the possible effects of the drought on vegetation and water supply. High winds, low humidity, and extreme temperatures can all amplify the severity of a drought.

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures Coming out of drought: some lingering water deficits pastures or crops not fully recovered
D1	Moderate Drought	Some damage to crops, pastures Streams, reservoirs, or wells low, some water shortages developing or imminent Voluntary water-use restrictions requested
D2	Severe Drought	Crop or pasture losses likely Water shortages common Water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses Widespread water shortages or restrictions
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses Shortages of water in reservoirs, streams, and wells creating water emergencies

Source: http://droughtmonitor.unl.edu/AboutUSDM/DroughtClassification.aspx

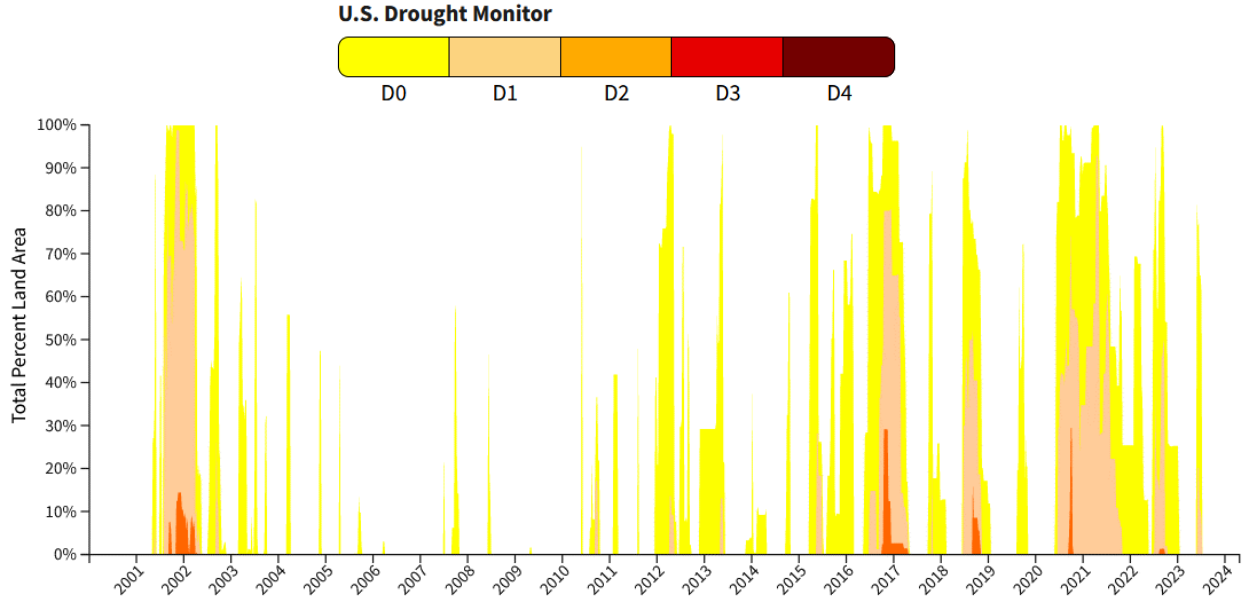
The impacts of drought are typically felt by rural residents in areas like Leicester first. Drought can cause extensive damage to gardens, agricultural crops and livestock. Drought can also lead to dry or low water levels in wells needed for drinking water. and can also concentrate water contaminate levels and lead to resulting in potential health concerns.

Soil moisture, streams, and groundwater are all depleted due to drought. Drought depletes water availability for both cultivated and wild plants and animals. Lack of rain combined with high temperatures can lead to significant crop loss.

As a result, the economic effects of a drought can be just as devastating as any other natural hazards.

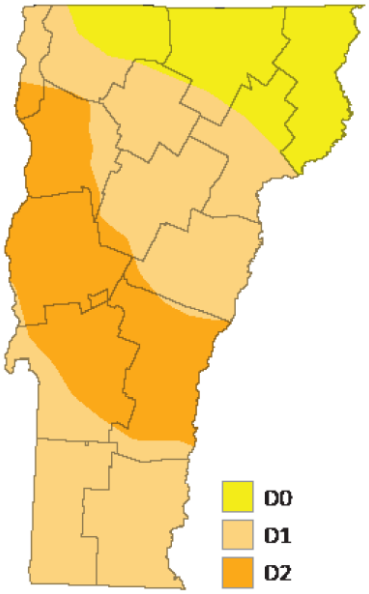
Previous Occurrences

Droughts, while low frequency hazards, are of serious concern to the population of Vermont. It is often difficult to recognize the onset of a drought during its preliminary stages. Since 2000, drought conditions measured by intensity indices have periodically surged in Vermont.



Source: https://www.drought.gov/states/vermont#historical-conditions

Beginning in 2001, New England experienced historic drought conditions not seen since the 1960s. In 2001-2002, large parts of Vermont were affected by a Severe Drought (D2), but Leicester and the Champlain Valley only reached Abnormally Dry (D0) conditions.



A series of drought conditions have affected portions of Vermont nearly annually over the past decade. Parts of central Vermont were in Severe Drought (D2) from October 2016 through April 2017, peaking in October and November 2016. At least 80% of the State was in at least Moderate Drought (D1), including all of Leicester and Addison County reaching Severe Drought (D2) (Figure). Moderate Drought conditions returned in October of 2017 and again in June 2018.

Since 2018 there have been three Severe Droughts, more than the previous two decades combined. From September to November of 2018 the State experienced another Severe Drought. Then from June 2020 to October 2021 much of the State was under Moderate Drought to Abnormally Dry conditions. From September to October of 2020 29.4% of the State was under Severe Drought conditions.

Figure 3. Map of abnormally dry (D0) to severe drought (D2) during significant 2016 drought period in Vermont
(Source: https://www.drought.gov/drought/states/vermont)

Future Probability:
Relative to other regions of the country, severe droughts are not frequent occurrences in Vermont.

However, wet and dry extremes are expected to increase over time across the state: Vermont's precipitation trend is an on upward trajectory, having seen increases in average annual precipitation of 7.5 inches since 1900.[5] At the same time Vermont is seeing an increase in average annual maximum and minimum temperature, which is contributing to an increased likelihood of drought. Higher temperatures lead to increased rates of evaporation, combined with dry periods between intense precipitation events will lead to increased dry conditions.

Vulnerability Summary:

Severe Drought events are considered a **MEDIUM PRIORITY** for the Town of Leicester, with an overall vulnerability score of 4.00 determined.

4.4 Downgraded Hazards from previous Hazard Mitigation Plan

Earthquake

All of Vermont and New England is classified as an area with “moderate" seismic activity. Several seismic centers and events have been projected to have a <2% chance of affecting Addison County in the next 50 years, including:

- The Middlebury Once-in-500-year earthquake (5.7 magnitude)
- The Goodnow, NY Once-in-500-year earthquake (6.6 magnitude)
- The Montreal, Quebec (6.8 magnitude) Once-in-500-year earthquake
- Tamworth, NH (6.2 magnitude) Once-in-500-year earthquake

These are all predicted to have low to moderate damage to buildings, transportation and utility systems, but minimal casualties and economic loss. The Leicester Hazard Mitigation Committee and Residents of the community do not generally consider earthquake to be a high enough risk to require preparing for one beyond providing information to local residents.

Requirement
(addressing High Hazard Potential Dams)

4.5 High Hazard Potential Dam

There is a single High Hazard Potential Dam within the municipal limits of Leicester, at the northern end of Silver Lake within the Green Mountain National Forest. Both Silver Lake and Sugar Hill Reservoir dam in Goshen have spillways that flow into neighboring Salisbury

Green Mountain Power GMP) has worked with the state and consultants to develop Emergency Action Plans and run regular tabletop exercises for the dams. the EAP includes planned notification procedures and establishes Specific Communication Procedures Within GMP in Event of Emergency Condition. It Outlines the Procedures Used For Monitoring the Project to Ensure Safe Operations and/or Detect an Emergency Condition. The EAP Details Procedures to Handle an Emergency at the Project. It also establishes Specific Communication Procedures Between GMP and the Primary Emergency Response Agencies in Event of Emergency Condition and Provides First Responders with Data on Potential Regarding Impacts from Failure of Dam.

GMP has also developed a Time Sensitive Emergency Action Plan (TSEAP) which is required by the Federal Energy Regulatory Commission (FERC) to provides information above and beyond the EAP. The TSEAP provides estimated timing for responding to a failure event at the dam.

Conditions that trigger the activation of the Emergency Action Plan include:

- Condition A: Breach & Emergency – Failure is imminent or has occurred
- Condition B: Warning – Potential failure situation is developing
- Condition C: Advisory – Non-failure emergency

describe how the local government worked with local dam owners and/or the state dam safety agency

incorporate information shared by the state and/or local dam owners

describe the risks and vulnerabilities to and from HHPDs

document the limitations and describe how to address deficiencies

address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies

link proposed actions to reducing long-term vulnerabilities that are consistent with its goals

describe specific actions to address HHPDs

describe the criteria used to prioritize actions related to HHPDs

identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs

5. Community Mitigation Strategies

Requirement 44 CFR § 201.6(c)(3)(i)
(Goals to reduce vulnerability to Hazards)

5.1 Hazard Mitigation Goals by Hazard Type

The Town of Leicester has identified that its goals for hazard mitigation are to reduce vulnerabilities to the hazards identified in section 4.3 and mitigate their potential harmful effects. In doing so, it also recognizes that political will and lack of funding stand in the way of many mitigation projects. The town particularly supports local residents' efforts to mitigate their personal risks. The Town also supports projects that lead to a positive benefit vs. cost evaluation and which the voters can afford.

Identified Hazard	Primary Mitigation Goal
Severe Windstorm	Reduce overall vulnerability of residents and property to direct damage and the effects of potential power outages.
Hazardous Materials Transportation Accident	Protect the health and safety of residents, and ensure that highway improvements result in safer conditions to reduce the potential for transportation accidents,
Severe Lightning Storm	Protect the health and safety of residents and critical infrastructure.
Severe Winter Storm	Ensure that essential services can function during and after winter storm events and minimize potential resulting power outages to reduce vulnerability of residents.
Invasive Species	Reduce the introduction and spread of invasive species in order to protect the health of residents.
Hail Storm	Reduce overall vulnerability of residents and property
Tornado or High Wind	Reduce overall vulnerability of residents and property to direct damage and the effects of potential power outages.
Severe Cold	Reduce resident's exposures to extreme cold conditions and ensure that residents have the knowledge and ability to protect themselves.
Infectious Disease Outbreak	Protect the health and safety of the public and maintain critical municipal services.
Fluvial Erosion	Protect the health and safety of residents and critical infrastructure.
Structure Fire	Protect the health and safety of residents, private property, and first responders.
Wildfire	Protect the health and safety of residents, first responders, and critical infrastructure.
Severe Heat	Reduce residents' exposures to extreme heat conditions and ensure that residents have the knowledge and ability to protect themselves.
Inundation Flooding	Protect public infrastructure.
Drought	Reduce overall vulnerability of residents.

5.2 Authorities, Policies, Programs, Resources

Requirement 44 CFR § 201.6(c)(3)
(Existing capabilities and ability to expand)

5.2.1. Authorities of Town Officials:

Selectboard: The Selectboard is responsible for the basic administration of the town. They take care of roads, make appointments to other boards and commissions, and authorize expenditures of voted budgets. The selectboard may enact ordinances and rules in many areas including traffic regulation, regulating nuisances, managing solid waste, dogs and recreation, and establishing bike paths.

Planning Commission: The Planning Commission is responsible for long range planning in a town particularly as it relates to future land uses and resilience. They prepare a municipal plan and zoning bylaws which are adopted by the Selectboard. Planning Commission members are appointed by the Selectboard.

Zoning Administrator: The Zoning Administrator (ZA) is appointed by the town's Selectboard with consideration given to the recommendation of the planning commission. Their responsibilities include administration and enforcement of a town's zoning bylaws, The ZA and usually also serve as the administrator of town floodplain regulations.

Tree Warden: The Town Tree Warden is responsible for the shade and ornamental trees within the town rights-of-way. They oversee tree health and removal when necessary. The tree warden is appointed by the Selectboard.

Fire Warden: The Town Forest Fire Warden has the responsibility for suppression of wildland fires, regulating open burning in the town by issuing burn permits, and wildfire education/prevention. The Town Fire Warden is appointed by the state Commissioner of Forests, Parks and Recreation with approval by the town's Selectboard.

Health Officer: The Town Health Officer is the executive officer of the local Board of Health.
A local board of health may make and enforce rules and regulations…relating to the prevention, removal, or destruction of public health hazards and the mitigation of public health risks. The Town Health Officer is appointed by the Commissioner of Health with approval by the local Selectboard. They take direction from the state Department of Health in investigation and enforcement of public health issues.

Town Service Officer: The Town Service Officer's responsibilities are to coordinate aid for residents needing assistance during hours when State offices are closed. In many towns, this office has become redundant as State agencies have developed 24/7 emergency assistance programs.

Emergency Manager or Coordinator: By default, a towns Selectboard chair is the town's emergency management director (EMD) unless one is appointed. Many communities retain the authorities of an EMD within the Selectboard and appoint an emergency coordinator instead. The emergency manager is responsible for the organization, administration and operation of the local emergency management organization. Emergency managers prepare

local emergency operations plans, coordinate a local emergency management group and perform emergency management functions at the local level.

5.2.2. Current Policies, Programs, and Resources

These may be expanded on for the following identified hazards:

Hazardous Materials Accident

A representative from the town sits on the local Transportation Advisory Committee (TAC), a regional group whose purpose is to prioritize potential transportation related projects within the region. The TAC rates high crash locations highly in prioritizing projects to mitigate the risks associated with these locations by changing alignments, adding signage and reducing speeds.

The community is also a participant in the VTrans High Risk Rural Roads program, having originally applied in 2012. The State Agency of Transportation conducted a safety analysis of most of the locations identified by the mitigation committee and the town is currently waiting for its improvements.

In its efforts to make a safer highway system throughout town, it is also attempting to mitigate the likelihood of a significant hazardous materials spill. Appropriate signage and adequate warning will not only reduce the number of highway accidents but will also serve to reduce the probability of future hazmat spills.

A major push toward Electric Heat Pumps as envisioned by the town and GMP should also reduce the quantity of petroleum traveling on town highways and delivered to homes, thereby also reducing the risk of spills.

Severe Lightning Storm

The town has mitigated potential damage to Town-owned structures due to lightning strike by installing lightning rods to channel the electrical energy directly to ground rather than through the structure's electrical system.

Most of the larger privately-owned structures in vulnerable locations have similarly installed lightning rod systems to protect them from lightning strike with the encouragement from insurance companies and extension agents. The Town has no adopted building standards which would require this action but feels the risk to private residences should be borne by each resident on their own.

Making educational materials available in the town office will assist residents in their ability to mitigate the effects of lightning in their homes.

Invasive Species

The Town Plan includes the goal to improve water quality through measures such as phosphorus reduction, erosion prevention, and control of Zebra Mussels, Eurasian Milfoil, and other invasive species.

Tornado or High Winds

Municipal zoning requires over-the-top ties and frame ties at each of the four corners of mobile home, with two additional ties per side at intermediate locations.

Severe Cold
A plan for additional supplies and facility upgrades for the Town Hall is underway.

Infectious Disease Outbreak
The Town Emergency Management Coordinator is in the process of developing a Continuity of Operations Plan.

Severe Winter Storm

Many private residences have back-up power sources and essential Town facilities like the Town Office and Town Garage either have been retrofitted in recent years or are scheduled to be fitted with back-up power.

As population growth and housing expands along remote road corridors, increasing reliance on dependable power by the new homeowners requires changes in line maintenance. Green Mountain Power (GMP), the utility servicing the Town of Leicester, has an ongoing program of line clearing and relocation to ensure outages are kept to a minimum.

The Town of Leicester supports continued development of a robust and redundant local electric generation and transmission system for its residents. This support is limited to that which can prove that the benefit to local residents outweighs the societal costs associated with industrial generation and transmission degradation of the local landscape.

The ability to expand on the town's activities is generally related to the availability of funds.

5.3 Project Prioritization Process

Requirement 44 CFR § 201.6(c)(3)(ii)
(Prioritization, Implementation, Administration)

Projects and actions included in Section 5.2 are conducted by the Town of Leicester, utility companies or regional and State agencies where noted. The Town encourages its residents to adopt mitigation actions which could protect their personal property by making educational materials available to residents. Mitigation actions identified in Section 5.4, are considered the jurisdiction's priority mitigation actions.

The Town has established the following priorities for choosing mitigation projects: Life safety and the safety of its residents, keeping local roads and bridges open to ensure access for emergency vehicles, and protecting critical infrastructure facilities in the town. These actions/projects are constantly evaluated for benefit to the community, estimated project cost and political will to implement and will be implemented as those factors indicate.

The actions identified in Section 5.4 under each hazard are listed in their order of priority as evaluated by the Hazards Committee against the priorities listed above. Any projects will also be reviewed for feasibility and cost effectiveness before work begins. A minimum Cost/Benefit Ratio (BCR) of 1.0 will be required prior to any request for federal mitigation funds. The projects in section 5.4 will be reviewed as part of the annual budget process and following any local disaster declaration.

5.4 Proposed Mitigation Actions by Hazard Type

Requirement 44 CFR § 201.6(c)(d)(3)
(Revisions due to priorities changes)
Requirement 44 CFR § 201.6(c)(3)(ii)
(Range of actions and projects considered

The following list of proposed mitigation actions and projects was revised from the previous plan due to changes in community priorities. The Hazards Committee identified a comprehensive range of specific mitigation actions from the previous Hazard Mitigation Plan, the State Hazard Mitigation Plan, and the goals and actions of neighboring municipalities, and analyzed each. Projects were considered to reduce the effects of each priority hazard, with emphasis on human life and safety as well as consideration of the new and existing buildings and infrastructure.

The final list includes only those projects which could be considered reasonable and feasible based on cost and political willingness. The town will maximize 406 mitigation opportunities whenever possible when making repairs to Public Assistance eligible damages during a declared disaster.

Each project in this action plan includes an estimated cost, possible funding sources, potential benefits, the lead person or agency responsible for completion of the project and an estimated start and end timeframe for project completion. Timeframes are an estimate only and are dependent upon funding and the political will to complete.

Requirement 44 CFR § 201.6(c)(3)(ii)
(Actions for each identified hazard)
Requirement 44 CFR § 201.6(c)(3)(iii)
(Responsible position, potential funding, expected time frame)

5.4.1. Severe Windstorm or Tornado

Support removing dead and dying trees within the town right-of-way that could fall during a high wind event.
Estimated cost: $4000 per year
Source of funds: Town Budget
Responsibility: Road Foreman and Highway Crew, with assistance from the tree warden
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents, vehicles, and electricity outages

Require installation of "hurricane clips" on any and all new mobile home installations.
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Zoning Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents and homes.

Provide links to state educational and resource materials for individual and construction safety
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Zoning Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents and homes.

5.4.2 Hazardous Materials Transportation Accident

Maintain awareness of VT Alert procedures in order to notify nearby residents in the event of an incident.
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator
Timeframe: Q1 2024- Ongoing
Benefits: Ability to notify residents and drivers in the event of an incident, provide evacuation information.

Contract for hazardous materials scene stabilization services with the Brandon Fire Department
Estimated cost: $48,000 per year
Source of funds: Town
Responsibility: Selectboard, Brandon Fire Department
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Fire Department coverage for town for structure fires and other incidents

5.4.3 Severe Lightning Storm

Support installation of a dry hydrant for fire suppression on the west side of town

Estimated cost: None to Town
Source of funds: Rural Fire Protection Program
Responsibility: Road Commissioner, Brandon Fire Department
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Increased resource for fire suppression in case of lightning-caused fire

Provide education materials to town residents and visitors about safety and preparation measures.

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Town website Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced property damages to residents

5.4.4 Severe Winter Ice or Snow Storm

Remove hazard trees and Manage vegetation in town rights-of-way to allow space for heavy/wet snow and ice events.

Estimated cost: $3,000 annual cost
Source of funds: Town highway budget
Responsibility: Road Commissioner
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduce impacts due to ice on roads and downed power lines,

Installation of backup power, in cooperation with the school, to allow the school to operate as warming shelter.

Estimated cost: $20000
Source of funds: Grants and Town General Fund
Responsibility: Selectboard, Town Office Staff
Timeframe: Q3 2024 - Q1 2030
Benefits: Provide daytime shelter location for residents during extended power outages and cold weather to reduce detrimental health effects.

Provide education materials to town residents about emergency supplies and preparation measures.

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Town website Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduce vulnerability of local population to winter storms and power outages.

Set up processes to check on vulnerable populations following known winter storm events.

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator

Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduce vulnerability of local populations and provide community support system.

5.4.5 Invasive Species

Provide educational materials to town residents to discourage the spread of aquatic and terrestrial invasive species, including the movement of Firewood to slow the spread of Emerald Ash Borer
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Town website administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduce spread of existing aquatic and terrestrial invasives, prevent new introduction.

Support the removal of dead and dying trees killed by invasive insects or pathogens that threaten public safety.
Estimated cost: $4000 per year
Source of funds: Town Budget
Responsibility: Road Foreman and Highway Crew
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents, vehicles, and electricity outages.

Support Lake Dunmore Fern Lake Association efforts to remove Eurasian Milfoil
Estimated cost: $25,000 each year
Source of funds: Town budget
Responsibility: Lake Dunmore Fern Lake Association
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduce existing Eurasian Milfoil infestations and limit further spread.

5.4.6 Hail Storm

Provide links to state educational and resource materials for individual and construction safety
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Zoning Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents and homes.

5.4.7 Severe Cold

Develop and adopt a Cold Weather Emergency Response Plan as an annex to the annual LEMP.
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator, Select Board
Timeframe: Q1 2024- Ongoing Annually
Benefits: Provide clear thresholds and procedures for hot weather mitigation actions.

Installation of backup power, in cooperation with the school, to allow the school to operate as warming shelter.

Estimated cost: $20000
Source of funds: Grants and Town General Fund
Responsibility: Selectboard, Town Office Staff
Timeframe: Q3 2024 – Q1 2030
Benefits: Provide daytime shelter location for vulnerable residents during extended power outages and cold weather to reduce detrimental health effects.

Set up processes to check on vulnerable populations during and following severe cold events.

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator
Timeframe: Q3 2024- Ongoing as needed
Benefits: Reduce vulnerability of local populations and provide community support system.

5.4.8 Infectious Disease Outbreak

Work with VT Department of Health to disseminate health information & protective supplies.

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator, Town Office Staff
Timeframe: Q3 2024- Ongoing as needed
Benefits: Reduce spread of respiratory diseases and increase public health awareness.

Develop and maintain continuity planning and agreements for potential town staff shortages.

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator, Select Board, Town Office Staff, Road Crew
Timeframe: Q3 2024- Q1 2030
Benefits: Provide continuity of operations in the event of a pandemic or infectious disease outbreak.

5.4.9 Fluvial Erosion

Stone line ditches according to the town's road and bridge standards when work is being completed on any road.

Estimated cost: $
Source of funds: Town Highway Fund
Responsibility: Road Commissioner
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits:

Replace 2 culverts on north end of Route 53 east of Lake Dunmore with larger sizes

Estimated cost: $10,000

Source of funds: Town Budget
Responsibility: Road Foreman
Timeframe: Q3 2024- Q1 2026
Benefits: Reduce risk of road washouts

5.4.10 Structure Fire

Contract for fire protection services with the Brandon Fire Department
Estimated cost: $48,000 per year
Source of funds: Town budget
Responsibility: Selectboard, Brandon Fire Department
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Fire Department coverage for town for structure fires and other incidents

5.4.11 Wildfire

Provide links to state educational and resource materials for individual and construction safety
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Town website Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents and homes.

Require burn permits from Fire Warden
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Town Fire Warden
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents and homes.

5.4.12 Severe Heat

Develop Hot Weather response and shelter plan and adopt as part of annual LEMP
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Q3 2024- Q1 2030

Set up processes to check on vulnerable populations during severe heat events.
Estimated cost: None to Town
Source of funds: N/A
Responsibility: Emergency Management Director and Coordinator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduce vulnerability of local populations and provide community support system.

5.4.13 Inundation Flooding

Adopt forthcoming updated Flood Insurance Rate Maps from FEMA/USGS and maintain NFIP enrollment.

Estimated cost: $ None to town
Source of funds: N/A
Responsibility: Planning Commission and Selectboard
Timeframe: Q3 2026- Q1 2030
Benefits: maintain NFIP enrollment.

5.4.14 Drought

Provide links to state educational and resource materials for individual safety and agricultural preparation

Estimated cost: None to Town
Source of funds: N/A
Responsibility: Website Administrator
Timeframe: Ongoing, Q3 2024- Q1 2030
Benefits: Reduced risk to residents and homes.

Requirement 44 CFR § 201.6(d)(3)
(Update on previous mitigation actions)

5.5 Mitigation activities undertaken since 2017 plan adoption

Hazard	Action Description	Project Status
Town-Wide Mitigation	Establish a restricted Road/Bridge/Culvert replacement fund which may be used to replace or be used to match available grant funds to replace existing town transportation infrastructure.	Completed
Widespread Power Failure	Installation of a back-up power source for the school's well is necessary to keep the facilities operational in the event of a widespread power outage that would require sheltering.	In Progress
	Grant access for Right of Way usage for maintenance purposes.	Continuing
Hazardous Materials and Highway Transport Accidents	Request additional safety measures for the high-crash intersection of US Route #7, the Leicester/Whiting Road / Fern Lake Road.	Completed
	Request additional signage and/or guard rail installation at the identified accident location intersection of the Leicester/Whiting Road and Old Jerusalem Road.	Completed
Earthquake	Make earthquake education materials available at the town office when available.	Continuing
Mosquito-Borne Illness	Fund the efforts of the Leicester, Brandon, Salisbury and Goshen Mosquito Control District	Continuing
Winter Storm/Ice Storm	The Town has identified installation of back-up power for the school well as an important need to allow operation of the town's shelter as a warming shelter in the event of a severe winter storm.	Continuing
High Winds	Remove dead and dying trees from town rights of way as part of normal road maintenance.	Continuing
Structure Fire	Support efforts to install dry hydrants throughout town	In Progress
	Evaluate upgrading of driveway standards in future zoning bylaw rewrites to support basic accessibility for emergency vehicles to all structures in town.	In Progress
Wildfire	Support education in this area by providing educational materials in the town office.	Continuing

(table continued on following page)

Hazard	Action Description	Project Status
Flash Flood	Stone Line ditches according to the town's road and bridge standards when work is being completed on any road.	In Progress
	Replace culverts along Route 53 east of Lake Dunmore with larger sizes if called for following hydraulic review.	In Progress
	Evaluate the adoption of more stringent floodplain/river corridor regulations by the town Planning Commission in its next zoning update.	Continuing
	Request updated and digitized FIRMs from FEMA to support their flood mitigation efforts.	No longer needed, map updates in progress
	Increase culvert size to prevent flooding ¼ mile east of town shed on Fern Lake Road.	Still needed
	Install 4 concrete "Dry Bridges" to allow unrestricted flood flow through along Leicester-Whiting Road near Old Jerusalem Road and west of Leicester Jct.	No longer needed
	Install larger culvert on Shackett Road to allow flood waters unrestricted passage.	Still needed
	Install larger culvert on Old Jerusalem Road near the railroad crossing to allow flood waters unrestricted passage.	Still needed
	Evaluate possibility of elevating Bullock Road and add larger culverts to prevent flooding.	Evaluation still needed
	Install larger culverts on the south end of Swinington Hill Road to allow flood waters unrestricted passage.	Completed
Landslide/Erosion Hazard	Evaluate inclusion of a river corridor hazard district in its next zoning bylaw rewrite.	Evaluation still needed
	Evaluate relocation of Old Jerusalem Road along Otter Creek toward the east to avoid erosion hazards associated with the movement of Otter Creek.	Evaluation still needed

6. Plan Maintenance Procedures

Any Hazard Mitigation Plan is dynamic and should not be fixed. To ensure that the plan remains current and relevant, it is important that it be updated periodically. The plan will be integrated into other plans and updated at a minimum every five years.

6.1 Hazard Mitigation Plan Integration

Requirement 44 CFR § 201.6(d)(3) (Process of mitigation plan integration)
Requirement 44 CFR § 201.6(c)(4)(ii)) (Integration process and planning mechanisms)

The municipality will integrate the goals and actions of this hazard mitigation plan into all other municipal planning mechanisms, including the annual Local Emergency Management Plan, annual municipal budget, and Leicester Municipal Plan (re-adoption due in 2025). The Emergency Management Director and Emergency Management Coordinator will be responsible for integrating the goals, information and strategy of the mitigation plan into other planning mechanisms

6.2 Hazard Mitigation Plan Review/Update Process

1. The Leicester Selectboard assembles a Review/Update Committee to include government officials and interested public.
2. The Committee will discuss the process to determine if any modifications or additions are needed due to changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting/updating information will be assigned to members.
3. Other Town plans (Emergency Management Plan, Town Plan, Road Plan, etc.) will be reviewed to ensure a common mitigation thread still exists throughout.
4. A draft update will be prepared based on these evaluation criteria:
    - Changes in community and government processes, which are hazard-related and have occurred since the last review.
    - Progress in implementation of plan initiatives and projects.
    - Effectiveness of previously implemented initiatives and projects.
    - Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report.
    - Evaluation of hazard-related public policies, initiatives and projects.
    - Review and discussion of the effectiveness of public and private sector coordination and cooperation.
5. The public will be invited to review and give input on drafts as they are produced.
6. Selectboard members will have an opportunity to review the draft update. Consensus will be reached on any changes to the draft.
7. The Selectboard will notify and schedule a public meeting to ensure adequate public input.
8. The Selectboard will recommend incorporation of community comments into the draft update.

Requirement 44 CFR § 201.6(c)(4)(i) (Monitoring, Evaluating, and Updating)

6.3 Mitigation Project Status Monitoring and Evaluation

The town of Leicester has outlined a process to track the progress/status of actions identified in the LHMP. The plan will be reviewed and updated in its entirety at least every five years as described in Section 6.2. The Town will monitor and evaluate its hazard mitigation goals, strategies and actions/projects annually as the town budget is created. Actions/projects will be added or removed from the Town's work plan based on changing local needs and priorities.

The Planning Commission will use concepts, goals and strategies from this plan to inform the development of the Town Plan. The progress/status of the mitigation actions identified within the mitigation strategy will be tracked by the Selectboard and EMC. The plan will be evaluated for effectiveness annually and post-disasters as detailed in section 6.5.

Requirement 44 CFR § 201.6(c)(4)(iii) (Future public participation)

6.4 Public Participation

This Hazard Mitigation Plan solicited and received public input, especially in developing the hazard risk and vulnerability assessment. The municipality will continue to encourage future public participation in mitigation actions after the plan has been approved. Notice of the plan will be made and a copy of the plan along with contact information will be made available on the town website and at the Town Office. While the public are encouraged to read and comment on the plan, the committee understands that the length of the plan following all FEMA requirements is unwieldy and time-consuming for review, and has therefore provided a concise executive summary to provide the main Vulnerabilities, Goals and Mitigation actions.

Public comments and suggestions will continue to be recorded and incorporated into the hazard mitigation plan. The EMD and EMC will report on hazard mitigation progress at the annual Town Meeting and provide information on potential weather-hazards via local networks including Front Porch Forum. A copy of the Hazard Mitigation Plan and instructions for submitting comments will continue to be available on the town website and at the Town Office.

6.5 Post-Disaster Review Procedures

Should a declared disaster occur, a special evaluation process will occur in accordance with the following procedures:

1. Within six (6) months of a declared emergency event, the Town will initiate a post disaster review and assessment of actions.
2. This post disaster review and assessment will document the facts of the event and assess whether the existing Hazard Mitigation Plan effectively addressed the hazard.
3. A report of the review and assessment will be created by a Review/Update Committee.
4. The committee will make a determination whether the plan needs to be amended. If the committee determines that NO modification of the plan is needed, then the report is distributed.
5. If the committee determines that modification of the plan IS needed, then the committee drafts an amended plan based on its recommendations and forwards to the Selectboard for their input.
6. Following completion of a public input process, further amendments may be made and a final plan delivered to the Selectboard for adoption.
7. The Selectboard adopts the amended plan.

7. Plan Adoption Resolution

Requirement 44 CFR § 201.6(c)(5) (Documentation of adoption)

TOWN OF LEICESTER, VERMONT
SELECTBOARD ADOPTION
RESOLUTION

WHEREAS, the Town of Leicester has occasionally experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Town of Leicester, Vermont Single Jurisdiction All-Hazards Mitigation Plan (Plan)**, which can result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Leicester has developed the **Plan** and received conditional approval from the Federal Emergency Management Agency (FEMA); and

WHEREAS, the **Plan** identifies specific hazard mitigation strategies, and plan maintenance procedures applicable to the Town of Leicester; and

WHEREAS, the **Plan** identifies actions and/or projects intended to provide mitigation for specific natural hazards that impact the Town of Leicester; and

WHEREAS, adoption of this **Plan** will make the Town of Leicester eligible for additional funding to help alleviate the impacts of future hazards;

Now, therefore, be it RESOLVED by Town of Leicester **Selectboard:**

1. The **Town of Leicester**, **Vermont Single Jurisdiction All-Hazards Mitigation Plan** is hereby adopted as an official plan of the Town of Leicester, Vermont. While content related to Leicester may require revisions to meet the plan approval requirements, changes occurring after adoption will not require Leicester to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions;

2. The respective Town officers identified in the action plan are hereby directed to pursue implementation of the recommended actions assigned to them;

3. Support agencies within the Town of Leicester are also requested to implement actions assigned to them within this plan;

4. Plan maintenance procedures described in Section 6 of this plan are also adopted as part of this resolution.

IN WITNESS WHEREOF, the undersigned have affixed their signatures for the Town of Leicester, this ____ day of _____ 2024.

_____	_____	_____
Selectboard Chair	Selectboard Member	Selectboard Member

ATTEST:_____

Appendix 1. Public Outreach

Poster displayed at Town Meeting, March 2023

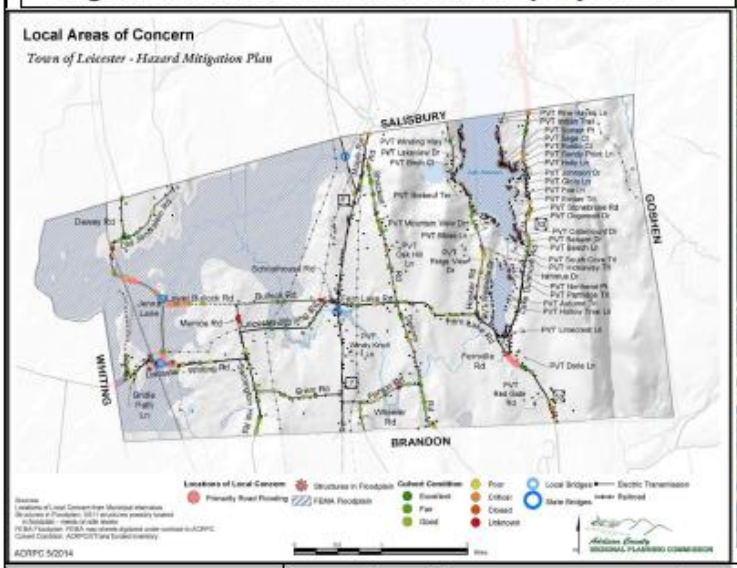
The Town of Leicester is updating its Hazard Mitigation Plan and Needs Your Input!!

Hazard Mitigation is sustained action taken to reduce or eliminate long-term risk to people and property due to natural or man-made disasters.

Local Hazard Mitigation Plans are updated every 5 years.

A Hazard Mitigation Plan helps our community to:

- Identify cost-effective actions for risk reduction
- Focus resources on the greatest risks and vulnerabilities
- Build partnerships between residents, organizations, and businesses
- Increase education and awareness of hazards and risk
- Communicate our priorities to state and federal officials
- Align risk reduction with other community objectives



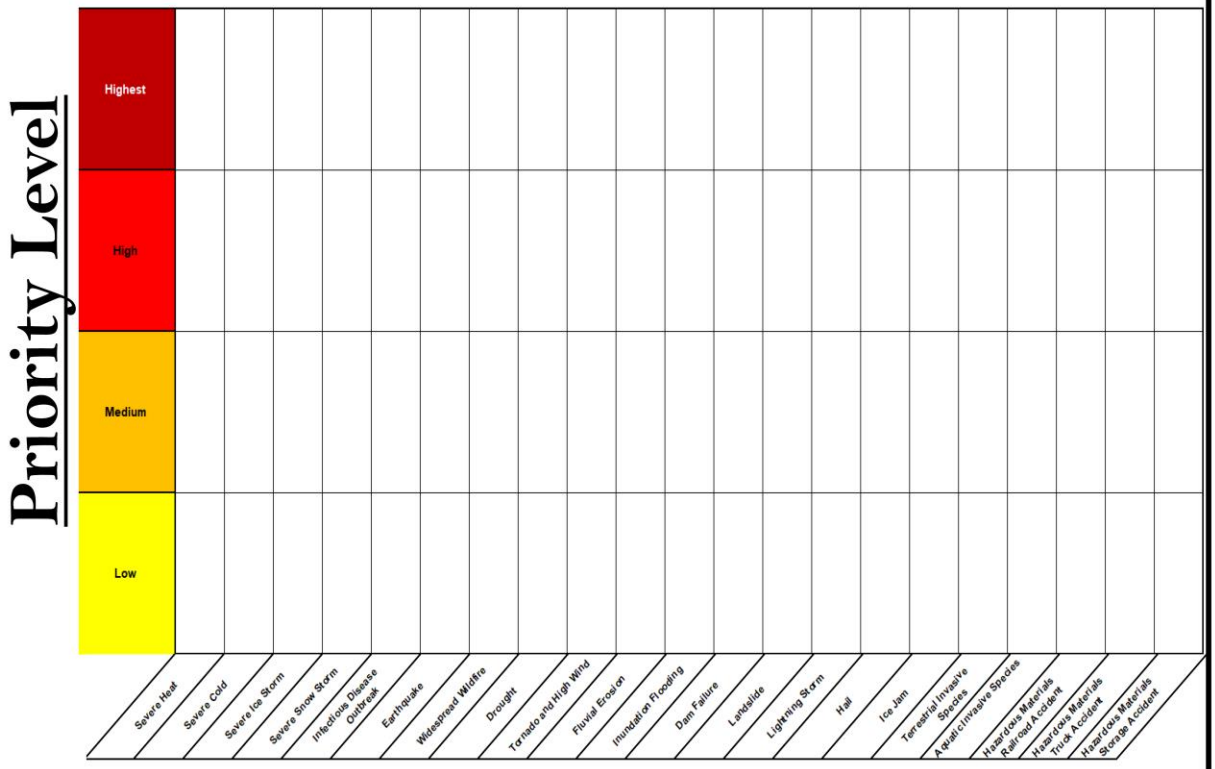
Take our survey at
tinyurl.com/LeicesterHazardSurvey
or

Benefits of having an approved Hazard Mitigation Plan:

- Municipalities can receive federal funds, e.g. from
  - Hazard Mitigation Grant Program (HMGP), the
  - Flood Resilient Communities Fund (FRCF), and
  - Building Resilient Infrastructure & Communities (BRIC)
- The town gets a higher level of post-disaster reimbursement through the Emergency Relief and Assistance Fund (ERAF).
- Town Officials and First Responders are better prepared!

What Natural Hazards Should Leicester Plan For?

(Add a sticker for one or more hazards to share your opinion!)



Potential Hazards

What other hazards should we plan for

and what things can you do to prepare?

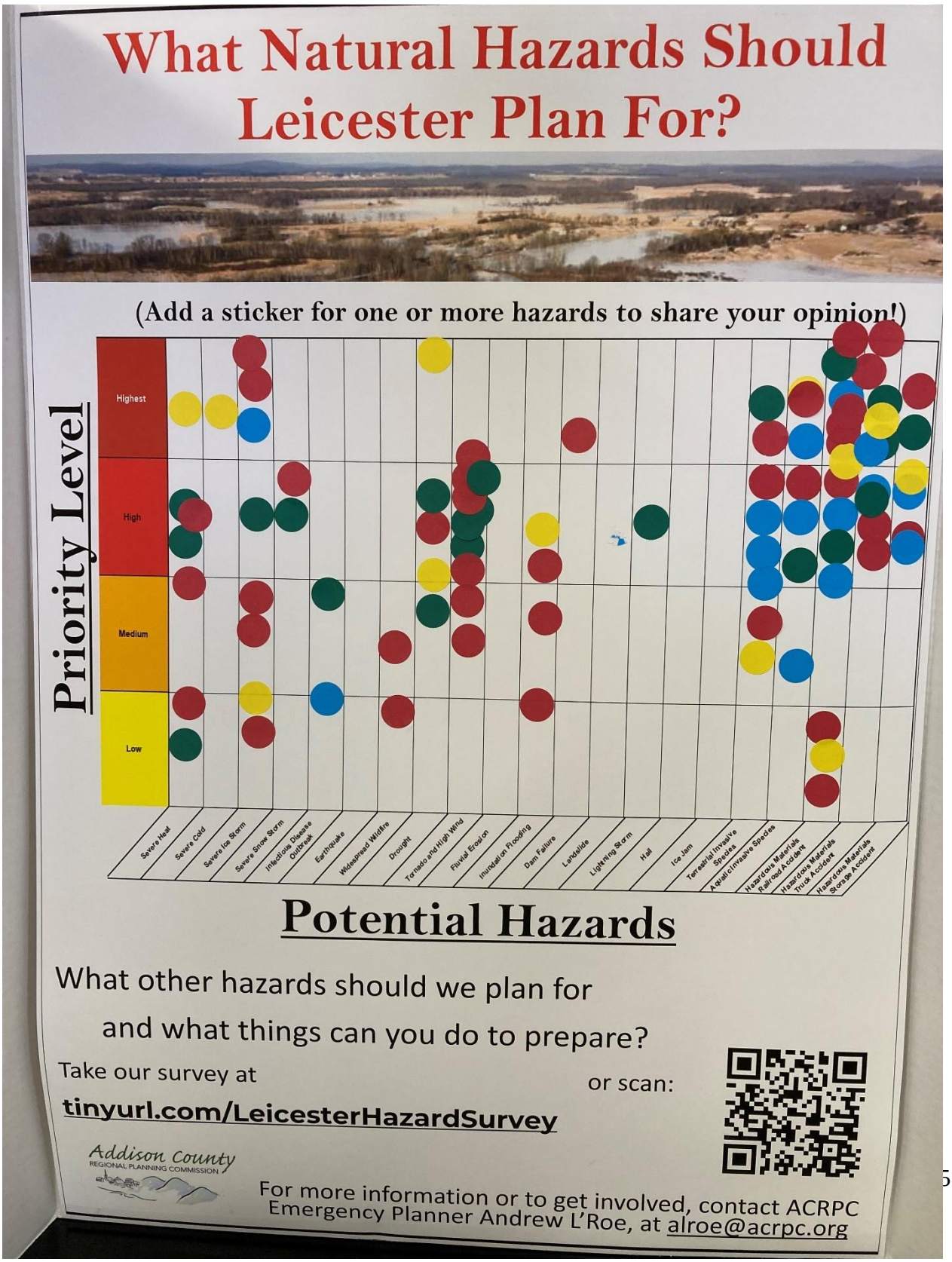
Take our survey at or scan:

tinyurl.com/LeicesterHazardSurvey

Addison County
REGIONAL PLANNING COMMISSION

For more information or to get involved, contact ACRPC Emergency Planner Andrew L'Roe, at alroe@acrpc.org

Hazard ranking poster results from Town Voting and Town Meeting Day, March 2023



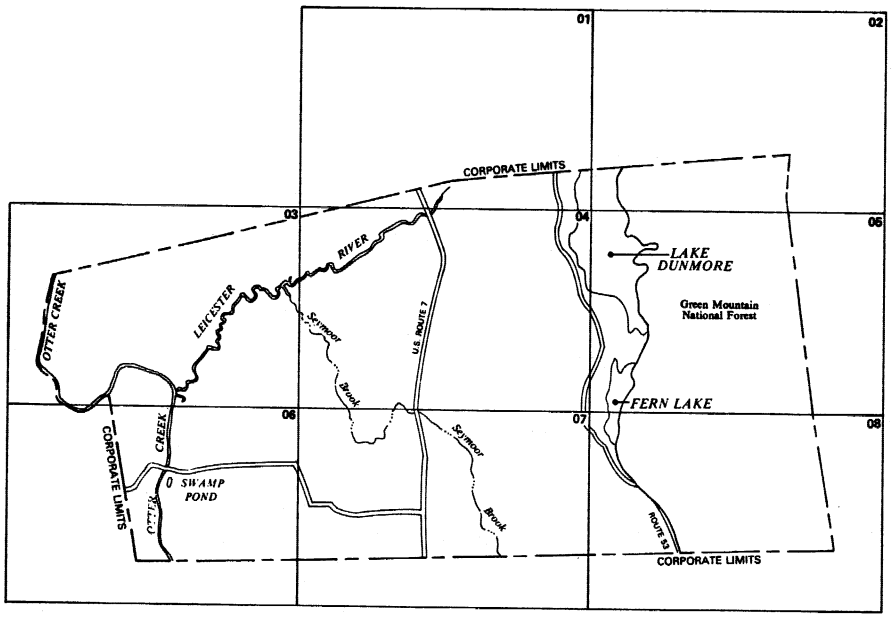
Online Survey Responses

The online survey received 9 responses from Leicester residents, providing the following hazard priority rankings (on 1-5 scale, where 1 = Most Concerned, 5= Least Concerned).

Hazard	Mean Priority (1= Most, 5 = Least)	# of Times Ranked as Most Concern
Infectious Disease Outbreak		
Severe Ice Storm		
Hazardous Materials Transportation Accident		
Hazardous Materials Accident Producing Fumes		
Widespread Power Failure		
Invasive Species		
Severe Wind Storm		
High Winds		
Severe Cold		
Severe Heat		
Inundation Flooding		
Drought		
Fluvial Erosion		
Hail		
Tornado		
Wildfire		
Ice Jams		
Dam Failure		
Earthquake		
Landslide		

Appendix 2. FEMA Flood Insurance Rate Maps

Number 500006B, effective 11/1/1985
(Available at https://msc.fema.gov/portal/search?AddressQuery=Leicester%20VT)



KEY TO SYMBOLS

ZONE DESIGNATIONS*

ZONE C

ZONE A

ZONE C

Base Flood Elevation Line with elevation in feet	513
Base Flood Elevation where uniform within zone	(EL 987)
Elevation Reference Mark	RM7$_X$
River Mile	• M1.5

*EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FEMA are

Zone	Explanation
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding; flood depth 1 to 3 feet; product of flood depth (feet) and velocity (feet per second) less than 15.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by a flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Area between limits of 100-year flood and 500-year flood; areas of 100-year shallow flooding where depths less than 1 foot.
C	Areas outside 500-year flood.
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factor determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

INITIAL IDENTIFICATION: **JUNE 28, 1974**

FLOOD HAZARD BOUNDARY MAP REVISIONS: **JANUARY 21, 1977**

FLOOD INSURANCE RATE MAP EFFECTIVE: **NOVEMBER 1, 1985**

FLOOD INSURANCE RATE MAP REVISIONS:

federal emergency management agency

FIRM

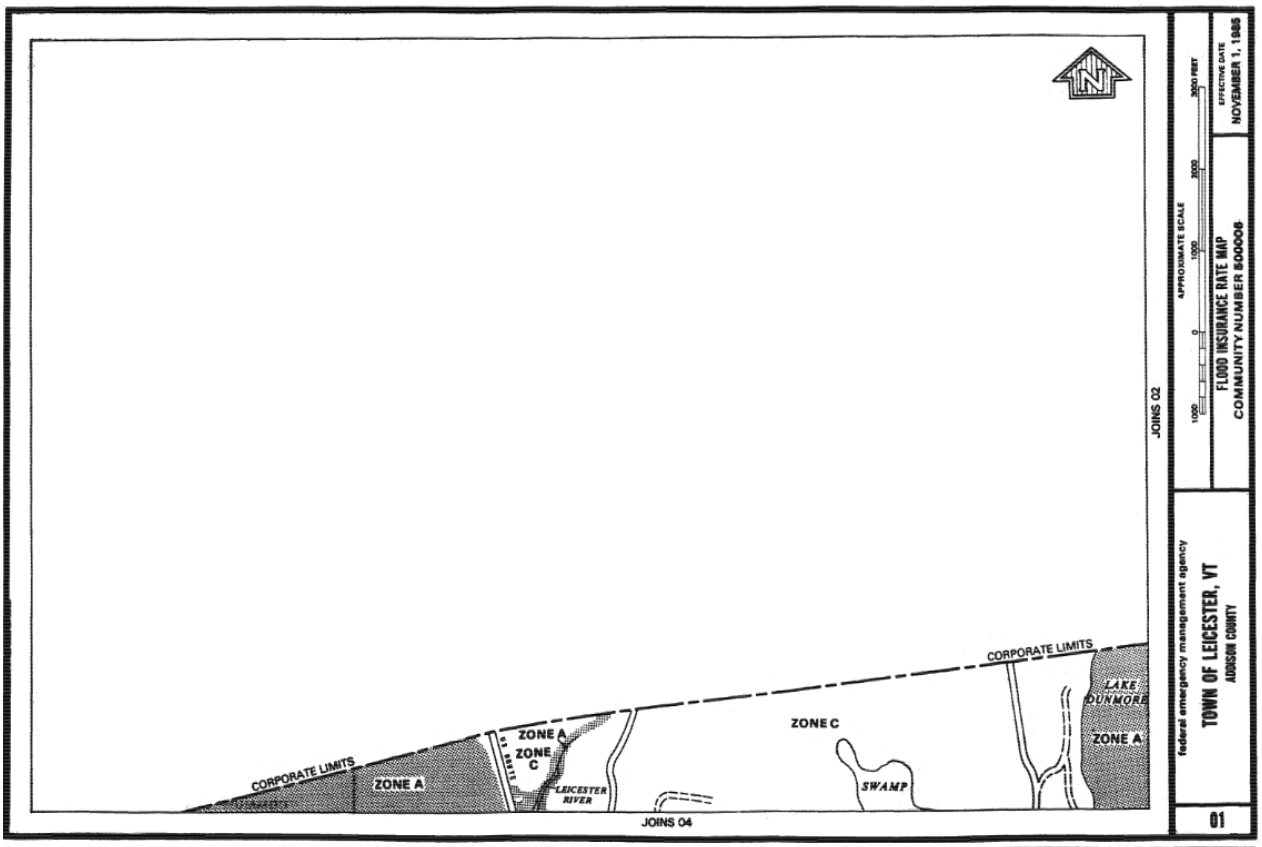
FLOOD INSURANCE RATE MAP 01-08

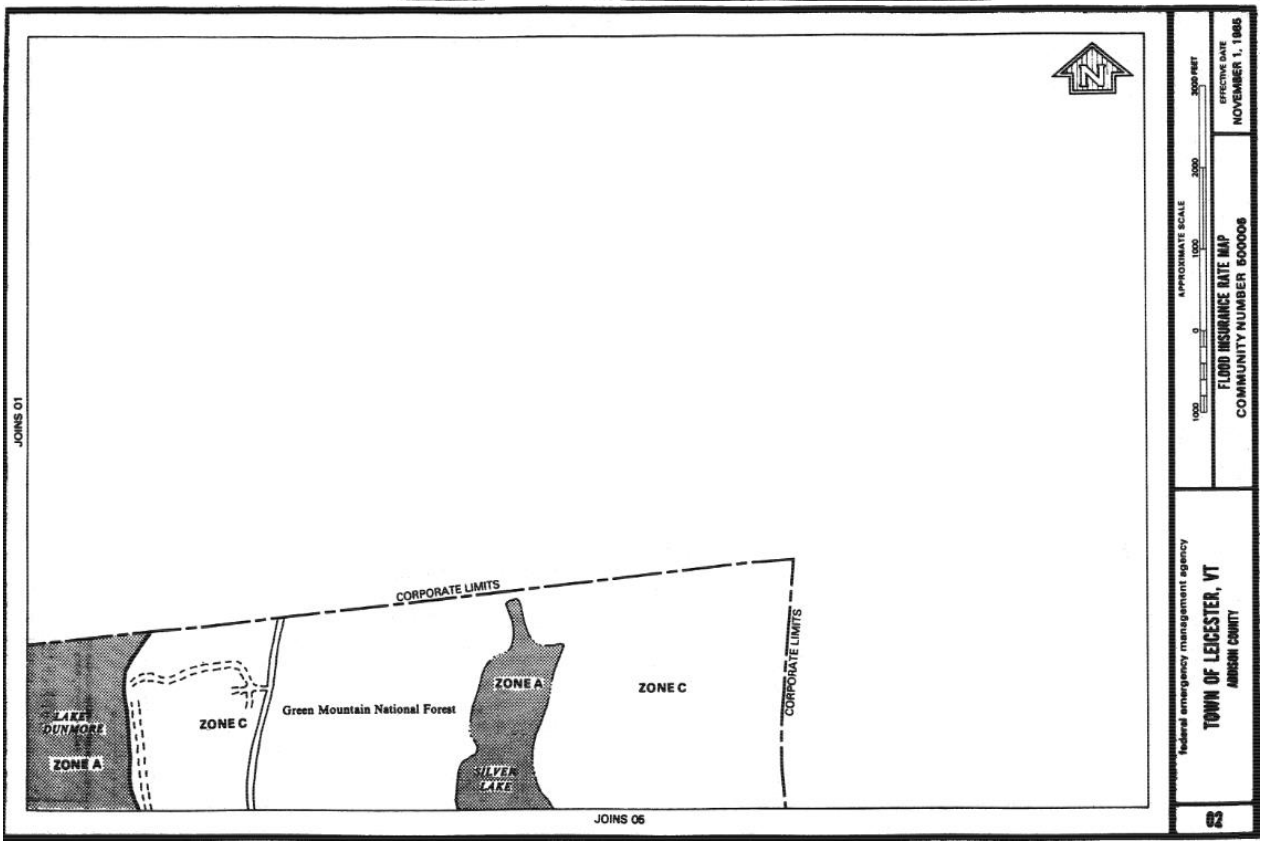
MAP INDEX

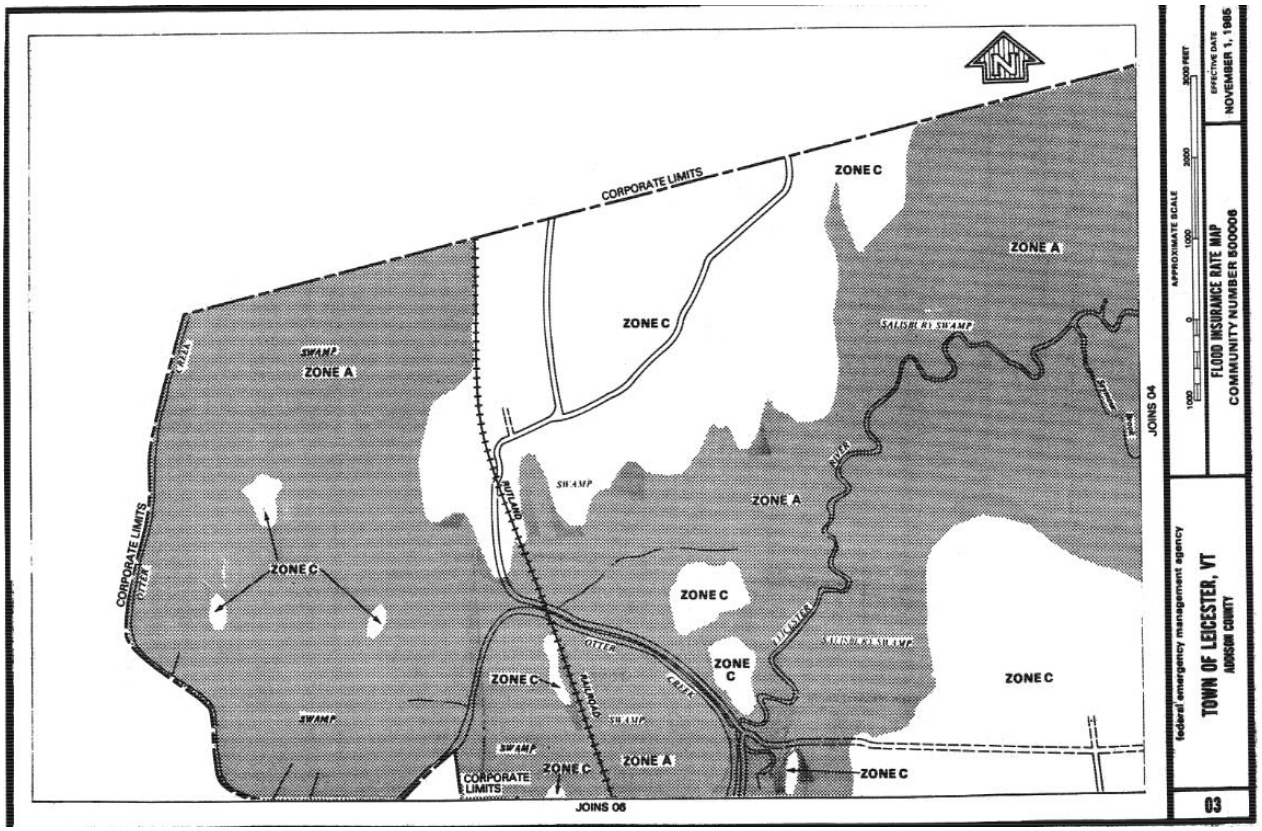
TOWN OF LEICESTER, VT

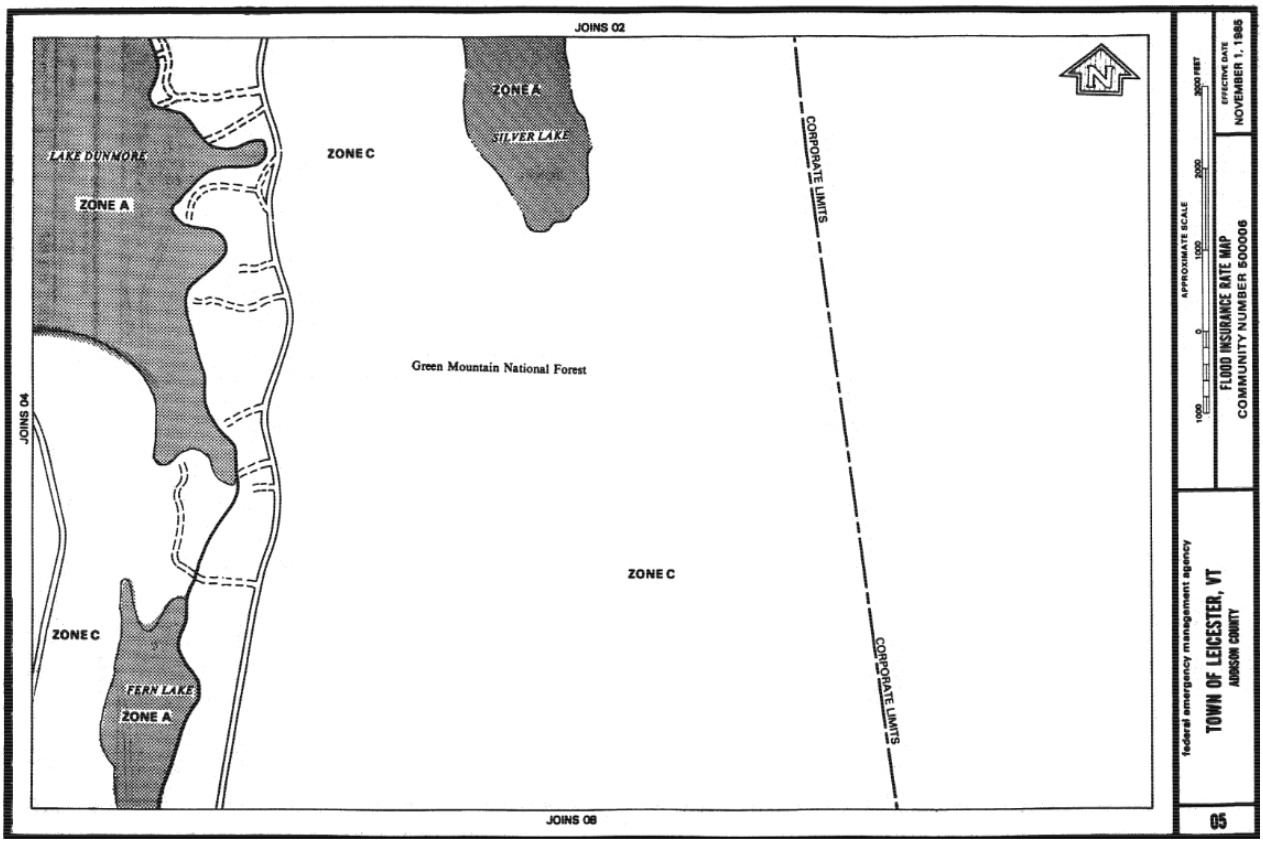
ADDISON COUNTY

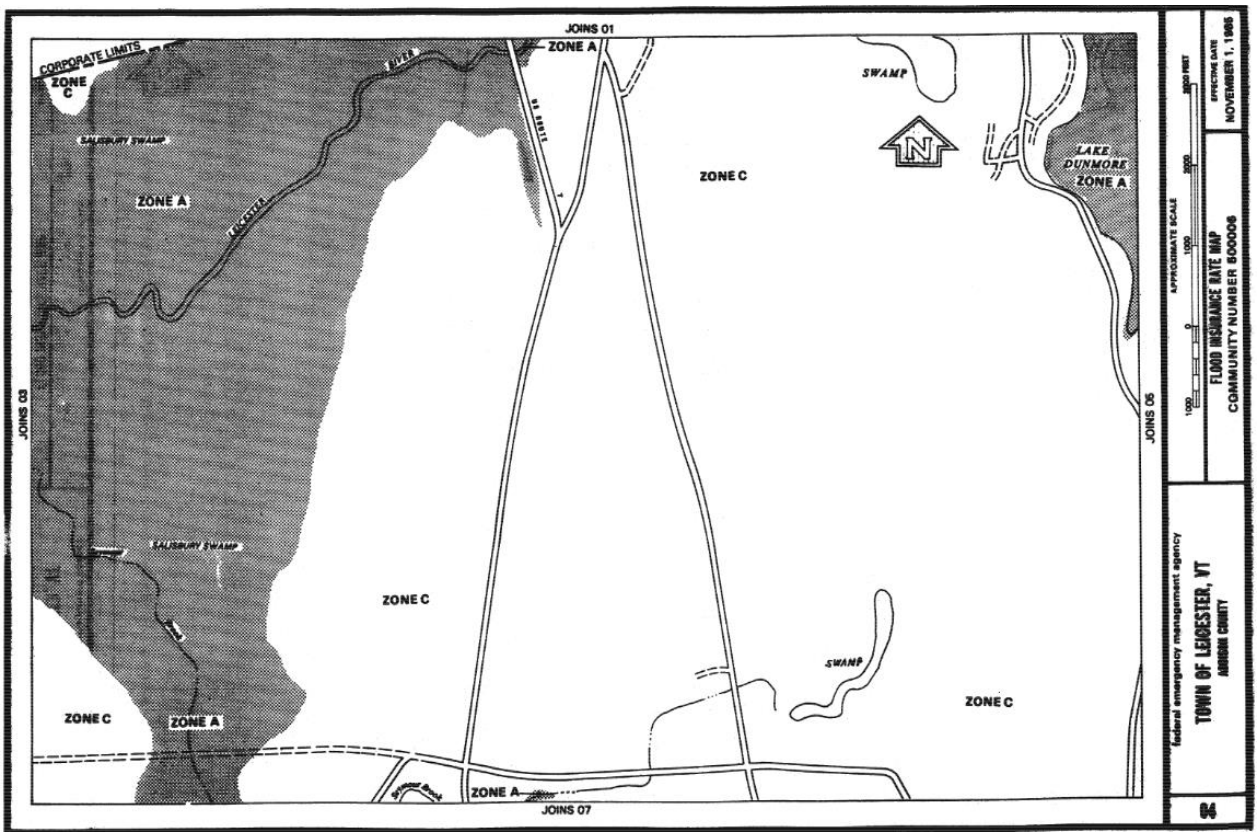
COMMUNITY NUMBER 500006 B

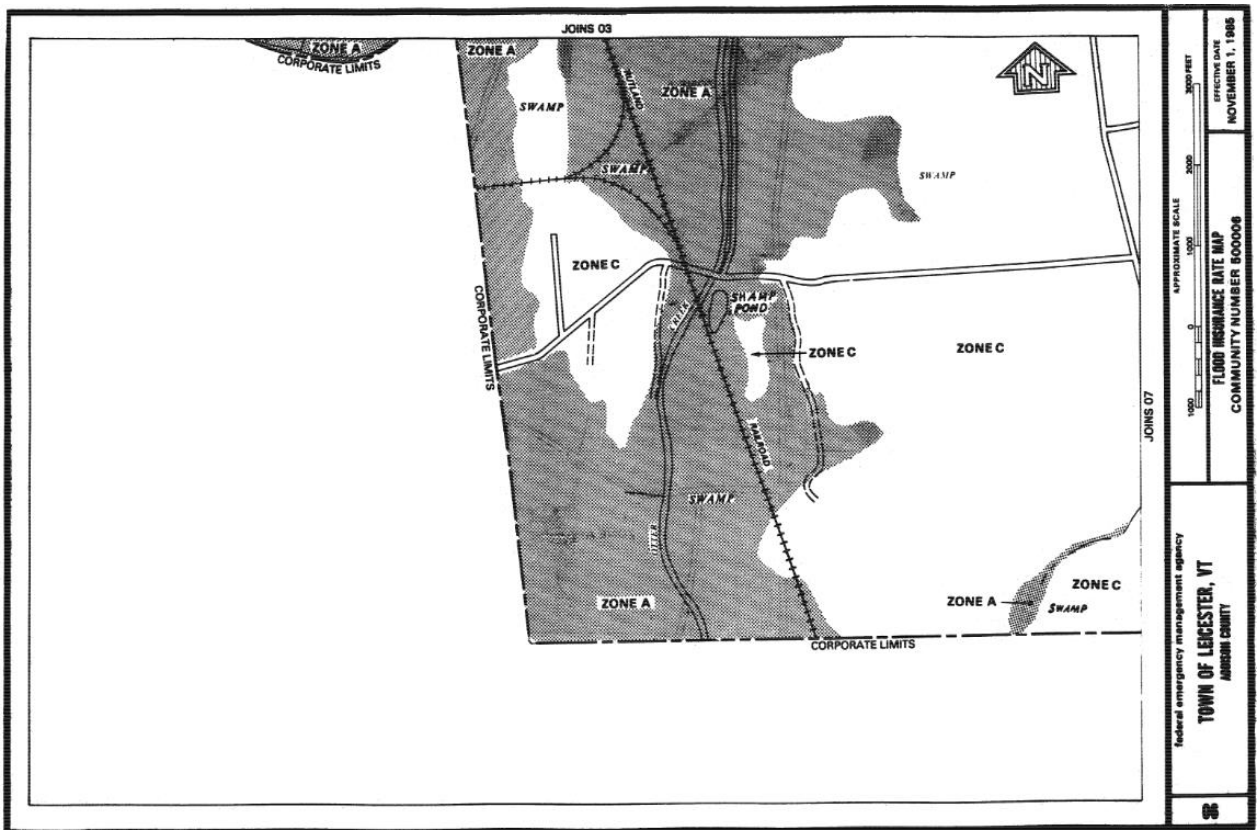

JOINS 02
CORPORATE LIMITS
ZONE A
ZONE A
ZONE C
LEICESTER RIVER
ZONE C
SWAMP
CORPORATE LIMITS
LAKE DUNMORE
ZONE A
JOINS 04
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
APPROXIMATE SCALE
1000 0 1000 2000 3000 FEET
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006
EFFECTIVE DATE
NOVEMBER 1, 1985
01

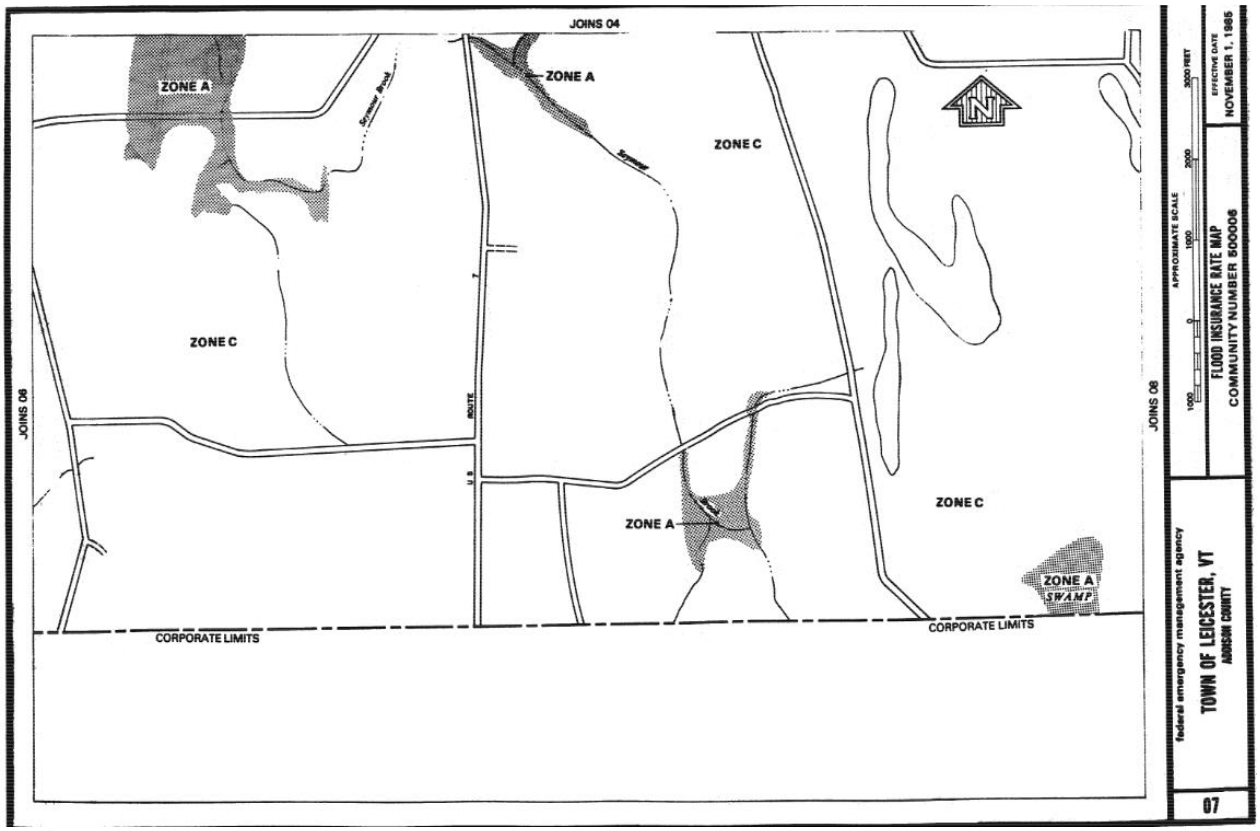

JOINS 01
CORPORATE LIMITS
LAKE DUNMORE
ZONE A
ZONE C
Green Mountain National Forest
ZONE A
ZONE C
CORPORATE LIMITS
JOINS 06
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
APPROXIMATE SCALE
1000 0 1000 2000 3000 FEET
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006
EFFECTIVE DATE
NOVEMBER 1, 1985
02

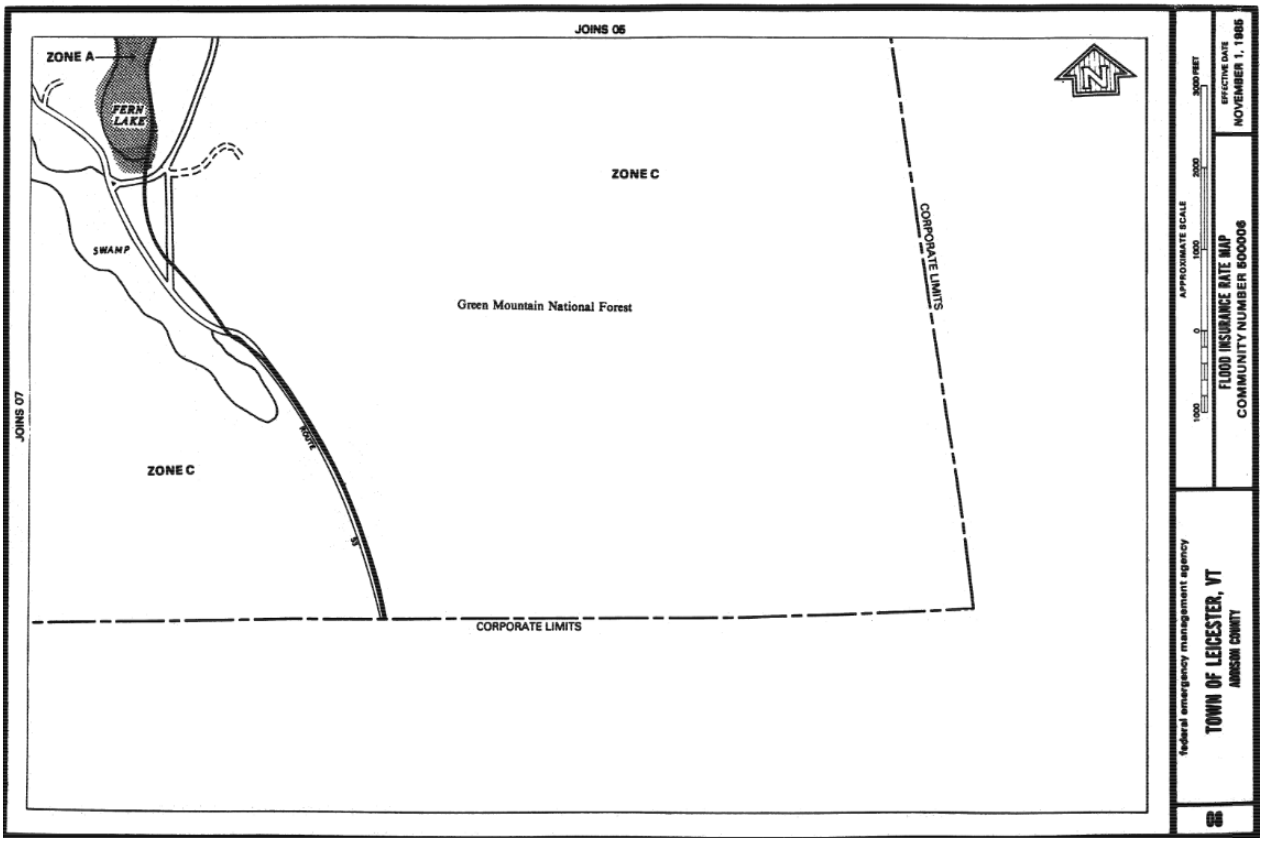

CORPORATE LIMITS
ZONE C
ZONE A
SALISBURY SWAMP
SWAMP
ZONE A
CORPORATE LIMITS
OTTER
ZONE C
SWAMP
ZONE A
ZONE C
OTTER
ZONE C
ZONE C
SWAMP
SWAMP
ZONE C
ZONE A
CORPORATE LIMITS
ZONE C
JOINS 06
JOINS 04
APPROXIMATE SCALE
1000 0 2000 3000 FEET
EFFECTIVE DATE
NOVEMBER 1, 1985
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
03


JOINS 02
ZONE A
SILVER LAKE
LAKE DUNMORE
ZONE A
ZONE C
CORPORATE LIMITS
Green Mountain National Forest
JOINS 04
ZONE C
ZONE C
FERN LAKE
ZONE A
CORPORATE LIMITS
JOINS 08
APPROXIMATE SCALE
1000 0 2000 3000 FEET
EFFECTIVE DATE
NOVEMBER 1, 1985
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
05


JOINS 01
ZONE A
CORPORATE LIMITS
ZONE C
SALISBURY SWAMP
ZONE A
ZONE C
SWAMP
LAKE DUNMORE
ZONE A
JOINS 03
JOINS 05
SALISBURY SWAMP
ZONE C
SWAMP
ZONE C
ZONE C
ZONE A
ZONE A
JOINS 07
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006
EFFECTIVE DATE
NOVEMBER 1, 1985


JOINS 03
ZONE A
CORPORATE LIMITS
ZONE A
SWAMP
ZONE A
SWAMP
SWAMP
ZONE C
CORPORATE LIMITS
SWAMP POND
ZONE C
ZONE C
JOINS 07
SWAMP
ZONE A
ZONE A
SWAMP
ZONE C
CORPORATE LIMITS
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006
EFFECTIVE DATE
NOVEMBER 1, 1985


JOINS 04
ZONE A
ZONE A
ZONE C
ZONE C
JOINS 06
JOINS 08
ROUTE 7
ROUTE 11 & 9
ZONE A
ZONE C
ZONE A
SWAMP
CORPORATE LIMITS
CORPORATE LIMITS
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
07
APPROXIMATE SCALE
1000 0 1000 2000 3000 FEET
EFFECTIVE DATE
NOVEMBER 1, 1985
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006


JOINS 05
ZONE A
FERN LAKE
ZONE C
SWAMP
CORPORATE LIMITS
Green Mountain National Forest
JOINS 07
ROUTE 53
ZONE C
CORPORATE LIMITS
federal emergency management agency
TOWN OF LEICESTER, VT
ADDISON COUNTY
08
APPROXIMATE SCALE
1000 0 1000 2000 3000 FEET
EFFECTIVE DATE
NOVEMBER 1, 1985
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 500006

Appendix 3. Flood Hazard language in Leicester Unified Development Regulations

Adopted 3/20/2017, Effective 4/10/2017

Section 2.4.7 FLOOD HAZARD OVERLAY AREAS

A. Objectives and Guidelines – It is the purpose of these regulations to promote the public health, safety, and general welfare, to prevent increases in flooding caused by the uncontrolled development of lands in areas of special flood hazard, and to minimize losses due to floods by establishing zoning regulations governing areas of special flood hazard in the Town of Leicester, as authorized pursuant to 24 V.S.A. 4411 and 4424. The purposes for these Regulations include:

- Restricting or prohibiting uses that are dangerous to health, safety, or property in times of flood or cause excessive increase in flood heights or velocities;
- Requiring that uses vulnerable to floods, including public facilities that serve such uses, shall be protected against flood damage at the time of initial construction;
- Protecting individuals from buying lands that are unsuited for their intended purposes because of flood hazard.

B Permitted Conditional Uses -

Upon approval of a conditional use by the DRB, the following open space uses, if otherwise allowed under these regulations, shall be permitted within the area of special flood hazard unless: they are prohibited by any other ordinance; or they require the erection of structures or storage of materials or equipment; or they involve borrowing fill from outside the flood hazard area; or they modify or relocate the channel, obstruct flood flows or otherwise affect the water carrying capacity of the regulatory floodway or channel; or they increase offsite flood damage potential.

1. Agricultural uses, such as general farming, pasture, orchard, grazing, outdoor plant nurseries, truck farming, and forestry.
2. Recreation uses, such as parks, camps, picnic grounds, tennis courts, golf courses, golf driving ranges, archery and shooting ranges, hiking and riding trails, hunting and fishing areas, game farms, fish hatcheries, wildlife sanctuaries, nature preserves, swimming areas, and boat launching sites.
3. Accessory residential uses, such as lawns, gardens, parking areas, and play areas.

C. Prohibited Uses -

Notwithstanding the allowances of the zoning district regulations of these Regulations, the following uses shall be prohibited in all flood hazard areas:

1. All residential, commercial, industrial, and other buildings intended for human occupancy or employment, excluding recreational, agricultural and non-residential temporary uses.
2. All landfills, junkyards, sand and gravel extraction and quarrying sites, and storage of flammable liquids.
3. Sewage disposal and water supply facilities.

Section 4.1.6 SETBACKS FROM RIVERS AND STREAMS

These regulations restrict development within a certain distance from the top of banks of all rivers, streams and the lake. The restrictions, and vegetated buffers created by the restrictions have several purposes relating to both riverine habitat preservation and limiting erosion listed as follows:

1. To promote the health, safety and welfare of the citizens of Leicester by allowing its rivers and streams to move within their corridors;
2. To mitigate increases in downstream river erosion resulting from development in river and stream corridors;
3. To minimize property loss and damage due to river erosion and limiting land uses and development in river and stream corridors that may pose a danger to health and safety.
4. To protect water quality
5. To protect aquatic habitat
6. To protect terrestrial habitat
7. To maintain riverine wetlands

Accordingly, these Regulations prohibit development of structures within the following distances from the top of the bank of rivers and streams:

1. 50 feet from the mean high water line of Lake Dunmore and Fern Lake
2. 50 feet from the top of bank of rivers, brooks and streams that flow year-round;
3. 25 feet from seasonal streams and brooks.
4. 50 feet from the boundary of Class II wetlands

ARTICLE VIII: DEFINITIONS

FLOODPROOFED OR FLOOD PROOFING: Any combination of structural and nonstructural additions, changes, or adjustments to properties and structures which substantially reduces or eliminates flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

SUBSTANTIAL IMPROVEMENT: Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (a) before the improvement or repair is started, or (b) if the structure has been damaged and is being restored to a similar condition, before the damage occurred. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions, or (2) any alternation of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places**.**

Appendix 4. Wind Scales

Saffir-Simpson Hurricane Wind Scale				
Tropical Depression		≤38 mph, ≤33 knots, ≤62 km/h	**Tropical Storm**	39–73 mph, 34–63 knots, 63–118 km/h
Category	**Wind Speed**	**Types of Damages Due to Hurricane Winds**		
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.		
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.		
3 (Major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built frame homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.		
4 (Major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.		
5 (Major)	≥ 157 mph ≥ 137 kt ≥ 252 km/h	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.		

Source: https://www.nhc.noaa.gov/aboutsshws.php

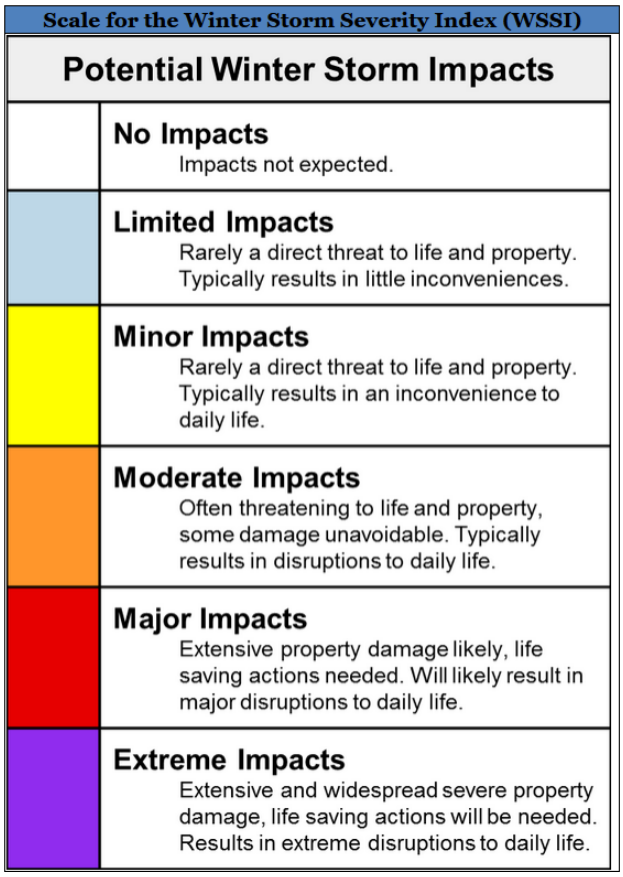
Enhanced Fujita Scale			
Scale	**Wind Speed**		**Types of Damages Due to Hurricane Winds**
	mph	km/h	
EF0	65-85	105-137	*Minor or no damage.* Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.
EF1	86-110	138-177	*Moderate damage.* Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	178-217	*Considerable damage.* Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165	218-266	*Severe damage.* Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged.
EF4	166-200	267-322	*Devastating damage.* Well-constructed and whole frame houses completely leveled; cars and other large objects thrown and small missiles generated.
EF5	>200	>322	*Extreme damage.* Strong-framed, well-built houses leveled off foundations are swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; some cars, trucks, and train cars can be thrown approximately 1 mile (1.6 km).

Source: http://www.spc.noaa.gov/efscale/ef-scale.html

Appendix 5. Winter Storm Severity Index

The WSSI is broken down into six components that are individually weighted based on the WSSI categories and then summarized into overall severity:

- **Snow Amount:** to depict severity due to total amount of snow or rate of snowfall accumulation. (Adjustments are made based on climatology and urban areas, e.g. 4" of snow in Atlanta is more severe than 4" in Minneapolis.)
- **Snow Load:** to depict severity due to total weight of snow on trees and power lines.
- **Blowing Snow:** to depict severity mainly to transportation due to blowing and drifting snow.
- **Ice Accumulation:** to depict severity of transportation and downed trees/powerlines due to the accumulated ice in combination with wind.
- **Ground Blizzard:** to depict severity to mainly transportation of ground blizzards that develop due to a pre-existing snowpack and strong winds.
- **Flash Freeze:** to depict severity primarily to transportation of situations where temperatures rapidly fall below freezing during precipitation.



Source: https://www.weather.gov/ict/WSSI_Overview

Appendix 6. Forest Service Fire Hazard Modelling