

Plan Lapses 11-22-24

Town of Salisbury

New Hampshire

Hazard Mitigation Plan Update 2019



2018 JULY- Microburst Damage behind Academy Hall
Photo courtesy of Town Office

Adopted by the Salisbury Board of Selectmen
November 6, 2019

NH HSEM/FEMA Approved November 22, 2019

Plan Lapses 11-22-24

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New Hampshire

Hazard Mitigation Plan Update 2019

Selectmen Adopted November 6, 2019

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Town of Salisbury

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Salisbury, NH 03268

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www.salisburynh.org

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28 Commercial Street, Suite 3

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NH Department of Safety (NH DOS)

NH Homeland Security and Emergency Management (NH HSEM)

33 Hazen Drive

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Concord, NH 03301 (Physical Address)

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<https://apps.nh.gov/blogs/hsem>



US Department of Homeland Security

Federal Emergency Management Agency (FEMA)

99 High Street, Sixth Floor

Boston, Massachusetts 02110

Phone: (617) 223-9540

www.fema.gov



FEMA

JAN 06 2020

Alexxandre Monastiero, State Hazard Mitigation Officer
New Hampshire Department of Safety, Homeland Security and Emergency Management
33 Hazen Drive
Concord, New Hampshire 03303

Dear Ms. Monastiero:

As outlined in the FEMA-State Agreement for FEMA-DR-4457, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. Our Agency has been notified that your office completed its review of the Town of Salisbury New Hampshire Hazard Mitigation Plan Update 2019 and approved it effective **November 22, 2019** through **November 21, 2024** in accordance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, the National Flood Insurance Act of 1968, as amended, and Title 44 Code of Federal Regulations (CFR) Part 201.

With this plan approval, the jurisdiction is eligible to apply to New Hampshire Homeland Security and Emergency Management for mitigation grants administered by FEMA. Requests for funding will be evaluated according to the eligibility requirements identified for each of these programs. A specific mitigation activity or project identified in this community's plan may not meet the eligibility requirements for FEMA funding; even eligible mitigation activities or projects are not automatically approved.

The plan must be updated and resubmitted to the FEMA Region I Mitigation Division for approval every five years to remain eligible for FEMA mitigation grant funding.

Thank you for your continued commitment and dedication to risk reduction demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please contact Melissa Surette at (617) 956-7559 or Melissa.Surette@fema.dhs.gov.

Sincerely,

A handwritten signature in cursive script that reads "Mark F. Gallagher for". The signature is written in dark ink and is positioned above the typed name of the signatory.

Captain W. Russ Webster, USCG (Ret.), CEM
Regional Administrator
FEMA Region I

WRW:ms

cc: Fallon Reed, Chief of Planning, New Hampshire

From: [Hazard Mitigation Planning](#)
To: [Stephanie Alexander](#); [April Rollins](#); "Salisbury Chief Bill McDuffie "
Cc: [Chase, Julia](#); [Monastiero, Alexxandre](#)
Subject: Salisbury, NH - Local Hazard Mitigation Plan - Formal Approval
Date: Monday, November 25, 2019 8:56:13 AM
Attachments: [Salisbury NH Final Local Mitigation Plan Review Tool.pdf](#)

Good morning,

Congratulations! The Town of Salisbury's Local Hazard Mitigation Plan has received **Formal Approval** as of **November 22, 2019**. This State Formal Approval is based upon the New Hampshire Department of Safety, Division of Homeland Security & Emergency Management's (HSEM) determination that the community's Local Hazard Mitigation Plan successfully met the requirements of 44 C.F.R Pt. 201. A copy of the adopted plan has been submitted to the Federal Emergency Management Agency (FEMA) for their records.

Please find the Final Local Mitigation Plan Review Tool attached. The Town of Salisbury will receive a copy of FEMA's Formal Approval Letter reflecting the approval date identified above within the next few weeks.

Thank you for your continued dedication to hazard mitigation!

Kayla J. Henderson

**NH Department of Safety – Division of Homeland Security & Emergency Management
Hazard Mitigation Planning**

Hazard Mitigation Staff:

Alexx Monastiero, State Hazard Mitigation Officer / Alexxandre.Monastiero@dos.nh.gov / (603) 223-3627

Kayla Henderson, State Hazard Mitigation Planner / Kayla.Henderson@dos.nh.gov / (603) 223 3650

Whitney Welch, Asst. Chief of Planning / Whitney.Welch@dos.nh.gov / (603) 223-3667

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1 PLANNING PROCESS

The Town's Hazard Mitigation Committee reformed to rewrite the Plan into a more concise format and to incorporate the newest material required by FEMA in addition to updating the Town's newest information since **2014**. This Planning Process Chapter contains information previously available in the Introduction Chapter of the **Plan Update 2014**. Expanded public participation steps were taken and a new plan development procedure was used as documented in the Methodology section.

Certificate of Adoption, 2019

Town of Salisbury, NH
Board of Selectmen
9 Old Coach Road, PO Box 214
Salisbury, NH 03268

A Resolution Adopting the Salisbury Hazard Mitigation Plan Update 2019

WHEREAS, the Town of Salisbury has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Hazard Mitigation Plan Update 2019** including but not limited to flooding, high wind events, severe winter weather, and fire, resulting in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Salisbury has developed and received conditional approval from the NH Homeland Security and Emergency Management (NHHSEM) for its **Hazard Mitigation Plan Update 2019** under the requirements of 44 CFR 201.6; and

WHEREAS, public and Committee meetings were held between **January through August 2019** regarding the development and review of the **Hazard Mitigation Plan Update 2019**; and

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

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

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

RESOLVED by Town of Salisbury Board of Selectmen:

The **Hazard Mitigation Plan Update 2019** is hereby adopted as an official plan of the Town of Salisbury; The respective officials identified in the mitigation action plan of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;

Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution; and

An annual report on the progress of the implementation elements of the Plan shall be presented to the Board of Selectmen by the Emergency Management Director or designee.

IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Salisbury this 6th day of November, 2019.

ATTEST



Town Clerk

April Rollins
April Rollins, Town Clerk

James Zink-Mailoux

Board of Selectmen

Ken Ross-Raymond 11/19/2019
Ken Ross-Raymond, Chair date

John Herbert 11/19/19
John Herbert, Member date

James Hoyt 11/19/19
James Hoyt, Member date

Plan Process Acknowledgments

The Board of Selectmen-appointed Hazard Mitigation Committee was comprised of these individuals on behalf of their respective Departments, Boards or Committees who met between **January** through **August 2019** to develop the **Salisbury Hazard Mitigation Plan Update 2019**:

- **William MacDuffie**, Salisbury Emergency Management Director, Fire Department Chief, Highway Department Road Agent
- **Loretta Razin**, Salisbury Emergency Management, Deputy Director
- **Margaret Warren**, Salisbury Town Administrator, Staff Coordinator
- **Joseph Schmidl**, Salisbury Planning Board member
- **Ken Ross-Raymond**, Salisbury Board of Selectmen Chair
- **Pete Ballou**, Salisbury Board of Selectmen member (former)
- **James Hoyt**, Salisbury Board of Selectmen member

The following Central NH Regional Planning Commission (CNHRPC) staff contributed to the development of the Hazard Mitigation Plan Update:

- **Stephanie Alexander**, CNHRPC Senior Planner
- **Nathan Cote**, CNHRPC Intern (GIS mapping)

Several other Town-affiliated individuals or other agency representatives attended one or more Committee meetings and/or contributed information to the content of the Plan. Members of the public* (0) had the opportunity to participate as fully as appointed members in the Hazard Mitigation Committee meetings.

** See Member of the Public definition on Page 6*

- **Charles Bodien**, Salisbury Building Inspector and Health Officer
- **Hilary Denoncourt**, Salisbury Elementary School Board SAU #46 member
- **Fred Reagan**, Merrimack Valley School District Facilities Manager
- **Raymond Deary**, Salisbury Planning Board Vice Chair
- **Kayla Henderson**, NH Homeland Security and Emergency Management Hazard Mitigation Planner
- **Stacey Elliott**, Capital Area Public Health Network, Public Health Emergency Preparedness Coordinator

Authority

In 2000, the President enacted the Disaster Mitigation Act 2000 (DMA) which requires states and municipalities to have local adopted and FEMA approved natural hazard mitigation plans in place to be eligible for disaster and mitigation funding programs such as the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance (HMA) programs, including Hazard Mitigation Grant Program, Flood Mitigation Assistance Program, and Pre-Disaster Mitigation Program. New Hampshire is awarded funds based upon the completeness of its State Plan and the number of local plans.

As a result of the DMA, funding was provided to state offices of emergency management, including the New Hampshire Homeland Security and Emergency Management, to produce local (municipal) hazard mitigation plans. To remain in compliance with the DMA, the Town of Salisbury is required to submit for FEMA approval a revised **Hazard Mitigation Plan Update** every five years.

The New Hampshire Homeland Security and Emergency Management (NH HSEM) produced its latest approved [State of New Hampshire Multi-Hazard Mitigation Plan 2018](#) in **October 2018**. The development of the State's Plan allows for New Hampshire to receive funding programs to provide to communities in the event of disasters or for mitigation.

Prior versions of the Town's Hazard Mitigation Plan are noted in the [Final Plan Dates](#) section. A **2017** Pre-Disaster Mitigation (PDM) grant provided 75%/25% funding for the Town to update its prior Plan through the Central NH Regional Planning Commission. The 25% match required by the Town was provided by in-kind staff and volunteer time and labor.

This **Salisbury Hazard Mitigation Plan Update 2019** has been developed in accordance with the Disaster Mitigation Act of **2000** and the [FEMA Local Mitigation Plan Review Guide, October 1, 2012](#) and effective one year later. The most recent Plan development standards provided by FEMA Region I have also been incorporated. The planning effort of the Town is a regular process and this Plan is considered to be a "living document."

The **2019** Salisbury Hazard Mitigation Committee was established by the Board of Selectmen in fall **2018** and guided the development of the Plan. The Committee consisted of the Town's Emergency Management, Town Administration, Fire and Rescue Departments, Highway Department, Planning Board, and Board of Selectmen, while additional Town representatives attended and participated in meetings. The Town has no Police Department. Stakeholder participants actively contributed to Committee activities.

The attendees of the meeting process are noted in the [Acknowledgements](#). The Central NH Regional Planning Commission, of which Salisbury is a member, contributed to the development of this Plan by facilitating the meeting and technical processes, working with the Committee and its members to obtain information, preparing the document, and handling the submissions to NH HSEM and FEMA.

Methodology

The **Salisbury Hazard Mitigation Plan Update 2019** was developed over an eight-month period, with a group of Town staff members and volunteers, public participants and the CNHRPC comprising the majority of the Hazard Mitigation Committee. The **2019** methodology for Plan development is summarized in this section. The **Hazard Mitigation Plan** is designed differently from the **2014 Plan** with the intent to better conform to the current approvable Central NH Region format and incorporating the new **2018 State Multi-Hazard Mitigation Plan** items, with the purpose of easier updating and implementation while meeting FEMA's requirements. The Plan roughly follows the **FEMA Local Mitigation Planning Handbook, 2013** by using its terminology and some of its tasks, ensuring **Salisbury's Plan Update 2019** begins to follow a standardized approach to Plan construction and content endorsed by FEMA. Many of the vital sections of the **2019 Plan Update** will be contained in the chapter **10 APPENDICES** for easier display, usage, sharing, and update.

MEETINGS AND DUTIES

The meetings and tasks of the Hazard Mitigation Committee were dictated by Agendas and how much the Committee was able to complete for each Agenda is displayed in **Table 1**. Work Sessions were designed to accomplish what could not be completed at meetings due to time constraints.

Table 1
Meeting Schedule and Agenda Activities

Meeting	Date	Agenda Activities – See APPENDIX C
Meeting 1	01-28-19	Discuss Process and Schedule; Review Declared Disasters and Public Assistance Funding to Salisbury; Develop New Hazard Identification and Risk Assessment (HIRA), Identify Potential and Past Hazard Locations 2013-2018; Schedule Meetings
Work Session 1	03-18-19	Identify Potential and Past Hazard Locations 2013-2018; Update Critical and Community Facilities Vulnerability Assessment and Develop Problem Statements; Update Maps 1-2 and New Flood Hazards Map
Meeting 2	04-01-19	Critical & Community Facilities Vulnerability Assessment and Determine Problem Statements; Review and Update Goals and Objectives for 2019; Review & Update Capability Assessment
Work Session 2	04-29-19	Finalize Problem Statements and Identify Those to Utilize as NEW 2019 Mitigation Actions; Review & Update Capability Assessment
Work Session 2.2	05-13-19	Review & Update Capability Assessment
Work Session 2.3	05-20-19	Review & Update Capability Assessment
Meeting 3	06-10-19	Determine Status of the 2014 Mitigation Actions; Develop Mitigation Action Plan 2019
Work Session 3	06-24-19	Develop Mitigation Action Plan 2019; Prioritize Mitigation Action Ranking Scores for Action Achievability; Overview of

Meeting	Date	Agenda Activities – See APPENDIX C
		Meeting 4; Work Session 4 and Public Information Meeting; Meeting Schedule
Meeting 4	08-12-19	Review Draft Hazard Mitigation Plan Update 2019 (onscreen); Overview of Work Session 4 Tasks; Schedule Public Information Meeting
Work Session 4	08-26-19	Review Draft Hazard Mitigation Plan Update 2019; Interim Hazard Mitigation Plan Implementation 2020-2014; Prepare for Public Information Meeting; Review Plan Approval Process; Prepare for Board of Selectmen Adoption Meeting
Public Information Meeting	09-18-19	HMC members present sections of the Plan to the public in a brief question and answer format meeting. Describe hazards and mitigation Actions. Maps will be available.

Source: Salisbury Hazard Mitigation Committee Agendas, 2018-2019

For each meeting, all attendees signed attendance sheets and meeting match timesheets, documenting their time at the meetings. The Committee members worked to complete the Agendas, including developing the **Hazard Risk Assessment**, **Critical and Community Facilities Vulnerability Assessment**, **Capability Assessment**, and **Mitigation Action Plan**, completing the **Enhanced STAPLEE Action Prioritization**, etc. along with input from members of the public and guests. The agendas and attendance sheets are included in **APPENDIX C** of the Plan.

Who is a Member of the Public?

For the purposes of this Plan, **“a member of the public”** or **“the public”** or **“public participant”** means:

Anyone who is not a Town of Salisbury, School District, County, State, or federal government employee; anyone who is not paid for services by tax dollars; anyone who is not a volunteer of the Town; and anyone who does not represent non-profit agencies and other Committees of which the Town is a member.

The specific meeting tasks are described in detail on the Agendas in **APPENDIX C**. CNHRPC staff facilitated the Committee meetings and Work Sessions. Information needed on the Agenda Tasks indicated above was collected from any attendees present, including any members of the public, by CNHRPC, during discussions among attendees. The new and updated information was described in each Chapter under the **2019 Plan Update** section. Maps were reviewed and updated by the Committee and guests and revised in a Geographic Information System (GIS) by CNHRPC.

In between meetings, Town staff and volunteers and CNHRPC staff researched and collected information for the Chapters. CNHRPC updated and rewrote Chapters, tables, and sections as appropriate. The Chapters were also updated by revising the document to the current FEMA standards.

OPPORTUNITY FOR PUBLIC PARTICIPATION

Public Input from the Hazard Mitigation Committee Meetings

The public notification is described in the Public Outreach Strategy sidebar. Zero (0) members of the public attended the meetings as indicated in the **Acknowledgements** and by the Attendance Sheets in **APPENDIX C Meeting Information**, although the Public Information Meeting was well attended. Members of the public would have assisted with completing the Agendas, including developing the **Hazard Identification Risk Assessment, Critical and Community Facilities Vulnerability Assessment, Capability Assessment, and Mitigation Action Plan**, completing the **Enhanced STAPLEE Action Prioritization**, etc. along with the Committee members. The general public had the opportunity to attend and participate in the **11** posted meetings or to contact the Staff Coordinator for more information.

Public Input from the Public Information Meeting

The **Public Information Meeting (PIM)** was held on September 18, 2019. The Hazard Mitigation Committee members presented portions of the Plan and had the Maps available for display. The agenda and attendance sheet are included in **APPENDIX C**. Held during a scheduled Board of Selectmen meeting, the PIM involved **several** members of the public who listened to presentations, asked questions and had the opportunity to review the final draft Plan document, Appendices and Maps.

Public Outreach Strategy

Many individuals were personally invited to attend and participate in the Salisbury Hazard Mitigation Plan Committee meetings. They included surrounding community Emergency Management Directors, Town Boards and Committees, Town Departments. NH Homeland Security and Emergency Management (NHHSEM) Representatives were also invited and attended some of the meetings, as did a representative from the Capital Area Public Health Network and the Salisbury Elementary School Board.

The Hazard Mitigation Committee itself was comprised of people representing multiple Town Departments, staff, and Committees, including Emergency Management, Town Administration, Fire and Rescue Departments, Highway Department, Planning Board, and the Board of Selectmen.

The public process for this Plan included posting the meeting information on the Town's online calendar and website at www.salisburynh.org and a dedicated webpage describing newest haz mit events at <https://www.salisburynh.org/home/news/2019-salisbury-hazard-mitigation-plan-update>. Occasional press releases were sent to the Concord Monitor (daily subscription regional newspaper serving over **40** Capital Area communities) and notices were physically posted at the Academy (Town) Hall, outside on the Town Bulletin Board, and at the Post Office. Local interests had multiple opportunities to attend and participate in the meetings. As a very small, rural community, Salisbury had **0** members of the public attend and participate in HMC meetings. Copies of publicity for the Plan are included in **APPENDIX C**.

The Central NH Regional Planning Commission, a non-profit governmental regional organization of which Salisbury is a member, contributed to the development of this Plan by facilitating the meetings, guiding the planning process, and preparing the Plan documents, Appendices, and Maps.

As a final attempt to obtain additional public input, a specially noticed Public Information Meeting was held on September 18, 2019 at a Board of Selectmen's meeting at which many members of the public participated. This meeting was publicly posted at the above locations as well as at the Barn Store of New England, Blackwater Veterinary Services, and the Free Library. All documents were available for review on the Town's website in advance of the meeting.

The attendees and publicity of the public planning process are noted in the **Acknowledgements**.

Public Input from the Board of Selectmen Adoption Meeting

The Board of Selectmen meeting to adopt the **Hazard Mitigation Plan** was held on November 6, 2019. Since the Plan's APA had been received, the Board permitted public comment prior to adoption although Plan changes could not be made at this time. Discussion was held prior to the unanimous adoption of the Plan by the Board.

COMPLETION OF THE PLAN STEPS AND DATES

On September 18, 2019, the Committee held a **Public Information Meeting**. The same extensive public notification described in the Public Outreach Strategy sidebar occurred to obtain review and comment from the public for the Plan. On September 25, 2019, this Plan, Appendices and Maps were submitted to the NH Homeland Security and Emergency Management (NHHSEM) for compliance review and revision to apply for Approved Pending Adoption (APA) status, also known as conditional approval.

On October 15, 2019, Salisbury received an **Approved Pending Adoption (APA)** notification from NHHSEM. The APA states the Plan will be approved by FEMA after proof of adoption by the local governing body, a Certificate of Adoption from the Board of Selectmen, is submitted.

On November 6, 2019, the Board of Selectmen **adopted the Hazard Mitigation Plan Update** for the Town at a duly noticed public meeting. Copies had been made available at the Town Office and on the Town website for public review. The public notice and flyers are included in **APPENDIX C**. The signed Certificate of Adoption was sent to NHHSEM/FEMA.

On November 22, 2019, Salisbury received a **Notification of Formal Approval** from NHHSEM, with the Plan approval granted effective that day. A **Letter of Formal Approval** from FEMA confirming the notification will be forthcoming. The next Hazard Mitigation Plan update is due five (5) years from this date of approval, on November 22, 2024.

Final Plan Dates

The following is a summary of the required dates which guide the adoption and update of the **Salisbury Hazard Mitigation Plan**. Included is the history of the Plan approvals and expiration dates as shown in **Table 2**.

Table 2
Salisbury's Hazard Mitigation Plan Adoption History

Year of FEMA-Approved Hazard Mitigation Plan	Adoption by Salisbury Board of Selectmen	NHHSEM/ FEMA's Formal Approval	Plan Expiration/ Lapse
Original 2008	10/01/08	02/12/09	02/12/14
Update 2014	10/15/14	12/18/14	12/18/19
Update 2019	11/06/19	11/22/19	11/22/24

Source: Plan Adoption History

2 COMMUNITY PROFILE

It has been over five years since the last Plan was written, with the last decennial Census in **2010**. The best available new data has been used in this Chapter to portray the population, housing, and overall demographic picture of present-day Salisbury. The former **Relation to Natural Hazards** section has been updated within **4 HAZARD RISK ASSESSMENT** as **Built Environment Changes**. The tables clearly identify the facilities in Town and which natural, human, and technological hazard events could most likely occur in those areas, as described in **5 COMMUNITY VULNERABILITY ASSESSMENT AND LOSS ESTIMATION**.

A simplified description of how the Town's population and housing have grown within the last four decades follows. Relationships of the locations of people and buildings to natural hazard events are generally explored. Examination of this information will allow the Town to better understand the land use and demographic trends within its borders and how emergency and preventative services can best serve the growing and changing population and landscape.

Geographic Context

The Town of Salisbury is located in western Central New Hampshire within Merrimack County. The Town is bordered by five communities: the Town of Andover to the north, the City of Franklin to the east, the Towns of Boscawen and Webster to the south, and the Town of Warner to the south and west. The State's capital of Concord is about **25** miles from the geographic center of Salisbury in a straight line, most accessible from US 4. State highway NH 127 traverses the southeastern section of the Town, crossing US 4 in the Village. US 4, the main route through Salisbury, bisects the community from southeast (Boscawen) to north (Andover).

One side of Mount Kearsarge, the inaccessible eastern side, is located in Salisbury. Much of the remaining eastern section of the Town resides within the **Blackwater Flood Control Reservoir** through which the **Blackwater River** flows south into Webster and Hopkinton before its convergence with the **Contoocook River**. Other than the **Reservoir**, the Town has little Special Flood Hazard Areas (floodplains).

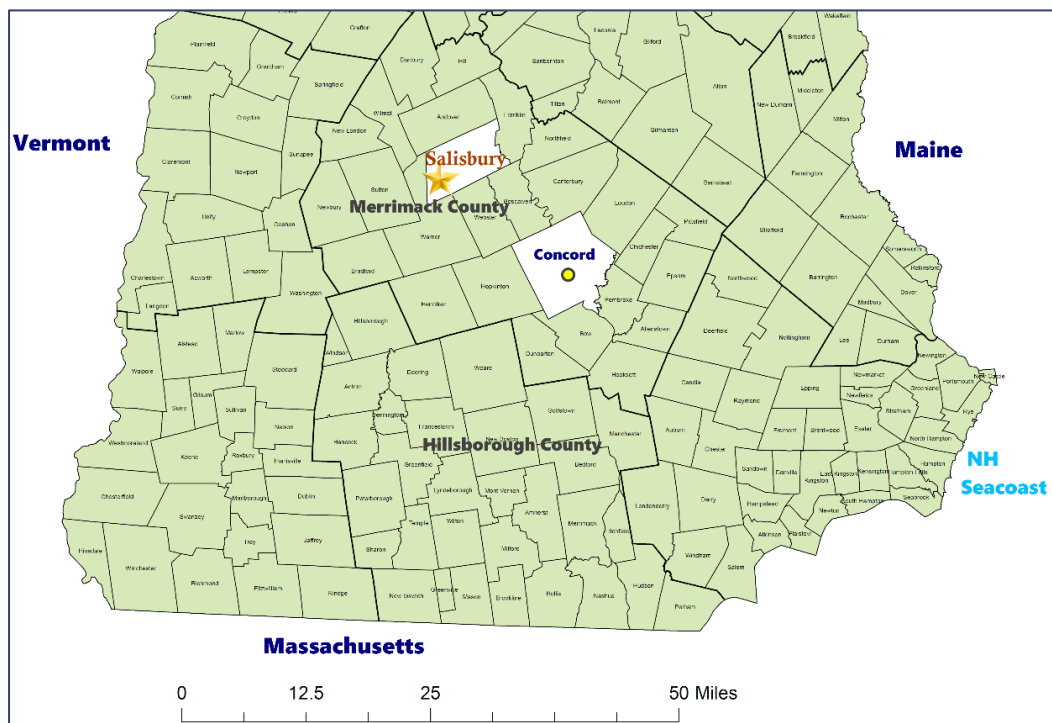
The **39.8** square mile Town of Salisbury contains a few high density areas, such as Hensmith Road, Brookside Drive, and Tucker Pond, a seasonal population center. The "Crossroads", a historical junction at present day NH 127 and US 4, was formerly known as the South Road Village and now is where the modern day Safety Complex, Post Office, and Academy (Town) Hall are located. A contemporary second village in "Salisbury Heights" north on US 4 contains the Old Town Hall, Salisbury Free Library, Baptist Meeting House, and other amenities. Homes are scattered along Loverin Hill Road, West Salisbury Road, NH 127 and US 4. Much of Salisbury's acreage is formed by the federal **Blackwater River Reservoir**,

Mount Kearsarge State Forest, many conservation lands held by nonprofit land trusts, and private land ownership. The Town is a member of the **7-** Town Merrimack Valley School District, SAU #64. The Town of Salisbury remains a highly rural community of about **1,407** people (**2017**) with distinctive New Hampshire characteristics and amenities, but with little easy highway access, population may increase very slowly over the coming decades and the Town's existing population may be aging fast. The Town is a member of the [Currier & Ives Scenic Byway](#) following NH 127.

Merrimack County in which Salisbury resides is often referred to as a valley as its borders are higher in elevation than its middle communities. The State Capital of Concord is joined by Franklin, both of which are cities in the County. Merrimack County is surrounded on all sides by other NH Counties, including Hillsborough, Sullivan, Belknap, Rockingham, Strafford, and Grafton. Most, but not all, communities in Merrimack County comprise the majority of the Central NH Planning Region joined by two communities from Hillsborough County. Hillsborough County borders Massachusetts and includes the cities of Manchester and Nashua.

Concord is located about **50** miles from the Massachusetts state border, the Vermont state border, the Maine state border, and the seacoast. New Hampshire's many Interstates, US Routes, NH Routes, and local roadways generally enable travel and commute from Central NH to most of these points in about one hour. Salisbury is geographically closer to Vermont than the Seacoast or Massachusetts. The Town of Salisbury's context within Merrimack County and the State of New Hampshire is shown in **Figure 1**.

Figure 1
Salisbury in the State



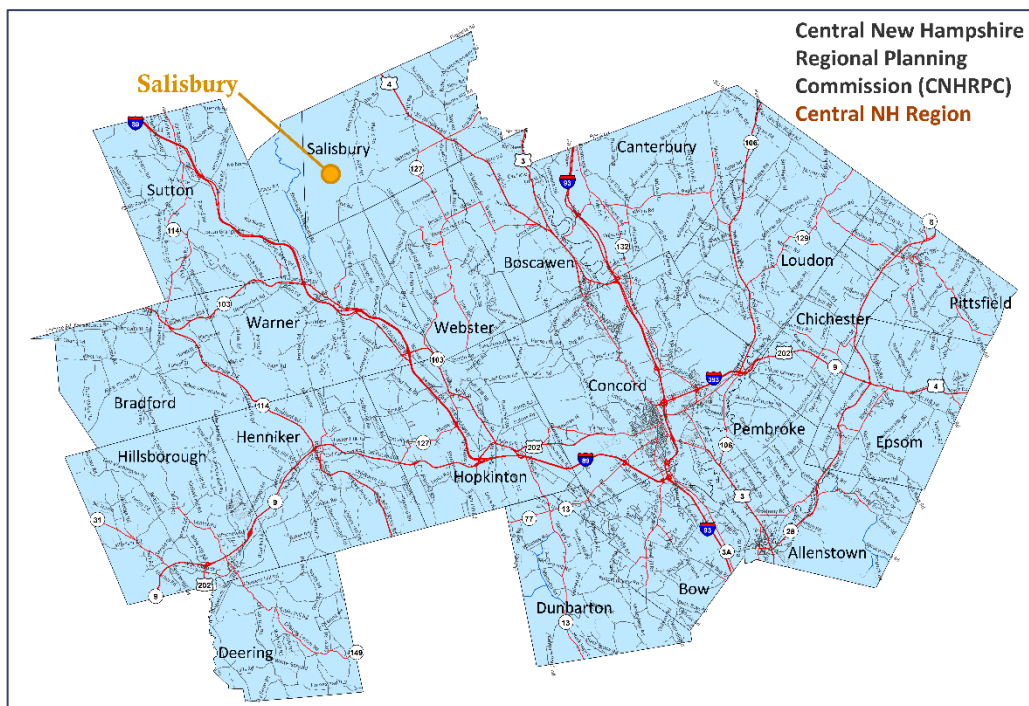
Source: Central NH Regional Planning Commission

The Town is a voluntary member of the Central New Hampshire Regional Planning Commission. The **19** Towns and **1** City comprising the Central NH Region contain several major rivers and New Hampshire and Interstate highways. The varied identity of Salisbury ensures its adaptability as growth occurs around and within the community.

The **Blackwater River** (Salisbury, Webster, Hopkinton) and the **Warner River** (Warner, Sutton, Bradford, Hopkinton, Webster) flow south into the **Contoocook River**. The **Contoocook River** flows in a north-easterly direction through Hillsborough, Henniker, Hopkinton, Concord, and Webster until its confluence with the **Merrimack River** in Boscawen/Penacook (Concord). The **Contoocook** and the **Merrimack Rivers** effectively bisect the region into three sections. The **Soucook River** flows south through Loudon along the Concord/Pembroke border and enters the **Merrimack River**. The **Suncook River** originates in Belknap County, flowing south through Pittsfield, Chichester, Epsom, Pembroke, and Allenstown until it also converges into the **Merrimack River** in Bow/Hooksett.

In the Central NH Region, Interstates 89, 93 and 393 stretch in north, northwest, east, and south directions, meeting in Concord and Bow. Major traffic routes of US Route 3 flow north-south and US Routes 4/202 traverses in an east-west direction. Salisbury hosts corridors of US 4 (north-southeast) and NH 127 (southeast). Dozens of NH state highways crisscross the entire region. A map of the Central NH Region and its major routes is displayed in **Figure 2**.

Figure 2
Salisbury in the Central NH Region



Source: Central NH Regional Planning Commission

Population and Housing Growth

The latest Salisbury Master Plan was adopted in **August 2017**, developed by the Planning Board with assistance from the CNHRPC. Chapters from the [Master Plan 2017](#) include Salisbury Today, Salisbury Tomorrow, Implementation, Natural Resources, Housing, Existing and Future Land Use, Transportation, Community Facilities, and Energy. New future chapters to consider could include Economic Development. The **Hazard Mitigation Plan 2019** could be adopted as an appendix to the updated Master Plan. The Master Plan influences the Zoning Ordinance and the Subdivision and Site Plan Review Regulations along with the Capital Improvements Program. These documents are used by local land use boards and staff to guide growth and development of Salisbury.

POPULATION AND HOUSING TRENDS

The following tables contain the newest available data on housing and population growth which depict development trends over time. Shown in **Table 3**, Salisbury's population and housing increases have varied across the decades. During the **1970-1980** decade, the Town increased by **+33%** people and **+18%** homes, but increased at a higher rate during the following **1980-1990** decade (**+36%** people and **+19%** homes). The estimated **2017** population and housing units, based off the **2010** Census, assumed **1,405** people and **623** housing units in **2017** Salisbury. In total, the Town has grown by **+816** people and **+322** homes by confirmed Census counts, from **1970-2010**, and estimates through **2017**.

Table 3
Overall Population and Housing Growth Trends in Salisbury, 1970-2017

Growth	Population	Net Change		Housing Units	Net Change	
		#	%		#	%
1970 Census	589	N/A	0	301	N/A	0
1980 Census	781	192	32.6%	355	54	17.9%
1990 Census	1,063	282	36.1%	421	66	18.6%
2000 Census	1,137	74	7.0%	514	93	22.1%
2010 Census	1,382	245	21.5%	598	84	16.3%
Total Change from 1970 – 2010 Census	---	793	134.6%	---	297	98.7%
2017 Population & Housing Estimates*	1,405	23	1.7%	623	25	4.2%
47 Years of Increase	+816 People			+322 Housing Units		

Sources: 1970-1990 US Census CPH-2-31 Table 9 Population and Housing Unit Counts; US Census 2000 & 2010 Data *includes all housing units, including vacant and seasonal and 2018 Group Quarters (0). NH Office of Strategic Initiatives (NHOSI) 2017 Population Estimates, Aug 2018, NHOSI Current Estimates and Housing Trends 2010-2017, Dec 2018

In **Table 3**, Salisbury's confirmed **2010** Census population of **1,382** shows an overall increase of about **+135%** in population over the previous four decades, up from only **589** people in **1970**. After an early growth boom between **1970-1990**, the population increases tapered off while the housing increases remained stable. Between **2000-2010**, the Town's population increased by **+22%** (**+245** people) while during the same time housing units increased by **+16%** (**+84** units). Only the **1990-2000** decade shows similar low growth patterns with **+7%** population growth (**+74** people). However, during this time period, the **+22%** housing units growth (**+93** units) represented the highest growth rate within the five-decade time span.

The overall population growth rate (**135%**) in Salisbury, over the **5** decades since **1970** is smaller than as most small population communities in the Central NH region. The Town's overall housing growth rate (**99%**) is among the smallest of these same communities.

These growth trends slowed dramatically during the current **2010-2017 (2020)** decade, with only a projected **+2%** population growth (**+23** people) and **+4%** housing units growth (**+25** units) to date. Three (**3**) more years of Census estimates are needed until the **2020** Census counts.

Interestingly, over the **1970-2017** period, the number of people living in each housing unit has increased and decreased over the decades. In **1970**, an average of **2.0** people lived in each housing unit, increasing to **2.2** in **1980** and reaching its peak in **1990** (**2.5** people per housing unit). The average declined to **2.2** in **2000**, and rose again in **2010** and **2017** to **2.3** people per housing unit. Overall, these numbers are quite different in comparison to other small Central NH Region towns, where by **2017** the fewest number of people lived in each household over **5** decades of decline; for these towns, this trend indicates an aging population with fewer people living in each home. For Salisbury, families and relatives seem to be aging together in place. The **2020** Census will provide information about the reasons for a high number of people per household in Town.

Another good measurement of community population and housing change is population density, or how many people live in a square mile of land area. Although Salisbury has a total area of **39.6** square miles (**25,468** acres), **0.2** square miles (**150** acres) of this total are water. Between **1970-2017**, the data for how many people live in Salisbury per square mile, known as population density, is displayed in **Table 4**.

Table 4
Population Density in Salisbury, 1970-2017

Municipality Size		Persons per Square Mile					
Land Acreage	Land Area in Square Miles	1970	1980	1990	2000	2010	2017
25,318	39.6	15	20	27	29	35	35

Sources: **Table 3**, NH Office of Strategic Initiatives GIS acreage calculations, 2013

From **Table 4**, the overall population density between **1970** and **2017** increased **+139%**, from **15** people per square mile in **1970** to **27** people in **1990** and to an estimated **35** people in **2017**. Salisbury is geographically an large-sized community in the Central NH Region at **39.8** square miles (including water acreage). At the same time, Salisbury has comparatively fewer people per square mile as compared to both other Central NH Region communities and communities statewide.

NEW CONSTRUCTION

Table 5 displays Salisbury’s estimated new home and new building construction permits issued by the Building Inspector between **2013-2019**. During this nearly **7-year** period, a total of **21** new construction permits for homes have been issued.

Table 5
New Construction Permits Issued by Building Type, 2013 – 2019

Building Type	2013	2014	2015	2016	2017	2018	2019 to Jun 30	7-Year Totals
Single Family Homes	2	2	4	2	6	2	2	20
Multi-family Homes	0	0	0	0	0	0	0	0
Manufactured Homes	0	1	0	0	0	0	0	1
Non-Residential Buildings	0	0	0	0	0	0	0	0
Totals	2	3	4	2	6	2	2	21

Source: Town of Salisbury Building Inspector, Building Permit files and Town Reports

From **Table 5**, these **21** permits were issued for **20** new single family homes only, with **0** permits for new multi-family and **1** permit for a new manufactured home. This period was not active for the construction of new non-residential buildings, which also had **0** total permits issued. The most active year was **2017** when a total of **6** new permits were issued, while **2015** saw **4** new permits issued. Since the **2019** data reaches only until **June 30**, there may be more permits issued through the year to be accounted for.

For additional comparison, from the **2014 Plan** Salisbury’s new construction permits totaled **35** between **2006** and **2013** (partial year).

It is important to note that the number of permits issued does not necessarily equate to buildings constructed. When using these figures, compared to most similar-sized Central NH region communities, Salisbury had less new construction during **2013-2019**.

Land Use and Zoning

According to NH Office of Strategic Initiative's **2013** geographic information system (GIS) calculations, Salisbury has a total land area of **25,318** acres, or **39.6** square land miles. An additional **150** acres (about **0.2** square miles) is water area, to total **25,468** acres in Salisbury. The GIS land acreage figure is nearly comparable to the most recent MS-1 **July 2019** and Avitar assessing reporting calculation of **24,938** land acres for the Town, not including the assumed **150** water acres. Certain acreages are often posted in more than one land use category for taxation purposes, and non-taxable land acreage is not displayed on MS-1 reports to the NH Department of Revenue Administration. Reviewing the assessing information closely should clarify the answer as to why this discrepancy exists. Small differences between the actual taxable land calculations from the assessing records and the acreage from the basic GIS calculations are often found and are not unusual.

For New Hampshire and specifically the Central NH Region, Salisbury is considered a large-sized community in terms of land area and contains lower population and housing figures. Salisbury's proportion of residential land and commercial land is lower than Towns in the Central NH Region. The Town of Salisbury is highly rural, forested, has no real commercial development, holds the federal **Blackwater River Flood Control Area** and a section of the Mount Kearsarge State Forest. Much of the residential land is in large lot size and has not has been built upon.

LAND USE TYPES AND ACREAGE

Table 6 provides a snapshot of the Town's **2019** land use acreage and compares it to the **2014** land use figures from the **2014 Plan**. Since **2014**, a little more land has become Forest acreage, at **67.5%** in **2019** and **66.9%** in **2014**. Slightly fewer acres are in Residential land use, down to **12.6%** in **2019** from **13.3%** in **2014**. Exempt land (**13.7%**) and Farm Land (**3.3%**) have remained the same over the past **5** years. Overall, the Town of Salisbury has seen little land use change since **2014**.

Table 6
Land Use Acreage Comparison, 2019 and 2014

Land Use Category 2019	Acres	% of Town	Land Use Category 2014	Acres	% of Town
Residential	3,147.7	12.6%	Residential	3,301.6	13.3%
Commercial/Industrial	7.7	0.0%	Commercial	7.2	0.0%
Exempt	3,426.2	13.7%	Tax Exempt & Non-Taxable	3,426.0	13.8%
CU Farm Land	821.4	3.3%	Farm Land	818.4	3.3%
CU Unmanaged Pine	2,571.4	10.3%			
CU Managed Hardwood	4,107.9	16.5%			
CU Managed Other (Local & Private Cons Lands)	1,316.8	5.3%			
CU Managed Pine	837.9	3.4%			
CU Unmanaged Hardwood	4,666.1	18.7%			

Land Use Category 2019	Acres	% of Town	Land Use Category 2014	Acres	% of Town
CU Unmanaged Other	3,342.5	13.4%			
Forest Subtotal	16,842.6	67.5%	Forest	16,628.0	66.9%
CU Unproductive	65.8	0.3%			
CU Wetlands	626.3	2.5%	Wetlands/Unproductive	670.0	2.7%
			Excavation	2.8	0.0%
Total	24,937.6	100.0%	Total Acres	24,854.0	100.0%

Source: Salisbury MS-1 2019 and Avitar Assessing Data, Town Administrator, July 2019;

SALISBURY ZONING

The perspective of the Town's Zoning Districts offers another way to view how the land is utilized within Salisbury in **Table 7**. Several tables of dimensional and density regulations pertaining to lot area, lot frontage, height and setbacks, impervious surface, parking, etc. are available within the Zoning Ordinance. The ordinance includes a table of uses and tables of dimensional regulations.

Table 7
Salisbury Zoning Districts, 2019

Zoning District
Residential
Retail Village
Agricultural
Zoning Overlay District
Village Center Overlay
Floodplain Development
Other Zoning Ordinances pertaining to use of land
Accessory Dwelling Units
Telecommunication Equipment and Facilities
Sexually Oriented Businesses
Open Space Development
Driveways and Other Accesses to Town (Class V) Roads
Home Occupations

Source: Town of Salisbury Zoning Ordinance, March 2019

The overlay districts are superimposed upon the zoning districts so additional regulations shall apply. For any conflicting regulation, the more restrictive shall apply. The Zoning Ordinance has sections amended every year at the annual March Town Meeting and is used and applied by the Land Use Department, Building Inspector and Planning Board.



US 4– Salisbury Safety Complex

*Image accessed 07-19 online via
Salisbury Fire and Rescue Facebook
2016 photos*

**Crossroads, US 4 and NH 127-
Academy (Town) Hall**
*Photo by CNHRPC 2016 for
Salisbury Master Plan*



**Blackwater Dam accessed at Peter's
Bridge in Blackwater Flood Control
Reservoir**

*Photo by CNHRPC 2016 for Salisbury
Master Plan*

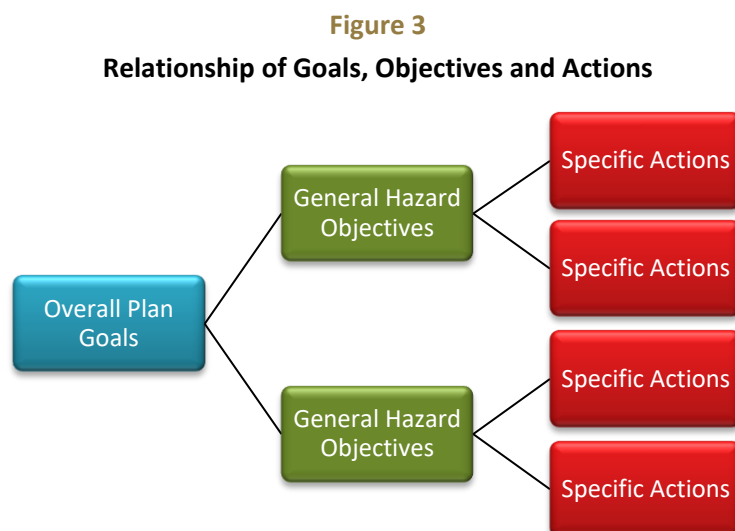
3 GOALS AND OBJECTIVES

The overall purpose of this Plan is to reduce future life and property losses caused by hazard events before they occur by the identification of appropriate **Actions** that are implemented during the five-year duration of this Plan.

Inspired by early *State of New Hampshire Hazard Mitigation Plans*, the following Salisbury **Goals** were initially developed in the previous **Salisbury Hazard Mitigation Plans** and thus were reviewed and updated as applicable by the Hazard Mitigation Committee during a public meeting for the **2019 Plan**. While the hazard incidents have remained essentially the same as from the **2014 Plan** with a few disaster additions over the course of the last five years, it was important to reassess the continued relevancy of **Goals** and **Objectives** to influence the development of the best and most relevant hazard mitigation Actions. Lastly, with the most recent change in hazard types utilized in the *State of New Hampshire Multi- Hazard Mitigation Plan 2018*, it was necessary to revise some of the main hazard groups for the **General Hazard Mitigation Objectives** identification.

What Are Goals, Objectives and Actions

Goals, Objectives and Actions are used in the Hazard Mitigation Plan to define different levels of meaning. The overall **Goals** of this Hazard Mitigation Plan provide a macro-level view of what emergency managers want to accomplish to keep the Town's life, property and infrastructure safer from natural disasters. Statements of overall **Goals**, beginning with "To", describe the desired vision of mitigation and safety for the community. **Goals** enable the development of thoughtful hazard **Objectives** designed to generally fulfill those **Goals**. This relationship is displayed in **Figure 3**.



HAZARD CATEGORIES

From the **Hazard Identification and Risk Assessment**, the individual natural, technological and human hazards under consideration have been grouped into similar event types for simplification, entitled main hazard categories. **Objectives** begin to narrow down the focus of the overall **Goals** into hazard minimization statements and will use these categories. The main hazard categories of **Earth, Extreme Temperatures, Fire, Flood, Public Health, Solar Storms, Wind, Winter, Technological**, and **Human** guide the direction of mitigation efforts. These hazard **Objective** statements, beginning with “Minimize”, state Town’s desired outcome for each hazard category. The **Objectives** support the overall **Goals** by placing a focus on hazard mitigation or minimization. These hazard categories are displayed in **Table 8**.

Table 8
Main Hazard Categories and Specific Hazards

Main Hazard Category	Specific Hazards Included			
EARTH	DROUGHT	EARTHQUAKE		LANDSLIDE Soil, Rockslide or Excavation Areas
EXTREME TEMPERATURES	EXTREME TEMPERATURES Excessive Heat, Heat Wave, Cold or Wind Chill			
FIRE	WILDFIRE Brushfire, Outdoor Fires or Accidental	LIGHTNING		
FLOOD	INLAND FLOODING Rains, Snow Melt, or Flash Floods	RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris		
PUBLIC HEALTH	PUBLIC HEALTH Infectious Diseases, Air & Water Quality, Biological, Addiction, Arboviral or Tick-borne			
SOLAR STORMS	SOLAR STORMS AND SPACE WEATHER Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout			
WIND	HIGH WIND EVENTS Wind, Thunderstorms, Hail, Downbursts, Tornadoes or Debris	TROPICAL AND POST-TROPICAL CYCLONES Hurricanes, Tropical Storms or Tree Debris		
WINTER	SEVERE WINTER WEATHER Snow, Ice, Blizzard or Nor’Easter			
TECHNOLOGICAL	AGING INFRASTRUCTURE Bridges, Culverts, Roads, Pipes or Underground Lines	DAM RELEASE OR FAILURE	FIRE Vehicle, Structure, Arson or Conflagration	HAZARDOUS MATERIALS Haz Mat Spills, Brownfields or Trucking
	LONG TERM UTILITY OUTAGE Power, Water, Sewer, Gas, Internet, Communications or Live Wire Danger			
HUMAN	TRANSPORTATION CRASH Vehicle, Airplane, Helicopter, Rail, Interstate,	MASS CASUALTY INCIDENT As a result of any hazard event	TERRORISM/ VIOLENCE Active Shooter, Hostage, Public Harm, Civil	CYBER EVENT Municipal Computer Systems Attack, Cloud Data Breach, Identity Theft,

Main Hazard Category	Specific Hazards Included			
	Pedestrian or Bicycle		Disturbance/Unrest, Politically Motivated Attacks, Incendiary Devices, Sabotage or Vandalism	Phishing, Ransomware or Virus

Source: Salisbury Hazard Identification and Risk Assessment (HIRA)

Not all of these main natural hazard categories will be important for Salisbury to develop Plan **Objectives**, and these will be noted at the end of the 3 **GOALS AND OBJECTIVES**.

Finally, **Actions** are the specific activities or projects which can be undertaken to accomplish an **Objective**. **Actions** begin with a verb to portray a direction for accomplishment. The **Action** is the target to reach to help mitigate hazards in the community. The completed **Action** fulfills the associated **Objectives**. The Actions will be listed and reviewed later in the **Potential Action Evaluation** and **Mitigation Action Plan** tables.

Dry Hydrant Location on West Salisbury Road at Blackwater River



Photo by CNHRPC 2016 for Salisbury Master Plan

Overall Hazard Mitigation Plan Goals

The following **2** Goals for the **Hazard Mitigation Plan 2019** were developed by the Hazard Mitigation Committee as the vision for the community with respect to the declared disaster declarations, general hazard events, seasonal weather events and changing climate patterns resulting in unexpected events. Collectively, the **Goals** guided the formulation of **Objectives** for each of the main hazard categories. These **Goals** were revised from the **2014 Plan** to emphasize hazard mitigation instead of preparedness, response and recovery which are covered in the *Emergency Operations Plan*. The **Hazard Mitigation Goals** are displayed in **Figure 4**.

Figure 4
Hazard Mitigation GOALS

- 1. To reduce the risk of injury and the loss of life in the Town from all natural hazards, severe weather, and disasters and from impacts of secondary hazards (human and technological).**
- 2. To reduce the risk of potential damages in Town to public and private property, critical facilities, infrastructure, historic resources and the natural environment from all natural hazards and disasters.**

Source: Salisbury Hazard Mitigation Committee

General Hazard Mitigation Objectives

Main hazard event categories of **Earth, Extreme Temperatures, Fire, Flood, Public Health, Solar Storms, Wind, Winter, Technological,** and **Human** are intended to encompass their respective full sub-hazards range described in this Plan. The **General Objectives** are developed by addressing the primary hazard events that could impact Salisbury. They focus on minimizing or mitigating the hazard events to support the overall **Goals** while driving the direction of **Action** development later in the Plan.

Although human and technological hazards are not natural disasters, many technological hazards in particular are secondary to (caused by) the natural and weather hazards. Eighteen (**18**) **General Hazard Mitigation Objectives** were crafted for the **Salisbury Hazard Mitigation Plan 2019** as displayed in **Figure 5**.

Figure 5
Hazard Mitigation OBJECTIVES

EARTH HAZARDS

1. Minimize the impact of drought events to agricultural areas, private and municipal wells, and other locations through public awareness.
2. Engage in public awareness of local earthquake activity and safety precautions.

EXTREME TEMPERATURE HAZARDS

3. Minimize damages to life, property, and infrastructure due to temperature fluctuation resulting from climate change, including excessive heat events, heat waves, extreme cold events and wind chill.

FIRE HAZARDS

4. Minimize the damages to life, property, and infrastructure from wildfires, brushfires, other outdoor fires, and lightning.

Continued

Hazard Mitigation OBJECTIVES

FLOOD HAZARDS

5. Minimize the damages to life, property, and infrastructure from floodwaters of the Blackwater River and the Blackwater River Flood Control Reservoir, Mill Brook, Beaverdam Brook, Stirrup Iron Brook, Greenough Brook; Pond, and other Brooks, Ponds, wetlands, and water bodies in Salisbury.
6. Minimize the damages to life, property, and infrastructure caused by snow-melt and precipitation resulting in erosion and flooded roads; river scouring and ice jams, culvert washouts, dam failures or debris (tree limbs, leafy material/ sediment), beaver dam breakage, etc.

PUBLIC HEALTH HAZARDS

7. Minimize the threat or impact of public health events to the public, including close-quarter infectious diseases (influenza, hepatitis, meningitis), air and water quality decline, biological infestations, arboviral and tick-borne diseases, addiction, etc.

SOLAR STORMS

8. Minimize the impact to life, property and infrastructure from solar storms and space weather, including solar winds, geomagnetic storms, solar radiation, and radio blackout.

WIND HAZARDS

9. Minimize the damages to life, property and infrastructure from heavy wind events, thunderstorms, hail, downbursts, tornadoes, hurricanes, tropical storms, including damages caused by resulting tree debris.

WINTER HAZARDS

10. Minimize the damages to life, property and infrastructure from winter weather events, including storms, snow, ice and minimize damages from utility failure, blocked transportation routes and roof collapses.

Hazard Mitigation OBJECTIVES

TECHNOLOGICAL HAZARDS

- 11.** Minimize the risk of cyber events, including overall systems takeover, takeover of the Town website, telecommunications rerouting, cloud data breach, phishing, malware, ransomware, virus installation, on Town and School computer systems to maintain essential operations, and provide education to minimize cyberattack risk to residents and businesses, including identity theft and telephone scams.
- 12.** Minimize the damages from multiple hazards to the aging infrastructure of the community, including bridges, culverts, dams, local roads, Town buildings, and seek to maintain operational efficiency.
- 13.** Minimize the impact to Salisbury residents in both rural and Village and Heights environments from the risks of various utility outages, such as live wire dangers and long-term outages in electrical power, internet and telecommunications services.
- 14.** Minimize the impacts of fire conflagration and explosion, especially near densely populated areas or buildings, from fuel tanks, high tension power lines and vehicles.
- 15.** Minimize the damages to life, property, and infrastructure from hazardous materials exposure, chemical spills, trucking accidents, and radiological materials incidents, including damages, impacts and exposures caused by brownfields sites, leaking underground storage tanks, and occupational sites.

HUMAN HAZARDS

- 16.** Minimize the risk of impacts and damages to life, property and infrastructure resulting from transportation crashes and fires involving transport trucks, vehicles, pedestrians, bicycles, airplanes, helicopters, etc., along State roadways including US 4 and NH 127, and along local Salisbury roads, especially during natural hazard events.
- 17.** Minimize the risk of damages to life, property and infrastructure from human terrorism and violence threats, such as active shooter incidents, hostage situations, civil disturbance/ riots, politically motivated attacks, incendiary devices, sabotage, vandalism or other public harm.
- 18.** Minimize the risk and impact of mass casualty and any other hazard events to better protect Salisbury's citizens and visitors.

Source: Salisbury Hazard Mitigation Committee

4 HAZARD RISK ASSESSMENT

Natural disasters and technological, and human hazards that have occurred in Salisbury or have the potential to occur in the Town were assessed in a [Hazard Identification Risk Assessment \(HIRA\)](#) to determine their **Overall Risk** to the community. The major disasters declarations covering the Central NH Region (Merrimack County and Hillsborough County) were inventoried and additional hazard events occurring in Salisbury and the surrounding area have been described. FEMA Public Assistance funding to the Town is detailed for each disaster declaration. A review of climate changes is provided for the region to provide perspective on how the weather may change over time.

The [State of New Hampshire Multi-Hazard Mitigation Plan 2018](#) recommends that municipalities examine multiple natural hazards, including several new hazards. Two hazards, coastal flooding and snow avalanche, are not discussed in Salisbury's Plan because they have no relevance to the Town. The former Human hazards of Civil Disturbance/ Public Unrest, Sabotage/ Vandalism, and Hostage Situation are absorbed into the **Terrorism/ Violence** hazard category. Radiological hazard was removed from the previous Plan due to lack of relevance. The opportunity was available to combine several of the former flood-related hazards into the new **Inland Flooding**. Likewise, several former wind-related hazards are compiled within **High Wind**. No natural hazards from the **2014 Plan** have been removed, only placed into other groupings for evaluation. Within the **Hazard Mitigation Plan 2019**, the **13** evaluated natural hazards and the **9** evaluated human or technological hazards have been incorporated under these basic categories, also displayed in **3 GOALS AND OBJECTIVES Table 8**:

- | | |
|--------------------------------------|--------------------------------|
| ➡ Earth Hazards | ➡ Solar Storm Hazards |
| ➡ Extreme Temperature Hazards | ➡ Wind Hazards |
| ➡ Fire Hazards | ➡ Winter Hazards |
| ➡ Flood Hazards | ➡ Human Hazards |
| ➡ Public Health Hazards | ➡ Technological Hazards |

Within these basic hazard categories are numerous related subcategories, all of which are detailed in the [Hazard Identification and Risk Assessment \(HIRA\)](#). This Assessment provides a measure of **Frequency (Probability of Occurrence)**, **Location Area**, **Severity of Impact to the Town**, **Hazard Magnitude**, and **Overall Risk** for each hazard in a numerical format as determined by the Hazard Mitigation Committee. Scale definitions and the process to define hazards are discussed.

Many of these examined hazards discussed may pose little threat to the Town. The Hazard Mitigation Committee wanted to acknowledge their possibility as opposed to simply focusing on a handful of top hazards which will certainly occur in the community. Using this broad vision allows Salisbury to contemplate the impact of a variety of hazards and to develop mitigation actions and design emergency

planning programs as appropriate. Only the most predominant hazards, or even multiple hazards, will have mitigation actions developed to try to reduce the hazards' impact. These are later discussed in **Potential Mitigation Actions** and prioritized in the **Mitigation Action Plan**.

Hazard Identification and Risk Assessment (HIRA) Ratings

Twenty-two (22) natural, technological, and human hazards are evaluated within this Plan. The 13 natural hazards and 1 technological hazard are ranked within in a **Hazard Identification Risk Assessment**. Some hazards may be more likely to occur in the community than others based on past events and current conditions, and some hazards may have a greater impact than other hazards. How vulnerable Salisbury could be to natural hazards can be measured in terms of **Overall Risk**.

The location of where each hazard has occurred either in the past or may be prone to future hazard occurrences is noted in the **Hazard Locations in Town** column.

Knowing where events may be likely to occur, the 2019 Hazard Mitigation Committee examined each potential hazard for its **Probability of Occurrence in 10 Years** and its potential **Severity of Impact to the Town** affecting people, services/infrastructure and property based on past personal recollections and community hazard trends to determine the **Overall Risk** to the community.

HIRA RATINGS EXPLANATION

The Committee identified each hazard's **Probability of Occurrence in 10 Years** score on a 1-2-3-4 scale from **Unlikely/1** (0-25% chance of occurring in 10 years, which is 2 Hazard Mitigation Plan cycles) to **Highly Likely/4** (76-100% chance in 10 years) as shown below.

Probability of Occurrence in 10 Years		
1	Unlikely	0 - 25% chance
2	Possible	25 - 50% chance
3	Likely	51 - 75% chance
4	Highly Likely	76 - 100% chance

The Committee determined the likely **Severity of Impact to the Town** of an event based on a 1-2-3-4 scale for 3 Impact characteristics – Human Injuries, the length of time Essential Services/Infrastructure are shut down, and resulting Property Damage or Economic Impact. Not all of these characteristics have to be expected because each hazard differs. The scale runs from **Limited/1** to **Catastrophic/4** and the more specific definitions are described below.

The **Probability of Occurrence in 10 Years** score was multiplied by the average of each **Severity of Impact to the Town** (Human Injury, Essential Services or Infrastructure and Property Damage or Economic Impact) score to obtain the **Overall Risk** score.

The technological and human hazards were not scored to ensure the natural hazards retained the focus of the **Hazard Mitigation Plan Update 2019**. However, **Dam Failure** was rated because of its close correlation to **Flooding**.

Severity of Impact to the Town

1	Limited	Human: Injuries treatable with first aid. Essential Services/Infrastructure: Minor "quality of life disturbance; Shutdown for 3 days or less. Property Damage or Economic Impact: Less than 10%.
2	Significant	Human: Significant injuries or illnesses result in no permanent disability. Essential Services/Infrastructure: Shutdown for up to 2 weeks. Property Damage or Economic Impact: 10% to 25%.
3	Critical	Human: Significant injuries or illnesses result in permanent disability. Essential Services/Infrastructure: Complete shutdown for at least 2 weeks. Property Damage or Economic Impact: 25% to 50%.
4	Catastrophic	Human: Death or multiple deaths. Essential Services/Infrastructure: Complete shutdown for 30 days or more. Property Damage or Economic Impact: Greater than 50%.

Concern Summary of HIRA Scores

A summarization of the scores is provided to ascertain at a glance the **Probability of Occurrence, Severity of Impact**, and **Overall Risk** using a **HIGH, MEDIUM** or **LOW Concern** designation for the numeric results. This summarization is also utilized in the following the **Description and Magnitude of Hazard Events** section.

Numeric of Probability and Severity	CONCERN SUMMARY	Numeric of Overall Risk Score
1	LOW	1 – 4
2	MEDIUM	5 - 7
3	HIGH	8 - 11
4	HIGH	12 - 16

OVERALL RISK ASSESSMENT SCORES

The highest possible **Overall Risk** score a natural hazard could be ranked using this **Hazard Identification Risk Assessment (HIRA)** system is **16** while the lowest score a hazard could be ranked is **1**. The **Overall Risk** numeric score is one which can help the community weigh the hazards against one another to determine which hazards are most detrimental to the community and which hazards should have the most Actions developed to try to mitigate those hazards. The **Overall Risk** is calculated simply by adding the two scores of **Probability of Occurrence in 10 Years** and **Severity of Impact to the Town**.

Out of the **13** ranked natural hazards and **1** technological hazard, Salisbury's highest ranking hazards scored an **Overall Risk** between **7 – 5** (out of a possible score of **16**), rounded to whole numbers as displayed in **Table 9**.

Table 9
Highest Overall Risk Hazards Scored in Salisbury

Hazard Event	Overall Risk 1 - 16	CONCERN
High Wind Events	7	MEDIUM
Severe Winter Weather	7	MEDIUM
Tropical and Post Tropical	6	MEDIUM
Drought	5	MEDIUM
Inland Flooding	5	MEDIUM
River Hazards	5	MEDIUM
Wildfire	5	MEDIUM

HAZARD IDENTIFICATION AND RISK ASSESSMENT RATINGS

Included with the **Table 10 Hazard Identification Risk Assessment (HIRA)** is whether or not each hazard event occurred within the last **5** years in Salisbury. This is indicated by either ***Events(s) Within Last 5 Years*** or ***NO Event(s) Within Last 5 Years*** beneath each *Hazard Category*. Dates and descriptions of the new hazard impacts within the last **5** years are provided in a following table, **Table 12 Local and Area Hazard Event and Disaster History**. The existing potential hazard locations, or those locations in Salisbury which could be currently at present day susceptible to each of the hazard categories, are provided within **Table 10** since these locations contribute to the **Severity of Impact** ratings determinations of the Hazard Mitigation Committee. The **HIGH, MEDIUM** or **LOW Concern** summary for each rated natural hazard is provided within the **Overall Risk** column.

Table 10

Hazard Identification and Risk Assessment (HIRA)

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
DROUGHT <i>*Event(s) Within Last 5 Years*</i>	<p>♦ Entire Town. Areas susceptible to drought and dry conditions include dairy and produce farms, orchards, vineyards, nurseries, tree farms, and maple sugar operations: Black Bear Vineyard, North of Concord Farm, 3D Farm, Fair View Farm, Mapleshade Farm, Salisbury Sugar Works, State Forest Nursery.</p> <p>♦ Water Supplies: residences with private dug wells such as the Tucker Pond community; public water supplies serving 25+ people (Salisbury Elementary School).</p> <p>♦ Drought means increased risk of brush fire with dry vegetation (see Wildfire). Gravel roads are affected because Town can't grade them when water is low.</p> <p>♦ Fire ponds/ dry hydrant supplies can run dangerously low; see APPENDIX A for a list of the unofficial fire ponds. When fire ponds or dry hydrants are low, response time increases as the Department needs to draw from the Blackwater River Flood Control Reservoir and Fire Ponds (see Inland Flooding).</p>	4	1	1	2	5.3 MEDIUM
EARTHQUAKE <i>*NO Event(s) Within Last 5 Years*</i>	<p>♦ Entire Town. The Central NH Region is seismically active and earthquakes are regularly felt from area epicenters. Locations with high density potential gathering sites to evacuate include: Elementary School, Barn Store, Town Buildings (Academy Hall, Safety Complex).</p> <p>♦ Damage to utility poles and wires, roadways and infrastructure could be significant. High tension electric lines, poles, 1 telecomm tower and the TDS switching station could be susceptible.</p> <p>♦ Areas with the old, historic buildings are particularly susceptible to earthquake, including Salisbury Heights (Old Town Hall, Sutton Free Library, Historical Society & Museum, Congregational Church), and other historical buildings.</p>	4	1	1	1	4.0 LOW
EXTREME TEMPERATURES <i>Excessive Heat, Heat Wave, or Cold, Wind Chill</i> <i>*Event(s) Within Last 5 Years*</i>	<p>♦ Entire Town. Groups most susceptible to extreme heat or cold include: Salisbury Elementary School, senior homes or housing facilities. Elder residences or those without air conditioning are especially vulnerable to high heat events and residents should be moved to air conditioned (cooling) or warming facilities such as the Academy (Town) Hall or the Salisbury Free Library.</p> <p>♦ Areas vulnerable to effects of extreme heat or cold include agriculture and farms: (see list above in Drought)</p> <p>♦ See APPENDIX A for the list of vulnerable facilities or groups.</p>	4	1	1	1	4.0 LOW
HIGH WIND EVENTS <i>Wind, Thunderstorm</i>	<p>♦ Entire Town. Most high wind -vulnerable areas include populated buildings, high-density locations, and utilities serving residents and businesses: 1 telecomm tower on Humphrey Road; New England Hydro high tension power</p>	4	1	2	2	6.7 MEDIUM

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
ms, Hail, Downbursts, Tornadoes, Debris <i>*Event(s) Within Last 5 Years*</i>	<p>lines, Eversource and NH Electric Cooperative electric lines, TDS Telecom switching station for internet and cable.</p> <p>♦ High Density areas can have greater impacts: Hensmith Road (~35 homes), Salisbury Heights Village, Crossroads Village, Brookside Drive (~15 homes), Tucker Pond community (~35 homes), and New Road (~20 homes), for instance.</p> <p>♦ Much of the Town is wooded and forested and sections would be difficult to access with trees and power lines down on the residential roads. They could be difficult to access with treefall and power lines down from high wind events. Remote neighborhoods include Loverin Hill Road (14 homes), Gerrish Road (12 homes), and Brookside Drive (10 homes), and especially the Tucker Pond community of 6 roads and over 30 homes at the base of Mount Kearsarge.</p> <p>♦ A large number of one-egress or cul-de sac roads could be cut off from the rest of the Town from downed trees and power lines: About 20 roads in Salisbury totaling 7 miles have only one-egress (See APPENDIX A for the list).</p> <p>♦ Agricultural areas are vulnerable to damage from High Winds (see list above in Drought)</p> <p>♦ Older, or historical buildings are vulnerable to high wind damage: Salisbury Heights (Old Town Hall, Sutton Free Library, Historical Society & Museum, Congregational Church), Iron Creek Farm Bed and Breakfast.</p> <p>♦ Floods are also possible with severe wind storm events (see Inland Flooding).</p>					
INLAND FLOODING Rains, Snow Melt or Flash Floods <i>*Event(s) Within Last 5 Years*</i>	<p>♦ Entire Town, Blackwater Flood Control Reservoir and the Blackwater River (controlled flooding is a common occurrence). Major watercourses include Blackwater River; Blackwater River Tributaries, Alley Brook, Beaverdam Brook, Bradley Brook, Knight Meadow Brook, Mill Brook, Punch Brook, Stirrup Iron Brook, and numerous unnamed brooks.</p> <p>Major waterbodies include The Bay, Tucker Pond (56 acres), Stirrup Iron Pond, Cote Pond, Vermetti Pond, Wilder Pond, Greenough Pond and Marsh, Duck Pond and Shaw Mill Pond, and unnamed wetlands.</p> <p>♦ Blackwater River Flood Control Reservoir Area floods regularly, inhibiting home access to roads, such as Warner Road, West Salisbury Road, Brook Road, Mill Road, Couchtown Road, Little Hill Road, and Scribner Road. The BW Flood Control Area's dam is to the south in the Town of Webster. The Non-Menace Dams in Salisbury are not significant and are unlikely to flood, or cause damages if flooded. Other recreation ponds and several beaver dams can flood.</p> <p>♦ Any of these waterbodies or watercourses could flood local roads, homes, buildings and waterfront properties.</p>	4	1	2	1	5.3 MEDIUM

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	<p>♦ Runoff from roadways or heavy rain or snowmelt can cause floods and washouts over the Entire Town. Regular washout locations include Road. (See also Aging Infrastructure)</p> <p>♦ Roads, bridges, drainage systems and areas of past, repaired, or existing infrastructure could flood during severe rain or melt events. The Town has only 5 bridges, all of which have been rebuilt in the last 30 years, but municipal and private culverts are located all over Salisbury. A flooded Pingree Bridge over the Blackwater River could inhibit access to ~15 Mountain Road homes. Motorists need to be wary of potential flooded infrastructure under local roads and highways such as US 4 and NH 127 which are prime commuter travel ways.</p>					
LANDSLIDE Soil, Rockslide or Excavation Areas *NO Event(s) Within Last 5 Years*	<p>♦ Slopes greater than 25%, including roads with steep ditching or embankments are most vulnerable to landslide. Roads with steep ditching or embankments are most vulnerable to landslide include the include southern sections of Warner Road, Gerrish Road, Searles Hill Road, Rabbitt Road, Raccoon Road, Center Road, and NH 127 embankments. Landslide is a fairly uncommon hazard but one that could have devastating effects, including property damage and motor vehicle crashes.</p> <p>♦ Recurring and past landslides along the steep Little Hill Road embankments and on West Salisbury Road are still vulnerable to heavy rains.</p> <p>♦ The few excavation sites in Town are potential areas of landslide, but are considered unlikely. In Salisbury, they are well maintained, used for private operations, or are reclaimed: Bay Road (Merkes), Plains Road, (Wunderlich), and a recently permitted gravel quarry on Bog Road (Reil). Older sites are located on West Salisbury Road and New Road.</p>	1	1	1	1	1.0 LOW
LIGHTNING *FEW Notable Event(s) Within Last 5 Years*	<p>♦ Entire Town. Areas of particular concern to lightning include critical facilities, high density areas, Salisbury Heights Village, Crossroads Village, and Tucker Pond community, for instance.</p> <p>♦ Other locations containing large numbers of or vulnerable people include Salisbury Elementary School, Barn Store, Congregational Church, Salisbury Free Library, Kids w/ Spirit Church, or Tucker Pond Community/ Seasonal Camp, all which could be vulnerable to risks from lightning and fire.</p> <p>♦ The Safety Complex, Academy (Town) Hall, Old Town Hall, and Transfer Station could be vulnerable to lightning strike. High buildings, wooden frames, metal roofs are common in Salisbury.</p> <p>♦ Outdoor utilities and antennas would have high impacts should lightning strike, such as the 1 telecomm tower on Humphrey Road; New England Hydro high tension power lines, Eversource and NH Electric</p>	4	1	1	1	4.0 LOW

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	<p>Cooperative electric lines, TDS Telecom switching station for internet and cable.</p> <p>✦ Old, historic or wooden structures and those structures without lightning rods could be more susceptible to damage from a strike than those buildings with the rods: Salisbury Heights (Old Town Hall, Sutton Free Library, Historical Society & Museum, Congregational Church), Iron Creek Farm Bed and Breakfast, AG Structures and more.</p> <p>✦ Remote, forested areas, parks, public forests and parks (Mount Kearsarge State Forest, State Forest Nursery), private conservation areas, open recreation fields (Maplewood Ball field), and points of higher elevation can be dangerous to people and property if struck by lightning, including Raccoon Hill, Searles Hill, Loverin Hill, Bean Hill, and Sawyer Hill.</p>					
PUBLIC HEALTH Infectious Diseases, Air & Water Quality, Biological, Addiction, Arboviral, or Tick-borne *Event(s) Within Last 5 Years*	<p>✦ Entire Town. Congregated populations can be more vulnerable to infectious diseases: Salisbury Elementary School, Barn Store (and Grain Box Restaurant), Congregational Church, Salisbury Free Library, Kids w/ Spirit Church, or Tucker Pond Community/ Seasonal Camp.</p> <p>✦ Local stores and eateries increases the risk of exposure to and transfer of food-borne illness, causing potential public health concerns. Special Town events with food vendors also increase risk. See also sites listed in APPENDIX A.</p> <p>✦ Nearby medical facilities are the Blackwater Veterinary Clinic and the Birthroot Midwifery Service. The Town's local Point of Dispensing (POD) is located at the Hopkinton High School. Salisbury is a member of the Capital Area Public Health Network.</p> <p>✦ The many forests, conservation areas, agriculture, wooded areas, and ponds can host ticks (Lyme, Anaplasmosis, Leptospirosis) and mosquitos (Arboviral) can host many bacteria (West Nile, EEE, Equine Infectious Anemia, etc) which carry diseases. The Town is entirely wooded or surrounded by trees. The Mount Kearsarge State Forest, Blackwater River Flood Control Reservoir, private conservation lands and trails, Maplewood Ball Field, Town cemeteries, and larger waterbodies in Town sites attract people, which in turn can enables disease transmission from ticks and mosquitos.</p> <p>✦ Waters and beaches susceptible to high bacteria counts in the summer include Tucker Pond, and flooded areas in the Blackwater Flood Control Reservoir.</p> <p>✦ Wheelabrator in Penacook and the Merrimack Power Station are considered some of the largest sources of local air pollution, as is the vehicular traffic of I-89.</p>	4	1	1	1	4.0 LOW

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris <i>*Event(s) Within Last 5 Years*</i>	<p>♦ Floodplains of Blackwater River, Blackwater Flood Control Reservoir (controlled flooding is a common occurrence). Major watercourses include Blackwater River; Blackwater River Tributaries, Alley Brook, Beaver Brook, Knight Meadow Brook, Mill Brook, Punch Brook, Stirrup Iron. Because of the high volumes and swift moving Rivers, bank erosion, scouring and channel movement are hazards of potential concern.</p> <p>♦ Erosion of banks continues on Mill Brook, Little Hill Road, and the Blackwater River which have both erosion and bed scouring in places, usually occurring at the culvert outlets.</p> <p>♦ Ice jams are unlikely, yet if one were to occur, it the mostly likely occurrence could endanger downstream homes of the Pingree Bridge, cutting off access to 15 homes on Mountain Road and damage the bridge itself.</p> <p>♦ Floating debris down the Rivers and Brooks can accumulate at bridges and dams.</p>	4	1	2	1	5.3 MEDIUM
SEVERE WINTER WEATHER Snow, Ice, Blizzard or Nor'Easter <i>*Event(s) Within Last 5 Years*</i>	<p>♦ Entire Town. Particular areas of concern during winter weather include high density areas of Hensmith Road (~35 homes), Salisbury Heights Village, Crossroads Village, Brookside Drive (~15 homes), Tucker Pond community (~35 homes), and New Road (~35 homes). Vulnerable populations include the Salisbury Elementary School, Barn Store (and Grain Box Restaurant), Congregational Church, Salisbury Free Library, Kids w/ Spirit Church. The 1 telecom tower on Humphrey Road as well as Safety Complex and Department antennas could have significant impacts from snow, ice, and blizzards.</p> <p>♦ The Salisbury entire road network is susceptible to winter conditions, including the state roads. Local Town roads are also often difficult to travel. Many accidents occur on US 4 during storms. Many local roads, NH 127 and the hilly gravel roads throughout Salisbury have sharp incline/decline or cars have trouble traveling the road during winter conditions. These are the major travel ways for residents and commuters through the Town.</p> <p>♦ Wooded and forested sections of Town are vulnerable to snow, ice effects and power failure. Much of the Town is wooded and forested and sections are difficult to access with trees and power lines down on the residential roads. The Town has over 20 one-egress roads totaling about 7 miles (see data tables later in 4 HAZARD RISK ASSESSMENT). Remote neighborhoods include Loverin Hill Road (14 homes), Gerrish Road (12 homes), and Brookside Drive (10 homes), and especially the Tucker Pond community of 6 roads and over 30 homes at the base of Mount Kearsarge. These roads and many more one-egress roads are often blocked by fallen trees or powerlines, and residents cannot access their homes or leave their homes until the road is clear.</p>	4	1	2	2	6.7 MEDIUM

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	<ul style="list-style-type: none"> Local government operations, Academy (Town) Hall, Safety Complex and Transfer Station, conduct essential business and make decisions during winter weather conditions that keep residents safe. These vital personnel may not live in Town or may have commuting difficulties getting to work to perform these duties. The multiple electrical utilities, as well as the cable and internet services, plus the 1 telecomm tower are critical to ensure communications are available. 					
SOLAR STORMS AND SPACE WEATHER Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout *NO Event(s) Within Last 5 Years*	<ul style="list-style-type: none"> Entire Town. Should a solar event impact the Region, it is likely most electrical and radio systems will become unavailable. The Town's critical facilities must be operational to support residents: Academy (Town) Hall, Safety Complex (containing Highway, Fire services and NH State Police offices) well as the Salisbury Elementary School. The aurora borealis is regularly seen on Mount Kearsarge, indicating geomagnetic storms are present without noticeable effects. The Town's technology is most vulnerable to space weather, especially communications systems and electrical grids. The 1 telecomm tower on Humphrey Road; New England Hydro high tension power lines, Eversource and NH Electric Cooperative electric lines, TDS Telecom switching station for internet and cable and private wells serve residents. All of these services may be interrupted in the event of solar storm. Alternate support or communications systems available in the event of blackout or equipment failure include: Town Department back-up generators and resident generators can temporarily provide power alternatives. The capabilities of Capital Area Fire Mutual Aid Dispatch for regional communications, and local ham radio operators may also be affected. 	2	1	1	1	2.0 LOW
TROPICAL AND POST-TROPICAL CYCLONES Hurricanes, Tropical Storms or Tree Debris *NO Event(s) Within Last 5 Years*	<ul style="list-style-type: none"> Entire Town. Most Tropical Events would impact vulnerable areas including populated buildings, high-density locations, and utilities serving residents and businesses, antennas, and telecommunications towers (See listed under High Wind). Much of the Town is wooded and forested and sections would be difficult to access with trees and power lines down on the residential roads and in the major state and federal lands (Mount Kearsarge, State Forest Nursery, Blackwater Water Flood Control Reservoir). They could be difficult to access with treefall and power lines down from Tropical events. (See neighborhood and remote areas listed under High Wind). (See one-egress roads listed under Winter Weather) Agricultural areas are vulnerable to damage from Tropical Events: (See listed under Drought). Older, or historical buildings are vulnerable to Tropical wind damage: Salisbury Heights (Old Town Hall, Sutton 	3	2	2	2	6.0 MEDIUM

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	Free Library, Historical Society & Museum, Congregational Church), Iron Creek Farm Bed and Breakfast, and other historical buildings.					
WILDFIRE Brushfire, Outdoor Fires or Accidental *FEW Notable Event(s) Within Last 5 Years*	<p>♦ Entire Town. Locations most susceptible to Wildfire include vulnerable populations and buildings as identified in Lightning. Backyard burning without a permit is often the cause of brushfires throughout Town.</p> <p>♦ Remote, forested areas, parks, State Forests, private conservation lands, open recreation fields, and points of higher elevation than surrounding area can be dangerous to people and property during Wildfire: (Mount Kearsarge State Forest, State Forest Nursery, and Blackwater Flood Control Reservoir), private conservation areas, open recreation fields (Maplewood Ball field), and points of higher elevation can be dangerous to people and property if struck by lightning, including Raccoon Hill, Searles Hill, Loverin Hill, Bean Hill, and Sawyer Hill.</p> <p>♦ Much of the Town is wooded and forested and sections would be difficult to access in case of wildfire. There are about dozens of parcels in town which are 200 acres or greater on Couchtown Road, Tuttle Road, Center Road, Quimby Road, Warner Road, South Range Road, Old Turnpike Road, and Mill Road/Wilder Pond, indicating potentially difficult access by fire apparatus. The Town has over 20 one-egress roads totaling over 7 miles and 100 homes (See Appendix A). These and many more are one-egress roads could be difficult to evacuate should wildfire encroach.</p> <p>♦ Most remote roads/areas of Town include those listed under High Wind. Inaccessible locations are more vulnerable to wildfire impacts because fire crews and emergency personnel have greater difficulty responding quickly to fires in these locations.</p> <p>♦ Slash and brush are found on the ground on throughout Salisbury, a highly rural community. As people venture into the woods, potential wildfires are waiting to happen.</p>	4	1	1	2	5.3 MEDIUM
SECONDARY TECHNOLOGICAL AND HUMAN HAZARDS						
DAM RELEASE OR FAILURE *Event(s) Within Last 5 Years*	<p>♦ There are no High Hazard (H) dams in the community, but one is located along the Blackwater River just to the south in Webster. There are no Low Hazard or Significant Hazard dams. The remainder of dams in Town are active Non-Menace (NM) or exempt dams are few of which are thought to experience dam failure (See APPENDIX A for list). Most are located along the Stirrup Iron Brook, Beaverdam Brook, Knight Meadow Brook, Punch Brook, or unnamed brooks.</p> <p>♦ Beaver dams carry a high probability of flooding and potential for breakage. Beaver dams and blockages of infrastructure (New Road) are located throughout the</p>	2	1	1	1	2.0 LOW

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	Town. Smith's Corner floods regularly because of beaver and rusted culverts. Beaver can create permanent dam infrastructure upon which Towns become dependent. ♦ Dams in other Towns could have a downstream impact should they fail or release too much water. Andover's Bradley Lake dam impounds acres of water, but should it fail, there seem to be no homes in Salisbury within its inundation path.					
AGING INFRASTRUCTURE Bridges, Culverts, Roads, Pipes or Underground Lines *Event(s) Within Last 5 Years*	♦ Entire Town. Most dams, culverts, and bridges could experience impacts of aging infrastructure . Pingree Bridge has the potential for damaged by high water and debris, but the four remaining Town bridges are in good shape and are fairly new. ♦ There are no State bridges in Salisbury. ♦ Many undersized culverts remain vulnerable, including Town and private culverts, although the Highway Department replaces dozens of Town annually. A GPS inventory will be undertaken. ♦ The main washout locations are located in Inland Flooding . ♦ Roads with culverts that regularly washout are listed above under Inland Flooding , but recently include Bay Road, Buckhorn Road, Center Road, Couchtown Road, Hensmith Road, Mill Road (formerly Brook Road), New Road, Oak Hill Road, Rabbit Road, US 4 sections, NH 127 by Stirrup Iron Brook and other sections, Scribner Road, Warner Road, and West Salisbury Road. Box culverts as replacements for failing culverts are being considered for installation as a result of recurring and potential flooding events. ♦ The Town's roads are becoming more difficult to maintain and rehabilitate because of lack of funding, and miles of roads under the Town's responsibility, and conditions of aging roads . Weight limits need to be posted and enforced. ♦ Underground line or pipes are often old and subject to breakage during earthquake or aging materials , but Salisbury does not have municipal water or sewer lines. Private wells and septic serve the community.	not scored	not scored	not scored	not scored	not scored
FIRE Vehicle, Structure, Arson or Conflagration *NO Event(s) Within Last 5 Years*	♦ Several locations around Town are potential sites for explosions and serious fires and numerous other sites that have the potential for prolonged burning. They include above ground fuel tanks on farms, high tension power lines, manufacturing and industrial businesses, areas away from fire ponds or dry hydrants; vacant buildings, foreclosed homes or seasonal buildings; or buildings in densely populated areas. See Drought for an agricultural operation list. ♦ The Hensmith Road (~35 homes), Salisbury Heights Village, Crossroads Village, Brookside Drive (~15 homes), Tucker Pond community (~35 homes), and New Road (~35	not scored	not scored	not scored	not scored	not scored

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	homes). Vulnerable populations include the Salisbury Elementary School, Barn Store (and Grain Box Restaurant), Congregational Church, Salisbury Free Library, Kids w/ Spirit Church could be subject to conflagration, although with the Town so rural, any fires would be limited to only a couple of buildings. ♦ Large construction businesses such as Barn Store, AG Structures, Fifield Lumber and Sawmill, MacDuffie Construction, Crossroads Store and Mobil Station, and Adler Auto could be vulnerable to fire and may utilize hazardous materials in their work. See for APPENDIX A hazardous materials and business lists. ♦ Vehicle fires could occur anywhere, in parking lots, driveways, or roadways. US 4, NH 127, and the Crossroads area are highly traveled. The Salisbury Fire Department and Penacook Rescue respond to crashes regularly along these State highways. See also APPENDIX A . ♦ Human-started fires could occur in the forested and other wooded or popular state forested and private conservation lands. See Lightning and High Wind for remote area lists.					
HAZARDOUS MATERIALS Haz Mat Spills, Brownfields or Trucking *Event(s) Within Last 5 Years*	♦ Most likely routes of vehicular traffic transport of hazardous materials include US 4 and NH 127. Other local roads could have serious transportation accidents involving hazardous materials. ♦ Vulnerable areas for targeted evacuation include Salisbury Elementary School, : Salisbury Heights (Old Town Hall, Sutton Free Library, Historical Society & Museum, Congregational Church), Iron Creek Farm Bed and Breakfast, Academy (Town) Hall, Maplewood Ball Field, Barn Store (and Grain Box Restaurant), Congregational Church, Salisbury Free Library, and Kids w/ Spirit Church. ♦ The densely populated Hensmith Road (~35 homes), Salisbury Heights Village, Crossroads Village, Brookside Drive (~15 homes), Tucker Pond community (~35 homes), and New Road (~35 homes) neighborhoods could require mass evacuation from hazardous materials spills . ♦ The largest or most dangerous stationary sites that store and/or handle haz mat on site (fertilizer, pesticides, fuel, etc) are listed in APPENDIX A . See list of agriculture operations in Drought. Occupational stationary haz mat sites where spills could occur include schools, manufacturing, industry, of which there are many in Town. Key sites include AG Structures, Barn Store (LP), Crossroads Country Store and Mobil Station, Fifield Lumber and Sawmill, MacDuffie Construction, Adler Auto Towing & Repairs, other construction businesses, and the Transfer Station. ♦ Possible brownfields sites to be aware of include: No brownfields sites have been identified in Salisbury,	not scored	not scored	not scored	not scored	not scored

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
	although the probability is high in some areas where long term non-permitted junkyard use is occurring (Partridge).					
LONG TERM UTILITY OUTAGE Power, Water, Sewer, Gas, Internet, Communications or Live Wire Danger *Event(s) Within Last 5 Years*	<p>♦ Entire Town. Electrical outages are often town wide, but high density areas or vulnerable populations are of greatest concern: Academy Hall, Safety Complex (Fire, Highway, and NH State Police Offices), Salisbury Elementary School, and the densely populated neighborhoods in the Fire section.</p> <p>♦ Power and utility outages of Eversource (PSNH) Electric Lines and Poles, Fairpoint Communications Lines and Poles, New England Hydro Trans Corp High Tension Electric Transmission Lines, New England Power Company High Tension Electric Transmission Lines, NH Electrical Cooperative Electric Lines and Poles, Unitil Electric Poles and Lines, TDS Telecom Substation on Old Turnpike Road, TDS Telecom Poles and Lines (internet and cable) may last for several days before service is restored from a large event. Systems failures could affect Town businesses and local government on an isolated scale. The internet (TDS Telecom) enables alternative communication options, and many rely on VOIP for telephones.</p> <p>♦ Communications failure would be worse if it occurred during a holiday or inhibited emergency dispatch and EOC operations. Most Town radios are interoperable, and they are used in more than one location. Only 1 telecommunications towers is located in Salisbury on Humphrey Road and this enables many “dead zones” in the Town. The Mount Kearsarge Tower in nearby Warner holds critical County/ State/federal repeaters.</p> <p>♦ The Town is serviced by the Capital Area Dispatch which handles all the Police, emergency medical service, and Fire dispatching. They have redundant capabilities and are regularly upgrading their systems.</p> <p>♦ The Town does not have water and sewer systems or infrastructure but relies on private water wells and septic systems. Other utility systems, such as LP gas, oil tanks and more, are used by residents as both back up and primary utilities. See also Aging Infrastructure and APPENDIX A.</p> <p>♦ Much of the Town is wooded and forested and sections would be difficult to access with excessive power lines down (See also High Wind for one-egress roads and remote areas).</p> <p>♦ The agricultural farms (feeding or dairy animals) should be monitored (See Drought)</p>	not scored	not scored	not scored	not scored	not scored
TRANSPORTATION CRASH Vehicle, Airplane, Helicopter, Rail,	<p>♦ US 4 and NH 127 are the main highways through Town and have the most reported crashes, particularly at intersections. Rerouting traffic can be dangerous resulting in other potentially severe crashes. Dangerous intersections, curves, hills, or steep slopes are found on West Salisbury Road, Warner Road, South Road &</p>	not scored	not scored	not scored	not scored	not scored

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
Interstate, Pedestrian or Bicycle <i>*Event(s) Within Last 5 Years*</i>	Hensmith Road, New Road, and at the Crossroads where most other vehicle crashes occur. ♦ Crashes also occur throughout the community at rural intersections, along hills and s-curves. See also MAPS 1-4 . ♦ Crashes increase during hazard events, winter weather, spring snow melt (washouts) and wind storms. High density areas, Salisbury Heights Village, Crossroads Village, Brookside Drive (~15 homes), Tucker Pond community (~35 homes), and New Road (~35 homes) neighborhood and the Elementary Schools encourage bicycling and pedestrians and but also have the potential for serious crashes. ♦ The Town may have alternative crash potential, such as airplanes. Small-engine planes have crashed in nearby communities. The Town's high elevation may be a challenge to flyers, particularly Mount Kearsarge.					
MASS CASUALTY INCIDENT As a result of any hazard event <i>*NO Event(s) Within Last 5 Years*</i>	♦ Unlikely, but Possible. A mass casualty event could occur as a possible secondary effect of a large scale event, such as Terrorism/Violence, Public Health, or High Wind Event. These could occur throughout the Town. ♦ Any mass casualty event could be localized to a certain event. Locations and occasions of potential public unrest include: Town & School Meetings, voting day, local board meetings, during visits from political candidates, large events such as Old Home Day, Veteran's Parade, School sports events, School Homecoming, Fall Foliage Festival, political rallies. ♦ The Town does not have an official shelter, but regional shelters are available at the Boscawen and Loudon Elementary Schools. The Safety Complex can accommodate <50 people on a temporary basis, as can Academy Hall and the Free Library, and could be made available as warming/cooling shelters with generators. The Salisbury Elementary School is within the Merrimack Valley School District and is on the district's list to obtain a generator in a few years so overnight sheltering could be possible. ♦ Salisbury is a member of the Capital Area Public Health Network and other regional emergency groups. Salisbury Fire Department or Penacook Rescue could provide EMS and transport to a Franklin Hospital in less than 15 minutes or to Concord Hospital, a much larger facility, within 30 minutes.	not scored	not scored	not scored	not scored	not scored
TERRORISM/VIOLENCE Active Shooter, Hostage, Public Harm, Civil Disturbance/	♦ Possible. Terrorism/ violence could possibly occur anywhere in Entire Town and could result in mass casualty . Most susceptible non-municipal sites could include: Salisbury Elementary School, Maplewood Ball Field, Historical Society and Museum, Barn Store/LP & Grainbox Restaurant, Iron Creek B&B, and Post Office. Emergency response and law enforcement calls to the Schools have increased dramatically since the last Plan.	not scored	not scored	not scored	not scored	not scored

4 HAZARD RISK ASSESSMENT

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town <i>See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)</i>	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
			Human Injury Impact	Essential Services or Infrastructure Impact	Property Damage or Economic Impact	
Unrest, Politically Motivated Attacks, Incendiary Devices, Sabotage or Vandalism <i>*Event(s) Within Last 5 Years*</i>	<ul style="list-style-type: none"> ♦ All municipal facilities in Salisbury, Academy Hall, Safety Center, Old Town Hall, Salisbury Free Library, Transfer Station, have a risk of terrorism or violence. ♦ Private manufacturing or industrial businesses with large quantities of hazardous materials could be possible terrorism targets. Salisbury has virtually none of these businesses. The use of fertilizer at any of the multiple agricultural operations could result in physical harm. ♦ Sabotage would be most likely to occur at Town, School or governmental Facilities to halt operations or computer systems, including the 1 telecomm tower, the TDS switching station, and the Town Hall and School District computer systems. ♦ Vandalism could occur at dams, under bridges, at telecomm towers, cemeteries, vacant buildings, beaver dams, Maplewood Ball Field, recreation areas, etc. ♦ Hostage and active shooter situations might most likely occur domestically anywhere in the Town, in municipal buildings, the Schools, Barn Store, and Post Office. ♦ Sites of local significance, such as key bridges, historical sites or monuments, dams, or other public places etc could become potential sites of Terrorism/ Violence: Mount Kearsarge State Forest, State Forest Nursery, Blackwater River Flood Control Area, and others. 					
CYBER EVENT Municipal Computer Systems Attack, Website Overtake, Cloud Data Breach, Telephone Rerouting, Identity Theft, Phishing, Ransomware, Virus or Phone Scams <i>*Event(s) Within Last 5 Years*</i>	<ul style="list-style-type: none"> ♦ Entire Town. Cyberattack could target Town websites, computer systems, cloud data systems, archival records, email phishing, etc. Academy (Town) Hall, Safety Complex Offices – Fire, Highway, and Police, Transfer Station, Salisbury Free Library, Historical Society records, and Salisbury Elementary School, would be high-value targets. ♦ Email scams and identity theft are likely regular problems for residents and businesses, especially older residents. Towns often post known attempts on websites to inform residents. Barn Store, Crossroads Store and Mobil, and other large businesses in Salisbury (See APPENDIX A) would need to be aware of the risks. The Crossroads Mobil Station continues to periodically experience data theft from its payment panels. 	not scored	not scored	not scored	not scored	not scored

Source: Sutton Hazard Mitigation Committee

Central NH Region Major Disaster Declarations, 1973-2019

The Central NH region, which encompasses parts of Merrimack County (**18** communities) and Hillsborough County (**2** communities), has been damaged by **21** presidentially-declared major disasters in the last **46** years, between **1973-2019**.

Although a natural disaster typically befalls multiple counties in New Hampshire, only those damaging either Merrimack County or Hillsborough County were identified in this section. Over the last **14** years (**2005-2019**), the Central NH region of containing Merrimack and Hillsborough Counties experienced **12** presidentially- declared natural major disasters [DR-] and **3** presidentially- declared emergency declarations [EM-], totaling **15** disasters in the last **14** years. The earliest Central NH region declarations spanned **1973** to **2004** (**32** years) and yielded **9** presidentially-declared natural major disasters and **4** presidentially-declared emergency declarations, a total of **13** disasters in **32** years.

Between **2005-2019**, the most recent round of major disasters afflicting the Central NH Region, of the **12** natural disasters [DR-] **5** were floods, **4** were snow/ice storms, **3** were wind/rain/lightning storms. The disasters [DR-] experienced between **1973-2004** were **7** floods, **1** snowstorms, **1** wind/rain/lightning storm. While disaster declarations within a county open up the ability to receive Public Assistance (PA) funding and Individual Assistance (IA) funding, Hazard Mitigation Grant Program (HMGP) *plan* funding is typically made available to all communities statewide, and for those towns with an active, approved Hazard Mitigation Plan, HMGP *project* funding becomes available.

Emergency declarations [EM-] are often proclaimed for counties in New Hampshire to help communities receive funding for less serious hazard events that may have caused more damage in nearby declared declaration [DR-] counties or states. The **2005-2019** emergency declarations [EM-] for **2** snow storms and **1** hurricane (wind) significantly impacted communities such as Salisbury, although not enough to be classified as a declared disaster [DR-] for many counties. Nonetheless, Public Assistance Protective Measures funding was available in the Central NH region to those who needed the financial help. The **1973-2004** period saw emergency declarations [EM-] for **4** snow storms.

PUBLIC ASSISTANCE GRANT FUNDING

The last declared disaster in Merrimack County, in which Salisbury is located, was the **October 2017 Wind & Rain Storm** event for which Salisbury did not apply for federal Public Assistance funding. The last disaster event for which the Town received PA funding was the **February 2013 Snowstorm (\$6.6k)**. Details of Central NH region declared disasters and emergency declarations since **1973** and federal funding provided to the Town of Salisbury are displayed in **Table 11**. Most of these disasters will be described within the following **Past Disasters and Severe Weather Events** section.

Table 11

Central NH Region Major Disaster Declarations, 1973 to 2019

FEMA DR-#	Local Disaster Name	Incident Period	FEMA Disaster Name	Includes County*		FEMA (PA) Funding to Salisbury**
				Merr	Hill	
#	TOWN ADD NEW DISASTER ROWS HERE-	date		M		\$x,xxx
4355	2017 October Wind Storm	Oct 28-20, 2017	Severe Storm and Flooding (Tropical Storm Phillippe)	M	---	\$0
4209	2015 January Blizzard	Jan 26-28, 2015	Severe Winter Storm and Snowstorm	---	H	\$0
4105	2013 February Snowstorm	Feb 8-10, 2013	Severe Winter Storm and Snowstorm	M	H	\$6,601
4095 EM-3360	2012 Hurricane Sandy Emergency	Oct 26-Nov 8, 2012	Hurricane Sandy	EM- M	EM- H	\$0
4049 EM-3344	2011 Halloween Snow Storm Emergency	Oct 29-30, 2011	Severe Storm and Snowstorm	EM- M	H	\$0
4026	2011 Tropical Storm Irene	Aug 26-Sep 6, 2011	Tropical Storm Irene	M	---	\$3,526
1913	2010 March Flooding & Winds	Mar 14-31, 2010	Severe Storms and Flooding	M	H	\$0
1892	2010 Winter Storm	Feb 23-Mar 3, 2010	High Winds, Rain, Snow	M	H	\$2,261
1812	2008 December Ice Storm	Dec 11-23, 2008	Severe Winter Storm	M	H	\$29,511
1799	2008 September Flood	Sep 6-7, 2008	Heavy Rains and Floods	M	H	\$0
1782	2008 July Tornado	Jul 24, 2008	Tornado, Severe Winds, Heavy Rains	M	---	\$0
1695	2007 April Spring Flood	Apr 15-23, 2007	Severe Storms and Flooding	M	H	\$28,267
1643	2006 Mother's Day Flood	May 12-23, 2006	Severe Storms and Flooding	M	H	\$34,253
1610	2005 Columbus Day Flood	Oct 7-18, 2005	Severe Storms and Flooding	M	H	\$23,200
EM-3207	2005 Snow Emergency	Jan 22-23, 2005	Snowstorm	M	H	\$2,111
EM-3193	2003 Snow Emergency	Dec 6-7, 2003	Snowstorm	M	H	\$3,518
EM-3177	2003 Snow Emergency	Feb 17-18, 2003	Snowstorm	M	H	\$2,985
EM-3166	2001 Snow Emergency	Mar 5-7, 2001	Snowstorm	M	H	\$4,040
1231	1998 Flooding	Jun 12-Jul 2, 1998	Severe Storms and Flooding	M	H	\$0
1199	1998 December Ice Storm	Jan 7-25, 1998	Ice Storms	M	H	\$0
1144	1996 Storms and Flooding	Oct 20-23, 1996	Severe Storms and Flooding	M	H	\$0
1077	1995 Flood	Oct 20-Nov 15, 1995	Storms and Floods	M	---	\$0
EM-3101	1993 Blizzard	Mar 13-17, 1993	Blizzards, High Winds and Record Snowfall	EM- M	EM-H	\$1,240
917	1991 Hurricane Bob	Aug 18-20, 1991	Severe Storm	---	H	N/A
876	1990 Flooding and Severe Storm	Aug 7-11, 1990	Flooding and Severe Storm	M	H	No data
789	1987 Storms and Flooding	Mar 30-Apr 11, 1987	Severe Storms and Flooding	M	H	No data
771	1986 Storms and Flooding	Jul 29-Aug 10, 1986	Severe Storms and Flooding	---	H	N/A
399	1973 Storms and Flooding	Jul 11, 1973	Severe Storms and Flooding	M	H	No data

FEMA DR-	Local Disaster Name	Incident Period	FEMA Disaster Name	Includes County*		FEMA (PA) Funding to Salisbury**
				Merr	Hill	
Total Public Assistance (PA) FEMA Funding to Salisbury, 1993-2019**						\$141,513

Source: http://www.fema.gov/disasters/grid/state/33?field_disaster_type_term_tid_1=All

*M = Merrimack County (18 towns in CNH region) H = Hillsborough County (2 towns in CNH region) PA = Public Assistance ** Dollar figures are rounded to the nearest \$100

To help reclaim some of the costs these disasters wrought on town property and infrastructure, Salisbury applied for and received FEMA Public Assistance (PA) funds, Categories A-G, a 75% grant and 25% match program for several declared Merrimack County disasters. These PA funds have been used for overtime wages for Town employees, equipment rentals, snow removal, washout repair, road reconstruction, bridge repair, debris removal, and more.

The database where the Public Assistance funding information resides is available from **1993** to present (**2019**). The Public Assistance (PA) disaster funding was sought for and received by Salisbury for **7** of the **15** eligible *declared disasters* [DR-] in Merrimack County during this timeframe. *Emergency declaration* [EM-] funding was sought and received by Salisbury for **5** of the **7** eligible declared emergencies during this time period. In total, Salisbury was eligible for Public Assistance funding from **22** storms during this **26**-year time period and applied for received PA funding from **12** of these storms. This data is available through FEMA at <https://www.fema.gov/openfema-dataset-public-assistance-funded-projects-details-v1>.

The most expensive disaster for Salisbury in terms of FEMA Public Assistance (PA) funds received for recovery was the **May 2006 Mother's Day Flood** after which Salisbury received **\$34k** for **10** applications for project funding to help repair the roads and bridges, repair washed out gravel shoulders and roads, repair Wadleigh Hill Road. The last time the Town was awarded PA funding was the **\$6.6k** for the snow removal as a result of the **February 2013 Snowstorm**. All Public Assistance funding to date from **1993** to **October 2017**, totals **\$141k**. This total is the lowest of the **20** Central NH Region communities. This detail is displayed previously in **Table 11** and is summarized to \$100/\$1000 in the forthcoming **Table 12** for each disaster.

Past Disasters and Severe Weather Events

The Town of Salisbury has been affected by several significant natural disasters within the last decade and applied for and received Public Assistance (PA) funding for many of these events. Severe natural hazard events have been occurring more frequently in Merrimack County than in the past. While these events on occasion disrupted the flow of the community and isolated residents for days, the disaster impacts were relatively mild as few injuries were reported. FEMA provided Public Assistance funding to the Town for tasks such as cleanup, road repairs, tree and brush cutting, and culvert replacement.

The Hazard Mitigation Committee helped provide anecdotal descriptions of how the recently declared natural disasters or emergency declarations for the Central NH Region affected Salisbury and its residents. Public Assistance disaster funding opportunities open to communities when a disaster is declared within a county. The Town of Salisbury applied for and received this funding for several recently declared disasters.

Although New Hampshire experienced more disasters than those shown in **Table 12**, typically only those which occurred as declared disasters [DR-] or emergency declarations [EM-] in the Central NH region (Merrimack and Hillsborough Counties) were described. Sometimes a disaster occurring in a nearby county, such as Sullivan County which is in close proximity to Salisbury, will be included. Refer to the [State of New Hampshire Multi- Hazard Mitigation Plan 2018](#) for a complete list of disasters which impacted the rest of New Hampshire.

Also identified were numerous past hazard events or severe weather events that occurred locally in the community and within the area that were impactful enough to note in **Table 12 Local and Area Hazard Event and Disaster History**. These past hazard events are listed consecutively with the newest events at the top of the table. If a specific category of event was not recorded in Salisbury in the last **5** years, this means the Hazard Mitigation Committee did not recall an event of significance since the **2014 Plan**.

COLOR KEY for **Table 12**:

Declared Disasters in Merrimack County or Hillsborough County (Central NH Region)	PA Funding \$ Received by Salisbury	Other Salisbury Local Hazard Event	Regional Hazard Event with Salisbury Impacts
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Table 12

Local and Area Hazard Event and Disaster History

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
- TOWN ADD NEW EVENT ROWS HERE -								Salisbury Hazard Mitigation Committee
Severe Storm and Flooding Jul 2019	4457	2019	Jul 11-12	N/A for Salisbury	Within the Central NH Region, it is likely communities experienced local flooding conditions, with wind blowing trees down, causing short power outages. <u>Not a declared disaster in Merrimack or Hillsborough Counties.</u>	Salisbury could not apply for or receive PA funding. The Town had likely experienced hard rains, localized flooding and culverts required cleaning to ensure road washouts did not occur. A few trees may have fallen down on roads, but the storm was not particularly notable to Salisbury.	River, Wind, Storms, Debris, Flood, Utility, Aging Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC, NH HSEM
Canterbury Epicenter Earthquake 2.3M (Mercalli III) Mar 2019	No	2019	Mar 16	N/A	Many local news outlets reported on this quake, which shook communities of Merrimack County at 9:23 PM. This was a widely felt earthquake (Concord, Webster, Hopkinton, Canterbury, Boscawen, Loudon, and more) although there were no reports of damage. USGS reported the epicenter was at Bryant Brook in Canterbury, just east of the Merrimack River. The depth was 4.2 km.	Salisbury residents may have felt shaking from this nearby earthquake (15 miles to the east)	Earthquake, Earth	Salisbury Hazard Mitigation Committee, CNHRPC, wmur.com, unionleader.com, earthquake.usgs.gov
Salisbury Storm and Washouts Jan 2019	No	2019	Jan 23	N/A	Other communities in the area likely experienced similar storm and washout conditions.	In Salisbury, road washouts occurred on North Road, West Salisbury Road, and Warner Road. Normal washouts during inland flooding events occur on Warner Road, West Salisbury Road, Couchtown Road is underwater because of beavers, and Mill Brook flows over Mill Road.	Extreme Temp, Melt, Flood, Rains, Erosion, Debris Impacted Infrastructure, Aging Infrastructure, Potential Washout, Power Outage,	Salisbury Hazard Mitigation Committee, CNHRPC
Regional & Salisbury Elementary School	No	2019	Jan-Mar	N/A	Salisbury Elementary School is a cooperative school district with several other	Salisbury Elementary students were experiencing a stomach virus, which then	Extreme Temps, Public Health,	Salisbury Hazard Mitigation

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Infectious Disease Outbreak Jan-Mar 2019					communities. The Merrimack Valley Middle and High Schools are located in Penacook (Concord).	transferred to the Middle School students.	Infectious Disease Outbreak	Committee, CNHRPC
Regional Merrimack County Infectious Diseases Jan 2019	No	2019	Jan	N/A	Newly renovated, highly rated 290-bed Merrimack County Nursing Home facility in Boscawen serves residents in the entire county	Bedbugs were located in the facility, including hallways and residential units.	Extreme Temps, Public Health, Infectious Disease Outbreak	Concord Monitor 01/10/19, CNHRPC
Salisbury Town Office Telephone Scams 2019	No	2019	---	N/A	Telephone and other cyber scams are occurring all over the State. Government websites and wmur publish the details when known to alert the public.	The Town Office receives periodic phone call scams to obtain info about their copier, email scams and malware all the time. Phone scams for 603 numbers regularly received.	Cyberattack, Telephone Scams, Malware, Phishing	Salisbury Hazard Mitigation Committee, CNHRPC
Regional Early Snowstorm Nov 2018	No	2018	Nov 27	N/A	Other Central NH region communities likely experienced this snowstorm.	An early season heavy snowstorm on Nov 27 caused many downed trees and limbs, resulting in multiple power outages. Power may have been out for several hours in Town.	Extreme Temps, Snow, Debris, Debris Impacted Infrastructure, Power Outage	CNHRPC, Warner Hazard Mitigation Committee
Salisbury Cyberattack Oct 2018	No	2018	Oct	N/A	This local incident would affect anyone traveling through the Town who bought gas at the Crossroads Mobil Station	Crossroads Country Store's Mobil Station discovered special card scanners on the pumps that took money from the people paying for gas at the pump. A Bluetooth transmitter is still conveying information periodically as people are still reporting withdrawals six months later. Police have not identified the source yet.	Cyberattack, Cybertheft, Tech Hazard	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Microburst Jul 2018	No	2018	Jul	N/A	N/A, although it is likely surrounding Central NH towns experienced storms or winds	A microburst or straight line wind knocked tree down on Academy Hall. The wind skipped across the region in the dark.	Winds, Storms, Downburst, Tree Debris	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Extreme Temperature Fluctuations Jul – Nov 2018	No	2018	Jul-Sep	N/A	The entire Central NH region experienced high heat and higher than normal temperatures.	During the week of Jul it was very hot or humid and raining. In Sep, the Town experienced extreme heat. Between Nov 22-23, the temperature was 0 ° F with a wind chill of -15/16 ° F. Over 10 days averaged above 90 ° F in	Extreme Temp, Excessive Heat, Public Health	Salisbury Hazard Mitigation Committee, CNHRPC

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
						2018, which was a very humid year.		
Regional Thunderstorm, Severe Winds, EF-1 Tornado and Debris May 2018	No	2018	May 3-5	N/A	All across the northern Central NH region, the evening of May 4 experienced heavy downpours along with strong wind gusts, straight line winds (microbursts) and possible tornadic activity. Many communities suffered significant tree and structure damage. The National Weather Service determined an EF-1 tornado blew 36 miles, about 300 yards across, through Bradford, Warner and Webster in the CNHRPC Region after originating in Charlestown (Sullivan County). About 41,000 customers lost power as a result of the storm.	The tornado did not seem to travel through Salisbury although it traveled through abutting Warner. The winds accompanying this storm likely through the Town and knocked down trees and power lines, blocked roads, and caused short-term power outages.	Wind, Tornado, Debris, Utility, Power Outage	Salisbury Hazard Mitigation Committee, CNHRPC, wmur.com, Concord Monitor
Severe Winter Storm and Snowstorm Mar 2018	4371	2018	Mar 13-14	N/A for Salisbury	Within the Central NH Region, it is likely communities experienced regular snowstorm conditions, with heavy snow and wind blowing trees and power lines down, causing short power outages. <u>Not a declared disaster in Merrimack or Hillsborough Counties</u>	Salisbury could not apply for or receive PA funding. In March, another Nor'easter threatened to close Town Meeting, but this time the vote went on as scheduled. Salisbury is snowier than most Towns, on outskirts of the Sunapee belt and always gets more snow than neighboring Towns.	Winter, Extreme Temps, Wind, Storms, Debris, Utility, Aging Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC, NH HSEM
Concord/Hopkinton Epicenter Earthquake 2.4M (Mercalli IV) Mar 2018	No	2018	Mar 7	N/A	A significant 2.4M earthquake was recorded by the USGS in March 2018 a little after 5:00am. Its epicenter indicated in Concord south of Warner Road at the Hopkinton town line on the Contoocook River at a depth of 3.2km. 90 citizen reports were filed to USGS. Weak to light shaking and a boom was heard as reported by a great number of people in Penacook, Henniker, Dunbarton,	In Salisbury, people may have been able to hear rumbling or feel the quake, with the epicenter within 15 miles.	Earthquake, Earth	Earthquaketrack.com, CNHRPC, concordmonitor.com, earthquake.usgs.gov

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					Boscawen, Hopkinton, Webster, Salisbury, while its greatest intensity was felt in Warner and Concord. From Mar 2018, the Concord area had experienced 9 earthquakes in the past 365 days.			
Severe Storm and Flooding Mar 2018	4370	2018	Mar 2 - 8	N/A for Salisbury	Within the Central NH Region, it is likely communities experienced local flooding conditions, with wind blowing trees down, causing short power outages. <u>Not a declared disaster in Merrimack or Hillsborough Counties</u>	Salisbury could not apply for or receive PA funding. The Town likely experienced early spring rains that flooded culverts and caused a few washouts.	River, Wind, Storms, Debris, Flood, Utility, Aging Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC, NH HSEM
Salisbury Winter Storms and Snowmelts Feb 2018	No	2018	Feb	N/A	The State experienced severe winter conditions, with disaster declarations over the late winter season. In February, freezing, melting, flooding, and freezing again were experienced.	In February, North Road Bridge washout from Punch Brook. Stirrup Iron Brook flooding on Gerrish Road. Deep freeze, 3.5 feet frozen ground. In the past 2 winters, only 1-2 inches of the ground was frozen. No power loss, Unutil, Eversource & NH Co-op toward Andover are cutting back trees adequately.	Extreme Temps, Winter, Debris, Flood, Crashes, Aging Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Drought Jan-Jul 2018	No	2018	Jan-Jul	N/A	The Central NH Region experienced drought conditions during this time, 2015-2018.	From Winter 2018 to July 2018, drought occurred in Town, resulting in bad hay crops.	Drought, Extreme Temps	Salisbury Hazard Mitigation Committee, CNHRPC
Regional Flooding, Ice Storms, Snow Melts and Ice Jams Jan 2018	No	2018	Jan 13-23	N/A	During the month of January 2018 with several snowfall and melt periods, the region experienced high snow totals, flooding, and temperature fluctuations.	Salisbury likely experienced ice jams and tree debris on roads. There were likely power outages and accidents. Some roads may have flooded as a result of this weather event. In Salisbury in the Blackwater Flood Control Reservoir, ice floes were found ten feet high in the trees	River, Flood, Extreme Temp, Winter, Debris	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Vandalism at Transfer Station 2018-2019	No	2018	2019	N/A	N/A	Each year, the Transfer Station is vandalized. The station is not attended and has no electricity. Recently in summer 2018, a number	Hazardous Materials, Public Health, Water Quality,	Salisbury Hazard Mitigation Committee, CNHRPC

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
						of fluorescent lightbulbs were broken. Such vandalism creates potential for a hazardous materials spill and is dangerous to the perpetrators, often teenagers.	Soil Quality, Tech Hazards, Human Hazards, Vandalism, Sabotage	
Salisbury Hazardous Materials Spill 2018	No	2018	---	N/A	N/A, although the issue could affect nearby Towns with groundwater contamination	On Raccoon Hill Road, the Town had to haul debris from an illegal junkyard that could cause issues. The site also had issues with sewage pumped onto ground. NHDES felt it would resolve itself over time.	Hazardous Materials, Public Health, Water Quality, Soil Quality	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Crossroads Crashes 2018	No	2018	---	N/A	N/A, although regional commuting routes may have been disrupted	In 2018, at the intersection of NH 127 and US 4 (the "Crossroads"), several vehicle and motorcycle crashes occurred. Couchtown Road also sees a high number of crashes.	Crash, Human Hazard, Tech Hazard	Salisbury Hazard Mitigation Committee, CNHRPC
Severe Wind Storm and Flood Oct 2017	4355	2017	Oct 28-30	\$0	Merrimack and Hillsborough Counties experienced downed trees on powerlines, debris to clean up, and some flooding of drainage catch basins and culverts. The storm impacted northern NH, with 6 counties declared disasters. Power was out for an estimated 270,000 customers. Nearby Newbury lost power for 4-5 days and New London is considered remote and did not have power restored quickly.	Salisbury did not apply for or receive FEMA Public Assistance funding for this storm. High winds blew trees down, several power outage were experienced. Heavy winds and rains, debris damage throughout Town, road washouts. Trees were down on Whittemore Road and fire was reported on the road. Trees were down on US 4, power outages.	Wind, Storms, Debris, Flood, Utility, Aging Infrastructure	Salisbury Hazard Mitigation Committee, Newbury and New London Emergency Management, CNHRPC
Severe Storms and Flooding Jul 2017	4329	2017	Jul 1-2	N/A for Salisbury	The entire State, North Country and Central NH region experienced severe storms with rain, wind, lightning, thunder and flooding. Not a declared disaster in <u>Merrimack or Hillsborough counties.</u>	Salisbury could not apply for or receive federal PA funds. The Town likely conducted debris clean up along roads but noted the storm was not out of the ordinary. During the summer thunderstorm, a fence post on North Road was struck by lightning.	River, Wind, Storms, Flood, Lightning, Debris, Fire	Salisbury Hazard Mitigation Committee, FEMA CNHRPC, WMUR, NOAA

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Salisbury Drought Summer 2017	No	2017	Summer	N/A	The Central NH Region experienced drought conditions during this time, 2015-2018.	During the summer months, many calls for water were received. The Fire Dept, took potable water to farms and residential wells across the entire Town.	Drought, Extreme Temps	Salisbury Hazard Mitigation Committee, CNHRPC
April Fool's Snowstorm Apr 2017	No	2017	Apr 1	N/A	A spring snowstorm impacted New England, with 50,000 without power in NH alone and 180,000 in the NE. Massachusetts was buried in nearly 2 feet of snow. The Central NH Region experienced more snowfall than the rest of the state, with Henniker at 15", Deering and Concord at 13", and Pembroke at 12".	Salisbury likely had power failures because of high amounts of snow and trees down on roadways.	Extreme Temp, Snow, Utility, Debris	wmur.com, CNHRPC, USA Today
Severe Snowstorm-Town Meeting Blizzard Mar 2017	4316	2017	Mar 14-15	N/A for Salisbury	Many other NH towns had to choose whether to close or not to accommodate the blizzard, which became a legal issue to sort out. Not a declared disaster in Merrimack or Hillsborough counties.	Salisbury could not apply for or receive federal PA funds. A state-wide blizzard occurred during Town Meeting, (Election Day Storm). Nor'easter struck central NH during Town Meeting dates. To protect residents from the snowy travel, Salisbury rescheduled the 03-14 ballot vote, which had not been postponed since 1888.	Winter, Extreme Temp, Snow, Crash	Salisbury Hazard Mitigation Committee, CNHRPC, Concord Monitor 03-13-17
Webster Epicenter Earthquake 1.9M (Mercalli III) Feb 2017	No	2017	Feb 27	N/A	Residents of Contoocook, Webster and Warner in Central NH communities also felt this earthquake. Since it occurred overnight, there were fewer reports. The USGS reported its epicenter north of the Blackwater River in the hilly area between Battle Street and Clothespin Bridge Road at a depth of 8.9km.	A slight rumble like a furnace backfire may have been felt in nearby Salisbury which borders Webster.	Earthquake, Earth	Earthquaketrack.com, CNHRPC, earthquake.usgs.gov
Central NH Region and Salisbury Excessive Heat 2016-2017	No	2016	-2017	N/A	NH and the Central NH region experienced high heat records throughout 2016 and 2017.	Residents were hot and many stayed indoors during this humid period. Air conditioning and electric usage was high.	Extreme Temp, Excessive Heat, Public Health	CNHRPC

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Salisbury Epicenter Triple Earthquakes 1.8M/1.6M/1.3M Oct 2016	No	2016	Oct 31	N/A	Epicenters of three quakes in Salisbury occurred a few minutes apart, one 1.8M with a depth of 6.1 km, one with 1.6M with a 5.0km depth, and one with 1.3M with 5.0km depth. Three separate epicenters were located, the 2 first quakes south of West Salisbury Road and the last 1 north of the Blackwater River at Bay Road.	This night quake likely rattled windows and sounded like a truck gone by or thunder to Salisbury residents.	Earth, Earthquake	Earthquaketrack.com, CNHRPC, earthquake.usgs.gov
NH Severe Wind Rain & Thunder Storm Jul 2016	No	2016	Jul 23	N/A	The entire region and the State experienced a severe storms with rain, wind, lightning and thunder. A possible microburst was reported. As many as 72,000 customers lost electricity. A similar storm earlier in the week brought several confirmed microbursts and also downed trees.	During this warm summer, Warner Road was washed out and experienced pavement loss. Other damages & washouts occurred.	Flood, Dam Overtop, Debris Impacted Infrastructure, Wind, Lighting, Rains	Salisbury Hazard Mitigation Committee Concord Patch, CNHRPC, WMUR, NOAA
Warner Epicenter Earthquake 2.8M (Mercalli IV) Mar 2016	No	2017	Mar 21	N/A	Epicenter in Warner on Schoodac Brook just south of I-89, with 2.8 magnitude at a depth of 7.3km. 124 citizen reports made to USGS. Felt in the Central NH Region and most of Merrimack County, light in Hillsborough County. Felt most strongly in Hopkinton, Henniker, Warner, Webster, Salisbury, Franklin, Bradford, Concord, and Hillsborough. This quake was believed to have snapped one of the underground water lines in the Town of Warner, and people exited buildings onto Main Street wondering what happened.	With the epicenter in to the west and south of Salisbury, residents may have felt this daytime quake.	Earth, Earthquake	Earthquaketrack.com, CNHRPC, earthquake.usgs.gov
Tornado, Severe Thunderstorms Jul 2015	No	2015	Jul 31	N/A	In Warner, NWS confirmed an EF-0 tornado touched down in the evening. It had a maximum wind speed of 75 mph and was 100 yards wide. Town	Although Salisbury shares a section of Mount Kearsarge, the Town seemed to have escaped this tornado. No damages were reported.	Wind, Tornado, Debris, Utility	WMUR, CNHRPC

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					officials said the tornado ripped the roof off a barn, but there were no injuries reported.			
NH Geomagnetic Storm June 2015	No	2015	Jun	N/A	The aurora borealis (geomagnetic storm) likely reached all of NH although only those with equipment to capture the image likely knew it was occurring. In Warner, the Northern Lights were photographed overlooking Mount Kearsarge. No known effects from the storm.	Salisbury shares a section of Mount Kearsarge and was likely equally subject to any potential geomagnetism or solar radiation. Potential radio communications interference could have resulted.	Solar Storms, Geomagnetic, Potential Communications failure	Warner Hazard Mitigation Committee, CNHRPC
Boscawen Epicenter Earthquake 2.3M (Mercalli III) May 2015	No	2015	May 24	N/A	Epicenter in lower Boscawen on Queen Street north of Flaghole Pond with 2.3M at a depth of 5km. 61 citizen reports were made at the USGS.	Salisbury residents may felt a rumble at the Salisbury, being located within 5 miles to the epicenter.	Earth, Earthquake	Earthquake.rack.com, CNHRPC, earthquake.usgs.gov
Severe Winter Storm and Snowstorm - January Blizzard 2015	4209	2015	Jan 26-28	N/A for Salisbury	Predicted at near blizzard conditions, the end of January, 2015 snowstorm's major declaration ended up having a Hillsborough County wide per capita impact of \$3.88, making the storm a fairly expensive one at \$3.3 million dollars in Public Assistance over three southern NH counties. Snow approached 30" in some areas with heavy snow and 50 mph whiteout wind conditions. The closest reporting weather station, Concord Airport (CON), had accumulated 29" of heavy snow, 50 mph whiteout wind conditions in the region. <u>Not declared in Merrimack County.</u>	Salisbury could not apply for or receive PA funding. The storm was not particularly notable by the Town.	Winter, Extreme Temp, Utility, Winds, Debris	Salisbury Hazard Mitigation Committee, fema.gov, Boston Globe
Town/ Merrimack County Drought Severe Emergency 2015-2018	No	2015	-2017	N/A	Severe Drought (D2), Moderate Drought (D1) and Abnormally Dry (D0) intensities were found in communities of Merrimack County and Hillsborough in 2016. The State's	The Severe Drought (D2) conditions as of 09/17 caused some problems in Salisbury, including dry fire ponds and residents requesting water assistance.	Drought, Extreme Temp, Increased Wildfire Risk	US Drought Monitor NH, NH DES, CNHRPC

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					counties had been experiencing levels of drought for over a year. The NH DES issued a series of statements and tips for homeowner water conservation. Residents and municipalities had been requested to voluntarily conserve water. Some communities or water precincts enacted water restrictions or bans for certain water usage.			
Thanksgiving Day Snowstorm Nov 2014	No	2014	Nov 27	N/A	Large amount of snowfall fell in a very short period of time ahead of typical seasonal expectations. Power outages were prolific, with a peak of about 200,000 outages, from the Public Service of New Hampshire, Unitil (Concord area), and NH Electric Co-op. Nearby Concord and the towns on the eastern side of the Central NH region accumulated only 6-12" of snow according to PSNH, far less snow than southern and western NH. This was not a presidentially declared disaster in NH.	Salisbury also likely experienced similar snowy conditions during this holiday.	Earth, Extreme Temp, Winter, Utility, Wind, Ice, Debris Impacted Infrastructure	Salisbury Hazard Mitigation Committee, Concord Monitor, CNHRPC
Salisbury Wildfires 2014-2019	No	2014 -	2019	N/A	N/A, although Fire Dept mutual aid would respond	The Fire Department reported not as much brush and slash lingering now as there had been previously. It has been chipped or used for firewood. The Department has not seen anything over 1/4 acre fire. Logging takes care of a lot of the slash.	Drought, Extreme Temps, Wildfire, Lightning,	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Beaverdam Breaches & Washouts 2014-2019	No	2014 -	2019	N/A	N/A	Greenough Pond Road culvert and brook, South Road/NH 127 Beaver Dam Brook Road beaver build up the culverts. These locations often flood over and the beaver return, despite attempts to remove the creatures.	Extreme Temp, Dam, Melt, Flood, Rains, Erosion, Debris Impacted Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC

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Regional Lyme Disease Epidemic 2014 - 2018	No	2014	2018	N/A	Likely experienced by other Central NH region communities during the same time period.	Central NH region residents are known to have been subjected to and tested for Lyme Disease; many are positive. Spring is particularly bad. Salisbury is a rural, forested town and is used for outdoor recreation. The problem may become worse. The rate of Lyme Disease has doubled in areas surrounding Salisbury from the previous 5 years.	Health Public (Epidemic)	CNHRPC, NH Dept of Environmental Services, Greater Sullivan County Public Health Network
Warner Epicenter Earthquake 2.6M (Mercalli IV) Oct 2013	No	2013	Oct 11	N/A	Epicenter in Warner along Warner River, north of Davisville Exit 7, 2.6 magnitude at a depth of 4.0km. Felt in the Central NH Region/northern Merrimack County, most strongly in Hopkinton, Henniker, Bradford, Warner, Concord, Salisbury, Franklin. 124 citizen reports made to the USGS.	Salisbury residents may have heard a sonic boom or felt mild shaking. Warner abuts Salisbury to the west and south.	Earthquake, Earth	CNHRPC, earthquake.usgs.gov
NH Severe Storms, Flooding and Landslide Jun-Jul 2013	4139	2013	Jun 26 – Jul 3	N/A for Salisbury	This declared disaster for Grafton, Sullivan and Cheshire Counties included landslides from the heavy rain. Public Assistance (PA) was available for these 3 Counties and Hazard Mitigation Assistance (HMA) became available statewide. Damage per capita was high – Grafton (\$39.58), Sullivan (\$24.48), and Cheshire (\$21.46). <u>Not declared in Merrimack or Hillsborough Counties.</u>	Salisbury could not apply for or receive PA funding. Although this heavy rain storm was presidentially declared for three other NH Counties, Merrimack County did not receive such a declaration. Many roads in Salisbury experienced washouts (see cover photo), including Warner Road and Mill Road. Damages included washed away road layers, exposed road base, holes in roads, ditching eradicated, erosion along and under roads, etc. This storm was small compared to the previous floods experienced by the Town. Also, A microburst blew down in Salisbury.	Landslide, Storms, Flood, Wind, Downburst, Erosion, Debris	FEMA, CNHRPC, Salisbury Hazard Mitigation Committee
Severe Winter Storm and	4105	2013	Feb 8-10	\$6,601	Winter Storm FEMA-3360-DR had blizzard	Salisbury received \$6,601 in FEMA Public	Winter, Extreme	FEMA, Salisbury

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Snowstorm - Winter Storm 2013					conditions with wind gust of 50-60 MPH and over 20 inches snow fell on much of New Hampshire and the New England area. Disaster declarations received for emergency protective measures in eight counties of the State.	Assistance funding for snow removal and protective measures. This winter storm was a town-wide snow event which impacted all of Merrimack County. The Town used the funding for clean-up and recovery.	Temp, Wind	Hazard Mitigation Committee, CNHRPC
Hurricane Sandy Oct 2012	4095 EM-3360	2012	Oct 26-Nov 8	\$0	Merrimack County and Hillsborough County received a disaster declaration for Emergency Protective Measures. Five counties experienced severe damage from heavy winds and moderate flooding, 218,000 customers without power. Fallen trees and debris closed roads, building and vehicle damage.	Salisbury did not apply for or receive FEMA Public Assistance funding for protective measures. Hurricane Sandy was a heavy rain event although there no washouts reported in Salisbury. Very little power loss was experienced.	Tropical, Wind, Flood, Debris, Utility	Salisbury Hazard Mitigation Committee, FEMA, Nashua Telegraph, CNHRPC
Earthquake 4.0M Hollis ME Epicenter Oct 2012	No	2012	16-Oct	N/A	With the epicenter near Hollis Center, Maine, a 4.0 earthquake was measured and felt not only in Central NH, but throughout New England. Reportedly sounding like a jumbo jet and lasting for 10 seconds, calls came in to local Fire Departments inquiring about the event. By two hours later, no calls reporting damages or injuries had been received.	Reports may have been made to the USGS from Salisbury with an earthquake of this magnitude as it was felt around the Central NH Region. damages. Some residents in Salisbury felt the earthquake which had its epicenter in Hollis, Me. There was no damage reported	Earthquake, Earth	Concord Monitor, Earthquake-track.com, CNHRPC, Salisbury Hazard Mitigation Committee
NH Severe Storm and Flooding May 2012	4065	2012	May 29-31	N/A for Salisbury	This declared disaster for Cheshire County. Public Assistance (PA) was available and Hazard Mitigation Assistance (HMA) became available statewide. Damage per capita was high – Cheshire (\$26.04). <u>Not declared in Merrimack or Hillsborough Counties.</u>	Salisbury could not apply for or receive PA funding. There were no specific issues in Town noted. Any flooding, tree fall or other problems were handled as normal response.	Flood, Storms, Wind	FEMA, CNHRPC
Halloween Snow Storm Oct 2011	4049	2011	Oct 29-30	N/A for Salisbury	FEMA-4049-DR. Towns in Central NH were impacted by this shocking, early severe	Salisbury could not apply for or receive FEMA Public Assistance funding.	Winter, Extreme Temp, Snow,	FEMA, Salisbury Hazard Mitigation

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					snowstorm, although a major disaster declaration was <u>not declared in Merrimack County</u> . Halloween festivities were cancelled in most communities, to the heartbreak of young children. In Hillsborough County, damages were at the equivalent of \$5.11 per capita (400,721 people in 2010). The storm was also declared in Rockingham County.	This early winter storm perceived as a regular snow storm in Salisbury, although an early one.	Power Outage	Committee, CNHRPC
Tropical Storm-Irene Aug-Sep 2011	4026	2011	Aug 26-Sep 6	\$3,526	Carroll, Coos, Grafton, and Merrimack Counties suffered severe impacts to roads and bridges as a result of flooding from Tropical Storm Irene, which also caused power outages. Merrimack County reimbursement to towns was \$4.29 per capita (146,455 people in 2010), a total of \$11m was allocated. Disaster was not declared for Hillsborough County.	Salisbury received \$3,526 in FEMA Public Assistance funding for protective measures, debris removal and roads. Salisbury experienced some damage during Irene, but not as much as anticipated. The Town was on standby, but the storm did impact Salisbury. Not much rain here fell here, as the storm passed unexpectedly to the west.	Tropical Wind, Flood, Debris, Utility, Power Failure, Debris Impacted Infrastructure	FEMA, Salisbury Hazard Mitigation Committee, CNHRPC, NH State Climate Office 8/11 Summary
April Fool's Snowstorm Apr 2011	No	2011	Apr 1	N/A	A Nor'easter snowstorm impacted the State, causing over 30,000 power outages, most by PSNH. Wet, heavy snow fell in depths of up to 8", but stopped by noon. Although dozens of accidents were reported, no serious injuries were reported.	Up to 3" of heavy wet snow fell in the Salisbury area with temperatures in the 30s, which likely brought down trees and powerlines.	Extreme Temp, Winter, Snow, Wind Chill, Power Failure, Debris Impacted Infrastructure	wmur.com, CNHRPC, cbsnews, NHDES Water Division Dam Bureau Snow Survey #8 of 2011
Canterbury Earthquake Epicenter 3.2M (Mercalli V) Sep 2010	No	2010	Sep 26	N/A	"A magnitude 3.4 [sic] earthquake rattled buildings and nerves across much of New Hampshire Saturday night. The quake occurred at 11:28 p.m. and was centered about 10 miles north of Concord, according to the U.S. Geological Survey. State police said they received reports	Epicenter in Canterbury is about 15 miles to the east of Salisbury across the Merrimack River. Residents in Salisbury felt the earthquake from the New Hampshire epicenter, but there was no damage reported.	Earth, Earthquake	Salisbury Hazard Mitigation Committee, Union Leader, CNHRPC, earthquake.usgs.gov

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					from residents across the state who reported what they thought was an explosion. The quake was felt in places like Fremont, Derry, Durham, Henniker, Penacook and Raymond. There were no reports of damage.” The quake was in fact felt all over the state, Southern ME and MA, but most reports were received from the Central NH region. After study and analysis, USGS reported a 3.2M quake at a depth of 5.0 km and a total of 2,494 citizen reports. The epicenter was in Canterbury just east of I-93 and Cold Brook, north of Soapstone Road and south of Cogswell Road.			
Quebec-Ottawa Earthquake 5.0M (Mercalli VI-VII) Jun 2010	No	2010	Jun 23	N/A	Earthquake lasted about 30 seconds, epicenter in Val-de-Bois Quebec (Ottawa) at a depth of 22 km. The shaking that occurred in Ottawa was rated the strongest in 200 years. Damages occurred in Ottawa. The tremors were felt in Central NH. 288 aftershocks were located.	No known impacts to Salisbury specifically, but this large quake was felt regionwide.	Earthquake, Earth	CNHRPC, Geological Survey of Canada
Canadian Wildfires Air Pollution May 2010	No	2010	May 31	N/A	The smoke from the wildfires was seen and smelled across Central NH. On Memorial Day weekend, brush fires from Canada impacted the air quality of New Hampshire Residents from more than 50 wildfires that are burning out of control in Quebec. Over 150,000 acres in central Quebec, north of Montreal and Quebec City, about 500 miles north of Manchester, reduced visibility to 1.75 miles in Concord. No air quality alert was	Salisbury likely experienced the effects of this smoke, smog, and fine particulate matter	Wildfire, Health (Air Quality)	Union Leader 2010, CNHRPC

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					issued, although people with respiratory issues were urged to remain indoors.			
Severe Storms and Flooding Mar 2010	1913	2010	Mar 14-31	\$0	Severe storms and flooding occurred over two weeks and damaged roads and bridges. Merrimack County reimbursement to towns for repair was \$0.28 per capita (146,455 people in 2010) and in Hillsborough County reimbursements were \$1.80 per capita (400,721 people in 2010).	Salisbury did not apply for or receive FEMA Public Assistance funding Severe storms and flooding occurred over a two-week period which caused minor, flooded washed out roads. During this severe winter storm, trees were downed and power was lost for several days in most of the community, but otherwise it was treated as a regular storm.	Wind, Flood, Utility, Debris, Extreme Temps	FEMA, CNHRPC
Severe Winter Storm and Flooding Feb-March 2010	1892	2010	Feb 23-Mar 3	\$2,261	This severe weather event included high winds, rain, and snow over a week-long period. The primary impact was debris removal and repair reimbursement for fallen trees and powerlines. In Merrimack County, the reimbursement to communities was the equivalent of \$10.39 per capita (146,455 people in 2010), with Hillsborough County at \$3.68 per capita (400,721 people in 2010). In the Concord area, 21,000 Unital customers were out of power at the peak outage period.	Salisbury received \$2,261 in FEMA Public Assistance funding for roads & bridges and debris removal. This winter storm was just a regular snow storm in Salisbury, although a washout occurred on Couchtown Road. The culvert on US 4 at Old Turnpike Road experienced a large woody debris jam.	Extreme Temp, Snow, Wind, Flood, Debris, Aging Infrastructure	Salisbury Hazard Mitigation Committee, FEMA, Unital
Vermont Yankee Tritium Contamination Jan 2010	No	2010	Jan 7	N/A	The Vermont Yankee Nuclear Power Plant notified the Vermont Department of Health that groundwater monitoring samples taken in November 2009 contained tritium. An investigation was launched, and a major source of leakage was found in steam pipes inside the Advanced Off-Gas (AOG) drain line	Salisbury may be affected in the future as groundwater sources are connected. The Connecticut River travels the NH / VT border.	Radiological, Health (Water Quality)	Vermont Department of Health 2012, CNHRPC

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					to be clogged and corroded. The samples taken show the movement of the tritium contamination in the groundwater into the Connecticut River. Health risks are being investigated.			
Salisbury Inland Flooding, Washouts 2010- 2019	No	2014	2019	N/A	This was a period when the Central NH region experienced flooding conditions. Multiple communities were affected.	During this time period the Town experienced regular washouts and flooding problems. West Salisbury Road high water, Mill Brook (over 5 years ago, 2 years back to back). Mill Road culvert at Mill Brook flooded in 2014 The and continues to flood, although the culvert was replaced the following summer in 2015. Margaret to check dates. Couchtown Road culverts were replaced around 2014. Washout from NH 127 spilled onto Warner Road around 2010.	River, Flood, Rains, Erosion, Debris Impacted Infrastructure, Extreme Temps, Aging Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC
Severe Winter Storm – Dec 2008 Ice Storm	1812	2008	Dec 11-23	\$29,511	Accumulating ice, snow, rain, and strong winds caused downed trees and power lines, with power outages and traffic accidents resulting. In Merrimack County, debris removal and repair cost reimbursement FEMA the equivalent of \$10.07 per capita (146,455 people in 2010). In Hillsborough County, debris removal costs were \$6.35 per capita (400,721 people in 2010). The major disaster was declared in all 10 counties. New England was blanketed with ice and snow during the winter storm. Weight of ice caused branches to snap, and trees to either snap or uproot, bringing down power lines and poles across the region. About	Salisbury received \$29,511 in FEMA Public Assistance funding for debris removal, protective measures and roads. Lots of tree damage and downed power lines were the primary damages of the ice storm. Salisbury lost power all throughout the Town. Some residents had restored power within 24 hours, and others needed up to six days to have power restored. No roads were lost, but were cleared and opened quickly, although the Departments had to wait for power companies to arrive and fix the downed lines. The majority of the Town is covered by Unutil. An estimated 35-40% of homes in	Winter, Extreme Temps, Cold, Wind, Utility, Debris,	Salisbury Hazard Mitigation Committee, FEMA, CNHRPC

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					400,000 utility customers lost power during the event, with some customers without power for two weeks. Property damage across northern, central and southeastern NH was estimated at over \$5m. Event was the largest power outage in NH history.	Salisbury have generators and even more have wood stoves, so residents are well-prepared for outages. The Fire Station EOC was open in the storm, and fire fighters checked on residents in need every few hours.		
Severe Storms and Flooding (Hurricane Hannah) – Sep 2008	1799	2008	Sep 6-7	\$0	Heavy rain from the remnants of tropical storm Hanna resulted in flooding on small rivers and streams in the Central NH area. The remains of tropical storm Hanna moved through eastern New England dumping 3 to 6 inches of rain in New Hampshire in about 8 hours causing rapid rises on area streams. In Merrimack County, damage to road systems totaled the equivalent of \$1.48 per capita (146,455 people in 2010) for town reimbursement. Hillsborough County's damage was much higher at \$6.90 per capita (400,721 people in 2010)	Salisbury did not apply for or receive FEMA Public Assistance funding. Salisbury likely sustained damage to culverts ditches and roads, resulting in road closures. No specific recollections of this event were available.	Tropical, Flood, Debris	FEMA, CNHRPC
Severe Winds, Heavy Rains & Tornado July 2008	1782	2008	Jul 24	\$0	An EF3 tornado touched down in Rockingham County then proceeded into another county. Then in Merrimack County, the tornado was rated up to an F-3 and killed a woman in Deerfield trapped in a collapsed house. In the county, there was substantial damage totaled the equivalent of \$1.12 per capita (146,455 people in 2010) for the towns' debris removal reimbursement costs. A total of 123 residences statewide were affected, with 17	Salisbury did not apply for or receive FEMA Public Assistance funding for debris removal, protective measures, roads and bridges. It is likely culverts In Salisbury overtopped and roads washed out during this storm event. High winds with heavy rainfall resulted in flooded roads, trees fallen, and power outages.	Wind, Tornado, Downburst, Storm, Debris, Power Outage	FEMA, CNHRPC

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					destroyed and another 37 suffering major damage. Damage was estimated to exceed \$10 million. Hillsborough County			
Severe Storms and Flooding - Spring Flood April 2007	1695	2007	Apr 15-23	\$28,267	Extensive flooding caused by severe storms impacted seven counties. In the Central NH region, Indirect peak discharge measurements on stream gages on the Suncook River at Short Falls Road in Epsom were 14,100 ft ³ , which was determined to be greater than 100-year flood discharge levels. The heavy rain combined with snow melt to cause small rivers and streams in much of New Hampshire to flood. Over land, the strong winds downed numerous trees. The downed trees caused widespread power outages, especially near the coast, and numerous road closures. The storm also brought heavy rain to the region which, when combined with snow melt, produced widespread flooding across much of the region.	Salisbury received \$28,267 in FEMA Public Assistance funding for roads & bridges, protective measures, on Raccoon Hill Road, West Salisbury Road, Mill Road, Couchtown Road, Buckhorn Road, Warner Road. These roads were washed out, flooded, or damaged, as was Whittemore Road.	Flood, Wind, Debris, Erosion, Aging Infrastructure	FEMA, USGS Flood of 2007, Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Windstorms Nov 2006	No	2006	Nov	N/A	It is likely the Central NH region experienced storms, including nearby Sutton	High winds were recorded reaching 60mph for 2-3 days, trees and limbs were blown down.	Wind, Utility, Debris, Debris Impacted Infrastructure	Salisbury Hazard Mitigation Committee 2008, CNHRPC
Salisbury Structure Fire Oct 2006	No	2006	Oct 14	N/A	N/A, although neighboring fire departments assisted the Town	A fire on Plains Road burned a small, one-room hunting cabin on the property of an out of state family. The cabin was unoccupied at the time of the fire. Firefighters from surrounding communities offered mutual aid.	Fire, Human Hazard, Tech Hazard	Concord Monitor, CNHRPC

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Salisbury Lightning Strikes July 2006 - 2013	No	2006	-	N/A	There was a regional lightning and thunderstorm in the Central NH region during this time.	Lightning struck the alarm panels in the Safety Complex; the panels had to be replaced. In 2013, lightning continues to strike the Safety Complex as the alarms sound and indicate a strike has occurred.	Lightning, Thunderstorms, Wildfire, Tech Hazard	Salisbury Hazard Mitigation Committee, CNHRPC
Severe Storms and Flooding – Mother’s Day Flood May 2006	1643	2006	May 12-23	\$34,253	Extensive flooding caused by severe storms impacted seven counties including Merrimack and Hillsborough Counties. The USGS recorded the highest flows on record for several rivers including the Contoocook River in Davisville village, Soucook in Concord, and Piscataquog in Goffstown.	Salisbury received \$34,253 in FEMA Public Assistance funding for roads washout and embankment erosion. Nicknamed the Mother’s Day Flood, May flooding caused extensive damage and nuisance to central and southern New Hampshire, including Salisbury and abutting communities. Multiple road washouts occurred on Warner Road, W Salisbury Road, Buckhorn Road, Mill Road, Couchtown Road, Center Road, Oak Hill Road, New Road, and Rabbit Road. Beaver dams, near Buckhorn Road, measuring 6x8, were destroyed due to heavy water pressure which began during the Oct 2005 flood. Mill Brook frequently washed out during heavy rain storms. A landslide occurred on West Salisbury Road where about 12 yards of materials slid off a ledge 20’ high, falling almost vertically. The area has slid several times in the past, and the potential for more to fall exists.	Flood, Wind, Storms, Debris, Erosion, Landslide, Aging Infrastructure	Salisbury Hazard Mitigation Committee, FEMA, USGS, CNHRPC
Salisbury Wildfires Spring 2006	No	2006	Spring	N/A	N/A, although wildfires can become regional when they are on the border with another community, such as Warner.	Two larger wildfires impacted areas of Salisbury this spring. Half an acre was burned on Bay Road caused by a cigarette. Three acres were burned on Couchtown Road on the	Lightning, Thunderstorms, Wildfire, Human Hazard	Salisbury Hazard Mitigation Committee, CNHRPC

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
						Warner town line, believed to have been a suspicious fire.		
Salisbury Structure Fire Jan 2006	No	2006	Jan 21	N/A	N/A, although neighboring fire departments assisted the Town	Holes in the masonry of a farmhouse caused a fire on Battle Street. The fire spread quickly because of the cold air and strong winds. Sixty firefighters from 14 departments battled the fire in temperatures around 20 degrees. The house was completely destroyed by the fire.	Fire, Human Hazard, Tech Hazard, Wind	Concord Monitor, CNHRPC
Salisbury Arson Structure Fires 2006	No	2006	---	N/A	N/A, although neighboring fire departments assisted the Town	Two suspicious fires occurred in storage sheds.	Fire, Arson, Human Hazard, Tech Hazard, Terrorism	Concord Monitor, CNHRPC
Salisbury Arboviral Disease 2006	No	2006	---	N/A	N/A, although EEE was likely found in other NH communities	One bird case of EEE in Salisbury was reported.	Public Health, Biological Hazard, Arboviral	Salisbury Hazard Mitigation Committee, CNHRPC
Severe Storms and Flooding - Columbus Day Flood Oct 2005	1610	2005	Oct 7-18	\$23,200	Extensive flooding caused by severe storms impacted five counties, including Merrimack and Hillsborough. Alstead experienced several fatalities as the result of dam failure.	Salisbury received \$23,200 in FEMA Public Assistance funding for roads, shoulders, culverts, and ditching repair and replacement. Washouts occurred on multiple roads, from 11" of rain in 20 hours. Streets that were affected the most included Warner Road, New Road, Rabbit Road, Couchtown Road, Mill Road, and Buckhorn Road (about 800' of road). Beaver dams near Buckhorn Road, measuring 6x8, began degrading due to heavy water pressure. Mill Brook frequently washed out during heavy rain storms.	Flood, Wind, Storms, Debris, Erosion, Landslide, Aging Infrastructure	Salisbury Hazard Mitigation Committee, FEMA
Regional & Salisbury Thunderstorms and Lightning Jun 2005	No	2005	12-Jun	N/A	During a thunderstorm, lightning struck and severely damaged the historic Loudon Town Hall on Clough Hill Road. Winds from severe thunderstorm knocked down trees and power lines down	Salisbury likely experienced many lightning strikes, power outages, and heavy downfalls. A microburst was recorded to have damaged parts of the	Thunderstorm, Lightning, Severe Winds, Microburst	Salisbury Hazard Mitigation Committee, CNHRPC, Area Hazard Mitigation Committees

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					in the towns of Warner, Hopkinton, Concord, Bow, Loudon, and Webster in Merrimack County.	ditch on Rabbit Road, and three culverts and some guardrails on US 4 in Boscawen		
Salisbury Wildfire Spring 2005	No	2005	Spring	N/A	N/A	Due to an errant campfire five acres burn between Oak Hill Road and Center Road under the power lines.	Wildfire, Lightning, Fire	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Winter Storm Mar 2005	No	2005	Mar 5	N/A	Other Central NH communities likely experienced similar snowstorm conditions.	Severe winter storm caused 550 area power outages. The storm consisted of 40 mph winds and heavy snows. There was a Town meeting scheduled in Salisbury, and other towns, received ½ the usual turnout due to the poor weather conditions.	Winter, Extreme Temp, Storm, Power Outage	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Winter Storm Feb 2005	No	2005	Mar 5	N/A	Other Central NH communities likely experienced similar snowstorm conditions.	Severe winter weather effected the entire area. Eighty-six Unitil customers were temporarily without power in Salisbury and Boscawen. Up to 14 inches of snow fell in New London. conditions.	Winter, Extreme Temp, Storm, Power Outage	Concord Monitor, CNHRPC
Salisbury Multiple Structure Fires Jan 2005	No	2005	Jan 27	N/A	N/A, although neighboring fire departments assisted the Town	Fire crews battled 3 fires in this date in Salisbury. The first fire of the day was an early morning fire at the Austin Home that was caused by an improperly disposed cigarette. The second fire of the day was a chimney fire on Battle Street. The third fire started in a barn and spread to a house on Little Hill Road. Firefighters will remember this bitterly cold and snowy day.	Fire, Human Hazard, Tech Hazard	Concord Monitor, CNHRPC
Snow Emergency Jan 2005	EM-3207	2005	Jan 22-23	\$2,111	Record and near record snowstorm for 8 NH counties including Merrimack and Hillsborough. Emergency protective measures declared for reimbursement.	Salisbury received \$2,111 in FEMA Public Assistance funding for snow removal. Record snows fell during this time period causing many closures. A severe winter storm dropped a lot of snow and federal funding was necessary	Winter, Extreme Temp	Salisbury Hazard Mitigation Committee, CNHRPC, FEMA

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
						to assist with snow clearing.		
Salisbury Arboviral Disease 2005	No	2006	---	N/A	N/A, although EEE was likely found in other NH communities	One horse in Salisbury had to be put down after being infected with EEE.	Public Health, Biological Hazard, Arboviral	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Structure Fire Sep 2004	No	2004	Sep 1	N/A	N/A, although neighboring fire departments assisted the Town	A four alarm fire destroyed a 3 story barn that was built in 1790. Seventy-five firefighters from 15 departments extinguished the Salisbury fire. Two horses were harnessed inside the barn and were not saved	Fire, Human Hazard, Tech Hazard	Concord Monitor, CNHRPC
Hopkinton Earthquake 2.3M Epicenter Aug 2004	No	2004	Aug 28	N/A	An earthquake measuring 2.3 on the Richter Scale was centered in the Hopkinton area at Hopkinton Lake (Hopkinton-Everett Reservoir) east of Stumpfield Road at a depth of 5.8km Shaking and noise were reported, but no damage occurred.	Reports were likely made to the USGS by Salisbury residents feeling the earthquake as a rumble or loud noise. The epicenter was within 20 miles of Salisbury, the 2 towns to the south.	Earth, Earthquake	Earthquake Monitor, CNHRPC, earthquake.usgs.gov
Salisbury Tornado Circa Jul-Aug 2004	No	2004	Circa Jul-Aug	N/A	N/A, although to travel to Winnepesaukee, the tornado traveled through the nearby Lakes Region communities to the north	A tornado was reported on Mutton Road and US 4, which eventually turned into a waterspout on Lake Winnepesaukee. It took down power lines and trees on Rabbit Road and Mutton Road.	Wind, Tornado, Power Outage, Debris	Salisbury Hazard Mitigation Committee, CNHRPC
Salisbury Drought Jun-Aug 2004	No	2004	Jun-Aug	N/A	N/A, although the rest of the region was likely experiencing similar drought effects	Approximately 10-15 households in Salisbury had to drill wells deeper because wells ran dry.	Extreme Temps, Drought	Salisbury Hazard Mitigation Committee, CNHRPC
Henniker-Hopkinton Earthquake 2.2M Epicenter Jan 2004	No	2004	Jan 20	N/A	An earthquake measuring 2.3 on the Richter Scale was centered in the Henniker- Hopkinton town line on Line Hill Road at a depth of 3.6km.	Reports were likely made to the USGS by Salisbury residents feeling the earthquake as a rumble or loud noise. The epicenter was within 20 miles of Salisbury, to the southwest.	Earth, Earthquake	Concord Monitor, January 2004, Earthquake Monitor, CNHRPC, earthquake.usgs.gov
Snow Emergency Dec 2003	EM-3193	2003	Dec 6-7	\$3,518	Record snow fall event impacting much of New England. In NH, 8 counties received emergency protective measures, including	Salisbury received \$3,518 in FEMA Public Assistance funding for snow removal. Record snowfalls, residents lost power due	Winter, Extreme Temp	Salisbury Hazard Mitigation Committee, CNHRPC, FEMA

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					Merrimack and Hillsborough.	to winter snow storm with high winds and falling trees.		
Snow Emergency Feb 2003	EM-3177	2003	Feb 17-18	\$2,985	Record and near record snowstorm for 5 NH counties including Merrimack and Hillsborough. Emergency protective measures declared for reimbursement.	Salisbury received \$2,985 in FEMA Public Assistance funding for snow removal. Record or near record snows were likely experienced in Salisbury. Residents lost power due to winter snow storm with high winds and falling trees.	Winter, Extreme Temp	Salisbury Hazard Mitigation Committee, CNHRPC, FEMA
NH Drought Emergency Aug 2002	No	2002	Aug	N/A	All counties in the State of NH except Coos County. One of the hottest Augusts on record in Concord along with drought conditions since March made for a high fire danger in New Hampshire. Numerous forest fires were reported, including a 30-acre blaze in New Durham.	Salisbury likely experienced loss of hay crops, tree farms, lowering of the Blackwater River and other brooks.	Drought, Extreme Temps, Earth, Increased Wildfire Risk	CNHRPC, Concord Monitor 8/20/02, NHDES
Snow Emergency Mar 2001	EM-3166	2001	Mar 5-7	\$4,040	Record and near-record snowfall from late winter storm, emergency declaration was issued for protective measures. Merrimack, Hillsborough and 5 other counties declared eligible.	Salisbury received \$4,040 in FEMA Public Assistance funding for protective measures, including snow removal. Likely numerous power outages and blizzard-like conditions were experienced in Salisbury.	Winter, Extreme Temp, Wind	Salisbury Hazard Mitigation Committee, CNHRPC, FEMA
Salisbury "Fireball" Wildfires Dec 2000	No	2000	Dec 7	N/A	N/A	A fireball caused two small brush fires in the woods between two homes on Hensmith Road. Some believed the fireball to be a meteorite while others believed it to be a geophysical meteor (high-speed ball lightning). Actual explanation unknown at the time the Concord Monitor article was published	Wildfire, Lightning, Solar	Concord Monitor, CNHRPC
Salisbury Hazardous Materials Spill Early 2000s	No	2000	Early	N/A	N/A, although likely neighboring fire departments assisted the Town	700 gallons of propane were spilled on Mutton Road when the owner bulldozed off the top of his tank, resulting in a massive clean-up effort.	Fire, Hazardous Materials Spill, Public Health (Water & Soil Quality)	Salisbury Hazard Mitigation Committee, CNHRPC

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Salisbury Hazardous Materials Spill Late 1990s	No	1990	Late	N/A	N/A, although likely neighboring fire departments assisted the Town	A house on Hensmith Road had a leak in the oil tank that resulted in a massive clean-up in basement.	Fire, Hazardous Materials Spill, Public Health (Water & Soil Quality)	Salisbury Hazard Mitigation Committee, CNHRPC
Regional Downbursts and Severe Winds Jul 1999	No	1999	6-Jul	N/A	Severe storms in July 1999 bring strong damaging winds and 3 downbursts. Two deaths occurred. The roof of the Ralph Pill building in Concord is blown off during a storm. The downburst was designated a macroburst (at least 2.5 miles in diameter). Other communities in the Central NH Region experienced damages	Salisbury likely experienced severe winds and trees down across roads and lawns.	Severe Wind, Downburst	Concord Monitor, NH HSEM, CNHRPC
Concord Terrorism/Bomb Threats Oct 1998	No	1998	Oct, Oct 27	N/A	On Oct 27, the lit fuse of a bomb left in the Concord Library stacks set off smoke alarms that may have saved the lives of many people. The individual allegedly responsible for the bomb scare left notes complaining about state government. A few days later, about a dozen buildings were evacuated after the New Hampshire Technical Institute in Concord received an anonymous call warning that three bombs had been placed on campus. This event followed the bomb scares at the Concord Library.	N/A, although Concord is an important Central NH Region city to Salisbury residents for employment and shopping	Terrorism	AP Online, 11/01/98, NH HSEM, CNHRPC
Severe Storms and Flooding Summer 1998	1231	1998	Jun 12-Jul 2	\$0	Heavy flooding in six counties, including Merrimack and Hillsborough Counties. Damages of \$3.4m for all counties.	Salisbury did not apply for or receive FEMA Public Assistance funding. In Salisbury, washouts are likely to have occurred.	Flood, Wind, Debris, Aging Infrastructure	FEMA, CNHRPC
Ice Storm of Jan 1998	1199	1998	Jan 7-25	\$0	This ice storm was the first to test our statewide and local emergency management systems and utility providers.	Salisbury did not apply for or receive FEMA Public Assistance funding.	Extreme Temp, Winter, Utility, Debris	FEMA, US Army Corps of Engineers, NH Storms database, Salisbury

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					Tree and infrastructure damage was extensive and power failures lasted up to two weeks in some parts of the state. In The Central NH Region, many lost power for over a week. This ice storm had severe impacts throughout most of the State, with 52 communities impacted. FEMA Disaster Declaration #1199, Six injuries and one death resulted. Damage totaled \$12,446,202. In addition, there were 20 major road closures, 67,586 people left without electricity, and 2,310 people without phone service.	Severe ice storm, rain and high wind impacted the Town with power outages and roads closed due to drifting snow. Communications tower and trees were damaged. Residents were without power for several days (3-7 days), although the storm did not impact the Town severely. Little Hill was hit with large amounts of ice, and residents were without power for a couple days.		Hazard Mitigation Committee, CNHRPC
NH Mass Casualty/ Terrorism Aug 1997	No	1997	Aug	N/A	Five people were left dead after a series of shootings which began in Bow by a man who was angered over long simmering land disputes. The individual was eventually apprehended in Colebrook, NH.	N/A for Salisbury specifically, but this tragedy occurred in the Central NH region.	Terrorism, Mass Casualty	NH HSEM, CNHRPC
Salisbury Microburst Summer 1997	No	1997	Circa	N/A	The Fire Tower on Mount Kearsarge was likely operational and watching for blazes.	Microburst/freshet reported to have come off the side of Mt. Kearsarge and down the river resulting in high winds	Severe Wind, Downburst	Salisbury Hazard Mitigation Committee, CNHRPC
Severe Storms and Flooding Oct 1996	1144	1996	Oct 20-23	\$0	Heavy rains caused flooding in six counties, including Merrimack and Hillsborough Counties. Damage totaled \$2.3m for all counties.	Salisbury did not apply for or receive FEMA Public Assistance funding. As Salisbury is within Merrimack County, it is likely experienced heavy rains and possibly some flooding.	Flood, Storms	FEMA, NH HSEM, CNHRPC
Storms and Floods Oct-Nov 1995	1077	1995	Oct 20-Nov 15	\$0	Four NH counties were damaged by excessive rain, high winds and flooding, including Merrimack (not Hillsborough).	Salisbury did not apply for or receive FEMA Public Assistance funding. It is likely several gravel roads were washed out in Salisbury.	Flood, Winds, Aging Infrastructure	FEMA, Federal Register, CNHRPC
Newbury Terrorism/ Active Shooter	No	1993	Nov 1	N/A	A shooting at the Newbury Town Hall was ignited by tax and land	N/A for Salisbury specifically, but this tragedy occurred	Terrorism/ Violence, Mass	NH HSEM, CNHRPC

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Nov 1993					disputes. Two town workers were killed, another was wounded, and the gunman shot and killed himself.	nearby. Newbury is located about 15 miles to the west of Salisbury.	Casualty, Active Shooter	
Blizzard Mar 1993	EM-3101	1993	Mar 13-17	\$1,240	Blizzards, High Winds and Record Snowfall. It is likely the Central NH Region experienced heavy snow, tree fall.	Salisbury received \$1,240 in FEMA Public Assistance funding for emergency snow plowing.	Winter, Extreme Temp, Wind	NH HSEM, CNHRPC, FEMA
Severe Storm-Hurricane Bob Aug 1991	917	1991	Aug 18-20	N/A for Salisbury	Public assistance was available for Hillsborough County and 2 other counties (not declared in Merrimack County) as a result of damages caused by Hurricane Bob. The 2 seacoast counties fared the worst.	As Salisbury is within Merrimack County, it likely experienced heavy rains, wind gusts, tree debris, power outages and possibly some flooding.	Severe Winds, Hurricane	FEMA, CNHRPC
Flooding and Severe Storm Aug 1990	876	1990	Aug 7-11	No data available	Moderate to heavy rains caused flooding in eight counties, including Merrimack and Hillsborough Counties. Damage totaled \$2.3m for all counties	As Salisbury is within Merrimack County, the Town likely experienced heavy rains, tree debris, power outages and possibly some flooding.	Flood, Severe Winds	FEMA, NH HSEM, CNHRPC
Severe Storms and Flooding Mar-Apr 1987	789	1987	Mar 30-Apr 11	No data available	Flooding caused by snowmelt and intense rain was felt in seven counties, including Merrimack and Hillsborough Counties. Nearly \$5m in damages.	Blackwater River flooded and the entire flood control area was flooded. There was no road damage from 26" of snow melt then rain which filled up the Blackwater Reservoir (44,000 acres in Salisbury). A beaver dam let go due to heavy rain, resulting in the Center Road culvert to break.	Flood, Debris, Extreme Temps	Salisbury Hazard Mitigation Committee, CNHRPC FEMA, NH HSEM, US Army Corps of Engineers
Severe Storms and Flooding Jul-Aug 1986	771	1986	Jul 29-Aug 10	N/A for Salisbury	Severe summer storms with heavy rains, tornadoes, flash floods, and severe winds, damaged the road network statewide. Disaster declared in Cheshire, 4 and Hillsborough Counties (not declared in Merrimack County).	Salisbury likely experienced washouts and erosion from this storm. On the other side of Mount Kearsarge, the bridge in Sutton on Kearsarge Valley Road was at risk for washout due to heavy rains and large amounts of rock and debris cascading down the mountain.	Flood, Wind, Landslide, Erosion, Debris	FEMA, NH HSEM, CNHRPC, Sutton Hazard Mitigation Committee
Earthquake 4.5M Sanbornton Jan 1982	No	1982	Dec	N/A	An earthquake originating near in Sanbornton in Belknap County measured 4.5M and was felt in various	A Sanbornton-centered earthquake could have caused some light physical damage in Salisbury. Sanbornton is	Earth, Earthquake	CNHRPC, Earthquake-track.com,

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					locations throughout the State. The area it was felt includes all of northern Merrimack County including the Concord area communities in Central NH. The earthquake was known to have cracked the original glass panes in one Warner resident's home.	about 25 miles to the northeast of Salisbury.		
Regional & Salisbury Lightning Strikes Sep 1979	No	1979	Sep	N/A	The surrounding Central NH Region experienced lightning and thunderstorms.	On the other side of Kearsarge Mountain, on Kearsarge Mountain Road a barn (Highlawn Farm) on was struck by lightning and destroyed. Four animals were killed.	Lightning, Wind, Fire, Thunderstorms	Warner Hazard Mitigation Committee
NH Blizzard of Feb 1978	No	1978	Feb 5-7	N/A	RSI Index of Category 5 (Extreme). This snowstorm is described as "a natural disaster of major proportions" and stunned all of New England. The storm was caused by an intense coastal Nor'easter that produced winds in excess of hurricane force and very high snow totals. Most of southern New England received more than three feet of snow, 25-33" in NH and higher throughout New England. Abandoned cars along roadways immobilized infrastructure and blocked major interstates. For over a week, New England remained paralyzed by the storm. All of New Hampshire was impacted. Governor Meldrim Thomson Jr. declared a state of emergency.	It is likely many of the same snow depths and effects occurred across the Town as occurred in Merrimack County and New England	Extreme Temperatures, Severe Snow Storms, Windchill, Power Failure	American Meteorological Society, Northeast States Emergency Consortium, CNHRPC
Quebec Earthquake 4.8M Jun 1973	No	1973	15-Jun	N/A	An earthquake originating near the Quebec border at a scale of 4.8 was felt in various locations throughout NH.	N/A, although some Salisbury residents may have felt the effects.	Earth, Earthquake	Northeast States Emergency Consortium, CNHRPC

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Severe Storms and Flooding Jul 1973	399	1973	Jul 11	No data available	All counties in the State of NH experienced storm damage and were declared disaster areas, including Merrimack and Hillsborough Counties.	Torrential downpours inundated the area, including Salisbury which likely experienced road washouts, Blackwater River flooding, etc.	Flood, River, Wind, Washout, Erosion	FEMA, CNHRPC, Salisbury Hazard Mitigation Committee
Older Hurricanes 1954-1991	No	1954	to 1991	N/A	Many older hurricanes have impacted New Hampshire including the 1954 – 1991 Hurricanes: Carol on August 31, 1954 (tree and crop damage), Edna on September 11, 1954, Donna on April 12, 1960 (heavy flooding), Dora on August 28, 1971, Bell on August 10, 1976, Gloria on September 27, 1985, and Bob in 1991.	Downed trees, wind damage, and flooding were likely experienced in Salisbury during many of these hurricanes. 1960- Hurricane Donna impacted Salisbury with heavy rain and some wind damage. 1954- Hurricane Carol, a category 2 storm, passed through the area resulting in heavy rain with increased wind. This resulted in extensive crop and tree damage.	Tropical, Wind, Flood, Debris	Salisbury Hazard Mitigation Committee, NH Homeland Security and Emergency Management, CNHRPC
10 Severe Snowstorms 1940-1978	No	1940	to 1978	N/A	Ten severe snowstorms are documented in south-central NH during this time span, Feb 14-15, 1940 (depths over 30" and high winds), Feb 14-17, 1958 (20-33"), Mar 18-21, 1958 (22-24"), Mar 2-5, 1960 (up to 25"), Jan 18-20, 1961 (up to 25", blizzard conditions), Jan 11-14, 1964 (up to 12"), Jan 29-31, 1966 (up to 10"), Feb 22-28, 1969 (24-98", slow-moving storm), Dec 25-28, 1969 (12-18"), Jan 19-21, 1978 (up to 16").	Although it is unknown what Salisbury experienced, it is likely many of the same snow depths occurred, as well as debris on roads and difficulty traveling.	Extreme Temp, Winter, Snow Storms, Utility, Power Outage, Debris Impacted Infrastructure	American Meteorological Society, CNHRPC
Salisbury Windstorms Circa Fall 1957	No	Circa 1957	Fall	N/A	N/A	High winds were reported, affected Sawyer's Orchard, the ground was covered with apples.	Wind, Utility, Debris, Debris Impacted Infrastructure	Salisbury Hazard Mitigation Committee, CNHRPC
Regional Snow Storm and Rapid Snow Pack Melt Mar 1953	No	1953	Mar	N/A	Similar rain or snow storms and rapid snow pack melt likely impacted the Central NH region. The highest level of water in the Blackwater Dam was measured, with the	Drifts 10 feet high were common, created by hand wing-plows, sometimes up the telephone lines. Other recollections were that people had to shovel	Flood, Debris	FEMA, NH HSEM, US Army Corps of Engineers, CNHRPC, Salisbury Hazard

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
					capacity at 93%. No flooding was reported. Uncertain as to exactly what type of storm caused this effect. A total of nearly 8" of precipitation in March 1953.	snow because the plow could not get through.		Mitigation Committee
Salisbury Lightning Strikes 1939	No	1939	Circa	N/A	The Fire Tower on Mount Kearsarge was likely operational and watching for blazes. Other barns around the region were likely struck.	Lightning followed the telephone line during a thunderstorm and a barn was lost on Warner Road. The Horses and animals inside the barn were killed	Lightning, Thunderstorms, Wildfire, Fire	Salisbury Hazard Mitigation Committee, CNHRPC
Regional & Salisbury Hurricane of Sep 1938	No	1938	Sep 21	N/A	Hurricane made landfall as a 3 on the Saffir-Simpson Scale, killed about 682 people and damaged or destroyed over 57,000 homes. Most deadly New England hurricane. Central New Hampshire was inundated with water. This was also the worst hurricane to ever strike New England, resulting in 564 deaths and over 1,700 injuries (Northeast States Emergency Consortium). Downed trees caused extensive damage to homes, businesses and community infrastructure. President Roosevelt ordered emergency aid be sent to NH, including Merrimack County. Thirteen people died in New Hampshire.	Three steam powered mills in town were employed sawing the logs from the damage. Damage included a barn roof blown off on Lovering Hill Road. Reports that water ran through dooryards and was too loud to carry a conversation. The 1938 hurricane knocked out most of the equipment that we had outside. Those war all single wires in those days It took three weeks before we got the last telephone working, and that was working from daylight until dark.." Fred Adams Back in 1938, the time of the hurricane, the original meeting house steeple had been toppled by the high winds resulting it its destruction and it had never been replaced. Members of the society were anxious to replace it, but no concrete plans could be made due to the overwhelming expense of the project. Happily the steeple has been replaced due to the generosity of a member's memorial gift.' Dana Parks Jr.	Tropical, Wind, Hurricane, Flood, Debris	CNHRPC, USGS 1938 report, Salisbury Hazard Mitigation Committee, Published in "They Said It In Salisbury" by Paul S. Shaw, MD Feb 1989 & Sep 1989

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Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
Regional & Salisbury Flood of Mar 1936	No	1936	Mar 11-21	N/A	Simultaneous high snowfall totals, heavy rains, and warm weather combined to hit all of New England. Floods killed 24 people, caused \$133,000,000 in damage, and made 77,000 people homeless in New England. The great flooding of 1936 resulted from heavy rains and rapid snow pack melt. Snow north of Concord contributed to the higher waters in the Winnepesaukee, Contoocook and Pemigewasset rivers that were largely responsible for the destruction in Concord and the surrounding area. NH issued boil water warnings to everyone.	Flood on the Blackwater River took out Shaw's Mill on Warner Road. The flood also took out the shingle mill on Bay Road (remnants are still present).	Flood, Ice Jam, Winter, Erosion, Scouring	Concord Monitor, Union Leader, Army Corps of Engineers Ice Jam Database, CNHRPC, USGS 1938 report, Salisbury Hazard Mitigation Committee 2008
Salisbury Conflagration 1895	No	1895	---	N/A	N/A	At South Road Village intersection, 4 substantial building destroyed in 1895 by fire: The Parsonage, The Grand Army Hall, Greenough's Store, Mrs. Chapmans's "Kearsarge Cottage" lodging. These were important facilities to this small community.	Fire Conflagration	Salisbury Historical Society, CNHRPC
Regional & Salisbury Drought and Flood Aug 1826	No	1826	Aug 28	N/A	Likely the Central NH Region experienced localized flooding conditions in its communities. Nearby Sutton experienced severe conditions.	A long summer of drought preceded the downpour and subsequent flooding in August. Called "The Year of the Grasshopper." "The summer was very hot and dry and with the growth came a vast army of grasshoppers, which destroyed nearly every green thing. The year was referred to for a long time as "the year of the great growth", the year of the great freshet, and the "grasshopper year" A freshet destroyed Wilder & Bowers flaxseed oil mill on the	Drought, Flood, River, Erosion	Salisbury Hazard Mitigation Committee, CNHRPC, History of Salisbury, N: From the Date of Settlement to the Present Time; John Jacob Dearborn, January 1, 1890

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
						Stirrup Iron Brook. The business had ceased operations prior to its destruction.”...the most terrific and destructive rain storm visited New Hampshire that had been known since the settlement of the State. The windows of heaven were literally opened, ‘the rains descended and the floods came’, and the torrents came tumbling from the hills. Roads were completely destroyed, bridges swept away, and the ‘hills themselves descended into the valleys’		
Regional Flood Feb 1824	No	1824	Feb 11	N/A	Likely the Central NH Region experienced localized flooding conditions.	Heavy rain flooded streams and local rivers caused local bridges to wash away. Gale force winds with snow melt resulted in ice jams. Salisbury likely experienced similar conditions.	Flood, River, Ice	Warner Town Historians from Hazard Mitigation Committee, CNHRPC
Regional & Salisbury Great Tornado of Sep 1821	No	1821	Sep 2	N/A	The route of the twister started at the Vermont state line and went through Boscawen, hitting several towns along the way. Descriptions indicate that this twister was similar to the Midwestern variety and that far greater death and damage would have resulted if its narrow path had included any of the larger settlements in the state. Countless deaths occurred as a result of the twister, as well as severe injuries.	On September 2, 1821 a tornado struck Salisbury-Warner after moving through many towns from the Vermont line. The 1821 Tornado tore through Sunapee Lake into New London, over to the northside of Sutton, onto the northwest side of Mt. Kearsarge in 2 columns. The tornado then rejoined as it came over the mountain into Warner and Salisbury in one terrifying column. It lifted in Boscawen and left a trail of utter destruction in its wake. It is estimated that the tornado was in the F-4 category which has winds of 207-240 mph! To this day it is the deadliest tornado to have swept through New Hampshire.	Tropical, Wind, Mass Casualty, Debris, Tornado	Salisbury Historical Society, The History of Salisbury” by John Dearborn, History of Sutton by Wadleigh and Worthen

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

4 HAZARD RISK ASSESSMENT

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Salisbury	Local Effects Occurring in Salisbury	Hazard Category	Source
						This most harrowing event and effects are written about in detail in the Town History		
Salisbury Mount Kearsarge Landslide 1819	No	1819	---	N/A	The mountain is shared by several Central NH region communities, including Warner, Sutton, Salisbury. This landslide event is chronicled in Sutton and Salisbury histories.	In the area of western Salisbury, referred to as the Watson district after one of the original settling families, our town rises up onto Mt. Kearsarge and actually intersects for a short distance with the road which goes to nearly the top of Mt. Kearsarge from the Warner side. At one time this mountain side was cleared. Sheep grazed along the mountain side. Whether the land slide was a result of clearing requires more research. "(1819) In the spring of this year a mass of earth and stones of several tons weight came detached from the declivity of Kearsarge Mountain, and was precipitated with great violence into the valley below sweeping a path of forty rods in its width." The landslide also reportedly occurred in Warner.	Earth, Landslide, Erosion, Flood, Storms	Salisbury Historical Society, CNHRPC, History of Salisbury by John Dearborn, 1890 page 90
Regional Tropical Storm and/or Tornado Sep 1815	No	1815	Sep 25	N/A	This was likely an event that covered much of southern NH with wind, rain, tree debris. Neighboring Salisbury was mentioned as experiencing the same events. In nearby Warner, during the hurricane, a tornado which swept through Kearsarge Gore formed resulted and changing the topography.	Salisbury likely experienced high winds, downed trees, and landslides.	Tropical, Wind, Flood, Tornado, Landslide	Sutton Town Historians from Hazard Mitigation Committee 2008 [1890 town history, page 219]

Source: Compilation of Events by Salisbury Hazard Mitigation Committee; CNHRPC

Description and Magnitude of Hazards

A compilation of past hazards that have occurred in Salisbury and the Central NH Region area is provided in the prior Table of **Local and Area Hazard Events**. **Existing and Susceptible Hazard Locations in Town** are areas to watch, areas of particular susceptibility and may be vulnerable to future events. **Potential Future Hazards** are determined based on the past hazard events, possibilities, and existing issues in Town to provide focus to future potential problem areas and to help with mitigation action development and are provided in the **Potential Future Hazards** section.

Each hazard is generally described and then is noted how and where it could occur in Salisbury. For all hazards examined in this Plan, a table of the **Hazard Locations in Town** and the **Potential Future Hazards** is provided at the end of this Plan Chapter.

Hazard events were researched using a wide variety of sources for the **original Salisbury Hazard Mitigation Plan 2008** and the **2014 Plan Update** which were the basis for many of the past disaster events and then were updated to the present day. The **2014 Plan** provided recent information on many of the extreme disasters experienced between **2005-2008**. Sources and techniques included interviewing local townspeople, researching Town Histories and related documents, and collecting information from governmental or non-profit websites. Presidentially declared disasters or other significant hazard events are described for the surrounding area or Merrimack County for the **Hazard Mitigation Plan Update 2019** and some of them may have affected the community. These disasters were also considered by the Committee when determining the risk evaluation.

Committee member experiences, knowledge, and recollections generally comprise the **Local and Area Hazard Events** and **Hazard Locations in Town**. While additional hazards might have occurred in Town, those events in the Plan are what the Committee chose to list, or were familiar with to list, to comprise the hazard events within the in Tables. The same is true for the **Potential Future Hazards** section.

Numeric of Probability and Severity	CONCERN SUMMARY	Numeric of Overall Risk Score
1	LOW	1 - 4
2	MEDIUM	5 - 7
3	HIGH	8 - 11
4	HIGH	12 - 16

EARTH HAZARDS

Earth hazards include geologic events such as the small earthquake NH residents experience. The Central NH area is seismically active and small earthquakes (less than **2.5** magnitude on the Richter Scale) occur about **1-2** times per year. Landslides can occur as a result of earthquakes, rain, flooding and result in erosion along roadways and watercourses.

Radon is a naturally occurring radioactive gas with carcinogenic properties. The gas is a common problem in many states, including New Hampshire, seeping into homes from basements. Radon may also enter homes dissolved in drinking water from drilled wells. High levels of radon in water from individual drilled wells is a common occurrence in New Hampshire. Radon is no longer being addressed by the *State of New Hampshire Multi-Hazard Mitigation Plan 2018* as no new studies have made specific data available. It is generally known that radon exists throughout in the State and in communities, including the Central NH Region. Arsenic is a new concern that often co-occurs with radon. Radon is known to be present throughout New Hampshire and is addressed on an individual basis, no longer addressed in the **Salisbury Hazard Mitigation Plan** because of the lack of State monitoring and available action.

There are several types of **EARTH** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included		
EARTH	DROUGHT	EARTHQUAKE	LANDSLIDE Soil, Rockslide or Excavation Areas

Drought

The overall ratings of **Drought** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
DROUGHT	4 HIGH	1 LOW	1 LOW	2 MEDIUM	5.3 MEDIUM

A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects growing or living conditions. Droughts are becoming less rare in New Hampshire than they have been in the past. They have different, widespread damages compared with floods and are more difficult to define. The effect of droughts is indicated through measurements of soil moisture, groundwater levels, and streamflow. However, not all of these indicators will be minimal during a drought. For example, frequent minor rainstorms can replenish the soil moisture without raising ground-water levels or increasing streamflow. Low streamflow also correlates with low ground-water levels and commonly cause diminished water supply because ground water discharge to streams and rivers maintains streamflow during extended dry periods.

In the case of drought, residential (dug wells especially) and Town water supplies would be threatened. All residences in Salisbury and most non-residential buildings and facilities rely on well water which is not easily replenished during periods of drought. During the **2015-2018** drought period, many residences notified the Town of their dug wells going dry. The residents either made private arrangements for potable water or they dug new bedrock wells. All farms, orchards, tree farms, and conservation areas in Town would be affected by drought. Additionally, wildfires have the potential of being more severe and commonplace during periods of drought, more difficult to contain. The Fire Department has on occasion brought water to farms for agricultural use.

Magnitude of Drought

Table 13 displays overall drought magnitude as measured by the US Drought Monitor (USDM) and Palmer Hydrological Drought Index (PHDI), the extent of hydrological drought in the form of long-term, cumulative monthly moisture conditions. The weekly [US Drought Monitor for NH](https://droughtmonitor.unl.edu/AboutUSDM/AbouttheData/DroughtClassification.aspx) can be accessed online. The Palmer indices are developed by algorithms taking into consideration precipitation, temperature data, and the local Available Water Content (AWC) of the soil.

Table 13
US Drought Monitor Intensity Scale

Category	Description	Description of Possible Impacts	Palmer Drought Severity Index (PDSI)
D0	Abnormally Dry	Going into drought: - Short-term dryness, slow planting, growth of crops or pastures Coming out of drought: - Some lingering water deficits - Pastures or crops not fully recovered	-1.0 to -1.9
D1	Moderate Drought	- Some damage to crops, pastures - Streams, reservoirs or wells low, some water shortages developing or imminent - Voluntary water use restrictions requested	-2.0 to -2.9
D2	Severe Drought	- Crop or pasture losses likely - Water shortages common - Water restrictions imposed	-3.0 to -3.9
D3	Extreme Drought	- Major crop/pasture losses - Widespread water shortages or restrictions	-4.0 to -4.9
D4	Exceptional Drought	- Exceptional and widespread crop/pasture losses - Shortages of water in reservoirs, streams and wells creating water emergencies	-5.0 or less

Source: <https://droughtmonitor.unl.edu/AboutUSDM/AbouttheData/DroughtClassification.aspx>
as compiled by CNHRPC, accessed 02-22-19

Earthquake

The overall ratings of **Earthquake** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
EARTHQUAKE	4 HIGH	1 LOW	1 LOW	1 LOW	4.0 LOW

An earthquake is a rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. **Earthquakes** can cause buildings and bridges to collapse, disrupt gas, electric and phone lines, and often cause **landslides, flash floods, fires**, and avalanches. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks, and end in vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter. The magnitude and intensity of an earthquake is determined by the use of scales such as the Richter scale and Mercalli scale. Geologic events are often associated with California, but New England is considered a moderate risk earthquake zone. New Hampshire experiences regular, minor earthquakes with its bedrock geology.

Magnitude of Earthquake

Earthquake hazard magnitude can be measured by the Richter Scale as shown in **Table 14**, just as its intensity can be measured by the Modified Mercalli Instrumental Intensity (MMI) scale. The two scales do not correlate consistently among sources, but utilizing a combination of scales and descriptions on USGS and NOAA sites, **Table 14** approximates the Richter to Mercalli comparison. For practical purposes, descriptions of potential impacts to people, furnishings, the built environment and the natural environment are provided to better place earthquake magnitude in perspective.

The Central NH Region and the State of New Hampshire which reside on bedrock are frequent locations of minor, deep earthquakes. The deeper earthquakes have less of a chance to promote widespread damage.

Table 14

Modified Mercalli and Richter Magnitude Scales

Approx Richter Magni- tude Scale	Mercalli Instru- mental Intensity Scale	Damage Category	Perceived Shaking	Potential Impacts			
				People's Reaction	Furnishings	Built Environment	Natural Environment
< 3	I	Instrumental	Not felt	Not felt.	N/A	Passing truck vibrations and noises	Changes in level and clarity of well water are occasionally associated with great earthquakes at distances beyond which the quakes are felt by people
3 – 3.4	II	Just Perceptible	Weak	Felt by a few.	Delicately suspended objects may swing.	N/A	Trees and bodies of water sway.
3.5 - 4	III	Slight	Weak	Felt by several. Vibrations like a truck passing.	Hanging objects may swing appreciably. Vehicles rocked slightly.	N/A	N/A
4.1 – 4.4	IV	Moderate	Light	Felt by many. Sensation like heavy truck striking building.	Dishes rattle. Vehicles rocked noticeably.	Walls creak, windows rattle.	N/A
4.5 – 4.8	V	Rather Strong	Moderate	Felt by nearly all. Frightens a few.	Pictures swing out of place; small objects move; a few objects fall from shelves within the community.	A few instances of cracked plaster and cracked windows in the community.	Trees and bushes shaken noticeably.
4.9 – 5.4	VI	Strong	Strong	Frightens many. People move unsteadily	Many objects fall from shelves.	A few instances of fallen plaster, broken windows and damaged chimneys within the community.	Some fall of tree limbs and tops, isolated rockfalls and landslides, and isolated liquefaction.
5.5 - 6	VII	Very Strong	Very strong	Frightens most. Some lose balance.	Heavy furniture overturned	Damage negligible in buildings of good design and construction but considerable in some historic, poorly built or badly designed structures; weak chimneys broken at roof line, fall of unbraced parapets.	Tree damage, rockfalls, landslides, and liquefaction are more severe and widespread with increasing intensity. Water is stirred and muddy.

Approx Richter Magni- tude Scale	Mercalli Instru- mental Intensity Scale	Damage Category	Perceived Shaking	Potential Impacts			
				People's Reaction	Furnishings	Built Environment	Natural Environment
6.1 – 6.5	VIII	Destructive	Severe	Many find it difficult to stand	Very heavy furniture moves conspicuously.	Damage slight in buildings designed to be earthquake resistant but severe in historic or some poorly built structures. Widespread fall of chimneys, walls and monuments. Powerlines fallen.	N/A
6.6 - 7	IX	Ruinous	Violent	Some forcibly thrown to the ground	N/A	Damage considerable in some buildings designed to be earthquake resistant; buildings shift off foundations if not bolted.	N/A
7.1 – 7.3	X	Disastrous	Extreme	N/A	N/A	Some well-built wooden structures destroyed. Most ordinary masonry structures collapse; damage moderate to severe in many buildings designed to be earthquake resistant. Dams destroyed.	N/A
7.4 – 8.1	XI	Very Disastrous	N/A	N/A	N/A	Few if any masonry structures remain standing. Bridges destroyed. Rails bent greatly. Wide cracks in ground. Pipelines break	Waves seen on the ground
> 8.1	XII	Catastrophic				Total damage. Lines of sight and level are distorted. Objects thrown into air.	Waves seen on the ground

Source: National Oceanic and Atmospheric Administration (NOAA), USGS and other sources compiled by CNHRPC Feb 2019

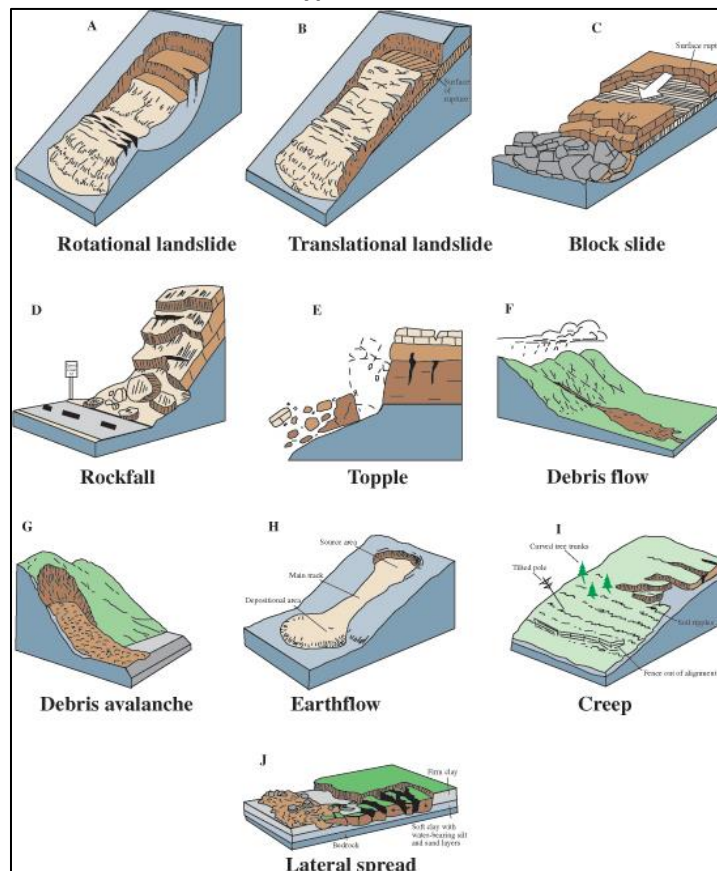
Landslide

The overall ratings of **Landslide** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
LANDSLIDE	1 LOW	1 LOW	1 LOW	1 LOW	1.0 LOW

A landslide is the downward or outward movement of slope-forming materials reacting under the force of gravity including: mudflows, mudslides, debris flows, rockslides, debris avalanches, debris slides, and earth flows. Erosion of soil may also contribute to landslides. **Landslides** have damaged or destroyed roads, electrical and telephone lines, buildings, sewers, bridges, dams, forests, parks, and farms. A display of different types of landslides is shown in **Figure 6**.

Figure 6
Basic Types of Landslides



Source: US Geological Survey (USGS)

Magnitude of Landslide

There is no known standardized measurement of landslide magnitude available.

EXTREME TEMPERATURE HAZARDS

Extreme temperature hazards include diverse hazards such as severe cold or windchill, excessive heat, and heatwaves. Excessive heat or extreme cold can create other hazards such as public health issues, utility outages. The severity of these hazards is influenced by New Hampshire's changing climate and severe weather systems. This category is meant to encompass all the hazards which can be influenced by the extreme weather temperatures and climate changes that New England, New Hampshire, the Central NH Region, and Salisbury are experiencing.

There are several types of **EXTREME TEMPERATURE** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included
EXTREME TEMPERATURES	EXTREME TEMPERATURES Excessive Heat, Heat Wave, Cold or Wind Chill

The environmental temperature spectrum is addressed under extreme temperatures, from very cold to very hot.

The overall ratings of **Extreme Temperatures** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
EXTREME TEMPERATURES Excessive Heat, Heat Wave, or Cold or Wind Chill	4 HIGH	1 LOW	1 LOW	1 LOW	4.0 LOW

Excessive Heat or Heatwave

A heat wave is a period of abnormally and uncomfortably hot and unusually humid weather that typically lasts two or more days. The National Weather Services' Heat Index is used to measure humidity against temperature to develop a "real feel" temperature. Heat disorders on the body are quick and can be deadly. These now normal hot temperatures in the summer are commonly known as **excessive heat**.

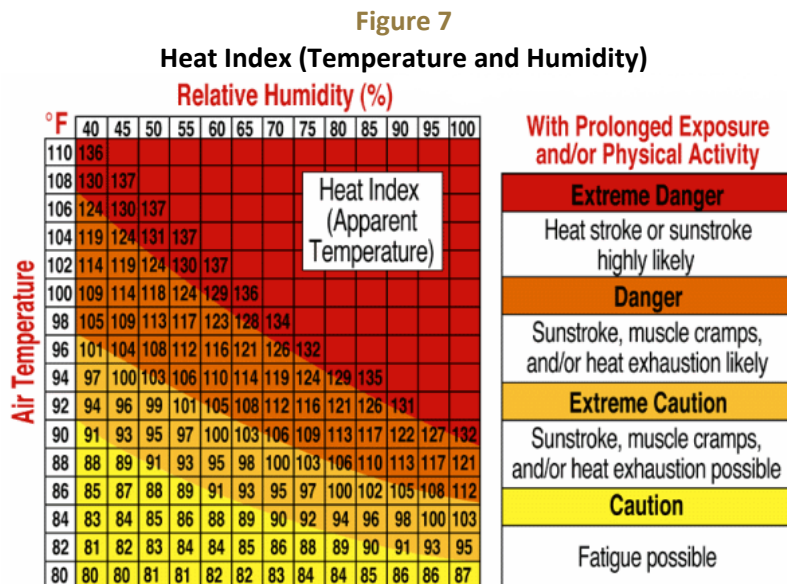
The National Weather Service categorizes a **Hot Day** when temperatures reach **90°** or warmer. An official **Heat Wave** is defined as three or more consecutive days with the temperature reaching or exceeding **90°**.

Extreme heat weather is forecasted with the following levels of high temperatures. **Excessive Heat Outlooks** are issued when the potential exists for an excessive heat event in the next **3-7** days. An Outlook provides information to those who need considerable lead-time to prepare for the event.

<p>✦ Excessive Heat Watch BE PREPARED</p>	<p>A Heat Watch is issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.</p>
<p>✦ Excessive Heat Warning BE AWARE</p>	<p>An Excessive Heat Warning is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Warning is when the maximum heat index temperature is expected to be 105° or higher for at least 2 days and night time air temperatures will not drop below 75°; however, these criteria vary across the country, especially for areas not used to extreme heat conditions. If you don't take precautions immediately when conditions are extreme, you may become seriously ill or even die.</p>
<p>✦ Heat Advisory TAKE ACTION</p>	<p>A Heat Advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is when the maximum heat index temperature is expected to be 100° or higher for at least 2 days, and night time air temperatures will not drop below 75°; however, these criteria vary across the country, especially for areas that are not used to dangerous heat conditions. Take precautions to avoid heat illness. If you don't take precautions, you may become seriously ill or even die</p>

Magnitude of Excessive Heat of Heat Wave

Excessive heat is measured by the [NWS Heat Index and the NWS Excessive Heat Warning Classifications](#). As both the air temperature and the humidity rise, so will the danger level to people. Heat disorders will become more likely with prolonged exposure or strenuous activity as shown in **Figure 7**.



Source: weather.gov

The **Caution** stage describes how fatigue is possible, while **Extreme Caution** temperatures can result in sunstroke, muscle cramps, or heat exhaustion. The **Danger** temperatures could cause sunstroke, while at the **Extreme Danger** temperatures, heatstroke or sunstroke is likely according to the humidity and temperature Heat Index. Since heat index values were devised for shady, light wind conditions, exposure to full sunshine can increase heat index values by up to **15°F**. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

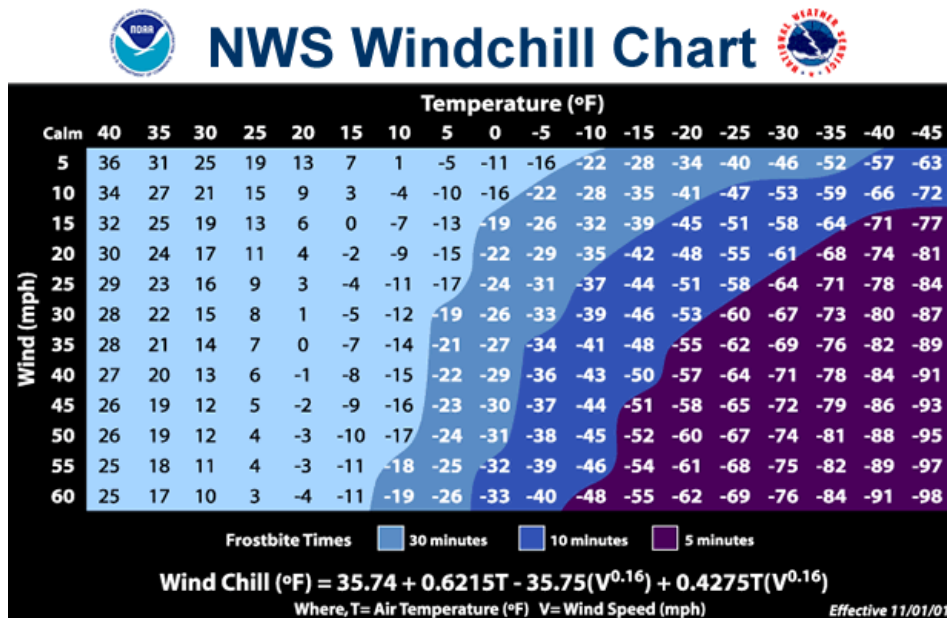
Cold or Wind Chill

Extreme cold temperatures are associated with continental Arctic air masses. The actual temperatures reached depend specifically on the nature of the cold air mass and where it originated. In general, those from the Arctic regions are the coldest. Though cold temperatures are dangerous, they become more so in conjunction with strong winds. The combination produces a wind-chill factor, which is heat loss measured in Watts per meter squared (Wm-2). A wind-chill factor of **1400** Wm-2 is equivalent to a temperature of **-40° F**. At **2700** Wm-2, exposed flesh freezes within a half-minute.

Magnitude of Extreme Cold or Wind Chill

Extreme cold magnitude can be measured for **windchill** using the **NWS Windchill Temperature (WCT) Index** as displayed in **Figure 8**, measuring the wind and temperature leading to how quickly frostbite can occur. The **extreme cold weather** warning stages describe the potential impacts of the weather.

Figure 8
Windchill Temperature (WCT) Index



Source: National Weather Service

Cold weather warnings incrementally warn people of the dangers of **extreme cold**. The [National Weather Service](#) provides watches, advisories, and warnings for extreme cold events.

<p>✦ Wind Chill Watch BE PREPARED</p>	NWS issues a wind chill watch when dangerously cold wind chill values are possible. As with a warning, adjust your plans to avoid being outside during the coldest parts of the day. Make sure your car has at least a half tank of gas, and update your winter survival kit.
<p>✦ Wind Chill Advisory BE AWARE</p>	NWS issues a wind chill advisory when seasonably cold wind chill values but not extremely cold values are expected or occurring. Be sure you and your loved ones dress Appropriately and cover exposed skin when venturing outdoors. A Wind Chill Advisory is issued for New Hampshire when wind chill values are expected to be -20°F to -29°F and winds are greater than 5 mph .
<p>✦ Wind Chill Warning TAKE ACTION</p>	NWS issues a wind chill warning when dangerously cold wind chill values are expected or occurring. A Wind Chill Warning is issued for New Hampshire when wind chill values are expected to be -30°F and winds are greater than 5 mph .

FIRE HAZARDS

Fire can be caused by several agents and can spread rapidly to consume property and endanger lives. This **2019 Plan** examines **lightning**, and **wildfire** (natural) fire sources and places other **fires (vehicles, structure, arson, explosions)** with **Technological Hazards**.

Wildfire is a significant concern and can quickly get out of control without good infrastructure, easily accessible forested backlots and practiced procedures. Lightning or human folly can cause wildfire. Locations of older narrow graveled roads or densely packed residential areas and areas of Town or roads with only 1 access/egress are among the most vulnerable locations for fire and wildfire hazards. Rural, forested areas of the community or recreation and conservation areas are often the most vulnerable to both wildfire and lightning.

There are several types of natural **FIRE** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included	
FIRE	WILDFIRE Brushfire, Outdoor Fires or Accidental	LIGHTNING

Wildfire

The overall ratings of **Wildfire** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
WILDFIRE Brushfire, Outdoor Fires or Accidental	4 HIGH	1 LOW	1 LOW	2 MEDIUM	5.3 MEDIUM

Wildfire is defined as any unwanted and unplanned fire burning in forest, shrub or grass. Wildfires are frequently referred to as forest fires, brush fires, shrub fires or grass fires, depending on their location and size. They often occur during drought and when woody debris on the forest floor is readily available to fuel the fire. The threat of wildfires is greatest where vegetation patterns have been altered by past land-use practices, fire suppression and fire exclusion. Because fire is a natural process, fire suppression can lead to more severe wildfires due to vegetation buildup.

Increased severity over recent years has decreased capability to extinguish wildfires. Wildfires are unpredictable and usually destructive, causing both personal property damage and damage to community infrastructure and cultural and economic resources.

Magnitude of Wildfire

Although there are a number of potential indices, the current standard of measuring wildfire magnitude is utilizing the National Wildfire Coordinating Group (NWCG)'s wildfire classification scale. **Table 15** displays the wildfire classification size per the number of acres burned.

Table 15
National Wildfire Coordinating Group Wildfire Classification Scale

Fire Class	Sizes in Acres
Class A	1/4 acre or less
Class B	> 1/4 acre to < 10 acres
Class C	10 acres to < 100 acres
Class D	100 acres to < 300 acres
Class E	300 acres to < 1,000 acres
Class F	1,000 acres to < 5,000 acres
Class G	5,000 acres or more

Source: National Wildfire Coordinating Group

The [New Hampshire Department of Natural and Cultural Resources Division \(NHDNCR\) of Forest and Lands \(DFL\)](#) helps to promote daily fire danger ratings which community members can readily understand. The Fire Department is able to post the information in a prominent location. The **fire danger ratings** are as follows:

<p>✦ Low GREEN</p>	Fire starts are unlikely. Weather and fuel conditions will lead to slow fire spread, low intensity and relatively easy control with light mop-up. Controlled burns can usually be executed with reasonable safety.
<p>✦ Moderate BLUE</p>	Some wildfires may be expected. Expect moderate flame length and rate of spread. Control is usually not difficult and light to moderate mop-up can be expected. Although controlled burning can be done without creating a hazard, routine caution should be taken.
<p>✦ High YELLOW</p>	Wildfires are likely. Fires in heavy, continuous fuel such as mature grassland, weed fields and forest litter, will be difficult to control under windy conditions. Control through direct attack may be difficult but possible and mop-up will be required. Outdoor burning should be restricted to early morning and late evening hours.
<p>✦ Very High ORANGE</p>	Fires start easily from all causes and may spread faster than suppression resources can travel. Flame lengths will be long with high intensity, making control very difficult. Both suppression and mop-up will require an extended and very thorough effort. Outdoor burning is not recommended.
<p>✦ Extreme RED</p>	Fires will start and spread rapidly. Every fire start has the potential to become large. Expect extreme, erratic fire behavior. NO OUTDOOR BURNING SHOULD TAKE PLACE IN AREAS WITH EXTREME FIRE DANGER.

Lightning

The overall ratings of **Lightning** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
LIGHTNING	4 HIGH	1 LOW	1 LOW	1 LOW	4.0 LOW

All thunderstorms contain lightning. During a lightning discharge, the sudden heating of the air causes it to expand rapidly. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction of the air causes a shock wave that we hear as thunder, a shock wave that can damage building walls and break glass. Lightning strikes can cause death, injury, and property damage. Lightning is often referred to as the “underrated killer”.

Magnitude of Lightning

Lightning can be measured to determine how likely it may be for starting fires. Using a Level system of **1** to **6** corresponding with storm development and the number of lightning strikes, the [Lightning Activity Level \(LAL\)](#) measures the magnitude of lightning strikes as displayed in **Table 16**.

Table 16
Lightning Activity Level (LAL)

Level	LAL Cloud and Storm Development	Cloud to Ground Strikes per 5 Minutes	Cloud to Ground Strikes per 15 Minutes
LAL 1	No thunderstorms	n/a	n/a
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a 5- minute period.	1 to 5	1 to 8
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5-minute period.	6 to 10	9 to 15
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5- minute period.	11 to 15	16 to 25
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5-minute period.	> 15	> 25
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.	6 to 10	9 to 15

Source: National Weather Service

FLOOD HAZARDS

Floods are defined as a temporary overflow of water onto lands that are not normally covered by water. Flooding results from the overflow of major rivers and tributaries, storm surges, and/or inadequate local drainage. Floods can cause loss of life, property damage, crop/livestock damage, and water supply contamination. Floods can also disrupt travel routes on roads and bridges. However, floods can be beneficial to the low lying agricultural areas which are used for active farm lands by enriching the soil.

Floodplains are usually located in lowlands near rivers, and flood on a regular basis. The term **100-year flood** does not mean that a flood will occur once every **100** years. It is a statement of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. It is more accurate to use the phrase **1% annual chance flood**. This phrase means that there is a **1%** chance of a flood of that size happening in any single year.

Inland floods are most likely to occur in the spring due to the increase in rainfall and melting of snow; however, floods can occur at any time of year. A sudden thaw during the winter or a major downpour in the summer can cause flooding because there is suddenly a lot of water in one place with nowhere to drain. Flooding is the most common natural disaster to affect New Hampshire, a common and costly hazard.

There are several types of **FLOOD** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included	
FLOOD	INLAND FLOODING Rains, Snow Melt, or Flash Floods	RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris

Inland Flooding

The overall ratings of **Inland Flooding** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
INLAND FLOODING Rains, Snow Melt or Flash Floods	4 HIGH	1 LOW	2 MEDIUM	1 LOW	5.3 MEDIUM

Inland flooding hazards from storms, spring temperatures, rains and more can be measured by Special Hazard Flood Areas (SFHAs) and river gage flood stage heights.

Magnitude of Inland Flooding

Flooding magnitude, or how severe flooding could occur in Salisbury, can be measured by the following SFHA Flood Zone scale in **Table 17**. “Flooding” encompasses all types of flooding including **Rains, Snow Melt, Floods and Flash Floods** and is often the result of other natural hazards, such as **Tropical and Post Tropical, Severe Storms**, etc.

Special Flood Hazard Areas (SFHAs)

Base Flood Elevations (BFEs) are abundant within Central NH along the **Merrimack River, Contoocook River, Blackwater River, Warner River, Soucook River, and Suncook River** on the DFIRMs of **2010**. In Salisbury (**330121**) New Hampshire (**D33013C**), there are sparse DFIRMs identifying floodplains, and there are no panels indicating BFEs. DFIRM panels are not printed when floodplains are not present in an area.

DFIRMs illustrate the location of floodplains as a significant upgrade from the previous series of outdated paper maps, known as FIRMs. These new **2010** maps are now set on an aerial photography background that displays roads, buildings, forested areas, waterbodies and watercourses. Salisbury’s Zoning Ordinance references the new maps as the official Special Hazard Flood Areas (SFHAs). The general Flood Zone types appear in **Table 17**.

Table 17
Special Flood Hazard Area (SFHA) Zones on 2010 DFIRMS

Special Flood Hazard Areas on Salisbury DFIRMs	
Zone A	<u>1% annual chance of flooding</u> <ul style="list-style-type: none"> • 100-year floodplains <i>without</i> Base Flood Elevations (BFE)
Zone AE (with or without floodways)	<u>1% annual chance of flooding</u> <ul style="list-style-type: none"> • 100-year floodplains <i>with</i> Base Flood Elevations (BFE) • some identified as floodways with stream channel and/or adjacent floodplain areas • areas must be kept free of encroachment so 1% annual chance of flood will not substantially increase flood height
Zone X	<u>0.2% annual chance of flooding</u> <ul style="list-style-type: none"> • 500-year floodplain <i>without</i> Base Flood Elevations (BFE) • sheet flow flooding less than 1-foot deep • stream flooding where the contributing drainage area is less than 1 square mile • areas protected from 100-year floodplains by levees • OR areas determined to be outside the 0.2% annual chance of flood (see DFIRMs)

Sources: FEMA and NH Geographically Referenced Analysis and Transfer System (NH GRANIT) websites

Salisbury DFIRMs can be viewed online at and downloaded from the [NH Geographically Referenced Analysis and Transfer System \(NH GRANIT\)](#) website. Alternatively, the DFIRMs’ respective paper FEMA 2009 Floodplain Maps in the Town Office could be consulted. Should the **Zone A** or **Zone X** or **Zone AE** flood to either the **100-year** or **500-year** level, the DFIRM areas will help **measure the location of the floodplain and potential magnitude of the flood**.

Nearest River Gage and Blackwater Flood Control Reservoir

The Blackwater River Dam, part of a network of five flood control dams in the Merrimack River basin, is owned and operated by the US Army Corps of Engineers (USACE) New England District. The dam was built for \$1.32 million and has prevented more than \$15.3 million in damages. The dam itself is located in Webster **8.6** miles above the confluence of the Blackwater and Contoocook Rivers in Boscawen. The Blackwater River Dam Reservoir has a storage capacity of 15 billion gallons of water. The drainage area of the dam is **128** square miles with a normal pool height of **516'** above sea level and a channel capacity of **2,300** cubic feet per second (cfs). Eight different flood gates can be used to drawdown the channel water. Salisbury's section of the Blackwater River Flood Control Area is the topmost portion of the reservoir collection system a couple miles north of the dam.

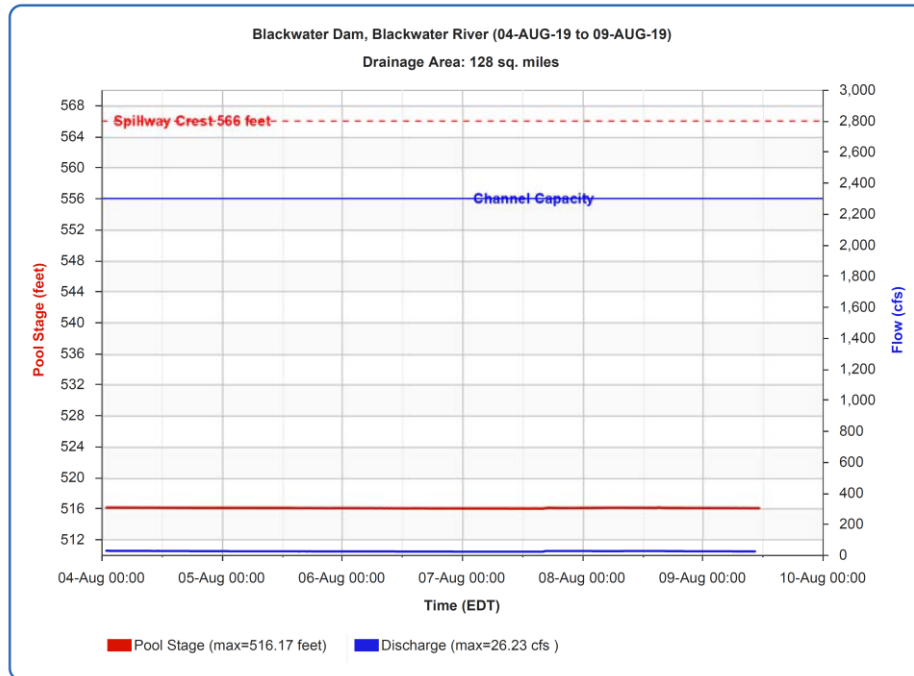


Photo: US Army Corps of Engineers New England District website

The US Geological Survey (USGS) operates **river monitoring gages** along many Central NH region rivers, including the gage closest to Salisbury, **USGS 01087000** at the **Blackwater River** near the Blackwater River Dam in Webster. This location is just a couple miles south of Salisbury. The description of the nearest river gage to Salisbury describes how essential gages are to measuring flooding in the Central NH Region. Dynamic river gages measure water height and discharge over time for the purposes of flood control and upload information in real time to the USGS, enabling easily accessible public information about potential flooding conditions at the gage location. Hydrographs on the [US Geological Survey \(USGS\) National Water Information System \(NWIS\) website](#) display either the height of the water in feet or the discharge value in cubic feet per second over time in separate graphs and are a cooperative venture with the National Weather Service (NWS). River monitoring gage station options **measure the magnitude of river flooding during monitored times**.

Figure 9 displays the pool stage height and discharge height of the **Blackwater River** at Blackwater Dam in a snapshot for early **August 2019**. Since the Blackwater River Reservoir covers much of Salisbury's western quadrant, the Town could monitor the US Army Corps of Engineers river gage data for emergency management purposes. Much of the data previously available at the NWIS website is no longer available.

Figure 9
USACE Blackwater Dam Pool Stage Hydrograph, August 2019

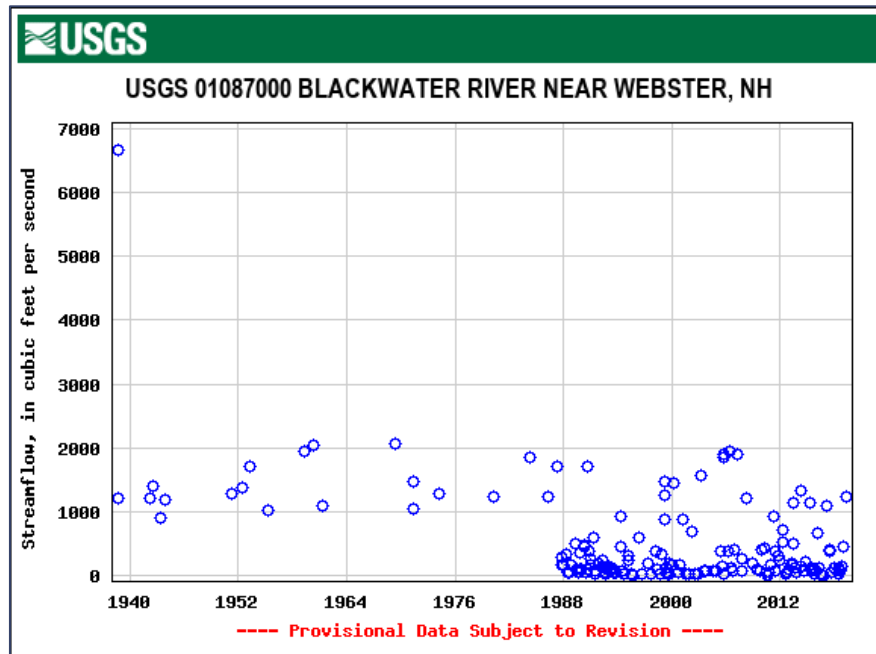


Source: https://reservoircontrol.usace.army.mil/NE/pls/cwmsweb/cwms_web.cwmsweb.cwmsindex, last accessed 08-09-19

Figure 10 and **Figure 11** respectively represent historical streamflow from 1936 to present from the USGS website and a historical, graphical chart which is no longer available displaying the stage height of the river.

Figure 10

Streamflow History Blackwater River Gage USGS 1087000, Webster

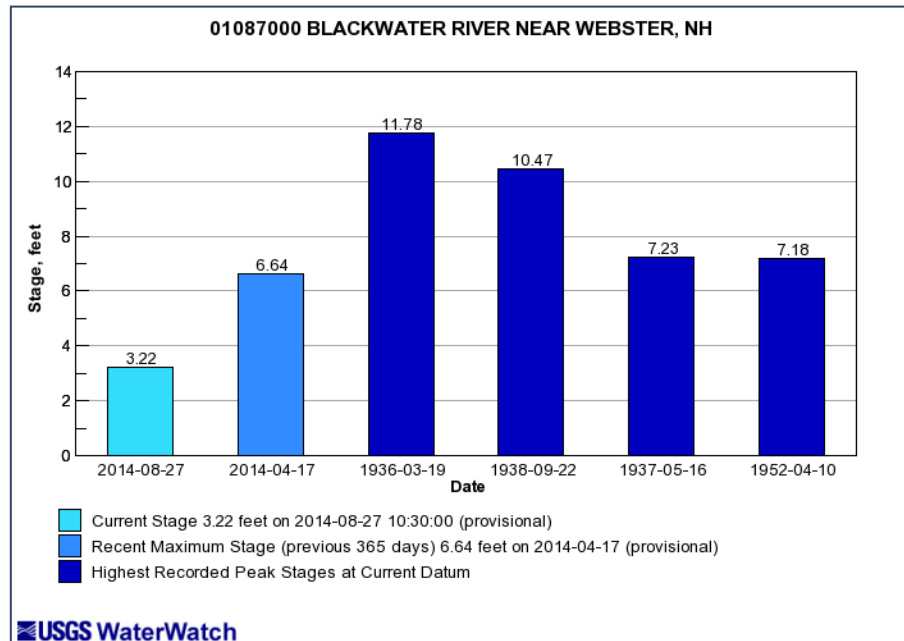


Source:

https://waterdata.usgs.gov/nwis/measurements/?site_no=01087000, accessed Aug 2019

Figure 11

Historical Maximum USGS Stage Height of the Blackwater River, 1936-2014



Source: Salisbury 2014
Hazard Mitigation
Plan's figure from US
USGS WaterWatch
website

Rapid Snow Pack Melt

Warm temperatures and heavy rains cause rapid snowmelt. The water cannot seep into the frozen ground in early spring and so it runs off into streets and waterways. Quickly melting snow coupled with moderate to heavy rains are prime conditions for flooding.

There is the possibility of damages from the rapid snow pack melt because of the flooding from the **Lane River** and the various brooks along the roads, roadside wetlands, and from the culverts of the watercourses. Locations in Salisbury that may be vulnerable to rapid snow pack melt include undersized or unmaintained culverts, roads, driveways, slopes, yards or fields, or any of the Town's fast moving brooks or drainage areas. Damage to roads is expected.

Magnitude of Rapid Snow Pack Melt

Rapid snow pack melt is a type of flooding. On its own, it has no known magnitude measurement. However, the hazard can share **Flooding's** Special Flood Hazard Areas (SFHAs) table.

River Hazards

There are several types of **RIVER** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included
RIVER	RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris

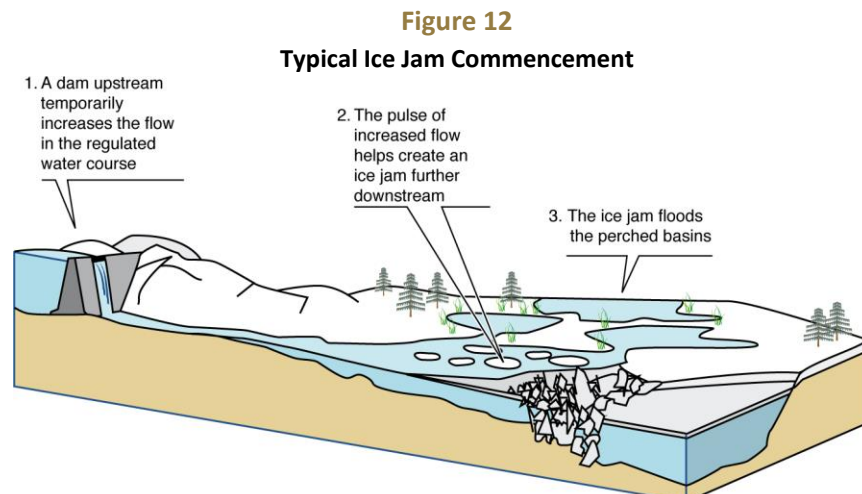
River hazards are considered different from flooding in this **Hazard Mitigation Plan**. They include ice jams, scouring of banks and infrastructure, erosion of banks and shoreline, channel movement, and woody material debris. These types of incidents could occur on large brooks or other watercourses as well as rivers.

The overall ratings of **River Hazards** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris	4 HIGH	1 LOW	2 MEDIUM	1 LOW	5.3 MEDIUM

River Ice Jams

Rising waters in early spring often break ice into chunks, which float downstream, pile up and cause flooding. Small rivers and streams pose special flooding risks because they are easily blocked by jams. Ice in riverbeds and against structures presents significant flooding threats to bridges, roads, and the surrounding lands. A visual of how ice jams often form is displayed in **Figure 12**.



Source: USGS, Internet Accessed May 2014

Magnitude of River Ice Jams

There is no known widely-used magnitude scale for **river ice jams**. River ice jams can cause debris impacted infrastructure when they apply pressure to bridges and dams.

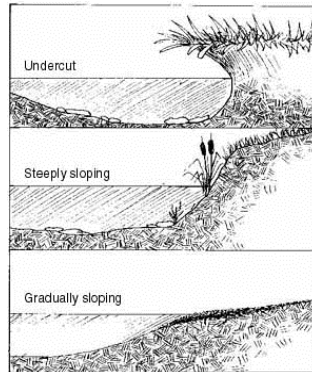
The US Army Corps of Engineers (ACOE) maintains the [Ice Jam Database, Bulletins & Surveys](#) website which locates where ice jams are presently occurring and where they have occurred in the past. Reports can be generated in various formats so emergency responders can identify the locations of prior ice jams and begin to mitigate the effects of future events.

Fluvial Erosion, Bed Scouring and Channel Movement

Fluvial erosion is the wearing away of the river/stream bank and floodway. Bed scouring is the wearing away of the bed of the river or stream, typically shown as a pool type formation at downstream culvert outflows. Watercourses with high elevation change (stream gradient) are particularly prone to flash-flooding conditions and most vulnerable to erosion and scouring. During flooding or even high flow events, rivers can erode their banks and migrate into their floodplains. A migrating river, when channel movement is occurring, has the potential to impact nearby structures (berms, dams, buildings, etc.) or infrastructure such as river or stream crossings (culverts and bridges) or transportation features (roads, drainage structures, rail, etc.) in its migration path.

Fluvial geomorphology is the study of how processes of flowing water in rivers work to shape river channels and the land around them. Fluvial assessments are a collection of field data undertaken within designated river reaches. A **river reach** is a length of stream that has characteristics similar enough that condition data collected within that length is representative of the entire reach. **Figure 13** displays visual bank erosion characteristics.

Figure 13
Bank Erosion Characteristics

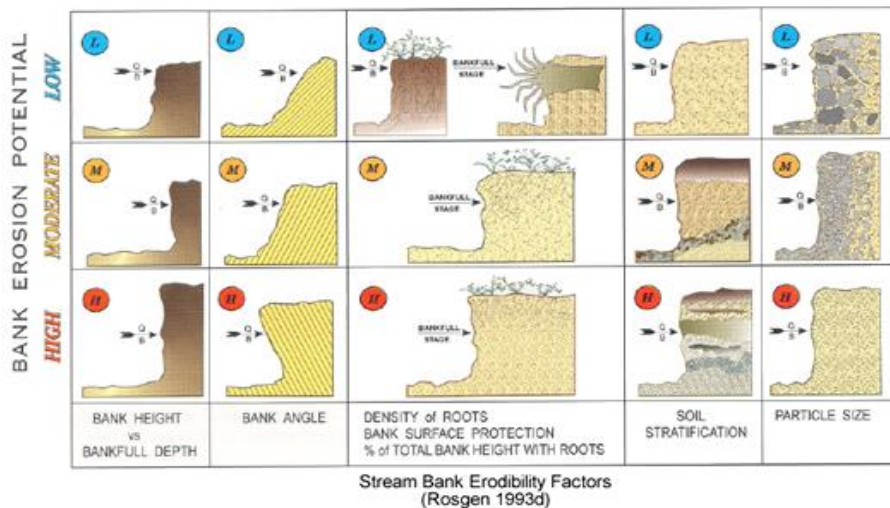


Source: US Geological Survey (USGS)

Magnitude of (Fluvial) River Bank Erosion

River and streambank erosion magnitude can be measured by the US EPA Bank Erosion Prediction Index (BEHI), which is used with the Near Bank Stress (NBS) quantification. Taken into consideration for the BEHI are the bank height versus bankfull depth, bank angle, density of roots, soil stratification, and particle size at a river reach. **Figure 14** displays the visual version of the index.

Figure 14
Bank Erosion Prediction Index (BEHI)



Source: US Environmental Protection Agency (US EPA)

PUBLIC HEALTH HAZARDS

Public health issues can be measured in many ways. Students and the elderly are vulnerable to seasonal health outbreaks as they tend to congregate in large numbers and in shared environments where physical contact is common. Large groups can make bioterrorism more effective.

It is difficult to predict where an epidemic would occur due to human, mosquito and wildlife mobility. Commonly occurring epidemics following extreme heat or cold can include **influenza**, norovirus, rhinovirus (viruses), Lyme disease, Anaplasmosis and Babesiosis, Borrelia miyamotoi or Powassan (tickborne diseases), Eastern Equine Encephalitis (EEE), West Nile, Jamestown Canyon Virus or Zika (arboviral, mosquito-borne diseases) and any could occur in Salisbury. The Town has swampy areas around its rivers, wetlands and brooks which are prime breeding ground for **mosquitoes**. Large deer herds that roam can carry **deer ticks** in the Town's heavily forested sections and into State Forests.

Other wide-spread public health hazards include **water quality degradation** (failing septic systems, flooding, pipes breaking) that could sicken residents using the public water supplies (those serving over 25 people), dug wells or bedrock wells, or could cause aquatic and wildlife deaths. Epidemics could result from water quality issues.

Air quality could decline from ground-level ozone or fine particulates and is monitored by the [NH Department of Environmental Services](#). Air Quality Action Days are announced when monitoring sites report poor breathing air.

Food-borne illnesses could result from improperly handled or cooked food, either at home or at restaurants, cafeterias, or from markets or farms.

There are several types of **PUBLIC HEALTH** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included
PUBLIC HEALTH	PUBLIC HEALTH Infectious Diseases, Air & Water Quality, Biological, Addiction, Arboviral or Tick-borne

Most of these diseases can cause epidemics transmitted through food, water, environment, or personal contact. An epidemic could also result from bioterrorism, whereby an infectious agent is released into a susceptible population. Drug addiction is reportedly high in New Hampshire and is considered a public health hazard. There are many facets public health hazards could take in Salisbury. The Town is an active member of the [Capital Area Public Health Network](#) and has a Point of Dispensing at Hopkinton High School.

Influenza

A magnitude scales for **Pandemic Severity Index (PSI) for Influenza** and resulting Community Mitigation Strategies is available from the US Center for Disease Control (US CDC). The [State of New Hampshire Influenza Pandemic Public Health Preparedness and Response Plan 2007](#) included the **PSI for Influenza** classification system and the Community Strategies.

Arboviral

New Hampshire developed guidelines for phased response to the arboviruses (mosquito-borne) Eastern Equine Encephalitis (EEE) and West Nile Virus (WNV) and Jamestown Canyon Virus (JCV). Annually, the [NH DHHS publishes the State of New Hampshire Arboviral Illness Surveillance, Prevention, and Response Plan 2018](#) and its associated [Arboviral Risk Map 2018](#). Risk Categories **1** through **5** determine human illness probability and the recommended response to outbreaks.

The new [State of New Hampshire Zika Virus Response Plan 2018](#) describes Response Phases **0** to **3** and is written like an Emergency Operations Plan Annex for emergency responders to follow.

The NH DHHS and the Capital Area Public Health Network should be notified of all public health emergencies, no matter the type of threat.

Air and Water Quality

The [NH DES Drinking Water and Groundwater Bureau](#) administers the federal Safe Drinking Water Act and NH statutes to protect public water systems, drinking water sources and groundwater supplies to help maintain safe **water quality** for drinking. NHDES currently is encouraging municipalities to refine the [potable water definition in NH municipal building codes](#).

Water quality hazards such as radon, arsenic, uranium Per- and polyfluoroalkyl substances (PFAS) industrial chemicals, cyanobacteria, coliform bacteria, lead and copper in public water systems, are constantly being tested for and when found, monitored. Once these enter the groundwater (aquifers) system, they are extremely difficult to mitigate. The [Climate Change Resilience Plan 2014](#) describes the NHDES efforts understand how damage to infrastructure from natural hazards such as **Inland Flooding** and spring **snow melt** runoff can occur to create more resilient water systems.

Air quality is a particular danger to the young, elderly people, and those with Chronic Obstructive Pulmonary Diseases (COPD), asthma and other breathing diseases. Ground level ozone and particle pollution are monitored, reported and forecasted for New Hampshire counties. The [Map of Current Air Quality](#) changes daily and is coded to [US EPA's Air Quality Index](#). Air Quality Action Days are announced when the air quality becomes Moderate, Unhealthy or Hazardous. Transportation such as I-89 and I-93, large local industries such as Merrimack Station and Wheelabrator contribute to Central NH Region air pollution, but New Hampshire is impacted by industries and wildfires across the United States and Canada. Greenhouse gases from industrial pollution and manufacturing contributes to poor **air quality**.

The NH DHHS maintains [NH Health WISDOM](#), a database of public health data for air quality, childhood lead, cancer, asthma, tickborne disease, radon, and more.

Many public health threats in New Hampshire have indices, monitoring, and data recording. The NH Department of Health and Human Services (NH DHHS) <https://www.dhhs.nh.gov/> is a good resource to determine what diseases are most prominent.

The overall ratings of **Public Health** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
PUBLIC HEALTH Infectious Diseases, Air & Water Quality, Biological, Addiction, Arboviral, or Tick-borne	4 HIGH	1 LOW	1 LOW	1 LOW	4.0 LOW

Magnitude of Public Health

The *2018 State Multi-Hazard Mitigation Plan* includes **Infectious Diseases** as a natural hazard. From this resource, the definition and extent of the potential magnitude of public health threats are identified as follows. These disease levels are described at the [US Center for Disease Control](#).

The magnitude and severity of infectious diseases are described by its speed of onset (how quickly people become sick or cases are reported) and how widespread the infection is. Some infectious diseases are inherently more dangerous and deadly than others, but the best way to describe the extent of infectious diseases relates to the disease occurrence:

✦ Sporadic	Disease that occurs infrequently and irregularly.
✦ Endemic	(Baseline) Constant presence and/or usual prevalence of a disease or infection agent in a population within a geographic area.
✦ Hyperendemic	The persistent, high levels of disease occurrence in the area.
✦ Cluster	The aggregation of cases grouped in place and time that are suspected to be greater than the number expected, even though the expected number may not be known.
✦ Epidemic	An increase, usually sudden, in the number of cases of a disease above what is normally expected in the population of the area.
✦ Outbreak	The same as epidemic, but over a much smaller geographical area.
✦ Pandemic	An epidemic that has spread over several countries or continents, usually affecting many people.

SOLAR STORMS HAZARDS

Solar storms and space weather is a new addition to the **Hazard Mitigation Plan** and can refer to solar flares, coronal mass ejections, high-speed solar wind, or geomagnetic storms. Solar activity can occur for as short a duration as a few minutes to several hours and create resulting effects on the Earth for weeks. When a geomagnetic storm occurs, high speed solar winds penetrate the Earth's magnetosphere and can decrease the Earth's magnetic field for several hours.

There are several types of **SOLAR STORMS** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included
SOLAR STORMS	SOLAR STORMS AND SPACE WEATHER Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout

A significant danger from solar storms is the potential communications and electronics disruption. Satellites, vehicles, radios, airplanes, cell phones, computers, power lines and the internet have the capability for temporary cessation because of solar winds. Solar radiation can become a personal radiation hazard the closer one is to the stratosphere, especially on planes. Satellites, navigation, and electricity are sensitive to geomagnetic storms, which can cause electrical current surges in power lines, interference in the broadcast of radio, television, and telephone signals, and problems with defense communications.

The overall ratings of **Solar Storms** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
SOLAR STORMS AND SPACE WEATHER Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout	2 MEDIUM	1 LOW	1 LOW	1 LOW	2.0 LOW

Magnitude of Solar Storms

Many in residents in the Central NH region enjoy the aurora borealis viewed from Mount Kearsarge, comprising a small section of Salisbury, although when this phenomenon occurs a geomagnetic storm is reaching New Hampshire. NOAA's Space Weather Prediction Service <https://www.swpc.noaa.gov/> provides 3-day outlooks on solar storms. Magnitude scales for **Radio Blackout (R)**, **Geomagnetic Storms (G)** and **Solar Radiation Storms (S)** are provided in **Table 18**.

Table 18
Solar Storms Magnitude Scales

Magnitude Scale	Description	Effect of Space Storm	Average Frequency (1 cycle = 11 years)
GEOMAGNETIC STORM (G)			
G1 Geomagnetic	Minor	<ul style="list-style-type: none"> ✦ Power systems: Weak power grid fluctuations can occur. ✦ Spacecraft operations: Minor impact on satellite operations possible. ✦ Other systems: Migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine). 	1700 per cycle (900 days per cycle)
G2 Geomagnetic	Moderate	<ul style="list-style-type: none"> ✦ Power systems: High-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage. ✦ Spacecraft operations: Corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions. ✦ Other systems: HF radio propagation can fade at higher latitudes, and aurora has been seen as low as New York and Idaho (typically 55° geomagnetic lat.). 	600 per cycle (360 days per cycle)
G3 Geomagnetic	Strong	<ul style="list-style-type: none"> ✦ Power systems: Voltage corrections may be required, false alarms triggered on some protection devices. ✦ Spacecraft operations: Surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems. ✦ Other systems: Intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat.). 	200 per cycle (130 days per cycle)
G4 Geomagnetic	Severe	<ul style="list-style-type: none"> ✦ Power systems: Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid. ✦ Spacecraft operations: May experience surface charging and tracking problems, corrections may be needed for orientation problems. ✦ Other systems: Induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.). 	100 per cycle (60 days per cycle)
G5 Geomagnetic	Extreme	<ul style="list-style-type: none"> ✦ Power systems: Widespread voltage control problems and protective system problems can occur, some grid systems may experience complete collapse or blackouts. Transformers may experience damage. ✦ Spacecraft operations: May experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites. ✦ Other systems: Pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora has been seen as low as Florida and southern Texas (typically 40° geomagnetic lat.). 	4 per cycle (4 days per cycle)
SOLAR RADIATION (S)			
S1 Solar Radiation	Minor	<ul style="list-style-type: none"> ✦ Biological: None. ✦ Satellite operations: None. ✦ Other systems: Minor impacts on HF radio in the polar regions. 	50 per cycle
S2 Solar Radiation	Moderate	<ul style="list-style-type: none"> ✦ Biological: Passengers and crew in high-flying aircraft at high latitudes may be exposed to elevated radiation risk. ✦ Satellite operations: Infrequent single-event upsets possible. ✦ Other systems: Small effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected. 	25 per cycle
S3	Strong	<ul style="list-style-type: none"> ✦ Biological: Radiation hazard avoidance recommended for astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. 	10 per cycle

4 HAZARD RISK ASSESSMENT

Magnitude Scale	Description	Effect of Space Storm	Average Frequency (1 cycle = 11 years)
Solar Radiation		<ul style="list-style-type: none"> ✦ Satellite operations: Single-event upsets, noise in imaging systems, and slight reduction of efficiency in solar panel are likely. ✦ Other systems: Degraded HF radio propagation through the polar regions and navigation position errors likely. 	
S4 Solar Radiation	Severe	<ul style="list-style-type: none"> ✦ Biological: Unavoidable radiation hazard to astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. ✦ Satellite operations: May experience memory device problems and noise on imaging systems; star-tracker problems may cause orientation problems, and solar panel efficiency can be degraded. ✦ Other systems: Blackout of HF radio communications through the polar regions and increased navigation errors over several days are likely. 	3 per cycle
S5 Solar Radiation	Extreme	<ul style="list-style-type: none"> ✦ Biological: Unavoidable high radiation hazard to astronauts on EVA (extra-vehicular activity); passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. ✦ Satellite operations: Satellites may be rendered useless, memory impacts can cause loss of control, may cause serious noise in image data, star-trackers may be unable to locate sources; permanent damage to solar panels possible. ✦ Other systems: Complete blackout of HF (high frequency) communications possible through the polar regions, and position errors make navigation operations extremely difficult. 	Fewer than 1 per cycle
RADIO BLACKOUT (R)			
R1 Radio Blackouts	Minor	<ul style="list-style-type: none"> ✦ HF Radio: Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and en route aviators in this sector. ✦ Navigation: Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side. 	2000 per cycle (950 days per cycle)
R2 Radio Blackouts	Moderate	<ul style="list-style-type: none"> ✦ HF Radio: HF radio communication blackout on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time. ✦ Navigation: Outages of low-frequency navigation signals cause increased error in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth. 	350 per cycle (300 days per cycle)
R3 Radio Blackouts	Strong	<ul style="list-style-type: none"> ✦ HF Radio: Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth. ✦ Navigation: Low-frequency navigation signals degraded for about an hour. 	175 per cycle (140 days per cycle)
R4 Radio Blackouts	Severe	<ul style="list-style-type: none"> ✦ HF Radio: HF radio communication blackout on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time. ✦ Navigation: Outages of low-frequency navigation signals cause increased error in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth. 	8 per cycle (8 days per cycle)
R5 Radio Blackouts	Extreme	<ul style="list-style-type: none"> ✦ HF Radio: Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and en route aviators in this sector. ✦ Navigation: Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side. 	Less than 1 per cycle

Source: <https://www.swpc.noaa.gov/noaa-scales-explanation>

WIND HAZARDS

Severe wind is likely to occur throughout all seasons. Significantly high winds occur especially during hurricanes, tornadoes, downbursts, winter storms, and thunderstorms any time of the year. Falling objects and downed power lines are dangerous risks associated with high winds. Property damage and downed trees are common during high wind occurrences. All utilities, including power lines, are at risk and their damage or destruction would create a hazard to the Town. A communications interruption or failure resulting from damage to telecommunications towers could affect the capabilities of emergency personnel to respond to the hazard event. Often with wind events, precipitation accompanies, increasing the danger of the hazard.

There are several types of **WIND** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included	
WIND	HIGH WIND EVENTS Wind, Thunderstorms, Hail, Downbursts, Tornadoes or Debris	TROPICAL AND POST-TROPICAL CYCLONES Hurricanes, Tropical Storms or Tree Debris

High Wind Events

High wind events can take the form of severe winds, rainstorms, thunderstorms, tornadoes, and downbursts.

The overall ratings of **High Wind Events** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
HIGH WIND EVENTS Wind, Thunderstorms, Hail, Downbursts, Tornadoes or Debris	4 HIGH	1 LOW	2 MEDIUM	2 MEDIUM	6.7 MEDIUM

Severe Wind, Rainstorms and Thunder Storms

More commonly experienced are **severe wind storms**, **rainstorms** and **thunderstorms**. The severe wind storms occur during all months of the year while the thunder storms tend to erupt during periods of humidity. On occasion, precipitation in the form of rain or hail is experienced during these storms. Rainstorms bring can flooding and high winds. **Thunderstorms** can also bring lightning hazards in addition to high winds and flooding.

Magnitude of Severe Wind and Thunder Storms

Many of the severe wind storms Salisbury experiences are not hurricanes but are severe wind storms or thunderstorms. Thunderstorms are common in New Hampshire, particularly during the hot weather months. The [Thunderstorm Category Criteria](#) scale in **Table 19** measures the magnitude of thunderstorms with their various weather components, including rain, wind, hail, tornado, and lightning.

Table 19
Thunderstorm Criteria Scale

Thunderstorm Categories	Rainfall Inches per hour	Wind Gust max mph	Hail Size in	Tornado Potential Highest Category	Lightning Frequency per 5 minutes	Darkness Aspect	Overall Thunderstorm Impact
T-1 Weak Thunderstorms or Thundershowers	0.03" to 0.10"	< 25 mph	None	None	Few strikes during entire storm	Slightly Dark Sunlight may be seen after storm	1. No damage. 2. Gusty winds at times.
T-2 Moderate Thunderstorms	0.10" to 0.25"	25-40 mph	None	None	Occasional 1 to 10 strikes/ 5 min	Moderately Dark Heavy downpours might cause the need for car headlights	1. Heavy downpours. 2. Occasional lightning. 3. Gusty winds. 4. Very little damage. 5. Small tree branches might break. 6. Lawn furniture moved around. 7. Power outages are possible.
T-3 Heavy Thunderstorms 1. Singular or lines of storms	0.25" to 0.55"	40-57 mph	1/4" to 3/4"	EF0	Occasional to Frequent 10 to 20 strikes/ 5 min	Dark Car headlights used. Visibility low in heavy rains. Cars might pull off the road.	1. Minor damage. 2. Downpours produce some flooding on streets. 3. Frequent lightning could cause house fires. 4. Hail occurs with the downpours. 5. Small tree branches are broken. 6. Shingles are blown off roofs. 7. Power outages are likely.
T-4 Intense Thunderstorms 1. Weaker supercells 2. Bow echoes or lines of storms	0.55" to 1.25"	58-70 mph	1" to 1.5"	EF0 to EF2	Frequent 20 to 30 strikes/ 5 min	Very Dark Car headlights used. Some streetlights turn on.	1. Moderate damage. 2. Heavy rains can cause flooding to streams and roadway flooding occurs. 3. Hail can cause dents on cars and cause crop damage. 4. Tornado damage. 5. Power outages will occur.
T-5 Extreme Thunderstorms 1. Supercells with family of tornadoes 2. Derecho Windstorms	1.25" to 4"	> 70 mph	1.5" to 4"	EF3 to EF5	Frequent to Continuous > 30 strikes/ 5 min	Pitch Black Street lights turn on. House lights might be used.	1. Severe damage to trees and property. Damage is widespread. 2. Flooding rains. 3. Damaging hail. 4. Damaging wind gusts to trees and buildings. 5. Tornadoes EF3 to EF5 or family of tornadoes can occur. Tornadoes cause total devastation. 6. Widespread power outages.

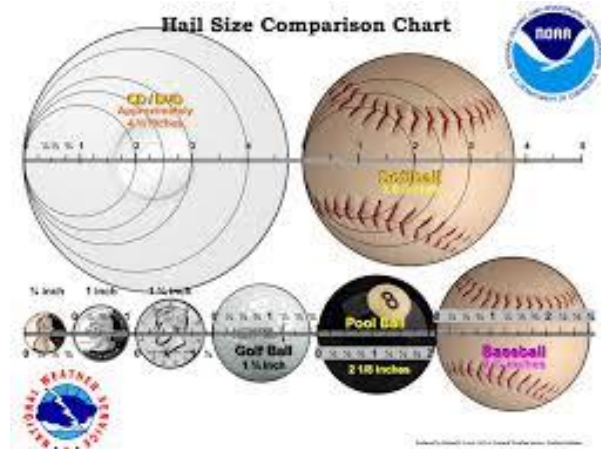
Source: Adapted from Accuweather.com, Henry Margusity, Senior Meteorologist

Incidentally, hail can accompany thunderstorms, hurricanes, or severe wind events. The **Hail Size Descriptions** in **Table 20** describes the potential size of hail during a hurricane or severe storm event, which could occur anywhere in Salisbury. The Table is shown below along with a **Hail Size Comparison Chart** which is a visual representation of some of the relative sizes of hail (note this chart image is not shown to scale). The **Table 20** hail size description and **Figure 15** size comparison scales measure the magnitude of hailstones that could fall on Salisbury during severe storm events.

Table 20
Hail Size Description

Hailstone Diameter (inches)	Size Description
< 1/4	bb
1/4	Pea Size
1/2	Mothball Size
3/4	Penny Size
7/8	Nickel Size
Severe Criteria 1	Quarter Size
1 1/4	Half Dollar Size
1 1/2	Walnut or Ping Pong Ball
1 3/4	Golf Ball Size
2	Hen Egg Size
2 1/2	Tennis Ball Size
2 3/4	Baseball Size
3	Teacup Size
3 4/5	Softball Size
4	Grapefruit Size

Figure 15
Visual Hail Size Comparison



Sources: National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS)

Tornadoes

Significantly high winds that occur especially during hurricanes, winter storms, and thunderstorms, but can also exist independent of other storms. Falling objects and downed power lines are dangerous risks associated with high winds. In addition, property damage and downed trees are common during high wind occurrences.

A tornado is a violent windstorm characterized by a twisting, funnel shaped cloud. They develop when cool air overrides a layer of warm air, causing the warm air to rise rapidly. The atmospheric conditions required for the formation of a tornado include great thermal instability, high humidity, and the convergence of warm, moist air at low levels with cooler, drier air aloft. Most tornadoes remain suspended in the atmosphere, but if they touch down they become a force of destruction.

Tornadoes produce the most violent winds on earth, at speeds of 280 mph or more. In addition, tornadoes can travel at a forward speed of up to 70 mph. Damage paths can be in excess of one-mile wide and 50 miles long. Violent winds and debris slamming into buildings cause the most structural damage.

Magnitude of Tornadoes

A tornado occurring in Salisbury would cause considerable damage. Roofs could be torn off frame houses; dams could be damaged; large trees snapped or uprooted; and light object missiles would be generated by an EF-2 Tornado. Tornado magnitude is measured by the [Enhanced Fujita \(EF\) Scale](#), a 2007 update from the original F-scale (Fujita Scale), which are provided in **Table 21**.

Table 21

Enhanced Fujita (EF) Scale

Enhanced Fujita (EF) Scale 2007 – Present	Old Fujita (F) Scale <i>replaced</i>
F Number with 3-Second Gust mph	F Number with 3-Second Gust mph
EF0 65-85 mph	F0 45-78 mph
EF1 86-110 mph	F1 79-117 mph
EF2 111-135 mph	F2 118-161 mph
EF3 136-165 mph	F3 162-209 mph
EF4 166-200 mph	F4 210-261 mph
EF5 over 200 mph	F5 262-317 mph

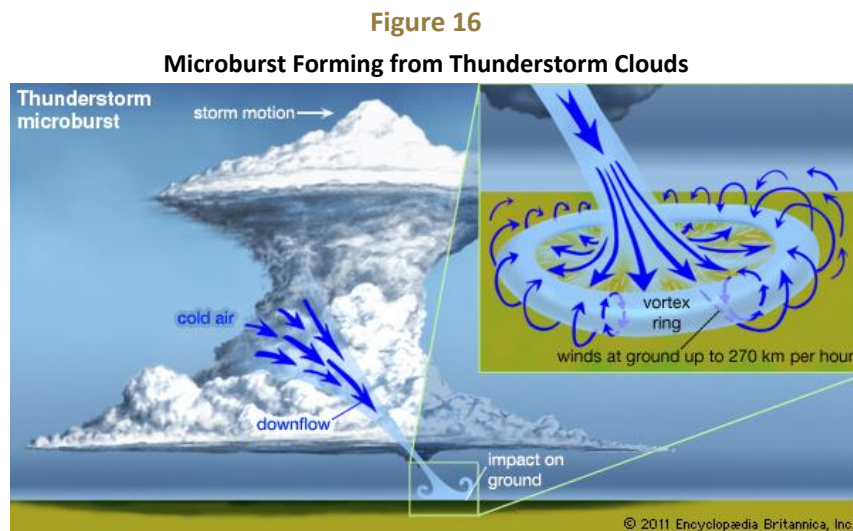
Source: National Oceanic and Atmospheric Administration (NOAA) Storm Prediction Center

The entire Town is forested and Class V and Class VI gravel roads run the risk of isolation through **debris impacted infrastructure** (trees down on roads and powerlines) after a **tornado**, resulting in **power failure** with little emergency access until the way is cleared. Wooded and forested sections of Town are vulnerable to tree fall. One-egress roads and neighborhoods are especially at risk to the impacts of high wind events, including tornadoes.

Downbursts

A downburst is a severe localized wind blasting down from a thunderstorm. These "straight line" winds are distinguishable from tornadic activity by the pattern of destruction and debris. Downbursts are capable of producing winds of up to **175 mph** and are life threatening. Downbursts are quite common during Central NH's hot weather months. Microbursts and macrobursts have been known to occur here in the region.

Downbursts of both sizes can produce strong wind shear, large changes in wind speed and direction over a short distance. Trees are regularly snapped off in a singular direction by a macroburst or microburst. Downbursts typically originate from thunderstorm clouds, with air moving in a downward motion until it hits the ground level and then spreads outward in all directions. In fact, the wind pattern of a downburst is the opposite of a tornado's wind pattern, shown in **Figure 16**.



Source: Internet (Encyclopedia Britannica)

Magnitude of Downbursts

Downburst magnitude is rated on the same NOAA **Enhanced Fujita (EF)** scale as tornadoes. In addition, downbursts fall into two categories:

- microburst, which covers an area less than **2.5** miles in diameter and
- macroburst, which covers an area equal to or greater than **2.5** miles in diameter.

Debris Impacted Infrastructure

The immediate result of severe wind events becomes another hazard, **debris impacted infrastructure**. The infrastructure could include roads, culverts, powerlines, utility lines, water towers, bridges or dams. Infrastructure could also be the natural infrastructure, such as rivers, ponds, lakes and brooks.

Typically, trees and woody material and debris are blown down from **severe wind events** causing **debris impacted infrastructure**. Watercourses, including the rivers, brooks, intermittent streams, and ditches alongside roads, and stationary waterbodies such as lakes, ponds, wetlands, swamps, bogs, and wet meadows receive trees, leafy material and other debris and can then **flood** their banks, **overflow culverts**, or cause **road washouts** during certain conditions. Trees and limbs falling on power lines, substations, or communications towers cause **power failure** and **live wire danger**. Trees and limbs falling onto roadways can **road blockages** and **transportation crashes**. Debris from wind could include roofs, siding, shingles, and more from buildings which can cause potential human injury as well as **road blockages**, **power failure** and **live wire danger**.

These features inventoried in **APPENDIX A Critical and Community Vulnerability Assessment** are those which should be watched carefully before and after storms and should be checked and maintained regularly to reduce the risk of significant **debris impacted infrastructure** events. **Erosion** along the rivers can cause scouring to infrastructure such as bridge abutments, and woody debris can flow downstream to become hazards to the landowners who have shoreland frontage.

Most dams and bridges could experience **debris impacted infrastructure**. Debris generated during storms and winds could continue for many years. This woody material debris is a concern during and after storm events. For emergency removal, the Town could contact the NH Department of Environmental Services and remove the trees right away, obtaining a “retroactive permit” during emergency situations.

Bridges vulnerable to debris dislodged during storm events may be eligible for NH Bridge Aid funding to help rehabilitate these bridges. All outlying roads are susceptible to tree fall and downed powerlines from **severe wind events**.

Magnitude of Debris Impacted Infrastructure

There is no standardized scientific scale for debris impacted infrastructure. However, the [US Federal Highway Administration](#) rates the potential for river/brook debris delivery to the infrastructure site and for river/brook accumulation across an infrastructure span. These can be utilized for hydrologic debris impacted infrastructure measurements.

Tropical and Post-Tropical Cyclones

Hurricane season begins on June 1 and continues through the end of November. August and September are the most active hurricane months. It is not uncommon for New England to be impacted by a hurricane more than once in a season. River and flooding due to heavy rains is a risk to Salisbury during hurricanes. Numerous hurricane events in recent history have occurred in the State, region, and the local area surrounding Salisbury that may have also had an impact on the Town.

The overall ratings of **Tropical and Post Tropical Cyclones** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
TROPICAL AND POST-TROPICAL CYCLONES Hurricanes, Tropical Storms or Tree Debris	3 HIGH	2 MEDIUM	2 MEDIUM	2 MEDIUM	6.0 MEDIUM

A hurricane is a tropical cyclone in which winds reach speeds of 74 miles per hour or more and blow in a large spiral around a relatively calm center. Flooding is often caused from the coastal storm surge of the ocean and torrential rains, both of which accompany the storm. The floods and high winds can result in loss of life and property. Hurricanes, high wind and rain events, and thunderstorms can damage Salisbury just like any other community in Central New Hampshire. Forested lands and trees along the transportation infrastructure can be blown down across roads; the above-ground powerlines along the sides of the road can be snapped either by trees or high winds and fall onto the roads or nearby objects; and runoff flooding and stream/brook and river flooding can occur because of hurricanes and severe storms.

Magnitude of Hurricanes and Tropical Storms

The [Saffir-Simpson Hurricane Wind Scale](#) measures the magnitude of wind event on a **1** through **5** rating basis. The definitions of Category **1** through **5**'s sustained wind miles per hour and their respective threats to people, different types of homes, shopping centers, trees, power lines, water, and more are displayed in **Table 22**.

Table 22

Saffir-Simpson Hurricane Wind Scale

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph	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	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 <i>major</i>	111-129 mph	Devastating damage will occur: Well-built framed 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 <i>major</i>	130-156 mph	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 <i>major</i>	157 mph or higher	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: National Oceanic and Atmospheric Administration (NOAA)

WINTER HAZARDS

Ice and snow events typically occur during the winter months and can cause loss of life, property damage, and tree damage. Severe winter storms, including Nor'easters, typically occur during January and February. However, winter storms can occur from late September through late May. Numerous severe winter events in recent history have occurred in the State, region, and the local area surrounding Salisbury that may have also had an impact on the Town. Unlike the relatively infrequent hurricane, New Hampshire generally experiences at least several Nor'easters each year with varying degrees of severity. They form along the East coast as warm air from the Atlantic Ocean collides with cold arctic winds to the north and west. A hurricane, the nor'easter's warm-weather counterpart, differs in that it has a narrow range of strong winds around a warm, low-pressure core—nor'easter winds are more dispersed around a cold, low-pressure center.

There are several types of **WINTER** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included
WINTER	SEVERE WINTER WEATHER Snow, Ice, Blizzard or Nor'Easter

The overall ratings of **Severe Winter Weather** in Salisbury from the **HIRA** are:

Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
SEVERE WINTER WEATHER Snow, Ice, Blizzard or Nor'Easter	4 HIGH	1 LOW	2 MEDIUM	2 MEDIUM	6.7 MEDIUM

Severe Winter Storms

A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding, wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow during a 12-hour period or six inches of snow during a 24-hour period.

An ice storm involves rain, which freezes upon impact. Ice coating at least one-fourth inch in thickness is heavy enough to damage trees, overhead wires, and similar objects. Ice storms also often produce widespread power outages.

A Nor'easter is a large weather system traveling from South to North, passing along or near the seacoast. As the storm approaches New England and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds impact the coast and inland areas from a Northeasterly direction. In the winter months, oftentimes blizzard conditions accompany these events. The added impact of the masses

of snow and/or ice upon infrastructure often affects transportation and the delivery of goods and services for extended periods.

Extreme cold temperatures are associated with continental Arctic air masses. The actual temperatures reached depend specifically on the nature of the cold air mass and where it originated. In general, those from the Arctic regions are the coldest. Though cold temperatures are dangerous, they become more so in conjunction with strong winds. The combination produces a wind-chill factor – heat loss measured in Watts per meter squared (Wm^{-2}). A wind-chill factor of $1400 Wm^{-2}$ is equivalent to a temperature of -40 degrees F. At $2700 Wm^{-2}$, exposed flesh freezes within a half-minute.

Recent Severe Winter Weather in New Hampshire

In March **2018**, New Hampshire was hit by 4 cyclonic Nor'easters in a row over a 2- week period because of the changing climate, in a recurring snow-and-melt cycle. These storms have the potential to inflict more damage than many hurricanes because the high storm surge and high winds can last from 12 hours to 3 days, while the duration of hurricanes ranges from 6 to 12 hours.

- March 2-3, 2018 – Seacoast flooding, Concord wind gusts 36mph, about 1"
- March 7-8, 2018 – Concord 11"
- March 12-14, 2018 – Concord 11", Epsom 23"
- March 22, 2018 – Concord 3"

All winter storms make walking and driving extremely dangerous. The elderly and very young are at high risk during winter storms and may be affected by hypothermia and isolation. During winter storms, there is an increased risk of **fire** because people experience **power failure** and use candles, portable gas stoves, generators, and flammable sources of heat and light.

Magnitude of Severe Winter Weather

Severe Winter Weather magnitude can be measured for, ice accumulation and snowfall using several different scales and indices including the Sperry-Piltz Ice Accumulation Index (SPIA) and NCDC Regional Snowfall Index (RSI) for the Northeast.

Table 23 displays the [Sperry-Piltz Ice Accumulation Index \(SPIA\)](#) which measure the magnitude of ice damage from severe winter weather. The index is compared to the tornado and hurricane scales note above. Storm total rainfall converted to ice accumulation, wind, and temperatures during the storm period are used to develop SPIA.

Table 23
Sperry-Piltz Ice Accumulation Index (SPIA)

Ice Damage Index	Average NWS Ice Amount in Inches	Wind Speed mph	Ice Damage and Impact Descriptions
0	< 0.25	< 15	Minimal risk of damage to exposed utility systems. No alerts or advisories needed for crews, few outages.
1	0.10 to 0.25	15 to 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges might become slick and hazardous.
	0.25 to 0.50	> 15	
2	0.10 to 0.25	25-35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions might be extremely hazardous due to ice accumulation.
	0.25 to 0.50	15-25	
	0.50 to 0.75	< 15	
3	0.10 to 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1-5 days. Warming sites needed.
	0.25 to 0.50	25 - 35	
	0.50 to 0.75	15 - 25	
	0.75 to 1.00	< 15	
4	0.25 to 0.50	> = 35	Prolonged and widespread utility interruptions with extensive damage to main distribution feeder lines and some high voltage transmission lines/structures. Outages lasting 5-10 days. Shelters or warming sites needed.
	0.50 to 0.75	25 - 35	
	0.75 to 1.00	15 - 25	
	1.00 to 1.50	< 15	
5	0.50 to 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 to 1.00	> = 25	
	1.00 to 1.50	> = 15	
	> 1.50	Any	

Source: www.spia-index.com (adapted by CNHRPC)

The [Regional Snowfall Index \(RSI\) for the Northeast](#) is used to categorize significant snowstorms. The RSI ranks snowstorm effects on a scale from **1** to **5**, similar to the Enhanced Fujita Scale for tornadoes or the Saffir-Simpson Hurricane Wind Scale for hurricanes. The RSI differs from these other indices because it includes population, a social component. The RSI is based on the spatial extent of the storm, the amount of snowfall, and the juxtaposition of these elements with population. The Regional Snowfall Index (RSI) displayed in **Table 24** is a measurement of the magnitude of a snowstorm in the Northeast, which includes New Hampshire.

Table 24
Regional Snowfall Index (RSI) for the Northeast

Storm Category	RSI Value	Snow Description
1	1–3	Notable
2	3–6	Significant
3	6–10	Major
4	10–18	Crippling
5	18.0+	Extreme

Source: www.ncdc.noaa.gov/snow-and-ice/rsi/ (adapted by CNHRPC)

TECHNOLOGICAL HAZARDS

Many technological hazards could be construed as secondary hazards, as they often occur as the result of a primary (natural) hazard. For example, **power failure** or **transportation accidents** (technological) can result from severe winter weather (natural). Scientific measures of magnitude are generally not available for individual technological hazards, but they are provided for **debris impacted infrastructure** and **dam failure** which are closely related to **flooding** and for **hazardous materials spills**.

There are several types of **TECHNOLOGICAL** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included			
TECHNOLOGICAL	AGING INFRASTRUCTURE Bridges, Culverts, Roads, Pipes or Underground Lines	DAM RELEASE OR FAILURE	FIRE Vehicle, Structure, Arson or Conflagration	HAZARDOUS MATERIALS Haz Mat Spills, Brownfields or Trucking
	LONG TERM UTILITY OUTAGE Power, Water, Sewer, Gas, Internet, Communications or Live Wire Danger			

Magnitude of Technological Events

The magnitudes of technological hazards are not addressed in this Plan. **Dam Release or Failure** has a close relationship with **Flooding** and uses the NH DES Dam Hazard Classification categories. Other technological events could have rating systems within their sphere of influence, but these are outside the scope of this **Hazard Mitigation Plan**. More information is provided for reference as needed for some of these technological hazards.

Aging Infrastructure

Infrastructure of a community includes its roads, sidewalks, bridges, culverts, water lines, sewer lines. Those components such as electric lines, telecommunications towers and dams are not considered in this section because they are not usually municipal-owned. The State of New Hampshire maintains responsibility for NH 127 and US 4 in Salisbury. The Town is responsible for miles of local Class V gravel and paved roadways and sidewalks, as well as the bridges. Communities in New Hampshire are faced with the dilemma of poor conditioned infrastructure with not enough funding to pay for rehabilitation, even with grants from the NH Department of Transportation (NHDOT) for roads and bridges and revolving loans from the NH Department of Environmental Services for water infrastructure.

Aging infrastructure creates hazards to people, through **transportation crashes**, **public health water quality crisis**, weakened bridges during **flooding** events, undersized culverts unable to accommodate storm water, and more.

Bridges, Culverts, Roads

Debris impacted infrastructure regularly occurs along the Central NH Region's rivers and streams and also along roadways. Rivers or brooks flowing under bridges or through culverts could get clogged or damaged by woody material or leaves in the watercourse. Culvert maintenance is particularly important before and during heavy rainfall and floods. Tree limbs falling onto power lines and onto roadways, disrupting both electricity and the roadway, occur during wind or winter storms.

Many of the local Town roads in Salisbury are constructed using ditching instead of storm drains. Most of the Town maintained roads are gravel, enabling easier washout. Bridges and dams are described in the **APPENDIX A Critical and Community Vulnerability Assessment**. Here, Salisbury includes a list of its most populated one-egress roads, indicating their importance of upkeep.

Dam Release or Failure

Dam breach and the resulting failure cause rapid loss of water that is normally impounded by the dam. These kinds of floods are extremely dangerous and pose a significant threat to both life and property as they are quick, unexpected, and if they occur during a flooding event, dam failures can overload an already burdened water channel.

Magnitude of Dam Failures

Although dam failure is considered a **Technological Hazard**, it is often a secondary hazard caused by flooding conditions. Classifications of dams and their magnitude of failure can be measured by the [NH DES Dam Hazard Classifications](#) shown in **Table 25**.

Table 25
New Hampshire Dam Hazard Classifications

NON-MENACE Structure		Inspection
NM	Means a dam that is not a menace because it is in a location and of a size that failure or misoperation of the dam would not result in probable loss of life or loss to property, provided the dam is: <ul style="list-style-type: none"> ○ Less than six feet in height if it has a storage capacity greater than 50 acre-feet; ○ Less than 25 feet in height if it has a storage capacity of 15 to 50 acre-feet. 	Every 6 years if criteria
LOW Hazard Structure		Inspection
L	Means a dam that has a low hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in any of the following: <ul style="list-style-type: none"> ○ No possible loss of life. ○ Low economic loss to structures or property. ○ Structural damage to a town or city road or private road accessing property other than the dam owner's that could render the road impassable or otherwise interrupt public safety services. ○ The release of liquid industrial, agricultural, or commercial wastes, septage, or contaminated sediment if the storage capacity is less than two-acre-feet and is located more than 250 feet from a water body or water course. ○ Reversible environmental losses to environmentally-sensitive sites. 	Every 6 years
SIGNIFICANT Hazard Structure		Inspection
S	Means a dam that has a significant hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in any of the following: <ul style="list-style-type: none"> ○ No probable loss of lives. ○ Major economic loss to structures or property. ○ Structural damage to a Class I or Class II road that could render the road impassable or otherwise interrupt public safety services. ○ Major environmental or public health losses, including one or more of the following: <ul style="list-style-type: none"> ◆ Damage to a public water system, as defined by RSA 485:1-a, XV, which will take longer than 48 hours to repair. ◆ The release of liquid industrial, agricultural, or commercial wastes, septage, sewage, or contaminated sediments if the storage capacity is 2 acre-feet or more. ◆ Damage to an environmentally-sensitive site that does not meet the definition of reversible environmental losses. 	Every 4 years
HIGH Hazard Structure		Inspection
H	Means a dam that has a high hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in probable loss of human life as a result of: <ul style="list-style-type: none"> ○ Water levels and velocities causing the structural failure of a foundation of a habitable residential structure or commercial or industrial structure, which is occupied under normal conditions. ○ Water levels rising above the first floor elevation of a habitable residential structure or a commercial or industrial structure, which is occupied under normal conditions when the rise due to dam failure is greater than one foot. ○ Structural damage to an interstate highway, which could render the roadway impassable or otherwise interrupt public safety services. ○ The release of a quantity and concentration of material, which qualify as "hazardous waste" as defined by RSA 147-A:2 VII. ○ Any other circumstance that would more likely than not cause one or more deaths. 	Every 2 years

Source: NH Department of Environmental Services (NHDES) Dams Bureau, 2012

Fire (Arson, Vehicle, Structure)

Fires which are not natural hazards are often associated with vehicles, structures or hazardous materials spills, or sometimes an explosion. These are considered **Technological Hazards**. Arson, the deliberate setting of a fire as an act of sabotage or mischief, is a **Human Hazard** but is contained in this section for convenience. No magnitude scales were defined for these types of non-natural fires.

Hazardous Materials

Hazardous materials and hazardous wastes contain properties that make them potentially dangerous or harmful to humans. They can be liquids, solids, contained gases or sludge. Hazardous wastes can be the by-product of manufacturing, as well as discarded commercial products. Most households contain cleaning agents that become hazardous waste when disposed of improperly. Chemicals have numerous benefits but can also cause hazards during their production, storage, transportation, use or disposal. Hazardous materials can have adverse health related effects and may even cause death in certain cases. In addition, hazardous materials may damage homes, businesses and other property, as well as natural ecosystems. Chemical accidents in plants or chemical spills during transportation may often release hazardous chemicals.

The risk from hazardous materials spills or releases into groundwater is present if consumers and homeowners make irresponsible decisions regarding the disposal of household chemicals. These household chemicals can contaminate drinking water in wells and cause damage to various ecosystems. Most people contaminate without being aware that they are doing so. Further education may be needed to reduce hazardous waste contamination. The necessity for continuing municipal Household Hazard Waste (HHW) collection days is crucial to helping to maintain a healthy environment for Salisbury's residents.

Long Term Utility Outage

Utilities systems exist everywhere and are subject to damage from construction work, accidents and extreme weather. Many utilities are protected by back-up generators to prevent failure, whatever the cause may be. Nuclear power plants produce roughly 20% of the nation's power, they exist in nearly all states and 3 million Americans live within 10 miles of a nuclear power plant. The greatest risk to life resulting from a nuclear power plant failure is radiation contamination resulting from radiation release into the environment. People in the immediate vicinity are at greatest risk of radiation contamination. Another common source of energy, coal, can be potentially hazardous because coal power plants emit chemicals such as mercury and sulfur dioxide.

The service-providing businesses in Town (gas station, bank, fast food, convenience, etc) rely on electricity provided by powerlines, and in many cases enterprise comes to a standstill during disaster events. Aging, vulnerable populations are at greatest risk in rural Salisbury from the effects of **power/utility failure** and **communications failure**. A few individuals in Town require oxygen and power failure and the likely

accompanying communications systems failure would comprise the most vulnerable populations. The Fire and Police Departments conduct welfare checks for those residents many known to be in need.

As a rule of thumb, all residents should be able to shelter in place in their homes for up to **3** days or **72** hours, gathering needed supplies and water ahead of time. **Power failure** can cause inconvenience, loss of economy, extra Town expenditures and staffing, and could restrict emergency response because the typical power failure is a secondary hazard caused by natural weather event. This problem is applicable to the **High Wind Events** and **Winter Weather** hazard events described earlier as well as **Debris Impacted Infrastructure** and **Transportation Crash** hazard events in the following sections.

Electricity

New Hampshire contains nuclear, coal and natural gas power plants. There is only one (**1**) coal power plant in New Hampshire, the Merrimack Station in Bow, currently owned by Granite Shore Power, formerly owned by Eversource and Public Service of New Hampshire. As of **2018**, the Merrimack Station is partially decommissioned, only operating when there is a need for additional kilowatt hours in the area. The Station requires **24** hours to become operational, then ceases firing when there is no additional electrical demand. The Merrimack Station is the largest coal-fired electrical generating station and when it was operating around the clock, supplied power to **190,000** households. Coal fuel generated only **7%** of the State's electricity in **2016**. Much of the State's electricity (**56%** in **2016**) is provided by the Seabrook nuclear power reactor.

In the harsh environment that New Hampshire residents are subjected to, power and utility failures on an isolated level are commonplace. During nearly every heavy snow storm, ice storm, or other severe weather event, someone, somewhere, loses power and/or other utilities. Salisbury is served by Eversource and NH Electric Cooperative.

Communications Systems Failure

Communications systems, like utilities, are found everywhere and are subject to damage by construction work, severe weather and traffic accidents. Because communications systems depend on electricity, any power outage may cause an interruption in a communications system. In addition, many communications systems have buried cables which are particularly vulnerable to being cut. Communications systems interruptions can negatively impact a region, town, neighborhood or household in the case of a natural disaster, catastrophe or other emergency. Power lines often share cables and poles with communications systems. When power fails, cable, telephone and radio services frequently fail as well.

Telecommunications towers often carry local, regional, county, state and sometimes federal antennas that relay emergency communications. In addition, personal cellular communications are often co-located at the same tower. When a major communications tower is out of service, its impacts are widespread. In some municipalities like Salisbury, the existing towers do not provide coverage to the entire community and create dead zones. This is particularly dangerous to people without landlines or when emergency services are necessary.

HUMAN HAZARDS

Events of human nature include terrorism (ecological, cyber and chemical), sabotage/vandalism, hostage situations, and civil unrest. These are often “behind the scenes” hazards that local Police Departments handle on a regular basis. These events are all caused by direct human action. Mass casualty incidents, caused by any number of hazards, would also be addressed as a human hazard. Cyber events, while a technological hazard, are considered another type of artificial, human-developed hazard.

There are several types of **HUMAN** hazards examined in the **Hazard Identification and Risk Assessment**:

Main Hazard Category	Specific Hazards Included			
HUMAN	TRANSPORTATION CRASH Vehicle, Airplane, Helicopter, Rail, Interstate, Pedestrian or Bicycle	MASS CASUALTY INCIDENT As a result of any hazard event	TERRORISM/VIOLENCE Active Shooter, Hostage, Public Harm, Civil Disturbance/Unrest, Politically Motivated Attacks, Incendiary Devices, Sabotage or Vandalism	CYBER EVENT Municipal Computer Systems Attack, Cloud Data Breach, Identity Theft, Phishing, Ransomware or Virus

Human Hazards are examined by descriptions of the types of hazards and in the **Potential Future Hazards**. Scientific measures of magnitude are not available for individual human hazards.

Transportation Crashes

Automobile crashes could occur on any roadway in the Central NH region. A major accident would have the greatest impact for travelers on Interstates 93, 393 or 89; on US Route 202, US Routes 4/202, US Route 3 or US Route 4; on NH Route 3A, NH Route 9, NH Route 13, NH Route 28, NH Route 31 NH Route 49, NH Route 77, NH 103, NH Route 106, NH Route 107, NH Route 114, NH Route 127, NH Route 129 and NH Route 132 or on their bypasses, interchanges, Exits and on/off ramps. These are high speed corridors with high traffic volumes. Many local roads allow for residential and commuter vehicles at low speeds. A vehicle-pedestrian or vehicle-bicycle crash has a greater casualty rate on the local and state roads as different road users use the same limited space.

In the region, the railroad lines along the Merrimack River create the potential for a (railcar) transportation accident. Trains could potentially derail, causing injuries or fatalities and hazardous materials spills. In the Central NH Region, the Concord-Lincoln Line runs 73 miles between Concord and Lincoln. The New Hampshire Maine Line runs between Concord, Nashua and Lowell, MA. Several communities through which these lines travel have expressed the concern about hazardous material spills due to transportation crashes or sabotage. Concord Municipal Airport is the major airport in the Central NH Region but Manchester-Boston Regional Airport (MHT) can be accessed via NH 28 or US 3 in about 30

minutes. Air traffic can also be hazardous to the region's citizens. Small local airstrips and heliports increase the chances for a possible aviation crash, especially in the higher elevations such as Mount Kearsarge.

Mass Casualty Incident

Mass casualty is the situation for which local, regional, state and national personnel train for treating large numbers of people who are injured from any natural, human or technological disaster. The Central NH Region has many partners for mass casualty training and preparation. [Capital Area Public Health Network](#) (CAPHN) works to promote, protect, and improve the health and well-being of communities within the Capital Area of New Hampshire through the proactive, coordinated, and comprehensive delivery of essential public health services. These include substance misuse prevention, suicide prevention, public health emergency preparedness, vaccinations, and more. The staff works with area emergency management directors. Across New Hampshire, there are **13** regional public health networks.

Concord Hospital is a **295**-licensed beds (plus **238** staffed beds) facility and the only trauma center in the Central NH Region. New London Hospital (**25** critical access beds, **58** long term care beds) and Franklin Regional Hospital (**25** critical access beds) are smaller hospitals in Merrimack County. In Laconia, the Lakes Region General Hospital (**137** beds) has a trauma center. The Dartmouth-Hitchcock Medical Center (**396** beds) in Lebanon has a trauma center and is New Hampshire's only and teaching hospital. Mass casualty preparedness is a situation regularly trained for by hospital employees.

The [New Hampshire Hospital Association](#) provides leadership through advocacy, education and information in support of its member hospitals and health care delivery systems. The NHHA has an encourages its members to develop hospital emergency plans and staffs an Emergency Preparedness Coordinator position to plan for such events. **Mass casualties** of the magnitude that can be expected with a disaster related to terrorism or other incidents demand an expanded role for hospitals. They must be supported by their communities as they attempt to protect the facility, its patients and personnel while attending to the victims of a disaster. The NHHA has a mutual aid network designed to work together during times of crisis.

Terrorism/Violence

The use of force or violence against people to create fear, cause physical harm and/or intimidation or for reasons of ransom. Terrorists often make threats to create fear and change public opinion. Cyber terrorism consists of hackers who threaten the economy by attacking the intricate computer infrastructure, affecting business and communication. Biological and chemical terrorism refers to those infectious microbes or toxins used to produce illness or death in people or animals. Large groups or close quarters of people can make bioterrorism more effective. Terrorists may contaminate food or water, thus threatening an unprotected civilian population. Eco-terrorism refers to the destruction of property by persons who are generally opposed to the destruction of the environment or to make a visible argument against forms of technology that may be destructive to the environment.

Sabotage/Vandalism

Sabotage is a deliberate action aimed at someone or some institution in order to weaken that person's or institution's integrity and reputation through subversion, destruction, obstruction or disruption. Sabotage may occur in war, a workplace, in the natural environment, as a crime, in politics or as a direct attack against an individual.

Hostage Situation

A **hostage situation** is an incident where innocent civilian(s) are held by someone or some group of persons demanding something from third party not related to the individual(s) being held hostage to ensure the fulfillment of certain terms. Often, a hostage situations result from a domestic dispute.

Civil Disturbance/Public Unrest

This hazard refers to types of disturbances that are caused by a group of people, often in protest against major socio-political problems including sit-ins or protests against wars and any general and public expression of outrage against a political establishment or policy. Many instances of **civil disturbance** and public unrest are quelled by a use of force from police. Participants may be victims of personal injury in severe cases. The most probable locations of larger civil disturbance and/or protest in New Hampshire are at the State House in Concord and at the universities and colleges. They have also occurred at political locations, such as feminist health centers or political party headquarters.

Bioterrorism

Biological hazards can also be caused by bioterrorism, the deliberate release of viruses, bacteria, or other germs (agents) used to cause illness or death in people, animals or plants. The US Center for Disease Control (US CDC) has categorized the bioterrorism agents into 3 priority Categories **A**, **B** or **C**, indicating how easily they can be spread and the severity of illness or death they cause. The bioterrorism Categories measure the risk of transmission of infectious organisms, germs, or pathogens but does not include chemicals.

Cyber Event

While **cyber events** could be considered technological hazards, they are deliberately initiated by a person or group of people, thus falling into the human hazard category. Cyberattacks are malicious attempts to access or damage a computer system. These events are socially or politically motivated attacks carried out primarily through the Internet. Cyberattacks target the general public or national and corporate organizations and are carried out through the spread of malicious programs (viruses), unauthorized web access, fake websites, and other means of stealing personal or institutional information from targets of attacks, causing far-reaching damage. **Cyberattacks** are geared toward particular organizations, services, and individuals to obtain private, technical, and institutional information, and other intellectual assets for the purpose of vandalism or monetary gain.

As computer crimes, they can cause serious consequences to those against which this threat is used. The cyber events range from more harmless such as website hacking, to personally harmful such as identity theft to more dangerous, such as those that cripple critical infrastructure. Cyber events cause harm to people or property and can generate fear. Much of the infrastructure upon which the State of NH relies is automated and could be subject to cyberattacks. These could include the government, military, communications systems, utilities, fuel, electrical systems, nuclear power plants, transportation systems, financial systems, emergency medical services and more.

On a municipal level, computer systems data storage, transmission of emergency communications, daily operations and monitoring or financial information, could be disrupted or be redirected to the perpetrators. Information Technology (IT) **cybersecurity** is paramount, as is employee training, to reduce the incidence of malware, phishing, SQL injection, man-in-the-middle attack, zero-day exploit, and other techniques to gain access to systems. With our society's increasing reliance on electronic devices and computers, Salisbury's local government and residents should be prepared to address **cyber events** in the various and growing forms they take.

Potential Future Hazards

After the inventory of hazards types and past hazards in Town, a list of hazards which currently exist or need to be monitored in Salisbury has been completed along with potential future hazards that could occur in the same or other areas. This unique listing of **Potential Future Hazards** was compiled so the Town can be aware of areas that might need to be watched for recurring hazardous problems or that may experience some of these hazards for the first time. The listing was developed by knowledge of the Hazard Mitigation Committee and past experiences of hazards. Past locations of hazard events, where they exist for each hazard, are listed under the individual hazard narratives in the previous section. The existing and susceptible hazard locations are taken from the **Hazard Identification and Risk Assessment (HIRA)**. With this existing and potential future knowledge listed side by side, it becomes easier for a community to plan mitigation measures for the most prominent hazard events in Town.

Potential future hazards in **Table 26** indicate locations in the community where a hazard event could occur and how that hazard could impact the Town. The **Overall Risk** score between **1-16** for the **16** natural hazards from the **HIRA** is provided to understand the scale of risk to Salisbury from all natural hazards. Also from the **HIRA** is whether or not each hazard event occurred within the last **5** years in Salisbury, indicated by either ***Events(s) Within Last 5 Years*** or ***NO Event(s) Within Last 5 Years*** beneath each *Hazard Category*. The magnitude or extent scale where available from previous **4 HAZARD RISK ASSESSMENT** descriptions enables possible effect measurement of the noted Salisbury locations.

Table 26
Potential Future Hazards

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
DROUGHT <i>*Events(s) Within Last 5 Years*</i>	5.3 MEDI UM	<ul style="list-style-type: none"> During future drought events, agricultural farms, tree farms and orchards run the risk of high damage from droughts which also brings economic consequences. Some farms are homestead farms which provide food and income for owners. Crop and livestock loss are consequences of droughts in these locations. In Salisbury, agricultural operations include numerous farms, orchards, nurseries, livestock. See APPENDIX A for the list. In future drought conditions, private homeowner wells will continue to go dry. When this occurs, the owners typically has a new well dug. Town fire ponds and dry hydrants are found throughout the community, but over time they may dry up from drought. The Fire Department draws from these fire ponds around Town but low conditions will make this more difficult. 	<ul style="list-style-type: none"> US Drought (D-scale) Monitor Intensity Scale Palmer Drought Index (PHDI)
EARTHQUAKE <i>*NO Events(s) Within Last 5 Years*</i>	4.0 LOW	<ul style="list-style-type: none"> Since Salisbury is located within an active seismic region, residents are expected to feel future earthquakes but damages should be minor, if any. Earthquakes have been nothing more than a curiosity over last 5 years. Locations to watch include the Salisbury Elementary School, Salisbury Heights buildings, Crossroads buildings, Barn Store, Safety Complex, Academy (Town) Hall. Many historic structures still stand. Although the buildings may receive little damage from earthquakes, they should be carefully monitored because the buildings are structurally larger, typically contain a large number of people, may contain vulnerable populations, and/or are critical to the Town's operations and culture. 	<ul style="list-style-type: none"> Richter Magnitude Scale Modified Mercalli Intensity Scale
EXTREME TEMPERATURES Excessive Heat, Heat Wave, or Cold, Wind Chill <i>*Events(s) Within Last 5 Years*</i>	4.0 LOW	<ul style="list-style-type: none"> Excessive heat and extreme cold will continue being problematic for Salisbury residents. As a dispersed, very rural community, everyone knows each other and neighbors check on neighbors. The Fire Department will continue to check on at risk residents when possible. Should the temperature remain high (or low), the Academy (Town) Hall, Safety Complex, or Library could be opened as a temporary cooling (or warming) center. The closest regional shelter is the Boscawen Elementary School. With a permanent generator installed in the Salisbury Elementary School, that building could be opened for this need with School District, Red Cross, and/or Capital Area Public Health Network assistance. 	<ul style="list-style-type: none"> NWS Windchill Index NWS Heat Index
HIGH WIND EVENTS Wind, Thunderstorms, Hail, Downbursts, Tornadoes, Debris <i>*Events(s) Within Last 5 Years*</i>	6.7 MEDI UM	<ul style="list-style-type: none"> All of Salisbury will experience future severe wind, rainstorms, and thunderstorms often with lightning, particularly common in the summer months, although most recent storms have been moving past Salisbury, with its microclimate somehow being different from neighboring towns. Potential tornadoes and certainly downbursts are anticipated in the future based on past events. Flooding, debris, and property damage will accompany these events. Electrical power (Eversource and NH Electric Cooperative) including the high transmission lines is disrupted during most wind-related events. The 1 telecomm tower on Humphrey Road, the TDS Telecom switching station on Old Turnpike Road, and the utility 	<ul style="list-style-type: none"> Enhanced Fujita (EF) Tornado Scale Accuweather Thunderstorm Criteria Scale Hail Size Scale

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		<p>poles could be damaged. If a high wind event impacted the entire Concord area, Salisbury would not be the first one to be repaired because of its small population.</p> <ul style="list-style-type: none"> • These future high wind events will likely to continue endangering roadways and utility lines from falling trees and limbs. Larger numbers of people live on Hensmith Road, Brookside Drive, at the Crossroads, at Salisbury Heights, and at Tucker Pond as well as other neighborhoods. The Elementary School and Barn Store could be vulnerable because of their size and number of people within. There are few Class V town roads for suitable for commuter traveling, and most of them are gravel and hilly, and are in danger of tree fall during high wind events. About 20 roads are one-egress. • Much of the Town is wooded and forested and sections would be difficult to access with trees and power lines down on the residential roads. Should a downburst or tornado run through the State Forests or Blackwater Flood Control Reservoir where people are recreating, people in these remote, unsheltered locations would need assistance. • Older historic or wooden buildings such as Academy (Town Hall), Old Town Hall, Salisbury Free Library Historical Society & Museum, Congregational Church, and the Barn Store and large-roofed buildings such as the Post Office, Safety Complex and Elementary School may be more vulnerable to wind damage. 	
INLAND FLOODING Rains, Snow Melt or Flash Floods <i>*Events(s) Within Last 5 Years*</i>	5.3 MEDIUM	<ul style="list-style-type: none"> • Future flooding is expected in Salisbury. Normal washouts during inland flooding events should continue to include Warner Road, West Salisbury Road, Couchtown Road, and Mill Road (Mill Brook). With high elevation, hilly, curved and high-sloped gravel/stone dust roads throughout Town lined with ditches, future flooding is inevitable. • The community has brooks that flow under roads, creating e impassible conditions during heavy rainfall and resultant flooding. Roads have regularly washed out and many are anticipated to do so in the future from spring snow melts or heavy rainfall. Salisbury's many brooks are likely to flood in the future. • In danger of flooding are waterfront properties along the Blackwater River or Tucker Pond. The Blackwater River Flood Control Reservoir, when flooded, floods the access roads from homes to the main travel roads. Recreation ponds and several beaver dams can flood. • See the Special Flood Hazard Areas (floodplains), Waterbodies, and Road Washouts sections for details. The SFHAs and road washout areas are anticipated to flood in the future during extreme events. 	<ul style="list-style-type: none"> ◆ Special Flood Hazard Areas (SFHAs) on 2010 Digital Flood Rate Insurance Maps (Zones A, AE, X) ◆ Flood Action Stages / River Gages
LANDSLIDE Soil, Rockslide or Excavation Areas <i>*NO Events(s) Within Last 5 Years*</i>	1.0 LOW	<ul style="list-style-type: none"> • Potential future landslide are not expected to occur at the reclaimed excavation sites in Town. In Salisbury, they are well maintained, used for private operations, or are reclaimed: Bay Road (Merkes), Plains Road, (Wunderlich), and a recently permitted gravel quarry on Bog Road (Reil). Older sites are located on West Salisbury Road and New Road. 	<ul style="list-style-type: none"> ◆ No known widely-used scale measuring the magnitude of landslides

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		<ul style="list-style-type: none"> • Roads with steep ditching or embankments are most vulnerable to future landslide and the include southern sections of Warner Road, Gerrish Road, Searles Hill Road, Rabbitt Road, Raccoon Road, Center Road, and NH 127 embankments. Landslide is a fairly uncommon hazard but one that could have devastating effects, including property damage and motor vehicle crashes. • Recurring landslides along the steep Little Hill Road embankments and on West Salisbury Road are still vulnerable to heavy rains. Future heavy logging in the area changes the banking and provides potential for erosion and landslides. • Many roads contain sections of grades over 15%. Roads with steep ditching or embankments will remain vulnerable to landslide in the future. Road washouts and flash-flooding could cause landslides, especially along the hilly gravel roads and NH 127. Landslide is a fairly uncommon hazard but one that could cause property damage, otherwise the Town is not particularly susceptible. 	
LIGHTNING *FEW Notable Events(s) Within Last 5 Years*	4.0 LOW	<ul style="list-style-type: none"> • Future lightning strikes may cause the damage at wooden historic structures at the Old Town Hall, Library, Historical Society & Museum, Congregational Churches and other buildings without lightning rods. Other structures and homes located in the populated areas listed in prior sections would be most vulnerable to the power surges and outages caused by these strikes. Houses, wells, trees, and roofs are frequent targets of lightning strikes. In many areas there are been repeat hits. • Other population centers and locations would be wide-scale impacted by a lightning strike in the area. The Safety Complex regularly receives lightning strikes to its building, and it grounded. The utilities such as telecommunications tower, and TDS Telecom switching station, and high tension power lines have their own specific vulnerabilities to lightning should a future strike occur. • Forested areas and open recreation fields can be dangerous to people and property. These include the public State Forests, Mount Kearsarge, conservation areas, and points of higher elevation which can be dangerous to people and property if struck by lightning. North Road is particularly vulnerable because it has little water supply and is the highest elevation in Town. Sawyer's Apple Orchard on Warner Road is another vulnerable site. Quimby Road could also pose a future hazard due to bad general access. • Parts of Buckhorn and Mountain Road could also be a problem with limited access and slower emergency response times. Many of these locations cannot be easily accessed by emergency vehicles, whether to fight the fire or remove people from harm's way. 	♦ Lightning Activity Level (LAL)

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
PUBLIC HEALTH Infectious Diseases, Air & Water Quality, Biological, Addiction, Arboviral, or Tick-borne <i>*Events(s) Within Last 5 Years*</i>	4.0 LOW	<ul style="list-style-type: none"> Public health issues may occur in the community in the future during warm or cold months. For indoor contamination, the highest risk facilities for pick-up or transfer of viruses and bacteria can include the School and local food serving locations. Outdoor susceptibility to arboviral and tickborne diseases is expected to grow. Salisbury is a highly rural community with many waterbodies and swampy areas needed for these arthropods to thrive. With the rural environment, it may be inevitable for some to obtain these diseases. The State Forests which attract people can also enable transmission. There are no official Town beaches, but those ponds used for swimming may see high cyanobacteria levels; and this situation is one to watch during the warm season. Air quality may continue to fluctuate depending on the particulate matter blown in from Canada or the Midwest. Water and soil quality can decline with the presence of hazardous materials. All of these situations need to be watched in the future. The Town's local Point of Dispensing (POD) is located at Hopkinton High School. Salisbury is a member of the Capital Area Public Health Network, which will assist the Town in times of public health crisis. 	<ul style="list-style-type: none"> No known widely-used scale measuring the magnitude of public health incidents
RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris <i>*Events(s) Within Last 5 Years*</i>	5.3 MEDIUM	<ul style="list-style-type: none"> The most likely ice jams to occur, and cause damage, would be the Pingree Bridge over the Blackwater River. Homes on Mountain Road would be isolated. Ice floes have been found along the banks of the Blackwater River, and can recur, possibly causing infrastructure damage. Roads within floodplain areas are likely in the future to be vulnerable to flooding, erosion, scouring. Because of the high volumes and swift moving Blackwater River bank erosion, scouring and channel movement are future hazards of concern. Erosion and erosion of banks are presently occurring on the Mill Brook and the Blackwater River and is anticipated to continue in the future. Little Hill Road has both erosion in places. The scouring usually occurs at the culvert outlets. 	<ul style="list-style-type: none"> EPA Bank Erosion Risk Index
SEVERE WINTER WEATHER Snow, Ice, Blizzard or Nor'Easter <i>*Events(s) Within Last 5 Years*</i>	6.7 MEDIUM	<ul style="list-style-type: none"> It is extremely likely that Salisbury will be impacted by severe winter weather in the future. Damage and serious conditions can result in all areas of the community. Areas above 500 feet are more vulnerable. Salisbury is snowier than most surrounding Towns, residing on the outskirts of the Sunapee/Kearsarge belt, always receiving more snow than neighboring Towns. The Blackwater River and Mt. Kearsarge channel cold winds. As severe winter conditions are expected to continue in the future and to increase in severity, concerns remain regarding resident and traveler safety. Many local roads have sharp incline/decline and cars have trouble traveling the roads during winter conditions, especially when icy. The "s" curve of Loverin Hill Road to West Salisbury Road is one of the worst sections in town. Oak Hill Road and North Road can be tough to 	<ul style="list-style-type: none"> Sperry-Piltz Ice Accumulation (SPIA) NCDC Regional Snowfall Index (RSI) for Northeast

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		<p>navigate in cold weather. These three roads encompass have sections of grade over 15%.</p> <ul style="list-style-type: none"> • Particular areas of concern during winter weather include high density areas of Salisbury Heights, Crossroads, or snowbound neighborhoods which might require assistance during winter weather. Some of the historic homes, flat roofed buildings and large barns may be vulnerable to heavy snow loads or other events that could cause the roof to collapse. • The 1 telecomm tower on Humphrey Road as well as Department antennas could be highly impacted from future snow, ice, and blizzards. Emergency back-up generators are located at the Town Office, the Safety Complex, and the Fire Department. The Barn Store, Town Hall, and Library are not equipped with generators, nor does the Salisbury Elementary School have a generator in the event of an emergency. • All of the Town is wooded and forested, with the western section especially difficult to access with trees and power lines down on the residential roads during future snowstorms. The Town has over 20 one-egress roads totaling over 7 miles on which over 100 homes reside. Many more roads are also often blocked by fallen trees or powerlines, including main routes US 4 and NH 127. 	
SOLAR STORMS AND SPACE WEATHER Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout *NO Events(s) Within Last 5 Years*	2.0 LOW	<ul style="list-style-type: none"> • The aurora borealis has been photographed on Mount Kearsarge to the east due to geomagnetic storms. These types of events are likely to recur. At this time, the Town is aware of potential impacts to its communications and electrical systems but has rated the hazard unlikely to cause damages. 	♦ NOAA Geomagnetic Storms Scale ♦ NOAA Solar Radiation Storms Scale ♦ NOAA Radio Blackouts Scale
TROPICAL AND POST-TROPICAL CYCLONES Hurricanes, Tropical Storms or Tree Debris *NO Events(s) Within Last 5 Years*	6.0 MEDIUM	<ul style="list-style-type: none"> • The last tropical and post tropical storm to impact Salisbury was Irene in 2012. There will be future tropical cyclones to impact Salisbury. Although the vulnerable areas are spread all over Town, the facilities and locations at greatest risk are shared with High Wind Events, Inland Flooding, and Long Term Utility Outage. 	♦ Saffir-Simpson Hurricane Wind Scale
WILDFIRE Brushfire, Outdoor Fires or Accidental *FEW Notable Event(s) Within Last 5 Years*	5.3 MEDIUM	<ul style="list-style-type: none"> • Although few substantial wildfires have impacted Salisbury since the last Plan, the potential exists for large fires in remote or difficult to access locations in the future, including the east side of Mount Kearsarge and much of the western section of Town. Drier foliage exists but less slash and brush remain on the ground. • The one-egress roadways, ____ could mean difficulty accessing severe fires should the need arise. Most of the homes are situated in the 	♦ NWCG Wildfire Classification

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		<p>woods. Salisbury is heavily wooded, with difficult, remote areas and many slopes. The west side of the town of Salisbury is at a greater risk of wildfire because there is limited access to the area, and it is mostly forested. All areas west of West Salisbury Road, and Brook Road are particularly vulnerable as there is little water supply and limited access to Quimby Road, Buckhorn Road, and parts of Mountain Road.</p> <ul style="list-style-type: none"> • As a member of the Capital Area Fire Mutual Aid System, the Town regularly provides other communities with mutual aid for wildfires. • See also Lightning. 	
SECONDARY TECHNOLOGICAL AND HUMAN HAZARDS			
DAM RELEASE OR FAILURE <i>*Events(s) Within Last 5 Years*</i>	2.0 LOW	<p>• The Town of Salisbury has very few dams within its town limits, most of which are beaver dams. None of the dams classified from NHDES would cause damage if they breached. Several Non-Menace dams are located throughout the community.</p> <p>• Beaver dams carry a higher probability of flooding and potential for breakage. Beaver dams are located throughout the Town. The Greenough Pond Road culvert and South Road/NH 127 Beaver Dam Brook Road culverts are often blocked by beaver, so the culverts flood over and the infrastructure susceptible to the impacts of dam failure or release.</p>	N/A but refer to NHDES Dam Classifications
AGING INFRASTRUCTURE Bridges, Culverts, Roads, Pipes or Underground Lines <i>*Events(s) Within Last 5 Years*</i>	not scored	<p>• Most of the Town's infrastructure is aging and is only able to be replaced on a priority basis. Therefore, any future natural hazard could render the culverts, ditching, and drainage systems vulnerable. Town bridges are aging and could be subject to floods, ice, transportation crashes or debris impacted infrastructure.</p> <p>• Road culverts continue to washout and be repaired, so that only a few are subject to regular, expected washout. Many additional culverts are anticipated for replacement in the next several years, such as Greenough Pond Road, North Road, Mill Road box culvert. The Town does not have the budget or staff to perform for upgrades for all culverts. At a minimum, every undersized culvert has been replaced. At least 20 miles of crushed stone roads have been resurfaced. Any of these locations could washout again in a hard rainstorm or flood event.</p> <p>• None of the 5 bridges in Town are red-listed by the state.</p> <p>• See list of Road Washouts for a list of culverts susceptible to future floods, ice jams, debris, and other hazards.</p> <p>• The Town's roads are becoming more difficult to maintain and rehabilitate because of lack of funding and miles of roads.</p>	N/A
FIRE Vehicle, Structure, Arson or Conflagration <i>*NO Events(s) Within Last 5 Years*</i>	not scored	<p>• Any future conflagration within should one occur, would have devastating effects to the entire community. Locations to watch for include Salisbury Heights, Crossroads, Tucker Pond.</p> <p>• Several buildings are potential sites for explosions and serious fires. Large employer Barn Store (LP) could be vulnerable to fire and may utilize hazardous materials in their work. The sawmills have open mill</p>	N/A

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		<p>buildings containing many combustible materials. The School could be vulnerable to fire, as could the Transfer Station.</p> <ul style="list-style-type: none"> • NH 127 & US 4 Crossroads is a regular locations of transportation crashes. The most severe of these can cause vehicle fires and fatalities. These locations are anticipated to remain locations of potential fire. • Arson is a real and potential threat in Salisbury, has occurred in vacant buildings in the past, and could occur anywhere in Town. Buildings that contain numerous people are a particular risk. Wildfires in remote areas are also of particular concern because of accessibility and the potential to damage large areas. 	
HAZARDOUS MATERIALS Haz Mat Spills, Brownfields or Trucking <i>*Event(s) Within Last 5 Years*</i>	not scored	<ul style="list-style-type: none"> • Transportation of hazardous materials on US 4 and NH 127 is an everyday occurrence. In the future, trucks could rollover and spill their contents onto these significant roadways. • Several occupational facilities in Town handle, store, or use hazardous materials, including agriculture operations, gas stations, and construction yards. Any of these facilities could have a spill at their site or during transport which could result in a spill. See APPENDIX A for the list. • The Town Transfer Station is frequently vandalized and has had minor spills in the past; these can be expected to continue. The Transfer Station and nearby capped landfill's monitoring wells and levels are checked annually, 	N/A
LONG TERM UTILITY OUTAGE Power, Water, Sewer, Gas, Internet, Communications or Live Wire Danger <i>*Events(s) Within Last 5 Years*</i>	not scored	<ul style="list-style-type: none"> • High tension lines in Salisbury make the Town particularly vulnerable to outage during future disaster events. Losing the Eversource and NH Electric Coop power grid would indirectly affect Salisbury whose residents obtain their power on a macro-scale from Hydro Quebec. Utility outage for electricity is expected to occur in the future. • Electrical outages are often town wide, but high density areas or vulnerable populations are of greatest concern noted under High Wind Events. • A few individuals in Town require oxygen and power would be the most vulnerable populations to any utility outage. In general, the number of people requiring special services during hazard events has declined. Electricity could not be offline for more than two or three days without causing losses. Standby generators could be installed at the Academy (Town) Hall and Salisbury Free Library as temporary shelters. The Safety Complex could be used in a similar manner. • There is new 1 cell tower in Salisbury, located on Humphrey Road, that provides coverage to only small section of Town. This tower did not exist in 2014. Cable and Internet are available in certain areas of the community, and all hardline telephone lines were removed from the poles in favor of fiber optic VOIP. TDS telephone and internet lines provide main services to most of Salisbury, except in the northeastern corner. Communication failure can result from the effect of a natural disaster such as severe storm, of severe winter weather. Such an outage 	N/A

4 HAZARD RISK ASSESSMENT

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		<p>will likely affect the majority of Town residents and the traveling public passing through Salisbury.</p> <ul style="list-style-type: none"> • Systems failures could affect Town businesses and local government on a large scale. Cell phones are not good alternatives to telephones because of the lack of service in Town. Some residents do not have computers and cell tower or VOIP could go down. • If land lines and cell towers were interrupted, then internet, cable and email would likely be interrupted as well. The state has portable communication trailers that can be moved into Salisbury if needed. Residents are generally prepared for short-mid length outages. 	
TRANSPORTATION CRASH Vehicle, Airplane, Helicopter, Rail, Interstate, Pedestrian or Bicycle <i>*Events(s) Within Last 5 Years*</i>	not scored	<ul style="list-style-type: none"> • With US 4 running through Salisbury, Town Fire Department or Penacook Rescue are often the first to respond to the numerous vehicle crashes experienced on the highway. These crashes are expected to increase over time as population and housing increase. • Crashes can occur anywhere in the community along NH 127 and local roads alike. Dangerous intersections including US 4 and NH 127, curves, hills, or steep slopes are where most other vehicle crashes occur. Icy conditions contribute to the crashes. • High density areas, such as the School, Crossroads, and Salisbury Heights encourage bicycling and pedestrians and but also have the potential for serious crashes. Mount Kearsarge to the west represents a high elevation challenge and future airplane crashes could occur here. 	N/A
MASS CASUALTY INCIDENT As a result of any hazard event <i>*NO Events(s) Within Last 5 Years*</i>	not scored	<ul style="list-style-type: none"> • Groups of people are located at the Elementary Schools, Town buildings and local businesses, which could be the most likely places where a future mass casualty event could occur as a result of any other type of hazard event. Any mass casualty would stretch the resources available to the volunteer Fire Department as well as the NH State Police and Penacook Rescue Squad. • Events such as the popular annual Old Home Day, Town Meeting, Veteran's Parades, and regular community events such as political candidate visits, School sporting events, Maplewood Ballfield games, and locations such as concerts, restaurants and other community gatherings could set the location for future mass casualty incidents. • Franklin Regional Hospital is 15 minutes from Salisbury, and Concord Hospital and New London Hospital are the closest full-scale medical facilities to Salisbury, although only Concord Hospital has a trauma center. Capital Area Fire Mutual Aid dispatch is available. 	N/A
TERRORISM/ VIOLENCE Active Shooter, Hostage, Public Harm, Civil Disturbance/ Unrest, Politically Motivated Attacks, Incendiary	not scored	<ul style="list-style-type: none"> • It is unlikely, but possible, the Town could be the target of an act of terrorism based on current trends. Possible targets could be the Academy (Town) Hall, Safety Complex, Library, Congregational Church, Elementary School, or at the Blackwater Dam in Webster (regional attack). • Future hostage situations are isolated events and are nearly impossible to predict. The public sites where this potential most likely exists are Academy (Town) Hall, Library, School, Post Office, Barn Store, 	N/A

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
Devices, Sabotage or Vandalism *Events(s) Within Last 5 Years*		and everyday domestic situations. Isolated incidents of violence could occur in the remote forested areas and trails. • Large scale incidents of civil disturbance and public unrest are unlikely in Salisbury. Potential public unrest may take place at the Town Hall or the Schools. • Bomb threats could occur at the Elementary School in the future.	
CYBER EVENT Municipal Computer Systems Attack, Website Overtake, Cloud Data Breach, Telephone Rerouting, Identity Theft, Phishing, Ransomware, Virus or Phone Scams *Event(s) Within Last 5 Years*	not scored	• The entire Town – residents, businesses, municipal, state- could be subject to future cyber events. Cyberattacks could target Town websites, computer systems, cloud data systems, archival records, email phishing, etc. The Academy (Town) Hall, Fire Department, Highway Department, Salisbury Free Library, Historical Society records, Salisbury School, would be high-value targets for their software and their archival systems. • Email scams and identity theft are likely to continue, causing regular problems for residents and businesses. Significant future damage could be done to Town and School systems, telecommunications, TDS cable /internet, and other facilities.	N/A

Source: Sutton Hazard Mitigation Committee

Although there are many potential hazards in Sutton’s future, the community is knowledgeable about where some of the worst occurrences might result with this descriptive **Potential Future Hazards** inventory. A comprehensive, specific community facility inventory that indicates each site’s **Primary Hazard Vulnerabilities** is found next in **5 COMMUNITY VULNERABILITY ASSESSMENT**.

**New West Salisbury Road
Bridge over the Blackwater
River**

Photo via Town Website, 2019



INLAND FLOODING

Flooding is a more easily locatable hazard as waterbodies can be used to approximate the range of future potential flooding areas. The Special Flood Hazard Areas, waterbodies, and road washout locations are listed in detail below for Salisbury.

Special Flood Hazard Areas (SFHA)

There are **9** Digital Flood Insurance Rate Maps (DFIRMs) in Salisbury (FEMA community **#330121**) from the **April 2010** updated set. Although the Blackwater River and the Blackwater Flood Control Reservoir comprise large acreage in Salisbury, **0** panels contain **Zone AE** floodways (1% annual risk of flooding), **Zone A** (1% annual risk of flooding) areas, and **Zone AE Base Flood Elevations (BFEs)** (1% annual risk of flooding). In the entire Town, there is also **0** panels of **Zone X** (0.2% annual risk of flooding). Panels **#0145** and **#0285** span through the less-populated western center of Town and contain the **Blackwater Flood Control Reservoir**.

The **9** Salisbury DFIRMs, **#0140**, **#0145**, **#0155**, **#0165**, **#0168**, **#0280**, **#0265**, **#0285**, **#0305** and **#0306**, contain only **Zone A** (1% annual risk of flooding) floodplain areas. The watercourses in Town, including **Blackwater River**, **Stirrup Iron Brook**, **Beaverdam Brook**, **Mill Brook**, **Punch Brook**, **Blackwater River Tributaries**, **Alley Brook**, numerous **Unnamed Brooks**, and the waterbodies such as **Blackwater Flood Control Reservoir**, **The Bay**, **Tucker Pond**, **Vermetti Pond**, **Duck Pond**, **Greenough Pond**, **Wilder Pond**, and prodigious **Unnamed Wetlands**, appear on these **9** DFIRMs and are displayed in the white rows of **Table 27**.

Table 27

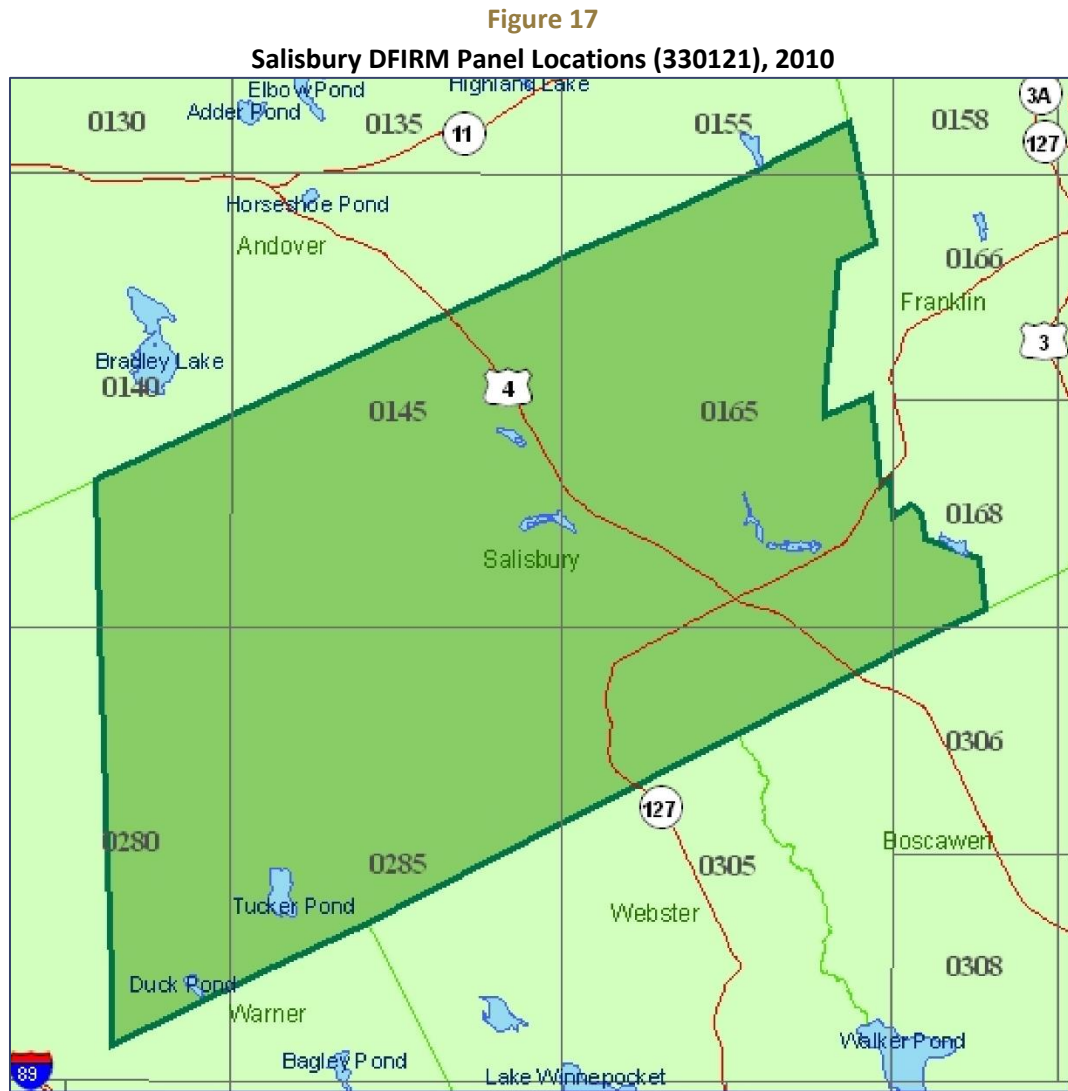
Locations of Salisbury Special Flood Hazard Areas (SFHA) on 2010 DFIRMS

Panel NH (D33013C)	Flood Zones in Salisbury (330121)	Base Flood Elevations (BFEs)	Water Body Areas in Floodplains	Community of Salisbury Geographic Location
#0140	A	N/A	Unnamed Brook (outlet of Bradley Lake in Andover). Wilder Pond,	Northwestern corner, bordering Warner and Andover. No roads. Mount Kearsarge State Forest
#0145	A	N/A	Blackwater River, BR Tributaries, Unnamed Brooks. The Bay, Blackwater Flood Control Reservoir, and Unnamed Wetlands	North central section bordering Andover town line. US 4, Mountain Road, Bay Road, West Salisbury Road, Old Turnpike Road, Loverin Hill Road, College Road, Raccoon Hill Road.
#155	A	N/A	Unnamed Brooks. Wetlands north of Vermetti Pond.	Northeastern corner bordering Andover and Franklin. Humphrey Road, Flaghole Road
#165	A	N/A	Stirrup Iron Brook, Punch Brook, Unnamed Brooks. Vermetti Pond, Unnamed Wetlands,	Eastern section of Salisbury. The Crossroads, US 4, NH 127, North Road, New Road, Old Turnpike Road, Whittemore Road, Loverin Hill Road, Hensmith Road, South Road, Center Road, Mutton Road, Raccoon Hill

Panel NH (D33013C)	Flood Zones in Salisbury (330121)	Base Flood Elevations (BFEs)	Water Body Areas in Floodplains	Community of Salisbury Geographic Location
				Road, North Road, New Road, Oak Hill Road, Center Road, Franklin Road, and Gerrish Road.
#0168	A	N/A	Stirrup Iron Brook, Alley Brook. Unnamed Wetland.	Southeastern corner bordering Boscawen and Franklin. State Forest Nursery, Gerrish Road.
#0280	A	N/A	Mill Brook Wetland, Duck Pond.	Southwestern edge, bordering Warner. Mount Kearsarge State Forest Quimby Road.
#0285	A	N/A	Blackwater River, Mill Brook, Unnamed Brooks, Unnamed BR Tributaries. Blackwater Flood Control Reservoir, Tucker Pond, Greenough Pond, Unnamed Wetlands.	Southcentral edge bordering Warner and Webster. South Road, Warner Road, Tuttle Road, Plains Road, Scribner Road, Mill Road, Heath Road, Little Hill Road, West Salisbury Road, West Couchtown Road, Heath Road, Couchtown Road.
#0305	A	N/A	Beaverdam Brook. Blackwater Flood Control Reservoir, Unnamed Wetlands.	Southeastern edge, bordering Webster and Boscawen. US 4, NH 127, Fellows Lane, Mutton Road, South Road, Rabbit Road, Hensmith Road.
#0306	A	N/A	Unnamed Wetland	Southeastern edge bordering Boscawen. State Forest Nursery.

Sources: FEMA and [NH Geographically Referenced Analysis and Transfer System \(NH GRANIT\)](#) websites

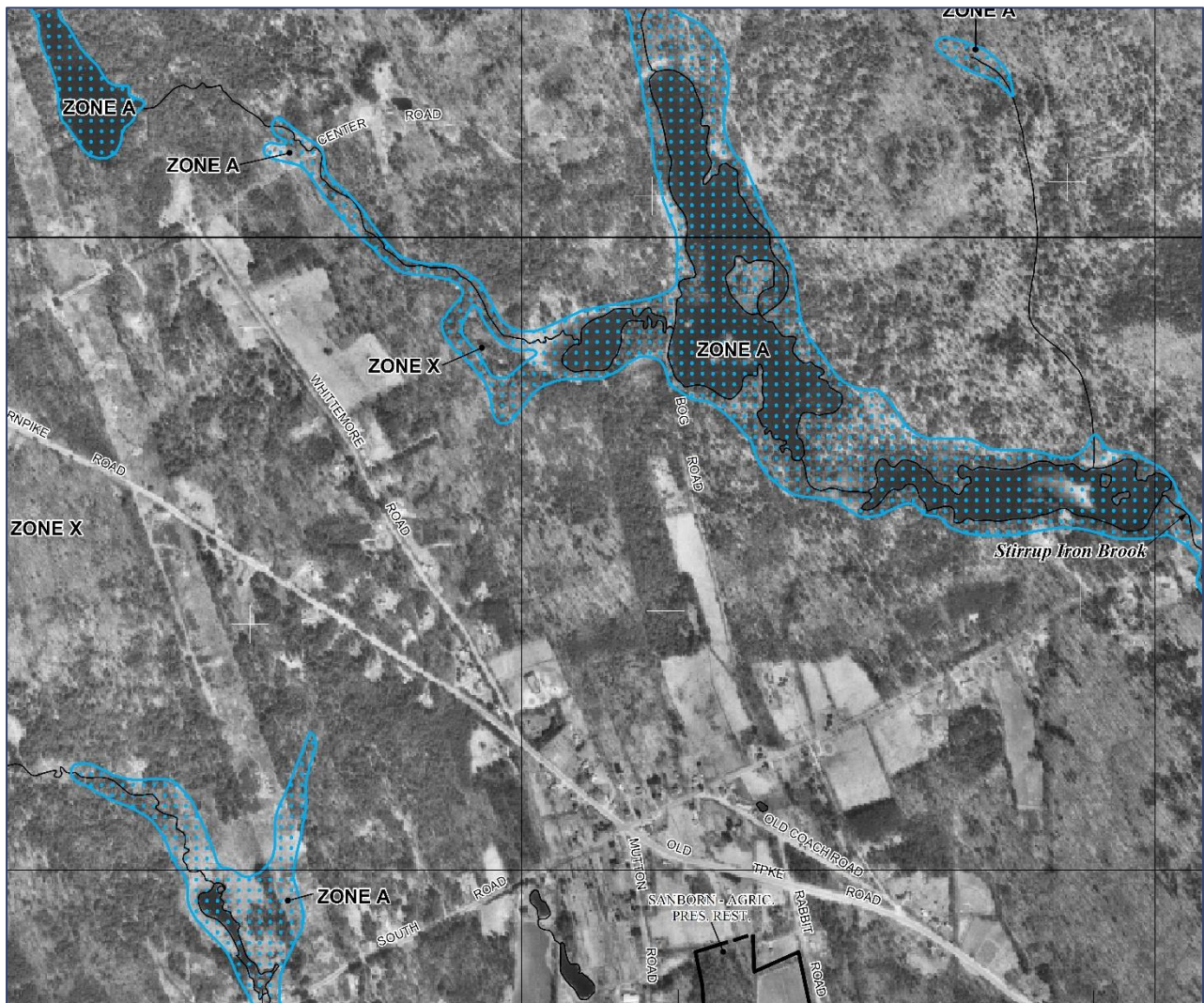
Figure 17 displays the relative location of each of the DFIRM panels in the community used in **Table 27**. This set of DFIRMs is excerpted from the *Merrimack County Flood Insurance Study (FIS) of 2010*. The graphic illustrates the numbering system of the DFIRMs, how they are not always consecutive.



Source: Salisbury DFIRMS can be downloaded at <http://www.granit.unh.edu/dfirms/d-DFIRMzips/Salisbury.zip>, last accessed 07-19

Figure 18 displays an example of a DFIRM's zoomed-in view of where the **Stirrup Iron Brook** flows parallel to US 4 (Old Turnpike Road) and crosses NH 127 (Franklin Road) east of the Salisbury Crossroads. An **Unnamed Brook** crosses NH 127 to the west of the intersection. This **#0165** panel is one of the most heavily traveled areas in Salisbury and contains the Safety Complex, Post Office, and Academy (Town) Hall facilities plus the popular Crossroads Barn Store. Although the road and waterbody limits shown below may be a bit inaccurate, there are active floodplains along the busiest highways and one of the most populated areas in Salisbury.

Figure 18
Zoom View of the Crossroads DFIRM Panel Location #0165



Source: FEMA DFIRM 2010 for Salisbury NH #0165

Watercourses do not end at municipal boundaries but contribute to a much larger watershed area. Salisbury is located north of Webster's Blackwater Dam. Both communities hold significant acreage of the **Blackwater Flood Control Reservoir** into which the **Blackwater River** flows from Andover where its headwaters begin. The **Blackwater River**, in turn, flows south to the **Contoocook River** which converges in Hopkinton into the **Contoocook River** just after the **Warner River's** confluence with the **Contoocook**. The **Contoocook River** reaches the **Merrimack River** in Penacook/Boscawen. Along the way, a series of dams and river gages help determine that water levels are appropriate for the watershed. The US Geological Survey monitors river conditions and records statistics. Dynamic streamflow measurements from stations such as river gages are available in real-time on the [USGS National Water Information System \(NWIS\)](https://nwis.waterdata.usgs.gov/nwis/measurements/?site_no=01087000&agency_cd=USGS). Different parameters of current stream condition data can be utilized as hydrographs or to determine historical crests and flood stages.

The US Army Corps of Engineers maintains its own data for the [Blackwater Dam](#). Historical records of flood crests as displayed in **Table 28** enable perspective on how often the **Blackwater River** at the Webster Blackwater Dam floods, before the water is released downstream. In Salisbury, the water pools into surrounding lands and across roads during flooding conditions until the water is released.

Table 28

Blackwater River at Blackwater River Dam, USGS Gage #01087000

Historic Crests		Recent Flood Crests		Most Recent Crests	
Feet	Date	Feet	Date	Feet	Date
10.4	09/22/1938	6.9	05/18/2006	5.9	04/02/2014
6.9	05/18/2006	6.8	04/26/2007	5.9	04/17/2019
6.9	04/28/1969	6.8	10/21/2005	5.7	04/15/2015
6.9	04/14/1960	6.8	10/21/2005	5.5	07/01/2013
6.8	04/26/2007	6.2	04/03/2003	5.4	02/28/2017

Source: https://nwis.waterdata.usgs.gov/nwis/measurements/?site_no=01087000&agency_cd=USGS, last accessed 07-24-19; Numbers rounded to nearest tenth

There are no associated **Flood Stages** at the Blackwater Dam.

Waterbodies

These rivers, brooks, ponds and wetlands in Salisbury will contribute to future potential flooding in these and other areas:

🔄 **Watercourses:** Blackwater River; Punch Brook, Stirrup Iron Brook, Mill Brook, Beaverdam Brook, Blackwater River Tributaries, Alley Brook, and numerous unnamed brooks.

🔄 **Waterbodies:** Blackwater Flood Control Reservoir, The Bay, Tucker Pond (56 acres), Stirrup Iron Pond, Vermetti Pond, Wilder Pond, Greenough Pond and Marsh, Duck Pond and Shaw Mill Pond, and numerous unnamed ponds and wetlands.

Road Washouts

Many of the local Town roads in Salisbury are constructed using ditching instead of storm drains. Most of the Town maintained roads are gravel, enabling easier washout during future flooding events, but also less expensive maintenance. Most of the highest priority culverts have been upgraded since the recent flooding events of **2005-2012**, yet any culvert could flood again under extreme conditions. Regular road washouts have included:

- | | | |
|-------------------|----------------|------------------------|
| ➤➤ Couchtown Road | ➤➤ New Road Y | ➤➤ West Salisbury Road |
| ➤➤ Dunlap Road | ➤➤ NH 127 Y | ➤➤ And several more |
| ➤➤ Mill Road | ➤➤ Warner Road | |

Roads that are extremely difficult to access during floods include West Salisbury Road, Couchtown Road, Little Hill Road, Buckhorn Road, Michael's Lane, Warner end of Warner Road, and Scribner Road.

The **Blackwater River** and the Blackwater Reservoir are designed to flood, and are therefore likely to continue flooding in the future during heavy rain or snow melt. Many of the roads in Salisbury have been affected by flooding in the past, including Warner Road, Bay Road, New Road, Rabbit Road, Couchtown Road, Mill Road, Buckhorn Road, West Salisbury Road, Center Road, Oak Hill Road, Hensmith Road, US 4 sections, NH 127 by Stirrup Iron Brook, and other sections. Salisbury has difficulty getting emergency services to remote parts of Town.

Many areas are inaccessible from emergency services when flooding occurs, and the Town is attempting to obtain an emergency access that will allow the passage of residents who live in the US Army Corps of Engineers **Blackwater Flood Control Reservoir** area to NH 127.

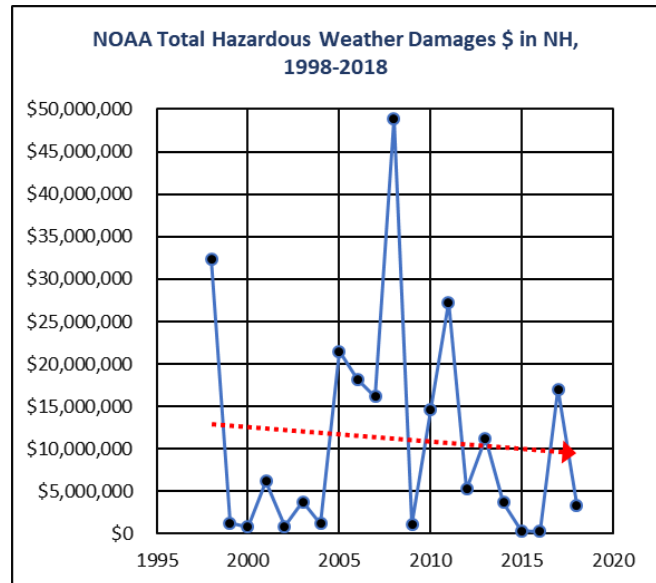
Local Climate Changes and Extreme Weather

In the State and the Central NH Region, like any other areas, exist our own “micro-climate” areas that can be analyzed for future susceptibility to disasters and hazard events. New Hampshire has obtained high costs of damage over time due to hazardous weather and declared disasters. A review of the state and area history can provide a perspective on what Salisbury can expect to see in terms of extreme weather in the future.

Table 29

Summary of Hazardous Weather Fatalities, Injuries, and Damage Costs in NH, 1998-2018

Year	Fatalities	Injuries	Total Damages \$ in Million
2018	2	9	\$3.4
2017	0	0	\$17.0
2016	1	1	\$0.27
2015	2	34	\$0.37
2014	0	2	\$3.7
2013	0	30	\$11.3
2012	1	4	\$5.28
2011	1	2	\$27.3
2010	1	6	\$14.63
2009	1	0	\$1.13
2008	2	5	\$48.9
2007	0	3	\$16.15
2006	1	9	\$18.2
2005	4	9	\$21.5
2004	0	11	\$1.2
2003	2	29	\$3.8
2002	0	7	\$0.9
2001	0	2	\$6.2
2000	2	6	\$8.0
1999	3	17	\$1.3
1998	1	23	\$32.4



Source: National Oceanic and Atmospheric Administration, last accessed 07/19.

Adjusted for inflation [Consumer Price Index CPI]
<http://www.nws.noaa.gov/om/hazstats.shtml>

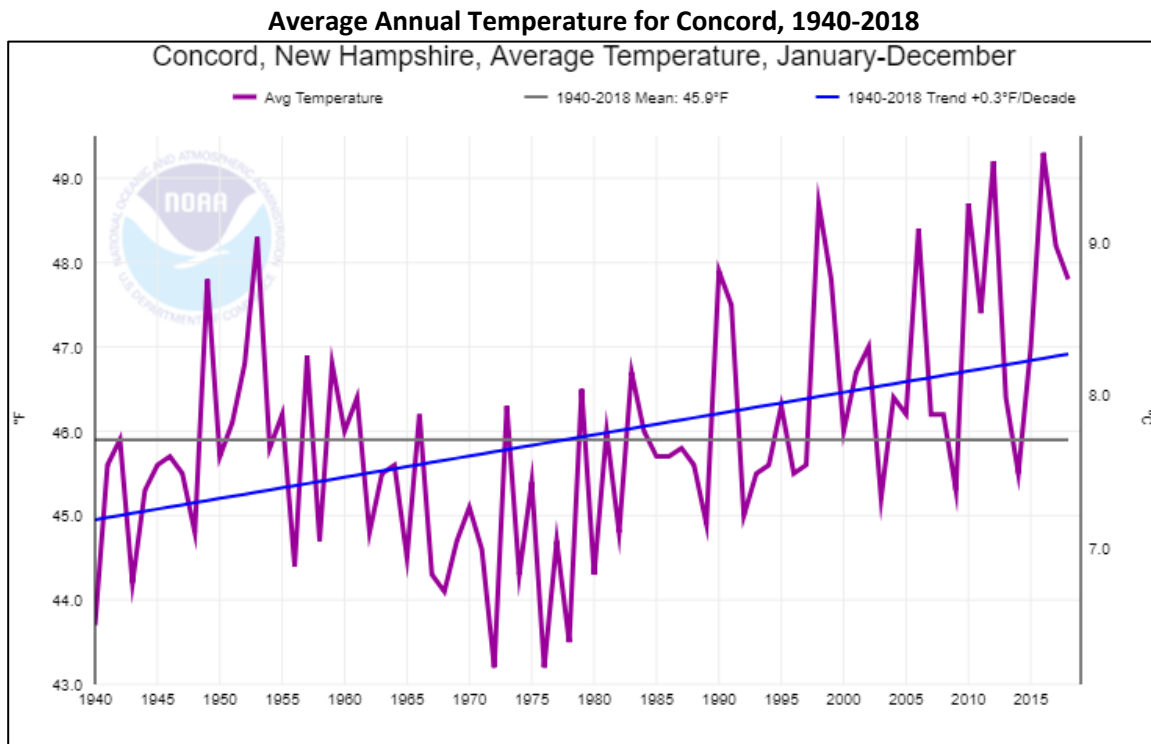
Injuries to people and the costs of damages in New Hampshire have slightly decreased from hazardous weather over the last 20 years according to the trendline displayed in the associated chart for Table 29.

Between 1998-2008, this slight decline in injuries and damages can be generally applied to the major disasters declared in the State. The highest damage costs correlate to the 1998 (\$32m) and 2008 (\$49m) ice storms. The number of injuries and fatalities have a less distinct association, with the highest casualties shown in 2015 (36), 2013 (30) and 2003 (31). However, the single greatest number of fatalities during this time period occurred in 2005 (4), likely during the time of the Oct 2005 Columbus Day Floods that struck the southwestern section of the State very hard.

The Central NH Region's weather history is summarized to provide a view of the trends around the Concord area where some weather measurements have been taken at the Concord Airport since 1868. Although Salisbury is geographically close to the City of Concord (within 25 miles) and these measurements should have some reasonable basis in Salisbury, small unique microsystems are found throughout the region, particularly at higher elevations. As the closest weather station and for CNHRPC region continuity, the Concord measurements will be used for Salisbury.

Figure 19 displays Concord's average annual temperature (Jan-Dec) between 1940 (43.7°F) and 2018 (47.8°F) with a mean temperature over the 1940-2018 period of 45.9°F. The warmest years were 2016 with a 3.4°F departure from normal, 2012 at 3.4°F departure and 2010 and 1998 tied with a 2.8°F departure from normal. As with typical New Hampshire weather, the seasonal temperatures can vary year after year and without obtaining an average, changes are difficult to see. The coolest years were 1972 and 1976 tied at 43.2°F, 1978 at 43.5°F, and 1940 at 43.7°F. The displayed trend line allows a definitive way of averaging all of the temperatures and illustrates an average +0.3°F temperature increase trend per decade and the increase of about 2.4°F total during this approximately 80-year time period in Concord.

Figure 19



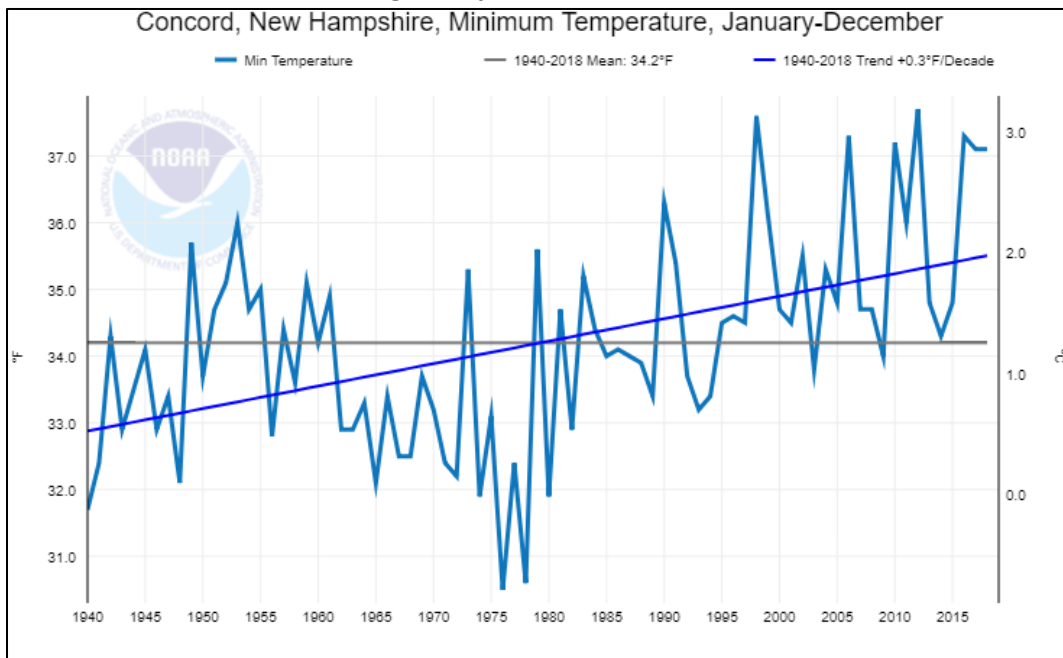
Source: National Oceanic and Atmospheric Administration https://www.ncdc.noaa.gov/caq/city/time-series/USW00014745/tavg/12/12/1940-2018?base_prd=true&firstbaseyear=1939&lastbaseyear=2018&trend=true&trend_base=10&firsttrendyear=1939&lasttrendyear=2018, last accessed online 03-11-19

Another way to evaluate how the temperatures is to measure the minimum annual temperatures and maximum annual temperatures are changing. Both the coldest and the hottest temperatures are growing warmer in the Central NH region, which includes Salisbury.

Figure 20 displays the *minimum* average temperatures for Concord, with a mean (average) of **34.2° F** for **1940-2018**. In **2018**, the *minimum* average temperature was **31.7° F**, equal to the **1940** temperature of **31.7° F**. The lowest minimum was **55.7° F** in **19xx**, followed by **55.7° F** (**19xx**), **55.7° F** (**19xx**), **55.7° F** (**19xx**), and **55.7° F** (**19xx**). The highest *minimums* were in **2012** (**37.7° F**), **1998** (**37.6° F**), tied in **2006** and **2016** (**37.3° F**), **2010** (**37.2° F**), and tied in **2017** and **2018** (**37.1° F**). In fact, **9** of the top **10** highest *minimums* occurred since **1990** during the nearly **80**-year data span, indicating the coldest temperatures are growing warmer.

Figure 20

Minimum Average Temperatures for Concord, 1940-2018

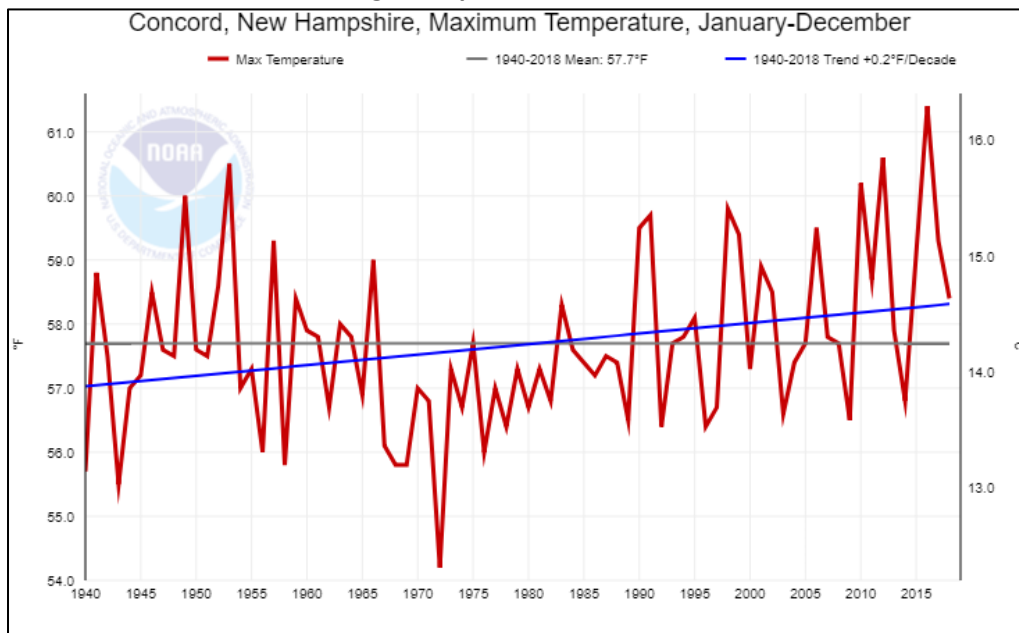


Source: National Oceanic and Atmospheric Administration, last accessed online 03-11-19

Figure 21 displays the *maximum* average temperatures between **1940-2018**, with a mean (average) of **57.7° F** annually. In **1940**, highest *maximum* average temperature was **55.7° F**, while in **2018** the highest *maximum* was **58.4° F**. The lowest *maximums* were in **1972 (54.2° F)**, **1943 (55.5° F)**, **1940 (55.7° F)**, and tied in **1958, 1968 and 1969 (55.8° F)**. The highest *maximums* in Concord were in **2016 (61.4° F)**, **2012 (60.6° F)**, **1953 (60.5° F)**, and **2010 (60.2° F)**. Eight (8) of the top 10 highest *maximums* occurred since 1990 during the nearly 80-year data span. These numbers indicate the hottest temperatures in the Central NH Region are growing warmer.

Figure 21

Maximum Average Temperatures for Concord, 1940-2018

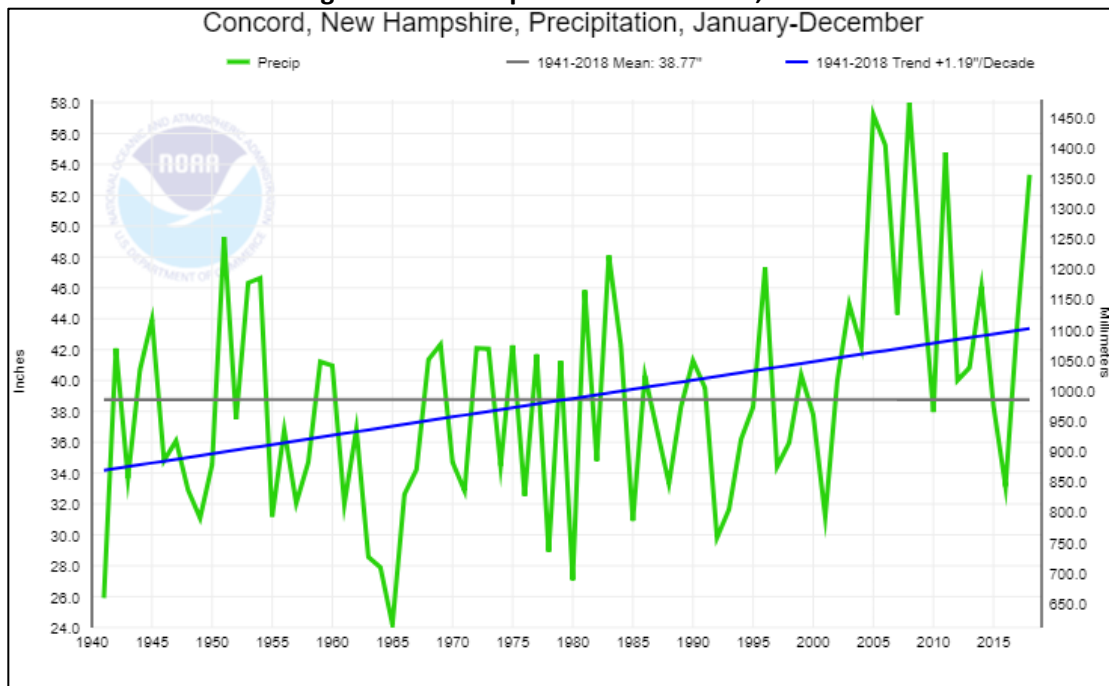


Source: National Oceanic and Atmospheric Administration, last accessed 03-11-19

For precipitation (rain) changes, **Figure 22** displays Concord's average annual Jan-Dec precipitation rates between **1941** and **2018**. Varying seasonal rainfall amounts continue over the decades. The mean annual precipitation during this period is **38.77"** annually. In **1941**, the amount of precipitation was **25.91"** while in **2018** the total was **53.33"**. The wettest year in Concord was **2008** at **58.0"**, followed by **2005** at **57.22"** and **2006** at **55.24"**. The years with the least amount of rainfall were **1965** (**24.19"**), **1941** (**25.91"**), and **1980** (**27.07"**). The trend line serves the same purpose to illustrate an increase of **1.19"** in precipitation per decade, or about **9.5"** overall, during this nearly **80-year** time period from **1941-2018** in Concord. Salisbury will have experienced very similar conditions.

Figure 22

Average Annual Precipitation for Concord, 1941-2018

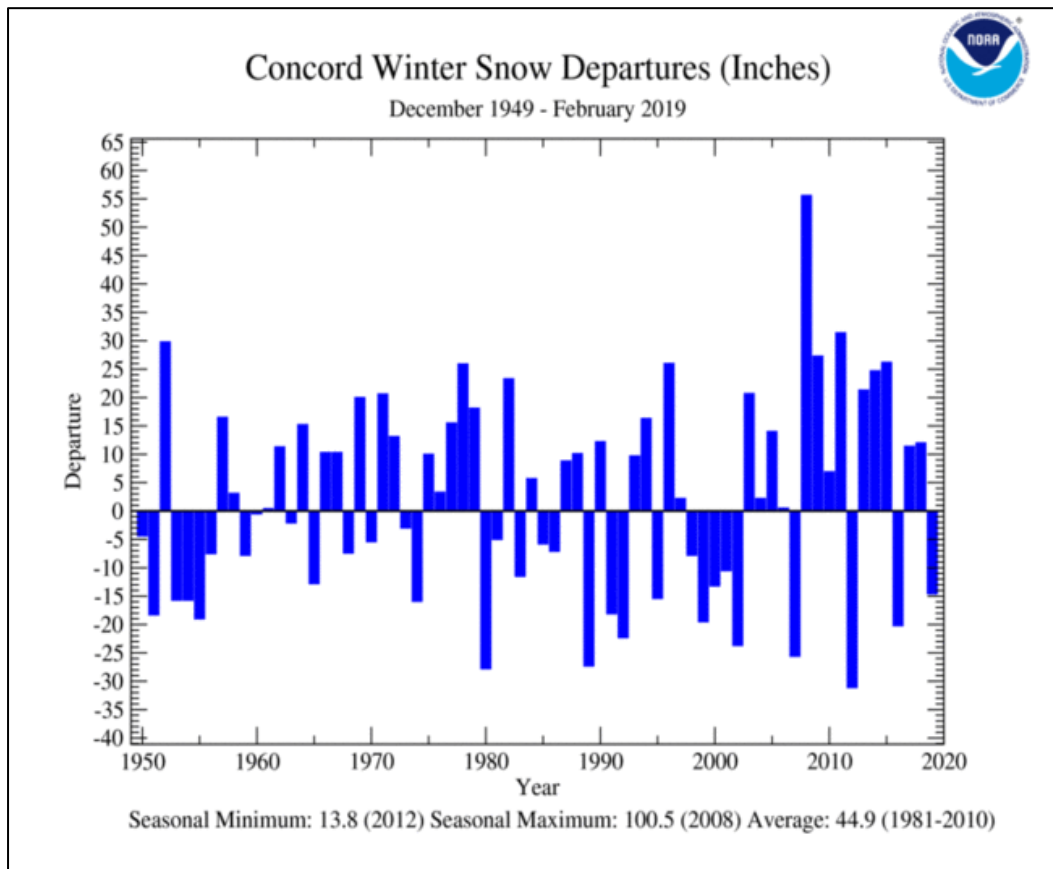


Source: National Oceanic and Atmospheric Administration, last accessed 03-11-19

Displayed in **Figure 23** is the departure from normal snowfall instead of actual inches per year, using a “30-year normal” period as the baseline, which for **1981-2010** is **44.9”** of snowfall annually in Concord.

The amount of recent annual snowfall has significant departures from normal. From **Jan-Dec 2018**, **30.3”** of snowfall occurred, which is **67%** of what normally falls. Since **1949**, the year with the highest amount of snowfall was **2007/08** with **119.5”** (a **266%** departure from normal) and the lowest snowfall was **13.8”** in **2012** (a **29%** departure from normal).

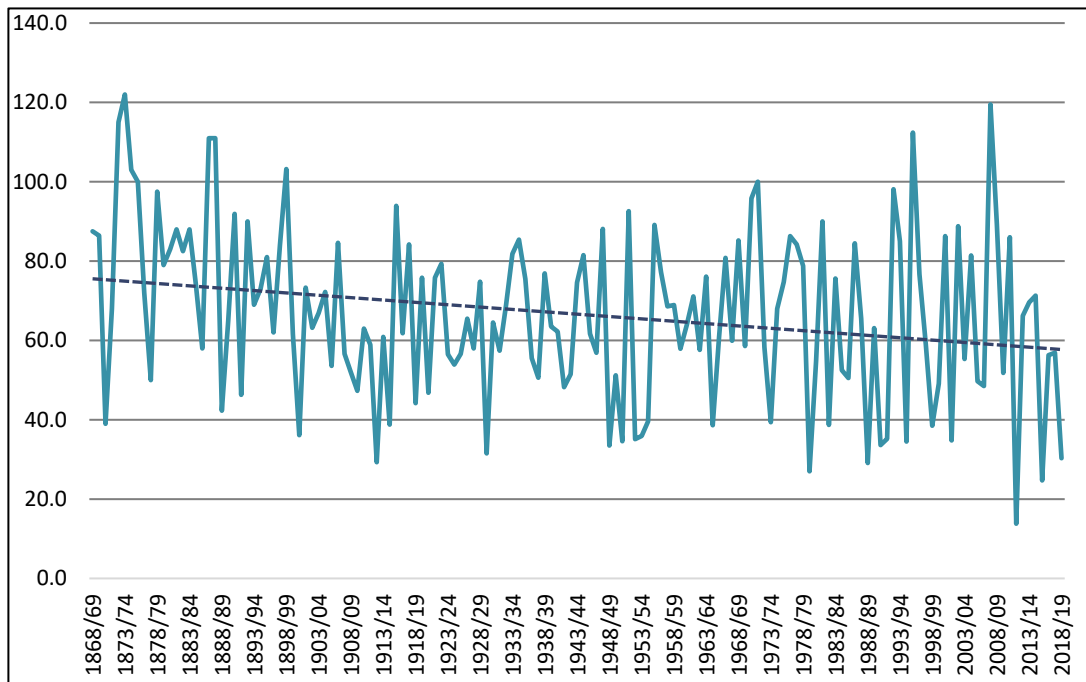
Figure 23
Concord Winter Snowfall Departure from Average, 1949-2019



Source: National Oceanic and Atmospheric Administration, National Climate Report February 2019
<https://www.ncdc.noaa.gov/sotc/national/201902/supplemental/page-2> last accessed 03-11-19

The National Oceanic and Atmospheric Administration (NOAA) seasonal snowfall totals were compiled by CNHRPC for Concord, where snowfall data gathering began in **1868**. **Figure 24** displays the snowfall every **5** years and includes a trendline that indicate annual seasonal snowfall has decreased by nearly **20"** since **1868**. The years with the highest snowfall accumulations were **1873/74 (122.0")**, **2007/08 (119.5")**, **1872/73 (115.0")** and **1995/96 (112.4")**. The years of lowest accumulations were **2011/12 (13.8")**, **2015/16 (24.7")**, **1979/80 (27.0")**, and **1988/89 (29.1")**.

Figure 24
Seasonal Snowfall Totals for Concord, 1868-2019



Source: National Oceanic and Atmospheric Administration Data as compiled by CNHRPC, 03-19

Five (5) of the top 10 lowest snow accumulations occurred since 1990. The **2018/19** season ended with **30.3"**, ranking **6th** out of **151** years of records. Salisbury is geographically close to Concord and likely shares similar snowfall accumulation trends over time.

IMPACTS OF CLIMATE CHANGES IN SOUTHERN NEW HAMPSHIRE

This climate data may certainly be relevant to the entire Central NH Region which includes the Town of Salisbury. The Central NH region climate summation is that the **temperature is getting warmer**, the **precipitation is increasing**, and the **snowfall is decreasing** according to the National Oceanic and Atmospheric Administration's data collection at the Concord airport. There are no indications to see these trend lines reverse in the future.

The Southern NH Climate Change Assessment, formally entitled *Climate Change in Southern New Hampshire: Past, Present, and Future, 2014* by Climate Change Solutions of New England under the University of New Hampshire, reviewed current climate conditions and projected future conditions of Southern New Hampshire under potential low and high emission scenarios. The Central NH Region and the Town of Salisbury are within southern

New Hampshire. The past and future Southern NH climate overview is illustrated in **Figure 25**.

As a result of anticipated extreme weather continuing and climate changes in Central NH and Salisbury, consideration should be given for potential impacts to the community. Several new issues are considered, including public health, natural environment disruption, declining forest health, fewer recreational opportunities, risks to the built environment, transportation system maintenance, aging stormwater infrastructure, decreasing water resources and changing food and agriculture, all of which result from climate change. For more information on these topics, refer to the *Central NH Regional Plan 2015*.

Figure 25

Southern NH Climate Assessment Projections

<u>Past Data and Future Climate Overview</u>	
SOUTHERN NH CLIMATE ASSESSMENT Projections	
TEMPERATURE	
What have we seen since 1970?	<ul style="list-style-type: none"> → Average maximum temperatures have warmed by 2.0°F (spring, fall and summer) and 2.9°F (winter) → Average minimum temperatures have warmed by 3.2°F (spring, fall and summer) and 6.1°F (winter)
What can we expect in the future?	<ul style="list-style-type: none"> → Summers will be hotter: 16-47 days above 90°F → Winters will be warmer: 20-45 fewer days below 32°F
RAINFALL	
What have we seen since 1970?	<ul style="list-style-type: none"> → Annual precipitation has increased by 8-22% → Frequency and magnitude of extreme events
What can we expect in the future?	<ul style="list-style-type: none"> → Precipitation annual average will increase: 15-20% → More frequent and severe flooding
SNOW	
What have we seen since 1970?	<ul style="list-style-type: none"> → Fewer days with snow cover → Lake ice-out dates occurring earlier
What can we expect in the future?	<ul style="list-style-type: none"> → Significant decrease of 20-50% in number of snow covered days
Source: UNH Climate Solutions of New England, 2014	

More Human Health Emergency Events

- ☞ Illnesses such as heatstroke, fainting, and heat exhaustion.
- ☞ Excess heat especially dangerous for the aging population and residents without air conditioning.
- ☞ Increase in greenhouse gas emission, energy demand, and air conditioning use and cost.
- ☞ More favorable conditions for insects carrying viruses and diseases, such as West Nile Virus.
- ☞ Increases risk of waterborne illnesses caused by pollutants entering the town's water supply, commonly through stormwater runoff and sewage overflow.
- ☞ Infrastructure failure by adding additional stress, leading to potential injury or loss of life.
- ☞ More air pollution, leading to asthma and breathing disorders.
- ☞ Vulnerable populations require more assistance.

Natural Environment Disruption

- ☞ Too much water and/or lack of water can disrupt trees and plants natural growing cycle, potential leading the tree, plant, and surrounding area to die.
- ☞ Additional water and drought conditions affect wetland discharge, stream flow, and water quality, affecting the habitat's quality of life and species' health within the area.
- ☞ Debris will be a result of harsh flooding, including trash and downed trees, polluting waters, harming habitats, and damaging property and infrastructure.

Declining Forest Health

- ☞ Large weather events such as heat stress, drought, and periods of winter thaw followed by intense cold can lead to loss of trees.
- ☞ Become susceptible to invasive species and diseases, such as the Hemlock Wooly Adelgid.
- ☞ Loss of trees can have a direct impact on portions of the region's economic components, including declining tourism.

Fewer Recreation Opportunities

- ☞ Weather Impacts on Recreational Trails such as debris, flooding and erosion.
- ☞ Snowmobiling, ice fishing, snow shoeing, skiing and snowboarding provide numerous sources of winter recreation and winter tourism, enhancing the quality of life and economy, will be affected with shorter seasons.

Risks to the Built Environment

- ☞ Critical infrastructure such as roads, bridges, culverts, stormwater drainage systems, water and wastewater treatment facilities, natural gas lines, electric lines and poles might be at risk of severe damage or failure if the anticipated extreme weather events occur.
- ☞ Damaged infrastructure cannot provide services to homes and businesses, disrupting the economy and may endanger public health.
- ☞ Culverts are at risk to extreme precipitation events, including rain, snow, and ice.
- ☞ Residents who experience damage with flooding to their homes and personal belonging may lack proper flooding insurance, placing the resident in financial hardship.
- ☞ Dams with High Hazard and Significant Hazard classifications are the most likely to cause the largest amount of damage or loss of life.

Increasing Municipal Transportation Systems Maintenance Needs

- ☞ Volume of flooding is expected to increase, potentially closing roads and increasing the travel time for drivers and increasing the cost and energy use.
- ☞ Flooding can also cause damage to pavement and embankments, increasing maintenance, repair, and replacement costs to municipalities.
- ☞ Extreme precipitation will also increase erosion, decreasing certain infrastructure components design life span.

Aging and Inadequate Stormwater Infrastructure

- ☞ Stormwater infrastructure such as catch basins, pipes, discharge points, and culverts that redirect stormwater runoff can be impacted by flooding and cannot perform their function.
- ☞ Blocking of water can lead to flooding of the area and roadways, potentially leading to the closure of nearby roads.
- ☞ Components of stormwater infrastructure are outdated, and increased flows are added stress to the system, more money to maintain and higher replacement costs.
- ☞ Increased development with increased amounts of impervious surface adds the volume of stormwater runoff within more urban area.

Decreasing Water Resources

- ☞ Water quality and quantity are both threatened by projected changing weather events, with threats of flooding, drought, erosion and stormwater runoff.
- ☞ By preventing groundwater from replenishing, additional runoff and sediments can lead to intensify flows in rivers and streams with higher contamination levels of unwanted nutrients and pathogens.

- ☞ Additional water treatment may be necessary, potentially overloading treatment systems.
- ☞ Contamination can pollute sewage, threatening the performance of wastewater treatment facilities.
- ☞ Increased occurrences in flooding can also intensify flows, causing overloading of treatment system.
- ☞ When the ground is frozen, rapid snow melt from warm days or intense rain is not able to infiltrate the ground, leading to drought conditions.

Changing Food and Agriculture Production

- ☞ Merrimack County is the top county in the State for agriculture sales of higher temperatures will promote a longer growing season for most crops, benefiting a larger number of local crops.
- ☞ Negative impacts can potentially alter the region to a climate not suitable for growing valuable local crops such as apples and blueberries.
- ☞ Temperature are expected to slow weight gain and lower the volume of milk produced by dairy cows.
- ☞ Higher overnight temperatures are anticipated to prevent the dairy cows and cattle from recovering from heat stress.
- ☞ Warmer temperatures and increase in carbon dioxide in the air creates a more ideal environment for pests and weeds, potentially increasing the use of herbicides and pesticides on crop.

This is a sampling of how changing climate and severe weather impacts can affect communities in New Hampshire, in the Central NH Region and in Salisbury. Consideration should be given to applicable items during the development and update of the **Hazard Mitigation Plan**, as Actions are completed, and as new Actions are developed for the **Mitigation Action Plan**.

Salisbury's Hazard Vulnerability Changes Since the 2014 Plan

The locations of where people and buildings are concentrated now or where new lands may be developed have been considered as compared to the changing locations of potential natural hazards in order to best mitigate potential property damage, personal injury or loss of life. These factors assist the community with determining whether Salisbury's vulnerability to natural hazard events has changed in any way since the **2014 Plan**. Facilities and their locations with vulnerabilities to specific natural hazards are listed in **APPENDIX A Critical and Community Facilities Vulnerability Assessment**.

There have been few population and housing increases over the last **5** years from **2 COMMUNITY PROFILE**, and aging citizens and individuals with access and functional needs require more services and attention. A larger number of people per household brings more attention to this fact. Traffic continues within Town of commuting routes US 4 and NH 127 which lead to Concord and I-93. The need for volunteers increases annually as younger people are not joining Town Boards and Committees. Membership in the Concord Area Fire Mutual Aid Dispatch has enabled for faster emergency response for Police, Fire, and Rescue needs, while membership in the Capital Area Mutual Aid enables mutual aid assistance, a hazardous materials response team, a special operations unit (formerly known as a SWAT team), and training opportunities. Membership in the Capital Area Public Health Network enables organized public health assistance. Membership in the NH Public Works Mutual Aid enables shared highway department labor and vehicles from across the State during times of need. A new agreement with Penacook Rescue will enable faster ambulance service to Salisbury. The Town does not have a Police Department but relies on NH State Police enforcement. The Transfer Station is understaffed, has no electricity, and is subject to regular vandalism.

The Town's Statements of Vulnerability Change



Natural Disasters The Town's overall vulnerability to natural disasters is **believed to have INCREASED over the last **5** years.**

Reliance on the automobile for daily life responsibilities has increased and infrastructure is maintained but staff are not able to repair and upgrade infrastructure. The residents who require services are fewer than **5** years ago. The Town is experiencing increasing temperatures, more rain, less snow (but still more than surrounding towns), and storms are bigger. The frequency of torrential downpours has increased which impacts waterbodies and waterways, often flooding gravel roads and drainage systems. The rain that is unable to run off in the cold months turns to ice, and increased traffic crashes result. The lovely remote but accessible community attracts retired people because of its location to both quiet streets and nearby services. The younger generation leaves the school system for college and jobs and does not return to the Town. Additionally, with an older fixed income population, the Town of Salisbury is unable to raise taxes for mitigation projects and services to better meet the needs of natural hazard challenges.

The lack of commercial properties leaves the entire tax burden on Town residents. Because the Town feels it will be unable to meet funding, personnel, and volunteer needs for future natural hazard events, the vulnerability to natural hazards has increased from **2014** and is anticipated to continue increasing to **2024**.

Human and Technological Disasters The Town's overall vulnerability to human and technological incidents **is believed to have INCREASED over the last 5 years** with the potential for great escalation in the future.

Although the Town **is better protected than in the past** through protection of its data, tightened informational technology services and updates, and is better protected through human hazards by Town Department and School District emergency response and membership with the Capital Area Mutual Aid System, the Town has an ongoing struggle to contain the many facets of human and technological hazards.

Human hazards are unpredictable. To help prepare, the School District conducts drills and develops improved Standard Operating Procedures annually. The Town emergency response (Fire, Emergency Management) participates. A new Emergency Operations Plan was developed by the Town.

While the Town and School cybersecurity has increased, new technological hazards will continue to be developed and utilized and may be directed toward Salisbury, which is not anticipated to be able to keep pace with advanced, changing technological risk. Valid concerns include Town database hacking or malware infestation. Although use of technology increases everyone's efficiency, the increased reliance on cell phones, electronics, electricity and technology also makes Salisbury's population and Schools more vulnerable to cyberattacks.

The burden on the Town's aging infrastructure is increasing with no end in sight. Salisbury has no red listed bridges which is a positive, but the high upkeep and rehabilitation costs of Town roads, buildings, utilities, and services are high. Not enough funding and taxation are available to repair the existing infrastructure, and thus the Town is unable to be proactive. As a result, nearly all of Salisbury's infrastructure ages **5** years with every **Plan**.

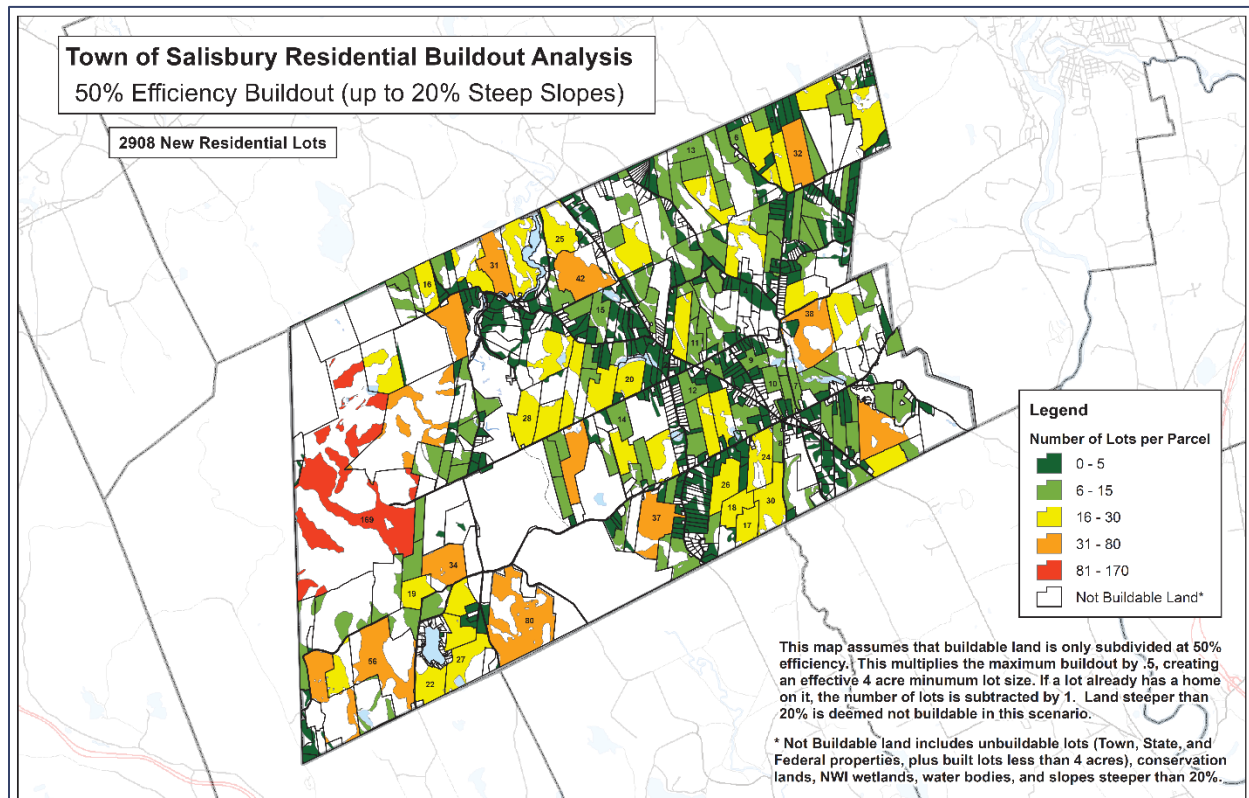
FUTURE DEVELOPMENT IN SALISBURY

Most of the town's roads and homes are the same as were approved at the time of the **2014 Plan**. Very little has changed in terms of land use or subdivision – **2014**, the Town had **931** parcels in the community with a net building valuation of **\$84,125,100** and in **2019**, has **945** parcels with a net building valuation of **\$95,513,800**. Salisbury is located in a unique area which is fairly inaccessible to the Interstate, has several historic Villages and remains highly rural. Residents are aging, and adults who are employed either have a home-based business or commute along US 4 or NH 127 to reach Interstate 93 or Concord, Manchester, Lebanon or points within or beyond. Since much of the easily developable land in Town has already been built or subdivided, these newest developments will be built on **wetlands** or **steep slopes** or at high elevations, or along gravel hilly roads with ditching. **Floods, landslides, erosion, and fires** could occur in these residential areas. **Severe winter weather, storms and wind events** on these hilly locations will bring trees down on roadways, interrupt **power and communication** services and will **flood** ditches and **washout** roads.

The **Salisbury Master Plan 2017 Buildout Analysis** developed a series of scenarios for future building in Salisbury. **Figure 26** displays a full buildout of the Town on slopes of up to **20%** after removing development constraints such as conservation, state, and federal land.

Figure 26

Master Plan Residential Buildout Analysis on up to 20% Slopes at 50% Efficiency



Source: CNHRPC Buildout Analysis for 2017 Master Plan

These existing parcels in **Figure 26** are built out to a **4.0** acre size. The largest capacity lots are colored in red (up to **170** house lots per parcel) and orange (up to **80** house lots per parcel). The yellow parcels have a capacity of up to **30** house lots per parcel. If the Town were completely built out, a total of **2,908** residential lots could be constructed.

Should any **large-scale housing** development occur in Salisbury eventually, housing could be vulnerable to **wildfire** and **lightning severe winter weather, storms, and flooding of local roads**. There is no municipal water (wet hydrant) or sewer system and only a few dry hydrants.

Commercial development is not anticipated to occur in the Town, except by home business or along US 4.

When developments come before the Planning Board, potential hazards including **flooding, fire, traffic accidents, and evacuation** are regularly considered. Developers try to solve the problem before a project is approved. The existing roads and bridges experiencing **erosion** and **flooding** will need to be upgraded for additional usage. The Town will continue to grow and develop, and attention should be focused on the hazards any new development could face during the consideration process. At this time, techniques to mitigate identified hazards could be undertaken before the facilities are sited and constructed.

The main natural hazards for this rural, forested community remain **wildfire, severe wind events, severe winter weather, debris impacted infrastructure** (trees down on powerlines and trees/powerlines down on roads), and **power and communication failures**. The Town will need to ensure Town services are not eclipsed by the needs of new development. Any future development in Town could be vulnerable to the various natural hazards identified previously. The Town is heavily forested, rural, and agricultural and yet highly developed. New (or replacement) buildings and infrastructure and potential future development appear in **APPENDIX A Critical and Community Facility Vulnerability Assessment**.

5 COMMUNITY VULNERABILITY ASSESSMENT AND LOSS ESTIMATION

The Hazard Mitigation Committee developed and/or updated as needed each of the assets tables within this Chapter. Sites were added or removed, and contact information was revised. Modifications were made to the **Primary Hazard Vulnerability** column to reflect changes over the last five years. Revisions were made to the future development section, which now includes a clear table. The Plan's maps were also updated from the **Salisbury Hazard Mitigation Plan 2014**.

The identification of Critical and Community Facilities within Salisbury is integral to determining what facilities may be at risk from a natural disaster. Every Critical and Community Facility can be damaged by multiple hazards listed in **4 HAZARD RISK ASSESSMENT**. A tabular inventory of facilities in Salisbury is provided in **APPENDIX A Critical and Community Facilities Vulnerability Assessment**. The **911 Street Address** and **Phone** number of each facility is supplied, the assessed **Structure Replacement Value \$**, and the **Primary Hazard Vulnerabilities** to which the facility is most susceptible are listed. The hazards identified are primarily natural disasters but regularly include the technological (and secondary disasters) such as power failure and communications systems failure as well as human hazards such as vandalism/sabotage.

Most sites appear on **Map 3: Critical and Community Facilities** and **Map 4: Potential Hazards and Losses**.

Potential dollar losses for each of the facilities' **Structure Replacement Value \$** (not land) have been obtained through the Avitar March 2019 assessment to provide a starting point of the financial loss possible should these structures become damaged or require replacement. These community facility losses are estimated for the value of structure and does not include land (unless indicated), contents, or infrastructure.

Problem Statements were then generated for each type of facility when issues were identified by the Hazard Mitigation Committee during discussion of the facility characteristics and **Primary Hazard Vulnerabilities**. These **Problem Statements** are listed here.

Potential dollar losses to buildings in the Salisbury from flooding and other natural hazards are provided using the methods described in the chapter. The Town's participation in the National Flood Insurance Program (NFIP) offers a way for individuals to obtain insurance coverage for flooding. The Town's history with NFIP claims and repetitive losses are examined.

The Chapter provides an inventory of the **Community Facilities** and **Critical Facilities** and the most prevalent hazards to which they are vulnerable. Potential structure damage loss is also provided. The detailed information is available in **APPENDIX A Critical and Community Facilities Vulnerability Assessment**:

Assessment:	Facility Name	Street Address (911)	Phone	Structure Replacement Value* \$	Primary Hazard Vulnerabilities
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Critical Facilities

Critical Facilities are categorized as those Town or State buildings or services that are first-responders in a disaster or that are required to keep the community running during a disaster. The personnel in the Salisbury Town Department facilities, the Town Offices, Fire and Rescue Department, Police Department (NH State Police services in Salisbury), Highway Department, and Transfer Station, provide the services necessary for coordinating every day activities and for emergency response. Maintained roads, dams, and bridges are required for safe operation during both normal times and hazard events. Utilities or utility features such as cisterns, culverts, dry hydrants, telecommunications towers, phone and internet switching stations, and electric transmission lines are included because of the essential communication and utility services provided, and their significant impact on Salisbury residents when they fail. Other **Critical Facilities** would include educational facilities, clinics and emergency shelters.

Many such facilities are located in Salisbury. The assessed structure/building only value is provided for each facility where available, otherwise estimates are provided to help ascertain the financial impact a disaster can have on the community. To view the detailed **Critical Facilities** sites and tables, see **APPENDIX A**. Most of these facilities appear on [Map 3: Community and Critical Facilities](#).

Essential Facilities include: Safety Complex (Fire & Rescue and Highway Depts), Academy Hall (Town Offices), and Transfer Station. Assessed structure (only) valuation for these essential facilities total **\$632k**.

Utilities include: TELECOMMUNICATIONS TOWERS: AT&T American Telecommunications Tower at Humphrey Road; ELECTRIC LINES: Eversource (PSNH) Electric Lines and Poles, Fairpoint Communications Lines and Poles, New England Hydro Trans Corp High Tension Electric Transmission Lines, New England Power Company High Tension Electric Transmission Lines, NH Electrical Cooperative Electric Lines and Poles, Unital Electric Poles and Lines, TDS Telecom Poles and Lines; DRY HYDRANTS: South Road, New Road, West Salisbury Road; CISTERNS: North Road, Center Road; TDS SWITCHING STATION (INTERNET & PHONE): TDS Telecom Substation at Old Turnpike Road; FIRE POND: Raccoon Hill Road at Corner Oak Hill Road. Assessed values for these utility structures in Town total **\$11.6m**.

Dams include: **1** High Hazard (**H**) Dam- located downstream in Webster, 248.06 Blackwater Dam (Blackwater River); **6** Non-Menace (**NM**) or Exempt Dams- 210.04 Stirrup Iron Pond Dam (Stirrup Iron Brook), 210.05 Recreation Pond Dam (Beaver Brook), 210.06 Tucker Pond Dam (Knight Meadow Brook), 210.07 Fire Pond Dam (Punch Brook), 210.10 Smith Pond Dam (Unnamed Stream), 210.11 Cote Pond Dam (Unnamed Stream). Estimated structure (only) repair values for these **6** dams in Salisbury total **\$3.0m**.

Bridges include: **5** TOWN BRIDGES: 091/121 Peter's Bridge- West Salisbury Road Blackwater River, 095/135 Pingree Bridge- Mountain Road over Blackwater River, 102/076 Warner Road/South Road over Blackwater River, 185/151 North Road over Mowe Brook, 207/096 Gerrish Road over Stirrup Iron Brook. Estimated structure (only) rehabilitation values for these **5** bridges total **\$3.4m**.

Shelters, Schools, and Medical Facilities include: Blackwater Veterinary Clinic, Salisbury Elementary School, Safety Complex Temporary Emergency Cooling/ Warming Shelter [**<50** capacity], Birthroot Midwifery Service. Assessed structure (only) valuation for these schools, medical facilities and shelters total **\$2.3m**. If the Schools needed to be rebuilt, the estimated actual cost would be in excess of **\$20m**; the assessed structure valuation does not reflect actual structure replacement cost.

PROBLEM STATEMENTS AND EVALUATION

During discussion of these **Critical Facilities**, the Hazard Mitigation Committee identified specific issues or problems that could be further evaluated. **Problem Statements** were developed after ascertaining the **Primary Hazard Vulnerabilities** to the sites and known existing issues. These potential hazards were typically those from the **Hazard Risk Assessment**. The Committee also evaluated these statements to determine whether mitigation actions could be developed.

Essential Facilities Table

- ⊙ Transfer Station has no electricity, no automation and hosts a closed landfill at the site. The facility experiences regularly vandalized trash. The recycling in the Town has mostly stopped.
- ⊙ The Safety Complex housing the Fire and Police Offices has a metal roof and has been regularly struck by lightning. Lightning rods are being considered to ensure safety of this essential town building. Surge suppression has recently been added at the Safety Complex.

Utilities Table

- ⊙ TDS cable/internet does not service all of the Town because some people have Warner or Franklin addresses; these residents have outside phone exchanges but live in Salisbury. This results in a confusing situation for everyone. Internet services could not accommodate all of the outlying homes because of the districting.
- ⊙ Salisbury has many cell phone dead zones where people are unable to reach emergency response. TDS removed all hardlines on the poles for the entire community and instead offer fiber optic on the poles. Few carriers will pick up this service. For every connection, TDS gets paid regardless of the carrier.

- ⊙ Dry hydrants are old, some need maintenance and/or replacement or are full of sediment.

Dams Table

- ⊙ No problem statements for dams. None are Town-owned dams and they are all small in Salisbury.

Bridges Table

- ⊙ No problem statements for bridges. Two Town bridges have been replaced recently and the rest are in good condition, having been recently inspected.

Shelters, Schools and Medical Facilities Table

- No official Town Shelter exists. The Safety Center is the closest but could only accommodate a small number of people for warming or cooling, with no overnight (no cots). However, there could be a conflict with visitors and the necessity of moving vehicles and apparatus in and out of the Safety Center. No Town facilities are Red Cross certified, so they may partner with Red Cross who will direct residents to go to certain facilities. The Boscawen and Loudon Elementary Schools (Merrimack Valley School District) shelters have been certified. The Town will look into Salisbury Elementary School (including a generator) shelter certification. Capital Area Public Health Network has been reviewing this and developed a Regional Shelter Operations Plan Manual “shelter in a box” for the Town’s EOP.

Many of these problem statements were developed into Actions discussed later in **7 PRIOR ACTION STATUS** and **8 MITIGATION ACTION PLAN**.

CULVERT UPGRADES

A table of culverts in need of upgrade could appear in multiple sections, such as the **Critical and Community Facility Vulnerability Assessment (APPENDIX A)** or with the **Aging Infrastructure** technological hazard. Instead, as critical facilities, they are included here once within this section and also appear within the **Mitigation Action Plan 2019**. Culverts (including box culverts, often considered “almost bridges”) are responsible for carrying large volumes of water safely under roadways, and with the prior severe flooding events it is necessary to keep Town infrastructure in good condition.

Table 30 displays Salisbury’s listing of culverts in need of most urgent upgrade and approximately when the upgrades should occur. The intent is to upgrade all of these failing culverts with either open box culverts or appropriately-sized PVC culverts, respectively. Some roads require drainage reconstructions. The estimated cost for all of these projects reaches about **\$137k** for materials, permitting, study and design. Labor for the smaller projects is performed by Town staff and is usually considered an in-kind cost. For larger projects, contracted engineering, design and permitting may need to occur and would be included in the respective cost estimates. The optimal timeframe for these upgrades to protect the Town from **Inland Flooding**, **River Hazards** and **Aging Infrastructure** is between **2019-2024** which is within the span of this **2019 Plan**.

This table can help the Town develop a formalized culvert upgrade and maintenance planning document. Mapped drainage facilities permits data to be collected and is easily revised and updated. Instant access to culvert and drainage information can be of valuable assistance during **flooding** events, such as **run-off**, **overtop flooding conditions** and **road washouts**. On an annual basis, a culvert maintenance plan can help guide the Town’s decisions of priority replacement, maintenance, and monitoring of culverts and drainage facilities. Budgeting is more clear and may be more successful at Town Meeting with such a plan.

Table 30

Town-Owned Culverts in Need of Upgrade

Action #	Location of Culvert(s) to Upgrade	# of Culverts	Intersecting Watercourse	Issue(s) with the Culvert(s)	Upgrade Diameter Inches	Estimated Upgrade Year	Total Approx \$ Cost for All
#33-2014	Smith's Corner Area Improvements at Mill Road and Warner Road & Couchtown Road	4	Blackwater Reservoir Flood Control Area	The Smith's Corner improvements at three Town roads will reduce the impact of flooding. These roads are located in the flood control area and have gates closing them off. Some small part might not be in the flood control area. The plan is to raise road profile, install more culverts on Couchtown to improve flow: 500' Warner Road, 1,000' Couchtown Road (3 culverts remaining to upgrade), 600' Mill Road (1 culvert upgraded to date).	Unknown	2024	\$75,000
#35-2014	Two Culverts on Rabbit Road	2	Drainage	Will prevent the road from washing out due to old culverts. Existing 15" culvert is rusted out. Replacement culvert will be the same size.	15"	2023	\$6,000
#36-2014	Hensmith Road Improvements	3-4	Drainage	This large job has drainage issues and road washouts. About 3-4 culverts need to be upgraded. In the Hensmith Road area, make appropriate road upgrades to crucial places. Clean ditches, provide better site distance, remove hazards, replace rusted culverts, remove trees, fix potholes, etc	Unknown	2023	\$45,000
#38-2014	Gerrish Road Culvert	1	Unnamed Wet Area	Will prevent the road from washing out due to old culverts. The existing 15" metal culvert is deteriorating (rusted out). Replacement culvert will be the same size but entirely new.	15"	2023	\$5,000
#39-2014	West Salisbury Road Culvert by Cemetery	1	Drainage	Will prevent the road from washing out due to old culverts. Culvert is deteriorating and residents cannot get to their homes when the road floods. Existing 36" culvert is rusted and its ends are buried. Replacement culvert will be the same size, but will be new and stable.	36"	2022	\$6,000
	Totals						\$137,000

Source: Salisbury 2019 Mitigation Action Plan, Highway Department Road Agent July 2019

Most of the culverts listed in **Table 30** have been developed into **Mitigation Action Plan** items in **8 MITIGATION ACTION PLAN**.

ONE-EGRESS ROADS

The Town of Salisbury has over **7** miles of roadway, including Town maintained Class V, unmaintained Class VI and private roads, that are dead-end roads or cul-de-sacs with only one way in and one way out. Hundreds of people (about **250**) live in approximately **108** homes along roads which have no secondary means of egress. Evacuation of many of these neighborhoods, especially the Tucker Pond community of about **43** homes, would be difficult. All identified one-egress roads are displayed in **Table 31**.

Table 31
Priority One-Egress Roads and Cul-de-Sacs

One-Egress Road Name*	Road Class (Class V, Class VI or Private)	Specific Hazard Concerns	Condition (Good, Fair or Poor)	Approx. Length in Feet	Approx. Number of Homes on Road
Bacon Lane	Class VI	Narrow/wet	Poor	600	2
Brookside Drive	Class V	One egress	Good	1,600	10
Buckhorn Road	Class VI	One egress	Good	1,600	2
Calef Hill Road	Class VI	Narrow/steep	Very Poor	4,000	0
Coughtown	Class V & VI	Narrow/steep/wet	Poor	6,300	3
Fellows Lane	Class VI	Narrow	Fair	600	3
First Road*	Private	Narrow/steep	Poor	3,000	21
Gerrish Road	Class V	Narrow/steep	Fair	5,000	12
Humphrey Road	Class V	One egress	Good	1,500	3
Michael's Lane	Class V	One egress	Good	800	8
Montgomery Road	Class VI	One egress	Good	500	1
Mountain Road	Class V & VI	Narrow/steep	Poor	3,700	9
Mutton Road	Class V & VI	One egress	N/A	2,000	8
Plains Road	Class VI	One egress	Fair	2,500	2
Second Road*	Private	One egress	N/A	600	9
Sixth Road*	Private	One egress	N/A	2,600	10
Third Road*	Private	One egress	N/A	500	3
Tuttle Road	Private	One egress	N/A	1,600	2
Wilder Pond	Private	One egress	N/A	N/A	0
* Tucker Pond community					
Approximate Number of Homes on One Egress Roads in Salisbury					108
Approximate Number of Homes on One Egress Roads in Tucker Pond Community					43
Total Feet One-Egress Roads				39,000 feet	
Total Miles One-Egress Roads				7.4 miles	

Source: Salisbury Highway Department Road Agent and Town Administrator, Jul 2019

Community Facilities

The **Community Facilities** inventoried in **APPENDIX A** are generally vulnerable to disasters and in need of careful consideration. Some facilities contain vulnerable populations, other community facilities are neighborhoods, roads with many homes or roads with only one access, places where people gather, the economic assets of the community, buildings or sites that contain the history of the town, or facilities which could release hazardous materials during hazard or disaster events. While **Critical Facilities** are strong with emergency preparedness and mitigation measures, **Community Facilities** are typically not as well attuned to these issues and would require more emergency services, and perhaps the first check, during a hazard event disaster.

Vulnerable Populations include: Kids w/ Spirit Church (before and after school programs) [**~20** capacity], Tucker Pond Community/ Seasonal Camp [**~47** homes & cottages]. **ONE EGRESS ROADS** include: Brookside Drive [**~10** homes] Buckhorn Road [**~2** homes], Gerrish Road [**~12** homes], Humphrey Road [**~3** homes], Loverin Hill Road [**~14** homes], Michael's Lane [**~2** homes], Mountain Road [**~9** homes], Mutton Road [**~8** homes], Quimby Road [**~3** homes], Scribner Road [**~5** homes]. See also Shelters, Schools and Medical Facilities. Assessed structure (only) valuation for these vulnerable population facilities total **\$13.6m**.

Economic Assets include those **businesses and services** that employ a large number of people or contribute to the local economy: AG Structures, LLC, Barn Store of New England with Grain Box Restaurant, Fifield Lumber and Sawmill, Iron Creek Farm Bed & Breakfast, Post Office; **AGRICULTURAL OPERATIONS** include: Black Bear Vineyard, North of Concord Farm, 3D Farm, Fair View Farm, Mapleshade Farm, Salisbury Sugar Works. See also **Hazardous Materials** facilities. Assessed structure (only) valuation for these economic asset facilities total **\$2.4m**.

Hazardous Materials Facilities include: Barn Store (LP Store), Crossroads Country Store and Mobil Station, Adler Auto Towing & Repairs, MacDuffie Construction, Partridge (Unofficial) Junkyard. See also Economic Asset facilities (no duplicate assessments added here). Assessed structure (only) valuation for these hazardous material facilities total **\$710k**.

Cemeteries and Churches include: **CHURCH**: Congregational Church [**~100** capacity, reception room +]. **CEMETERIES**: Baptist Cemetery (Town) on Old Turnpike Road, Bean Hill/Smith's Corner Cemetery (Town) adjacent to Maplewood, Calef Yard/Bog Road Cemetery (Town) on Bog Road, Fellows Cemetery (Town) on NH 117/South Road, Maplewood Cemetery (Town - open) on Old Turnpike Road, Mary Baker Gravesite on US 4 North, Mills/Pingree Cemetery (Town - open) on Mill Road South of Pingree Bridge, Oak Hill/Shaw Cemetery (Town- open) on Oak Hill Road, Severens Cemetery (private) on Old College Road/Keyser Road, Watson/Quimby Cemetery (private) on Quimby Road, Whitaker Cemetery (private) on West Salisbury Rd at Dunlap Road. Assessed structure (only) valuation for church facilities and headstone replacement estimates for cemeteries (**\$50k** each) total **\$823k**.

Historic Sites and Buildings include: John Shaw Historic Grist Mill Site (flooded debris), Historical Society, Salisbury Historic Society Museum, Old Town Hall, Town Pound. See also **Recreational and Gathering Sites**. Assessed structure (only) valuation for these historic facilities total **\$580k**.

Recreational and Gathering Sites of both land and buildings include: Maplewood Recreation Ballfield, Salisbury Free Library, Blackwater Flood Control Reservoir (US ACE) [2,592 acres], State Forest Nursery (NH DNCR) [442 acres], Mount Kearsarge State Forest (NH DNCR) [396 acres]. The Town has no Town Forests. Some of these sites can be **Economic Assets** to the Town even if the land is untaxable. Assessed structure (only) valuations for the recreational facilities total **\$318k**.

Future Development includes mostly residential development potential as most of the land in Salisbury is rural. **POTENTIAL or APPROVED DEVELOPMENTS**: Shaw Property (50+ acres), Sawyer Property (50+ acres), Preston Properties (<100 acres). **LEGACY PARCELS**, family legacy large acre lots with future development potential, include a selection of the largest, non-conservation parcels: Beckford Lot (Couchtown Road) 446 acres, Childs Lot (off Tuttle Road) 579 acres, Concannon Lot (Center Road) 239 acres, Hill Lot (Warner Road) 395 acres, Hill Trust Lot (South Range Road) 315 acres, Nangle House and Lot (Old Turnpike Road) 207 acres, Stearns Lot (Mill Brook and Wilder Roads) 1,765 acres. There are many more large family legacy parcels which could be identified with an inventory. **LARGE-SIZED LOTS IN SALISBURY FOR SALE 03-19**: lots for sale during this snapshot include –Fellows Lane Lot (77 acres), Flaghole Road Lot 3 (18 acres), Humphrey Road Houses A & B and Lot (42 acres), Montgomery House and Lot (50 acres), North Road Lot (38 acres), North Road Lot 253-10-3 (52 acres), Old Turnpike Road Lot (11 acres), Racoon Hill Road House and Lot (61 acres), Racoon Hill Road Lot 6-8 (29 acres), West Salisbury Road Lot (40 acres). These are all residential properties. Assessed valuation for the properties (LAND) only totals **\$3.5m**.

PROBLEM STATEMENTS AND EVALUATION

During discussion of these Community Facilities, the Hazard Mitigation Committee identified specific issues or problems that could be further evaluated. **Problem Statements** were developed after ascertaining the **Primary Hazard Vulnerabilities** to the sites and known existing issues. These potential hazards were typically those from the **Hazard Risk Assessment**. The Committee also evaluated these statements to determine whether mitigation actions could be developed.

Vulnerable Populations Table

- ⊙ The Tucker Pond community's private roads cannot fit fire apparatus. The association owns an old floating fire pump. No turnarounds are available for response equipment.

Economic Assets Table

- ⊙ Fire Department has brought water to farms during drought conditions. Potable water is available at the Safety Complex and the Old Town Hall. Both have water purification systems installed and potable water available through outside spigots.

Hazardous Materials Table

- ⊙ Some unofficial junkyards have more than the official number of unregistered (or unroadworthy) vehicles. The South Road junkyard borders Beaverdam Brook. Flooding could cause groundwater contamination (water quality) and hazardous materials spills (water quality, soil degradation) could result because of fluids in vehicles and appliances.

Cemeteries & Churches Table

- ⊙ Some of the Town cemeteries are difficult to access out in the woods. They could be subject to vandalism, high wind events, and other natural hazards without the Town knowing.

Historic Sites & Buildings Table

- ⊙ The Fire Department does not have a key to access the Museum and Historical Society.
- ⊙ The Old Town Hall, Library, Museum, Historical Society are all wooden, historic buildings in one complex. The nearby Church buildings could be vulnerable to wildfire, lightning. These historical buildings are all aging, with posts rotting underneath, and are in need of long term care and rehabilitation.
- ⊙ INFO: The Library has an alarm system with an alarm service. The Old Town Hall has a flashing light alarm over buildings.

Recreation & Gathering Sites Table

- ⊙ The Blackwater Reservoir Flood Control Area is a large tract of land with minimal access that could flood or burn very quickly. This could happen concurrently with people recreating in the vicinity with no way for emergency egress. Up to 100 people are thought to live in the Flood Control Area. Homes are not in floodplain but the access roads are. Vulnerable populations live in different areas, including people in need of special services. A list of property owners could be updated for notification when the Flood Control Area floods or there is a wildfire nearby. The US Army Corps informs the EMD when the Reservoir floods.
- ⊙ The west side of the Blackwater Reservoir (against Mount Kearsarge) has little access available for Fire Dept equipment, although some of Mountain Road is a Class VI road and maintained for snowmobiles, who do permit emergency access. The Fire Department has acquired a utility vehicle and snowmobile to assist with disasters and emergencies in these outlying areas.
- ⊙ INFO: Salisbury does not have a Town Forest. Most conservation lands are private and not open to public usage.

Future Development Table

- ⊙ INFO: The Planning Board has an initiative to talk with large farm owners about what the Town can do to help with their retirement needs while ensuring their property does not get developed. A survey is currently in progress.

Many of these problem statements were developed into Actions discussed later in **7 PRIOR ACTION STATUS** and **8 MITIGATION ACTION PLAN**.

Potential Losses from Natural Disasters

Natural disasters, including floods, wind events, severe winter storms and ice storms, secondary disasters as a result of the natural disasters (such as power loss) and to a lesser degree, human and technological hazards as documented in **4 HAZARD RISK ASSESSMENT** have occurred in Salisbury. This section estimates Town-wide structure/building damage in Town from natural hazard events. It is difficult to ascertain the amount of damage caused by a hazard because the damage will depend on the hazard's location and magnitude, making each hazard event somewhat unique. Human and technological hazards are typically even more incalculable. Human loss of life was not included in the potential loss estimates for natural hazards, but could be expected to occur, depending on the severity of the hazard.

While this Plan focuses on being pro-active in those geographic areas of Salisbury most prone to recurring hazards (like flooding), some initial estimates of measurable property damage and building damage have been discussed by utilizing simple techniques such as the numbers of structures and assessed valuation. This two-dimensional approach of calculating dollar losses from tangible structures offers a basic yet insightful tool to begin further loss estimation analyses.

TOOLS FOR COMMUNITIES WITH GIS

For gauging more three-dimensional estimation of damages, FEMA has developed a software program entitled HAZUS-MH (for multi-hazard), which is a powerful risk assessment software program for analyzing potential losses from floods, hurricane winds and earthquakes. In HAZUS-MH, current scientific and engineering knowledge is coupled with the latest Geographic Information Systems (GIS) technology to produce estimates of hazard related damage before, or after, a disaster occurs. Developed for ARCGIS which produced the *Maps* for this Plan, HAZUS-MH takes into account various effects of a hazard event such as:

- Physical damage: damage to residential and commercial buildings, schools, critical facilities, and infrastructure;
- Economic loss: lost jobs, business interruptions, repair and reconstruction costs; and
- Social impacts: impacts to people, including requirements for shelters and medical aid.

Federal, State and local government agencies and the private sector can order HAZUS-MH free-of-charge from the FEMA Distribution Center. Salisbury should first ascertain whether a municipal geographic information system (GIS) of hardware and software is appropriate, and if so, consider training staff to perform models. With many Town existing and under-development infrastructure GIS data layers available, HAZUS-MH could prove very helpful for estimating losses for the community on a disaster-specific basis. However, much staff time is necessary to train staff and maintain a GIS system. Official map generation is typically subcontracted out to other agencies now, including the mapping and appraisal companies used by the Town and the Central NH Regional Planning Commission who developed the *Maps* for this **Hazard Mitigation Plan**.

METHODS OF POTENTIAL DOLLAR LOSSES BY NATURAL HAZARDS

A more manageable technique was used for loss estimation for the purposes of this **Hazard Mitigation Plan Update**. Natural hazard losses are calculated based on dollar damage ranges over the entire community, or in the case of flooding, buildings in the Special Flood Hazard Areas (SFHAs) are counted and their value is collected. The number of total parcels in the community as of **February 2019** is **945**. Using Salisbury's **March 2019** Avitar valuation data, **the total assessed value of all residential and non-residential structures ONLY in Salisbury (\$95,513,800) is the basis for loss estimation calculations. Land and utilities are not included here.**

Potential Building Dollar Losses by SFHA Flooding

Using the Avitar Associates geographic information system (GIS) of tax parcels, the Town updated a **2014** list of buildings within the generalized area of the 2010 FEMA Digital Flood Insurance Rate Maps (DFIRMs) floodplains. New parcels in the SFHAs were identified, and the assessing data was used to identify the types of buildings in the floodplain and their assessed values. This casual desktop evaluation does not determine whether the building itself is situated within floodplain boundaries, only provides an approximation. **Building Type** was characterized into one of four categories, single-family homes, multi-family homes, manufactured homes, and non-residential buildings. This data of the number and types of buildings in the floodplain was excerpted from the assessing database. **Table 32** summarizes this data, identifying **24** primary buildings in the SFHA. **Land value, building contents value and infrastructure were not considered in these calculations.** The link to the Town's parcels and assessing data is located on the Town website at www.salisburynh.org/home/pages/property-cards, where the data can then be accessed via <http://data.avitarassociates.com/default.ASPX>. Users must go through the Town website portal or else a login and password are necessary.

Table 32
Building Value in the Special Flood Hazard Areas (SFHAs)

Building Type	Number of Buildings	Total Value of Buildings in SFHA	Average Assessed Value
Single Family Homes	23	\$2,993,100	\$130,135
Multi-family Homes	0	\$0	\$0
Manufactured Homes	0	\$0	\$0
Non-Residential Buildings	1	\$25,600	\$25,600
Totals	24	\$3,018,700	-----

Sources: Town Administrator using 2019 Assessing Data, 2010 DFIRMs, 2014 Haz Mit Plan

In **Table 32**, analysis and human interpretation identified **23** single family residential homes, **0** multi-family homes, **0** manufactured homes, and **1** non-residential building situated in the Special Flood Hazard Areas (SFHAs). As the Town's total number of **2017** housing units is estimated at **623**, **4%** of Salisbury's buildings seem to be located in a floodplain area. The average replacement value is **\$130k** for a single-family home or **\$26k** for a non-residential building in the SFHA. The total value of all buildings in the Special Flood Hazard Areas from this analysis is about **\$3.0m**.

There are alternative ways to calculate potential SFHA losses. In the following tables, the average building replacement value was calculated by adding the assessed values of all structures in the special flood hazard areas and dividing by the number of structures. The Federal Emergency Management Agency (FEMA) has developed a process to calculate potential loss for structures during flooding. The potential loss was calculated by multiplying the average replacement value by the percent of damage expected from the hazard event, and then by multiplying that figure by the number of structures. The costs for repairing or replacing infrastructure such as bridges, railroads, power lines, roads, drainage systems, telephone lines, or natural gas pipelines, and land value and the contents of structures have not been included in these estimates.

Table 33 represents the **worst case scenario of all** single-family homes, multi-family homes, manufactured homes, and non-residential buildings within the Special Flood Hazard Area that are damaged by a flood hazard event.

Table 33

Dollar Damage Ranges for Total Buildings in Special Flood Hazard Areas (SFHA)

Building Type	Total Value of Buildings in SFHA	Total Value of Potential Damages in SFHAs by Respective Building Type		
		Eight-Foot Flood 49% Damage	Four-Foot Flood 28% Damage	Two-Foot Flood 20% Damage
Single Family Homes	\$2,993,100	\$1,466,619	\$838,068	\$598,620
Multi-Family Homes	\$0	\$0	\$0	\$0
Manufactured Homes	\$0	\$0	\$0	\$0
Non-Residential Buildings	\$25,600	\$12,544	\$7,168	\$5,120

Sources: See **Table 32**; FEMA

If **all 23** single family homes were damaged by a **Two-Foot Flood (20% Damage)**, the dollar damage to the buildings *only* could be **\$599k** while an **Eight-Foot Flood (49% Damage)** could cause **\$1.5m** in damage. If the **single 1** non-residential building in the SFHA were damaged by a **Two-Foot Flood**, the dollar damage to the building *only* could be **\$5k** while an **Eight-Foot Flood** could cause **\$13k** in damage. As and **0** multi-family homes and **0** manufactured homes were identified in the SFHA, the dollar damages of flooding would be nominal in the floodplain. Dollar damage estimations vary according to the standard percentages of damage levels associated with flooding levels set by FEMA.

Table 34 also represents the **worst case scenario, but of individual** single-family homes, multi-family homes, manufactured houses, and non-residential buildings within the Special Flood Hazard Area that are damaged by a flood hazard event.

Table 34

Dollar Damage Ranges for Individual Buildings in Special Flood Hazard Areas (SFHA)

Building Type	Average Value of Individual Buildings in SFHA	Individual Value of Potential Damages in SFHAs by Respective Building Type		
		Eight-Foot Flood 49% Damage	Four-Foot Flood 28% Damage	Two-Foot Flood 20% Damage
Single Family Homes	\$130,135	\$63,766	\$36,438	\$26,027
Multi-Family Homes	\$0	\$0	\$0	\$0
Manufactured Homes	\$0	\$0	\$0	\$0
Non-Residential Buildings	\$25,600	\$12,544	\$7,168	\$5,120

Sources: See Table 32; FEMA

One (1) single family home averages \$26k when damaged by a **Two-Foot Flood** while an **Eight-Foot Flood** could cause \$64k in damages. One (1) non-residential building compares at \$5k for a Two-Foot Flood damages and at \$13k for an **Eight-Foot Flood**.

Although not an accurate assessment, these dollar damage ranges for **Inland Flooding** in the designated floodplains (SFHAs) provide a general sense of the scale of potential disaster and financial need in the community during flooding events.

Potential Building Dollar Losses by Other Natural Hazards

Flooding is often associated with heavy rains and flash floods, hurricanes, ice jams, rapid snow melting in the spring, and culvert washouts. These are all types of flooding hazards discussed or evaluated previously but can also occur outside of the SFHAs.

Building damage by natural disasters in New Hampshire is not limited to SFHA flooding alone, which is easier to quantify and predict. Simple calculations can be made based upon generalizations of a disaster impacting a certain percentage of the number of buildings in the Town. **The Avitar March 2019 assessed value of all residential, commercial, and industrial structures in Salisbury is \$95,513,800 (no land) on 945 parcels.** Disaster damages are often illustrated in the following section utilizing a percentage range of town-wide building damage. At 623 housing units in Salisbury estimated from the 2017 NH Office of Strategic Initiatives (NH OSI) housing estimates, any type of disaster impact to 10% of Salisbury housing units would yield 62 damaged homes.

The inventory of Town sites or buildings in **APPENDIX A Critical and Community Facilities Vulnerability Assessment** indicates which hazards each site is most susceptible to and provides its assessed valuation. This dollar value can be used as a damage estimate from the natural hazard events listed below. Yet the potential losses discussed in this section involve all buildings across the community to provide a more distinct portrait of potential losses using the assessed valuation of all town buildings. Damages from natural hazards to anything other than buildings, such as infrastructure, land, humans or building

contents, are not examined here. Specific individual studies would be needed to assess more detailed scenarios. Following are potential building-only dollar damages from select natural hazards.

Drought

Drought is often declared on state-wide or region-wide basis, and sometimes by individual town. Dollar damage caused by drought would be difficult to quantify, but would most likely impact the agricultural and economic base of a community. Although everyone could be charged to conserve water, orchards, farms, and nurseries would be most affected.

As physical damage is usually isolated to specific locations, the effects of potential disasters at certain facilities could be researched utilizing the Town's assessor's database for valuation on targeted land. Agricultural land may be among the most affected by drought. Many farm operations have been inventoried in Salisbury. People who rely on private well water, which is nearly everyone in Salisbury, have found their dug wells running dry in **2015-2016** and again in **2018**. Agricultural farms and orchards run the risk of high damage from **drought** which also brings economic consequences. In Salisbury, these areas include maple tree crops, livestock, produce, orchards. Tree farms in Town are also susceptible to loss during **drought** conditions. The Fire Department has provided water to farms taken from the fire ponds.

These lands could be vulnerable to **droughts** and physically and may become economically damaged by these long-term drought. A dollar estimate is incalculable at this time.

Earthquake or Landslide

Earthquakes can cause buildings and bridges to collapse, disrupt water supplies, electricity and phone lines and are often associated with **landslides** and **flash floods**. Buildings that are not built to a high seismic design level or are large in size could be susceptible to structural damage. Large facility or historic building including the Salisbury Elementary School, Old Town Hall "Salisbury Heights" Complex, the Congregational Church, and others are particularly at risk because of building sizes and/or large numbers of people contained within. US 4 travels through the Town in a north-south direction and intersects with NH 127 at the "Crossroads," which is a high density area in Town and includes a Post Office, general store, and gas station.

Loss of these or other community buildings or roadways could result in fewer services available to residents or reduce the ability to evacuate. Buildings which are located on or near the sides of river and stream banks or that are located on a hill over **15%** could be subject to **landslide** triggered by rains or **erosion**. The Central NH Region area of Boscawen, Webster, Hopkinton (Contoocook), Henniker, Hillsborough and Warner (Davisville) hosts frequent epicenters of deep earthquakes.

With a scenario range of **0.5%** to **1%** of buildings damaged throughout the Town, an **earthquake** or **landslide** could potentially cause up to **\$496k** to **\$991k** in building-only damage costs alone, not including contents, infrastructure, or land.

Extreme Temperatures

Excessive heat and **extreme cold** can harm property, such as landscaping and agriculture, or infrastructure. People will draw more water from their wells to help alleviate these conditions. Extreme heat can sicken people, causing sunstroke, heat exhaustion and dehydration if the environment is not cool enough or water intake is too low. Conversely, extreme cold can cause hypothermic conditions. In this manner, neither extreme heat or cold is measurable for dollar damage. An inventory of **Vulnerable Populations** will be undertaken which can be used by emergency responders to ensure susceptible people remain healthy.

High Wind Events or Tropical and Post-Tropical Events

The high wind event storms include the **wind events**, **flooding** and **lightning**, but can also just be simply severe winds, downbursts, tornadoes, or hurricanes. When summer **rainstorms** or **thunderstorms** occur, they are often regional in nature, but could just as commonly be localized in some areas, easily identifiable when one section of a roadway is dry and another section of the same road is wet. Sometimes **hail** accompanies these storms. **Thunderstorms** and **rainstorms** are more likely to damage trees, powerlines or crops than buildings, which are more readily damaged by downbursts, tornadoes and hurricanes. These storms typically cover most of, if not the entire, Town, as **winds** and **storms** are large enough and blow through to impact multiple New Hampshire counties.

With a scenario range of **1%** to **5%** of buildings damaged by wind events throughout the Town, a wind event could potentially cause up to **\$991k** (for more localized **downburst**, **high winds** and **hail**, or **tornadoes**) to **\$5.0m** (for more damaging and widespread **tropical storms** and **hurricanes**) in building-only damage costs, not including contents, infrastructure, or land.

Lightning

Damage caused by **lightning** would not be Town-wide because it typically strikes in smaller areas. Few places in Salisbury are at specific risk but lightning strikes can cause fires. Damages will vary according to the value of the structure and home and the contents inside, and dollar amounts would depend on if the hazard hit an area with a high density of buildings. Specific sites which would cause the greatest impact if struck by **lightning** include conflagrations within the Old Town Hall “Salisbury Heights” Complex area; at high elevations such as Mount Kearsarge State Forest or vast forest land in West Salisbury; densely populated buildings including Salisbury Central Elementary School or the highly dense neighborhood around flat Tucker Pond; tall buildings such as Congregational Church or the Barn Store, historic buildings like Academy Hall, Salisbury Free Library, Historical Society and Museum; agricultural operations such as

dairy and produce farms, vineyards, orchards, tree farms and maple sugar farms. Also, large Town buildings (Safety Complex) and utilities such as the **1** telecommunications tower on Humphrey Road, the High Tension Electric Transmission Lines, Eversource, NH Electric Cooperative and TDS telephone lines and broadband cable internet service, TDS switching station, local power lines, Town Hall computer system, and much more are vulnerable to **lightning strike**. Tall buildings like those found in the villages could be vulnerable without lightning rods.

With a scenario of **0.5%** of buildings damaged throughout the Town, a **lightning strike** could potentially cause up to **\$496k** in building-only damage costs alone, not including contents, infrastructure, land, or through fire spreading.

Public Health

Dollar damage estimates are not feasible for public health hazards.

River Hazards

Ice jams on the **Blackwater River, Punch Brook, Stirrup Iron Brook, Knight Meadow Brook, Beaver Brook** or others could be a major cause of **flooding** which could recur in the future. Woody material causing **debris impacted infrastructure** may be more likely to impact bridges than ice jams, especially any the structurally deficient State or Town bridges. Salisbury has only five bridges located within its borders, all of which belong to the Town, four of which have been replaced since 1990. Small brooks culverts and drainage systems offer additional opportunity for ice jams, debris blockage, and more. The **2019-2028 NH Department of Transportation Ten Year Plan (TYP)** provides many examples of basic cost estimates bridge replacement and rehabilitation.

This average figure of **\$750,000** can be used for one (**1**) local bridge *replacement* in Salisbury due to the physical damage caused by **river ice jams** or **debris impacted infrastructure**. The same bridge damaged by **ice** or **debris** which only requires *rehabilitation* could cost **\$500,000**.

Another way to view potential damages is if half (**12**) of the **23** single family homes in the floodplain were damaged by **Two-Foot Flooding (20% Damage)** resulting from **river ice jams** or **debris impacted infrastructure**, there could be up to **\$300k** in building damage costs.

Winter Weather

Heavy **snow loads, icy conditions, extreme cold, wind chill**, and the secondary hazards (including **power failure, transportation accidents** and **debris impacted infrastructure**) are result of **winter storms**. Storms with these conditions have been felt in Salisbury in the past. These hazards and secondary impacts are a risk to the community, including isolation, more falls and personal injury (especially by the older residents), and the potential for roof collapse. The most remote locations in Salisbury, wooded and

forested sections vulnerable to tree fall, include the entire Town. Many dead end or one-egress roads with residents having only one exit include Bacon Lane, Brookside Drive, Buckhorn Road, Calef Hill Road, Couchtown, Fellows Lane, First Road*, Gerrish Road, Humphrey Road, Michael's Lane, Montgomery Road, Mountain Road, Mutton Road, Plains Road, Second Road*, Sixth Road*, Third Road*, Tuttle Road, or Wilder Pond. There are about **20** such one-egress roads in Salisbury, along which **1/6** of all homes (over **100**) in Town are located. Damage caused by this type of hazard varies according to wind velocity, snow accumulation, tree/limb fall and duration.

With a scenario range of **1%** to **5%** of buildings damaged throughout the Town, **severe winter storms** could potentially cause up to **\$991k** to **\$5.0m** in building-only damage costs.

Solar Storms and Space Weather

Dollar damages to structures are not measurable from solar winds, radio blackout, or geomagnetic storms. These hazards impact utilities such as communication systems and technology. The Town's and School's technology is vulnerable to **solar storms**, such as computer systems, emergency response dispatch systems, electricity, internet, and software programming interruption that upkeeps essential functions, such as sewer treatment and water treatment. Although a potential natural hazard, dollar damage is not feasible for solar storms and space weather.

Wildfire

The risk of **wildfire** is difficult to predict based on location. Forest fires are more likely to occur during years of **drought**. In addition, areas and structures that are surrounded by dry vegetation that has not been suitably cleared are at high risk. Humans can contribute by accidents in the woods or dry fields, or by the deliberate setting of **fire** in a structure. The heavily forested woodlands of Town are often remote locations and difficult to access by emergency vehicles. The remote homes and woods of the entire western half of the Town comprise many dead end roads with residents having only one egress. Some of the publicly accessible conservation easements like Mount Kearsarge State Forest, Blackwater River Flood Control Reservoir area, and the private conservation lands and hiking trails are particularly vulnerable to **wildfire** because there may be accidental fire and there may not be people around to report it until the fire is large. The Tucker Pond community of over **30** homes is not easily accessible should a wildfire be reported. Dollar damage would depend on the extent of the fire, the number and type of buildings burned, and the amount of contents destroyed within the buildings.

With a scenario of **1.0%** of buildings damaged in the Town, a **wildfire** could potentially cause up to **\$991k** in building-only damage costs alone, not including contents, infrastructure, or land.

National Flood Insurance Program (NFIP)

In 1968, Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities such as Salisbury agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding. For more information on the National Flood Insurance Program, visit <https://www.floodsmart.gov/why/why-buy-flood-insurance>.

The initial identification of Salisbury's Flood Hazard Boundary Maps were developed on **February 21, 1975**, were then revised on **May 21, 1976**, and later the first Flood Insurance Rate Maps (FIRM) were developed on **May 11, 1977** and included the Special Flood Hazard Areas (SFHAs). The Town entered the regular phase of NFIP membership on **April 15, 1986**. Salisbury's first Flood Insurance Study (FIS) was produced on **April 19, 2010** with the production of the Merrimack County Study. No amended FIS or FIRMs were developed for the Town until over two decades later, consistent with other Central NH Region communities.

In the present day, Salisbury's effective FIRMs are digital (DFIRMs) dated **April 19, 2010** as is the Merrimack County Flood Insurance Study (FIS) which includes Salisbury (community **#330121**); individual community FIS are no longer being developed. These **2010** newest documents were adopted by the Board of Selectmen, supercede all previous NFIP documentation, and are placed into the Town Zoning Ordinance. **Table 35** summarizes the historical background of the Town's NFIP effective dates.

Table 35

NFIP History of Salisbury – Effective Dates

Version	Flood Insurance Study (FIS)	Flood Insurance Rate Maps
Original	None	April 15, 1986
Current	April 19, 2010	April 19, 2010

Source: FEMA Merrimack County Flood Insurance Study (FIS) Table 7 & Bibliography, 2010

SALISBURY'S NFIP STATISTICS

In **Table 36** is a cumulative history of the trends and overall totals of flood insurance policies and losses of those property owners utilizing the NFIP insurance in Town. Four snapshots in time, one from each of Salisbury's **Hazard Mitigation Plan** versions, display the number of NFIP policies in force and paid loss statistics between **February 2007 and April 2019**.

Table 36

History of NFIP Policy and Paid Loss Statistics

Report Date	Policies in Force	Insurance in Force	Number of Paid Losses Since 1986	Total Losses Paid Since 1986
Feb 2007	0	\$0	0	\$0
Aug 2013	1	\$350,000	0	\$0
Apr 2019	1	\$210,000	0	\$0

Source: Salisbury Hazard Mitigation Plans, FEMA last accessed 08-06-19

From **Table 36**, in **February 2007** within the severe flooding event period of **2005-2008**, **0** properties in Salisbury were covered by NFIP flood insurance. By **August 2013**, that figure increased to **1** flood insurance policy in Salisbury, with a total of **0** loss claims had been paid to owners in Town due to flooding damage. By **April 2019**, with no severe flooding events since **2012** in the Central NH Region, the number of properties covered by flood insurance continued with only **1** parcel covered by NFIP flood insurance.

To date, since Salisbury joined the NFIP in **1986**, there have been **0** payouts totaling about **\$0** in paid losses to policyholders for insurance claims. Normally, the number of policies would fluctuate as influenced by the lack of current severe flooding events, recent changes in flood insurance regulation, the higher cost of insurance, uncertainty about exact floodplain location, unchanging real estate market, and assumptions that flood insurance is unnecessary if one's property is outside of the floodplain. This fluctuation did not occur in Salisbury.

Table 36 also illustrates that while the property owners anywhere in the entire Town of Salisbury are eligible to purchase flood insurance for their property, only **1** property out of the **945** total parcels in the entire community is insured against flooding. As described previously, a total of **24** parcels with homes and non-residential buildings seem to be at least partially situated in the Special Flood Hazard Areas (SFHA). Assuming the **1** policy property is located within the SFHA, **4%** of buildings in the floodplain are insured against flooding.

Virtually all of Salisbury's buildings and properties are uninsured for when the next flooding event occurs. **Inland Flooding** conditions can occur anywhere in the community due to runoff, debris impacted infrastructure (culverts), drainage overflow, rapid snowpack melt, road washouts, beaver dam breaks, heavy rains, etc which are not limited to the floodplain (SFHAs) areas and are not covered by homeowner's insurance or any other insurance than National Flood Insurance Program (NFIP) flood insurance.

REPETITIVE LOSS PROPERTIES

A specific target group of properties is identified and serviced separately from other NFIP policies when repetitive losses occur on the same properties. The group includes every NFIP-insured property that, since **1986** and regardless of any change(s) of ownership during that period, has experienced four or more paid flood losses of more than \$5,000 each or two or more separate claim payments (building payments only) where the total of the exceeds the current value of the property. Two of the claim payments must have occurred within 10 years of each other. The loss history includes all flood claims paid on an insured property, regardless of any changes of ownership, since the building's construction or back to **1992**.

As of **April 2019**, Salisbury had a total of **0** repetitive loss properties according to records kept by the Federal Emergency Management Agency and supplied by the NH Office of Strategic Initiative (NH OSI). Zero (**0**) repetitive loss properties (RPL) have been recorded in the community even during the significant flooding and infrastructure damage disaster period of **2005-2012** (See **4 HAZARD RISK ASSESSMENT**).

Table 37 displays the repetitive loss data:

Table 37

Number of Repetitive Loss Properties

Building Type	Number of Repetitive Loss Properties
Single Family	0
Multi-Family	0
Non-Residential	0
Total Properties	0

Source: NH Office of Strategic Initiatives (NH OSI) on behalf of FEMA, April 2018

These RPL data records are confidential for the property-specific information they contain. Repetitive losses are determined by any repetitive damage claims on those properties that hold flood insurance through the NFIP. Should additional repetitive losses occur, the Town should consider participating in voluntary property acquisition ("buyouts") which would eliminate the threat to several homes by incorporating newly vacant land into the Town's flood storage capacity.

FLOODPLAIN DEVELOPMENT ORDINANCE

A major objective for floodplain management is to continue participation in the National Flood Insurance Program. Communities that agree to manage Special Flood Hazard Areas shown on NFIP maps participate in the NFIP by adopting minimum standards. The minimum requirements are the adoption of the Floodplain Ordinance and Subdivision Regulation / Site Plan Review requirements for land designated as Special Flood Hazard Areas (SFHAs). Flood insurance is available to any property owner located in a community participating in the NFIP.

Community Assistance Visits in Salisbury

A Community Assistance Visit (CAV) is a process required by the National Flood Insurance Program (NFIP) as a way of reviewing a town's compliance with established floodplain regulations to be sure that they meet NFIP requirements. If the Town is not in compliance with regulations in any way, the officials that conduct the CAV provide assistance and guidance to assist with correcting any violations.

Since the NH Office of Strategic Initiatives (NH OSI) does not identify Salisbury as a repetitive loss community, which is based upon **Table 37** data, the Town is classified as a Tier 2 community. A telephone call may be made to the Town every **5-10** years or otherwise as needed when classified as Tier 2. For a Tier 1 community that has experienced repetitive losses, a new CAV will be undertaken every five years or if there is a severe flooding event.

On **May 9, 2006**, a CAV was held in Salisbury to review compliance with NFIP policies and educate staff on these policies. A review of the Floodplain Development Ordinance, Subdivision Regulations, Site Plan Review Regulations, and building permit processes were examined. A letter was sent to Salisbury Selectmen reviewing the visit and discussing the results, which are as follows.

The Salisbury Floodplain Development Regulations, which are contained in the Town's Building Code, had been amended on **March 13, 1990**. A review of the ordinance revealed changes that need to be made. The Salisbury Site Plan Regulations contain the floodplain regulations in Subsection H., which had been amended on **April 7, 1986**. A review of these regulations revealed changes that need to be made. The Salisbury Subdivision Regulations were adopted on **March 3, 2003**. The floodplain regulations could not be found in these regulations. The floodplain regulations were detailed and sent to the town.

Information on elevation certificates, floodproofing certificates, Letter of Map Amendments, and upcoming Digital Flood Insurance Rate (DFIRM) were discussed with the Building Inspector. A review of the building permits issued in the floodplain was conducted.

All necessary revisions to ordinances, regulations, and procedures were conducted after the **2006** Community Assistance Visit.

The **2006** CAV was the last conducted. Tier 2 Salisbury experienced its last significant flooding damages during the **Tropical Storm Irene 2011** (**\$3.5k** Public Assistance federal funding received), and prior to then, was impacted during **April Spring Floods 2007** (**\$28.2k** PA received). As needed, a follow up phone call should be made by NH OSI to request a review of Zoning Compliance procedures and the contents of the Floodplain Developments Ordinance, Subdivision Regulations and Site Plan Review Regulations prior to **2024**, when this **2019 Plan** expires.

Floodplain Ordinance Amendments

The Town of Salisbury has a Floodplain Development Ordinance that currently contains the required FEMA regulations to remain eligible for the NFIP.

The Town places its Floodplain Development Regulations within its Building Code, a set of ordinances governing building specifications. The Building Code was first approved at Town Meeting **March 12, 1985**. Floodplain Ordinances can be updated to be made more stringent than the federal requirements or when FEMA requires updating of regulations for compliance. Over time, Salisbury has made many amendments.

In **March 2008**, Salisbury updated the Floodplain Development Regulations to comply with recent changes to the NFIP program and to allow the Town to approve the new Digital Flood Insurance Rate (DFIRM), when available to accept the forthcoming new Flood maps without the Town Meeting approval process.

In **February 2010**, the Board of Selectmen adopted the new FEMA Floodplain Maps, the current effective Digital Flood Insurance Rate (DFIRM) maps dated **April 19, 2010**, and incorporated the necessary FEMA language revisions into the Building Code's Floodplain Regulations. Since that time, no further revisions have been made to the Floodplain Development regulations.

The **2010** Salisbury Floodplain Development Regulations contain all the elements to date requested by FEMA and the NH Office of Strategic Initiative's Floodplain Management Program. An excerpt of the Floodplain Ordinance is displayed in **Figure 27**.

Figure 27
Latest Floodplain Development Regulations

Source: Section of Salisbury Building Code, Feb 2011

ARTICLE VII. FLOODPLAIN DEVELOPMENT REGULATIONS (Amended 3/11/2008)

The following regulations shall apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for the County of Merrimack, N.H." dated **April 19, 2010** or as amended, together with the associated Flood Insurance Rate Maps (FIRM) dated **April 19, 2010** or as amended, which are declared to be part of this Ordinance and hereby incorporated by reference.

A. DEFINITIONS.

1. **Area of Special Flood Hazard.** The land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. The area is designated as Zone A on the FIRM.
2. **Base Flood.** The flood having a one percent chance of being equaled or exceeded in any given year.
3. **Basement.** Any area of the building having its floor sub grade (below ground level) on all sides.
4. **Building.** See Structure.
5. **Development.** Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

C:\Users\Gales PC\Desktop\Documents\HP_2010\Town_Stuff_2011\Building Inspector\Building Code as amended through 3-11-08 resolution adopted 2-17-10_2011.doc

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NFIP Familiarity in Salisbury

According to NFIP policies, when an applicant files a request for a building permit in the floodplain, the applicant must include an elevation certificate in order to be in compliance. In addition, if an applicant intends to fill onsite, a letter of map of revision must be submitted along with the application. According to NFIP requirements in the Floodplain Ordinance, building permits should be reviewed to assure sites are reasonably safe from flooding and require anchoring to prevent flotation, collapse, or lateral movement and construction out of flood resistant materials.

Ongoing attention and familiarity with the NFIP will keep Town staff and volunteers in top form. In order to reduce flood risks, the Building Inspector, Town Assessor, Town Administrator, volunteer Planning Board members, and other Town staff whose duties include review/inspection of development or construction, should be familiar with the Floodplain Ordinance and the NFIP.

Because of their unique position to ensure development conforms with ordinances prior to approval, the Planning Board should be familiar with NFIP policies, especially those regulations that are required to be incorporated into the Subdivision and Site Plan Review regulations. A workshop sponsored by the NH Homeland Security and Emergency Management (NHHSEM) or the NH Office of Strategic Initiatives (NHOSI) would be appropriate to educate current staff and volunteers. New online courses by FEMA for floodplain management, mapping, elevation certificates and more are available at no charge. For online training taken at the convenience of the individual, see the *FEMA Emergency Management Institute's* current training course index for flooding:

<https://www.training.fema.gov/is/searchis.aspx?search=Flood&all=true> .

An essential step in mitigating flood damage is Town and property owner participation in the NFIP. Salisbury should work to consistently enforce NFIP compliant policies to continue its participation in this program. Currently, Town staff are fielding many property owners asking for assistance because their mortgage lenders are requiring proof that the properties in question are not located in a Special Flood Hazard Area to determine whether NFIP flood insurance is required. The only way to rectify this growing problem is to have a survey done of the property to complete a Certificate of Elevation to keep on file at the Town Office. If the property is shown to be located out of the floodplain, a Letter of Map Amendment should be completed by the owner or by the Town to ensure future flood maps are corrected. This time of interaction with property owners is emotional and intense and may therefore not be the best time to advertise the availability of flood insurance.

When possible, Town staff should try promote flood insurance to property owners in Town; only **1** property out of the **945** parcels in Salisbury are protected by flood insurance and currently take advantage of the NFIP insurance opportunity. Informational links for the public on flood topics could be located on the Town's website at www.salisburynh.org.

6 CAPABILITY ASSESSMENT

Local mitigation capabilities are existing authorities, plans, ordinances, policies, mutual aid, programs, staffing, technical skills and assets, funding, outreach, public education, and resources that reduce hazard impacts or that could be used to help implement hazard mitigation activities. These capabilities were inventoried for the **Salisbury Hazard Mitigation Plan Update 2019**.

The **Capability Assessment** contains an inventory of locally-important existing mitigation support activities, or capabilities, which have a positive impact on the way hazard events are handled within the community. Most capabilities are not hazard mitigation Actions but support the Action Plan and help decrease the community's hazard risk. These community-strengthening capabilities are not STAPLEE-rated (Social Technical Administrative Political Legal Environmental and Economics questions) like the Actions, but instead the capabilities serve to sustain and assist the community to maintain and accomplish its hazard mitigation Actions and priorities. Selected **Future Improvements** (mitigation-oriented) to some of these capabilities have the potential to be considered as Actions in **7 POTENTIAL ACTION EVALUATION** and **8 MITIGATION ACTION PLAN**.

Capability Assessment Types

Planning & Regulatory

Administrative and Technical

Financial Resources

Education and Outreach

There are four overall Capabilities considered for which an inventory of mitigation support items was identified by the Hazard Mitigation Committee, **Planning & Regulatory**, **Administrative and Technical**, **Financial Resources**, and **Education and Outreach**.

Each Capability had inventoried the latest version or adoption Date; a Description of the item; the location of the capability in Town; the Level of Effectiveness of the Capability; which Department, Board or other has Responsibility for the capability; what Changes were made to the capability since the **2014 Hazard Mitigation Plan**; and Future Improvements to the Capability.

Town Capabilities

A summary of the items within the four Capability tables is provided here to offer a portrait of resources Salisbury has at hand to assist with mitigation. Careful consideration of each Capability's **Level of Effectiveness** helped the Departments to determine any clear **Future Improvements** to undertake. Many of the Town's Capabilities involved existing plans, procedures, reports, policies, regulations, and resource documents from individual Departments. These plans and documents were reviewed and incorporated into the **Capability**

Assessment. **Future Improvements** to these documents were identified and many later became Action items in **8 MITIGATION ACTION PLAN**. Capabilities of all Town Departments and the School District as related to hazard mitigation are detailed within the following tables.

Level of Effectiveness	Description
High	Capability is working well and is regularly followed
Moderate	Capability could use some revisions but is followed
Low	Capability is not working and needs revisions

DEPARTMENT ABBREVIATION KEY:

BOS	Board of Selectmen
CC	Conservation Commission
CO/BI	Code Enforcement/Building Inspector
EM	Emergency Management
FD	Fire & Rescue Department
HD	Highway Department and Transfer Station
LU	Land Use Department
PB	Planning Board
PD	Police Department – NH State Police Law Enforcement Services (Salisbury has not had a PD since Nov 2010)
SD	Merrimack Valley School District
TA	Town Administration
TS	Transfer Station
OTHER	Additional groups in Salisbury

Primary Mitigation Department

PLANNING AND REGULATORY CAPABILITIES

The planning and regulatory capabilities displayed in **Table 38** are the plans, policies, codes, and ordinances that reduce the risks or impacts of hazards. There are **3** categories: **Plans and Planning Documents; Building Codes, Permitting, and Inspections;** and **Land Use Ordinances, Regulations, and Town Ordinances**. Most of the documents listed below are the Town's documents, but others are School, local, regional, state and federal which support the Town's the hazard mitigation goals, objectives, and/or Actions.

Table 38

Planning and Regulatory Capabilities

<u>Latest Adoption or Version Date</u>	<u>Capability Assessment: Planning and Regulatory Resources</u>	<u>Description</u> Related to hazard mitigation planning and coordination	<u>Location of Capability</u> Entire Town or Selected Areas	<u>Level of Effectiveness</u>	<u>Responsibility</u>	<u>Changes Since Last Haz Mit Plan (2014)</u>	<u>Future Improvements to Capability</u>
SALISBURY PLANS AND PLANNING DOCUMENTS							
2014	EM Salisbury Hazard Mitigation Plan, 2008/ Update 2014	The Town developed its first FEMA-approved Hazard Mitigation Plan in 2008. An update was completed in 2014.	Entire Town	High	Emergency Mgt	Some of the mitigation actions were completed between 2014-2019.	Update the Plan to 2019 and implement the mitigation actions. Review the Plan annually or after each disaster.
2010	EM Emergency Operations Plan, 2010	Describes who's responsible for what actions during an emergency, includes evacuation plan. Includes general warning systems, chain of command, lists of resources. Recently completed in 2010.	Entire Town	Moderate	Emergency Mgt	Conducted fire drills.	Update EOP to latest State ESF standards. Practice drills with School, Highway Dept, Fire Dept and all others. Use After Action Reports to enhance effectiveness of the EOP.
2018	EM Mass Casualty Plan	Rescue Department developed Mass Casualty Plan in 2008.	Entire Town	Moderate	Emergency Mgt/ Rescue Dept	Yearly drills and annual changes to Plan	Conduct drills on the Plan and make necessary revisions to Plan.
2014	HD Road Management Plan (unwritten)	A Road Management Plan is being developed to address the priority deficiencies in roadways. The Town has 40 miles of Town road, but can only afford to rebuild/repair up to 1 mile each year.	Town Roads	Moderate	Highway Dept	Town has maintained and repaired several miles of roadway. In 2017-2018, the Town has upgraded 1 mile per year instead of ½ mile.	Develop a written Road Management Plan to include both gravel and paved roads.

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Planning and Regulatory Resources	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
2014	HD Culvert Maintenance Plan (unwritten)	Culverts need to be replaced on a regular basis as many in Town are now inadequately functioning. The Highway Department is working on developing a culvert maintenance plan to maintain or replace those Town culverts most in need first.	Town Roads	Moderate	Highway Dept	HD has upgraded about 25 culverts since 2014.	Develop a written Culvert Maintenance Plan. HD has a list to start with.
2017	PB Master Plan Updates	Planning Board is updating the resource protection of Master Plan 10-07 wetlands sections, including soils and culverts. Oct 2007 was prior update.	Entire Town	Moderate	Planning Board	Updated in 2017	Use MP to revise ordinances as needed. Boards and Depts should review their list of recommendations. Update within next 10 years (2027)
Dec 2018	PB Capital Improvements Program 2019-2024	CIP lists funding priorities for six years and is updated yearly. Town makes equipment purchases as needed. Roads, ambulances, road upgrades	Entire Town	Moderate	Planning Board	Updated annually.	Update the CIP on an annual basis and add eligible hazard mitigation projects.
Aug 2018	SD Emergency Operations Plan for Salisbury Elementary School, 2018	EOP contains information for fire drills, what students, parents, and teachers will do in the event of an emergency. All schools in the Merrimack Valley School District are operating under the same procedures. Prior EOP was 2017.	Salisbury Elementary School, Merrimack Valley School District	Moderate	MV School District	Updated EOP in 2018. Held monthly fire, lock down, reverse evac, secure campus and other drills.	Add changes from the drill exercises to make it safer for students. Update EOP on annual basis. Governor's Committee initiative will encourage more drills.
Mar 2006	SD Merrimack Valley School District Influenza Epidemic/Pandemic Prevention and	Merrimack Valley School District has prepared Influenza Epidemic/Pandemic Prevention and Response Plan 03-06 for children and staff.	Salisbury Elementary School, Merrimack Valley School District	High	MV School District	In 2017 13 & 2018 17 children vaccinated for influenza at Salisbury Elem by CAPHN and DHHS.	Update the Influenza Epidemic/Pandemic Prevention and Response Plan and include Salisbury representatives on the Committee.

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Planning and Regulatory Resources	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
	Response Plan 03-06						
SALISBURY BUILDING CODES, PERMITTING, INSPECTIONS							
2008	BI Building Codes	The State has adopted statewide requirements for compliance of residential (2009 IRC) and commercial (2009 IBC) building codes.	Entire Town	High	Building Inspector	State has not yet adopted the most recent & current editions of the building codes (2015)	Zoning Ordinance is updated to coincide w/ current State version of building codes. Continue with compliance & enforcement practices
2009	BI State Life Safety Code 2009, Construction Inspected by the Town Building Inspector and Fire Dept	New construction is continually evaluated during the process with the final inspection conducted by both the Fire and Building Officials prior to the issuance of a certificate of occupancy.	Entire Town	High	Building Inspector with Fire Dept assistance	Town only enforced when State adopts the new code	Would like to see the State adopt the current version
2009	BI State Building Code (International Building Code 2009)	Contains a suite of residential, commercial, plumbing, electrical, mechanical, energy, and existing buildings	Entire Town	High	Building Inspector	Town still follows the code from 2009	Would like to see the State adopt the current version
2009	FD NFPA 101 Life Safety Codes Occupancy Inspections	Contains 15 types of occupancies that may be inspected by Fire Departments - Places of Assembly - Mercantile - Business - Health Care - Ambulatory Health Care - Residential Board and Care - Day Care - Educational - Apartment Buildings - Lodging or Rooming Housing - Hotel or Dormitory - 1 and 2 Family Dwellings - Industrial	Places of Assembly, Day Cares, and Educational sites	High	Fire Dept	Continued inspections for these 3 types of buildings	Would like to see the State adopt the current version

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6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Planning and Regulatory Resources	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
		- Storage - Detention and correctional					
2009	FD NFPA 1 Fire Codes Permitting	Section 1:12, and Table 1.12.7a specifically outline instances when permits are required	Select Structures	High	Fire Dept	Continued to issue permits	Would like to see the State adopt the current version
April 2010	PB NFIP Participant	Enrolled in program since 19. The Town is required to have a Floodplain Ordinance and provisions in the Subdivision Regulations. The Floodplain Ordinance was just updated 2010 to the specifications of the State. New DFIRMS were being digitized for Merrimack County and adopted by the Town in 2010.	Floodplains	High	Planning Board	Not updated since last Plan but BI followed regs during permit issuance (less than 5 Certs of Elevation per year)	Integrate new changes from the federal level into Floodplain Ordinance. Integrate new changes from the federal level into Floodplain Ordinance (See Building Code and RSA 674:57 Flood Hazards)
SALISBURY LAND USE ORDINANCES, REGULATIONS, and TOWN ORDINANCES							
Mar 2006	BOS 911 Numbering Ordinance	The March 2006 911 numbering Town ordinance for emergency services also facilitates the building permit process. Information on number posting is submitted as part of Town Report. The Town of Salisbury has completed 911 mapping in compliance and conjunction with Department of Safety.	Entire Town	Moderate	Board of Selectmen / BI	BI issued house numbers using the ordinance	Update ordinance for new construction within E911 parameters.
Feb 2012	PB Subdivision Regulation Fire, Police Protection Standards	Fire suppression water supply to be addressed in subdivisions as well as emergency access easements. Originally adopted Mar 2003	Entire Town – New Developments	Moderate	Planning Board	Use the Fire and Police regulations when reviewing development applications	Review and revise subdivision regulations for fire & police
Mar 2019	PB Zoning Ordinance	Constantly updated, the Zoning Ordinances are considered current. Include drainage and infrastructure provisions.	Entire Town	High	Planning Board	Updated definitions, repealed Controlled Growth	Review the ordinance to determine if natural hazard regulations are appropriate,

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6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Planning and Regulatory Resources	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
		Currently undergoing review as a result of work on the Master Plan. Contains hazardous waste provisions, updated definitions (2014), Open Space Devt, Town road access.				Ordinance in 2017.	such as steep slope, other
Feb 2012	PB Site Plan Review Regulations, 09-20-10 / Subdivision Regulations, 02-06-12	Includes fire and emergency access, drainage, floodplain, and bonding provisions. The public is keenly aware of what is in the regulations when they come before the Board. Site Plan Review Regulations are currently being updated	Entire Town, New Development	Moderate	Planning Board	Used by PB during applications before the Board.	Update the Site Plan regulations to comply with current state law and planning principles
Jun 13, 2005	PB Excavation Regulations	Enhanced existing excavation regulations to prevent landslides. Provides guidance on regulations concerning excavation activities.	Entire Town	High	Planning Board	Used by PB during applications before the Board.	Review the regulation and update as necessary to fit Salisbury's changing needs
2010	PB Floodplain District Zoning Ordinance (contained in Building Code)	Floodplain District reduces the damage of floods, based on FIRM map dated April 19, 2010. Little of the Town is located in designated floodplains because of the USACE Blackwater River Reservoir.	Floodplains	Moderate	Planning Board	Used by PB during applications before the Board.	Periodically revise and update the ordinance to maintain compliance with FEMA requirements and enhance to fit Salisbury's needs.
Feb 2012	PB Soils Erosion and Sediment Control Plan Requirement (Subdivision Regs)	Erosion and Sedimentation Plan – major subdivisions (4+ lots) must provide an engineered erosion & sedimentation control plan.	Entire Town (New Developments)	Moderate	Planning Board	Used by PB to review applications before the Board.	Review the regulation and update as necessary to fit Salisbury's changing needs.
Feb 2012	PB Drainage and Grading Plan Requirement (Subdivision Regs)	Engineered Drainage and Grading Plan ensures that storm drainage is infiltrated on site and does not cause erosion.	Entire Town (New Developments)	Moderate	Planning Board	Continued to use the Drainage and Grading Plan regulations when reviewing development applications	Periodically update in response to emerging technology.

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6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Planning and Regulatory Resources	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
Feb 2012	PB Road Design and Construction Standards (Subdivision (Subdivision Regs))	Road design and construction provide specifications for building new & private Town roads and driveways. PB updated documents recently. Engineer contracted for application to follow the standards	Entire Town (New Developments)	High	Planning Board, with Highway Dept	Used by PB to review applications before the Board.	Review the regulation and update as necessary to fit Salisbury's changing needs.
Mar 2000	PB Telecommunications Zoning Ordinance	A telecommunications ordinance from the year 2000 is provided in the Zoning Ordinance.	Entire Town	High	Planning Board	No changes have been made to ordinance, but it was used by PB to review applications before the Board.	Attract competitive providers to enable cellular service consistently throughout Town. Update the ZO to assist.

Source: Salisbury Hazard Mitigation Committee

ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capabilities in **Table 39** include policies, mutual aid agreements, partnerships, standard operating procedures, training, skills and tools that can be used for mitigation planning and to implement specific mitigation actions. Smaller jurisdictions without local staff resources often rely on public or shared resources. There are **3** categories: **Administrative Programs, Policies, and Partnerships; Technical Skills, Training and Drills;** and **Assets, Security and Resources.**

Table 39

Administrative and Technical Capabilities

Latest Adoption or Version Date	Capability Assessment: Administrative and Technical	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
SALISBURY ADMINISTRATIVE PROGRAMS, POLICIES, MUTUAL AID AGREEMENTS, PARTNERSHIPS, OPERATIONS, PROCEDURES							
April 2010	BOS NFIP Participant Since 04-15-86	Enrolled in program since April 1986. The Town is required to have a Floodplain Ordinance and provisions in the Subdivision Regulations. The Floodplain Development Regulations in the Building Code were updated in 2010 to the specifications of the NFIP. New DFIRMS were digitized for Merrimack County and adopted by the Town in 2010.	Floodplains	High	Planning Board	Building Inspector tor used FP regular work with the public	When the Contoocook River watershed RiskMap is completed, review the maps and incorporate into procedures
1992 - 2019	BOS Written Administrative Policies on Roads, Trees, Safety	The BOS is responsible for writing protective administrative policies, such as Winter Road Maintenance Policy, 12-07, Roadside Trimming and Mowing 06-92, (Joint Loss) Safety Program Policy 2007, etc. and some updated recently	Entire Town	Moderate	Board of Selectmen	Used during Department operations	Review procedures and update to maintain resident and staff safety.
March 2019	BOS Joint Selectmen's Meetings with Surrounding Towns and School Districts	Periodic meetings held, including for regional issues. These have included school items (7 towns) and Boscawen and Canterbury for ambulance service.	Regional	Moderate	Board of Selectmen	Meeting held annually with School Board, (all schools). Met with Boscawen and Canterbury for Fire and Rescue ambulance (March 2019)	Meet with surrounding Town as school and safety issues develop. Hold meetings on a regular basis.

Town of Salisbury, NH Hazard Mitigation Plan Update 2019

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Administrative and Technical	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
Nov 2018 update Feb 2005	BOS Class VI Road Policy, 02-05	The Town of Salisbury has an adopted Class VI Road Policy, 02-05. Policy includes building and improvements, use of Class VI roads, liability waiver or upgrade the road.	Class VI Roads	High	Board of Selectmen	Revised the waiver form to review on a case by case basis	Review and update as needed.
Apr 2019	EM Capital Area Public Health Network Member	The CAPHN developed the Public Health Emergency Preparedness and Response Plan 06-10 for the Capital Area to address mass casualty, health epidemics, etc. The Town is a member of CAPHN and has participated in CAPHN activities. Capital Area Public Health Plan identifies Hopkinton Middle School as an inoculation site for towns (POD).	Entire Town, Hopkinton Middle School, Entire Town of Salisbury, Region	High	Emergency Mgt	Began to work on a regional sheltering plan with CAPHN along with the School District	Review the new regional shelter plan. Drill at least once per year.
Jan 2019	FD Fire Department Mutual Aid with Capital Area Mutual Aid Fire Compact	Capital Area Mutual Aid Fire Compact with Fire Departments in the Concord area, Lakes Region, and Kearsarge Region communities. Salisbury dues are budgeted annually at Town Meeting.	Salisbury, Concord, Lakes Region, and Kearsarge Region communities	High	Fire Dept	Train for mutual aid (injured hiker) yearly, provide mutual aid to other towns in network	Evaluate the effectiveness of different mutual aid compacts to find a best fit for Salisbury
Oct 2017	FD Fire Department Standard Operating Guidelines	The Town created their own standard guideline plan to assist in lighting procedures and truck placement. The Plan also states who is in charge during emergency situations (12013). How the situation changes affects how the town responds to emergencies. Standard Operating Guidelines (SOGs) are 100% written.	Salisbury	High	Fire Dept	Updated the bylaws of the Fire Dept (change for processing the application). Updated several apparatus SOGs	Review and update SOGs for compliance with current safety standards.
2018	FD Emergency Medical	Enhanced EMS guidelines state special patient care training (approximately	Salisbury	High	Fire Dept	Follows the state protocol, doesn't have	Integrate better with neighboring

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6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date	Capability Assessment: Administrative and Technical	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
	Services Guidelines	48 hours in 2 years), and the hospital or fire academy (160 hrs) training that must take place. Salisbury is covered to transport days only.				the option of updating.	Depts to better improve response time
June 2019	FD EMS Agreement with Penacook Rescue	Penacook Rescue and other neighboring town EMS Departments help provide day services to Salisbury as part of EMS Mutual Aid. They provide 24/7 services	Salisbury, Canterbury and Boscawen	High	Fire Dept	Written contract is forthcoming from Penacook Rescue. Payments have been billed for services	Hold public education session that ambulance services are available to everyone regardless of ability to pay. Find more volunteers
Dec 2007	HD Winter Road Maintenance Policy	The plowing and sanding policy provides a basic order to the roads, which changes per situation.	Town Roads	Moderate	Highway Dept	Plowing policy has been used for snowfall clearing. Policy has been publicized	Update as Infrastructure grows or every 5 years (2024) and make the policy available to the public
Oct 2018	HD Procedures to Cutback Overgrown Limbs (Unwritten)	Removing overhanging (hazardous) limbs will reduce that potential hazard in the Town. HD communicates with Unitil, Eversource & NH Coop, who has a system to evaluate annually to make sure that branches are cut back from power lines to reduce the potential hazards from wind. HD follows RSAs for cutting trees along roadside.	Roadways	High	Highway Dept	Cut trees annually, hazardous trees identified and removed. North Road and Hensmith Road.	Follow best management practices for roadside tree trimming. Consider writing policy
2012 - 2017	OTHER Citizen Group Neighborhood Watch	Group of citizens will get information via email to people who have signed up. Topics include suspicious activity, law enforcement looking for information, ask citizens to keep the word out, amber alerts, etc.	Entire Town	Low	Salisbury Citizen Group Neighborhood Watch	Informed residents of suspicious activities. Less interest now, group has declined after about 5 years of activity	Look into a system where emergency notices go out to cell phone users

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Nov 2010	PD State Law Enforcement Services	As of November 2010, the Police Department operations were suspended. Emergency calls are responded to by state police 24/7.	Salisbury	Moderate	Board of Selectmen	Regular details conducted by NH State Police	Review annually the active reinstatement of the Police Department by voters at Town Meeting.
2017	SD Blizzard Bag Program	The purpose of the program will be to allow students to complete up to five emergency days through Learning Online/ Blizzard Bag lesson plans. These days will count as "traditional" school days. All students have a backup of paper work in the event there is a loss of power/internet. Annually, the district prepares for 1 blizzard bag day.	Salisbury Elementary School	High	MV School District	Developed program in 2017. Has been utilized during school closure days.	Loss of electricity is a concern as students cannot use the online system. Continue to work with the Town Highway Department and utility companies for clearing dead and potentially dangerous limbs prior to hazard events.
April 2019	SD Water Testing	Elem has all wells tested per state requirements. Water samples are taken and sent to certified labs. The results are submitted to the state	Salisbury Elementary School	High	MV School District	Tested quarterly as it is a public water system. Just tested for lead out of every faucet and fountain. Had nine above action level that were replaced.	Ensure they include arsenic testing
March 2019	TA Safety Committee and Safety Program Policy	Established because Department of Labor recommended it. Committee meets quarterly and department heads bring to attention any safety issues, i.e. OSHA, workman's comp, and volunteers.	Town Buildings, Entire Town	High	Town Administration	Reviewed and updated written Employee Safety policies quarterly. Hosted a NH Dept of Labor Inspection in 2018	Meet the Committee goals, including replacing employee glass, back door.

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2017	TA Communication Liaison / Officer	The Town Administrator disseminates information as needed, providing information to all the Town Departments. Information is disseminated to all departments through the town website and email list group. Civic Plus monitors, updates and provides IT services for Town website	Entire Town	Moderate	Town Admin	Overhauled the Town website, enabled a high level of effectiveness for disseminating information	Formalize the process for regular contact with Departments.
June 2019	TA Facebook Page	Announcements should be more public, and the information can be posted easily on FB by many town officials and staff, as opposed to Town website updates. Emergency notices can be distributed and received more quickly	Entire Town	Moderate	Board of Selectmen	Developed page and monitored by Board of Selectmen	Reevaluate the social media platform for effectiveness.
SALISBURY TECHNICAL SKILLS, TRAINING, AND DRILLS							
2011	EM NIMS Compliance	All requirements were met in 2011, although new emergency response personnel are trained in batches soon after their entry into Town service.	Entire Town	High	Emergency Mgt	Used by all Dept engaged in emergency response. Explorers undertook ICS in 2018	Plan a drill to exercise town-wide disaster situation, including buildings destroyed and sheltering scenario. Continue to ensure NIMS strategies are used by all Town Depts
Sep 2017	EM Emergency Management Training WebEOC	Applicable emergency management training to all town departments and EOC Staff and WebEOC training. All FD & Rescue Personnel as well as EMD	Entire Town	High	Emergency Mgt	Not used as of yet but have opened to review it	Expand WebEOC trainings to other Town staff and volunteers
May 2019	FD Fire Department Training	Firefighters and EMS must complete two training sessions a	Salisbury	High	Fire Dept	Flow water, cut cars, ice water rescue,	Adapt training technology as evolves

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		month, also included are the approximate 20 volunteers. Training session two Tuesdays per month in-house. Many volunteers are seeking FFI certification, and others, Advanced EMT.				chimney fire annually	
May 2019	FD Explorer Post	The Explorer Post gives experience of community and volunteering to 14-21 year-olds. The Fire Department gets assistance and the teens may one day join the Fire Department, or establish a career, as a result of their positive experience. Train twice per month.	Entire Town, and take children from several towns	High	Fire Dept	Regularly trained on forest fires, Performs service projects for charitable organization	Ensure more involvement from the Fire Dept
Sep 2018	FD Explorer Post Cubs	For children ages 8-14, train twice a month by the older Explorers.	Entire Town, and take children from several towns	Unknown – too soon to tell	Fire Dept	Group just began	Ensure the Cubs obtain the most experience possible
Fall 2018	FD EMS Personnel	The Town has 9 certified EMTs who live in Town, 0 Paramedics undergo training at the Fire Academy.	Entire Town	High	Fire Dept	Change to the staffing	Attract more available EMTs to Salisbury
Winter 2018	FD EMS Mass Casualty Training	Training occurs on a regular basis for continuing accreditation. FD must continue to keep its accreditation by training and volunteers take a 24-hour refresher course every 2 years.	Entire Town	High	Fire Dept	Colder winter night indoor training, all FD personnel and EMTs and EMD. FD volunteers continued to keep the Dept's accreditation with appropriate training.	Keep up with state and national training requirements.
Nov 2019	HD Highway Department Training	The employees try to attend yearly training at UNH T2, including: culvert installation, chainsaw, Roads Scholar, NIMS, etc. It is difficult to	Town Roads	Moderate	Highway Dept	Has not yet been implemented but will in 2019	Engage in training such as NHDES Certified Culvert Maintainer

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		find time for training with a small staff.					
April 2019	SD Hold Regular Drills	Each school is required to conduct 10 drills per year, at least one per month. Salisbury Elementary School conducts several different drills, including lockdowns and evacuations at least once per month. Lockdowns would probably qualify as active shooter drills, but they are NOT called that.	Salisbury Elementary School	High	MV School District	Performed multiple drills in each school, including the lock down, fire, reverse evacuation, shelter in place, evacuation to Safety Complex.	Add active shooter drills to the repertoire for Salisbury Elementary. Staff needs training with HSEM, tabletops. Each School doing a COOP and the District writing a COOP. High School active shooter drill (permission slips received for ¾ students).
2016	SD NIMS/ICS Training	Along with numerous school security features, the Elementary School Staff underwent NIMS/ICS training. 60%-70% of staff did the intro classes. Nurses completed the advanced courses.	Salisbury Elementary School	High	MV School District	Staff were trained on incident command and NIMS to be ready in the event of a disaster	Train new Elementary School Staff on NIMS and conduct drills using command systems, and recertify as needed. Consider making mandatory for staff.
May 2019	TA Attendance at Seminars by Town Officials	Seminars by NH HSEM, NHMA, others attended by Selectmen, Health Officer, Planning Board. Regularly attend as workshops come up.	Entire Town	High	Town Administration	Three Selectmen Wage and Hour training at NHMA by Dept of Labor. Prior, 2 BOS attended RTK seminar in March 2019	Make more time and money available to more officials/staff to attend educational forum.
Nov 2018	TS Transfer Station Training	Training in Concord on proper Transfer Station management. Program is new as of 2012.	Transfer Station	High	Transfer Station	New Recycling Committee as of Nov 2018 trained by	Train Transfer Station employees training and

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						Transfer Station staff to	pay for cost of employee training. enhance recycling capabilities of Transfer Station without increasing cost by training the Comm volunteers
SALISBURY ASSETS, SECURITY, AND RESOURCES (SPECIALIZED EQUIPMENT)							
1993	BOS Academy Hall Interior Half-Doors	The Selectmen's office and Town Clerk's office has counters which inhibit people from walking in. However, the doors are seldom locked and people do come right in.	Academy Hall	Low	Board of Selectmen	No changes to the half door	Adopt an Academy Hall Safety plan for exiting building or shelter during emergency. Install bullet resistant glass at the reception window
Fall 2017	BOS Automated External Defibrillators (AEDs)	Placement of new AEDs at the Town Office (Academy Hall), Library, Crossroads, and School (4). People who work there and Board of Selectmen members have been trained on their use.	Town Office at Academy Hall, Library, Crossroads Store, Elementary School	High	Emergency Mgt	Obtained AEDs for the Library and Town Hall in fall 2017 and trained staff and volunteers on their use	Locate funding to purchase an AED for the Old Town Hall (Function), \$700-800.
March 2019	EM Emergency Operations Center	The EOC is located at the Safety Complex. It contains one phone line, a generator, internet connection, cell phones, a fax line, and a radio.	Entire Town	High	Emergency Mgt	Received an EMPG grant for upgrades to EOC, including after filtration system, security	Update the generator wiring and install a new generator because the old does not produce enough power
Have not yet done	EM Coordinate	Coordinate with the School District and	Entire Town	Untested	Emergency Mgt and	SD beginning to have MOUS	Work with the School District

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	Using School Buses for Evacuation	Highway Department to enable school buses need to be used for evacuating residents in the event of flooding, epidemics, fires, etc.			MV School District	with schools for shelters, can also obtain for busing.	to obtain an MOU to use buses for evacuation.
April 2019	EM Emergency Shelters and Warming Centers (See CAPHN above)	No official Town Shelter yet, but temporary sheltering for Cooling/ Warming available at Town Safety Center (~50 people). Town Shelter designated at the Salisbury Elem School, which is being worked on with Red Cross and NH DHHS regional shelter mutual aid agreement. Boscawen has an installed generator (\$97). Loudon's generator (\$119) on order for 2020. Webster providing impact fee funding for match. Salisbury would be less.	Elementary School, Safety Center	High	Emergency Mgt	SD met with Red Cross said Safety Center would qualify as warming/ cooling and School would be shelter (would obtain a shower when needed). SD has had shelter trainings with CAPHN. Neither facility will be Red Cross certified.	Update Town EOP, train, and plan with appropriate ESFs and appropriate private and regional partners. SD will visit a Salisbury BOS meeting to determine regional partnership opportunities at the Sal Elem School.
Fall 2018 FD- 0 base radios, ~24 ports, ~15 mobiles.	FD Radios & Communications	Ability to talk with local towns in order to receive help during emergencies. The Town currently has one phone and one fax for Capital Area Dispatch. The FD uses radios and pagers for communication between the units.	Entire Town	High	Fire Dept	New pagers received every fall. Continued to update radios and other equipment on a regular basis.	Update radios and equipment soon as the radios are nearing their life span. Purchase a base radio at the Fire Station
2019	FD 24/7/ 365 Volunteer Coverage	Enhancement of the FD program occurred to provide 24/7/365 coverage for fire and EMS operations at a minimum of the intermediate level.	Entire Town	High	Fire Dept	Agreement with Penacook Rescue is under negotiation for EMS in 2019. Fire remains through the Compact.	Explore options to trim the cost of the new EMS coverage, such as regional services.
2018	FD Water Rescue Capabilities	The Town has equipment to use for water rescue in response to the flooding Salisbury experienced. More equipment was	Reservoir Water bodies	High	Fire Dept	FD staff and volunteers regularly trained each year. New ice	Seek to located funign for a water rescue boat

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		obtained to facilitate rescue during flooding conditions: ice rescue suits, ropes, personal flotation devices, and water rescue helmets				suits purchased last year.	
March 2019	FD No Open Burning Signs Posted on Forested Land	Lands which are forested are posted no open burning without a permit. Signs are posted by the Fire Department yearly on public roads where there are potential gatherings	Forested Lands	High	Fire Dept	FD has checked and replaced signs.	Replace signs as necessary to replace those stolen by vandals
Spring 2019	HD Barricades, Cones and Sandbags	Town contracted road agent has a personal supply of plastic barricades, cones, and access to large sandbags.	Town Roads	Moderate	Highway Dept	Items used each spring.	Consider owning these types of supplies and designating a storage unit.
2017	SD Salisbury Elementary School Security Features	All schools in Merrimack Valley School District (MVSD) have a buzz-in lock system. Cameras have been installed at the main entrances. Visitors are required to sign-in. Updated entry and security at Elementary school currently underway in 2013 and completed before 2019. Received a lot of grant funding for these features: Installed numerous security features, including Card Access System for main entrance; Classroom Intruder locks; Exterior / Interior camera system monitored by main office / SAU Office; Bullet Resistant reception window; Bollard blocking vehicle access to main entrance; Panic Buttons; adoption of mass communication (ALMA); Classroom door shades; Classroom door shades;	Salisbury Elementary School	High	MV School District	Installed numerous security features, including Card Access System for main entrance; Classroom Intruder locks; Exterior / Interior camera system; Bullet resistant reception window; bollard blocking vehicle access to main entrance; Panic Buttons; adoption of mass communication (ALMA); Classroom door shades, 911 call capability and	Review the effectiveness of the security improvements to Salisbury Elementary School with the staff and School District and install additional protections where needed

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		All classrooms have 911 call capability; All classrooms have Lockdown announcement capability.				Lockdown announcement capability.	
2020 Est.	SD Salisbury Elementary Generator	Grant in progress to receive funding to install a permanent generator in facility, approximately in 2020.	Salisbury Elementary School	Unknown – not tested yet	MV School District	Secured grants for installation of generators in Boscawen, Loudon and Webster in School District	Install a Salisbury generator in 2020
Aug 2019	SD District Resource Officer	Add a certified Salisbury police officer to the staff of the Merrimack Valley School District in the capacity of Resource Officer. This officer would work with district officials to ensure the safety, security and welfare of students, staff, and visitors. DARE Officer does visit all schools.	Merrimack Valley Middle & High School	Moderate	MV School District with Police Dept	In Aug 2019 Middle School will receive an SRO	Locate a suitable alternative for someone to provide resources and guidance for a more reasonable cost.
2018-2019 but dated Sep 2010	SD Cyberbullying Resources on School Website and Pupil Safety and Violence Prevention Policy	Multiple curriculum resources and links for parents and students are available on the MVSD website. This can help reduce student violence from occurring.	Salisbury Elementary School	High	MV School District	Produced in updated Student Handbook annually. Policy in concert with RSA 193-F.	Ensure bullying is immediately addressed and discipline is imposed according to state & MVSD policies and regulations.
2018	TA Academy Hall Alarm System (Fire and Security)	The Academy Hall has an alarm system which is routinely tested and maintained by an alarm company. Mango Security	Academy Hall	High	Town Administration	Was serviced and maintained in 2018	Evaluate the effectiveness of alarm to ensure it fulfills the needs of Academy Hall
2018	TS Transfer Station Facility	At present the Transfer Station employs one certified operator and two assistant operators (must be certified each year). No hazardous waste collections occur, large recycling program	Transfer Station	High	Transfer Station	Regular vandalism has occurred, lock is broken. Have placed signs indicating cameras were in use.	Promote reducing, reusing and recycling to encourage less waste. Use volunteer hours.

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		(50 tons of cardboard/paper), also stores sand and salt for the Highway Department. On July 1, 2007 a new container for monitors and TV's was purchased.				Purchased a loader for compacting and moving. Recycling Committee created in 2018 to promote reduce, reuse and recycling.	

Source: Salisbury Hazard Mitigation Committee

FINANCIAL CAPABILITIES

The financial resources in **Table 40** available for hazard mitigation projects are those the Town has access to, has used in the past, or may be eligible to use in the future for hazard mitigation projects. These often include FEMA Public Assistance Grants (Disaster Recovery Costs), Warrant Articles, Town Capital Improvements Program (CIP) 2019 Project Funding, Department Operating Budgets, Bonds and FEMA and NH Department of Transportation grants. There are **2** categories, ***Financial Programs or Funding Resources***; and ***Potential Funding Programs*** for hazard mitigation projects.

Table 40
Financial Capabilities

<u>Latest Adoption or Version Date</u>	<u>Capability Assessment:</u> Financial	<u>Description</u> Related to hazard mitigation planning and coordination	<u>Location of Capability</u> Entire Town or Selected Areas	<u>Level of Effectiveness</u>	<u>Responsibility</u>	<u>Changes Since Last Haz Mit Plan (2014)</u>	<u>Future Improvements to Capability</u>
SALISBURY FINANCIAL PROGRAM OR FUNDING RESOURCE FOR HAZARD MITIGATION PROJECTS							
Feb 2013	BOS FEMA Public Assistance Grants (Disaster Recovery Costs)	Public Assistance Categories A-G may become available when disasters are declared if the community has an unexpired approved Haz Mit Plan. Continue to utilize the FEMA funding to help recover from declared disasters.	Entire Town	High	Town Admin with EM	Used for PA-B Protective Measures for snowstorm	Continue to utilize the FEMA PA program to help with disaster costs
2010	BOS NH Department of Transportation (NH DOT) Bridge Program	The bridge program is an 80/20 funding opportunity, with only 20% required by towns. Using the CIP Capital Reserve Funds, communities can set aside money for the several years it takes for the state to undertake the local bridge project.	Pingree Bridge over Blackwater	Medium	Town Admin	No changes to project as it was completed, but bridge has been maintained by Town	There are only 4 Town bridges, all of them redone within last 30 years. They are all in good shape. Mill Road over Mill Brook may be the next to qualify for future funding because of recent enlargement to box culvert.

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SALISBURY FUNDING PROGRAMS WHICH COULD BE USED FOR FUTURE HAZ MIT PROJECTS							
March 2013	CC Conservation Easement Fund	The Conservation Easement Fund protects water supplies through purchase of conservation easements. Receives 50% of Land Use Change Tax.	Priority locations	High	Conservation Comm	In 2013, voters broadened the applicability of the Cons Fund so it could also be used to help people who place their properties under easement.	Seek to obtain easements on land contiguous to the floodplain and reservoir area. See the Master Plan for additional information.
Not used yet	PB Town Capital Improvements Program (CIP) 2019 Project Funding	The CIP enables the long-range planning of funds for large equipment/projects, including hazard mitigation projects.	Entire Town	High	Planning Board	Included funding for future Transfer Station improvements (groundwater quality).	CIP could include expensive or long-term hazard mitigation projects

Source: Salisbury Hazard Mitigation Committee

EDUCATION AND OUTREACH CAPABILITIES

In **Table 41**, identifying Town Departments have *Public Outreach Programs, Educational Activities and Notification* methods already in place or those which could be implemented can supplement or encourage mitigation activities and communicate hazard-related information to residents, businesses and the general public.

Table 41

Education and Outreach Capabilities

<u>Latest Adoption or Version Date</u>	<u>Capability Assessment: Education and Outreach Programs</u>	<u>Description Related to hazard mitigation planning and coordination</u>	<u>Location of Capability Entire Town or Selected Areas</u>	<u>Level of Effectiveness</u>	<u>Responsibility</u>	<u>Changes Since Last Haz Mit Plan (2014)</u>	<u>Future Improvements to Capability</u>
SALISBURY PUBLIC OUTREACH PROGRAM, EDUCATIONAL ACTIVITY, NOTIFICATIONS							
Apr 2019	CC Water Testing Education	What's In Your Water program. National Drinking Water Week is May 5-11. (sample bottles will be available). The information sessions will discuss why it's important to test our well water and the importance of protecting your well. Technical assistance throughout the process will be available. Testing results in Town have shown that some residents have arsenic, lead, bacteria, and other contaminants, in their well water.	Entire Town	High	Cons Comm	Held two well water Q & A, and water sampling sessions, on April 24 and May 7, 2019	Assist residents with getting water tested and provide future educational programs
2018	FD Welfare Check Program (Unofficial), Functional/ Medical Needs Survey for Residents	When severe wind damage causes a power outage for 5-6 hours, the FD performs welfare checks on several homes (3-4) in that area of town without electricity. Not a formal system.	Entire	Moderate	Fire Dept, EMS	Have fewer outages in town, but when they occur FD performs welfare checks on residents in the area	Pursue placing a voluntary Functional/ Medical Needs Survey Form for Residents to receive welfare checks on the town website. Place copies in Town Hall to ensure those in need, and their caregivers, will sign up.

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Latest Adoption or Version Date	Capability Assessment: Education and Outreach Programs	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
May 2018	FD Annual Open House and Fire Prevention Week	Open House each fall, introduce fire safety to the community and Fire Prevention Week in School.	Entire Town, General Public	Low	Fire Dept	Opened the Fire Station to the public with the State Police. Provided hamburgers and hotdogs for about 50 participants.	Pursue better advertisement to hold a more successful Open House during Fire Prevention Week. Continue visiting a school class annually
2018	SD School District Automated Calling System - ALMA	ALMA is the programming MVSD uses for the following: Student information system, Emergency Alerting (texts/phone calls), group messages as well as posts to individual school's message boards. It also replaced Web To School system regarding student grades, etc	Salisbury School District	High	MV School District	New system used for public notifications, student grades. Parents and staff seem to be pleased with the system.	Evaluate the system periodically to ensure it fulfills the needs of MVSD.

Source: Salisbury Hazard Mitigation Committee

Review of Existing Plans

As described above, during the Hazard Mitigation process and the identification of existing mitigation **Capabilities**, the Hazard Mitigation Committee used their knowledge of the existing plans, policies, procedures and other documents utilized for their Department duties to develop Capability **Future Improvements**. However, several additional documents not listed in the **Capability Assessment** are also utilized by the community and have a positive relationship to the **Hazard Mitigation Plan 2019**. Most of the documents below are not the Town's documents, but the hazard mitigation goals, objectives, and/or Actions in this Plan are supported by the **Mitigation Support and Resource Documents** listed below in **Table 42**.

Table 42

Mitigation Support and Resource Documents

Latest Adoption or Version Date	Mitigation Support and Resource Documents Not Listed within Capability Assessment Tables
Feb 2007	NH DHHS NH Influenza Pandemic Public Health Preparedness & Response Plan 2007
2008	USGS Flood of April 2007 in NH
2007	USGS Flood of May 2006 in NH
2009	NFPA 1 Fire Code 2009
2010	NWS Thunderstorms, Tornadoes, Lightning. Preparedness Guide
Apr 2010	FEMA Flood Insurance Study for Merrimack County 2010
Apr 2010	NH Hospital Mutual Aid Network MOU
2011	NH DES Management of Collected Debris Following Severe Storm Events Fact Sheet
Dec 2011	NH DHHS Disaster Behavioral Health Response Plan
Feb 2012	NH DHHS Child Care Center Emergency Preparedness Guide
Jul 2014	NH DOS Statewide Fire Mobilization Implementation Master Plan 2014
Jul 2014	American Red Cross of NH Strategic Plan – Humanitarian Services FY 2014-2019
Jul 2014	NH DHHS NH Excessive Heat Emergency Response Plan 2014
2015	NFPA 101 Life Safety Code 2015
Feb 2015	Central NH Regional Plan 2015
Mar 2015	NH State of NH Tickborne Disease Plan 2015
Sep 2015	NH DOS Bureau of Emergency Management Services EMS Provider Manual 2015
Jul 2015	NHHSEM NH Recovery Plan with RSFs 2015
Jan 2016	Eversource Energy Electric Operations Response Plan
Oct 2016	CNHREPC Central New Hampshire Regional Emergency Planning Committee Regional Hazardous Materials Emergency Plan 2016
Jul 2017	NH DHHS NH Arboviral Illness Surveillance, Prevention and Response Plan & Map 2017
As provided	NHDES Dam Emergency Action Plans for High, Significant & Low Hazard Dams
Mar 2018	NH DOT Recommendations for the Ten-Year Transportation Improvement Plan (Projects) 2019-2028
2018	USGS Preliminary Stage and Streamflow Data at Selected Stream Gages for Flood of Oct 2017

Latest Adoption or Version Date	Mitigation Support and Resource Documents Not Listed within Capability Assessment Tables
2018	Salisbury Elementary School Emergency Operations Plan, Merrimack Valley School District, 2018
Oct 2018	State of NH Multi-Hazard Mitigation Plan Update 2018
Apr 2019	Capital Area Public Health Network Regional Public Health Emergency Annex (RPHEA) Update 2019

Source: Salisbury Hazard Mitigation Committee, CNHRPC

7 PRIOR ACTION STATUS

The **Hazard Mitigation Plan Update 2014** provided a basis to begin Action development, many of which originated from the original **2008 Plan**. A review of the **2014** Actions is provided by the Hazard Mitigation Committee, determining which Actions have been **Completed**, **Deleted**, or **Deferred** to the **2019 Plan**.

Action Status Determination

The status of all Hazard Mitigation Plan Actions varies. Priorities over the previous five years can change, budgets are uncertain, and staff are allocated time for certain tasks. Actions developed, evaluated and implemented across Hazard Mitigation Plans accommodate existing, new, and future development (buildings and infrastructure). To accommodate the **2014 Plan's** Actions in addition to the **New** Actions from the **2019 Plan**, there are four designated Action types to describe the detailed Actions following within the **7 PRIOR ACTION STATUS** and/or **8 MITIGATION ACTION PLAN**:

- ☐ **Completed**
- ☐ **Deleted**
- ☐ **Deferred**

Actions which were **Completed** from the **2014 Plan** are listed in **Table 43** along with completion dates.

Actions which were **Deleted** from the **2014 Plan** might have been no longer necessary or a priority to the Town, no longer relevant to the Town's situation or objectives, could not realistically be undertaken, were not financially feasible, were modified and incorporated into other existing Actions, or duplicated existing efforts of Salisbury's activities. Deleted Actions are listed in **Table 44**.

Actions which were **Deferred** from the **2014 Plan** are still important to the Town but were not completed because they did not have the staff capability or the funding to undertake them, other Actions took higher priority, more time was required for completion, or they may need to be repeated to be effective. These **Deferred** Actions are in **Table 45** and have been re-prioritized with the **New** Actions in the **Mitigation Action Plan**.

Changes in priority of the **Deferred 2014** Actions occurred over the last five years. The **2014 Plan** used the **12-36 Priority Score enhanced STAPLEE** system while the **2019 Plan** included both a **Ranking Score** and an **Action Timeframe** to determine priorities with a more useful **15-75 Priority Score enhanced STAPLEE** system. Both methods are described.

New Actions are described later in 8 MITIGATION ACTION PLAN.

DEFINITIONS

The following definitions were used to ascertain which Actions should be considered *mitigation* Actions versus which should be considered *preparedness* Actions more suitable for incorporation into the *Town Emergency Operations Plan*. The mitigation Actions are those which are carried forth in this **2019 Plan** into the *Mitigation Action Plan*.

Action Type	Duration	Definition or Characteristics
Mitigation	Long Term	Action supports sustained risk prevention or reduces long-term risk to people, property and infrastructure. ↳ Best suited for <i>Town Hazard Mitigation Plan</i> .
Preparedness	Short Term	Action assists or supports planning, protective activities, public education, training and exercise. ↳ Best suited for <i>Town Emergency Operations Plan</i> .
Response, Recovery, Other Related	Short Term	Action supports preventative, response, recovery-related, repeated or deferred maintenance activities. ↳ Best suited for <i>Town Emergency Operations Plan</i> .

HAZARDS CONSIDERED

With **22** individual hazards evaluated in this Plan, it is not always practical to list each one when describing location vulnerabilities or solutions. In many cases, listing the more encompassing main hazard categories from chapters **3 GOALS AND OBJECTIVES** and **4 HAZARD RISK ASSESSMENT**, which are **Flood, Wind, Fire, Extreme Temperature, Earth, Technological** and **Human**, should accurately define the issues of most of the identified Actions or locations. Using these hazard categories would often better accommodate the situation in their broadness. The categorized hazards have also been used in the **APPENDIX A Critical and Community Facilities Vulnerability Assessment**, but tailored when necessary.

In some cases, further hazard detail at a specific location or to describe an Action is necessary. When needed, the specific hazards addressed in this **Hazard Mitigation Plan** could be utilized, such as **Scouring & Erosion** from the **River Hazards** category, **Storm** (generally applying to warm weather, all-encompassing storms) or **Tree Debris** from the **Wind** category, **Excessive Heat** from the **Extreme Temperature** category, or **Communications** from the **Long Term Utility Outage**, to provide the specific information needed to understand certain issues in Salisbury.

Therefore, when the main hazard categories of **Flood, Wind, Fire, Extreme Temperature, Earth, Technological** and **Human** are not precise enough, one or more of the specific **22** hazards evaluated may be utilized for greater accuracy.

Review of 2014 Actions

The **2014 Hazard Mitigation Plan** was written in a different format and its content had to comply with less specific review guidelines before the *Local Hazard Mitigation Review Guidebook (FEMA), 2011* became standardized and tailored by each FEMA Region over the years.

Salisbury's mitigation Actions from the **2014 Plan**, which included Actions from the Town's previous Plans, were allocated **Action Numbers** and each **Project's** status was determined by the Hazard Mitigation Committee as either **Completed**, **Deleted** or **Deferred**. Over the previous Plans, the Actions numbers denoted by years were recorded as such:

#1- 2008 to	#28- 2008
#29- 2014 to	#51-2014

A total of **24** mitigation Actions have been **Completed** from the **Hazard Mitigation Plans** as shown in **Table 43**. This includes **12** Actions completed since the **2014 Plan**, **6** of which are to be repeated (**R**) for effectiveness or partially completed (**P**) and will be continued to ensure completion. These Actions will remain as active Actions within the **2019 Plan's Mitigation Action Plan**.

Table 43
Completed Mitigation Actions

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx \$ Cost	Natural Hazards Addressed
35	#1-2008	New Road Culvert Repair & Swamp Dredge	Jul 2000	Highway Department	\$15,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
---	#2-2008	Develop Excavation Policy	2006	Planning Board	\$0	Landslide, Erosion
30	#3-2008	Develop and Publicize Town Plowing Policy	Dec 2007	Highway Department	\$0	Winter, Ice, Crash
36	#17-2008	Continue to Implement Safety Improvements to Academy Hall	Jun 2009	Board of Selectmen	\$8,000	Wind, Fire, Human, Tech
35	#18-2008	Installation of Dry Pipe at Mill Brook Road	Oct 2009	Fire Department	\$3,750	Lightning, Wildfire, Drought
30	#19-2008	Expand Transfer Station	Aug 2010	Board of Selectmen	\$40,000	Earthquake, Lightning, Wildfire, Wind/Tropical, Water Quality
30	#20-2008	Pingree Bridge Replacement	Oct 2010	Highway Department	\$240,000 (\$1.2m total)	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion

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7 PRIOR ACTION STATUS

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx \$ Cost	Natural Hazards Addressed
32	#21-2008	Create Emergency Management Plan	2010	Emergency Management	\$0	Earthquake, Landslide, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Aging Infrastructure, Utility, Crash, Haz Mat
30	#22-2008	Undertake [Mill Brook] Road Improvements	Jul 2011	Highway Department	\$100,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
32	#23-2008	Study the Feasibility of Decreasing the Lightning Related Hazards to the Safety Complex	2011	Board of Selectmen	\$320	Lightning, Wildfire, Fire, Tech
34	#24-2008	Replace Warner Road Culvert Across Greenhough Pond	Nov 2013	Highway Department	\$15,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
33	#25-2008	Enhance Interdepartmental Communication	Jun 2010	Board of Selectmen	\$2,100 per year	Earthquake, Landslide, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Aging Infrastructure, Utility, Crash, Haz Mat
COMPLETED FROM 2014 PLAN						
35 R	#4-2008	Utilize Improved Sand on Roads	Apr 2015	Highway Department	\$10,000	Winter, Ice, Crash
30 R	#8-2008	Continue Town-wide Tree Maintenance	Annually	Highway Department	\$10,000 per year	Wind, Tropical, Winter, Debris, Crash
28	#9-2008	Identify Culverts via GPS	Jul 2016	Highway Department	\$3,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
35 R	#11-2008	Provide Property Owner Education Regarding Fire Permits	Repeated	Fire Department	\$0	Lightning, Wildfire, Fire, Drought
34	#12-2008	Provide Public Information to Residents to Regarding Home Fire Prevention	Annually	Fire Department	\$0	Lightning, Wildfire, Fire, Drought
30	#15-2008	Improve Road Infrastructure (partial)	Nov 2017	Highway Department	\$3.0m	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
36 P	#33-2014	Undertake Smith's Corner Improvements (partial)	Jul 2016	Highway Department	\$20,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter,

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7 PRIOR ACTION STATUS

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx \$ Cost	Natural Hazards Addressed
						River, Landslide, Scouring & Erosion
34	#34-2014	Replace Warner Road Culvert between Little Hill Road and Couchtown Road	Jul 2015	Highway Department	\$2,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
34 P	#36-2014	Undertake Hensmith Road Improvements (partial)	Jul 2017	Highway Department	\$30,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
30 R	#41-2014	Develop List of Persons Requiring Assistance During Disasters	Dec 2016	Fire Department	\$0	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat
30 R	#45-2014	Promote Public Education for Radon and Arsenic Testing for Wells	Jun & Jul 2019	Conservation Commission	\$500	Public Health, Water Quality, Air Quality
31	#50-2014	Review and Update Master Plan	Oct 2018	Planning Board	\$6,000	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat

Source: Salisbury Hazard Mitigation Committee

R = Repeated Project; P = Project Partially Completed – Both appear in [2019 Mitigation Action Plan](#)

The pink highlighted rows indicate the **19** total **Deleted** Actions in **Table 44** from the **2008 Plan** and the **2014 Plan** which will not be incorporated into the **2019 Plan** as **Deferred** Actions. Many of the recent Actions were **Deleted** because they were preparedness, response or recovery items and more appropriately belonged in the Town's *Emergency Operations Plan*.

Table 44
Deleted Mitigation Actions

Priority Score (2014)	Action Number	Action	Deleted Date	Who is Responsible	Approx \$ Cost	Why Deleted? The Action...
22	#26-2008	Build Highway Garage	Oct 2013	Board of Selectmen	\$500,000	Was financially infeasible
33	#27-2008	Create/Update Capital Improvement Plan	Oct 2013	Planning Board	\$500	Duplicates existing efforts
36	#28-2008	Semi-annual Police Officer Training	Oct 2013	Police Department	\$0	Was not relevant to the Town's situation
30	#29-2014	Undertake Road Improvements	Oct 2013	Highway Department	\$100,000	Was incorporated into another activity
30	#30-2014	Create Emergency Access off West Salisbury Road	Oct 2013	Highway Department	\$10,000	Was financially infeasible
20	#31-2014	Repair Little Hill Road	Oct 2013	Highway Department	\$60,000 +	Was an unrealistic undertaking
35	#32-2014	Collect Hazardous Waste at the Transfer Station	Oct 2013	Transfer Station	\$6,000	Was financially infeasible
DELETED FROM 2019 PLAN						
36	#37-2014	Replace Four Mill Road Culverts Across Brooks	Jun 2019	Highway Department	\$10,000	Was incorporated into another activity
33	#5-2008	Undertake Culvert Maintenance	Jun 2019	Highway Department	\$15,000 - \$50,00	Duplicates existing efforts
32	#6-2008	Implement Road Pre-Treatment	Jun 2019	Highway Department	\$10,000 annually	Was financially infeasible
31	#7-2008	Develop Plan for General Forest Management	Jun 2019	Conservation Commission	\$500 annually	No longer necessary or a priority to the Town
31	#40-2014	Encourage Radon Testing in Town Buildings	Jun 2019	Board of Selectmen	\$200	Was a preparedness, response or recovery activity
34	#10-2008	Purchase Radios for Communication During Emergency Situations	Jun 2019	Emergency Management	\$1,000	Was a preparedness, response or recovery activity
30	#42-2014	Undertake Community Outreach During an Emergency	Jun 2019	Fire Department	\$0	Was a preparedness, response or recovery activity
36	#13-2008	Continue and Improve Transfer Station Training	Jun 2019	Transfer Station	\$150 annually	Was a preparedness, response or recovery activity
36	#46-2014	Require Fire Department Certification	Jun 2019	Fire Department	\$7,500	Was a preparedness, response or recovery activity
33	#47-2014	Require NIMS and ICS Training for All Town Emergency	Jun 2019	Emergency Management	\$500	Was a preparedness, response or recovery activity

Priority Score (2014)	Action Number	Action	Deleted Date	Who is Responsible	Approx \$ Cost	Why Deleted? The Action...
		Responders and Department Heads				
32	#14-2008	Enhance Training for Hazardous Material at the Transfer Station	Jun 2019	Transfer Station	\$150	Was a preparedness, response or recovery activity
32	#49-2014	Require Rescue/EMS Certification	Jun 2019	Fire Department	\$10,000	Was a preparedness, response or recovery activity

Source: Salisbury Hazard Mitigation Committee

The tan highlighted rows in **Table 45** indicate the **15 Deferred** mitigation Actions from the **2014 Plan** which also appear in the forthcoming **2019 Plan's Mitigation Action Plan**. Many **Action** titles were revised to update the Action and to reflect the new focus on mitigation although the principle for each remains the same. The **Approximate Cost** may rise. They will all be reevaluated to accommodate **2019** needs in later sections.

Table 45
Deferred Mitigation Actions

Priority Score (2014)	Action Number	Action	Deferred Date	Who is Responsible	Approx \$ Cost	Why Deferred? Because...	Hazards Addressed
35 R	#4-2008	Utilize Improved Sand on Roads to Reduce Crashes on Town Roads During Winter Conditions	Jun 2019	Highway Department	13,000 annually	Action needs to be repeated for effectiveness (supply to last 5-7 years)	Winter, Crash
30 R	#8-2008	Develop a Policy for Hazardous Tree and Limb Removal to Reduce the Risk of Tree Debris During Winter, Wind, Tropical Events	Jun 2019	Board of Selectmen with Highway Department help	\$0	Action needs to be repeated for effectiveness	Winter, Wind, Tropical, Erosion & Scouring, Power Outage, Crash
35 R	#11-2008	Provide Property Owner Education Regarding Fire Permits to Reduce the Risk of Wildfires, Outdoor Fires, and other Fires	Jun 2019	Fire Department	\$0	Action needs to be repeated for effectiveness	Fire, Wildfire, Outdoor Fire
30	#16-2008	Update and Improve Road Management Plan to Reduce the Risk of Road Washouts, Erosion, and Culvert Debris	Jun 2019	Highway Department	\$0	Town lacked staff or volunteer capability	Flood, Erosion & Scouring, Debris, Tropical

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Priority Score (2014)	Action Number	Action	Deferred Date	Who is Responsible	Approx \$ Cost	Why Deferred? Because...	Hazards Addressed
36 P	#33-2014	Undertake Smith's Corner Area Improvements at Mill Road and Warner Road & Couchtown Road to Reduce the Risk of Flooding, Erosion, and Washout	Jun 2019	Highway Department	\$75,000	Town lacked funding capability, More time was necessary for completion	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris, River
34	#35-2014	Upgrade Two Culverts on Rabbit Road to Reduce the Risk of Flooding, Erosion, and Washout	Jun 2019	Highway Department	\$6,000	Action was a lower priority than other Town activities	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris
34 P	#36-2014	Undertake Hensmith Road Improvements to Reduce the Risk of Flooding, Erosion, and Washout	Jun 2019	Highway Department	\$45,000	Action needs to be repeated for effectiveness	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris
34	#38-2014	Upgrade Gerrish Road Culvert on Unnamed Wet Area to Reduce the Risk of Flooding, Erosion, and Washout	Jun 2019	Highway Department	\$5,000	Town lacked funding capability	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris
32	#39-2014	Upgrade West Salisbury Road Culvert by Cemetery to Reduce the Risk of Flooding, Erosion, and Washout	Jun 2019	Highway Department	\$6,000	More time was necessary for completion	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris
30 R	#41-2014	Develop List of Persons Requiring Assistance During Disasters or Floods to Reduce the Impact of Injury	Jun 2019	Emergency Management	\$0	Action needs to be repeated for effectiveness	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, River, Winter, Solar, Tropical, Wildfire
33	#43-2014	Provide Available Disaster Pamphlets and Information Regarding Emergency Supplies and Sheltering and Engage in Public Education for Developing a Personal 72-Hour Emergency Preparedness Kit to Minimize the Impact of Wind, Winter, Flood, Tropical and Other Hazards	Jun 2019	Emergency Management	\$0	Town lacked staff or volunteer capability	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire

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7 PRIOR ACTION STATUS

Priority Score (2014)	Action Number	Action	Deferred Date	Who is Responsible	Approx \$ Cost	Why Deferred? Because...	Hazards Addressed
31	#44-2014	Utilize Town Website to Publicize Emergency Management Information to Minimize the Impact of Wind, Winter, Flood, Tropical and Other Hazards	Jun 2019	Emergency Management	\$0	Town lacked staff or volunteer capability	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire
30 R	#45-2014	Promote Public Education for Radon and Arsenic Testing for Wells to Increase Resident Health and Safety	Jun 2019	Conservation Commission, with assistance from Health Officer	\$0	Action needs to be repeated for effectiveness	Health (Radon, Arsenic)
33	#48-2014	Participate in National Flood Insurance (NFIP) Training to Reduce the Impact of Floods on the Community	Jun 2019	Planning Board	\$0	Town lacked staff or volunteer capability	Flood, River Ice Jam, Scouring & Erosion, Tropical
29	#51-2014	Update the Zoning Ordinance to Comply with NFIP Requirements to Reduce the Impact of Flooding	Jun 2019	Planning Board	\$0	Action needs to be repeated for effectiveness	Flood, River Ice Jam, Scouring & Erosion, Tropical

Source: Salisbury Hazard Mitigation Committee

R = Repeated Project; P = Project Partially Completed – Both appear in [2019 Mitigation Action Plan](#)

8 MITIGATION ACTION PLAN

The Chapter provides a summary discussion of the Actions the community can consider completing to help mitigate the effects of hazard events.

The **Mitigation Action Plan** is the culmination of the work of the previous Assessments, inventories, and evaluations from the previous Chapters. Actions to help Salisbury mitigate the damages caused by disasters have been developed and prioritized by Hazard Mitigation Committee consensus in consideration of both existing and new development.

SOURCES OF ACTIONS

After determining the status of the existing Actions, **New** Actions can be determined. **New** Actions were evaluated by Hazard Mitigation Committee the using the **Problem Statements** determined during discussion of critical facility and community facility sites' potential vulnerability to hazards in the **Critical Facility and Community Vulnerability Assessment**. Many of these problems were further evaluated and developed into **New** mitigation Actions.

The **Capability Assessment** yielded a wealth of information from the **Future Improvements** of the plans, programs, ordinances, policies, agreements, technical skills, financial resources, and other resources the Town Departments, School District, and Stakeholders had available. These activities are important to the community. They assist Departments with the procedures, training, regional coordination, mutual aid, planning and purchases needed to perform their duties effectively. These activities in turn increase the capability for mitigating hazard events. For the **2019 Plan**, most of the **Capability Assessment's Future Improvements** activities were not utilized as Actions since they are more appropriate for the Town's **Emergency Operations Plan** recommendations.

Other community ideas were introduced to or by the Hazard Mitigation Committee as a result of Department, Board, Commission or Town discussions. Where appropriate, supported activities were introduced as New mitigation Actions.

Mitigation Actions developed emphasize both new and existing buildings and infrastructure to better protect populations of Salisbury.

Several uncompleted **Deferred** (2014) Salisbury mitigation Actions have been carried forward into the **2019 Plan** with the updates to the evaluation, cost, prioritization, etc.

ACTION MATRIX

A listing of **15 Deferred** mitigation Actions from **2014** and **15 New** mitigation Actions from **2019** important to the Town of Salisbury was developed for evaluation and inclusion into the **Mitigation Action Plan**. Each Action identifies at least one **Hazard Mitigated** which correlates to **3 GOALS AND OBJECTIVES**, describing how it can mitigate these identified natural hazard objectives. A short **Description and Evaluation** is provided and the **Affected Location** is listed to ensure easier understanding and reassessment of the Actions in the future during implementation.

The Actions are numbered for easier tracking over the years with this practice beginning in this **2019 Plan**. The **2019** Actions begin where the prior Actions left off, **#52- 2019** through **#66- 2019**. Over time, the Actions can be tracked to see which have been **Deferred** and to organize the **Completed** or **Deleted** Actions. For those with funding needs, the ability to reference an Action within the Capital Improvements Program or in a Warrant Article can alleviate confusion and further support the mitigation Actions.

Each Action is sorted into one of these four mitigation Action categories, although it might identify with several:

Local Planning and Regulation
Structure and Infrastructure Projects
Natural Systems Protection
Education and Awareness

Within the **Mitigation Action Plan**, the **Deferred 2014** Actions and the **New 2019** Actions are evaluated by the relative ease of completion using a numeric **Ranking Score** generated by the enhanced STAPLEE prioritization, by the **Action Timeframe** by which the Hazard Mitigation Committee would like to see the Action implemented, and by a basic **Cost to Benefit Analysis** as contained within the STAPLEE.

The **Responsible Department** is indicated for each Action as the party who will ensure the Action gets completed. An **Approximate Cost** is provided, although no definitive cost estimates or quotes have been obtained now. Ways the Action can be **Funded** is identified and offered as an avenue to explore during implementation. The purpose is to offer an idea of how much funding is provided for each Action and how it may be paid for.

Salisbury's Mitigation Action Plan 2019

At the meetings, the Hazard Mitigation Committee identified by consensus these mitigation Actions from the various **Assessments** and evaluations conducted. The process for Action development has been described in previous Chapters and sections. Combined with the visual **Maps 1-4** of the **Hazard Mitigation Plan 2019**, the **Mitigation Action Plan** shown in **Table 46 Planning and Regulatory**; **Table 47 Structure and Infrastructure**; **Table 48 Natural Systems Protection**; and **Table 49 Education and Outreach** should be able to guide future hazard mitigation efforts in the Town through an annual implementation process.

Fifteen (**15**) **Deferred** Actions from **2014** and **15 New** Actions from **2019** combine to develop the **30** Actions of the **2019 Mitigation Action Plan**. The **Deferred** Actions' cells are highlighted in tan.

Table 46

Local Planning and Regulation Actions

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#16-2008	Update and Improve Road Management Plan to Reduce the Risk of Road Washouts, Erosion, and Culvert Debris	<u>Medium Term</u> 3-4 Years	60	Highway Department	\$0	Organize information on road conditions and their needs for improvement to support capital improvement planning to prioritize projects.	Flood, Erosion & Scouring, Debris, Tropical	Town Roadways	Cost is for in-kind staff and volunteer labor.	N/A
#51-2014	Update the Zoning Ordinance to Comply with NFIP Requirements to Reduce the Impact of Flooding	<u>Short Term</u> 1-2 Years, then Ongoing	56	Planning Board	\$0	For towns enrolled in the National Flood Insurance Program (NFIP), RSA 674:57 Flood Hazards enables Boards of Selectmen to adopt amendments to flood insurance rate maps, which are automatically included in the Floodplain Ordinance. Required revisions could be provided at any time from the federal government to the NH Office of Strategic Initiative, who notifies the Town of what changes need to be made.	Flood, River Ice Jam, Scouring & Erosion, Tropical	Floodplain	Cost is for in-kind staff and volunteer labor.	N/A
#52-2019	Encourage the Planning Board to Review the 2000 Telecommunications Zoning Ordinance to Reduce the Regulations to Enable for Easier Tower Location in Salisbury to Increase Everyday and Emergency Communications	<u>S Short Term</u> 1-2 Years	54	Planning Board	\$800	Salisbury has many cell phone dead zones, where people are unable to reach emergency response. TDS removed all hardlines on the poles for the entire community. Offering fiber optic instead on the poles. For every connection, TDS get paid whoever the carrier is.	Lightning, Wildfire, Wind, Winter, Tree Debris, Power Outages	Entire Town	Cost is for public noticing and two hours of legal review.	Planning Board Legal Public Line Item Budget

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8 MITIGATION ACTION PLAN

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#53-2019	Develop a Floodplain Zoning Overlay for the Town Including the Blackwater Reservoir Area to Reduce the Impact of Floods, Road Washouts, Erosion, and Culvert Debris	<u>Medium Term</u> 3-4 Years	57	Planning Board	\$2,500	The precise area of flooding is not known and it would be prudent to develop an zoning overlay to ensure new buildings are not placed in these areas to reduce the flooding currently seen on roads servicing existing homes. Other restrictions could be included as needed.	Flood, Erosion & Scouring, Debris, Tropical, River	Floodplain and Blackwater Reservoir Flood Control Area	Cost is for hiring a mapping contractor to define the floodplain area, legal and public noticing.	Planning Board Consulting Line Item and Legal/Noticing Line Item
#65-2019	Ensure Capital Planning Funding for Hazard Mitigation Projects is Available to Reduce the Impact of Natural Hazards in Town	<u>Short Term</u> 1-2 Years	70	Planning Board, with CIP Committee and Budget Committee	\$0	Many of the projects outlined in the Hazard Mitigation Plan have not been incorporated into the general budget and need be discussed at the annual March Town Meetings. Funds would need to be secured for such issues as certify all fire fighters, developing a sanding policy and its publishing, publishing a booklet with information for townspeople on where to shelter, etc. This will accomplish transparency and community involvement. Projects should be incorporated into the Capital Improvements Program (CIP) to ensure funding is spread out evenly over time. Budget Committee will partner with CIP Committee of the Planning Board.	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for in-kind staff and volunteer labor	N/A

Source: Salisbury Hazard Mitigation Committee

Table 47
Structure and Infrastructure Projects

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#4-2008	Utilize Improved Sand on Roads to Reduce Crashes on Town Roads During Winter Conditions	<u>Short Term</u> 1-2 Years, then Ongoing	64	Highway Department	13,000 annually	Supply could last 5-7 years, will need to find new supplier. Less silt and more grit will enable safer travel of vehicles on hilly Salisbury gravel roads.	Winter, Crash	Town Roadways	Cost will pay for the sand.	Highway Budget Winter Maintenance Lie Item
#8-2008	Develop a Policy for Hazardous Tree and Limb Removal to Reduce the Risk of Tree Debris During Winter, Wind, Tropical Events	<u>Short Term</u> 1-2 Years	65	Board of Selectmen with Highway Department help	\$0	Although Town-wide hazardous tree and limb removal will continue for safety and power outage purposes, a policy will enable both residents and Highway Department to view the criteria used to remove trees. This criteria is currently unwritten.	Winter, Wind, Tropical, Erosion & Scouring, Power Outage, Crash	Entire Town	Cost is for in-kind staff and volunteer labor.	N/A
#33-2014	Undertake Smith's Corner Area Improvements at Mill Road and Warner Road & Couchtown Road to Reduce the Risk of Flooding, Erosion, and Washout	<u>Long Term</u> 4-5 Years	57	Highway Department	\$75,000	The Smith's Corner improvements at three Town roads will reduce the impact of flooding. These roads are located in the flood control area and have gates closing them off. Some small part might not be in the flood control area. The plan is to raise road profile, install more culverts on Couchtown to improve flow: 500' Warner Road, 1,000' Couchtown Road (3 culverts remaining to upgrade), 600' Mill Road (1 culvert upgraded to date).	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris, River	Mill Road and Warner Road & Couchtown Road, Blackwater Reservoir Flood Control Area	Cost is for materials, culverts, pipes to finish upgrading the Smith Corner's Area.	Flood Control Capital Reserve Fund
#35-2014	Upgrade Two Culverts on Rabbit Road to Reduce the	<u>Long Term</u> 4-5 Years	66	Highway Department	\$6,000	Project is important because it will prevent the road from washing out due to old culverts. Existing 15" culvert is rusted out.	Flooding (Road Washout), Erosion &	Rabbit Road	Cost is for materials and culverts. Labor	Highway Dept Summer

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8 MITIGATION ACTION PLAN

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Risk of Flooding, Erosion, and Washout					Replacement culvert will be the same size.	Scouring, Tropical, Debris		is in-kind staff labor.	Maintenace
#36-2014	Undertake Hensmith Road Improvements to Reduce the Risk of Flooding, Erosion, and Washout	<u>Long Term</u> 4-5 Years	65	Highway Department	\$45,000	This large job has drainage issues and road washouts. About 3-4 culverts need to be upgraded. In the Hensmith Road area, make appropriate road upgrades to crucial places. Clean ditches, provide better site distance, remove hazards, replace rusted culverts, remove trees, fix potholes, etc	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris	Hensmith Road	Cost is for replacing culverts and resurfacing with gravel with contracted labor.	Highway Dept Summer Maintenace
#38-2014	Upgrade Gerrish Road Culvert on Unnamed Wet Area to Reduce the Risk of Flooding, Erosion, and Washout	<u>Long Term</u> 4-5 Years	66	Highway Department	\$5,000	Project is important because it will prevent the road from washing out due to old culverts. The existing 15" metal culvert is deteriorating (rusted out). Replacement culvert will be the same size but entirely new.	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris	Gerrish Road	Cost is for materials and culverts.	Highway Dept Summer Maintenace
#39-2014	Upgrade West Salisbury Road Culvert by Cemetery to Reduce the Risk of Flooding, Erosion, and Washout	<u>Medium Term</u> 3-4 Years	68	Highway Department	\$6,000	Project is important because it will prevent the road from washing out due to old culverts. Culvert is deteriorating and residents cannot get to their homes when the road floods. Existing 36" culvert is rusted and its ends are buried. Replacement culvert will be the same size, but will be new and stable.	Flooding (Road Washout), Erosion & Scouring, Tropical, Debris	West Salisbury Road	Cost is for materials and culverts.	Highway Dept Summer Maintenace
#54-2019	Investigate Costs & Install for a Stand-alone Generator at the Transfer Station for Lighting to Reduce the Incidence of	<u>Medium Term</u> 3-4 Years	66	Recycling Committee	\$5,000	The Transfer Station has no electricity and no automation. There is a closed landfill at the site. The recycling in the Town has mostly stopped and trash is regularly vandalized. Lighting of	Human (Vandalism, Sabotage, Injury)	Transfer Station	Cost is for materials and labor to install lighting and automation with a stand-alone	Warrant Article

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8 MITIGATION ACTION PLAN

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Vandalism and Potential Injury					the facility is necessary to help reduce vandalism.			generator on a concrete pad.	
#55-2019	Study the Adequacy of the Safety Complex's Surge Suppression System and If Necessary Install a Lightning Rod System to Reduce the Risk of Lightning Strike, Fire, and Electronic Damage	<u>Short Term</u> 1-2 Years	67	Board of Selectmen	\$0	The Safety Complex housing the Fire and Police Offices has a metal roof and has been regularly struck by lightning. Lightning rods are being considered to ensure safety of this essential town building. Surge suppression has been added at the Safety Complex. Likely no rod and further suppression system necessary.	Lightning, Wind, Winter, Tropical, Wildfire, Power Outage	Safety Complex	Cost is for in-kind staff and volunteer labor.	N/A
#56-2019	Update the Surge Panel at the Town Office (Academy Hall) to Protect Against Lightning, and Subsequently Computer Systems and Data Damage	<u>Long Term</u> 4-5 Years	71	Board of Selectmen	\$300	The Town Office facilities at Academy Hall are contained in a wooden, historic building which has not been upgraded. The Safety Complex housing the Fire and Police Offices has a metal roof and has been regularly struck by lightning. Should Academy Hall be struck by lightning, the building could burn or the Town computer system and electronics could be fried. Lightning rods are being considered to ensure safety of this essential town building.	Lightning, Wind, Winter, Tropical, Wildfire, Power Outage	Academy Hall (Town Office)	Cost is for surge suppressor for the panel.	Government Buildings Line Item
#57-2019	Acquire Access to the Museum and Historical Society Wooden Historic Buildings to Reduce the Impact of Fire Conflagration	<u>Short Term</u> 1-2 Years	71	Fire Department	\$0	Fire Dept does not have key access to the Museum and Historical Society. Because of the building's location and age, it has the potential to facilitate a fire conflagration.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human, Conflagration	Museum and Historical Society	Cost is for in-kind staff and volunteer labor.	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#58-2019	Install Surge Suppressors on Panels of Lightning Systems for All Remaining Town Buildings after the Academy Hall and Safety Complex Systems Are Installed to Reduce the Risk of Fires, Computer Systems Destruction, and Power Outages	<u>Long Term</u> 4-5 Years	69	Board of Selectmen	\$1,000	Bring info to organizations on the risks and benefits of lightning surge redirection systems. Old Town Hall, Library, Museum, Historical Society are all wooden, historic buildings, Church complex could be vulnerable to wildfire, lightning. Aging. Buildings, posts rotting underneath. Need long term care and rehabilitation. The Library has an alarm system with an alarm service. Old Town Hall has a flashing light alarm over buildings. Records loss could result from computer damage in some of these facilities.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human, Power Outage	Old Town Hall, Library, Museum, Historical Society	Cost is for Library and Old Town Hall for panel surge suppressors.	Government Buildings Line Item
#59-2019	Lower the Grade at Safety Complex Building to Accommodate a Working Drainage System to Enable Emergency Response and Town Service Functions	<u>Long Term</u> 4-5 Years	71	Board of Selectmen	\$5,000 - \$10,000	Snow and ice build-up occurs at the doors to the Safety Complex because the floor level is not higher than the grade. Water flows down the sides of the building and ponds/freezes in front of the doors, including at the Police Department Office. Roof drainage needs to be redirected and the ground around the building needs to be lowered.	Flood, Winter, Tropical	Highway Department Safety Complex	Cost is for regrading the site.	Buildings and Grounds Capital Reserve Fund

Source: Salisbury Hazard Mitigation Committee

Table 48
Natural Systems Protection Actions

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#60-2019	Increase the Transfer Station Hours Open to Public to Reduce the Waste Collecting at Residences or Dropped Off in the Woods to Protect Water Quality and Reduce Hazardous Waste Contamination	Medium Term 3-4 Years	69	Board of Selectmen, with help of Recycling Committee	\$0	Transfer Station hours should include staying open Wednesday all year to enable more people to bring their refuse in. The Recycling Committee could handle this effort on a volunteer basis.	Hazardous Materials Spill, Water Quality, Public Health, Soil and Environment Health	Transfer Station	Cost is for in-kind staff and volunteer labor	N/A
#61-2019	Develop a Policy to Provide Water to Agricultural Properties During Drought Conditions and Publicize a Public Potable Water Supply for Residents	Short Term 1-2 Years	63	Emergency Management, with Fire Department assistance	\$0	Fire Department has brought water to farms during drought conditions. Water available at Safety Complex, and Old Town Hall with water purification systems installed, potable through outside spigots. Publicize via Facebook (summer 2019) notifications, announcements/events, website.	Drought, Fire, Water Quality, Health	Entire Town	Cost is for in-kind staff and volunteer labor	N/A
#62-2019	Identify Illegal Junkyards and Salvage Yards to Potentially Conduct Legal Action to Ensure Regulations are Followed to Protect Drinking Water and Soil from Contamination	Long Term 4-5 Years	61	Board of Selectmen	\$0	Some unofficial junkyards have more than the official number of unregistered (or unroadworthy) vehicles. The South Road junkyard borders the Beaverdam Brook. Flooding could cause groundwater contamination (water quality) and hazardous materials spills (water quality, soil degradation) could result because of fluids in vehicles and appliances.	Hazardous Materials Spill, Water Quality, Public Health, Soil and Environment Health	Junkyards, South Road (Beaverdam Brook)	Cost is for in-kind staff and volunteer labor	N/A

Source: Salisbury Hazard Mitigation Committee

Table 49
Education and Awareness Actions

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#11-2008	Provide Property Owner Education Regarding Fire Permits to Reduce the Risk of Wildfires, Outdoor Fires, and other Fires	Short Term 1-2 Years, then Ongoing	71	Fire Department	\$0	This project will inform property owners of the rules regarding fire permits. Techniques include talking with residents when they receive the permit, placing information on Town website, and more.	Fire, Wildfire, Outdoor Fire	Entire Town	Cost is for in-kind staff and volunteer labor	N/A
#41-2014	Develop List of Persons Requiring Assistance During Disasters or Floods to Reduce the Impact of Injury	Short Term 1-2 Years	58	Emergency Management	\$0	A list of flooded road Reservoir Area 100 residents needing assistance during disasters, such as those on oxygen or requiring electricity or medication, will be developed and regularly updated. A planned evacuation may be necessary, with assistance of the Red Cross or Capital Area Public Health Network. The list will be a paper list, not a digital list.	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for in-kind staff and volunteer labor	N/A
#43-2014	Provide Available Disaster Pamphlets and Information Regarding Emergency Supplies and Sheltering and Engage in Public Education for Developing a Personal 72-Hour Emergency Preparedness Kit to Minimize the Impact of Wind, Winter, Flood, Tropical and Other Hazards	Short Term 1-2 Years, then Ongoing	64	Emergency Management	\$0	Informational materials will increase public awareness and help prevent damage to life as well as improve public relations. Information will be disseminated through reproduction of the pamphlets posted on the Town of Salisbury website and in the Annual Town Report; brochures will be made available at the Town Office, Transfer Station, churches, Barn Store and other public gathering places. CAPHN provides training for go-kits, and their website and Facebook page contain online resources. This in-	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for in-kind staff and volunteer labor	N/A

Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						depth community awareness activity encourages long-term, personal mitigation techniques to ensure people are safer when natural hazard events occur.				
#44-2014	Utilize Town Website to Publicize Emergency Management Information to Minimize the Impact of Wind, Winter, Flood, Tropical and Other Hazards	Short Term 1-2 Years, then Ongoing	67	Emergency Management	\$0	Use the Town's website more effectively by providing resources and links to resources such as subscribing to Emergency Warning Systems, road closures, policies, ready.nh.gov, fema.gov, and more. The Town Departments can post the Haz Mit Plan & EOP online at the new EM web page. Facebook or social media is another alternative. This in-depth community awareness activity encourages long-term, personal mitigation techniques to ensure people are safer when natural hazard events occur.	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for in-kind staff and volunteer labor	N/A
#45-2014	Promote Public Education for Radon and Arsenic Testing for Wells to Increase Resident Health and Safety	Short Term 1-2 Years, then Ongoing	63	Conservation Commission, with assistance from Health Officer	\$0	Although radon was removed from the Hazard Mitigation Plan, the problem remains throughout the State and in Salisbury within the bedrock and private wells. The Town has significant radon and arsenic readings when wells are tested. The Conservation Commission promotes testing (last occurring June 2019) and provides information both on the Town website and in person at an annual workshop. The CC has undertaken this testing for the last 2 years.	Health (Radon, Arsenic)	Entire Town	Cost is for in-kind staff and volunteer labor	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#48-2014	Participate in National Flood Insurance (NFIP) Training to Reduce the Impact of Floods on the Community	<u>Short Term</u> 1-2 Years	65	Planning Board	\$0	In order for Planning Board members, Zoning Board of Adjustment members, Town Administration, Assessor, and the Building Inspector to remain current with NFIP procedures and policies, regular training must be taken. This training would broaden the Town's identification and knowledge of building projects that may be in the floodplain. Online workshops are offered by the State and/or FEMA (or in other training) and addresses flood hazard planning and management.	Flood, River Ice Jam, Scouring & Erosion, Tropical	Entire Town, Floodplain	Cost is for in-kind staff and volunteer labor	N/A
#63-2019	Hold Discussion with Tucker Pond Community about Fire and Emergency Response Risks when Apparatus Cannot Enter the Community	<u>Short Term</u> 1-2 Years	64	Fire Department	\$0	Tucker Pond community's private roads cannot fit fire apparatus, which is dangerous should emergency assistance be necessary. There is no turn-around available for response equipment. The Pond's association owns an old floating fire pump in the water.	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Tucker Pond	Cost is for in-kind staff and volunteer labor	N/A
#64-2019	Research the Establishment of a Local Citizens Emergency Response Team (CERT) to Enable Quick Response to Disasters in Salisbury	<u>Medium Term</u> 3-4 Years	57	Emergency Management	\$0	Despite its new ambulance agreement with Penacook Rescue, the Town has many of its emergency personnel working out of town and emergency response could take time. However, the main issue is when the Town has a large-scale disaster or other emergency where Departments would benefit from assistance in	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for in-kind staff and volunteer labor	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						maintaining the safety of townspeople, more trained people should be available to respond. The development of a local CERT is an appropriate activity to help gather medical and other resources when needed and can assist with locating medical and sheltering facilities available during events.				
#66-2019	Identify Surrounding Towns That Can Accept Salisbury HHW and Publicize Options to Protect Groundwater and Soil from Hazardous Materials	Short Term 1-2 Years	72	Board of Selectmen	\$0	There is currently no way for Town residents to dispose of hazardous waste properly. The Transfer Station does not take these items nor does it offer an annual collection. Many liquids and machines could be dumped in the vastness of the Town and no one would know. Publicize Household Hazardous Waste (HHW) options for Salisbury residents on the Town website, & Facebook. Consider instituting a voucher program. Find out if surrounding towns will accept HHW from other Towns.	Hazardous Materials Spill, Water Quality, Public Health, Soil and Environment Health		Cost is for in-kind staff and volunteer labor	N/A

Source: Salisbury Hazard Mitigation Committee

Great Mitigation Projects... And the Realities of Project Implementation in New Hampshire

These important but costly and/or time-consuming mitigation projects identified in the **Mitigation Action Plan** represent the best case scenarios (or to some, “wish-list” items) for completion. There are many barriers to successful implementation of any project which is outside the typical duties of a Town staff member or volunteer. The annual struggle to obtain municipal funding at Town Meetings and the uncertainty of political & local support needed for hazard mitigation projects, the limited staff time available to administer and complete the projects, and dwindling volunteer support to help locate grants and work on the Action Plan items all reduce the Town’s ability to complete successful hazard mitigation projects within the Plan’s 5-year lifespan. Town staff and volunteers are usually required to be reactive to their numerous daily duties or annual processes and have little availability to be proactive. This is especially true for the Central NH region’s smaller communities that rely on voter support for staff hiring and/or hazard mitigation project budget funding, which is 19 out of 20 municipalities (the Towns).

Therefore, mitigation and other projects are generally completed on an “as-needed basis” or on an “as-available basis” despite the different ways of evaluation and prioritization shown within the **Hazard Mitigation Plan 2019**. Small New Hampshire communities do the best they can with the resources available to them to make ends meet, particularly in times of economic duress or hardship and our State’s aging population. Town Meeting voters decide whether to approve new zoning ordinances which can help mitigate hazards, vote to approve Department Budgets which usually are sustainable and do not allow enough flexibility to plan ahead, and vote to approve Warrant Articles for a hazard mitigation project. Town volunteers are relied upon to do much of the hazard mitigation work as Town staff are already engaged in real-time, constant public engagement issues and have little additional time available for planning. Few younger people are stepping up to the plate of community volunteering when our existing volunteers are retiring. Indeed, many staff or volunteers have dual or triple roles in the community to fill vacancies, such as a Town Administrator serving as Health Officer and Human Services Officer and a volunteer Fire Chief serving as volunteer Emergency Management Director. Town staff try to accomplish their priority hazard mitigation projects in between their normal duties, but the reactive nature of New Hampshire municipal operations does not provide the necessary support unless there is an urgent need.

Our State’s communities, including Salisbury, are used to “toughing it out” and will try to accomplish all they can with the time, funding, and resources available to them. However, many of these **2019** Actions may end up **Deferred** to **2024** simply because of the unique nature of our independent State and community cultures.

Action Evaluation and Prioritization Methods

A variety of methods were utilized to evaluate and prioritize the Actions. These methods include the enhanced STAPLEE (Social Technical Administrative Political Legal Environmental and Economics) criteria, designating the Action to be completed within a certain timeframe, and completing a basic **Cost to Benefits Analysis**, a later section. These prioritization methods are meant to enable the community to better identify which Actions are more important and are more feasible than others.

ENHANCED STAPLEE METHOD

An enhanced provided a better methodology for prioritization the Actions against one another. The Hazard Mitigation Committee ranked each of the mitigation Actions derived from the evaluation process. The total **Ranking Score** serves as a guide to the relative ease of Action completion by scoring numerous **societal and ethical impact questions** and does not represent the Town's Action *importance* priority. Instead, the STAPLEE process evaluates each Action and attempts to identify some potential barriers to its success. As revised in **2019**, a score of **75** would indicate that the mitigation strategy, or Action, would be relatively among the easiest Actions to achieve from a social and ethical standpoint.

The previous Plans including the **2014 Plan** had answered the same questions, except the three new questions regarding funding, staffing, and historic preservation, on a scale of **1-3**, with "**1**" indicating a **NO** response, "**2**" indicating a **MAYBE** response, and "**3**" indicating a **YES** response, for a possible highest ranking total score of **36**.

There is more latitude in the **2019 Plan's** enhanced STAPLEE scores to more easily identify the relatively easiest Action projects for completion. All enhanced STAPLEE answers are subjective and depend on the opinions of the Committee members discussing them. The Committee answered these **15** questions with a numeric score of "**1**" indicating a **NO** response, "**2**" indicating an **UNCERTAIN** response, "**3**" indicating a **MAYBE** response, "**4**" indicating a **LIKELY** response or "**5**" indicating a **YES** response, about whether the Action can fulfill the criteria:

- Does the action reduce damage and human losses?
- Does the action contribute to community objectives?
- Does the action meet existing regulations?
- Does the action protect historic structures?
- Can the action be implemented quickly?
- Is the action socially acceptable?
- Is the action technically feasible?
- Is the action administratively possible?
- Is the action politically acceptable?

Action Completion	
RANKING	SCORE
Excellent	75 - 60
Good	45 - 59
Fair	44 - 30
Poor	29 - 15

- Does the action offer reasonable benefits compared to its cost in implementing?
- Is the action legal?
- Is the action support or protect the environment?
- Does the action have the funding necessary for completion?
- Does the action have the necessary staff or volunteers to undertake?
- Does the action support historic preservation?

The enhanced STAPLEE scores can range from a low of **15** to a high **75**, the highest possible ranking. Salisbury's **Mitigation Action Plan** STAPLEE rating is shown in **Figure 28** and includes a basic benefit-cost ranking as shown in yellow.

Figure 28
Enhanced STAPLEE Ranking of Mitigation Actions

Action Number	Does the Action..... or Is the Action.....	Reduce Damage? (or Injury)	Contribute to Town Objectives? (Supported by Master Plan or current thinking?)	Meet Regulations? (If there are any)	Protect Sensitive Structures? (Buildings, roads, culverts, human-made things?)	Implement Quickly? (See also Action Plan for Timeframe)	Socially Acceptable? (People like it)	Politically Acceptable? (Public Officials like it)	Administratively Realistic? (Have admin skills or time for paperwork)	Technically Feasible? (Have tech skills or special equipment)	Have a Reasonable Cost to Benefits Gained?	Legal? (Or will be legal upon completion)	Support or Protect the Environment?	Have the Funding?	Have Necessary Staff or Volunteers?	Support Historic Preservation?	Ranking Score 15-75
ACTION																	
#16- 2008	Update and Improve Road Management Plan to Reduce the Risk of Road Washouts, Erosion, and Culvert Debris	1	4	5	5	4	4	5	3	3	5	5	3	5	5	3	60
#51- 2014	Update the Zoning Ordinance to Comply with NFIP Requirements to Reduce the Impact of Flooding	1	3	5	5	5	4	5	5	5	5	5	2	0	5	1	56
#52- 2019	Encourage the Planning Board to Review the 2000 Telecommunications Zoning Ordinance to Reduce the Regulations to Enable for Easier Tower Location in Salisbury to Increase Everyday and Emergency Communications	1	5	5	1	3	3	4	5	5	5	5	1	5	5	1	54
#53- 2019	Develop a Floodplain Zoning Overlay for the Town Including the Blackwater Reservoir Area to Reduce the Impact of Floods, Road Washouts, Erosion, and Culvert Debris	1	5	5	1	3	3	5	5	3	5	5	3	5	5	3	57
#65- 2019	Ensure Capital Planning Funding for Hazard Mitigation Projects is Available to Reduce the Impact of Natural Hazards in Town	5	5	5	5	3	5	5	5	5	5	5	5	5	5	2	70
#4- 2008	Utilize Improved Sand on Roads to Reduce Crashes on Town Roads During Winter Conditions	5	5	5	1	5	5	5	5	5	5	5	2	5	5	1	64
#8- 2008	Develop a Policy for Hazardous Tree and Limb Removal to Reduce the Risk of Tree Debris During Winter, Wind, Tropical Events	1	5	5	5	5	3	5	5	5	5	5	3	5	5	3	65
#33- 2014	Undertake Smith's Corner Area Improvements at Mill Road and Warner Road & Couchtown Road to Reduce the Risk of Flooding, Erosion, and Washout	5	5	5	5	1	4	4	5	5	1	5	5	1	5	1	57
#35- 2014	Upgrade Two Culverts on Rabbit Road to Reduce the Risk of Flooding, Erosion, and Washout	5	5	5	5	1	5	5	5	5	5	5	5	4	5	1	66
#36- 2014	Undertake Hensmith Road Improvements to Reduce the Risk of Flooding, Erosion, and Washout	5	5	5	5	2	5	5	5	5	5	5	5	2	5	1	65
#38- 2014	Upgrade Gerrish Road Culvert on Unnamed Wet Area to Reduce the Risk of Flooding, Erosion, and Washout	5	5	5	5	1	5	5	5	5	5	5	5	4	5	1	66
#39- 2014	Upgrade West Salisbury Road Culvert by Cemetery to Reduce the Risk of Flooding, Erosion, and Washout	5	5	5	5	4	5	5	5	5	5	5	5	3	5	1	68
#54- 2019	Investigate Costs & Install for a Stand-alone Generator at the Transfer Station for Lighting to Reduce the Incidence of Vandalism and Potential Injury	5	5	5	5	3	5	5	5	5	5	5	2	5	5	1	66

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Action Number	Does the Action..... or Is the Action.....	Reduce Damage? (or Injury)	Contribute to Town Objectives? (Supported by Master Plan or current thinking?)	Meet Regulations? (If there are any)	Protect Sensitive Structures? (Buildings, roads, culverts, human-made things?)	Implement Quickly? (See also Action Plan for Timeframe)	Socially Acceptable? (People like it)	Politically Acceptable? (Public Officials like it)	Administratively Realistic? (Have admin skills or time for paperwork)	Technically Feasible? (Have tech skills or special equipment)	Have a Reasonable Cost to Benefits Gained?	Legal? (Or will be legal upon completion)	Support or Protect the Environment?	Have the Funding?	Have Necessary Staff or Volunteers?	Support Historic Preservation?	Ranking Score 15-75
#55- 2019	Study the Adequacy of the Safety Building's Surge Suppression System and If Necessary Install a Lightning Rod System to Reduce the Risk of Lightning Strike, Fire, and Electronic Damage	5	5	5	5	5	5	5	5	5	5	5	1	5	5	1	67
#56- 2019	Update the Surge Panel at the Town Office (Academy Hall) to Protect Against Lightning, and Subsequently Computer Systems and Data Damage	5	5	5	5	5	5	5	5	5	5	5	1	5	5	5	71
#57- 2019	Acquire Access to the Museum and Historical Society Wooden Historic Buildings to Reduce the Impact of Fire Conflagration	5	5	5	5	5	5	5	5	5	5	5	1	5	5	5	71
#58- 2019	Encourage the Installation of Lightning Systems for All Remaining Town Buildings after the Academy Hall and Safety Building Systems are Installed to Reduce the Risk of Fires, Computer Systems Destruction, and Power Outages	5	5	5	5	3	5	5	5	5	5	5	1	5	5	5	69
#59- 2019	Lower the Grade at Safety Complex Building to Accommodate a Working Drainage System to Enable Emergency Response and Town Service Functions	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	71
#60- 2019	Increase the Transfer Station Hours Open to Public to Reduce the Waste Collecting at Residences or Dropped Off in the Woods to Protect Water Quality and Reduce Hazardous Waste Contamination	5	5	5	3	5	5	5	5	5	5	5	5	5	5	1	69
#61- 2019	Develop a Policy to Provide Water to Agricultural Properties During Drought Conditions and Publicize a Public Potable Water Supply for Residents	1	5	5	1	5	5	5	5	5	5	5	5	5	5	1	63
#62- 2019	Identify Illegal Junkyards and Salvage Yards to Potentially Conduct Legal Action to Ensure Regulations are Followed to Protect Drinking Water and Soil from Contamination	1	5	5	2	3	3	5	5	5	5	5	5	5	5	2	61
#11- 2008	Provide Property Owner Education Regarding Fire Permits to Reduce the Risk of Wildfires, Outdoor Fires, and other Fires	4	5	5	4	5	5	5	5	5	5	5	5	5	5	3	71
#41- 2014	Develop List of Persons Requiring Assistance During Disasters or Floods to Reduce the Impact of Injury	1	5	5	1	5	5	5	5	5	5	5	1	5	4	1	58
#43- 2014	Provide Available Disaster Pamphlets and Information Regarding Emergency Supplies and Sheltering and Engage in Public Education for Developing a Personal 72-Hour Emergency Preparedness Kit to Minimize the Impact of Wind, Winter, Flood, Tropical and Other Hazards	4	5	5	1	5	5	5	5	5	5	5	1	5	5	3	64
#44- 2014	Utilize Town Website to Publicize Emergency Management Information to Minimize the Impact of Wind, Winter, Flood, Tropical and Other Hazards	3	5	5	3	5	5	5	5	5	5	5	3	5	5	3	67
#45- 2014	Promote Public Education for Radon and Arsenic Testing for Wells to Increase Resident Health and Safety	1	5	5	5	5	5	5	5	5	5	5	1	5	5	1	63
#48- 2014	Participate in National Flood Insurance (NFIP) Training to Reduce the Impact of Floods on the Community	1	5	5	5	5	5	5	5	5	5	5	3	5	5	1	65
#63- 2019	Hold Discussion with Tucker Pond Community about Fire and Emergency Response Risks when Apparatus Cannot Enter the Community	4	5	5	3	3	5	5	5	5	5	5	2	5	5	2	64
#64- 2019	Research the Establishment of a Local Citizens Emergency Response Team (CERT) to Enable Quick Response to Disasters in Salisbury	1	5	5	1	5	5	5	5	5	5	5	1	5	3	1	57
#66- 2019	Identify Surrounding Towns That Can Accept Salisbury HHW and Publicize Options to Protect Groundwater and Soil from Hazardous Materials	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2	72

Source: Salisbury Hazard Mitigation Committee

ACTION TIMEFRAMES

The Actions are also prioritized by an estimated **Action Timeframe** for completion based upon the other Town activities (hazard mitigation-related or not), funding potential for the Action, the need for the Action project, and possible staff time and volunteers available to complete the Action. This relative Action importance priority is measured by the **time indicated for project completion**. All Action projects within the **Mitigation Action Plan** have been assigned an **Action Timeframe**.

Those projects which are designated as **Ongoing** mean the Action should be undertaken on a regular basis throughout the five-year lifespan of the Plan. Actions that could qualify as **Ongoing** include public education, zoning ordinance or regulation revisions, essential mitigation maintenance and more. However, even **Ongoing** Actions are completed once before repetition. As a result, those Actions with an **Ongoing Action Timeframe** also include a duration (**Short**, **Medium** or **Long Term**) included.

Action Timeframe	Description of Timeframe
Ongoing	Action undertaken throughout the life of the 5-year Plan
Short Term	Action should be undertaken during Years 1-2 of the Plan
Medium Term	Action should be undertaken during Years 3-4 of the Plan
Long Term	Action should be undertaken during Years 4-5 of the Plan

Short Term projects are those which are the more important Actions and should be undertaken during **Years 1-2** of the Plan's lifespan if possible. **Medium Term** Actions are recommended by the Hazard Mitigation Committee to be undertaken during **Years 3-4** of the Plan's lifespan, while **Long Term** Actions are those which should wait until last, with suggested implementation undertaken during Plan **Years 4-5**. It is important to remember the **Action Timeframes** are relative to each other and are another indication of Action importance. If an Action cannot be completed within the **Action Timeframe**, it may still be a higher priority than other Actions but was unable to be implemented for some reason.

Both the **Action Timeframe** and the **Ranking Score** are incorporated into the **Mitigation Action Plan** to assist the Town with implementing the hazard mitigation Actions. The Actions can be sorted within their Action Category by either priority for easy display of the desired characteristic; Actions can also be sorted by **Responsible Department** to keep them all together for ease of completion.

COST TO BENEFIT ANALYSIS

A simple **Cost to Benefit Analysis** ranking is contained within the enhanced STAPLEE criteria as displayed in the previous **Figure**.

Natural Hazards Evaluated for Which Specific Actions Were Not Identified

The Hazard Mitigation Committee assessed each of hazards and made determinations whether to specifically develop mitigation Actions for all **13** natural hazards and the **1** technological hazard. Nearly all the potential Actions can be applied to multiple natural or other hazards based upon the generality of the Action's effect. Still, there could be no solutions or mitigation Actions developed for some of the more difficult to mitigate natural hazards. Many possible reasons are considered such as feasibility, prohibitive cost, jurisdiction, staff availability to develop and administer the project, lack of local support, unrealistic favorable outcome for the effort and more, all resulting in the point that for some natural hazards, potential Actions would not have worked for the Town.

Many Actions are general in nature and have the capacity to mitigate multiple types of natural hazards. From **4 HAZARD RISK ASSESSMENT**, those natural hazards rated a **LOW Concern** may not have been considered for an Action because their priority was not as important as other hazards. The **MEDIUM** and **HIGH Concern** hazards either have generalized or targeted Actions associated with them in the **Mitigation Action Plan** or the reason why no specific or feasible Action was developed for the highest **Concerns** is described in **Table 50**.

Table 50

Committee Assessment of Priority Natural Hazards with No Mitigation Actions

CONCERN	Natural Hazard	Committee Assessment
MEDIUM	Drought	See Actions.
LOW	Earthquake	Not a priority but see Actions.
LOW	Extreme Temperatures	Not a priority.
HIGH	High Wind Events	See Actions.
MEDIUM	Inland Flooding	See Actions.
LOW	Landslide	Not a priority.
LOW	Lightning	Not a priority but see Actions.
LOW	Public Health	Not a priority but see Actions.
MEDIUM	River Hazards	See Actions.
HIGH	Severe Winter Weather	See Actions.
LOW	Solar Storms and Space Weather	Not a priority.
MEDIUM	Tropical and Post-Tropical Storms	See Actions.
MEDIUM	Wildfire	See Actions.
LOW	Dam Failure	Not a priority or in Towns jurisdiction. Only Non-Menace dams in Salisbury, beaver dams not an issue.

Source: Salisbury Hazard Mitigation Committee

9 ANNUAL IMPLEMENTATION AND EVALUATION

The Town received FEMA approval for the prior **Hazard Mitigation Plan** in **December 2014**. The completion of a planning document is merely the first step in its life as an evolving tool. The **Hazard Mitigation Plan Update** is a dynamic document that should be considered by all Town Departments, Boards, and Committees within their normal working environments. While evaluating the effectiveness of Actions in its everyday implementation, everyone should be able to contribute to the relevancy and usefulness of the Plan and to communicate with the Hazard Mitigation Committee where changes should be made. An annual effort will be undertaken to complete Actions and add new Actions as old tasks are completed and new situations arise. This Chapter will discuss the methods by which the Town of Salisbury will review, monitor, and update its new **Salisbury Hazard Mitigation Plan Update 2019**.

Annual Monitoring and Update of the Mitigation Action Plan

The Board of Selectmen should vote to establish a permanent Hazard Mitigation Committee within **3 months** of receiving the FEMA **Letter of Formal Approval** as indicated in **1 PLANNING PROCESS**. The purpose is to meet on a regular basis to ensure the **Hazard Mitigation Plan's** Actions are being actively worked on and the Plan is evaluated and revised to fit the changing priorities of the Town.

The Emergency Management Director or other Board of Selectmen designee should continue to serve as Chair of the Committee for Hazard Mitigation meetings, and should be officially appointed to such a capacity by the Board. Current Hazard Mitigation Committee members can be appointed to continue to participate as members of the permanent Committee. More information is provided in **APPENDIX B**.

Committee membership should include:

- | | |
|--|--|
| ✓ Emergency Management Director | ✓ 1 Budget Committee member |
| ✓ Deputy Emergency Management Dir. | ✓ 1 Recycling Committee member |
| ✓ Town Administration | ✓ 1 Recreation Committee member |
| ✓ Fire Chief | ✓ 1 Salisbury Elementary School Rep. or
Merrimack Valley School District Rep. |
| ✓ Road Agent | ✓ NH State Police representative |
| ✓ Building Inspector/ Zoning Compliance
Officer | ✓ 1 Salisbury Free Library member |
| ✓ Welfare Officer/Health Officer | ✓ 1 Historical Society member |
| ✓ Transfer Station Supervisor | ✓ US Army Corps of Engineers Blackwater
Dam representative |
| ✓ 1 Board of Selectmen member | ✓ Community Members at Large
(Stakeholders) |
| ✓ 1 Planning Board member | |
| ✓ 1 Conservation Commission member | |

Stakeholders who should be solicited to attend meetings and to participate equitably in the Plan development process include representatives from the business community; churches; neighborhoods such as Tucker Pond and one-egress neighborhoods; local State Representatives; agricultural/farming operations; trails groups; local non-profits including the Capital Area Public Health Network; area emergency management directors; local, State or Federal agency representatives (such as NH HSEM); US Army Corps of Engineers Blackwater River Flood Control Reservoir/ Blackwater Dam representatives; and members of the public. This composition provides a wide spectrum of potential interests and opportunities for partnership to develop and accomplish Actions.

This Committee will **aim to meet up to 2-4 times per year** with the following potential future meeting activities to update the **Mitigation Action Plan** and complete the Plan’s annual evaluation as displayed in **Table 51**.

Table 51








Hazard Mitigation Committee Preliminary Annual Future Meeting Activities

Meeting Month	Preliminary HMC Interim Meeting Agenda Items
February	HMC continues update to the Mitigation Action Plan using Department Mitigation Action Progress Reports and an updated Action Status Tracking sheet . HMC provides revised copies to Department Heads, keeps original Word and Excel files accessible on Town computer system.
APRIL HMC Meeting <i>\$ available</i>	Annual funding is received from Town Meeting. HMC completes annual update of the Mitigation Action Plan and the associated Plan Chapter and sections (CHAPTER 8) with Progress Reports #3 . HMC determines Action Plan items to pursue for this year, including \$0 cost items.
April – June	HMC ensures Department Heads are provided with information to work on their Actions. HMC meets with Department Heads to inform about the Action priorities and requests attention to Short Term (1-2 Years) Actions. Departments begin working on Actions.
JUNE HMC Meeting <i>Infrastructure projects underway</i>	Infrastructure projects will be underway. HMC provides a Progress Report #1 for all Actions to responsible Depts/Boards for response by beginning of July. HMC reviews Annual Evaluation of the Plan (CHAPTER 9) . HMC works with the CIP Committee to get certain projects placed into CIP. Depts to begin placement of next year’s high-cost Action Plan items into the CIP.
August - December	HMC to assist Department Heads with their budget requests to include Action Plan items, and to determine which Actions should have warrant articles. HMC continues assistance to Departments for Action Plan items. HMC begins to update the Action Status Tracking Sheet . HMC ensures Haz Mit Actions are added into the CIP.
SEPTEMBER HMC Meeting	HMC will identify projects to accomplish (including \$0) for the upcoming year. HMC attends Board of Selectmen budget meetings and suggests warrant articles for Action Plan items. HMC attends Budget Committee meetings scheduled through January to champion Action item funding.

Meeting Month	Preliminary HMC Interim Meeting Agenda Items
JANUARY HMC Meeting <i>Budget determined</i>	Town operating budgets are determined for the next year. HMC assists Board of Selectmen and Budget HMC with getting their mitigation projects funded and written into budgets. Action implementation continues. HMC provides a Progress Report #2 for all Actions to responsible parties for response by beginning of February along with the Action Status Tracking Sheet to display Action progress and request updates. HMC continues update to the Action Status Tracking Sheet using the Department Mitigation Action Progress Reports .

Sources: Salisbury Hazard Mitigation Committee

Annually and independent of the Town's budget cycle, a simpler listing of the Hazard Mitigation Committee's tasks should include:

-  **Document New Hazard Events that Occurred in Town**
 - Hazard Identification and Risk Assessment (**CHAPTER 4** table)
 - Local and Area History of Disaster and Hazard Events (**CHAPTER 4** table)
-  **Coordinate Completion of Annual Mitigation Actions by Assigning to Departments**
 - Appendix B Mitigation Action **Progress Report**
-  **Seek and Help Departments Acquire Funding for Actions & Fill in Tracking File**
 - Appendix B Mitigation **Action/Project Status Tracking**
-  **Evaluate Effectiveness of the Plan and Its Actions Yearly**
 - Appendix B Plan **Evaluation Worksheet**
-  **Obtain Semi-Annual Progress Reports from Departments & Update Tracking File**
 - Appendix B Mitigation **Action/Project Status Tracking**
-  **Update & Reprioritize Mitigation Action Plan and Update Supporting Plan Document Sections**
 - Mitigation Action Plan (**CHAPTER 8** table)
 - Enhanced STAPLEE Prioritization (**CHAPTER 8** table)
 - **Hazard Mitigation Plan Update 2019** sections as needed
 - Make note of the new information added/changed for the **2024 Plan** update!
 - Remember to invite the Stakeholders and public to all meetings and take minutes
-  **Repeat**

For each of the Hazard Mitigation Committee meetings, the Emergency Management Director (or Staff Coordinator) will invite other Department members, Board and Committee members, Town Staff, Salisbury School District representatives, and other participants of the **2019 Plan** Committee meetings. Identified and general members of the public will also be invited as indicated previously. Their purpose is to attend and participate in the meetings as full participants, providing input and assisting with

decision making. Public notice will be given as press releases in local papers, will be posted in the public places in Salisbury, and will be posted on the Town of Salisbury website at www.salisburynh.org.

The **Hazard Mitigation Plan's Mitigation Action Plan** will be updated and evaluated annually generally following the suggestions outlined within the Chapter. All publicity information, Agendas, and Attendance Sheets, should be retained and compiled for inclusion into **APPENDIX C**.

The Emergency Management Director and Department heads will work with the Board of Selectmen to discuss the funding of Action projects as part of the budget process cycle in the fall of each year. The projects identified will be placed into the following fiscal year's budget request if needed, including the Capital Improvements Program (CIP), Town Operating Budgets, and other funding methods.

The Federal Emergency Management Agency (FEMA) encourages communities to upload their Hazard Mitigation Plan Actions into an online database. The **Mitigation Action Tracker** follows municipal Actions through their completion. This added attention to the Town's Actions could enable additional support for grant opportunities when it is shown the Town can complete its mitigation projects. The Town would need to set up an account to enter their Actions into the **FEMA Mitigation Action Tracker** at <https://mat.msc.fema.gov/AccessManagerSignin.aspx?ReturnUrl=%2fDefault.aspx>.

Implementing the Plan through Existing Programs

In addition to work by the Hazard Mitigation Committee and Town Departments, several other mechanisms exist which will ensure that the **Salisbury Hazard Mitigation Plan Update 2019** receives the attention it requires for optimum benefit. Incorporating Actions from the Plan is often the most common way the Hazard Mitigation Plan can be integrated into other existing municipal programs, as described below.

OVERALL IMPLEMENTATION PROGRESS THROUGH LOCAL PLANNING MECHANISMS SINCE THE 2014 PLAN

As a successful, growing community, the Town of Salisbury has a comprehensive network of plans, processes, champions, regulations, and budgets to ensure its local objectives, projects and budgets are fulfilled. The **Salisbury Hazard Mitigation Plan 2014** is a tool for community betterment which works most effectively when partnering with existing planning mechanisms. Since the original **2008 Plan**, the overall integration and importance of the **Salisbury Hazard Mitigation Plan** into existing Town planning mechanisms continues to grow.

For instance, the **2014 Plan** was not adopted as part of the Planning Board's updated **2017 Master Plan**. The **Capital Improvements Program 2019-2024** had been updated about annually to reflect new projects from Departments, including the Highway Department funding that upgraded culverts in the **Mitigation Action Plan**. The **Zoning Ordinance** was revised annually since **2014**, which included drainage regulations and hazardous waste provisions. The **Subdivision and Site Plan Review Regulations** were last updated in **2012** and indirectly support hazard mitigation planning principles (such as fire and emergency access, drainage, landscaping, erosion, etc.) instead of having voted in specific changes as a result of the **2014 Plan**. Annual budgets for many Town Departments were not able to consider the **2014 Hazard Mitigation Plan** findings for higher-priced projects, such as road improvements. The overall Town operating budget included limited funding for selected hazard mitigation projects and public outreach within Department budgets and supported hazard mitigation planning where feasible or supported by voters, although limited volunteer and staff time was available to work on projects.

Moving forward, Town Boards and Departments have room for further improvement of the **Hazard Mitigation Plan's** incorporation into existing planning mechanisms. For several of these planning programs, a summary of the **Process to Incorporate Actions** as noted below offers ways for the **2019 Plan** to be utilized.

MASTER PLAN

The latest **Salisbury Master Plan** was adopted in **2017**, developed by the Planning Board with assistance from the CNHRPC. Chapters from the **2017 Master Plan** to update include Salisbury Today, Salisbury Tomorrow, Historic and Cultural Resources, Natural Resources, Housing, Existing and Future Land Use, Transportation, Community Facilities, Energy, Regional Concerns, and Implementation. A build out analysis was conducted which displayed how the Town could be developed using different assumption scenarios. New future chapters to consider in the Master Plan could include Economic Development.

The Planning Board should consider adopting the **Hazard Mitigation Plan 2019** as a separate Chapter to its Master Plan in accordance with **RSA 674:2.II(e)**. The Plan should be presented to the Planning Board after FEMA's **Formal Approval**. The Plan can be considered for adoption after a duly noticed public hearing, just as any typical Chapter of a Master Plan. In addition, Actions and concerns from the Plan can be integrated into the Master Plan as discussion items and recommendations.

Process to Incorporate Actions

The Hazard Mitigation Committee will present the approved **Hazard Mitigation Plan** to the Planning Board within **6** months after FEMA's **Letter of Formal Approval** is received for consideration and adoption into the Master Plan after a duly noticed public hearing. This is the same process used to adopt other components of the Master Plan. The NH State law supporting the development of a natural hazard mitigation plan as a component of a community Master Plan is **RSA 674:2-III(e)**. The Hazard Mitigation Committee will oversee the process to begin working with the Planning Board to ensure that the relevant **Hazard Mitigation Plan** Actions are incorporated into the Master Plan.

CAPITAL IMPROVEMENTS PROGRAM

Salisbury's last adopted **Capital Improvements Program (CIP)** is a **6-** year plan for **2019-2024**, with a new update anticipated for **2020-2025**. The CIP is reviewed and updated each year. The HMC would like to ensure Actions requiring capital improvements funding from the **Hazard Mitigation Plan Update** will be inserted into the Capital Improvements Program for funding during the CIP's next update, with specific higher cost projects and equipment replacement identified as addressing Town needs. Depending on the Town's funding situation, Capital Reserve Funds for expensive items such as road and bridge improvements should be identified where appropriate to addressing some of the Action projects in the **Hazard Mitigation Plan Update**.

Process to Incorporate Actions

The Hazard Mitigation Committee (HMC) will oversee the process to begin working with the Planning Board's CIP Committee to incorporate the various Hazard Mitigation Plan projects into the updated CIP. As the CIP is amended, a representative from the HMC should be appointed to sit on the CIP Committee or the HMC should submit a CIP Project Application to ensure the mitigation projects are addressed as part of the CIP update process.

TOWN MEETING

In Salisbury, the annual Town Meeting is held in March where the voters of the Town vote to raise money for capital projects and approve the annual operating budget of the Town. This is a good, revolving opportunity to explain the importance of the mitigation actions of the **2019 Plan Update** and **how the funding of specific capital projects simultaneously responds to these mitigation projects.**

Process to Incorporate Actions

The Hazard Mitigation Committee (HMC) members will work with the Budget Committee and Board of Selectmen to develop a capital budget and warrant article language for appropriate Actions for **Town Meeting vote**. The HMC members may also request deposits to appropriate Capital Reserve Funds for some of the larger projects. A representative from the Hazard Mitigation Committee will provide a copy of the current **Mitigation Action Plan** to both the Budget Committee and Board of Selectmen annually and validate the need for funding at the annual Town Meeting to accomplish the projects. The representative will work with Town Administration to write warrant article language for approval Action items if needed or to get the items placed into Department Operating Budgets.

OPERATING AND CAPITAL BUDGETS

Many of the Actions will not require specific funding but are identified as requiring in-kind staff labor to perform the work required to undertake the Actions. Town Departments and staff have rigorous job functions that demand their undivided attention to the tasks required to run their respective Departments. Additions to the work load to accommodate the Actions can put a strain on their ability to serve the public during performance of their normal job duties. Hiring of more employees is not feasible or supported by voters. When possible, Salisbury Departments and Staff will be able to prioritize their tasks to work on **Hazard Mitigation Plan Update 2019** Actions. The in-kind work performed comes out of the Operating Budget for that particular Department.

Process to Incorporate Actions

After obtaining guidance from the HMC, the respective Departments and Board become responsible to ensure their Actions are completed, whether by working on the Actions allocated when their normal job duties permit or by delegating the Action to another person. The funding for the Actions comes out of the Department's operating budget as work is undertaken by the Staff person on an as-time-permits basis unless the Action is a component of the Town staff members' normal work duties. Staff or volunteers will attempt to follow the **Action Time frame** as a guideline for completion. A yearly review of the **Mitigation Action Plan** by the Hazard Mitigation Committee will re-prioritize the Actions, and the members can report on their progress, asking for assistance or more time as needed. **By connecting the Town of Salisbury's planned improvement projects to the specific projects and objectives identified within the Hazard Mitigation Plan 2019, the Departments can utilize their resources more effectively.**

Continued Public Involvement

On behalf of the Hazard Mitigation Committee, the Emergency Management Director and the Staff Coordinator, under direction of the Town Administration, will be responsible for ensuring that Town Departments and the public have adequate opportunity to participate in the planning process. Administrative staff may be utilized to assist with the public involvement process.

For each interim meeting in the annual update process, and for the **5-year** update process procedures that will be utilized for public involvement include:

- Provide personal invitations to Town volunteer Board and Committee Chairs, Budget Committee members, and Town Department heads;
- Provide personal invitations to abutting community emergency management directors of Andover, Franklin, Boscawen, Webster, and Warner;
- Provide personal invitations to the businesses, agencies, neighborhoods, non-profits, and other entities listed previously in **9 ANNUAL IMPLEMENTATION AND EVALUATION**;
- Post public meeting notice flyers and press releases on the Town's website at www.salisburynh.org, on the Town's online calendar on the same site, and place agendas and meeting materials on new Hazard Mitigation Committee webpages;
- Post meeting notices in the Academy (Town) Hall, outside on the Town Bulletin Board, at the Post Office, and at local businesses such as the Barn Store;
- Submit media releases to the Concord Monitor (a paid, regional daily newspaper serving over **40** communities around the Concord area) and any other local circulated newsletter or newspaper to Salisbury-area residents.

In addition to previous suggestions for invitations to Hazard Mitigation Committee update meetings, review **APPENDIX A Critical and Community Facilities Vulnerability Assessment** Tables: Vulnerable Populations, Economic Assets and Recreational and Gathering Sites) for further stakeholder opportunities. The Emergency Management Directors of the neighboring communities and the NH Homeland Security and Emergency Management Field Representative for Salisbury will be invited. The Town will provide the Central NH Regional Planning Commission with Agendas, Minutes and other materials for archiving, to be used when the **5-year** update again becomes necessary (email to salexander@cnhrpc.org). Any State, regional or federal interest in Salisbury should be considered for direct invitation for MITIGATION, which is a transparent process. EMERGENCY OPERATIONS should have a more selective working group.

All meetings should be posted to the Town's Calendar and announced on the Town's website home page at www.salisburynh.org. A section of the Town website dedicated to Hazard Mitigation Committee activities and the **2019 Plan** should be developed and populated with meeting notices and materials

used by the Hazard Mitigation Committee. These pages would be an optimal location to place the final **2019 Plan** and its **Maps** and **Appendices** and to continue adding materials for annual Plan updates. Pages should be added for resources, information, and links to other websites. A number of Action Plan items which will be undertaken relate to public education and involvement and a new set of webpages would be an exemplary method of getting the word out.

Implementation and Evaluation of the Plan

During the Committee's annual review of the **Mitigation Action Plan**, the Actions are evaluated as to whether they have been **Completed**, **Deleted**, or **Deferred**. Those Action types are placed into their respective Tables. Any **New** Actions will be added as necessary. Each of the Actions within the updated **Mitigation Action Plan** will undergo the enhanced STAPLEE ranking as discussed in **8 MITIGATION ACTION PLAN**.

A set of comprehensive **Annual Interim Plan Evaluation and Implementation Worksheets** is available to assist the community with Plan implementation in **APPENDIX B**. These worksheets are to be used during the Hazard Mitigation Committee basic meeting schedule outlined previously in **Table 51**.

The worksheets include administrative and organizational documents, those that are used with the Appendices spreadsheets developed, and two Agendas to get started with HMC Interim Update meetings:

COMMITTEE ORGANIZATION AND PUBLICITY DOCUMENTS

- Board of Selectmen's Organization of Permanent Hazard Mitigation Committee
- Appointed Committee Information and Stakeholder Invitation Contact Information
- Meeting Publicity (Press Releases and Public Notice Meeting Posters) and Tracking Sheet

MEETINGS & WORKING WITH THE ACTIONS

- Example Agenda for Interim Meeting 1 (for minimal Plan update)
- Example Agenda for Interim Meeting 2 (for minimal Plan update)
- Interim Meeting Attendance Sheet
- Mitigation Action Status Tracking Sheet
- Mitigation Action Progress Report for Departments
- Annual Hazard Mitigation Plan Evaluation Worksheet

The **5-year** full Plan update will evaluate the Actions in the same manner in addition to fulfilling a complete update of the **Hazard Mitigation Plan** to then-current guidelines and standards.

10 APPENDICES

The following **APPENDICES A-D** are included under a separate electronic or paper document to maintain the relative brevity of this **Hazard Mitigation Plan Update**.

Listing of Salisbury Hazard Mitigation Plan Update 2019 Appendices

Some of these documents should be updated annually as part of the interim Action implementation and Plan evaluation process*. The remaining **APPENDICES** could be amended as a result of the new or revised annual information, but they are optional. It is necessary to establish a Town digital storage location for placing any new or updated hazard, Action, meeting or Plan data over the **5-year** interim until the Plan is ready to be fully updated again. Systematic organization will facilitate annual updates and prepare for next **5-year** Plan development in **2024**.

- A Critical and Community Facilities Vulnerability Assessment**
- B Annual Plan Evaluation and Implementation Worksheets ***
- C Meeting Information ***
- D Plan Approval Documentation**

Documents should be updated annually *. It is also highly recommended to update **4 HAZARD RISK ASSESSMENT Table 12 Local and Area Hazard Event and Disaster History** to maintain a record of the disasters, hazards, and impacts to Salisbury.

11 MAPS

Four (4) detailed Maps were developed during the development of the **Salisbury Hazard Mitigation Plan 2019**. Data from the previous Plan maps were used, new standardized data layers were available, and Hazard Mitigation Committee members added their own knowledge of sites and hazard events.





Plan Update 2019 Maps

Map 1 Potential Hazards illustrates potential hazard event locations in Salisbury that have the possibility of damaging the community in the future. The *Map 1* legend includes (technology) infrastructure hazards such as dams, bridges, electric transmission lines and evacuation routes. Natural hazards are displayed such as Special Flood Hazard Areas (SFHAs), locations of potential flooding/washout, fire/wildfire, bridge washout, ice and snow, steep slopes (>15%) and more.

Map 2 Past Hazards illustrates the locations of where hazard events have occurred in Salisbury in the past, including areas of SFHA, flooding/washout, snowmelt, dam breach, fire/wildfire, wind damage, ice damage, vehicle crash locations, and more.

Map 3 Critical and Community Facilities includes the infrastructure included in *Map 1 Potential Hazards* on a background of aerial photography and the SFHAs to give viewers a better, real world perspective. The locations of all critical facilities and community facilities as recorded in the **APPENDIX A Critical and Community Facilities Vulnerability Assessment** are displayed on the Map. Each of these sites is numbered on a key listing the names of each facility.

Map 4 Potential Hazards and Losses utilizes all the features of *Map 3* on an aerial photography background and includes the *Map 1 Potential Hazards* and any realistic *Map 2 Past Hazards* locations where hazard events can occur again in Salisbury.

-  **Map 1 - Potential Hazards**
-  **Map 2 - Past Hazards**
-  **Map 3 - Critical and Community Facilities**
-  **Map 4 - Potential Hazards and Losses**