Plan Lapses 06-25-24

Town of Warner

New Hampshire

Hazard Mitigation Plan Update 2019

WARNER

Tornado carved swath across N.H.

MICHAEL PEZONE photos / Monitor staff

Damage from a storm earlier this month – since determined to be a tornado – is seen along Couchtown Road in Warner on Tuesday. The tornado carved a 36-mile path of destruction that damaged trees in Warner and several other towns.

2018 Jan- Flooding and Ice Jam of Bagley Field

(Photo by Apryl Blood)

2018 May- EF-1 Tornado Damage on Couchtown Road

(Photo from Concord Monitor, May 16)

Adopted by the Warner Board of Selectmen

June 11, 2019

NHHSEM/FEMA Approved June 25, 2019

Plan Lapses 06-25-24

Town of Warner

New Hampshire

Hazard Mitigation Plan Update 2019

Selectmen Adopted June 11, 2019

NHHSEM/FEMA Approved June 25, 2019

Town of Warner
5 East Main Street
Warner, NH 03278
Phone: (603) 456-2298
www.warner.nh.us

Central NH Regional Planning Commission (CNHRPC)
28 Commercial Street, Suite 3
Concord, NH 03301
Phone: (603) 226-6020
www.cnhrpc.org

NH Department of Safety (NHDOS)
NH Homeland Security and Emergency Management (NHHSEM)
33 Hazen Drive
Concord, NH 03305 *(Mailing Address)*

Incident Planning and Operations Center (IPOC)
110 Smokey Bear Blvd
Concord, NH 03301 *(Physical Address)*
Phone: (800) 852-3792 or (603) 271-2231
www.nh.gov/safety/divisions/hsem
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

U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

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-4316, 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 Warner New Hampshire Hazard Mitigation Plan Update 2019 and approved it effective **June 25, 2019** through **June 24, 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,

Wm R Webster

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; "selectboard@warner.nh.us"; "administrator@warner.nh.us"; "emd@warner.nh.us"
Cc:	Chase, Julia; Monastiero, Alexxandre
Subject:	Warner, NH - Approvable Pending Adoption
Date:	Wednesday, May 29, 2019 1:08:43 PM

Good afternoon!

The Department of Safety, Division of Homeland Security & Emergency Management (HSEM) has completed its review of the Warner, NH Hazard Mitigation Plan and found it approvable pending adoption. Congratulations on a job well done!

With this approval, the jurisdiction meets the local mitigation planning requirements under 44 CFR 201 **pending HSEM's receipt of electronic copies of the adoption documentation and the final plan**.

Acceptable electronic formats include Word or PDF files and must be submitted to us via email at HazardMitigationPlanning@dos.nh.gov. Upon HSEM's receipt of these documents, notification of formal approval will be issued, along with the final Checklist and Assessment.

The approved plan will be submitted to FEMA on the same day the community receives the formal approval notification from HSEM. FEMA will then issue a Letter of Formal Approval to HSEM for dissemination that will confirm the jurisdiction's eligibility to apply for mitigation grants administered by FEMA and identify related issues affecting eligibility, if any. If the plan is not adopted within one calendar year of HSEM's Approval Pending Adoption, the jurisdiction must update the entire plan and resubmit it for HSEM review. If you have questions or wish to discuss this determination further, please contact me at Kayla.Henderson@dos.nh.gov or 603-223-3650.

Thank you for submitting the Warner, NH Hazard Mitigation Plan and again, congratulations on your successful community planning efforts.

Sincerely,

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
Julia Moreland, Program Assistant / Julia.Moreland@dos.nh.gov / 603-223-3633

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Map 4 - Potential Hazards and Losses ..... 11x17 folded in back

Map 5 - Culverts and Stream Crossings ..... 11x17 folded in back

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 Warner, NH
Board of Selectmen
5 East Main Street
Warner, NH 03278

A Resolution Adopting the Warner Hazard Mitigation Plan Update 2019

WHEREAS, the Town of Warner 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 Warner 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 **October 2018** through **February 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 Warner; and

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

RESOLVED by Town of Warner Board of Selectmen:

The **Hazard Mitigation Plan Update 2019** is hereby adopted as an official plan of the Town of Warner; 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 Warner this 11th day of June, 2019.

ATTEST

SEAL

Town Clerk

Michele Courser, Town Clerk

Board of Selectmen

Clyde Carson, Chairman date 6-11-2019

Judith A. Newman-Rogers, Member date 6/11/19

Kimberley Edelmann, Member date June 11, 2019

RESOLVED by Town of Warner Board of Selectmen:

The **Hazard Mitigation Plan Update 2019** is hereby adopted as an official plan of the Town of Warner; 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;

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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 Warner this 11th day of June, 2019.

ATTEST

SEAL

Town Clerk

Michele Courser, Town Clerk

Board of Selectmen

Clyde Carson, Chairman date

Judith A. Newman-Rogers, Member date

Kimberley Edelmann, 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 **October 2018** through **February 2019** to develop the **Warner Hazard Mitigation Plan Update 2019**:

- **Edward Mical**, Warner Emergency Management Director, Staff Coordinator
- **Ronald Piroso**, Warner Deputy Emergency Management Director
- **Peter Wyman**, Warner Health Officer
- **William Chandler**, Warner Police Department Chief
- **Edward Raymond**, Warner Fire Department Chief
- **Timothy Allen**, Warner Public Works Director
- **Raymond Martin**, Warner Village Water/Sewer District Administrator
- **James Bingham**, Warner Town Administrator
- **Dr. Timothy Stokes**, Warner Simonds School Elementary Principal
- **Kimberley Edelmann**, Warner Board of Selectmen Chair
- **Ginger Marsh**, Sugar River Bank, Branch Manager*
- **Christine Daniels**, Pellettieri Associates*
- **John Leavitt,** Warner Budget Committee Member
- **Apryl Blood,** Warner Parks and Recreation Commission President
- **Nancy Jewell,** Warner Public Participant*

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

- **Stephanie Alexander**, CNHRPC Senior Planner
- **Craig Tufts**, CNHRPC Principal Planner (GIS mapping)

Members of the public* (**3**) served as Hazard Mitigation Committee members (above). 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:

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

- **Thomas Baye**, Warner Building Inspector
- **Donald Hall**, Warner Planning Board Member
- **Chris Connors**, Warner River Local Advisory Committee Chair
- **Nancy Martin**, Warner Conservation Commission Chair
- **Debra Moody,** Warner Assessing Clerk
  Stacey Elliott, Capital Area Public Health Network, Public Health Emergency Preparedness Coordinator
- **Julia Chase**, NH Homeland Security and Emergency Management Senior Field Representative
- **Kayla Henderson,** NH Homeland Security and Emergency Management Hazard Mitigation Planner

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 Warner 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 **Warner 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** Warner 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 team, Town Administration, Fire Department, Highway Department, Police Department and Warner Village Water District, Planning Board, Health Officer, Building Inspector, Simonds School staff. Public participants were active with Committee activities.

The attendees of the meeting process are noted in the **Acknowledgements**. The Central NH Regional Planning Commission, of which Warner 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 Homeland Security and Emergency Management and FEMA.

Methodology

The **Warner Hazard Mitigation Plan Update 2019** was developed over an accelerated five-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 **Warner'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	10-23-18	Discuss Process and Schedule; Review Declared Disasters and Public Assistance Funding to Warner; Develop New Hazard Identification and Risk Assessment (HIRA), Begin to Identify Potential and Past Hazard Locations 2013-2018; Review & Revise Maps 1-2-3, Schedule Meetings
Work Session 1	10-31-18	Identify Potential and Past Hazard Locations 2013-2018; Update Critical and Community Facilities Vulnerability Assessment; Review & Begin Revision of Maps 1-2 and Flood Hazards
Meeting 2	11-13-18	Begin New Actions from Problem Statements (Community Vulnerability Assessment); Review & Update Goals and Objectives; Begin Capability Assessment, List of Existing Mitigation Plans and Documents;
Work Session 2	12-04-18	Finish New Actions from Problem Statements (Community Vulnerability Assessment); Review & Update Goals and Objectives; Continue Capability Assessment, List of Existing Mitigation Plans and Documents; Revisit Meeting Calendar
Meeting 3	12-18-18	Finalize Problem Statements; Begin Status of 2014 Mitigation Actions; Revisit Capability Assessment; Review Meeting Date Calendar

Meeting	Date	Agenda Activities – See APPENDIX C
Work Session 3	01-08-19	Finish Status of 2014 Mitigation Actions; Begin Developing Mitigation Action Plan 2019, Revisit Capability Assessment
Work Session 3.2	01-15-19	Finish Mitigation Action Plan 2019; Prioritize Actions using STAPLEE; Overview of Meeting 4; Work Session 4 and Public Information Meeting
Meeting 4	02-26-19	Review Draft Hazard Mitigation Plan Update 2019 (onscreen); Overview of Work Session 4 Tasks; Schedule Public Information Meeting
Work Session 4	03-05-19	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	03-26-19	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: Warner Hazard Mitigation Committee Agendas, 2018-2019

For each meeting, all meeting 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.

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.

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 Warner, School District, County, State, or federal government employee; anyone who is not paid for services by tax dollars; and anyone who is not a volunteer with the Town or with the Town's representation on other Committees or agencies.

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. Three (**3**) members of the public regularly 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 **9** 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 March 26, 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 Input from the Board of Selectmen Adoption Meeting

The Board of Selectmen meeting to adopt the **Hazard Mitigation Plan** was held on June 11,

Public Outreach Strategy

Many individuals were personally invited to attend and participate in the Warner Hazard Mitigation Plan Committee meetings. They included surrounding community Emergency Management Directors, Town Boards and Committees, Town Departments, and local businesses. The NH Homeland Security and Emergency Management (NHHSEM) Field Representative was also invited and attended some of the meetings.

The Hazard Mitigation Committee itself was comprised of most Town Departments, staff, and Committees, including Emergency Management team, Town Administration, Fire Department, Highway Department, Police Department and Warner Village Water District, Planning Board, Health Officer, Building Inspector, Simonds School staff.

The public process for this Plan included posting the meeting information on the Town's online calendar and website at www.warner.nh.us, occasional press releases to the Intertown Record (subscription regional newspaper serving **11** Kearsarge-region communities) and notices were physically posted at the Warner Town Office, outside Town Bulletin Board, Post Office, Market Basket. Local interests had multiple opportunities to attend and participate in the meetings. Warner had a proportionately large number of 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 quasi-governmental regional organization of which Warner 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 March 26, 2019 at a Board of Selectmen's meeting at which many members of the public participated. This meeting was publicly noticed at the above location, online, and in the Intertown Record and 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**.

2019. Although 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 March 26, 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 April 2, 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 May 29, 2019, Warner 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 June 11, 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 June 25, 2019, Warner 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 **June 25, 2024**.

Final Plan Dates

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

Table 2

Warner's Hazard Mitigaion Plan Adoption History

Year of FEMA-Approved Hazard Mitigation Plan	Adoption by Warner Board of Selectmen	NHHSEM/ FEMA's Formal Approval	Plan Expiration
Original 2003	10/28/03	12/05/03	**12/05/03**
Update 2008	11/25/08	11/26/08	**11/26/13**
Update 2014	01/21/14	03/10/14	**03/10/19**
Update 2019	**06/11/19**	**06/25/19**	**06/25/24**

Source: Plan Adoption History

2 COMMUNITY PROFILE

It has been over five years since the last Plan was written, with the new decennial Census 2010 having been taken. The best available new data has been used in this Chapter to portray the population, housing, and overall demographic picture of present day Warner. 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 Warner is located in western Central New Hampshire within Merrimack County near the edges of Sullivan County and Hillsborough County. The Town is bordered by the Towns of Sutton, Wilmot, Andover, and Salisbury to the north, the Town of Webster to the east, the Town of Bradford to the west. The State's capital of Concord is about **12-15** miles from the Warner in a straight line, or a bit further along Interstate 89. State highway NH 103 bisects the Town in an east-westerly direction, following parallel to I-89. NH 114 traverses a small section of the western corner of Warner, and NH 127 in Davisville, a village of Warner and Hopkinton, does the same at the eastern edge of the community. The Town is directly accessed by I-89's three on-off ramps, Exit 7, Exit 8 and Exit 9, all of which access NH 103. A significant business center is located at Exit 9 in Warner. A corridor of the former Concord and Claremont railroad are located in Warner, along with the existing, popular Warner Rail Trail, which begins at Bagley Bridge over the **Warner River** for 0.5 miles. The West Joppa Rail Trail is another completed trail 0.3 miles long which is awaiting connection.

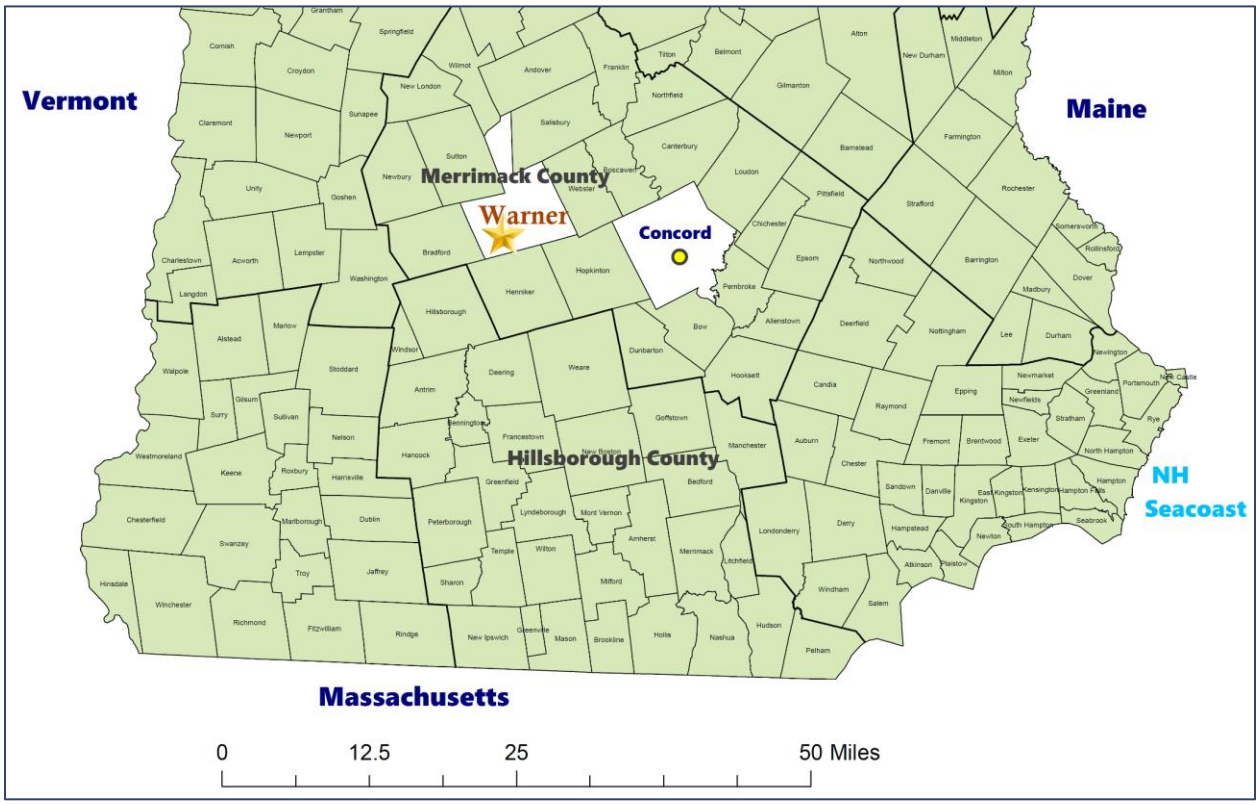
Warner contains the Mink Hills which is a high-elevation area shared with Bradford and Henniker, encompassing unmaintained Town roads, historical sites, conservation lands, plant and animal communities, and recreation areas. The Warner River is an essential identity to this small town and was recently admitted to the NH Rivers Management and Protection Program. The Town boasts a significant arts community and hosts the annual renowned Fall Foliage Festival along Main Street. Mount Kearsarge is a destination for hikers year-round. The Town is a member of the seven-Town Kearsarge Regional

School District. The Town of Warner is a rural but up-and-coming community of about **2,886** people (**2017**) with distinctive New Hampshire characteristics.

Merrimack County in which Warner resides is often referred to as a valley as its borders are higher in elevation than its middle communities. Concord is the only City 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, although Warner is geographically closer to Vermont than the Seacoast or Massachusetts. Warner's context within Merrimack County and the State of New Hampshire is shown in **Figure 1**.

Figure 1
Warner in the State



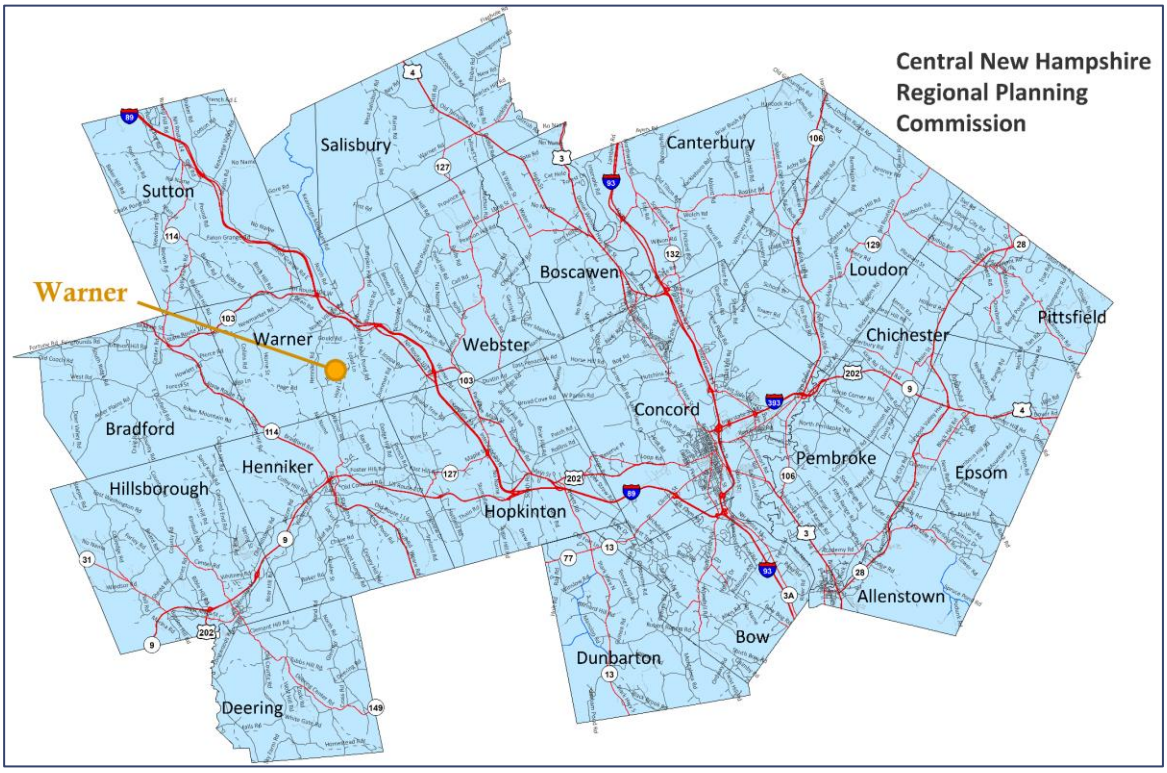
Source: Central NH Regional Planning Commission

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 important highways. The varied identity of Warner ensures its adaptability as growth occurs around and within the community.

The **Blackwater River** (Salisbury, Webster, Warner) and the **Warner River** (Warner, Sutton, Bradford, Hopkinton) 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-westly direction. Warner hosts corridors of large NH 103 (east-west) and I-89 (north-south). 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
Warner in the Central NH Region



Source: Central NH Regional Planning Commission

Population and Housing Growth

The latest Warner Master Plan was adopted in **May 2011**, developed by the Planning Board with assistance from the CNHRPC. The Master Plan is due for an update in 2020, with the goal of rotating Chapter review and revision annually after a new update. Chapters from 2011 to update include Housing; Economic Development; Energy; Natural Resources; Community Facilities; Transportation; Existing and Future Land Use; and Implementation. 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 Warner.

The following tables contain the newest available data on housing and population growth which depict development trends over time. Shown in **Table 3**, Warner's population and housing increases boomed during the **1970-1980** decade (**+36%** people, **+25%** homes) and increased heavily during the **1990-2000** decade (**+23%** people and **+18%** homes). The estimated **2017** population and housing units, based off the **2010** Census, assumed **2,886** people and **1,395** housing units in **2017** Warner.

Table 3

Overall Population and Housing Growth Trends in Warner, 1970-2017

Growth	Population	Net Change #	Net Change %	Housing Units	Net Change #	Net Change %
1970 Census	1,441	N/A	0	720	N/A	0
1980 Census	1,963	522	36.2%	899	179	24.9%
1990 Census	2,250	287	14.6%	1,039	140	15.6%
2000 Census	2,760	510	22.7%	1,228	189	18.2%
2010 Census	2,833	73	2.6%	1,358	130	10.6%
Total Change from 1970 – 2010 Census	---	**1,392**	**96.6%**	---	**638**	**88.6%**
2017 Population & Housing Estimates*	2,886	53	1.9%	1,395	37	2.7%
47 years of Increase		**+1,445 People**			**+675 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**, Warner's confirmed **2010** Census population of **2,833** shows an overall increase of about **+97%** in population over the previous four decades, up from only **1,441** people in **1970**. After an early growth boom between **1970-2000**, the population and housing increases have tapered off. Between **2000-2010**, the Town's population increased by **+3%** (**+73** people) while during the same time housing units increased by **+11%** (**+130** units). The overall population growth numbers and percentages in Warner since **1970** are lower than the small population communities in the Central NH region.

Growth trends slowed during the **1990-2000** decade, with only **+4%** population growth and **+>1%** housing units growth in Warner until picking up again slightly during the **2000-2010** decade (**+14%** population growth and **+20%** housing units growth). During the current **2010-2020** decade, levels are similar to date with **+2%** population (**+53** people) and **+3%** housing unit (**+37**) increases to **2017** in Town.

The growth of housing units (**+25%**) in Warner was once slower, between **1970-1980**, than the respective population growth rate (**+36%**). After this decade, between **1980-1990** the growth rates are the nearly identical, with **+15%** people and **+16%** housing. After then, the rates vary then settle into their Central NH region norm of more housing (**+11%**) than population (**3%**) growth between **2000-2010**. Overall, between **1970-2020**, the population growth (**+97%**) was higher than the housing growth (**+89%**).

The number of people living in each housing unit has varied slightly from decade to decade, from its high of **2.2** people per housing unit in **1990-2000** to its low of **2.0** people per housing unit in **1970**. The **2017** measurement of people per household is **2.1** persons. Overall, these numbers are lower in comparison to other small Central NH Region towns, but they are steady.

Another good measurement of community population and housing change is population density, or how many people live in a square mile of land area. This information is displayed in **Table 4**.

Table 4

Population Density in Warner, 1970-2017

Municipality Size		Persons per Square Mile					
Land Acreage	Land Area in Square Miles	1970	1980	1990	2000	2010	2017
35,352	**55.2**	26	36	41	50	51	52

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

From **Table 4**, the overall population density between **1970** and **2017** increased **+100%,** from **26** people per square mile in **1970** to **41** people in **1990** and to an estimated **52** people in **2017**. Warner is geographically an large-sized community in the Central NH Region at **55.2** square land miles (not including water acreage) and comparatively has a low number of people per square mile as compared to both other Central NH Region communities and communities statewide.

Table 5 displays Warner's estimated new home and new building construction permits issued by the Building Inspector between **2013-2018**. During this **6**-year period, a total of **22** new construction permits for homes have been issued, along with **9** new construction permits for non-residential buildings, totaling **31** permits.

Table 5

New Construction Permits Issued by Building Type, 2013 – 2018

Building Type	2013	2014	2015	2016	2017	2018	6-Year Totals
Single Family Homes	2	4	5	3	3	3	**20**
Multi-family Homes	0	0	0	0	0	0	**0**
Manufactured Homes	0	0	0	0	1	1	**2**
Non-Residential Buildings	4	1	3	1	0	0	**9**
Totals	**6**	**5**	**8**	**4**	**4**	**4**	**31**

Source: Town of Warner Building Permit File, 01-19

From Table 5, **20** permits were issued for new single family homes, **0** for new multi-family home construction, **2** permits for new manufactured homes and **9** permits for construction of new non-residential buildings during **2013-2018**. The most active year was **2015** when a total of **8** new permits were issued. The **6**-year total of all new building construction permits issued is **31**.

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 Central NH region communities, Warner had little construction between **2013-2018**.

Land Use and Zoning

According to NH Office of Strategic Initiative's **2013** geographic information system (GIS) calculations, Warner has a total land area of **35,352** acres, or **55.2** square land miles. An additional **150** acres (about **0.2** square miles) is water area. The acreage figure nearly comparable to the most recent **Feb 2019** assessing reporting calculation of **35,502** land and water acres for the Town. 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 are not unusual.

For New Hampshire and specifically the Central NH Region, Warner is considered a moderately sized community in terms of land area and contains lower population and housing figures. Warner's proportion of residential land and commercial land is comparable to many Towns in the Central NH Region. The Town of Warner is highly rural, forested, has some commercial development, and not all of the residential land has been built upon.

Table 6 provides a snapshot of the Town's **2019** land use acreage from the Town's assessing data. Forested land use is the most extensive land use type, comprising **59%** of the Town's land area. Residential land use at about **22%** is the next highest, followed by exempt (**10%**) which does not generate taxation. Wetlands (**3%**), farmland (**2%**), and commercial land (**<2%**) and unproductive land (**<2%**) round out the Town's land use acreage.

Table 6

Land Use Acreage, 2018

Land Use Category 2018	Acres	% of Town
Residential Improved	4,707	**13.3%**
Residential Vacant	2,584	**7.3%**
Residential Mobile Home	159	**0.4%**
Residential Apartments	501	**1.4%**
Commercial Improved	231	**0.7%**
Commercial Vacant	281	**0.8%**
Utilities	5	**0.0%**
Exempt	3,549	**10.0%**
Farm Land	836	**2.4%**
Forest Land	15,404	**43.4%**
Forest Land with Stewardship	5,716	**16.1%**
Unproductive	465	**1.3%**
Wet	1,064	**3.0%**
Total	**35,502**	**100.00%**

Source: Warner Assessing Records, February 2019

The perspective of the Town's Zoning Districts offers another way to view how the land is utilized within Warner in Table 7. A full table of uses is available within the Zoning Ordinance which states which uses are allowed within each district. The ordinance does not include a table of dimensional and density regulations pertaining to water and sewer, lot frontages and lot sizes, and minimum pervious surfaces.

Table 7

Warner Zoning Districts, 2018

Zoning District	Abbreviation	Acres
Business District	B-1	26
Commercial District	C-1	732
Village Residential District	R-1	349
Medium Residential District	R-2	2,688
Low Density Residential District	R-3	7,917
Open Conservation District	OC-1	10,614
Open Recreation District	OR-1	13,176
Total		**35,502**
Zoning Overlay District	**Abbreviation**	
Warner Intervale Overlay District	INT	58
Total		**58**
Other Zoning Overlay District Ordinances	**Latest Date**	
Floodplain Development Ordinance	Mar 2010	N/A
Manufactured Housing Ordinance	Mar 1999	N/A
Open Space Development Ordinance	Mar 2005	N/A
Workforce Housing Overlay/Ordinance	Mar 2010	N/A

Source: Town of Warner Zoning Ordinance, March 2018

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.

Town Offices in the Warner Town Hall, 5 East Main Street
(Image accessed online warner.nh.us 02-19)

Warner Fire and Rescue Building Under Construction Nov 2018 at 148 West Main Street
(Photo by Kimberley Brown Edelmann, accessed online 02-19)

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.

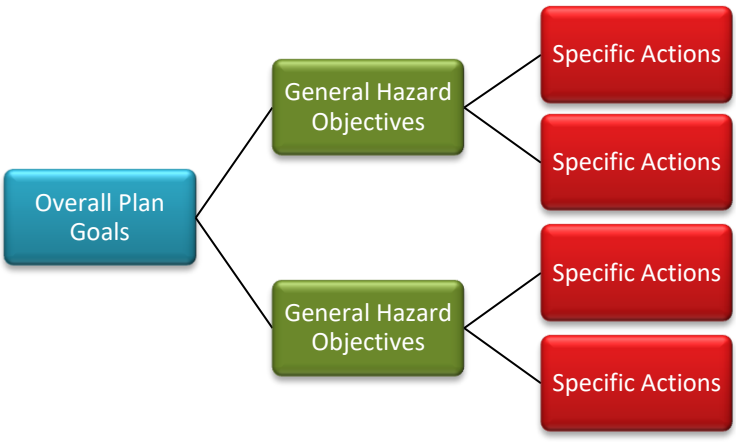
Inspired by early *State of New Hampshire Hazard Mitigation Plans*, the following Warner **Goals** were initially developed in the previous **Warner Hazard Mitigation Plans** and thus were reviewed and updated as applicable by the Hazard Mitigation Committee during a public meeting for the **2019 Plan**. 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**.

Figure 3

Relationship of Goals, Objectives and Actions



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 for Objectives

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		RADIOLOGICAL Trucking, Occupational Sites or Power Plants	
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	CYBER EVENT Municipal Computer Systems Attack, Cloud Data Breach, Identity Theft, Phishing,

Main Hazard Category	Specific Hazards Included			
			Attacks, Incendiary Devices, Sabotage or Vandalism	Ransomware or Virus

Source: Warner Hazard Identification and Risk Assessment (HIRA)

Not all of these main natural hazard categories will be important for Warner 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.

Overall Hazard Mitigation Plan Goals

The following **3** 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 and disasters and impacts from 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.**
3. **To promote public awareness of hazard mitigation planning and activities to the Town's residents, Schools, visitors and businesses.**

Source: Warner 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 Warner. 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. Seventeen (**17**) **General Hazard Mitigation Objectives** were crafted for the **Warner Hazard Mitigation Plan 2019** as displayed in **Figure 5**.

Figure 5
Hazard Mitigation OBJECTIVES

EARTH HAZARDS

1. **Minimize the threat of potential landslide or rockslide areas along NH 103, local roads and excavation areas; engage in public awareness of local earthquake activity and safety precaution; and minimize the impact of drought events, to life, property, and infrastructure.**

EXTREME TEMPERATURE HAZARDS

2. **Minimize the temperature fluctuation damages of climate change from excessive heat events, heat waves, extreme cold events and wind chill, to life, property and infrastructure.**

FIRE HAZARDS

3. **Minimize the damages from wildfires, brushfires, other outdoor fires, and lightning, to life, property, and infrastructure, including the Kearsarge, Davisville, and other State Forests, Herriman-Chandler Reservation Town Forest and other Town Forests, Town-owned property, agricultural operations, and all telecommunications towers.**

Hazard Mitigation OBJECTIVES

FLOOD HAZARDS

4. **Minimize the damages from floodwaters of the Warner River and its tributaries, Amey Brook, Ballard Brook, Bartlett Brook, Davis Brook, Frazier Brook, French Brook, Meadow Brook, Silver Brook, Schoodac Brook, Slaughter Brook, Stevens Brook, Willow Brook, Tom Pond, Pleasant Pond, other Brooks and Ponds, wetlands, floodplains, and other water bodies, to life, property, and infrastructure.**
5. **Minimize the damages caused by erosion and flooded roads, river scouring and ice jams, culvert washouts, dam failures or debris (tree limbs, leafy material/ sediment), beaver dam breakage, etc., to life, property, and infrastructure.**

PUBLIC HEALTH HAZARDS

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

SOLAR STORMS

7. **Minimize the impact of solar winds, geomagnetic storms, solar radiation, radio blackout, etc., as possible, to life, property and infrastructure.**

WIND HAZARDS

8. **Minimize the damages from heavy wind events, thunderstorms, hail, downbursts, tornadoes, tropical storms and tree debris, to life, property and infrastructure.**

WINTER HAZARDS

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

Hazard Mitigation OBJECTIVES

TECHNOLOGICAL HAZARDS

10. **Minimize the risk of cyber events on Town computer systems to maintain municipal operations, including overall systems takeover, Town website overtake, telephone rerouting, cloud data breach, phishing, malware, ransomware, virus installation, etc. and minimize the risks of cyberattacks on residents, including identity theft and telephone scams.**
11. **Minimize the damages from multiple hazards to the aging infrastructure of the community, including bridges, culverts, dams, local roads, pipes, underground water and sewer lines and seek to maintain operational efficiency.**
12. **Minimize the damages from, and impact to Warner residents, from long term utility outages, such as electrical power, water, sewer, internet, communications, and live wire danger, in both rural and Village environments.**
13. **Minimize the impacts of fire conflagration from fuel tanks, manufacturing accidents, high tension power lines, vehicles, and hazardous materials businesses (Rymes and gas stations) especially near densely populated areas, one-way roads, or buildings including Chemical Lane, Warner Village, and Kearsarge Mountain Road.**
14. **Minimize the damages from hazardous materials exposure, chemical spills, trucking accidents, radiological materials incidents, or brownfields sites, etc., to life, property, and infrastructure.**

HUMAN HAZARDS

15. **Minimize the risks and impacts of transportation crashes and fires of transport trucks, vehicles, pedestrians, bicycles, airplanes, helicopters, etc., along State roadways including I-89, NH 127, NH 103, highway on/off ramps, and along local Warner roads especially during natural hazard events, to protect life, property and infrastructure.**
16. **Minimize the damages from human terrorism and violence threats, such as active shooter incidents, hostage situations, public harm, civil disturbance/ riots, politically motivated attacks, incendiary devices, sabotage, and vandalism, to life, property and infrastructure.**
17. **Minimize the risk and impact of mass casualty events, as the result of any hazard event, to better protect Warner's citizens and guests.**

Source: Warner Hazard Mitigation Committee

4 HAZARD RISK ASSESSMENT

Natural disasters and technological, and human hazards that have occurred in Warner 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 Warner 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 Warner'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. 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 **10** evaluated human or technological hazards have been incorporated under these basic categories, also displayed in **3 GOALS AND OBJECTIVES Table 8**:

- **Earth Hazards**
- **Extreme Temperature Hazards**
- **Fire Hazards**
- **Flood Hazards**
- **Public Health Hazards**
- **Solar Storm Hazards**
- **Wind Hazards**
- **Winter Hazards**
- **Human 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 Warner 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-three (**23**) natural, technological, and human hazards are evaluated within this Plan. The **13** natural hazards 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 Warner 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	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, Warner's highest ranking hazards scored an **Overall Risk** between **7 - 12** (out of a possible score of **16**), rounded to whole numbers as displayed in **Table 9**.

Table 9

Highest Overall Risk Hazards Scored in Warner

Hazard Event	Overall Risk 1 - 16	CONCERN
Severe Winter Weather	12.0	HIGH
High Wind Events	10.7	HIGH
Extreme Temperatures	9.3	HIGH
Drought	8.0	HIGH
Public Health	8.0	HIGH
Inland Flooding	7.0	MEDIUM
Tropical and Post Tropical	7.0	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 Warner. 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 Warner 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 *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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 *Event(s) Within Last 5 Years*	✦ **Entire Town.** Areas susceptible to **drought** and dry conditions include farms and orchards, nurseries, and maple sugar operations: B&M Maples (Maple Syrup), Baker's Syrup (Maple Syrup), Beaver Meadowbrook Farm Sugar House (Maple Syrup), Blue Moon Berry Farm (Blueberries), Courser Farm (Produce, Cattle), Curly Q Farm (Alpaca & Horse Farm), Dun Fooling Farm (Hay), Double Clear Farm (Horse Boarding, Arena), Kearsarge Gore Farm (Organic Produce), Kearsarge Meadows (Horse Boarding & Training), Rhapsody Farm (Horse Boarding, Trail Riding, Arena), No Acre Farm (Dairy, Livestock), Rising Glory Lops (Rabbit Farm), Rogers Maple Syrup (Maple Syrup), The Vegetable Ranch (Organic Produce), Twin Ridge Farm (Horse Training & Boarding), Yankee Farmer's Market (Buffalo Farm), New Farm (Donkey, Pony Farm), Stoney Brook Farm (Seasonal Livestock). ✦ Water Supplies: residences with private dug wells and Town water supplies (Warner Village Water District wells). ✦ 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. ✦ Fire ponds/dry hydrant supplies can run dangerously low; see **APPENDIX A** for a list. When fire ponds or dry hydrants are low, response time increases as the Department needs to draw from the Warner River.	**4**	1	1	4	**8.0 HIGH**
EARTHQUAKE *Event(s) Within Last 5 Years*	✦ **Entire Town.** The Central NH Region is seismically active and **earthquakes** are regularly felt from area epicenters. Locations with high density population or potential gathering sites to evacuate include: Simonds Elementary School, Kearsarge Mountain, Main Street Area, Pine Rock Manor, Churches, Pillsbury Free Library. ✦ Damage to utility poles and wires, roadways and infrastructure could be significant. ✦ Areas with underground utilities (water and sewer) on Main Street, community water systems, and the old, historic buildings are particularly susceptible to **earthquake**.	**4**	1	1	1	**4.0 LOW**

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
EXTREME TEMPERATURES **Excessive Heat, Heat Wave, or Cold, Wind Chill** ***Event(s) Within Last 5 Years***	✦ **Entire Town.** Groups most susceptible to **extreme heat or cold** include: Simonds School, Pine Rock Manor Assisted Living, Pleasant Lake Estates Manufactured Homes, Community Action Program Building, North Ridge Estates 55+, other senior homes or housing facilities. Elder residences or those without air conditioning are especially vulnerable to high heat events and should be moved to air conditioned (cooling) or warming facilities such as the Town Hall or the Pillsbury Free Library. ✦ Areas vulnerable to effects of **extreme heat or cold** include agriculture and farms: (see list above in **Drought**) ✦ See **APPENDIX A** for the list of vulnerable facilities or groups.	**4**	2	2	3	**9.3 HIGH**

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
HIGH WIND EVENTS **Wind, Thunderstorms, Hail, Downbursts, Tornadoes, Debris** ***Event(s) Within Last 5 Years***	✦ **Entire Town.** Most **high wind** -vulnerable areas include populated buildings, high-density locations, and utilities serving residents and businesses: 5 Telecomm towers- North Road, Route 103 East, Kelly Hill Road, Kearsarge Mountain Road and Mount Kearsarge Tower; Antennas on Highway Department, Police Station, and Fire Station; and TDS Telecom Remote Stations all over Town. ✦ High Density Areas can have greater impacts: Main Street Village area, Toms Pond, and the Pleasant Lake Estates Manufactured Homes, Northeast Catholic College. ✦ 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. The most remote subdivisions include Cunningham Pond in the Mink Hills, the Kearsarge Mountain, Collins District, Horne Street and Howe Lane. ✦ 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**: Kearsarge Mtn Road, Lang Bridge, Collins District, Horne Street, Howe Lane, Bagley Hill, Apple Tree Lane, Toms Pond Road, West Joppa Road, Kelly Hill Road, Loud Lane, Old Denny Hill Road, Old Pumpkin Hill Road, Duck Pond, Willoughby Colby Road, Mink Hill, Waldron Hill. ✦Agricultural areas are vulnerable to damage from **High Winds** (see list above in **Drought**) ✦Older, or historical buildings are vulnerable to high wind damage: Warner Village/Main Street Area, Museums, Historic Society Buildings. ✦ Floods are also possible with severe wind storm events (see **Inland Flooding**).	**4**	2	3	3	**10.7 HIGH**

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
INLAND FLOODING **Rains, Snow Melt or Flash Floods** ***Event(s) Within Last 5 Years***	✦ **Entire Town, Floodplains of Warner River**. Major watercourses include Amey Brook, Ballard Brook, Barclay Brook, Bartlett Brook, Bradley Brook, Childrens Brook, Colby Brook, Davis Brook, Frazier Brook, French Brook, Hardy Spring Brook, Knight Meadow Brook, Meadow Brook, Silver Brook, Schoodac Brook, Slaughter Brook, Stevens Brook, Willow Brook. Water Bodies include Toms Pond, Silver Lake, and Pleasant Pond. Low Hazard Dams Silver Pond Dam and Bear Pond Dam are unlikely to flood. Other recreation ponds and several dams can flood. Any of these waters could **flood** local roads, homes, buildings and sites such as Bagley Park and Riverside Park. ✦ Runoff from roadways or **heavy rain** or **snowmelt** can cause floods and washouts over the Entire Town. Regular **washout locations** include East Joppa Road, Horn Street, Collins Road, Howe Lane, Ladd Lane, Bartlett Loop, Mason Hill, Duck Pond Lane, Red Chimney Road, Iron Kettle Road, Dummer Road, Gore Road, Quimby Road, Conners Mill Road, Plains Road, Route 103, Schoodac Road, Henniker Road, Cunningham Pond, Waldron Hill, Gould Road, West Joppa Road, Loud Lane, North Road, Willaby Colby Lane, Burn Hill, Old Pumpkin Hill Road, and several more. (See also **Aging Infrastructure**) ✦ Roads, bridges, drainage systems and areas of past, repaired, or existing. Horne Street, West Joppa Road and Mason Hill Road have been recently repaired with FEMA funding. With I-89, Exits 7-8-9 ramps, and NH 103 running through Town, motorists need to be wary of potential flooded infrastructure.	**3**	2	2	3	**7.0 MEDIUM**
LANDSLIDE **Soil, Rockslide or Excavation Areas *NO Event(s) Within Last 5 Years***	✦ **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 Mink Hills. Landslide is a fairly uncommon hazard but one that can have devastating effects, including property damage and in some cases, loss of life. ✦ The excavation sites in Town are potential sites of **landslide**. In Warner, they are well maintained and reclaimed: Pleasant Lake (Town owned), Poverty Plains Road, Flea Market Route 103E, Schoodac Road (private)	**1**	1	1	1	**1.0 LOW**

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
LIGHTNING *Event(s) Within Last 5 Years*	✦ **Entire Town.** Areas of particular concern to **lightning** include critical facilities, high density areas, high elevation such as the Main Street Village area, Toms Pond, the Pleasant Lake Estates Manufactured Homes, Northeast Catholic College. Town Facilities such as Fire Station, Highway Garage, Police Department and Transfer Station would be vulnerable to **lightning**. Telecommunications Towers on North Road, Route 103 East, Kelly Hill Road, Kearsarge Mountain Road and Mount Kearsarge Tower as well as Department antennas would have high impacts should **lightning** strike. ✦ Old, historic or wooden structures and those structures without **lightning** rods would be more susceptible to damage from a strike than those buildings with the rods. Kearsarge Indian Museum Telephone Museum, Old Meetinghouse, Old Fire Station, Old Odd Fellows could be vulnerable. ✦ Remote, forested areas, parks, public Town Forests, conservation areas, open recreation fields, points of higher elevation can be dangerous to people and property if struck by **lightning**: entire Mink Hills Area and its trail system and Mount Kearsarge and its trail system, Sunapee Ragged Kearsarge Regional Greenway trails. ✦ Other aboveground utilities, transformers, water towers are vulnerable to **lightning**: TDS Telecom switching stations, Warner Village Water District pump stations and wells.	**4**	1	1	3	**6.7 MEDIUM**

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
PUBLIC HEALTH **Infectious Diseases, Air & Water Quality, Biological, Addiction, Arboviral, or Tick-borne** ***Event(s) Within Last 5 Years***	✦ **Entire Town**. Congregate populations more vulnerable to **infectious diseases**: Simonds Elementary School, Boys and Girls Club, North Ridge Estates 55+, Pine Rock Manor Assisted Living. ✦ Local stores and eateries along Main Street, the Farmer's Market, farms, Foothills Restaurant, Market Basket increase the risk of exposure to and transfer of **food-borne illness**, causing potential public health concerns. See also sites listed in **APPENDIX A**. ✦ The Town's local Point of Dispensing (POD) is located at the Hopkinton High School. ✦ 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 Mink Hills, conservation lands, Sunapee Kearsarge Ragged Greenway Trail, Mount Kearsarge, Warner River which attract people can also enable transmission. ✦ Waters and beaches susceptible to **high bacteria** counts in the summer include Silver Lake. ✦ Wheelabrator in Penacook and the Merrimack Power Station are considered the largest source of local **air pollution**, as is vehicular traffic of I-89.	**4**	3	1	2	**8.0 HIGH**
RIVER HAZARDS **Ice Jams, Scouring, Erosion, Channel Movement or Debris** ***Event(s) Within Last 5 Years***	✦ **Warner River and its Floodplains**. Also the major Brooks (see list in Inland Flooding), especially Schoodac Brook (seasonal), Childrens Brook, Stevens Brook, Toms Pond. Because of the high volumes and swift moving Rivers, **bank erosion**, **scouring** and **channel movement** are hazards of potential concern. ✦ **Erosion** of banks is presently occurring include Warner River bank in the area of East Roby District Road, Slaughter Brook at Horne Street, and at Retreat Road. ✦ **Ice jams** could endanger the dams and nearby facilities and have the potential to recur. Areas of the Warner River at West Joppa Road covered bridge, Waterloo Road covered bridge, Morse Lane, and the Tom Pond area are regularly experiencing winter ice jams. ✦ Floating **debris** down the Rivers and Brooks can accumulate at bridges and dams.	**4**	1	2	2	**6.7 MEDIUM**

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
SEVERE WINTER WEATHER **Snow, Ice, Blizzard or Nor'Easter** ***Event(s) Within Last 5 Years***	✦ **Entire Town.** Particular areas of concern during **winter weather** include high density areas of Main Street Village area, Toms Pond, the Pleasant Lake Estates Manufactured Homes (33), Northeast Catholic College, Lutheran Latvian Homes & Seasonal Camps (35). Vulnerable populations include the Simonds Elementary School, Pine Rock Manor (70), and CAP Building. Telecomm towers on North Road, Route 103 East, Kelly Hill Road, Kearsarge Mountain Road and Mount Kearsarge Tower as well as Department antennas could have high impacts from **snow, ice, and blizzards**. ✦ The 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 I-89 during **storms**. Many local roads, especially in the Mink Hills or along Mount Kearsarge have sharp incline/decline and cars have trouble traveling the road during winter conditions. The interstate I-89 and Exit 7, Exit 8 & Exit 9 ramps are major travel ways for residents and commuters through the Town as is NH 103. ✦ 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. Mount Kearsarge has about 116 homes, Waldron Hill Road (40 homes), Collins Road (16 homes), West Roby Road (14 homes), Chemical Lane (13 homes), and many more are one-egress roads where roads are often blocked by **trees or powerlines**. ✦ Local government operations [Warner Town Hall, Public Works Department, Police Department, Fire & Rescue Department, and Emergency Management] 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.	**4**	3	3	3	**12.0 HIGH**

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SOLAR STORMS AND SPACE WEATHER Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout *Event(s) Within Last 5 Years*	✦ **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: Warner Town Hall, Highway Department, Police Department, and Fire Department. The **aurora borealis** is regularly seen on Mount Kearsarge, indicating **geomagnetic storms** are present without effects. ✦ The Town's technology is most vulnerable to **space weather**, especially communications systems and electrical grid. Telecommunications Towers on North Road, Route 103 East, Kelly Hill Road, Kearsarge Mountain Road and Mount Kearsarge Tower as well as Department antennas, TDS Switching stations, Warner Village Water District pump stations and wells serve residents. Eversource electricity (powerlines & substation) may be interrupted. ✦ 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.	**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*	✦ **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 Winds**). ✦ 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 Tropical events. (See subdivisions and remote areas listed under **High Winds**). (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: Main Street/Village Area Museums, Historic Society Buildings.	**3**	1	3	3	**7.0 MEDIUM**

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WILDFIRE **Brushfire, Outdoor Fires or Accidental** ***No Substantial or Notable Event(s) Within Last 5 Years***	✦ **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. ✦ Remote, forested areas, parks, public Town Forests, conservation areas, open recreation fields, points of higher elevation than surrounding area can be dangerous to people and property during **Wildfire**: entire Mink Hills Area and its trail system and Mount Kearsarge and its trail system, Sunapee Ragged Kearsarge Regional Greenway trails. ✦ Much of the Town is wooded and forested and sections would be difficult to access in case of **wildfire**. Mount Kearsarge has about 116 homes/600 people, Waldron Hill Road (40 homes), Collins Road (16 homes), West Roby Road (14 homes), Chemical Lane (13 homes), and many more are one-egress roads could be difficult to evacuate should **wildfire** encroach. ✦ 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. ✦ Slash and brush are found on the ground on Kearsarge Mountain (State-owned). The Mink Hills area and the Mason Hill/Couchtown Road area are potential wildfires waiting to happen.	**3**	2	2	2	**6.0 MEDIUM**
SECONDARY TECHNOLOGICAL AND HUMAN HAZARDS						

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	PROBABILITY of Occurrence in 10 Years	SEVERITY of Impact			OVERALL RISK (1-16)
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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**. West Joppa Road Covered Bridge has damaged by high water debris. Waterloo Covered Bridge is aging. ✦ Some bridges are red-listed by the state: 189/099 (Town) North Village Road over Silver Brook); 202/136 (State) NH 103 over I-89 NB Deck Replacement 2023; 254/180 (State) NH 127 over Warner River Bridge Replacement 2020. ✦ Many undersized culverts remain vulnerable: •Area where French Brook meets Kearsarge Mountain Road. •Areas along Tom Pond, especially residences on Tom's Pond Lane ✦ **Old culverts** where brooks and streams intersect with roads and are vulnerable to flooding include: •Bartlett Loop •Back side of Burnt Hill •Chemical Lane •Collins Road •Conners Mill Road •Cunningham Pond •Duck Pond Lane •Dummer Road •East Joppa Road •Gore Road •Gould Road •Henniker Road •Horne Street •Howe Lane •Iron Kettle Road •Ladd Lane •Loud Lane •Low areas along the Warner River •Mason Hill Road •North Road •North Village Road •Old Pumpkin Hill Road •Plains Road •Pumpkin Hill Road •Quimby Road •Red Chimney Road •Route 103 •Schoodac Road •Waldron Hill •West Joppa Road •Willaby Colby Lane. ✦ Roads with culverts that regularly washout are listed above under **Inland Flooding**. Box culverts as replacements for **failing culverts** have been recently installed as a result of recurring flooding events. See **2018 Trout Unlimited Stream Crossing Assessment**. ✦ The Town's roads are becoming more difficult to maintain and rehabilitate because of lack of funding and **miles of roads**. Pumpkin Hill Road is a priority. ✦ **Underground line or pipes** are often old and subject to breakage during earthquake or **aging materials**, including some Warner Village Water District water lines and sewer lines.	not scored	not scored	not scored	not scored	not scored

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DAM RELEASE OR FAILURE ***Event(s) Within Last 5 Years***	✦ There are no High Hazard (H) dams in the community, nor are there Significant (S) Hazard dams. **Two dams are Low Hazard (L)**, Silver Lake Dam (Town-owned) and Bear Pond Dam (Contoocook Village Precinct). The Silver Lake gate valves need to be replaced because they cannot close. Other active Non-Menace (NM) dams are in Town could be more likely to experience dam failure (See **APPENDIX A** for list) ✦ **Beaver dams** carry a high probability of flooding and potential for breakage. Mink Hills, North Road (French Brook), Mason Hill (Bagley Pond), Poverty Plains Road (wetland culvert), Schoodac Road (Schoodac Brook), Pumpkin Hill Road (Childrens Brook), and Silver Lake all have beaver dams that could washout roads. ✦ **Dams** in other Towns could have a downstream impact should they fail or release too much water. Dams at Lake Todd and Blaisdell Lake flow into Lake Massasecum which flows into the Warner River.	not scored	not scored	not scored	not scored	not scored
FIRE **Vehicle, Structure, Arson or Conflagration** ***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 Main Street/Village Area could be subject to conflagration. The Exit 9 business area is densely situated. A haz mat fire on one-egress Chemical Lane could be devastating to residents. Numerous businesses utilize hazardous materials. See for **APPENDIX A** hazardous materials and Main Street business lists. ✦ Vehicle fires could occur anywhere, parking lots, driveways, roadways. Interstate I-89 and Exit 7, 8 & 9 ramps along with NH 103 are highly traveled. See also **APPENDIX A**. ✦ Human-started fires could occur in the Town Forest and other wooded or popular conservation areas. See **Lightning** and **High Wind** for remote area lists.	not scored	not scored	not scored	not scored	not scored

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HAZARDOUS MATERIALS **Haz Mat Spills, Brownfields or Trucking *NO Event(s) Within Last 5 Years***	✦ **Most likely** routes of vehicular traffic transport of **hazardous materials** include I-89, NH 103, and the heavily-traveled Exit 9 area with roundabout and gasoline filling stations. Exit 7 and Exit 8 also lead to NH 103 and NH 127. Other local roads could have serious transportation accidents involving hazardous materials. ✦ Vulnerable areas for targeted **evacuation** include Warner Main Street/Village Area, Simonds Elementary School and CAP Senior Building all along NH 103, Pine Rock Assisted Living and Northeast Catholic College (Kearsarge Mountain Rd). ✦ 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 Kearsarge Heating Oils, Rymes Propane, Aubuchon Hardware, Warner Power, Circle K Irving, Evans Fuel Mart, Madgetech, Chemical Lane. ✦ Possible **brownfields** sites to be aware of include: No brownfields sites have been identified in Warner, although the probability is high in some historic industrial locations along the Warner River.	not scored	not scored	not scored	not scored	not scored

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LONG TERM UTILITY OUTAGE **Power, Water, Sewer, Gas, Internet, Communications or Live Wire Danger** ***Event(s) Within Last 5 Years***	✦ **Entire Town.** Electrical outages are often town wide, but high density areas or vulnerable populations are of greatest concern: Simonds School, Pine Rock Assisted Living, Pleasant Lake Estates 55+. Lutheran Latvian Camps, and on Kearsarge Mountain Road (600 residents). Melvin Mills is considered a communication dead zone. ✦ Power outages (Eversource) 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. ✦ 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. Telecommunications towers are located on North Road, Route 103 East, Kelly Hill Road, Kearsarge Mountain Road and Mount Kearsarge Tower. Antennas are located on Highway Department, Police Station, and Fire Station; and TDS Telecom Remote Stations all over Town. Mount Kearsarge Tower with County/ State/federal repeaters is an important tower in Town. The primary source of electricity for the Main Street Village area is the substation on School Street. ✦ The Town is serviced by the Capital Area Mutual Aid Compact, which does all the emergency medical service and Fire dispatching. They have redundant capabilities and are regularly upgrading their systems. ✦ The Town has water and sewer systems within Warner Village Water District infrastructure, including the Wastewater treatment facility, water pumping stations, and 2 water tanks (Old Denny Hill and Latting Lane). These systems are located in the Main Street Village Area and Kearsarge Mountain Road. Other utility systems, such as LP gas, water wells, sewer systems, tanks and more are available. Rymes Propane is a local option for LP gas and deliveries. See also Aging Infrastructure and **APPENDIX A**. ✦ 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). ✦ The agricultural farms (feeding or dairy animals) should be monitored (See **Drought**)	not scored	not scored	not scored	not scored	not scored

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RADIOLOGICAL **Trucking, Occupational Sites or Power Plants *NO Event(s) Within Last 5 Years***	✦ **Unlikely**. Warner is outside of the Seabrook Nuclear Power Plant's 10-mile Emergency Planning Zone (EPZ). I-89, the Exits 7-8-9 ramps, and NH 103 are the main highways through Town which would be most likely driven by either those seeking refuge from Seabrook or offline Vermont Yankee accidents or by trucks carrying radiological waste. Rerouting traffic can be dangerous with potentially severe transportation accidents. Warner commuters also use nearby NH 114 and NH 127. See also **Transportation Crash**. ✦ Occupational facilities such as hospitals, clinics, school laboratories, industries could use radiological materials and equipment. Only one clinic is known to be located in Warner, the Family Tree Health Center, which might have x-ray equipment.	not scored	not scored	not scored	not scored	not scored
TRANSPORTATION CRASH **Vehicle, Airplane, Helicopter, Rail, Interstate, Pedestrian or Bicycle *Event(s) Within Last 5 Years***	✦ **I-89 and its Exit 7, Exit 8, Exit 9 ramps, NH 103** are the main highways through Town and have the most **crashes**. Rerouting traffic can be dangerous resulting in other potentially severe **crashes**. Warner commuters also use nearby NH 114 and NH 127. Dangerous locations and intersections include areas of steep slopes like Burnt Hill Road, Pumpkin Hill Road, Horne Street, Collins Road. ✦ **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, such as Main Street Village area, encourage bicycling and pedestrians and but also have the potential for serious crashes. ✦ The Town may have alternative **crash** potential, such as airplanes. In Warner, small-engine planes have crashed in the Mink Hills. Mount Kearsarge represents a high elevation challenge.	not scored	not scored	not scored	not scored	not scored

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
MASS CASUALTY INCIDENT **As a result of any hazard event** ***NO Event(s) Within Last 5 Years***	✦ **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, Fall Foliage Festival, political rallies. ✦ The Town shelter is located at the Town Hall (75 capacity) and the Pillsbury Free Library is available as a warming/cooling shelter. Warner is a member of the Capital Area NH Public Health Network and other regional emergency groups. Warner Fire and Rescue could provide EMS and transport to a larger facility such as Concord Hospital in 20 minutes.	not scored	not scored	not scored	not scored	not scored

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
TERRORISM/ VIOLENCE **Active Shooter, Hostage, Public Harm, Civil Disturbance/ Unrest, Politically Motivated Attacks, Incendiary Devices, Sabotage or Vandalism** ***Event(s) Within Last 5 Years***	✦ **Unlikely, but Possible.** **Terrorism/ violence** could possibly occur anywhere in **Entire Town** and could result in **mass casualty**. Most susceptible sites could include: Town Hall, Bagley Park, Pillsbury Free Library, Simonds Elementary School, CAP Senior Building, Northeast Catholic College, Post Office, Market Basket, NH State Liquor Store, Main Street Book-Ends, United Church of Warner, Sugar River Bank, McDonalds, Masonic Hall, Evans Expressmart (gas), or Circle K (gas). ✦ All other governmental or state facilities in Town Hall, Police Station, Fire Station, Highway Garage, Transfer Station, Warner Village Water District, the 5 telecomm towers. Private manufacturing or industrial businesses with large quantities of hazardous materials, like Madgetech, Brayshaw Printing, Rymes Propane or Kearsarge Heating Oil could be possible **terrorism** targets. ✦ **Sabotage** would be most likely to occur at Town or Governmental Facilities to halt operations or computer systems: Town Hall, Police Station, Fire Station, Highway Garage, Transfer Station, Warner Village Water District, Simonds School, TDS Telecom. ✦ **Vandalism** could occur at dams, under bridges, other public water supplies or towers, cemeteries, vacant buildings, beaver dams, recreation areas, etc. ✦ **Hostage and active shooter** situations could most likely occur domestically anywhere in the Town or in buildings and schools: Town Hall, Simonds School, Sugar River Bank. ✦ 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**: Covered Bridges, Bagley Park, Silver Lake beach, Rollins State Park.	not scored	not scored	not scored	not scored	not scored

Natural, Technological, Human Hazard Categories	Potential/Susceptible (Existing) Hazard Locations in the Town *See also Appendix A. Critical Community and Facility Vulnerability Assessment (CCFVA)*	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	
CYBER EVENT **Municipal Computer Systems Attack, Website Overtake, Cloud Data Breach, Telephone Rerouting, Identity Theft, Phishing, Ransomware, Virus or Phone Scams** ***NO Event(s) Within Last 5 Years***	✦ Entire Town. Cyberattack could target Town websites, computer systems, cloud data systems, archival records, email phishing, etc. Town Hall, Police Department, Fire Department, Warner Water Village Precinct, Transfer Station, Highway Department, Pillsbury Free Library, or Historical Society. ✦ Email scams and identity theft are likely regular problems for residents and businesses. Towns often post known attempts on websites. Sugar River Bank, Madgetech, other large businesses (See **APPENDIX A**).	not scored	not scored	not scored	not scored	not scored

Source: Warner 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 Merrimack and Hillsborough Counties experienced **12** presidentially- declared natural major disasters [DR-] and **2** presidentially- declared emergency declarations [EM-], totaling **14** disasters in the last **14** years. The first grouping of 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 **14** natural disasters [DR-], **5** were floods, **5** were snow/ice storms, **2** were wind/rain/lightning storms and **2** were wind/flooding storms. The disasters [DR-] experienced between **1973-2004** were **4** floods, **5** snowstorms, **1** wind/rain/lightning storm and **3** wind/flooding storms. 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 is 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 **2001-2005** group of **4** Snow emergency declarations [EM-] and the **2011-2012** Tropical Storm Irene and Hurricane Sandy emergency declarations [EM-] significantly impacted communities such as Warner but 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.

PUBLIC ASSISTANCE GRANT FUNDING

The last declared disaster in Merrimack County, in which Warner is located, was the severe wind storm and flooding event in **October 2017** for which Warner received **$10,515** in federal Public Assistance funding. Details of Central NH region declared disasters and emergency declarations since **1973** and federal funding provided to the Town of Warner 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 Public Assistance (PA) Funding To Warner**
				Merr	Hill	
	TOWN ADD NEW DISASTER ROWS HERE-					
4355	**2017** October Wind Storm	Oct 28-20, **2017**	Severe Storm and Flooding from Tropical Storm Phillippe	M	---	**$10,515**
4209	**2015** January Blizzard	Jan 26-28, **2015**	Severe Winter Storm and Snowstorm	---	H	$0
4105	**2013** Snowstorm NEMO	Feb 8-10, **2013**	Severe Winter Storm and Snowstorm	M	H	**$15,858**
4095 EM-3360	**2012** Hurricane Sandy Emergency	Oct 26-Nov 8, **2012**	Hurricane Sandy	EM-M	EM-H	**$2,359**
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	---	**$11,248**
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	**$11,849**
1812	**2008** December Ice Storm	Dec 11-23, **2008**	Severe Winter Storm	M	H	**$16,438**
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	---	**$13,805**
1695	**2007** April Spring Flood	Apr 15-23, **2007**	Severe Storms and Flooding	M	H	**$131,514**
1643	**2006** Mother's Day Flood	May 12-23, **2006**	Severe Storms and Flooding	M	H	**$286,312**
1610	**2005** Columbus Day Flood	Oct 7-18, **2005**	Severe Storms and Flooding	M	H	**$75,357**
EM-3207	**2005** Snow Emergency	Jan 22-23, **2005**	Snowstorm	M	H	**$9,136**
EM-3193	**2003** Snow Emergency	Dec 6-7, **2003**	Snowstorm	M	H	**$9,409**
EM-3177	**2003** Snow Emergency	Feb 17-18, **2003**	Snowstorm	M	H	**$5,974**
EM-3166	**2001** Snow Emergency	Mar 5-7, **2001**	Snowstorm	M	H	**$7,587**
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
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

FEMA DR-	Local Disaster Name	Incident Period	FEMA Disaster Name	Includes County*		FEMA Public Assistance (PA) Funding To Warner**
				Merr	Hill	
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
Total Public Assistance (PA) FEMA Funding to Warner, 1993-2019**						**$611,766**

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)

*** Dollar figures are rounded to the nearest $100*

To help reclaim some of the costs these disasters wrought on town property and infrastructure, Warner 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 disaster funding was sought for and received by Warner for **9** of the **15** eligible *declared disasters* [DR-] in Merrimack County during this timeframe. *Emergency declaration* [EM-] funding was sought and received by Warner for all **6** of the **7** eligible declared emergencies during this time period. Warner was eligible for Public Assistance funding from **22** storms during this **26**-year time period and received PA funding from **15** 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 Warner in terms of FEMA Public Assistance (PA) funds received for recovery was the **May 2006 Mothers Day Floods** after which Warner received **$286k** for **27** applications for project to help repair the roads and bridges, repair washed out gravel shoulders and roads, and rehabilitate damaged bridges, and rehabilitated the Town Park. The last time the Town was awarded PA funding was the **$10k** for the snow and debris removal from the **October 2017 Wind & Rain Storms**. All Public Assistance funding to date from **1993** to **October 2017,** totals **$612k**. 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 Warner 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 Warner and its residents. Public Assistance disaster funding opportunities open to communities when a disaster is declared within a county. The Town of Warner applied for and received this funding for several recently declared disasters.

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 Warner 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 Warner	Other Warner Local Hazard Event	Regional Hazard Event with Warner Impacts

Table 12

Local and Area Hazard Event and Disaster History

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
TOWN ADD NEW EVENT ROWS HERE								Warner Hazard Mitigation Committee
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.	Warner residents felt shaking. Quake was discussed at Town Meeting. No reports of damage.	Earthquake, Earth	Warner Hazard Mitigation Committee, CNHRPC, wmur.com, unionleader.com, earthquake.usgs.gov
Warner Interstate Transportation Crash Sep 2018	No	2018	Sep 22	N/A	Interstate 89 runs through Warner and is an essential highway for New Hampshire and Vermont	Single vehicle crash on I-89 South closed the road for several hours. A truck had self-destructed on ramp Exit 8, resulting in a fatality.	Crash	Warner Hazard Mitigation Committee, CNHRPC
Warner Silver Lake Cyanobacteria Aug 2018	No	2018	Aug 22-23	N/A	This condition was localized to Warner although other NH Lakes received similar notifications.	Silver Lake Town beach closed from Aug 22-23 for High Bacteria counts.	Health (Water Quality)	CNHRPC, NH Dept of Environmental Services
Warner Active Shooter Incident May or Jun 2018	No	2018	May or Jun	N/A	Interstate 89 runs through Warner and is an essential highway for New Hampshire and Vermont	Warner responders assisted with handling a shooter on I-89 with other local police, State police and Merrimack County Sheriff's Department. There were no fatalities.	Terrorism/ Violence	Warner Hazard Mitigation Committee, CNHRPC
Regional Thunderstorm, Severe Winds, 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	In Warner, an EF-1 tornado with winds 80-100 mph traveled through the Town and knocked down trees and over a dozen power line poles, blocked roads, and caused short-term power outages. Trees along Couchtown Road were extensively damaged. The tornado entered Warner in the area of Route 103 West and extended to the Mason Hill Road area.	Wind, Tornado, Debris, Utility	Warner Hazard Mitigation Committee, CNHRPC, wmur.com, Concord Monitor

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					miles, about 300 yards across, through Warner, 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 resulted in extensive damage to trees on Mason Hill, the Lane, and Schoodac Rd. Several poles were replaced. An unknown amount of Board Feet of timber was damaged as a result of the wind. There were no injuries reported in Warner. See Appendix E for relevant photo.		
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. 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, 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.	This 2.4 earthquake occurred on the Contoocook River in Concord a little after 5:00am. Shaking was felt at Pumpkin Hill Road in Warner but there were no apparent damages. Concord is two towns away from Warner to the east.	Earthquake, Earth	Warner Hazard Mitigation Committee, Earthquaketrack.com, CNHRPC, concordmonitor.com, earthquake.usgs.gov
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.	Multiple storms in a row brought cold then warm weather to Warner. Extremely cold temperatures caused ice jams along the Warner River resulting in flooding in the area of Lang Bridge, which was damaged. Riverside Park & Bagley Field sustained damages. Ice and flooding caused fence damage at Riverside and soccer goals, ice rink walls and lighting posts were destroyed at Bagley Field.	River, Flood, Extreme Temp, Winter, Debris	Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
						Residents on West Roby District Road and some on residents on Morse Loop were stranded. Highway Crew blocked the road until the water receded, then had to clear the ice buildup on the roadway. When the Warner River flooded there were many ice jams, including at Lang Bridge which also had flooding (water went around each end of the bridge over the banks, 16' deep) due to ice jam and tree debris. West Joppa Road/Dalton Covered Bridge had closed access to road (2 feet of water and ice floes.) West Roby District Road was closed - (2-3 feet of water). There were power outages and accidents. Many other roads like West Roby District Road flooded as a result of this weather event.		
Warner Extreme Cold Jan 2018	No	2018	Jan	N/A	Likely other Central NH Region towns experienced similar temperatures and conditions.	The Town provided fuel assistance for cold emergencies, but oil deliveries were not available in timely fashion. As a result, the Wood Bank fuel was provided by the Town and depleted the supply.	Extreme Temps, Winter	Warner Hazard Mitigation Committee, CNHRPC
Warner Winter School Closures Jan-Dec 2018	No	2018	Jan-Dec	N/A	The Kearsarge Regional School District has several communities – Sutton, Warner, New London, Bradford, Newbury.	2018 Snow Days (School out) 7 days + 2 delays: 1/2 (2 hour delay), 1/4, 1/12 (ice), 1/16, 2/7, 2/20 (2 hour delay), 3/8, 3/13, 3/14, 4/5.	Winter, Extreme Temps	Warner Hazard Mitigation Committee, CNHRPC
Warner Vehicle Fires 2018	No	2018	Misc	N/A	Interstate 89 runs through Warner and is an essential highway for New Hampshire and Vermont	At the I-89 Exit 9 Park and Ride, there was a vehicle fire with no injuries. Another vehicle fire occurred at Evans Fuel Mart on NH 103. A third vehicle fire was identified at Exit 7 Davisville.	Fire	Warner Hazard Mitigation Committee, CNHRPC
Warner Active Shooter Incident	No	2017	Nov 20	N/A	Interstate 89 runs through Warner and is an essential highway for	Warner responders assisted in handling a shooter on the highway	Terrorism/ Violence	Warner Hazard Mitigation

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Nov 2017					New Hampshire and Vermont	at Exit 10 in Sutton. Exit 10 is within 0.25 mile of the Kearsarge Middle School, High School, and Sutton Elementary School.		Committee, CNHRPC
Warner Local Terrorism Incident Oct 2017	No	2017	Oct 31	N/A	N/A, although Simonds School is part of the Kearsarge Regional School District	Simonds Elementary School cancelled a day of school because of an extreme domestic dispute that had the potential to threaten students	Terrorism/ Violence	Warner Hazard Mitigation Committee, CNHRPC
Severe Wind Storm and Flood Oct 2017	**4355**	**2017**	**Oct 28-30**	**$10,515**	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 does not have power restored quickly.	**Warner received $10,515 in FEMA Public Assistance funding** for debris removal, roads and bridges, and state road management. Six road washouts occurred. The Schools were closed 10/30, 10/31, 11/1 from flooding and power outages. High winds blew trees down, several power outage were experienced. Business was affected due to town wide internet loss experienced by local provider (TDS Telecom). This was a declared disaster for emergency services here in Warner. Downed trees took out power and phone service to over 300 residents.	River, Wind, Storms, Debris, Flood, Utility, Aging Infrastructure	Warner Hazard Mitigation Committee, Newbury and New London Emergency Management
Severe Storms and Flooding Jul 2017	**4329**	**2017**	**Jul 1-2**	**N/A for Warner**	The entire State, North Country and Central NH region experienced severe storms with rain, wind, lightning, thunder and flooding. Not a declared disaster in Merrimack or Hillsborough counties.	**Warner could not apply for or receive federal PA funds.** Warner conducted debris clean up along roads but noted the storm was not out of the ordinary in Town.	River, Wind, Storms, Flood, Lightning, Debris	Warner Hazard Mitigation Committee, FEMA CNHRPC, WMUR, NOAA
Geomagnetic Storm May 2017	No	2017	May	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. See Appendix E for relevant photo.	Solar Storms, Geomagnetic	Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
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".	Warner likely had power failures because 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 Warner**	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.	**Warner could not apply for or receive federal PA funds.** A state-wide blizzard occurred during Town Meeting, (Election Day Storm). Warner did not delay their Town Meeting. During this storm, a Fire Department engine rolled over on I-89 due to the weather conditions. There were no injuries. Several other accidents occurred on I-89, so the highway was closed until treated. See Appendix E for related photo.	Winter, Extreme Temp, Snow, Crash	Warner Hazard Mitigation Committee, CNHRPC
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.	It is likely Warner residents felt this earthquake and made local calls to the Fire and Police Departments. Webster abuts Warner to the east.	Earthquake, Earth	Warner Hazard Mitigation Committee, Earthquaketrack.com, CNHRPC, earthquake.usgs.gov
Warner Winter School Closures Jan-Dec 2017	No	2017	Jan-Dec	N/A	The Kearsarge Regional School District has several communities – Sutton, Warner, New London, Bradford, Newbury.	2017 Snow Days (School out) 7 days in + 6 delays7: 1/4 (2 hour delay), 1/11 (2 hour delay), 1/24, 2/1 (2 hour delay), 2/8 (2 hour delay), 2/9, 2/13, 2/16 (2 hour delay), 3/14, 3/15 (2 hour delay), 3/27, 12/12, 12/22.	Winter, Extreme Temps	Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Central NH Region and Warner Excessive Heat 2016-2017	No	2016	-2017	N/A	NH and the Central NH region experienced high heat records throughout 2016 and 2017.	Many people don't have air conditioning, lots of 90 degree humid days. Many aging and elderly people in live in private homes in Warner that require welfare checks, and many go to the CAP Building for social activities and A/C.	Extreme Temp, Excessive Heat	Warner Hazard Mitigation Committee, CNHRPC
Warner Extreme Cold and Snowstorm Dec 2016	No	2016	Dec	N/A	Likely other Central NH Region towns experienced similar temperatures and conditions.	In Warner, an elderly person using a GPS drove their car onto a snowmobile trail instead of a road. The vehicle became stuck and the elderly person got out to walk during a snowstorm. The situation ended in a fatality.	Extreme Temps, Winter	Warner Hazard Mitigation Committee, CNHRPC
Warner Beaver Dam Failure Fall 2016	No	2016	Fall	N/A	N/A, localized situation in Warner	On Poverty Plains Road, the Public Works Dept removed a beaver dam to stop potential flooding. In 2008 at this location, water came to the top of the dam but did not overtop.	Dam	Warner Hazard Mitigation Committee, CNHRPC
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.	Reports were likely made to USGS from Warner and local calls may have been made to the Fire and Police Departments. Andover abuts Warner to the north, in Merrimack County too.	Earth, Earthquake	Warner Hazard Mitigation Committee, 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.	Warner was also affected by these storms. Lightning was spectacular, and was captured on photo at North Road. See Appendix E for relevant photo.	Wind, Storm, Lightning, Debris Wildfire, Utility	Warner Hazard Mitigation Committee Concord Patch, CNHRPC, WMUR, NOAA
Warner Plane Crash	No	2016	May 30	N/A	Planes flying over Warner are regional,	In the higher elevation Mink Hills on Memorial	Crash	Warner Hazard

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
May 2016					often from Manchester, Boston, or points west. Many that crash are small single-engine planes from Concord Airport or from any number of private airports in New England.	Day a private 2-seater plane crashed. The occupants were injuries but there were no fatalities. It was difficult for responders to reach the remote location where the plane went down.		Mitigation Committee, CNHRPC
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, Webster, Concord, and Hillsborough	This local quake is believed to have caused significant municipal damage – it may have disrupted or fractured one of the two Warner Village Water Precinct well. More of a snap sound was heard in Davisville.	Earth, Earthquake	Warner Hazard Mitigation Committee, Earthquaketrack.com, CNHRPC, earthquake.usgs.gov
Warner Extreme Cold Feb 2016	No	2016	Feb	N/A	Likely other Central NH Region towns experienced similar temperatures and conditions.	Water service pipes froze in CAP Building, several private residences, and Masonic Hall, although the CAP Building had a second source of water for residents. Broken pipes may have been in Water Precinct area. Delayed openings for school so children did not have to wait at bus stops in extreme cold.	Extreme Temps, Winter, Aging Infrastructure	Warner Hazard Mitigation Committee, CNHRPC
Warner Winter School Closures Jan-Dec 2016	No	2016	Jan-Dec	N/A	The Kearsarge Regional School District has several communities – Sutton, Warner, New London, Bradford, Newbury.	2016 Snow Days (School out) 3 days + 3 delays: 2/9 (2 hour delay), 2/16, 3/2, 3/25 (2 hour delay), 12/7 (2 hour delay), 12/12	Winter, Extreme Temps	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.	Warner residents felt shaking and heard rumbling throughout the Town. There seemed to be no damages.	Earth, Earthquake	Warner Hazard Mitigation Committee 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	This EF-0 Tornado with 75 MPH winds formed in the area of Exit 9 and State Route 103. The Tornado uprooted a pine tree on West Main	Wind, Tornado, Debris, Utility	Warner Hazard Mitigation Committee, WMUR, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					yards wide. Town officials said the tornado ripped the roof off a barn, but there were no injuries reported.	St then proceeded into the woods. It then touched down and took off a metal roof at 139 Kearsarge Mountain Rd. The roof landed approximately 400-600 feet above in the woods. There were no injuries reported in Warner. See Appendix E for relevant photos.		
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. See Appendix E for relevant photo.	Solar Storms, Geomagnetic	Warner Hazard Mitigation Committee, CNHRPC
Severe Winter Storm and Snowstorm - January Blizzard 2015	**4209**	**2015**	**Jan 26-28**	**N/A for Warner**	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. Not declared in Merrimack County.	**Warner could not apply for or receive PA funding.** The storm was not particularly notable by the Town. No recollections of anything other than a typical winter storm.	Winter, Extreme Temp, Utility, Winds, Debris	Warner Hazard Mitigation Committee, fema.gov, Boston Globe
Warner Winter School Closures Jan-Dec 2015	No	2015	Jan-Dec	N/A	The Kearsarge Regional School District has several communities – Sutton, Warner, New London, Bradford, Newbury.	2015 Snow Days (School out) 4 days: 1/8, 1/27, 2/2, 2/9.	Winter, Extreme Temps	Warner Hazard Mitigation Committee, CNHRPC
Warner/ 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 Country and Hillsborough in	The Severe Drought (D2) conditions as of 09/17 caused some problems in Warner. From May to Nov (2015 and 2018), the Water Precinct applied water	Drought, Extreme Temp, Increased Wildfire Risk	Warner Hazard Mitigation Committee, US Drought Monitor NH,

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					2016. The State's 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.	restrictions to its customers because drought conditions seemed to have impacted one of the Town wells.		NH DES, CNHRPC
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.	This quick, heavy accumulation snowstorm occurred on the holiday when traveling is substantial. Warner lost power throughout the Town and took several days to repair. Main transmission line 3,000 volts was down behind Simonds School, Schoodac Road, School Street, Denny Hill East Sutton Road. Power lines were also across 89 down Route 103 West.	Extreme Temp, Winter, Utility, Wind	Warner Hazard Mitigation Committee, Concord Monitor, CNHRPC
Regional Communications Failure by Lightning **2014**	No	2014	Summer	N/A	Regional event- Plausawa Hill (Pembroke) Lightning Strike - affected Capital Area Fire Compact Dispatch. Fairpoint went down due to equipment failure so Merrimack County dispatch went down.	Warner, as part of the Central NH Dispatch, likely experienced both the lightning effects in Town and the emergency response problems with the main tower down.	Lightning, Utility	Concord Hazard Mitigation Committee, CNHRPC
Warner Winter School Closures **Jan-Dec 2014**	No	2014	Jan-Dec	N/A	The Kearsarge Regional School District has several communities – Sutton, Warner, New London, Bradford, Newbury.	2014 Snow Days (School out) 6 days: 1/6, 2/5, 2/13, 2/14, 2/18, 2/21, 12/9.	Winter, Extreme Temps	Warner Hazard Mitigation Committee, CNHRPC
Warner Lyme Disease Epidemic **2014 - 2018**	No	2014 -	2018	N/A	Likely experienced by other Central NH region communities during the same time period.	Residents have been known to have been subjected to and tested for Lyme Disease; many are positive. Spring is	Health (Epidemic)	CNHRPC, NH Dept of Environmental Services

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
						particularly bad. Warner is a rural, forested town and is used for outdoor recreation. The problem may become worse.		
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.	Warner residents heard a sonic boom. The Town received a call from State asking about damage, but there did not seem to be any.	Earthquake, Earth	Warner Hazard Mitigation Committee, CNHRPC, earthquake.usgs.gov
Warner Silver Lake Cyanobacteria Jul-Aug 2013	No	2o13	Jul 10-16 & Aug 27	N/A	This condition was localized to Warner although other NH Lakes received similar notifications.	Silver Lake Town beach closed from July 10-16 for High Bacteria counts. The beach closed August 27 and remained closed for the remainder of the season for High Bacteria.	Health (Water Quality)	CNHRPC, NH Dept of Environmental Services
NH Severe Storms, Flooding and Landslide Jun-Jul 2013	**4139**	**2013**	**Jun 26 – Jul 3**	**N/A for Warner**	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).Not declared in Merrimack or Hillsborough Counties.	**Warner could not apply for or receive PA funding**. Severe rain storms washed out the Bartlett Loop Road Fish & Game culvert. The road was closed and the culvert replaced with a new structure.	Landslide, Storms, Flood, Wind	FEMA, CNHRPC, Warner Hazard Mitigation Committee
Severe Winter Storm and Snowstorm - Winter Storm NEMO 2013	**4105**	**2013**	**Feb 8-10**	**$15,858**	Winter Storm "Nemo". FEMA-3360-DR. Blizzard conditions with winds gust of 50-60 MPH and over 20 inches snow hit New Hampshire and the New England area. Disaster declaration received for emergency protective measures in eight counties of the State.	**Warner received $15,858 in FEMA Public Assistance funding** for snow removal and for protective measures. Heavy snow with 50-60 MPH wind (blizzard conditions) resulted in 20-22 inches of snow. There were some downed trees associated with this storm.	Winter, Extreme Temp, Wind	FEMA, Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Warner Hazardous Materials Spill **Feb 2013**	No	2013	Feb	N/A	Interstate 89 travels east-west from Concord to the Canadian border from Vermont. Many vehicles are believed to carry hazardous materials through Warner.	A truck carrying kitchen waste overturned at Exit 9 off Interstate 89 South resulting in the spillage of several gallons of liquid waste onto the ground off Route 103.	Haz Mat, Crash, Public Health (Water Quality)	Warner Hazard Mitigation Committee, CNHRPC
Warner River Hazard and Erosion/ Washout **Spring 2013**	No	2013	Unk	N/A	N/A, although the State of NH owned the land and timber	The State had a timber harvest on Kearsarge Mountain Road in 2012. The following Spring in 2013, French Brook flowed off the mountain without the forest to retain the water. Erosion, mud flow and brook redirection occurred	River, Erosion, Landslide	Warner Hazard Mitigation Committee, CNHRPC
Hurricane Sandy **Oct 2012**	**4095 EM-3360**	**2012**	**Oct 26-Nov 8**	**$2,359**	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.	**Warner received $2,359 in FEMA Public Assistance funding** for protective measures. High winds blew trees down, minor power outage for 2-3 days were experienced. Business was affected due to town wide internet loss experienced by local provider (TDS Telecom) – they had to close or use manual systems. Downed trees took out power and phone service to over 100 residents.	Tropical, Wind, Flood, Debris	Warner 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 Warner with an earthquake of this magnitude as it was felt around the Central NH Region. It was felt in Warner but there were no apparent damages.	Earthquake, Earth	Concord Monitor, Earthquake--track.com, CNHRPC, Warner Hazard Mitigation Committee
NH Severe Storm and Flooding **May 2012**	**4065**	**2012**	**May 29-31**	**N/A for Warner**	This declared disaster for Cheshire County. Public Assistance (PA) was available and	**Warner could not apply for or receive PA funding**.. There were no specific issues in Town	Flood, Storms, Wind	FEMA, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					Hazard Mitigation Assistance (HMA) became available statewide. Damage per capita was high – Cheshire ($26.04). Not declared in Merrimack or Hillsborough Counties.	noted. Any flooding, tree fall or other problems were handled as normal response.		
Warner Lightning Strike 2012	N/A	2012	Circa	N/A	N/A, although likely other lightning strikes occurred in the Central NH Region.	A lighting strike hit a grassy area in the field adjacent to first residence on Old Pumpkin Hill Road.	Lightning	Warner Hazard Mitigation Committee, CNHRPC
Halloween Snow Storm Oct 2011	**4049**	**2011**	**Oct 29-30**	**N/A for Warner**	FEMA-4049-DR. Towns in Central NH were impacted by this shocking, early severe snowstorm, although a major disaster declaration was not declared in Merrimack County. 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.	**Warner could not apply for/receive funding.** This early season snowstorm saw trees down, wires down due to nearly two feet of snow.	Winter, Extreme Temp	FEMA, Warner Hazard Mitigation Committee, CNHRPC
Tropical Storm-Irene Aug-Sep 2011	**4026**	**2011**	**Aug 26-Sep 6**	**$11,248**	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.	**Warner received $11,248 in FEMA Public Assistance funding** for protective measures, debris removal and roads and bridges. Bartlett Loop Road, Cunningham Pond Rd, Parade Ground Cemetery Rd Intersection, Schoodac Rd, New Market Rd damages. The Fire Station was staffed in anticipation of a significant event. Wind and rain impacts were experienced in Town with some road washouts. Branches came down, and people pumped out basements. Residents lost power during this storm due to	Tropical Wind, Flood, Debris, Utility	FEMA, Warner Hazard Mitigation Committee, CNHRPC, NH State Climate Office 8/11 Summary

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
						trees taking down wires. Damage was minimal in comparison to other areas of the State.		
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. Snow fell in depths of up to 8", but stopped by noon. Although dozens of accidents were reported, no serious injuries were reported.	The first April Fool's (2011) snowstorm with heavy, wet snow brought down trees and powerlines. Power outages ensued.	Extreme Temp, Snow, Wind Chill, Power Failure, Debris Impacted Infrastructure	Warner Hazard Mitigation Committee, wmur.com, CNHRPC, cbsnews
Warner Home Invasion & Terrorism **Jan 2011**	No	2011	Jan	N/A		A home invasion occurred to residence on West Main Street. After a police standoff, the intruder shot and killed himself.	Terrorism, Active Shooter	Warner Hazard Mitigation Committee, wmur.com, CNHRPC
Warner River Erosion and Repair **2008-2010**	No	2008 -	2010	N/A	N/A, likely a localized condition in Warner	The Warner River flows through Warner. During periods of spring high water with heavy flow, the banking in the area of East Roby District Road has eroded to a point that the one lane of the gravel roadway sank approximately 2-3 feet. This resulted in the closing of one lane of the road. A similar situation occurred on gravel Retreat Road. The problems were repaired in fall 2010 which included paving the roads.	River, Winter, Flood, Erosion	Warner Hazard Mitigation Committee
Concord Hospital Bomb Threat **Oct 2010**	No	2010	Oct	Circa	A bomb threat was called in to Concord Hospital as a result of a child custody issue and the group known as the "Oathkeepers." The FBI was contacted, but nothing was found in the Hospital during a bomb sweep. Phone lines were flooded with calls by the Oathkeepers to inhibit using the landlines. The incident was determined to be harassment instead of an actual event.	N/A to Warner although the response was likely regional. Any impacts to the hospital would have been felt regionally.	Terrorism	Concord Hazard Mitigation Committee, CNHRPC
Canterbury Earthquake	No	2010	Sep 26	N/A	"A magnitude 3.4 [sic] earthquake rattled	Epicenter in Canterbury is about 15 miles to the	Earth, Earthquake	Warner Hazard

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Epicenter 3.2M (Mercalli V) **Sep 2010**					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 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.	east of Warner across the Merrimack River. Residents in Warner felt the large earthquake, but there was no damage reported.		Mitigation Committee, Union Leader, CNHRPC, earthquake.usgs.gov
Quebec-Ottawa Earthquake 5.0M (Mercalli VII-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 Warner 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	Warner likely experienced the effects of this smoke, smog, and fine particulate matter	Wildfire, Health (Air Quality)	Union Leader 2010, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					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 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)	**Warner did not apply for/ receive funding.** Much of the damage from the previous storm was still being cleaned up and repaired. The Town did not experience much additional flooding and high winds during this event. Severe storms and flooding occurred over a two-week period which caused minor washed out roads.	Wind, Flood, Utility, Debris	Warner Hazard Mitigation Committee, FEMA
Severe Winter Storm and Flooding Feb-March 2010	**1892**	**2010**	**Feb 23-Mar 3**	**$11,849**	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 Unitil customers were out of power at the peak outage period.	**Warner received $11,849 in FEMA Public Assistance funding** for roads & bridges, debris removal, protective measures. This was a multi-hazard storm which included a snowstorm and high wind event in February and subsequent flooding in March. During this severe winter storm, trees were downed, and roads washouts occurred. Warner had roads to repair and down trees to be picked up and chipped. Emergency Responders responded to several call for assistance. Culvert pipes frozen caused washouts and flooding. Electricity was out to most households.	Extreme Temp, Snow, Wind, Flood, Debris, Aging Infrastructure	Warner Hazard Mitigation Committee, FEMA, Unitil
Vermont Yankee Tritium Contamination	No	2010	Jan 7	N/A	The Vermont Yankee Nuclear Power Plant notified the Vermont	Warner may be affected in the future as groundwater sources	Radiological, Health	Vermont Department of Health

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Jan 2010					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 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.	are connected. The Connecticut River travels the NH / VT border.	(Water Quality)	2012, CNHRPC
Warner Telephone Cyberattack Circa 2010	No	2010	Circa	N/A	The cyberattack could have originated anywhere in the world	The Town phone system was hacked. Perpetrators were making calls all over the world from the Town's telephone account.	Cyber	Warner Hazard Mitigation Committee, CNHRPC
Warner Flooding – Valentine's Day 2009	No	2009	Feb	N/A	It is likely other communities experienced the extreme temperature fluctuations and resultant flooding	Culverts frozen prompting road damage from blocked culverts.	Winter, Extreme Temps, Flood, Debris	Warner Hazard Mitigation Committee, CNHRPC
Severe Winter Storm - Dec 2008 Ice Storm	**1812**	**2008**	**Dec 11-23**	**$16,438**	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	**Warner received $16,438 in FEMA Public Assistance funding** for debris removal and protective measures. The Town opened the Library as a warming center to assist residents. Trees and power lines downed due to the ice buildup on trees. All of Warner was without power for approximately 72 hours when trees took out wires and poles feeding the Pumpkin Hill Road Substation. Power was not restored to the whole town for 10 days. With the loss of power to the whole Town, businesses were forced to close- residents rely on these food and fuel	Winter, Extreme Temp, Wind, Utility, Debris	Warner Hazard Mitigation Committee, FEMA, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					lines and poles across the region. About 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 $5 million. Event was the largest power outage in NH history.	services. Power to the Exit 9 area and the Village Center had power restored first.		
Warner Lightning Strike Circa 2008 – 2013	No	2008 -	2013 circa	N/A	N/A, although likely other lightning strikes occurred in the Central NH Region.	A lighting strike hit a tree in the woods behind a residence on Pumpkin Hill Road. Fire Dept personnel used Off Road Equipment to extinguish the fire.	Lightning, Wildfire	Warner Hazard Mitigation Committee, CNHRPC
Severe Storms and Flooding (Hurricane Hannah) - Sep Flood 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)	**Warner did not apply for or receive FEMA Public Assistance funding.** Warner sustained damage to culverts ditches and roads, resulting in road closures. The washouts and trees down from the storm were repaired and/or removed in a business as usual fashion. No specific recollections of this event were available.	Tropical, Flood, Debris	FEMA, Warner Hazard Mitigation Committee, CNHRPC
Severe Winds, Heavy Rains & Tornado July 2008	**1782**	**2008**	**Jul 24**	**$13,805**	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	**Warner received $13,805 in FEMA Public Assistance funding** for debris removal, protective measures, roads and bridges. Bible Hill Rd, Horne Street, culverts and road repairs. High wind with heavy rainfall resulted in flooded roads. There were no injuries	Wind, Tornado, Downburst, Storm, Debris	FEMA, Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					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 destroyed and another 37 suffering major damage. Damage was estimated to exceed $10 million. Hillsborough County	reported in Warner. The Town did receive FEMA funds as a result of the washed out roads.		
Warner Snow Load Roof Collapses Apr 2008	No	2008	Apr	N/A	Likely other communities were impacted by this heavy snow and warming melt in the area.	There were four buildings in Warner with roofs that collapsed as a result of the heavy snow loads. There were no injuries reported as a result of the collapses.	Extreme Temp, Winter, Roof Collapse	Warner Hazard Mitigation Committee, CNHRPC
Severe Storms and Flooding - Spring Flood April 2007	**1695**	**2007**	**Apr 15-23**	**$131,514**	Extensive flooding caused by severe storms impacted seven counties. Indirect peak discharge measurements on stream gages on the Suncook River at Short Falls Road in Epsom were 14,100 ft3, 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.	**Warner received $131,514 in FEMA Public Assistance funding** for roads & bridges, protective measures and recreational/other. Road repairs: Bagley Hill Rd, Bean Rd, Bible Hill Rd, Brown Rd, Burnt Hill Rd, Collins Duck Pond, Flanders, Gore, Horne St, Mason Hill Rd, Couchtown Rd, Iron Kettle Rd, New Market Rd, North Rd, Old Denny Hill Rd, Parade Grounds Cemetery Rd, Poverty Plains Rd, Quimby Rd, Red Chimney Road, Dummer Rd, Retreat Rd, Schoodac Rd, Willaby Colby Rd. Less than a year after the Mother's Day Flood, a result of the heavy rains and flooding harmless creeks, streams and brooks turned into roaring rapids as well as the water runoff from the woods which could not get into the snow filled culverts and ditches.	Flood, Wind, Debris, Erosion, Aging Infrastructure	FEMA, USGS Flood of 2007, Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Hopkinton Municipal Building Arson **Jan 2007**	No	2007	Jan 15	N/A	According to investigators, a fire that destroyed a senior center under construction in Hopkinton appeared to be caused by arson. The two-story building was being framed and was set to open in the spring.	N/A, although Warner abuts Hopkinton to the west and may have assisted the Town	Fire (Arson)	Concord Monitor, CNHRPC
Warner River Erosion and Repair **1990s To 2007**	No	1990 s-	2007	N/A	N/A, likely a localized condition in Warner	Horne Street has washed out several times due to flash flooding of Slaughter Brook. Hazard Mitigation Grants received to add drainage runoff	River, Winter, Flood	Warner Hazard Mitigation Committee, CNHRPC
Severe Storms and Flooding – Mother's Day Flood **May 2006**	**1643**	**2006**	**May 12-23**	**$286,312**	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.	**Warner received $286,312 in FEMA Public Assistance funding** for roads and bridges, protective measures, recreational, covered bridges, shoulders. Damages included Bartlett Loop Rd, Dalton Covered Bridge (West Joppa Road), need for culvert replacement, temporary bridges and more. Nicknamed the Mother's Day Flood, severe rains washed out many roads stranding residents as well as washing away a large culvert known as Connors Mill Bridge. One of Warner's covered bridges, Dalton/West Joppa Road, sustained damage by the floating debris.	Flood, Wind, Storms, Debris, Erosion, Landslide, Aging Infrastructure	Warner Hazard Mitigation Committee, FEMA, USGS, CNHRPC
Severe Storms and Flooding - Columbus Day Flood **Oct 2005**	**1610**	**2005**	**Oct 7-18**	**$75,357**	Extensive flooding caused by severe storms impacted five counties, including Merrimack and Hillsborough. Alstead experienced several fatalities as the result of dam failure.	**Warner received $75,357 in FEMA Public Assistance funding** for roads & bridges and recreational fields, culverts and shoulders. Continuous rains resulted in numerous gravel roads washing out as well as culverts and stone structures	Flood, Wind, Storms, Debris, Erosion, Landslide, Aging Infrastructure,	Warner Hazard Mitigation Committee, FEMA

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Regional Thunder-storms 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 in the towns of Warner, Hopkinton, Concord, Bow, Loudon, and Webster in Merrimack County.		Thunderstorm, Lightning, Severe Winds	Warner Hazard Mitigation Committee, CNHRPC, Area Hazard Mitigation Committees
Snow Emergency Jan 2005	**EM-3207**	**2005**	**Jan 22-23**	**$9,136**	Record and near record snowstorm for 8 NH counties including Merrimack and Hillsborough. Emergency protective measures declared for reimbursement.	**Warner received $9,136 in FEMA Public Assistance funding** for protective measures, including snow removal and debris clean up. Record snows fell during this time period causing many closures.	Winter, Extreme Temp	Warner Hazard Mitigation Committee, CNHRPC, FEMA
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 Warner residents feeling the earthquake as a rumble or loud noise. The epicenter was within 5 miles of Warner, the next town to the east.	Earth, Earthquake	Earthquake Monitor, CNHRPC, earthquake.usgs.gov
Warner Hazardous Materials Spill May 2004	No	2004	May 9	N/A	NH 103 travels east-west from Hopkinton to the Vermont. Many vehicles are believed to carry hazardous materials through Warner.	Vermont Transit Bus spilled and unknown quantity of Diesel Fuel on the roadway on Warner Road and on State Route 103 East.	Haz Mat, Crash, Public Health (Water Quality)	Warner 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 Warner residents feeling the earthquake as a rumble or loud noise. The epicenter was within 5 miles of Warner to the south.	Earth, Earthquake	Concord Monitor, January 2004, Earthquake Monitor, CNHRPC, earthquake.usgs.gov
Snow Emergency Dec 2003	**EM-3193**	**2003**	**Dec 6-7**	**$9,409**	Record snow fall event impacting much of New England. In NH, 8 counties received emergency protective measures, including Merrimack and Hillsborough.	**Warner received $9,409 in FEMA Public Assistance funding** for protective measures including snow removal and debris clean up. Record snows.	Winter, Extreme Temp	Warner Hazard Mitigation Committee, CNHRPC, FEMA

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Snow Emergency Feb 2003	**EM-3177**	**2003**	**Feb 17-18**	**$5,974**	Record and near record snowstorm for 5 NH counties including Merrimack and Hillsborough. Emergency protective measures declared for reimbursement.	**Warner received $5,974 in FEMA Public Assistance funding** for protective measures including snow removal and debris clean up. Record or near record snows in Warner. Residents lost power due to winter snow storm with high winds and falling trees.	Winter, Extreme Temp	Warner 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.	Warner likely experienced loss of hay crops, tree farms, lowering of the Warner River	Drought, Extreme Temp, Earth, Increased Wildfire Risk	Warner Hazard Mitigation Committee, CNHRPC Concord Monitor 8/20/02, NHDES
Snow Emergency Mar 2001	**EM-3166**	**2001**	**Mar 5-7**	**$7,587**	Record and near-record snowfall from late winter storm, emergency declaration was issued for protective measures. Merrimack, Hillsborough and 5 other counties declared eligible.	**Warner received $7,587 in FEMA Public Assistance funding** for protective measures, including snow removal and debris clean up. Blizzard conditions occurred in Town resulting in numerous power outages.	Winter, Extreme Temp, Wind	Warner Hazard Mitigation Committee, CNHRPC, FEMA
Warner Radiological Materials Fall 2000	No	2000	Fall	N/A	N/A, although other communities	Radioactive buttons found in metal container at Transfer Station. State DHHS assisted the Town in transferring these buttons to an approved disposal site out of state. This cost the Town several thousands of dollars.	Radiological, Haz Mat, Public Health,	Warner Hazard Mitigation Committee, CNHRPC
Warner Hazardous Materials Spill May 2000	No	2000	May 9	N/A	NH 103 travels east-west from Hopkinton to the Vermont. Many vehicles are believed to carry hazardous materials through Warner.	Tractor Trailer incident on State Route 103 West spilled an unknown quantity of diesel Fuel onto the ground and into a small stream off Route 103.	Haz Mat, Crash, Public Health (Water Quality)	Warner Hazard Mitigation Committee, CNHRPC
Warner Hazardous Materials Spill Mar 2000	No	2000	Mar	N/A	N/A, although I-89, NH 103 and the Warner River travel through Warner and are able to transport haz materials from spills	Vehicle filling gas tank at the Irving Circle K spilled and unknown quantity of gasoline onto the ground. Spiller was billed for the spillage.	Haz Mat, Public Health (Water Quality)	Warner Hazard Mitigation Committee, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Warner Hazardous Materials Spills Various Dates 2000 - 2007	No	2000	- 2007	N/A	N/A, although I-89, NH 103 and the Warner River travel through Warner and are able to transport haz materials from spills	Traffic accidents on Interstate 89 and State Route 103 have resulted in the spillage of several gallons of diesel fuel onto the ground and into a small stream off Route 103.	Haz Mat, Public Health (Water Quality)	Warner 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	Downburst damaged trees on Old Pumpkin hill Road and on Route 103 West across from the Town's Transfer Station. Warner likely experienced some heavy winds, tree fall, and power lines down as it is located in the region.	Severe Wind, Downburst	Concord Monitor, NH HSEM, CNHRPC, Warner Hazard Mitigation Committee
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. Oct 27-	N/A, although Concord is an important Central NH Region community to Warner 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.	**Warner did not apply for/receive funding.** Several roads such as Horne Street, Henniker Road and Parade Ground Cemetery Roads were washed out. Lost fill was replaced as well as clearing and reshaping culverts.	Flood, Wind, Debris, Aging Infrastructure	FEMA, CNHRPC, Warner Hazard Mitigation Committee
Ice Storm of Jan 1998	**1199**	**1998**	**Jan 7- 25**	**$0**	This ice storm was the first to test our	**Warner did not apply for/receive funding**.	Extreme Temp,	FEMA, US Army Corps

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					statewide and local emergency management systems and utility providers. 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 Warner with power outages and roads closed due to drifting snow. A communication tower and trees were damaged. Residents were without power for up to seven days.	Winter, Utility, Debris	of Engineers NH Storms database, Warner 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 Warner specifically, but this tragedy occurred nearby	Terrorism, Mass Casualty	NH HSEM, CNHRPC
Flooding Feb 1997	No	1997	Feb 26	N/A	This winter flood event was likely one that impacted the Central NH Region and Merrimack County.	Gravel roads washed out due to flooding which included West Joppa Road. The roads was closed for a whole day stranding residents.	Winter, River, Flood	Warner Hazard Mitigation Committee
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.	**Warner did not apply for/receive funding.** As Warner is within Merrimack County, it is likely experienced heavy rains and possibly some flooding.	Flood, Storms	FEMA, NH HSEM, CNHRPC
Bradford Milfoil Infestation Sum 1996	No	1996	Sum mer	N/A	Milfoil was discovered on the north end of Lake Massasecum in Bradford. A 10 to 11 acre portion of the lake was closed. Several chemical treatments were tried but failed to eradicate the milfoil.	Milfoil has not yet been reported in Warner, but the plant ravels easily to new waters and easily establishes new colonies. The Town has few public lakes and ponds, including Silver	Public Health (Water Quality), Biological Hazard	Bradford Hazard Mitigation Committee, CNHRPC, Blaisdell Lake Property

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					Eventually, the weed was harvested. To this day, the Town of Bradford fights milfoil in its lakes.	Lake, Toms Pond, Pleasant Pond.		Owners Assn
Warner Structure Fire **Dec 1995**	No	1995	Dec	N/A	Several area communities responded to this fire to assist Warner	A fire broke out on the second floor of the old section of the Warner Power building. Five alarms were sounded for this fire, requiring fire units for as far away as Concord and New London. It took several hours to extinguish. Residents residing in the area of the fire were evacuated as a precaution due to the material burning in the building.	Fire	Warner Hazard Mitigation Committee, CNHRPC
Storms and Floods **Oct-Nov 1995**	**1077**	**1995**	**Oct 20-Nov 15**	**N/A**	Four NH counties were damaged by excessive rain, high winds and flooding, including Merrimack (not Hillsborough).	**Warner did not apply for/receive funding**. Several gravel roads were washed out particularly Bagley Hill Road, Colby Lane and Henniker Road. Some roads were closed until repairs could be made.	Flood, Winds, Aging Infrastructure	FEMA, Federal Register, CNHRPC, Warner Hazard Mitigation Committee
Newbury Terrorism/ Active Shooter **Nov 1993**	No	1993	Nov 1	N/A	A shooting at the Newbury Town Hall was ignited by tax and land disputes. Two town workers were killed, another was wounded, and the gunman shot and killed himself.	N/A for Warner specifically, but this tragedy occurred nearby. Newbury is two communities to the west of Warner	Terrorism, Mass Casualty	NH HSEM, CNHRPC
Blizzard **Mar 1993**	**EM-3101**	**1993**	**Mar 13-17**	**$4,406**	Blizzards, High Winds and Record Snowfall. It is likely the Central NH Region experienced heavy snow, tree fall.	**Warner received $4,406 in FEMA Public Assistance funding** for protective measures including snow removal and debris clean up	Winter, Extreme Temp, Wind	NH HSEM, CNHRPC,
Warner Dam Failure **Date Unknown**	No	Unk	Unk	N/A	N/A, was a localized effect	A Bean Road landowner modified the spillway of their private dam, resulting in dam outfall to flood a section of the roadway. Town resources repaired roadway.	Dam, Flood	Warner Hazard Mitigation Committee
Warner Dam Failure **Apr 1992**	No	1992	Apr	N/A	N/A, was a localized effect	Apple Pond Lane washout occurred, caused by plugged private dam overflow due to improper dam maintenance.	Dam, Flood	Warner Hazard Mitigation Committee

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Severe Storm-Hurricane Bob Aug 1991	**917**	**1991**	**Aug 18-20**	**N/A for Warner**	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 Warner 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 Warner is within Merrimack County, it 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.	Flooding caused by snowmelt and intense rain was felt in Warner. Several roads were damaged as a result of the flooding including Horne Street and West Joppa Road.	Flood, Debris, Extreme Temps	Warner 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 Warner**	Severe summer storms with heavy rains, tornadoes, flash floods, and severe winds, damaged the road network statewide. Disaster declared in Cheshire, Sullivan and Hillsborough Counties (not declared in Merrimack County).	Several storms washed out roads and culverts. The Toms Pond area flooded resulting in propane tanks from the cottages floating in the flood.	Flood, Wind, Potential Haz Mat/ Fire	FEMA, NH HSEM, CNHRPC, Warner Hazard Mitigation Committee
Warner Downburst 1985	No	1985	Circa	N/A	N/A although it is likely this windstorm impacted other area communities.	A downburst took down trees on Pumpkin Hill Road and Burnt Hill Road.	Wind, Tree Debris	CNHRPC, Warner 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 locations throughout the State. The area it was felt includes all of northern Merrimack County including the Concord area communities in Central NH.	A Sanbornton-centered earthquake caused some physical damage in Warner. Sanbornton is about 25 miles to the northeast of Warner. The earthquake cracked the original glass panes in one Warner resident's home.	Earth, Earthquake	CNHRPC, Earthquake-track.com, Warner Hazard Mitigation Committee
Warner Wildfire Late 1970s	No	1970s	Circa, late	N/A	The Mink Hills are shared with Bradford and Henniker, so it is	A large forest fire in the Mink Hill area inflicted considerable damage.	Wildfire	Warner Town Historians

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					possible the wildfire crossed municipal boundaries.			from the Hazard Mitigation Committee
Warner Lightning Strikes **Sep 1979**	No	1979	Sep	N/A	It is likely the surrounding Central NH Region experienced lightning and thunderstorms.	A barn (Highlawn Farm) on Kearsarge Mountain Road was struck by lighting and destroyed. Four animals were killed.	Lightning, Wind	Warner Hazard Mitigation Committee
Warner Ice Jam **1978**	No	1978	Circa	N/A	May have been a localized effect to the Warner River	At Sonny Flanders' residence, the Warner River backed up causing the flooding of some residents on Morse Loop. The Town Crew used explosives to free the ice.	Winter, Ice, River	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	Warner Hazard Mitigation Committee; American Meteorological Society, Northeast States Emergency Consortium, CNHRPC
Warner Snow Melt **May 1976**	No	1976	May	N/A	Likely the Central NH Region experienced localized flooding conditions.	Late season snow storm with heavy rain resulted in major runoff and flooding of roads and culverts.	Winter, Flood	CNHRPC, Warner Hazard Mitigation Committee
Warner Structure Fire **Jan 1974**	No	1974	Jan 12	N/A	Likely other Fire Departments assisted with the fire	A major fire broke out in the Cricenti's Market located on Main Street. Area Fire Departments	Fire	Warner Hazard Mitigation

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
						responded to this fire. Warner Fire Department personnel remained on scene for approximately 10 hours. See related photo in Appendix E.		Committee, 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 Warner residents may have felt the effects.	Earth, Earthquake	Northeast States Emergency Consortium, CNHRPC
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 Mink Hill area as well as Howe Lane and Willaby Colby Road.	Flood, Wind	FEMA, CNHRPC, Warner Hazard Mitigation Committee
Earthquake **Dec 1970**	No	1970	Dec 25	N/A	The origin and magnitude are unknown but likely impacted the Central NH Region.	Several small tremors have been felt throughout the years, including Christmas Day in the 1970's in Warner.	Earth, Earthquake	CNHRPC, Earthquake-track.com, Warner 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 Warner during many of these hurricanes. 1960- Hurricane Donna impacted Warner 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	Warner 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	Although it is unknown what Warner experienced, it is likely many of the same snow depths occurred.	Extreme Temp, Winter, Snow Storms, Utility	American Meteorological Society, CNHRPC

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					(24-98", slow-moving storm), Dec 25-28, 1969 (12-18"), Jan 19-21, 1978 (up to 16").			
Warner Wildfire **Late 1960s**	No	1960s	Circa, late	N/A	N/A, although other local Fire Departments may have lent assistance	There was a forest fire that impacted the Page Road area.	Wildfire	Warner Town Historians from the Hazard Mitigation Committee
Warner Wildfire **1957**	No	1957	Circa	N/A	The Mink Hills are shared with Bradford and Henniker, so it is possible the wildfire crossed municipal boundaries.	A fire in the Mink Hills area impacted Waldron Hill.	Wildfire	Warner Town Historians from the Hazard Mitigation Committee
Regional Snow Storm and Rapid Snow Pack Melt **Mar 1953**	No	1953	Mar	N/A	N/A, although similar rain or snow storms and rapid snow pack melt likely impacted the region. The highest level of water in the Blackwater Dam was measured, with the 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.	The storm was not particularly notable by the Town, although the rapid snow pack melt probably caused flooding effects in Warner along the roads, Warner River, and main brooks.	Flood, Debris	FEMA, NH HSEM, US Army Corps of Engineers, CNHRPC
Warner Firewatch Wildfires **Early 1930s & Early 1940s**	No	1930s early	1940s early	N/A	N/A, although other local Fire Departments may have lent assistance to these two blazes	A fire on Kearsarge Mountain impacted Gage Hill and Black Mountain	Wildfire	Warner Town Historians from the Hazard Mitigation Committee
Regional & Warner 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).	One of the worst natural disasters to hit Warner was the Hurricane of 1938 (Warner 1974 Town History). The disaster impacted Warner with several days of torrential rain and subsequent heavy flooding. Roads were washed out and bridges were carried away Culverts and bridges were damaged, and railroad service was interrupted. No deaths occurred in Warner.	Tropical, Wind, Hurricane, Flood, Debris	CNHRPC, USGS 1938 report, Warner Hazard Mitigation Committee, Warner 1974 History, Warner Town Report 1939

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
					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.	According to the Town Maintenance section of the Warner Town Report, the flood and hurricane account for the year 1938-1939 was $1,660.24. It seems likely that a good portion of this money went to repair damage caused by the hurricane on September 21, 1938 Heavy flooding throughout Warner, bridges were damaged and roads were washed out.		
Regional & Warner 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 Winnipesaukee, Contoocook and Pemigewassett rivers that were largely responsible for the destruction in Concord and the surrounding area. NH issued boil water warnings to everyone.	The Warner River was at one of its highest level in history, ice jams occurred all along the river, the Ela Bridge went out, the Davisville Covered Bridge was taken out, other bridges were washed away, roads badly washed out, and railroad service was not available for weeks. The photos of the flood of 1936 and of a hurricane of 1938 showed the roadways at both North Warner and South Warner underwater. Canoes and rowboats were used on Route 114.	Flood, Ice Jam, Winter, Erosion, Scouring	Concord Monitor, Union Leader, Army Corps of Engineers Ice Jam Database, CNHRPC, USGS 1938 report, Warner Town Historians from Hazard Mitigation Committee 2004
Warner Flood 1927	No	1927	Circa	N/A	Likely the Central NH Region experienced localized flooding conditions.	Heavy floods damaged the Ela Box Company. (See a related photo in Appendix E)	Flood	Warner Town Historians from Hazard Mitigation Committee 2004
Warner Lightning Strikes Circa 1990s	No	1900	Circa	N/A	It is likely the surrounding Central NH Region experienced lightning and thunderstorms.	Several homes were struck by lighting and burned on Collins District Road.	Lightning, Wind	Warner Town Historians from Hazard Mitigation Committee 2004

Event	Declared Disaster DR-	Year	Date	FEMA Public Assistance	Area Effects Surrounding Warner	Local Effects Occurring in Warner	Hazard Category	Source
Warner Drought, then Flood **Aug 1826**	No	1826	Aug 28	N/A	Likely the Central NH Region experienced localized flooding conditions.	A summer drought brought out the grasshoppers. Heavy rains caused streams and rivers to overflow. 12" of rain in 6 hours caused Steven Brook to change its course.	Drought, Flood	Warner Town Historians from Hazard Mitigation Committee 2004
Warner 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.	Flood, River, Ice	Warner Town Historians from Hazard Mitigation Committee 2004
Warner 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.	On September 2, 1821 a tornado struck Warner after moving through many towns from the Vermont line. Seven deaths occurred in Warner as a result of the twister, and several severe injuries. The tornado passed over Kearsarge Mountain about two miles south of its highest peak and swept down the other side into the valley, known as Kearsarge Gore at the time, in Warner. Homes and barns were demolished and many people found themselves buried in the ruins.	Tropical, Wind, Mass Casualty	Warner Town Historians from Hazard Mitigation Committee 2004
Warner 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 Sutton was mentioned as experiencing the same events.	In Warner, the atmosphere was filled with salt spray from the ocean. Trees and crops damaged from wind and heavy rain. During the hurricane, a tornado formed resulting in several downed trees. The fruit tasted of salt from the storm. A tornado swept through Kearsarge Gore during this event. It contributed to the changing of the Kearsarge Gore.	Tropical, Wind, Flood	Warner Town Historians from Hazard Mitigation Committee 2004

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

Description and Magnitude of Hazards

A compilation of past hazards that have occurred in Warner 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 Warner. 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 Warner Hazard Mitigation Plan 2003** and the **2008 Plan Update** which were the basis for many of the past disaster events and updated to the present. The **Hazard Mitigation Plan Update 2014** 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 **Warner 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 Warner 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	4 HIGH	**8.0** **HIGH**

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 that 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. Most homes in Town rely on well water which is not easily replenished during periods of drought. During the **2015-2018** drought, 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 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 of 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 Warner 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.

Table 14

Modified Mercalli and Richter Magnitude Scales

Approx Richter Magnitude Scale	Mercalli Instrumental Intensity Scale	Damage Category	Perceived Shaking	Potential Impacts			
				People's Reaction	Furnishings	Built Environment	Natural Environment
< 3	**I**	**Instrumental**	Not felt	Not felt.		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.		Trees and bodies of water sway.
3.5 - 4	**III**	**Slight**	Weak	Felt by several. Vibrations	Hanging objects may swing appreciably.		

Approx Richter Magni-tude Scale	Mercalli Instru-mental Intensity Scale	Damage Category	Perceived Shaking	Potential Impacts			
				People's Reaction	Furnishings	Built Environment	Natural Environment
				like a truck passing.	Vehicles rocked slightly.		
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.	
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.
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.	
6.6 - 7	**IX**	**Ruinous**	Violent	Some forcibly thrown to the ground		Damage considerable in some buildings designed to be earthquake resistant; buildings shift off foundations if not bolted.	
7.1 – 7.3	**X**	**Disastrous**	Extreme			Some well-built wooden structures destroyed. Most ordinary masonry	

Approx Richter Magni-tude Scale	Mercalli Instru-mental Intensity Scale	Damage Category	Perceived Shaking	Potential Impacts			
				People's Reaction	Furnishings	Built Environment	Natural Environment
						structures collapse; damage moderate to severe in many buildings designed to be earthquake resistant. Dams destroyed.	
7.4 – 8.1	XI	Very Disastrous				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

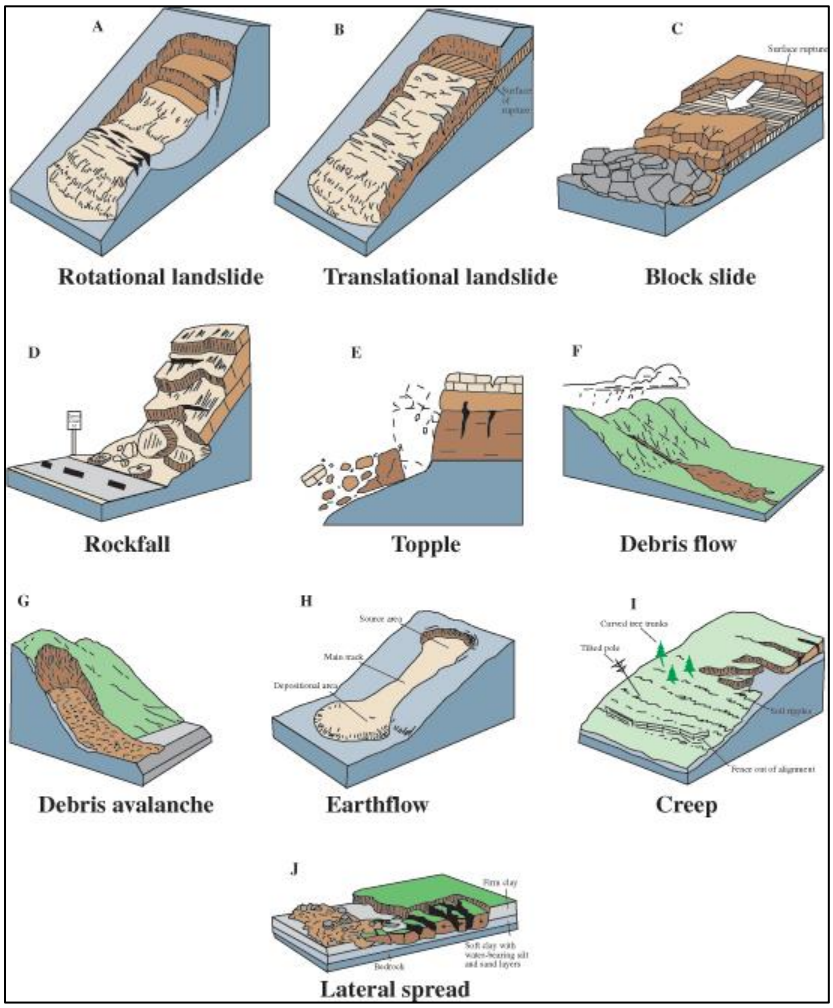
The overall ratings of **Landslide** in Warner from the **HIRA** are:

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 Warner 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 Warner 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**	2 MEDIUM	2 MEDIUM	3 MEDIUM	**9.3** **HIGH**

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 degrees or warmer. An official heat wave is defined as three or more consecutive days with the temperature reaching or exceeding 90 degrees.

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.

• **Excessive Heat Warning:** TAKE ACTION. 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.

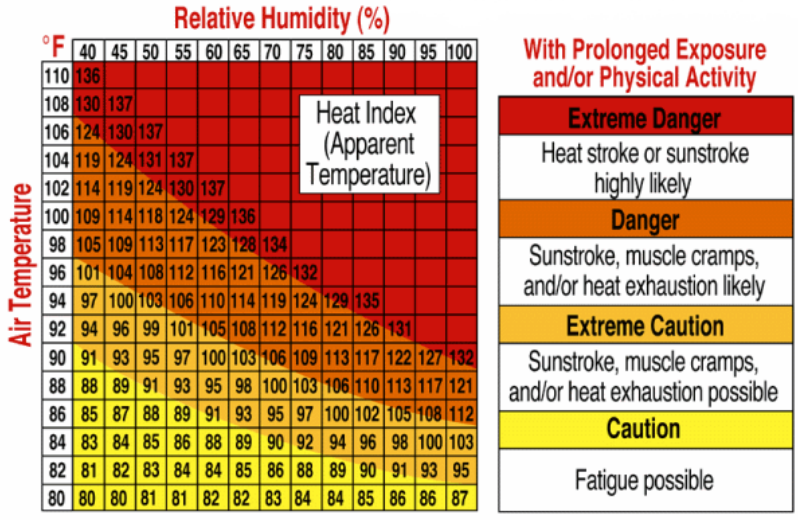
• **Excessive Heat Watches:** BE PREPARED. Heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.

• **Heat Advisory**: TAKE ACTION. 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.

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**.

Figure 7
Heat Index (Temperature and Humidity)



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.

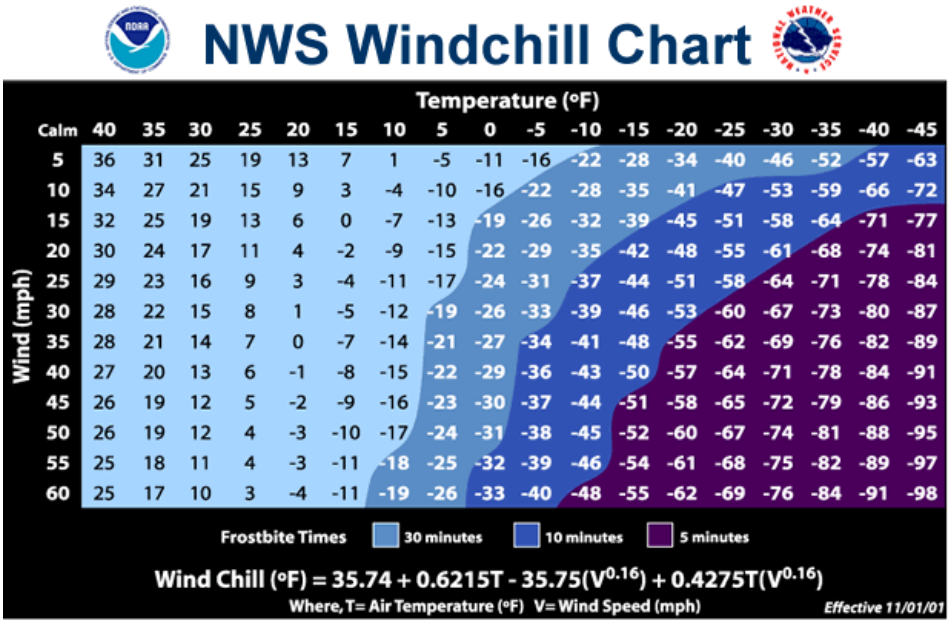
Cold or Wind Chill

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 – 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.

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 warnings, watches, and advisories.

• **Wind Chill Warning**: TAKE ACTION. NWS issues a wind chill warning when dangerously cold wind chill values are expected or occurring. A Wind Chill Advisory is issued for New Hampshire is wind chill values are expected to be -30°F and winds are greater than 5 mph.

• **Wind Chill Watch:** BE PREPARED. 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 a tank of gas, and update your winter survival kit.

• **Wind Chill Advisory**: BE AWARE. 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 is wind chill values are expected to be -20°F to -29°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 **2018 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 other sections 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 Warner 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**	**3** **MEDIUM**	2 MEDIUM	2 MEDIUM	2 MEDIUM	**6.0** **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:

✦ **Low (Green) -** 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.
✦ **Moderate (Blue) -** 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.
✦ **High (Yellow) -** 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.
✦ **Very High (Orange)** - 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.
✦ **Extreme (Red)** - 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 Warner 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	3 HIGH	6.7 MEDIUM

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 Warner 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**	**3** **HIGH**	2 MEDIUM	2 MEDIUM	3 HIGH	**7.0** **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 Warner, 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 Warner River on the DFIRMs of **2010**. In Warner (**330123**) New Hampshire (**D33013C**), there are sparse DFIRMs identifying floodplains. 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. Warner's Zoning Ordinance contains the new maps as the official Special Hazard Flood Areas (SFHAs). The Flood Zones appear in **Table 17**.

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

Special Flood Hazard Areas on Warner DFIRMs	
Zone A	**1% annual chance of flooding** • **100-year** floodplains *without* Base Flood Elevations (BFE)
Zone AE *(with or without floodways)*	**1% annual chance of flooding** • **100-year** floodplains *with* 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	**0.2% annual chance of flooding** • **500-year** floodplain *without* 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

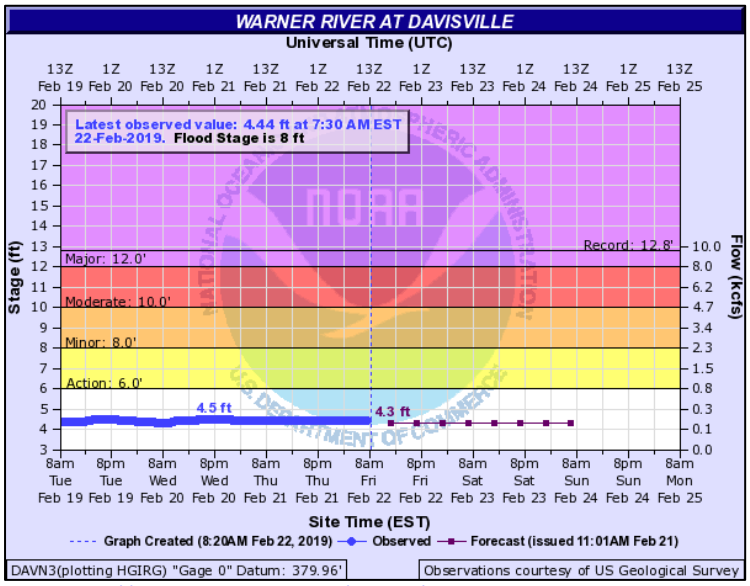
Warner DFIRMs can be viewed online at and downloaded from the NH Geographically Referenced Analysis and Transfer System (NH GRANIT) website. Alternatively, the DFIRMs' respective paper FEMA 2009 Floodplain Maps in the Town Office could be consulted. Should the **Zone A** or **Zone X** or **Zone AE** 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.**

River Gage

The US Geological Survey operates **river monitoring gage USGS 01086000** at the **Warner River** bridge over NH 127 in Davisville, to measure water height and discharge over time for the purposes of flood control. This cooperative venture provides simplified, more easily accessible public information about flooding at the Dam. 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. River monitoring gage station options **measure the magnitude of river flooding during monitored times**. Figure 9 displays the Warner River at Davisville Gage snapshot for February 2019.

Figure 9

NOAA/NWS Warner River at Davisville Gage Hydrograph, Feb 2019



Major Flood Stage	12
Moderate Flood Stage	10
Flood Stage	8
Action Stage	6

Source: https://water.weather.gov/ahps2/hydrograph.php?gage=davn3&wfo=gyx, last accessed 02-22-19

During the sample time period of February 2019, the NWS graph in Figure 9 displays the height of the Warner River as compared to flood stages. The **6.0' Action Stage** is when local officials would get ready to take action for a flooding event. The **8.0' Minor Stage** will have minor flooding (minimal or no property damage but possibly public threat such as road washout), while the **10.0' Moderate Stage** (inundation of structures and roads near streams, evacuations) and **12.0' Major Stage** (extensive inundation of structures and roads, significant evacuations) will require immediate and significant action by the Town. These **Flood Stages** are another form of **Inland Flooding** magnitude, as pertaining to the **Warner River** at Davisville gage location.

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 **Warner River** and the various brooks along the roads, roadside wetlands, and from the culverts of the watercourses. Locations in Warner 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 Warner from the **HIRA** are:

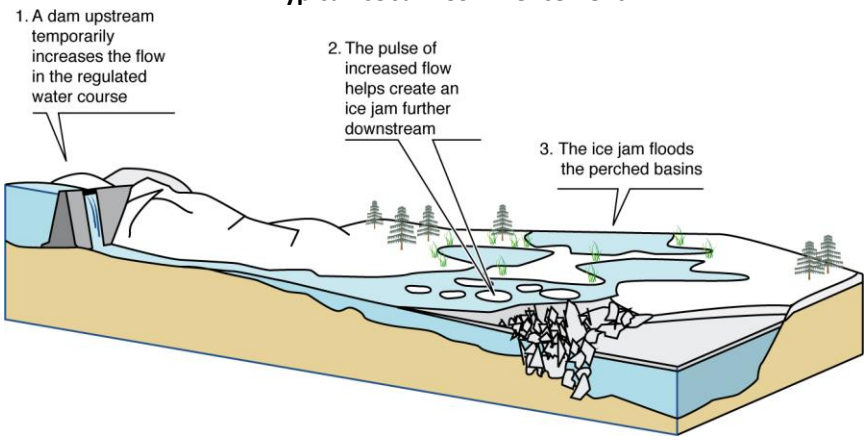
Natural, Technological, Human Hazard Categories	Probability of Occurrence in 10 Years (1-4)	Human Injury Impact (1-4)	Essential Services or Infrastructure Impact (1-4)	Property Damage or Economic Impact (1-4)	OVERALL RISK (1-16)
RIVER HAZARDS **Ice Jams, Scouring, Erosion, Channel Movement or Debris**	**4** **HIGH**	1 LOW	2 MEDIUM	2 MEDIUM	**6.7** **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 10**.

Figure 10

Typical Ice Jam Commencement



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.

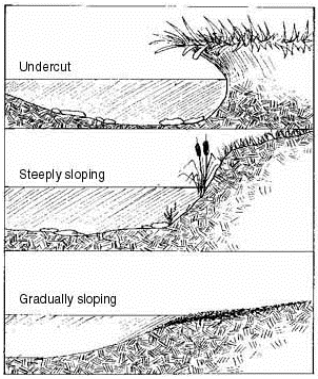
Fluvial Erosion, Bed Scouring and Channel Movement

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 11 displays visual bank erosion characteristics.

Figure 11

Bank Erosion Characteristics



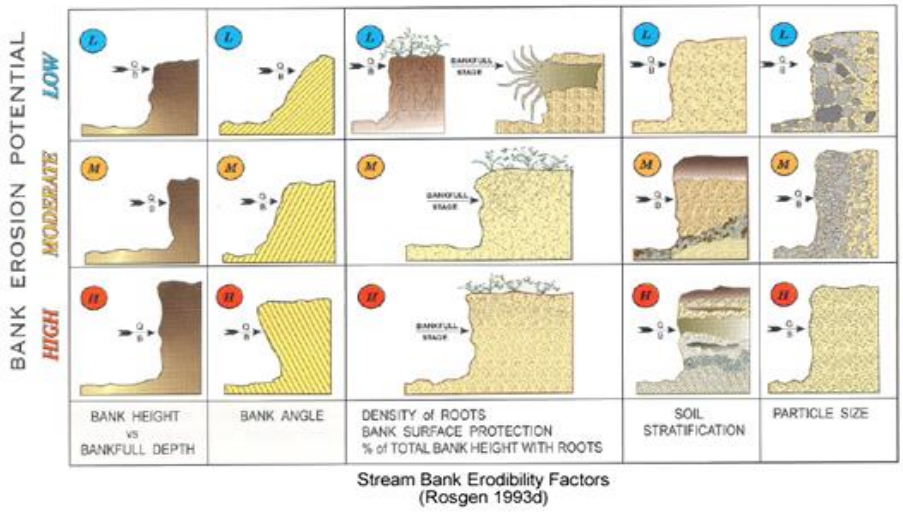
Source: US Geological Survey (USGS)

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 12 displays the visual version of the index.

Figure 12

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 Warner. 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 Warner. The Town is an active member of the Capital Area Public Health Network and has a Point of Distribution 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 Warner 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**	3 HIGH	1 LOW	2 MEDIUM	**8.0 HIGH**

Magnitude of Public Health

The ***2018 State Multi-Hazard Mitigation Plan*** includes **Infectious Diseases** as a natural hazard. From this ***Plan***, 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 infectious agent in a population within a geographic area.
- **Hyperendemic** – The persistent, high levels of disease occurrence in the area.
- **Cluster – The a**ggregation 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 Warner 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 Warner enjoy the aurora borealis from Mount Kearsarge, 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**	✦ 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**	✦ 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**	✦ 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**	✦ 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**	✦ 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**	✦ Biological: None. ✦Satellite operations: None. ✦Other systems: Minor impacts on HF radio in the polar regions.	50 per cycle
S2 Solar Radiation	**Moderate**	✦ 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 Solar Radiation	**Strong**	✦ 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. ✦ 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.	10 per cycle

Magnitude Scale	Description	Effect of Space Storm	Average Frequency (1 cycle = 11 years)
S4 Solar Radiation	**Severe**	✦ 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**	✦ 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**	✦ 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**	✦ 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**	✦ 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**	✦ 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**	✦ 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 Warner 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**	2 MEDIUM	3 HIGH	3 HIGH	**10.7** **HIGH**

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 Warner 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	**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	**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	**Very Dark** Car headlights used. Some streetlights come 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	**Pitch Black** Street lights come 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

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
							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 Warner. 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 13** size comparison scales measure the magnitude of hailstones that could fall on Warner during severe storm events.

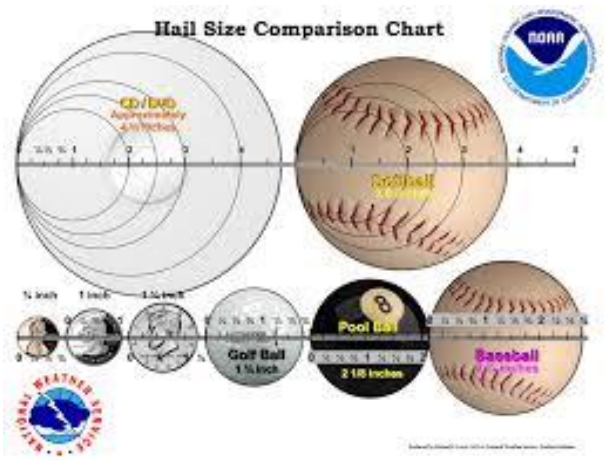
Table 20

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 13

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 Warner 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 *replaced***
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 a 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.

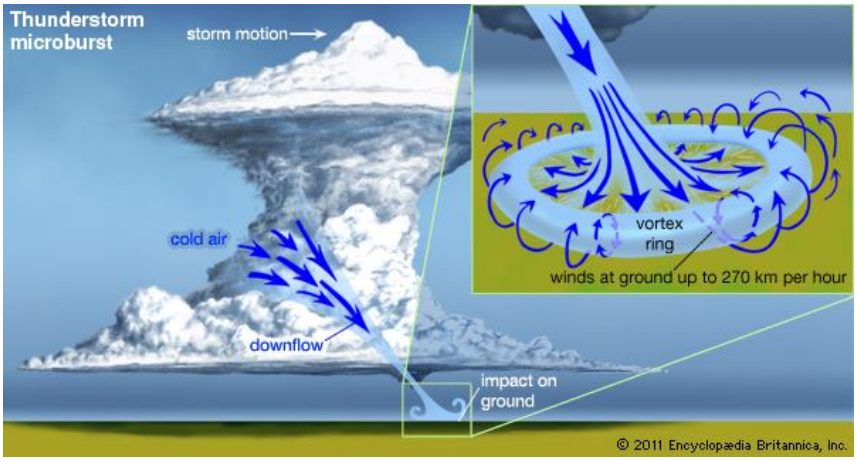
Downbursts

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 14**.

Figure 14

Microburst Forming from Thunderstorm Clouds



Source: Internet (Encyclopedia Brittanica)

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 Warner during hurricanes. Numerous hurricane events in recent history have occurred in the State, region, and the local area surrounding Warner that may have also had an impact on the Town.

The overall ratings of **Tropical and Post Tropical Cyclones** in Warner 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**	1 LOW	3 HIGH	3 HIGH	**7.0 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 Warner 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 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 *major*	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 *major*	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 *major*	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 Warner 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 Warner 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**	3 HIGH	3 HIGH	3 HIGH	**12.0** **HIGH**

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 in 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** and **radiological incident**.

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		RADIOLOGICAL Trucking, Occupational Sites or Power Plants	

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 114, NH 103, I-89, and ramps of Exit 7, Exit 8 and Exit 9 in Warner. 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. User fees collected from Village Precinct water and sewer usage are not enough to replacing the aging underground pipes.

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 Warner 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, Warner 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: ❍ 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: ❍ 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: ❍ 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: ♦ 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: ❍ 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 environmental for Warner'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 Warner 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. Warner is served by Eversource.

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.

Radiological

Radiological accidents occur primarily at nuclear power plants when radioactive gases are released. They can cause widespread contamination to people and ecosystems as were the cases in Chernobyl and 3-Mile Island. Their cleanup may take centuries because of the extreme saturation of contaminants in the soil, in buildings and in water supplies.

The Central New Hampshire region is geographically located between Vermont Yankee Nuclear Power Plant in Vernon, VT and the Seabrook Nuclear Station in Seabrook, NH. These facilities present the greatest risk of radiation contamination to the region in the case of a meltdown or other catastrophic event. As more nuclear facilities are decommissioned, the mobilization of nuclear wastes will increase, augmenting the risk of exposure. Small underground shelters or concrete basements may provide a level of protection. Personal household supplies of iodide, purchased in advance, can help limit the uptake of radiation in the thyroid.

The Vermont Yankee reactor began decommissioning on December 29, 2014 when operations ceased. The plant will sit in a dormant phase from 2016 to 2068 as part of a 60-year timeline. The actual dismantling and decommissioning will occur from 2069 to 2073 and site restoration from 2073 to 2075. Warner falls outside the **10-mile** emergency planning zone (EPZ) for either Seabrook or Vermont Yankee.

Radiological incidents could also occur during transportation crashes of trucks carrying radiological materials. Occupational sites such as manufacturing, medical waste, and laboratories could also carry radiological materials. Interstate 89, Interstate 93 and Interstate 393 run throughout the Central NH Region. Warner is host to I-89, which bisects the community, as well as ramps to Exit 8 and Exit 9. Another local Warner ramp is Exit 7 in Davisville, where the Warner River crosses NH 127 at the tri- Webster/ Hopkinton/ Warner town lines.

The NH DHHS has developed a Radiological Emergency Response Plan (RERP) which organizes NH emergency capabilities for a rapid and coordinated response to any incident at commercial nuclear power plants. The NH Division of Homeland Security and Emergency Management (NH HSEM) coordinates the plan and delegates many responsibilities to other state agencies. The Registration and Rendezvous Services are delegated to the Coordinator of Emergency Services (CES). There are four Emergency Classification Levels (ECLs) under RERP:

- **Unusual Event** - No action by DHHS.
- **Alert** - Emergency Service Unit (ESU) staffs are notified and the CES reports to the Emergency Operations Center.
- **Site Area Emergency** - ESU staffs placed on standby.
- **General Emergency** - ESU staffs activate Registration and Rendezvous Services at the Emergency Operations Center at the direction of the CES.

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 4/202 or US Route 3, on NH Route 3A, NH Route 9, NH Route 13, NH 28, NH Route 31 NH Route 49, NH Route 77, NH 103, NH Route 106, NH Route 107, NH 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.

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.

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. Warner is a member of CAPHN. Across New Hampshire, there are **13** regional public health networks.

Concord Hospital is a **300**-bed facility and the only trauma center in the Central NH Region. New London Hospital and Franklin Regional Hospital are smaller hospitals in Merrimack County. Dartmouth-Hitchcock Medical Center in Lebanon in the Lakes Region also has a trauma center. 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, Warner'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 Warner 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 Warner from all natural hazards. Also from the **HIRA** is whether or not each hazard event occurred within the last **5** years in Warner, 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 Warner locations.

Table 26

Potential Future Hazards

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
DROUGHT ***Events(s) Within Last 5 Years***	**8.0 HIGH**	• 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 Warner, agricultural operations include farms, orchards, nurseries, livestock, and maple sugar operations. 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 will dry up from drought. The Fire Department draws from the Warner River but low conditions will make this more difficult. • The Warner Village Water District is seeking a third well in the event an additional water source is needed.	✦ US Drought (D-scale) Monitor Intensity Scale ✦ Palmer Drought Index (PHDI)

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
EARTHQUAKE *Events(s) Within Last 5 Years*	4.0 LOW	• Since Warner is located within an active seismic region, residents are expected to feel future earthquakes but damages should be minor, if any. • Locations to watch include: areas with underground utilities such as Warner Main Street; community water systems (Warner Village Water Precinct); the old, large or historic buildings; United Church of Warner, CAP Building, Odd Fellows Building; the Town of Warner municipal facilities (Town Hall, Police Station, Fire Station, Public Works Garage, Transfer Station, Pillsbury Free Library); and the Simonds Elementary School. Although these 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 are critical to the Town's operations.	✦ Richter Magnitude Scale ✦ Modified Mercalli Intensity Scale
EXTREME TEMPERATURES Excessive Heat, Heat Wave, or Cold, Wind Chill *Events(s) Within Last 5 Years*	9.3 HIGH	• Excessive heat and extreme cold will continue being problematic for Warner residents. As a dispersed, very rural community, everyone knows each other and neighbors check on neighbors. The Fire and Police Departments will continue to check on at risk residents when possible. • Should the temperature remain high (or low), the Town Hall and/or Pillsbury Free Library could be opened as a temporary cooling (or warming) center.	✦ NWS Windchill Index ✦ NWS Heat Index
HIGH WIND EVENTS Wind, Thunderstorms, Hail, Downbursts, Tornadoes, Debris *Events(s) Within Last 5 Years*	10.7 HIGH	• All of Warner will experience future severe wind, rainstorms, and thunderstorms often with lightning, particularly common in the summer months. In addition, tornadoes and downbursts are anticipated in the future based on past events. Flooding, debris, and property damage will accompany these events. Electrical power (Eversource) is disrupted during most wind-related events. The five telecommunications towers and nearly a dozen TDS Telecom remote switching stations could be damaged. • These future high wind events will likely endanger roadways and utility lines from falling trees and limbs. Interstate 89 bisects the Town, NH 103 follows the interstate nearly parallel until branching west, NH 114 travels through the southwestern corner between Henniker and Bradford, and NH 127 travels through a small section on the east, in Davisville along the Warner River. There are few Class V town roads for suitable for commuter traveling, and most of them are gravel and hilly. • The highest point in Town is Mount Kearsarge, a popular destination for hikers. Kearsarge Mountain Road is the only access route for about 600 residents in Warner. Should a downburst or tornado run through Mount Kearsarge, the debris would make an impassable situation for anyone on the mountain.	✦ Enhanced Fujita (EF) Tornado Scale ✦ Accuweather Thunderstorm Criteria Scale ✦ Hail Size Scale

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
INLAND FLOODING Rains, Snow Melt or Flash Floods *Events(s) Within Last 5 Years*	7.0 MEDIUM	• Future flooding is expected in Warner. The community is bisected by the Warner River which runs nearly parallel to Interstate 89 and through Warner's Village area. Areas along the River are expected to flood. West Joppa Road at the Dalton Covered Bridge, Riverside Park, Bagley Field, and West Roby District Road have flooded in the past and are expected to flood in the future. Roads have regularly washed out and many are anticipated to do so in the future from spring snow melts or heavy rainfall. Warner's many brooks are likely to flood in the future. • Residential Tom Pond and Pleasant Pond have had flooding issues in the past which may recur in the future. Should the two wellheads on Chemical Lane of the Warner Village Water District become flooded, a public health hazard could arise. • See the **Special Flood Hazard Areas** (floodplains), **Waterbodies**, and **Road Washouts** sections above for details. The SFHAs and road washout areas are anticipated to flood in the future during extreme events.	✦ Special Flood Hazard Areas (SFHAs) on 2010 Digital Flood Rate Insurance Maps (Zones A, AE, X) ✦ Flood Action Stages
LANDSLIDE Soil, Rockslide or Excavation Areas *NO Events(s) Within Last 5 Years*	1.0 LOW	• Generally, vegetation in Warner is good at preventing future landslides. Potential future landslide are not expected to occur at the reclaimed excavation sites in Town. • 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 roads in the Mink Hills, but otherwise the Town is not particularly susceptible.	✦ No known widely-used scale measuring the magnitude of landslides
LIGHTNING *Events(s) Within Last 5 Years*	6.7 MEDIUM	• Future lightning strikes may cause the damage at wooden historic structures in the Warner Main Street area, including the West Joppa/Dalton covered bridge, Kearsarge Indian Museum Telephone Museum, Old Meetinghouse, Old Fire Station, Old Odd Fellows and other buildings without lightning rods. Other businesses and homes located in the Main Street vicinity would be vulnerable to the power surges and outages caused by these strikes. • Other population centers and locations would be wide-scale impacted by a lightning strike in the area. These include the Toms Pond, the Pleasant Lake Estates Manufactured Homes, and Northeast Catholic College. Town Facilities such as Town Hall, Fire Station, Highway Garage, Police Department and Transfer Station would be vulnerable to lightning strike. Businesses such as Rymes Propane, Kearsarge Heating Oils, and Circle K Irving, Evans Fuel Mart each have their own specific vulnerabilities to lightning should a future strike occur. • Forested areas, parks, conservation areas or open recreation fields can be dangerous to people and property. Remote areas which could not be easily accessed by emergency vehicles include Mount Kearsarge and its neighborhoods and the Mink Hills area, whether to fight the fire or remove people from harm's way.	✦ Lightning Activity Level (LAL)

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 *Events(s) Within Last 5 Years*	**8.0 HIGH**	• 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 Simonds Elementary School, CAP Senior Center, Boys and Girls Club, North Ridge Estates 55+, Pine Rock Manor Assisted Living, Northeast Catholic College, Pillsbury Free Library, United Church of Warner, Town Hall, local food locations. • Outdoor susceptibility to arboviral and tickborne diseases is expected to grow. Warner is a highly rural community with many waterbodies, swampy areas, and for these arthropods to thrive. The Mink Hills, conservation lands, Sunapee Kearsarge Ragged Greenway Trail, Mount Kearsarge, Warner River which attract people can also enable transmission. • The Town's Silver Lake Beach has been shut down in the past due to high cyanobacteria levels, and this situation may arise again in the future.	✦ No known widely-used scale measuring the magnitude of public health incidents
RIVER HAZARDS Ice Jams, Scouring, Erosion, Channel Movement or Debris *Events(s) Within Last 5 Years*	**6.7 MEDIUM**	• Continued ice jams in the Warner River can be expected in the vicinity of the Lang Bridge, Bagley Field, and Riverside Park. West Roby District Road and Morse Loop, West Joppa Road covered bridge, Waterloo Road Covered bridge, and the Tom Pond area are regularly experiencing winter ice jams. Since these roads are within floodplain areas, it is likely in the future they will continue to be subject to ice jams. • Because of the high volumes and swift moving Schoodac Brook (seasonal), Childrens Brook, Stevens Brook and Toms Pond, bank erosion, scouring and channel movement are future hazards of concern. • Erosion of banks is presently occurring include Warner River bank in the area of East Roby District Road, Slaughter Brook at Horne Street, and at Retreat Road and is anticipated to continue in the future.	✦ EPA Bank Erosion Risk Index

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
SEVERE WINTER WEATHER **Snow, Ice, Blizzard or Nor'Easter** ***Events(s) Within Last 5 Years***	**12.0 HIGH**	• It is extremely likely that Warner 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. • As severe winter conditions are expected to continue in the future and to increase in severity, concerns remain Interstate 89 and its ramps Exit 7, Exit 8 and Exit 9 as well as in the vicinity of the Warner River. NH 103, NH 127 and NH 114 are also major travel ways through the Town. Many local roads, especially in the Mink Hills or along Mount Kearsarge have sharp incline/decline and cars have trouble traveling the road during winter conditions. • Particular areas of concern during winter weather include high density areas of Main Street/Village area, Toms Pond, the Pleasant Lake Estates Manufactured Homes (33), Northeast Catholic College, Lutheran Latvian Homes & Seasonal Camps (35). Vulnerable populations include the Simonds Elementary School, Pine Rock Manor (70), and CAP Building, Market Basket that might require assistance during winter weather. Some of these buildings along with the Old Fire Station, Warner Power and large barns may be vulnerable to heavy snow loads or other events that could cause the roof to collapse. • Telecomm towers on North Road, Route 103 East, Kelly Hill Road, Davisville, Kearsarge Mountain Road, and Mount Kearsarge Tower as well as Department antennas could be highly impacted from future snow, ice, and blizzards. • Much of the Town is wooded and forested and sections are difficult to access with trees and power lines down on the residential roads during future snowstorms. Mount Kearsarge has about 116 homes, Waldron Hill Road 40 homes, Collins Road 16 homes, West Roby Road 14 homes, Chemical Lane 13 homes, and many more are one-egress roads where roads are often blocked by trees or powerlines.	✦ Sperry-Piltz Ice Accumulation (SPIA) ✦ NCDC Regional Snowfall Index (RSI) for Northeast
SOLAR STORMS AND SPACE WEATHER **Solar Winds, Geomagnetic Storms (Aurora Borealis), Solar Radiation or Radio Blackout** ***Events(s) Within Last 5 Years***	**2.0 LOW**	• The aurora borealis has been photographed on Mount Kearsarge 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

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
TROPICAL AND POST-TROPICAL CYCLONES Hurricanes, Tropical Storms or Tree Debris *NO Events(s) Within Last 5 Years*	**7.0 MEDIUM**	• The last tropical and post tropical storm to impact Warner was Irene in 2012. There will be future tropical cyclones to impact Warner. Although the vulnerable areas are spread all over Town instead of more site-specific, the facilities and locations at greatest risk are shared with **High Wind Events**.	✦ Saffir-Simpson Hurricane Wind Scale
WILDFIRE Brushfire, Outdoor Fires or Accidental *No Substantial or Notable Events(s) Within Last 5 Years*	**6.0 MEDIUM**	• Although few substantial wildfires have impacted Warner since the last Plan, the potential exists for large fires in remote or difficult to access locations in the future. Drier foliage, slash on the ground, one-egress roadways, Mount Kearsarge hiking (and Kearsarge Mountain Road homes), Chandler Forest conservation land, Sunapee Ragged Kearsarge Regional Greenway trail, and the Mink Hills could mean difficulty accessing severe fires should the need arise. As a member of the Capital Area Fire Mutual Aid Compact, the Town regularly provides other communities with mutual aid for wildfires.	✦ NWCG Wildfire Classification
SECONDARY TECHNOLOGICAL AND HUMAN HAZARDS			
AGING INFRASTRUCTURE Bridges, Culverts, Roads, Pipes or Underground Lines *Events(s) Within Last 5 Years*	not scored	• Most of the Town's infrastructure is again and only able to be replaced on a priority basis. Therefore, any future natural hazard could render the culvert and drainage system vulnerable. Although repaired, the Dalton/ West Joppa Road Covered Bridge has damaged by high water debris in the past and the Waterloo Covered Bridge is aging and could be subject to floods, ice, transportation crashes or debris impacted infrastructure. • Some bridges are red-listed by the state: 189/099 (Town) North Village Road over Silver Brook); 202/136 (State) NH 103 over I-89 NB Deck for replacement in 2023; 254/180 (State) NH 127 over Warner River Bridge for replacement in 2020. If a disaster struck prior to renovation, more damages could occur. • See list of **Road Washouts** for a list of culverts susceptible to future floods, ice jams, debris, and other hazards. • The Town's roads are becoming more difficult to maintain and rehabilitate because of lack of funding and miles of roads. Retreat Road is a priority. Underground line or pipes are often old and subject to breakage during earthquake or because aging materials, including some Warner Village Water District water lines and sewer lines. During a future disaster, the Town wells and water lines and sewer lines could be impacted (Main Street/Village Area/Kearsarge Mountain Rd).	N/A

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
DAM RELEASE OR FAILURE *Events(s) Within Last 5 Years*	not scored	• There are few to no dams in Warner with potential for immense flooding damage *if* breached. Two (2) **Low Hazard** dams are located at **Silver Pond** Dam **(Silver Brook)** and Bear Pond Dam (Amey Brook Tributary) while **14 Non-Menace** dams are located throughout the community. A Lake Massasecum (Bradford) Dam breach is a concern to the Town of Warner. It would flood the Warner River which runs through the middle of the Town and East Main Street and could impact many residential areas. • Higher risk Warner dams, downstream of which would be immediately susceptible to the impacts of **dam failure or release:** ↷ Silver Pond Dam (Silver Brook), **Low** Hazard (L) ↷ Bear Pond Dam (Amey Brook Tributary), **Low** Hazard (L) • Beaver dams are prevalent in Town and could have the potential of washing out local roads if failure occurs.	N/A but refer to NHDES Dam Classifications
FIRE **Vehicle, Structure, Arson or Conflagration** *Events(s) Within Last 5 Years*	not scored	• Any future conflagration along the Main Street/Village area in Warner, should it occur, would have damaging effects to the entire community. • Several businesses are potential sites for explosions and serious fires. There are numerous other sites in town that store tires and that have the potential for prolonged burning. Additional Sites in Warner include Kearsarge Heating Oils, Rhymes Propane, Aubuchon Hardware, and Circle K Irving Gas. • Interstate 89 and ramps Exit 7 and Exit 8, and the Exit 9 roundabout on NH 103 are regular locations of transportation crashes. The most severe of these can cause vehicle fires. These locations are anticipated to remain locations of potential fire. • Arson is a real and potential in Warner and could occur anywhere in Town which is heavily forested. Buildings that contain numerous people, such as the Elementary School, the Old Graded School building, Town Hall, Warner Power, and North Ridge Estates, are a particular risk. Wildfires in remote areas are also of particular concern because of accessibility and the potential to damage large areas.	N/A
HAZARDOUS MATERIALS **Haz Mat Spills, Brownfields or Trucking** ***NO Events(s) Within Last 5 Years***	not scored	• Transportation of hazardous materials on Interstate 89 and State Route 103 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. 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.	N/A
LONG TERM UTILITY OUTAGE **Power, Water, Sewer, Gas, Internet, Communications or Live Wire Danger**	not scored	• High tension lines in Warner make the Town particularly vulnerable to outage during future disaster events. Losing the Eversource power grid would indirectly affect Warner 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: Simonds School, Pine Rock Assisted Living, Pleasant Lake Estates 55+. Lutheran Latvian Camps,	N/A

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
Events(s) Within Last 5 Years		and on Kearsarge Mountain Road (600 residents). Melvin Mills is considered a communication dead zone. • The Warner Village Water District infrastructure and Wastewater treatment facility can be disrupted by a future hazard event. These systems are confined to smaller areas, such as Village Area/Kearsarge Mountain Rd. Rymes Propane (personal) is an alternate power source available to residents. • A few individuals in Town require oxygen and power would be the most vulnerable populations to any utility outage. Electricity could not be offline for more than two or three days without causing losses. Standby generators have been installed at the Old Fire Station and the Town Hall. • There are 4 cell towers in Warner, located on Route 103 East, Kelly Hill Road, Mt. Kearsarge and Kearsarge Mtn. Road that provide coverage to most of Town. In addition, internet is available in certain areas of the community. TDS telephone lines provide main service to Warner. Communication failure can result from the effect of a natural disaster such as severe storm, of severe winter weather. Such an outage will likely affect the majority of Town residents and the traveling public passing through Warner. • The communications equipment on top of Mount Kearsarge belongs to state agencies, federal agencies and private cell companies. The state repeaters and the other equipment could be vulnerable to lightning and high wind events. Town's Emergency Services have their own separate antennas, including the Highway Department, Police Station, and Fire Station. The Town does not generally use the Mount Kearsarge antenna to communicate, but it can communicate with the State using the Town's radio system. • Systems failures could affect Town businesses and local government on a large scale. Cell phones are good alternatives to telephones, but some residents do not have computers. • 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 Warner if needed.	
RADIOLOGICAL Trucking, Occupational Sites or Power Plants *NO Events(s) Within Last 5 Years*	not scored	• Warner is positioned between decommissioned Vermont Yankee and Seabrook nuclear power plants. No one portion of the Town is more vulnerable. Warner is not considered particularly vulnerable to any future radiological threat from failure of the nuclear power plants due to any terrorist attack or any other malfunction causing public concerns The Town falls outside the 10-mile emergency planning zones. • Some trucks using I-89 or NH 103 are believed to transport radiological waste and/or radiological material through the Town borders. The spillage of these materials and/or wastes has the potential to cause a serious but isolated contamination event. Although unlikely, future radiological trucking incidents are possible.	N/A

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
		• Occupational or stationary sites such as the Transfer Station, manufacturing operations or health care facilities or laboratories could also have radiological incidents.	
TRANSPORTATION CRASH Vehicle, Airplane, Helicopter, Rail, Interstate, Pedestrian or Bicycle *Events(s) Within Last 5 Years*	not scored	• A windshield survey counting the types and number of trucks on I-89 in 2001 over the spring, summer and fall was conducted by Town volunteers. The purpose of the survey was to identify hazardous materials that are transported over the roadways within Warner and to determine the frequency they are shipped on a daily basis. Survey locations were selected based upon local truck transportation routes through Warner. Vehicles carrying hazardous materials were identified by means of vehicle placards. No surveys were conducted to examine the manifest for an accurate account of the type and quantity of hazardous materials being shipped. Over the years since this truck survey, truck traffic has increased. The future likelihood of hazardous materials involved in a crash is possible. • Crashes can occur anywhere in the community although I-89 and commuter routes NH 103, NH 114 and NH 127 are likely to have crashes. Dangerous locations and intersections include areas of steep slopes like Burnt Hill Road, Pumpkin Hill Road, Horne Street, Collins Road, and s-curves can increase crashes in the future. High density areas, such as Main Street/Village, encourage bicycling and pedestrians along with traffic, but also have the potential for serious crashes. Mount Kearsarge represents a high elevation challenge and future airplane crashes could occur here.	N/A
MASS CASUALTY INCIDENT As a result of any hazard event *NO Events(s) Within Last 5 Years*	not scored	• Significant groups of people are located at Simonds Elementary School, Northeast Catholic College, Pleasant Lake Estates Manufactured Homes, Lutheran Latvian Homes & Seasonal Camps and Market Basket, which could be where a future mass casually event occurs as the result of any other type of hazard event. • Events such as the popular annual Fall Foliage Festival, political candidate visits, School sporting events, Town Meeting, Old Home Day, Veteran's Parades, concerts, restaurants and other community gatherings could set the location for future mass casualty incidents. • Concord Hospital, New London Hospital, and Franklin Regional Hospital are the closest full-scale medical facilities to Warner although only Concord Hospital has a trauma center.	N/A
TERRORISM/ VIOLENCE Active Shooter, Hostage, Public Harm, Civil Disturbance/ Unrest, Politically Motivated Attacks, Incendiary Devices, Sabotage or Vandalism	not scored	• It is unlikely that the Town will be the target of an act of conventional terrorism, but because there are many forms, the possibility always exists. Possible targets could be the Town Hall, the Simonds Elementary School, Market Basket, local fuel storage facilities, water wells or the Fire and Police Stations. • Future hostage situations are isolated events and are nearly impossible to predict. The sites where this potential exists are Town Hall or the Simonds Elementary School, CAP Building, and everyday domestic situations.	N/A

Hazard Risk Assessment Hazards	Overall Risk	Potential Future Hazards – Locations and Impacts	Magnitude/ Extent Measurement Scales
Events(s) Within Last 5 Years		•Large scale incidents of civil disturbance and public unrest are unlikely in Warner. Potential public unrest may take place at the Town Hall or the Elementary School • Bomb threats are unlikely to occur at the Elementary School but are more likely to occur at the Northeast Catholic College and the Kearsarge Middle and High Schools in Sutton to the north of Warner.	
CYBER EVENT Municipal Computer Systems Attack, Website Overtake, Cloud Data Breach, Telephone Rerouting, Identity Theft, Phishing, Ransomware, Virus or Phone Scams *NO Events(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. Town Hall, Police Department, Fire Department, Warner Water Village Precinct, Transfer Station, Highway Department, Pillsbury Free Library, or Historical Society and 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, Sugar River Bank, Madgetech, Brayshaw Printing, and other large businesses.	N/A

Source: Warner Hazard Mitigation Committee

Although there are many potential hazards in Warner'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**.

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 Warner.

Special Flood Hazard Areas (SFHA)

There are **20** Digital Flood Insurance Rate Maps (DFIRMs) in Warner from the April 2010 updated set, of which **10** panels contain floodplains of the **Warner River**: **#0267**, **#0268**, **#0269**, **#0286**, **#0287**, **#0289**, **#0293 #0294**, **#0313**, and **#0501**. The **Schoodac Brook** floodplains are displayed on panels **#0294** and **#0295** as it converges with the **Warner River.** The **Tom Pond** floodplains are depicted on panels **#0294** and **#0485**. Other brooks and waterbodies are included in these floodplains. The Warner DFIRM panels include **Zone AE** floodways (1% annual risk of flooding) and **Zone A** (1% annual risk of flooding). The **Warner River**, **Schoodac Brook**, and **Tom Pond** floodplain panels contain **Zone AE Base Flood Elevations (BFEs)** (1% annual risk of flooding), although only the **Warner River** has floodways. In Warner, there are also many

Zone X (0.2% annual risk of flooding) locations in Town mostly along the **Warner River**. These are the DFIRMS and floodplains highlighted gray in **Table 27**.

Five (**5**) DFIRMs, **#0280**, **#0283**, **#0266**, **#0460**, and **#0480** contain **Zone A** (1% annual risk of flooding) only and are displayed in white rows in **Table 27**. Two (**2**) panels **#0140** and **#0260** have no flood zones on the panels and **1** additional DFIRM, **#0288**, does not have printed a panel whatsoever. This situation occurs when there are no available floodplains to display in the DFIRM area.

Table 27

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

Panel NH (D33013C)	Flood Zones in Warner (330123)	Base Flood Elevations (BFEs)	Water Body Areas in Floodplains	Community of Warner Geographic Location
#0267	AE with Floodway, AE, X	461. 508, 509, 510, 512, 519, 520, 521	**Warner River**	Northwestern top edge abutting Sutton to the north.
#0268	A, AE with Floodway, AE, X	600, 612, 625, 628, 638	**Simmons Pond, Unnamed Pond, Warner River**	Western edge of Town abutting Bradford. Melvin Road Bridge, Melvin Mills Road, Bible Hill Lane, NH 103 West
#0269	A, AE with Floodway, AE, X	521, 530, 545, 558, 562, 589	**Unnamed Pond, Warner River, Slaughter Brook wetland. Not in FP: Unnamed Streams**	Western center of Town. NH 103 West, Melvin Road, Newmarket Road, Horne Street, Collins Road
#0286	AE with Floodway, AE, X	424, 425, 443, 447, 449, 450, 454, 461	**Warner River**	Western "ell" corner abutting Sutton. I-89, NH 103, Bean Road, Newmarket Road, Waterloo Street, Morse Loop Road, Willaby Colby Lane, Retreat Road
#0287	A, AE with Floodway, AE, X	419, 4231, 422, 423, 424	**Warner River, Stevens Brook, Willow Brook and Wetland**	Entire northern central section of Town. I-89, Kearsarge Mountain Road, Pattee Road Exit 9, West Main Street, North Road, Roslyn Avenue, Geneva Street, Kirtland Street, Willey Lane, Chemical Lane
#0289	A, AE with Floodway, AE, X	413, 414, 415, 417, 418	**Warner River, Silver Pond, Willow Brook. Not in FP: Silver Brook, Recreation Pond**	Central area of Warner. Rural with I-89 to north. Cunningham Pond Road, Gpuld Road, North Village Road, Mink Hill Lane, Flanders Lane, Waldron Hill Road, I-89, West Main Street, Mill Street, Chemical Lane
#0293	A, AE with Floodway, AE, X	404, 405, 406, 405, 409, 410, 411	**Warner River, Willow Brook. Not in FP: Bartlett Brook, Unnamed Wetlands, Unnamed Brooks**	Central-eastern area of Warner. I-89 to north. Parade Ground Cemetery Road, NH 103, Denny Hill Road, Harriman Lane, West Joppa Road, Burnt Hill Road, Old Main Road, East Main Street, Schoodac Road, Loop Road, Kelly Hill Road, East Joppa Road, Loud Lane.

Panel NH (D33013C)	Flood Zones in Warner (330123)	Base Flood Elevations (BFEs)	Water Body Areas in Floodplains	Community of Warner Geographic Location
#0294	A, AE with Floodway, AE, X	398, 398,397 (Schoodac). 395, 396, 397, 398, 399 (Warner). 396 (Tom Pond)	**Warner River, Schoodac Brook, Tom Pond, Unnamed Wetlands. Not in FP: Ballard Brook**	Eastern section of Town. I-89, NH 103, Burnt Hill Road, Schoodac Road, Brown Road, Poverty Plains Road, Red Chimney Road, Farrell Loop Road, Iron Kettle Road, Tom Pond Lane, Dimond Lane, Bog Road
#0313	A, AE with Floodway, AE, X	371, 381, 387, 393, 395,	**Warner River, Unnamed Wetlands**	Eastern edge abutting Webster. I-89, Poverty Plains Road, NH 103, Dustin Road, Bog Road.
#0501	A, AE with Floodway, AE, X	364	**Warner River, Unnamed Wetland**	Southeastern corner of Warner, abutting Webster (west) and Hopkinton (south). I-89 Exit 7, Old Warner Road, NH 103 East, Park Avenue
#0295	A, AE	398 (Schoodac).	**Schoodac Brook, Frazier Brook, Bagley Pond, Unnamed Wetlands. Not in FP: Willow Brook, Meadow Pond**	Eastern section of Town abutting Webster (east). Pumpkin Hill Road, Bartlett Loop, Couchtown Road, Connors Mill Road, Mason Hill Road, Lull Trace Lane, Schoodac Road, Brown Road.
#0485	A, AE, X	(396) Tom Pond	**Tom Pond, Bear Pond, Pleasant Pond. Not in FP: Ballard Brook**	Western central edge of Town in the Mink Hills. Bradford & Henniker to the south. NH 103 East, Dimond Lane, Harts Horn Lane, Pleasant Pond Road, Clement Hill Road, Dummer Road, Iron Kettle Road.
#0280	A	N/A	**Meadow Brook and wetland. Not in FP: French Brook**	Northern "stem" of Warner. Mount Kearsarge (State Forest) and Mount Kearsarge Road.
#0285	A	N/A	**Unnamed Ponds and Wetlands, Bagley Pond, Mud Pond.**	Eastern corner of Town, abutting Salisbury (north) and Webster (east). Pumpkin Hill Road, Duck Pond Lane, Couchtown Road
#0266	A	N/A	**Simmons Pond**	Northwestern top edge abutting Sutton to the north and abutting Bradford to the east.
#0460	A	N/A	**Day Pond, Unnamed Brook**	Southwestern corner of town, abutting Bradford (west) and Henniker (south). NH 114, Davis Road, Collins Road, Horne Street, Latvian Lane.
#0480	A	N/A	**Day Pond, Cunningham Pond, Unnamed Wetland. Not in FP: Warner Brook, Unnamed Ponds**	Southern edge of Warner abutting Henniker (south). NH 114, Hoyt Lane, Henniker Road, Daisy Hollow, Badger Road, Cunningham Pond Road, Colby Lane, Page Road.
#0140	N/A	N/A	**None. Not in FP: Bradley Brook**	Northern top of Warner. Mount Kearsarge (State Forest)
#0260	N/A	N/A	**None. Not in FP: Unnamed Streams**	Northwest corner of Warner. Mount Kearsarge (State Forest)

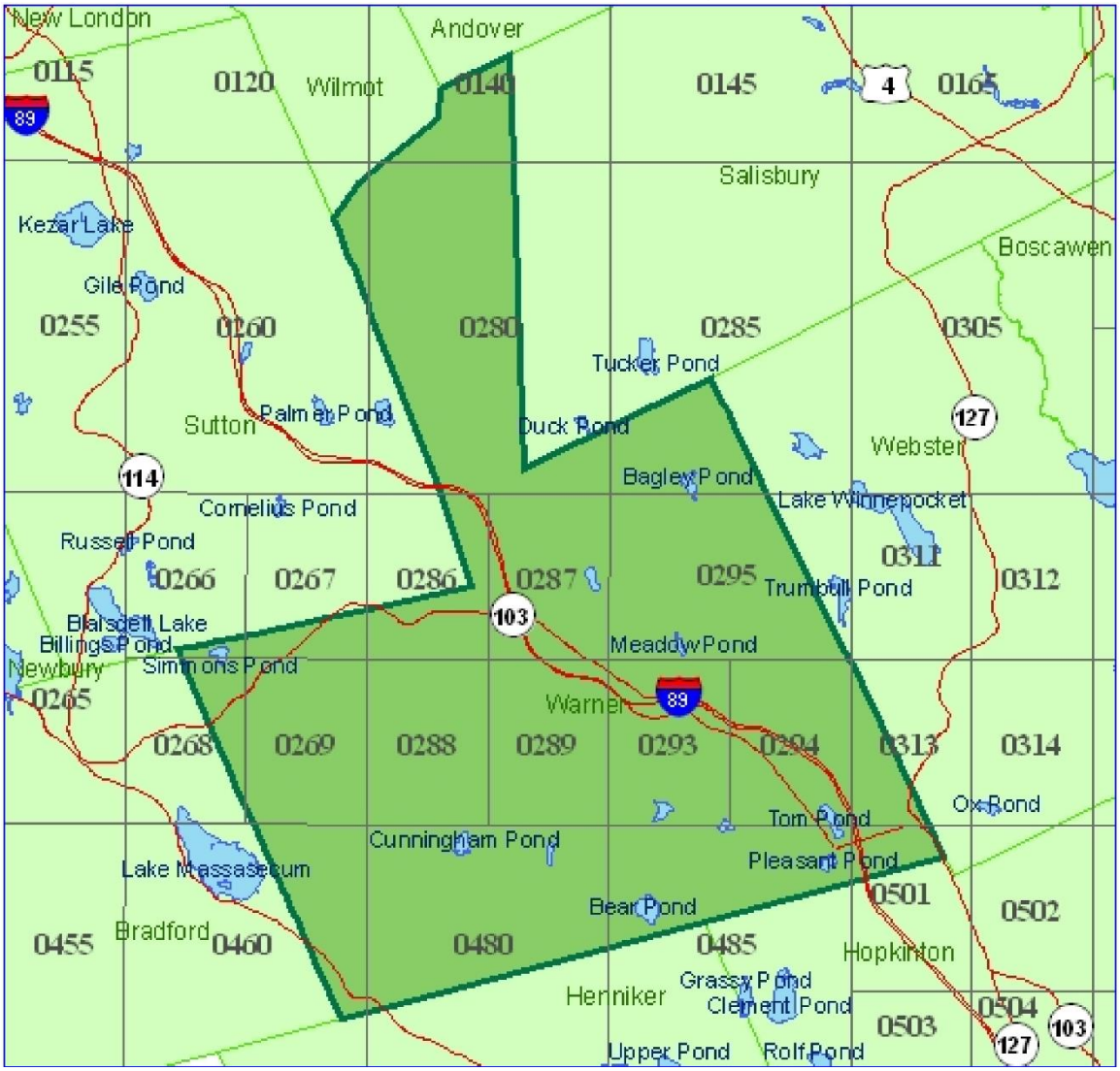
Panel NH (D33013C)	Flood Zones in Warner (330123)	Base Flood Elevations (BFEs)	Water Body Areas in Floodplains	Community of Warner Geographic Location
#0288	None	None	**None**	No DFIRM Panel

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

Figure 15 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.

Figure 15

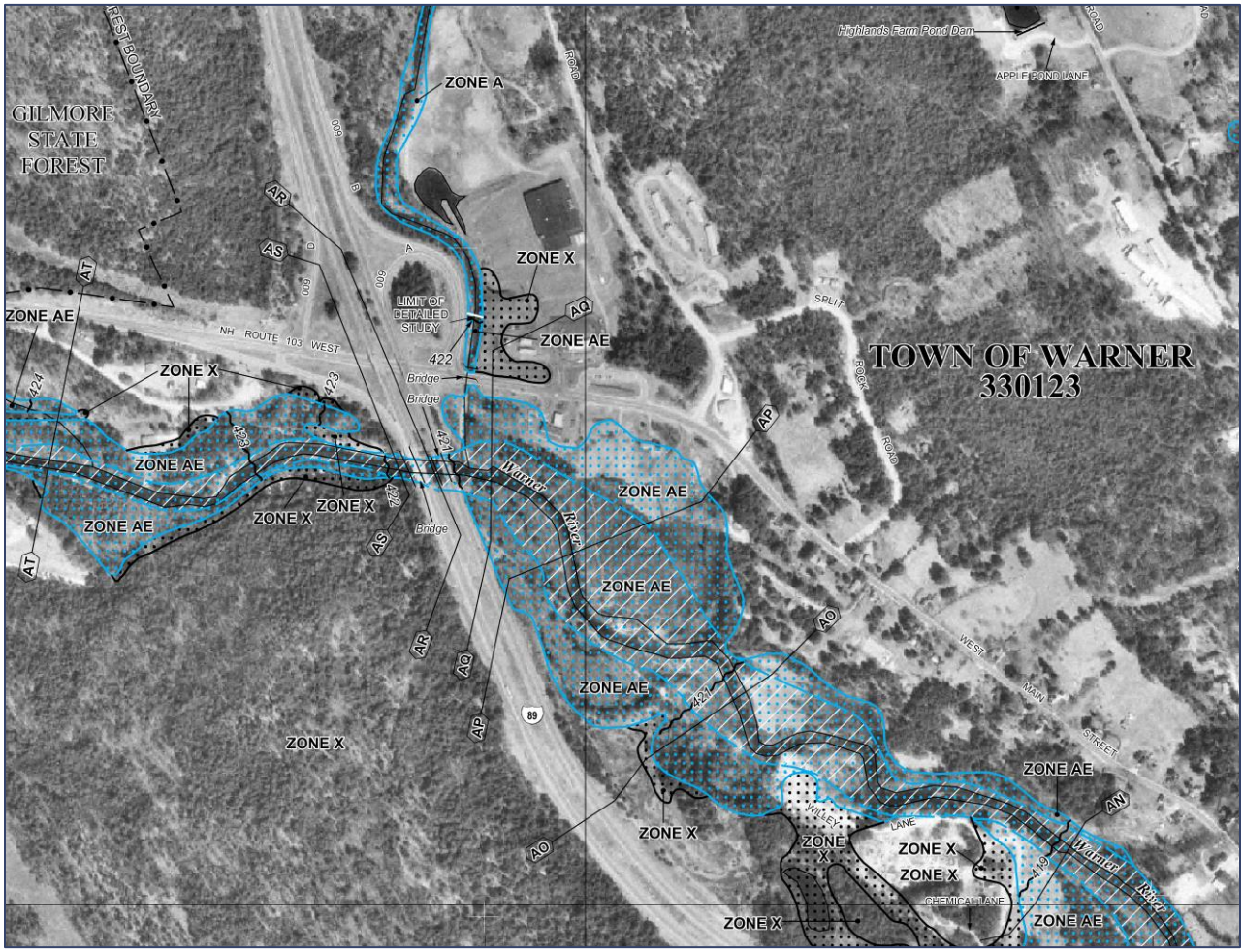
DFIRM Panel Locations (330123), 2010



Source: Warner DFIRMS can be downloaded at http://www.granit.unh.edu/dfirms/d-DFIRMzips/Warner.zip, last accessed 02-19

Figure 16 displays an example of a DFIRM's zoomed-in view of the Warner River's intersection with I-89 and NH 103**,** at Exit 9 and West Main Street. NH 103, NH 114, and side roads. Although the road and waterbody limits shown below may be a bit inaccurate, there are many active floodplains along the busiest highways and one of the most populated areas in Warner.

Figure 16
Zoom View of Warner DFIRM Panel Location #0287



Source: FEMA DFIRM 2010 for Warner NH #0287

Historical records of flood crests as displayed in **Table 28** enable perspective on how often the Warner River at Davisville floods. This is the site of a US Geological Survey monitored river gage.

Table 28

Flood Crests – Warner River at Davisville

Historic Crests		Recent Crests	
Feet	Date	Feet	Date
12.8	09/22/1938	8.08	08/29/2011
12.35	05/15/2006	8.37	03/31/2010
11.87	04/16/2007	9.11	04/03/2005
10.14	10/09/2005	8.58	04/02/2004
9.88	03/27/1953	8.1	04/24/2001

Source: https://Water.weather.gov, last accessed 02-22-19

Reported flood impacts to **Warner River** locations as related to the **Flood Stages** are as follows:

- **12 Feet** WEST JOPPA ROAD AT DALTON BRIDGE FLOODED WITH 2 TO 3 FEET OF WATER. RIVERSIDE PARK IN WARNER FLOODED WITH 3 TO 4 FEET OF WATER. WEST ROBY DISTRICT ROAD FLOODED.
- **10 Feet** WEST JOPPA ROAD IN WARNER STARTS TO FLOOD. RIVERSIDE PARK FLOODED. ROUTE 114 FLOODED IN BRADFORD.
- **8 Feet** LOWLAND FLOODING FROM BRADFORD TO DAVISVILLE. BAGLEY FIELD SOCCER FIELDS FLOODED TO A DEPTH OF 1.5 FEET.
- **6.5 Feet** BAGLEY PARK SOCCER FIELDS START TO FLOOD. LOWLAND FLOODING.

Waterbodies

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

- **Watercourses:** Amey Brook, Ballard Brook, Barclay Brook, Bartlett Brook, Bradley Brook, Childrens Brook, Colby Brook, Davis Brook, Frazier Brook, French Brook, Hardy Spring Brook, Knight Meadow Brook, Meadow Brook, Silver Brook, Schoodac Brook, Slaughter Brook, Stevens Brook, Willow Brook, intermittent streams, and several unnamed brooks.

- **Waterbodies:** Bagley Pond, Bear Pond, Cunningham Pond, Day Pond, Mud Pond, Simmonds Pond, Toms Pond, Silver Lake, and Pleasant Pond; several Recreation & Farm Ponds and Fire Ponds; and several unnamed ponds and wetlands.

Road Washouts

Many of the local Town roads in Warner are constructed using ditching instead of storm drains. Most of the Town maintained roads are gravel, enabling easier washout during future flooding events. Regular road washouts have included:

- East Joppa Road
- Horn Street
- Collins Road
- Howe Lane
- Ladd Lane
- Bartlett Loop
- Mason Hill
- Duck Pond Lane
- Red Chimney Road
- Iron Kettle Road
- Dummer Road
- Gore Road
- Quimby Road
- Poverty Plains Road
- Route 103
- Schoodac Road
- Henniker Road
- Cunningham Pond
- Waldron Hill
- Gould Road
- West Joppa Road
- Loud Lane
- North Road
- Willaby Colby Lane
- Burnt Hill Road
- Old Pumpkin Hill Rd
- and several more

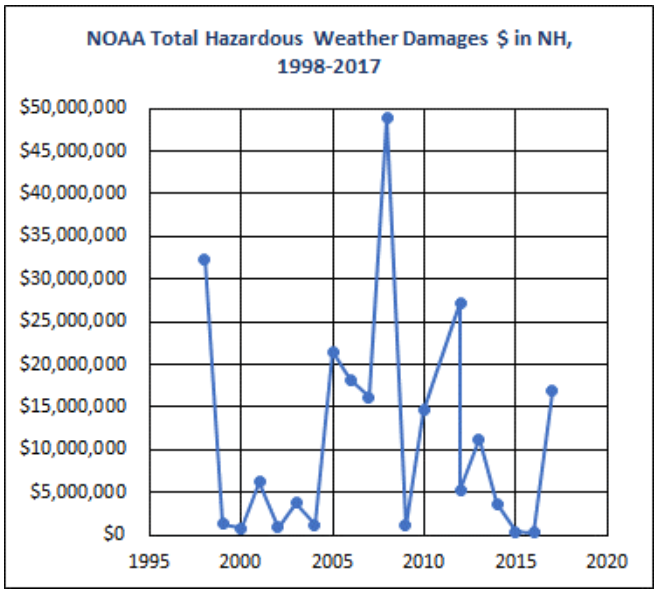
Local Climate Changes and Extreme Weather

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 Warner 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, 1998-2017

Year	Fatalities	Injuries	Total Damages $
2017	0	0	**$17,000,000**
2016	1	1	**$270,000**
2015	2	34	**$370,000**
2014	0	2	**$3,700,000**
2013	0	30	**$11,250,000**
2012	1	4	**$5,280,000**
2011	1	2	**$27,280,000**
2010	1	6	**$14,630,000**
2009	1	0	**$1,130,000**
2008	2	5	**$48,890,000**
2007	0	3	**$16,150,000**
2006	1	9	**$18,200,000**
2005	4	9	**$21,500,000**
2004	0	11	**$1,200,000**
2003	2	29	**$3,800,000**
2002	0	7	**$900,000**
2001	0	2	**$6,200,000**
2000	2	6	**$800,000**
1999	3	17	**$1,300,000**
1998	1	23	**$32,400,000**



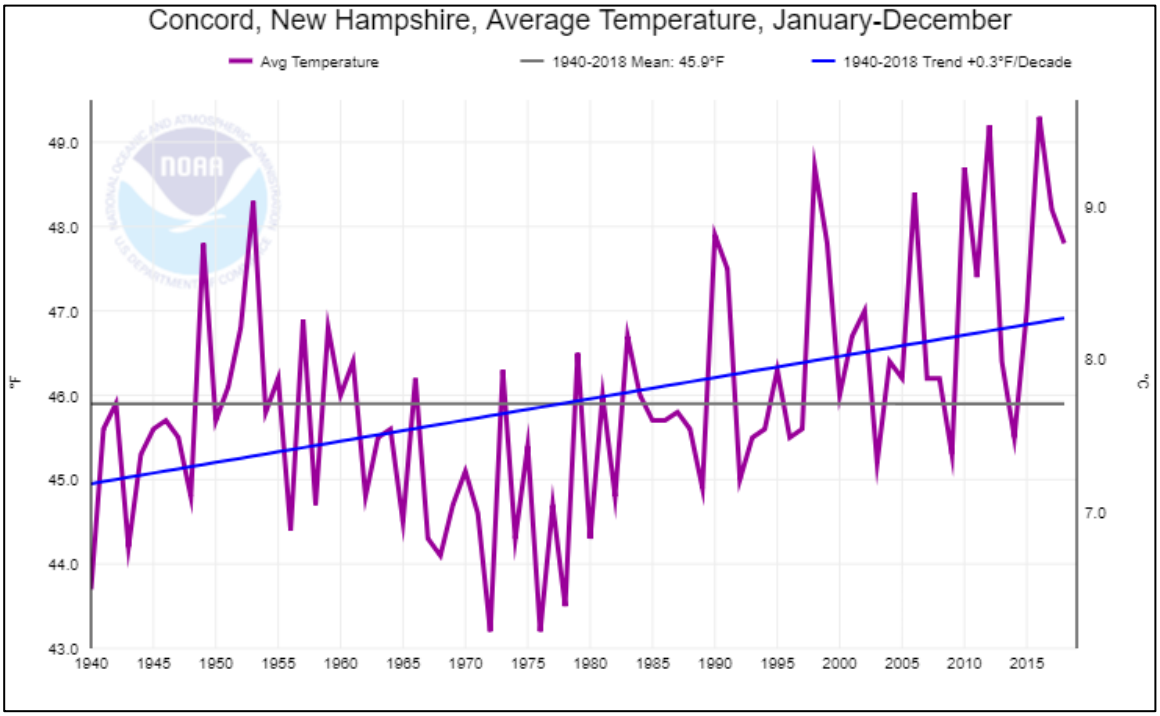
Source: National Oceanic and Atmospheric Administration, last accessed 02/19.
Adjusted for inflation [Consumer Price Index CPI)]
http://www.nws.noaa.gov/om/hazstats.shtml

Injuries to people and the costs of damages in New Hampshire have increased as a result of hazardous weather. These increases of injuries and damages can be generally applied to the major disasters declared in the State. As displayed in **Table 29**, the highest damage costs correlate to the **1998** (**$32m**) and **2008** (**$49m**) ice storms during this **1998-2017** period. The number of injuries and fatalities have a less distinct association, with the highest numbers shown in **2015** (**36**), **2013** (**30**) and **2003** (**31**). However, the greatest number of fatalities during this time period occurred in **2005** (**4**), likely during the time of the **Oct 2005 Columbus Day Floods** that hit 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 Warner is geographically close to the City of Concord (within **15** miles) and these measurements should have some reasonable basis in Warner, 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 Warner.

Figure 17 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 17
Average Annual Temperature for Concord, 1940-2018



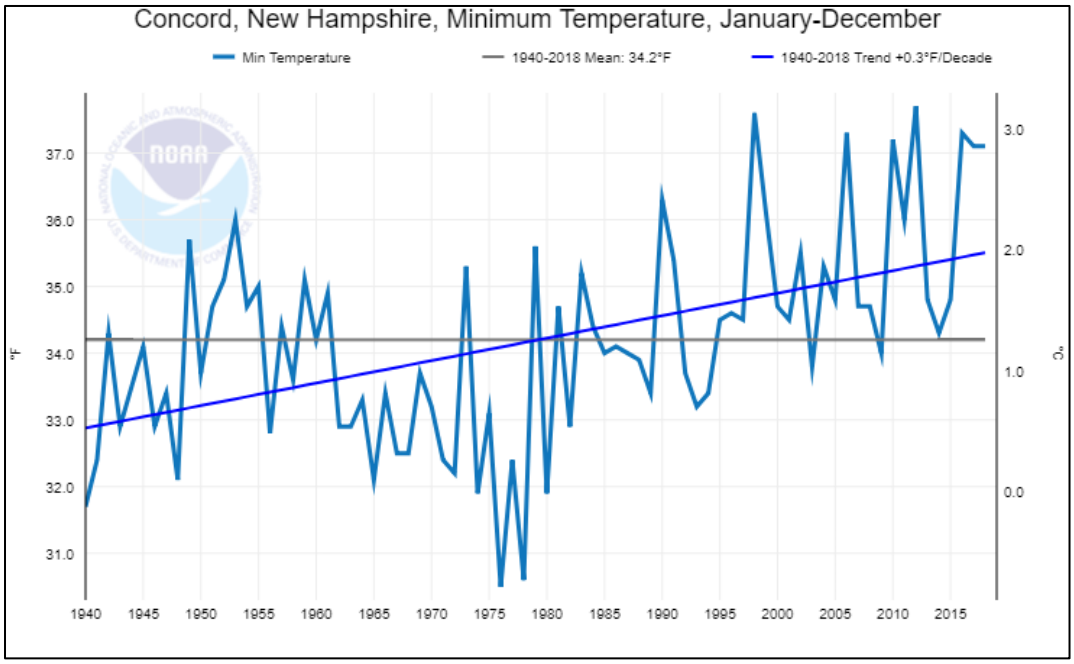
Source: National Oceanic and Atmospheric Administration https://www.ncdc.noaa.gov/cag/city/time-series/USW00014745/tavg/12/12/1940-2018?base_prd=true&firstbaseyear=1939&lastbaseyear=2018&trend=true&trend_base=10&firsttrendyear=1939&lasttrendyear=2018 *, last accessed online 03-11-19*

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 Warner.

Figure 18 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 18

Minimum Average Temperatures for Concord, 1940-2018

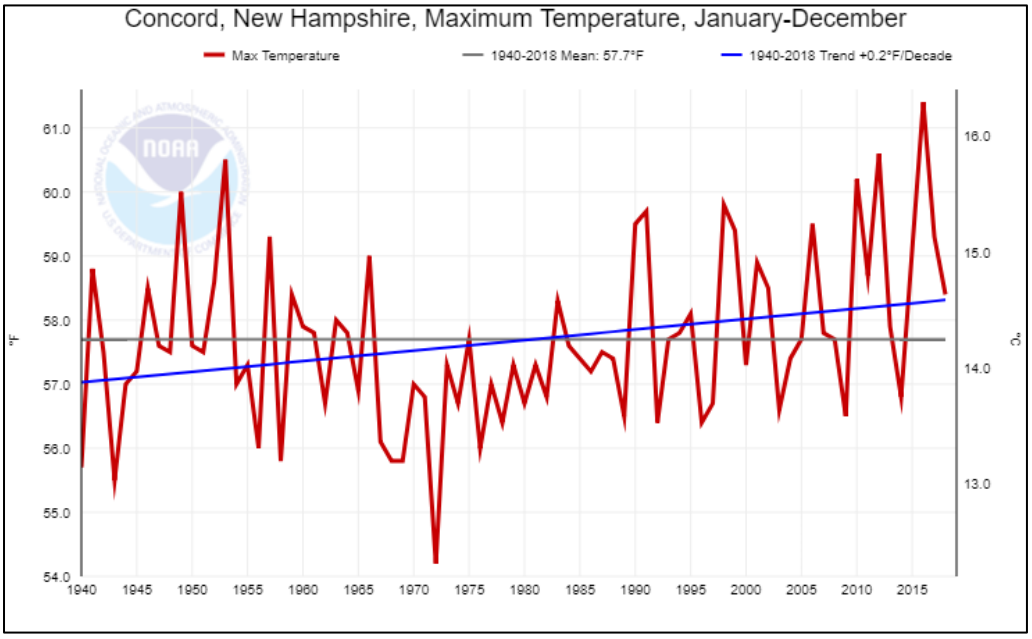


Source: National Oceanic and Atmospheric Administration, last accessed online 03-11-19

Figure 19 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 19

Maximum Average Temperatures for Concord, 1940-2018

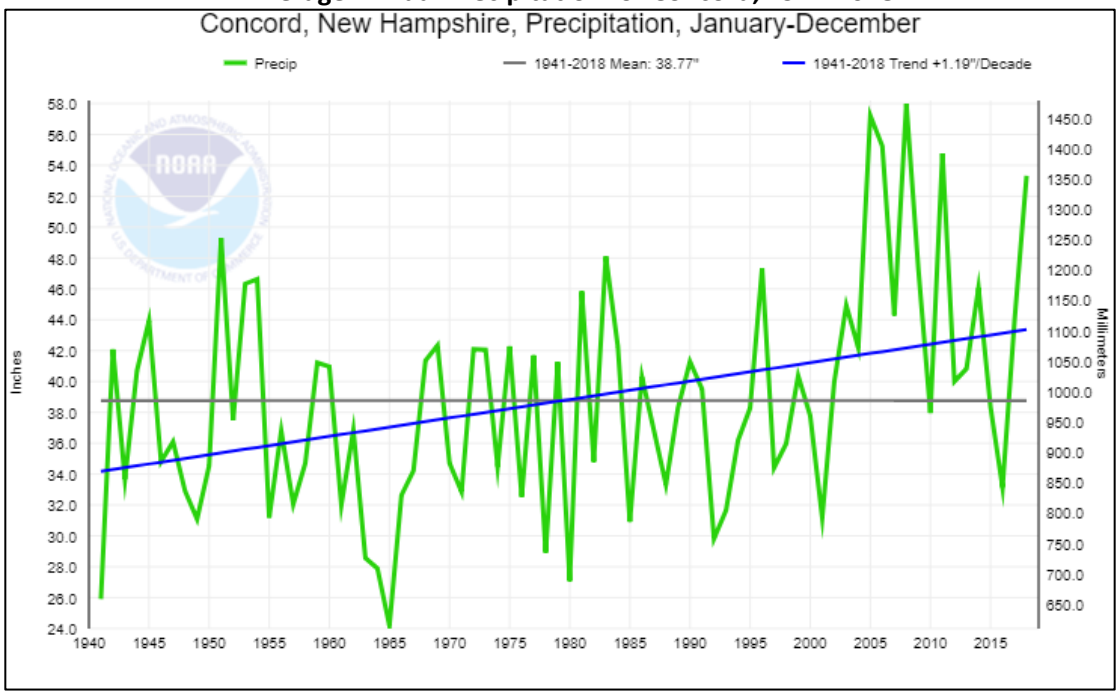


Source: National Oceanic and Atmospheric Administration, last accessed 03-11-19

For precipitation (rain) changes, Figure 20 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. Warner will have experienced very similar conditions.

Figure 20

Average Annual Precipitation for Concord, 1941-2018

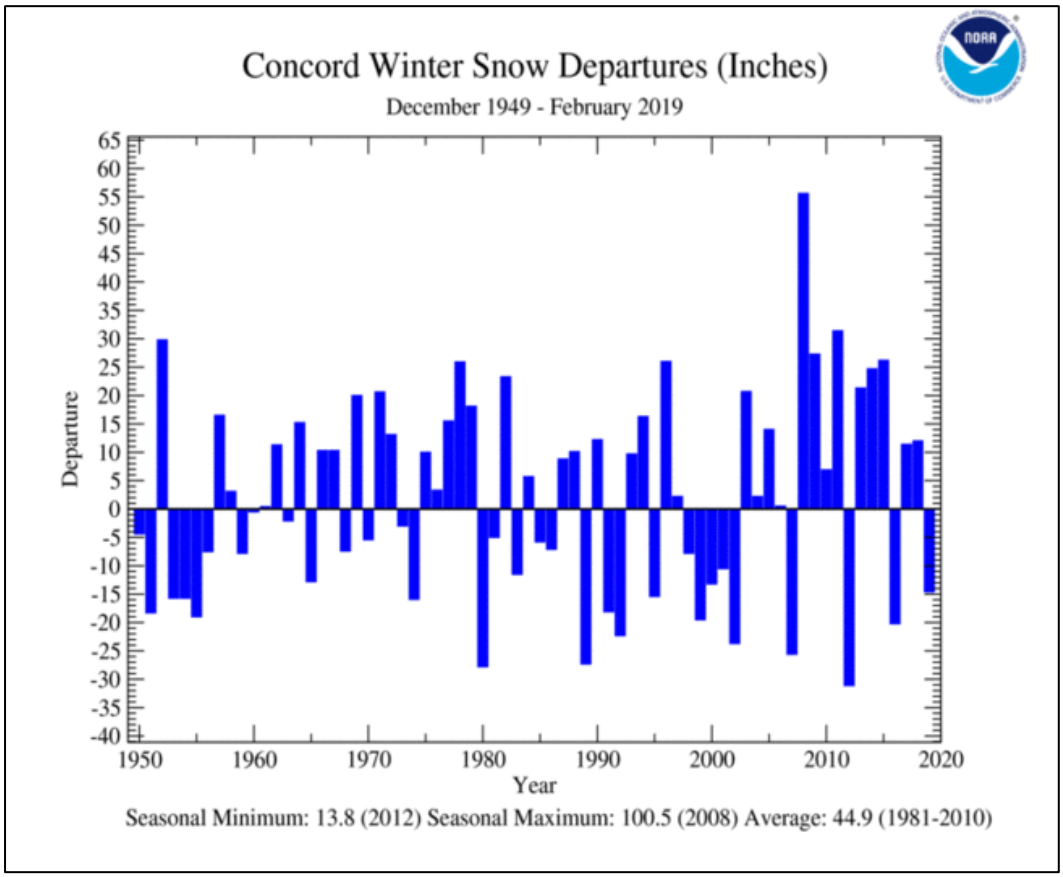


Source: National Oceanic and Atmospheric Administration, last accessed 03-11-19

Displayed in **Figure 21** 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 21
Concord Winter Snowfall Departure from Average, 1949-2019

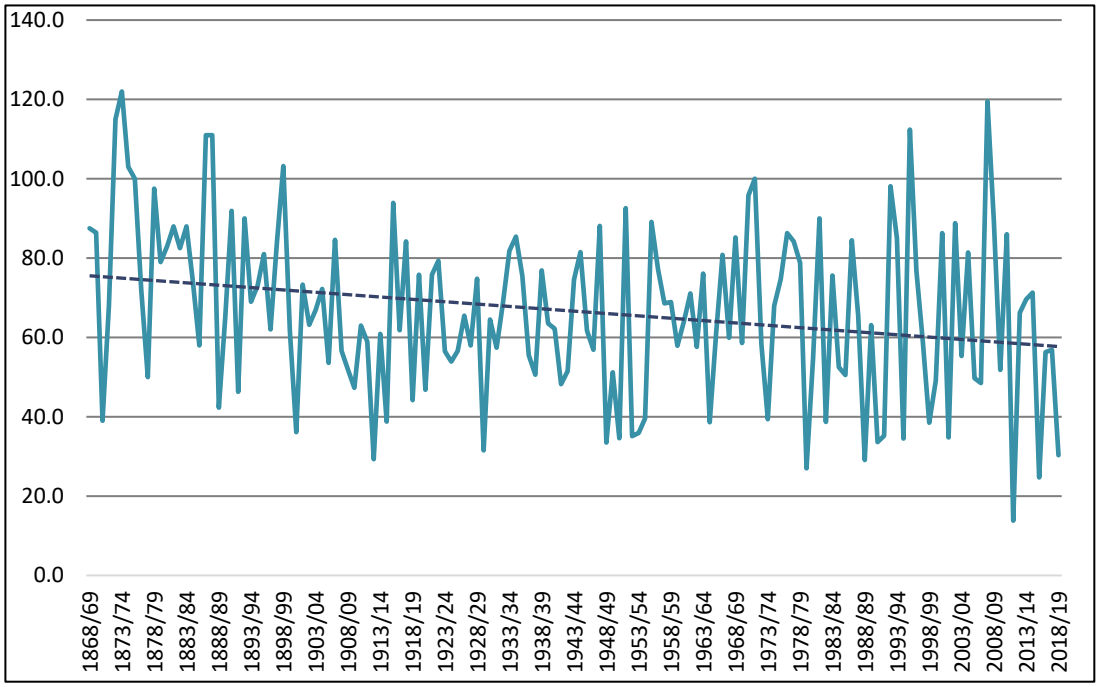


Source: National Oceanic and Atmospheric Administration, National Climate Report February 2019
https://www.ncdc.noaa.gov/sotc/national/201902/supplemental/page-2 last accessed 03-11-19

The National Oceanic and Atmospheric Administration (NOAA) seasonal snowfall totals were compiled by CNHRPC for Concord, where snowfall data gathering began in **1868**. Figure 22 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 22

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. Warner 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 Warner. 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 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 Warner are within southern New Hampshire. The past and future Southern NH climate overview is illustrated in **Figure 23**.

As a result of anticipated extreme weather continuing and climate changes in Central NH and Warner, 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 23

Southern NH Climate Assessment Projections

Past Data and Future Climate Overview

SOUTHERN NH CLIMATE ASSESSMENT Projections

TEMPERATURE

What have we seen since 1970?

- → 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?

- → Summers will be hotter: 16-47 days above 90°F
- → Winters will be warmer: 20-45 fewer days below

RAINFALL

What have we seen since 1970?

- → Annual precipitation has increased by 8-22%
- → Frequency and magnitude of extreme events

What can we expect?

- → Precipitation annual average will increase: 15-20%
- → More frequent and severe flooding

SNOW

What have we seen since 1970?

- → Fewer days with snow cover
- → Lake ice-out dates occurring earlier

What can we expect?

- → Significant decrease of 20-50% in number of snow covered days

Source: 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 impacted by flooding and cannot perform their function.
- ☞ Blocking of water can lead to flooding of the area and roadways, potential 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 Warner. 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**.

Warner's Hazard Vulnerability Change 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 Warner's vulnerability to natural hazard evets 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**, but aging citizens and individuals with access and functional needs require more services and attention. Through traffic, visitation, and development at the Exit 9 area, part of the Intervale Overlay Zoning District, have more than doubled over the last **10** years per Hazard Mitigation Committee assessment. Membership in the Capital Area Mutual Aid Compact has enabled enhanced communication for emergency response, local repeater installation and dispatch.

The Town's Statements of Vulnerability Change

2014

2019

Natural Disasters The Town's overall vulnerability to natural disasters **is believed to have remained the SAME over the last 5 years** with the changing climate and continuing disasters and hazard events. Yet, the Town **is also better protected than in the past**. These protections arise from significant infrastructure and service improvements to past vulnerable areas. These areas have been identified and mitigated where feasible by the Public Works Department, Emergency Management, Police Department, Fire and Rescue Department, and Town Administration. The Town anticipates high wind events, snowstorms, and inland flooding will continue to increase in number and severity as a result of climate change.

2019

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 its data and tightened informational technology services and updates and from Town Department and School District emergency response and drilling, an ongoing struggle to maintain cybersecurity continues. While the Town and School's cybersecurity has increased, new technological hazards will continue to be developed and utilized and may be directed toward Warner. Human hazards are unpredictable, but the School District drills and develops improved Standard Operating Procedures annually.

FUTURE DEVELOPMENT IN WARNER

Most of the town's roads and homes are the same as were approved at the time of the **2014 Plan**. Warner is located in a unique area which is accessible to the Interstate, has a growing Main Street/Village area and is also highly rural. Residents are aging, and those that work either have a home-based business or commute along NH 103 or Interstate 89 to Concord, Manchester, or Lebanon or points within or beyond. Since the easily developable land in Town has already been built or subdivided, these newest developments will built on **wetlands** or **steep slopes** or at high elevations. **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 Exit 9 interchange area along NH 103 is being heavily developed. Market Basket, Aubuchon Hardware, NH State Liquor Store, McDonald's, Circle K Irving, are just a few of the large businesses currently on site. Additional business and construction are anticipated in the future. Since NH 103 leads into Warner Main Street Village, downtown redevelopment could occur in the future.

Should **large-scale housing** development occur in Warner eventually, although the remote locations are often protected with dry hydrants against severe impacts of **wildfire** and **lightning**, the housing could be vulnerable to **severe winter weather**, **storms**, and **flooding of local roads.** The Main Street Village area is protected by hydrants.

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 **Warner Hazard Mitigation Plan 2014**.

The identification of Critical and Community Facilities within Warner 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 Warner 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 July 2018 assessments 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 Warner 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**:

Facility Name	Street Address (911)	Phone	Structure Replacement Value* $	Primary Hazard Vulnerabilities

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 Town Offices, Fire Department, Police Department, Highway Department, Fire & Rescue Department, and Water District services are the minimum services necessary for providing and coordinating every day and emergency response. Utilities or utility features such as cisterns, culverts, dry hydrants, pump stations, any water and sewer lines, and electric transmission lines are included because of the essential communication and utility services provided. Other **Critical Facilities** would include educational facilities, clinics and emergency shelters.

Many such facilities are located in Warner. 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: Fire Department, Fire Station (NEW), Highway Department, NH DOT Shed – 501 CLOSED (diesel source), NH DOT Shed – 526, Police Department, Town Hall, Transfer Station. Assessed structure (only) valuation for these essential facilities total **$11.4m**.

Utilities include: Main Street/Village Area Hydrants, Mt Kearsarge Fire Tower, Eversource Power Lines, Eversource Sub Stations, Sewerage Pump Station, TDS Remote Station (**10**), TDS Telecom; TELECOMMUNICATIONS TOWERS: Davisville, Kelley Hill Road, North Road, Route 103 East, Tory Hill (may be in Wilmot); WATER: Warner Wastewater Treatment Plant, Water Pump Station, Water Storage Tank 1, Water Storage Tank 2, Well Heads (2) Hydrants; DRY HYDRANTS: Dry Hydrant - Mason Hill, Dry Hydrant - Pleasant Pond, Dry Hydrant- Poverty Plains, Dry Hydrant- Depot St/ Warner River, Dry Hydrant- Melvin Mills/ Warner River, Dry Hydrant- Newmarket Rd/ Warner River. Assessed values for these utility structures in Town total **$10.9m**.

Dams include: **2** Low Hazard (**L**) Dams- 243.04 Silver Pond Dam (Town), 243.05 Warner River Dam (Wagner), 243.06 Warner River (Wagner), 243.26 Bear Pond Dam (Contoocook Village Precinct); **14** Non-Menace dams- 243.07 Swain Lowell Dam (Ladd), 243.15 Silver Brook Dam (Smith), 243.16 Silver Lake Upper Pond Dam (Town), 243.18 Farm Pond (Bridgewater), 243.19 Fire Pond Dam (Kumin), 243.20 Highlands Farm Pond Dam (Bartlett), 243.21 Fire Pond Dam (Cavellero), 243.23 Recreation Pond (Solomon), 243.24 Fire Pond Dam (Dickman), 243.25 Farm Pond Dam (Dickman), 243.27 Fire Pond Dam (Valey), 243.28 Farm Pond Dam (Kuno), 243.29 Warner River Hydro (Amons/Foster), 243.30 Kearsarge Elderly Housing Detention Pond, 243.31 Burke Pond Dam (Burke), 243.32 Bower Stock Pond Dam (Bower). Estimated structure (only) repair values for these dams total **$9.4m**.

Bridges include: **1** Town redlisted- 189/099 North Village Road over Silver Brook. **2** State redlisted- 202/136 NH 103 over I-89 NB (Deck Replacement 2023); 254/180 NH 127 over Warner River (Bridge

Replacement). **18** Town bridges- 123/102 North Road over Meadow Brook; 134/110 North Road over French Brook; 151/037 Laing over Warner River; 157/087 Waterloo Covered Bridge Newmarket Rd over Warner River; 159/075 Retreat Road over Davis Brook (new 2019 Plan); 159/098 Old Town Line Road over Colby Brook; 160/022 Bible Hill Lane over Warner River; 177/134 Bartlett Loop over Willow Brook (new 2019 Plan); 177/127 Bartlett Loop over Willow Brook; 181/112 Chemical Lane over Warner River; 183/114 North Village Rd over Warner River; 184/125 School Street over Willow Brook; 187/104 North Village Road over Silver Brook; 189/094 Mink Hill Lane over Silver Brook; 191/122 Dalton/Joppa Covered Bridge West Joppa Rd over Warner River; 194/172 Connor's Mill Rd over Schoodac Brook; 195/166 Schoodac Road over Frazier Brook; 216/159 Poverty Plains Rd over Schoodac Brook. **23** State bridges- 104/122 Kearsarge Mt Road over French Brook (new 2019 Plan); 144/056 NH 103 over Warner River; 145/053 NH 103 over Warner River; 158/099 NH 103 over Colby Brook; 164/103 I-89 SB over NH 103; 164/104 I-89 NB over NH 103 & Ramp; 165/106 NH 103 over Stevens Brook; 166/103 I-89 SB, Ramp over Warner River; 166/104 I-89 NB over Warner River; 184/113 I-89 NB over North Village Road; 185/112 I-89 SB over North Village Road; 187/122 NH 103 over Willow Brook; 195/122 I-89 NB over West Joppa Rd; 196/121 I-89 SB over West Joppa Rd; 199/128 I-89 NB over Warner River; 204/136 NH 103 over I-89 SB, Warner River; 206/141 I-89 NB, Ramp over Warner River; 221/156 I-89 NB over Schoodac Brook; 222/156 I-89 SB over Schoodac Brook; 243/166 I-89 SB over Warner River; 244/167 I-89 NB over Warner River; 255/163 I-89 SB over NH 103; 255/164 I-89 SB over NH 103. Estimated structure (only) rehabilitation values for these **44** bridges total **$54m**.

Shelters, Schools, and Medical Facilities include: Family Tree Health Center, Northeast Catholic College , [~70 students], Old Grade School Building (Community Action Program, Senior Room) , [~20 basement + ~20-50 upper], Pillsbury Free Library (Back-up Warming Center) , [~25 capacity], Simonds Elementary School , [~160 children + ~25 staff], Town Hall (Town Shelter) , [~75 capacity]. Assessed structure (only) valuation for these schools, medical facilities and shelters total **$9.5m**. If the Elementary School needed to be rebuilt, its actual cost would be at least **$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) The old Fire Station required parking vehicles outside. Water from rain storms and winter snow melts seeps through the Old Fire Station's walls, compromising structural integrity and causing public health issues, because the back wall sits into a hill which is a drainage issue. It's too small a facility for equipment and personnel. A new Fire Station was

been approved at Town Meeting and is under construction as of Fall 2018. A 11-18 meeting was held to decide what to do with building after the new Fire Station is built (storage only). Timeline for the new, ADA-compliant building, with all apparatus fitting within, is early 2019.

- Transfer Station and Highway Department (new 20 year steel frame building) do not have a fire suppression system, nor does the Town Hall. Town Hall warrant article for a connection to water system in March 2019 did not pass.
- Fuel for town vehicles could be a problem (gas & diesel) during extended power outages - but the NHDOT Shed (Exit 7) has available diesel & gas and generator.
- There is no generator at Transfer Station to keep lights, ventilators, etc on.
- (Utilities Table) None of the remote TDS switching stations have generators, but portable generators/ batteries will keep most of active for a while. Communications are spotty around town, with gaps in service.
- Warner Village Water Precinct has some 100-year old iron sewer pipes in need of replacement on West Main, East Main, and Kearsarge Mtn Road. They have to eventually be replaced because of lead solder. Village District tests for lead regularly, has replaced some pipes as needed.
- The Village Precinct wells are performing although the two wells are only 20 feet apart and a study is needed for potential new well (3rd). The Town has experienced two droughts and associated impacts in the last 5 years.
- The sewerage pump station has no backup generator; Power outage would affect all north side of Route 103 (Market Basket, McDonalds. etc). The problem is where to locate a generator. However, customer usage of sewerage facilities during power outages is nil, so the problem is not immediate.
- Two main transmission lines from Eversource (Bradford and Hopkinton) run through Warner. Repairs come out of Bedford and take a much longer time to reconnect & repair. Remote switching allows pinpointing of downed lines and fast redirecting to new lines.
- The historic Kearsarge Mtn Fire Tower cabin and metal tower will be reconstructed in 2019 for age and safety reasons. Currently used for Fire Danger Category 3. Tower is owned and reconstructed by the State (formerly DRED).
- Some of the dry hydrants do not work because the plastic fittings are shrinking – they may function intermittently.
- Water hydrant system (owned by Town) is flushed seasonally by Precinct. The Highway Dept is responsible for replacement. Only 1 hydrant is thought to be out of service at this time (29 West Main Street to be replaced 2019).
- Silver Lake gate valves need to be replaced. Dredging of the Silver Lake for maintenance could not occur because the gates could not close and the pond would drain. Maintenance item.

- Town experiences beaver dam issues in the Mink Hills, French Brook/North Road, Mason Hill/Bagley Pond, Poverty Plains Road/wetland culvert, Schoodac Road/Schoodac Brook, Childrens Brook/Pumpkin Hill Road, and Silver Lake.
- NH DOT has an 11-18 meeting with Warner to discuss project regarding NH 127 Bridge 254/180. They will send out a town survey for input. Bridge may be upgraded or replaced, depending on how long it is out of service; currently scheduled for 2020. Possible bicycle lane to be included. Lots of ice jams in this area and flooding. State item, already moving forward.
- Old iron Lang Bridge has had multiple recent ice jams from the Warner River. Potential FEMA study item for the Warner River in its Contoocook River watershed RiskMap program.
- Town bridge 191/122 (Dalton/Joppa Covered Bridge) repairs will be done by Spring /Summer 2019 (weather permitting). Drainage problem on the south side of the hill. Water freezes in catch basin because it is at the wrong grade. Town has funding has been set aside.
- (Shelters, Schools and Medical Facilities Table) Town Hall bathroom facilities are limited and there are no showers during use as Town Shelter. No current talks of inserting showers, but multiple bathrooms (5) are available. Could bring in trailers with showers if the need arises.
- Simonds School needs an installed generator to run the school functions in the event of power outage. The building has no sprinkler system, but does have a fire alarm system. Limited traffic location for the evacuation of children (parent vehicles), which effectively shuts down entire Main Street area. School has held drill evacuations to the Church where buses pick children up; this has worked well. School is in process of removing asbestos floor tiles. District has been replacing several rooms each summer, have several rooms to go. Seven 7 communities in District, all of which have maintenance items. Kids have to remain in school if power outages occur.
- Simonds School- The older 1920s section of the School is the original two-story high school. Its unsafe slanted (2 ft) floor has an inaccessible low crawlspace below. May be a hazard, difficult to reinforce the floor. Would be considered a maintenance item.
- Simonds School- Fire escape across the top is not ideal but is usable. Must be shoveled during snow weather, kids use it and could evacuate from it if needed.
- There is no back-up generator or elevator for Town's CAP building. Building would be closed down in a weather event, with people evacuated, so there would be no issue.

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 Warner's listing of culverts in need of upgrade and approximately when the upgrades should occur. Included are red-listed bridge rehabilitations and road reconstructions. The intent is to upgrade all of these failing culverts with open box culverts or appropriately sized steel or PVC culverts. The estimated cost for all of these projects reaches about **$1.0m** 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 is 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**.

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
#68-2014	**Ladd Lane**	2	Davis Brook	Two 36" culverts on Ladd Lane are rotted out and need to be upsized to 48" corrugated steel.	48"	2020	**$10,000**
#73-2014	**North Village Road**	1	Silver Brook	Culvert is 7 X 9 X 50 Ft multi-plate that is rotting below water line. Needs to be replaced with open bottom box culvert.	box	2020	**$50,000**
#75-2014	**Collins Road**	3	Intermittent Streams	Three undersized culverts on Collins Road, 15", 18" and 24", need to be upgraded to larger-sized culverts. During rain and flooding events, the road will wash out which results in road closings. All culverts along Collins Road have this problem and need to be upgraded in order for the road to function properly.	misc	2022	**$1,000**
#76-2014	**Schoodac Road**	1	Intermittent Stream	The undersized culvert of Schoodac Road needs to be upsized and the road bed needs to be raised by several feet. When the Warner River backs up and the intermittent stream flows, the road floods and the shoulders erode.	N/A	2024	**$220,000**
#77-2014	**Poverty Plains Road**	1	Stream	Existing 7 X 9 X50 ft multi plate culvert is rotted below the waterline.	box	2024	**$220,000**

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
				Need to be replaced with a bottomless box culvert.			
#79-2014	**Red Chimney Road**	2	Ballard Brook	Culvert is 5' by 40 ft concrete undersized. To be replaced with an 8 or 9 foot open bottom box culvert. Replace 2nd 4 ' x40 ft oval pipe. Replace with an 8 to 9 foot open bottom pipe taking into consideration fish migration.	8-9' box	2022	**$200,000**
#80-2014	**Mink Hill Lane**	1	Silver Brook	Culvert is multi-plate that is rotting below water line. Needs to be repaired in-kind and when funds are available, to be replaced. 7'X 9' by 50ft- Replace with Open Bottom Box Culvert to be sized by engineer.	box	2024	**$220,000**
#81-2014	**East Joppa Road**	1	Bartlett Brook	Existing pipe is 24" by 80 ft Concrete pipe. Replace with 5 FT ' by 80 ft plastic pipe and add rip rap as appropriate at ends.	60" PVC	2023	**$10,000**
#82-2014	**Newmarket Road**	1	Davis Brook	Culvert is Concrete undersized 30" by 60 ft causing washouts. Replace with 5 ft by 60 ft plastic culvert pipe.	60" PVC	2023	**$40,000**
#83-2014	**Henniker Road**	1	Intermittent Stream	Culvert is corrugated steel 18" by 80 ft undersized and rotted. Replace with 36"X 80 ft Plastic Culvert Pipe.	36" PVC	2022	**$10,000**
	Totals						**$981,000+**

Source: Warner Hazard Mitigation Committee's 2019 Mitigation Action 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.

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

Warner River Watershed Stream Crossing Assessment

A collaborative project of Trout Unlimited Basil W. Woods Jr. Chapter, NH Fish and Game Region 2, and NH Geological Survey for the **Warner River** watershed's **6** communities of Bradford, New London, Newbury, Sutton, Salisbury, Warner, and Webster was concluded in **February 2019**. The assessment of about **207** watershed culverts evaluated physical characteristics to determine a Aquatic Organism Passage (AOP) rating, a Geomorphic Compatibility rating, and especially pertinent the **Hazard Mitigation Plan**, a Storm Vulnerability (flooding events) rating for most of these stream crossings. The ***Status of Stream Crossings in the Warner River Watershed, Revised February 2019*** contains the full assessment data.

Sixty-two (**62**) Warner stream crossings in total were evaluated, with assessments completed on **56** of the crossings. The ***Storm Vulnerability*** (**Inland Flooding** event) rating is provided on many Warner for culverts for **2**-year storm events, **10**-year storm events, **25**-year storm events, **50**-year storm events, and **100**-year storm events. **Table 31** summarizes these storm event vulnerability ratings.

Color Key:

Culvert will Overtop in 2+ year storms	**Culvert Vulnerable to Overtop in 10+ year storms**	Culvert Pass all storms

Table 31

Warner River Watershed Stream Crossing Assessment Findings

Road Name	Stream Name	Crossing Type	Structure Material	Storm Event Vulnerability Summary	Geomorphic Compatibility	Aquatic Organism Passage Compatibility
Bartlett Loop Rd	**Willow Brook**	Open Bottom Arch	Steel-Corrugated	100 vulnerable	Mostly Compatible	Reduced Passage
Bartlett Loop Rd	**Willow Brook**	Elliptical Culvert	Steel-Corrugated	**10 vulnerable**	Partially Compatible	Reduced Passage
Brown Rd	**Unnamed Stream**	Elliptical Culvert	Steel-Corrugated	Passes 10	Mostly Compatible	Reduced Passage
Burnt Hill Rd	**Unnamed Stream**	Round Culvert	Plastic-Smooth	**Overtops all**	Mostly Compatible	No Passage
Collins Rd	**Unnamed Stream**	Round Culvert	Steel-Corrugated	**10 vulnerable**	Mostly Compatible	No Passage
Couchtown Rd	**Knights Meadow Brook**	Box Culvert	Stone	25 vulnerable	Partially Compatible	Reduced Passage
Davis Rd	**Unnamed Stream**	Round Culvert	Steel-Corrugated	**Overtops all**	Partially Compatible	No Passage
Davis Rd	**Unnamed Stream**	Box Culvert	Stone	**Overtops all**	Mostly Compatible	Reduced Passage
Duck Pond Ln	**Unnamed Stream**	Round Culvert	Plastic-Smooth	**10 vulnerable**	Mostly Compatible	No Passage
Duck Pond Ln	**Willow Brook**	Round Culvert	Steel-Corrugated	**Overtops all**	Partially Compatible	Reduced Passage
East Joppa Rd	**Ballard Brook**	Round Culvert	Concrete	**Overtops all**	Partially Compatible	Passage for only adult trout
East Sutton Rd	**Unnamed Stream**	Round Culvert	Concrete	**10 vulnerable**	Partially Compatible	Reduced Passage
Gore Rd	**Meadow Brook**	Box Culvert	Stone	**Overtops all**	Fully Incompatible	Full Passage

Road Name	Stream Name	Crossing Type	Structure Material	Storm Event Vulnerability Summary	Geomorphic Compatibility	Aquatic Organism Passage Compatibility
Gore Rd	Unnamed Stream	Ford	Stone	No Score	Unable to Score	Reduced Passage
Gore Rd	Unnamed Stream	Round Culvert	Steel-Corrugated	**Overtops all**	Partially Compatible	No Passage
Gore Rd	Unnamed Stream	Round Culvert	Steel-Corrugated	**10 vulnerable**	Mostly Incompatible	No Passage
Horne Rd	Slaughter Brook	Open Bottom Arch	Concrete	50, 100 vulnerable	Mostly Compatible	Full Passage
Horne Rd	Unnamed Stream	Round Culvert	Plastic-Smooth	**Overtops all**	Mostly Compatible	No Passage
Howe Ln	Unnamed Stream	Elliptical Culvert	Steel-Corrugated	100 vulnerable	Mostly Compatible	No Passage
I-89 North	Bartlett Brook	Elliptical Culvert	Steel-Corrugated	25, 50, 100 vulnerable	Partially Compatible	No Passage
I-89 South	Bartlett Brook	Elliptical Culvert	Steel-Corrugated	**10, 25, 50, 100 vulnerable**	Mostly Compatible	Reduced Passage
Interstate 89	Silver Brook	Elliptical Culvert	Steel-Corrugated	**10, 25, 50, 100 vulnerable**	Mostly Incompatible	No Passage
Kearsarge Mtn Rd	French Brook	Elliptical Culvert	Steel-Corrugated	25, 50, 100 vulnerable	Mostly Compatible	Reduced Passage
Ladd Ln	Davis Brook	Round Culvert	Steel-Corrugated	**Overtops all**	Mostly Compatible	Reduced Passage
Laing bridge Rd	West Branch Warner River	Bridge	N/A	No Score	Unable to Score	Full Passage
Loud Ln	Unnamed Stream	Round Culvert	Plastic-Smooth	**10 vulnerable**	Partially Compatible	No Passage
Mason Hill Rd	Frazier Brook	Elliptical Culvert	Steel-Corrugated	No Score	N/A Score - Wetland	Reduced Passage
Mason Hill Rd	Unnamed Stream	Round Culvert	Concrete	**10 vulnerable**	Mostly Compatible	No Passage
Melvin Rd	Unnamed Stream	Round Culvert	Concrete	**Overtops all**	Partially Compatible	No Passage
Melvin Rd	West Branch Warner River	Bridge	N/A	No Score	Unable to Score	Full Passage
Mink Hill Ln	Silver Brook	Elliptical Culvert	Steel-Corrugated	Pass all	Mostly Compatible	No Passage
Mink Hill Ln	Unnamed Stream	Round Culvert	Steel-Corrugated	**10 vulnerable**	Mostly Compatible	No Passage
Newmarket Rd	Davis Brook	Round Culvert	Steel-Corrugated	**10 vulnerable**	Mostly Compatible	Reduced Passage
Newmarket Rd	Slaughter Brook	Round Culvert	Steel-Corrugated	**10, 25 vulnerable**	Mostly Incompatible	Reduced Passage
Newmarket Rd	Unnamed Stream	Round Culvert	Concrete	**10, 25 vulnerable**	Partially Compatible	No Passage
Newmarket Rd	West Branch Warner River	Bridge	N/A	No Score	Unable to Score	Full Passage
North Rd	French Brook	Elliptical Culvert	Steel-Corrugated	**10 vulnerable**	Mostly Compatible	Reduced Passage
North Rd	Meadow Brook	Bridge with Abutments	Concrete	50, 100 vulnerable	Mostly Compatible	Full Passage
North Village Rd	Silver Brook	Bridge with Abutments	Concrete	Pass all	Mostly Compatible	Full Passage

Road Name	Stream Name	Crossing Type	Structure Material	Storm Event Vulnerability Summary	Geomorphic Compatibility	Aquatic Organism Passage Compatibility
North Village Rd	Silver Brook	Elliptical Culvert	Steel-Corrugated	50, 100 vulnerable	Mostly Compatible	No Passage
Parade Ground Rd	Bartlett Brook	Box Culvert	Concrete	25, 50, 100 vulnerable	Mostly Compatible	Full Passage
Poverty Plains Rd	Schoodac Brook	Open Bottom Arch	Steel-Corrugated	50, 100 vulnerable	Mostly Compatible	Reduced Passage
Poverty Plains Rd	Unnamed Stream	Round Culvert	Steel-Corrugated	**10 vulnerable**	Partially Compatible	No Passage
Pumpkin Hill Rd	Unnamed Stream	Round Culvert	Concrete	**Overtops all**	Mostly Compatible	Reduced Passage
Pumpkin Hill Rd	Unnamed Stream	Round Culvert	N/A	No Score	Unable to Score	N/A Score - Drainage
Red Chimney Rd	Ballard Brook	Elliptical Culvert	Steel-Corrugated	**10 vulnerable**	Partially Compatible	No Passage
Red Chimney Rd	Ballard Brook	Elliptical Culvert	Steel-Corrugated	**Overtops all**	Mostly Incompatible	Reduced Passage
Retreat Rd	Davis Brook	Open Bottom Arch	Steel-Corrugated	Pass all	Mostly Compatible	Reduced Passage
Retreat Rd	Unnamed Stream	Round Culvert	Steel-Corrugated	**Overtops all**	Mostly Compatible	No Passage
Rt 103	Ballard Brook	Round Culvert	Concrete	**10, 25, 50 vulnerable**	Mostly Compatible	Passage for only adult trout
Rt 103	Colby Brook	Open Bottom Arch	Concrete	Pass all	Mostly Compatible	Reduced Passage
Rt 103	Unnamed Stream	Round Culvert	Concrete	50, 100 vulnerable	Mostly Compatible	No Passage
Rt 103	Unnamed Stream	Round Culvert	Concrete	**10 vulnerable**	Partially Compatible	No Passage
Rt 103	West Branch Warner River	Bridge	N/A	No Score	Unable to Score	Full Passage
Rt 103	West Branch Warner River	Bridge	N/A	No Score	Unable to Score	Full Passage
Schoodac Rd	Berkley Brook	Round Culvert	Steel-Corrugated	**Overtops all**	Mostly Incompatible	Reduced Passage
Schoodac Rd	Frazier Brook	Open bottom arch	Steel-Corrugated	Pass all	Fully Compatible	Reduced Passage
School St	Willow Brook	Box Culvert	Concrete	Pass all	Mostly Compatible	Reduced Passage
Waterloo St	Colby Brook	Open Bottom Arch	Concrete	Pass all	Mostly Compatible	Full Passage
Waterloo St	Unnamed Stream	Box Culvert	Stone	100 vulnerable	Mostly Incompatible	Full Passage
West Joppa Rd	Bartlett Brook	Bridge with Abutments	Stone	**Overtops all**	Mostly Compatible	Reduced Passage
West Joppa Rd	Unnamed Stream	Box Culvert	Concrete	Pass all	Mostly Compatible	Full Passage

Source: Warner River Watershed Stream Crossing Assessment data excerpt, ***Feb 2019***

The data illustrated indicates **15** of the **56** stream crossings are anticipated to ***Overtop all*** **2+** year storm events while another **16** crossings are anticipated to be ***Vulnerable to Overtop*** during the **10+** year storm

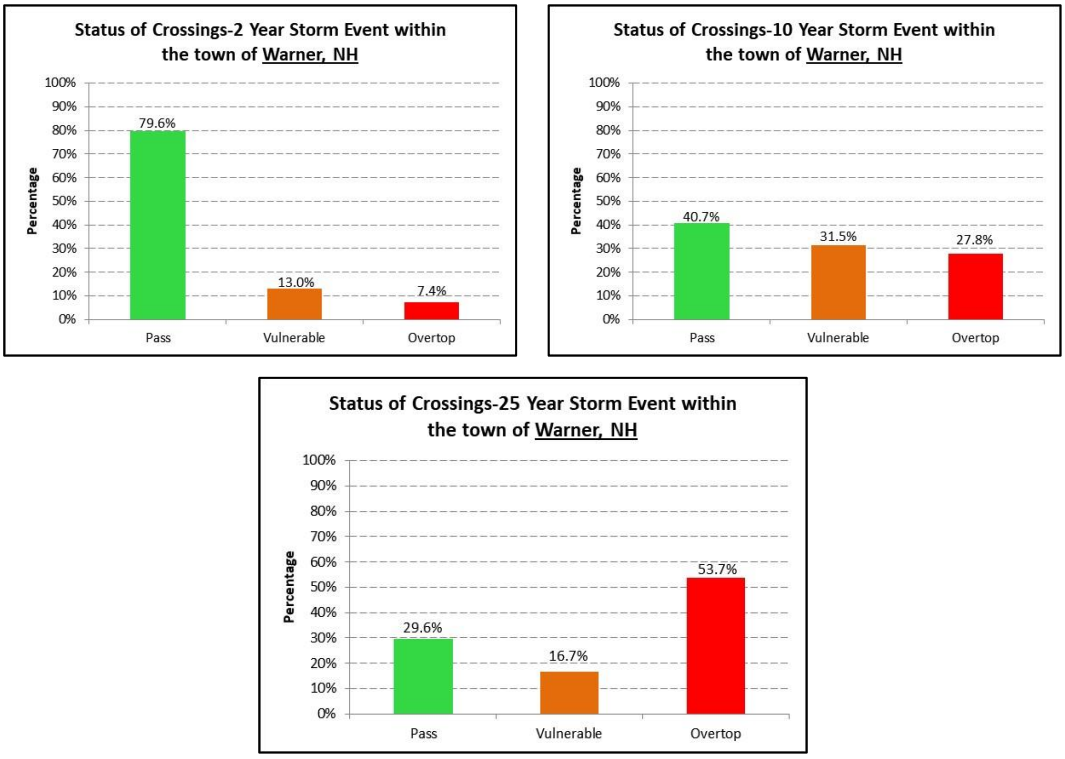
events. On the watershed basis of over **200** crossings, the data will be different than this Warner-specific information for storm vulnerability, structure types, structure conditions, geomorphic compatibility and aquatic organism compatibility.

Storm Vulnerability

The storm vulnerability is measured by **24**-hour precipitation storm events evaluated using the ***StreamWorks-TU Culvert Model Version 1***. **Pass** means the flood water depth is below the top of the culvert, **Vulnerable** means the flood water depth is between the top of culvert and the road, and **Overtop** means the flood water depth is above the road.

Some of the crossing assessments were completed on State-owned roads such as NH 103, and the Town would have no responsibility to repair these culverts. However, many of these **Aging Infrastructure** Town culverts are projected to overtop during **2**-year storm events. These should be monitored carefully when **Inland Flooding** becomes a possibility. Several charts of the vulnerability types were developed with the assessment, one for each year storm event. These are displayed for **2**-year, **10**-year and **25**-year events in **Figure 24**.

Figure 24
Warner's Stream Crossing Storm Event Vulnerabilities



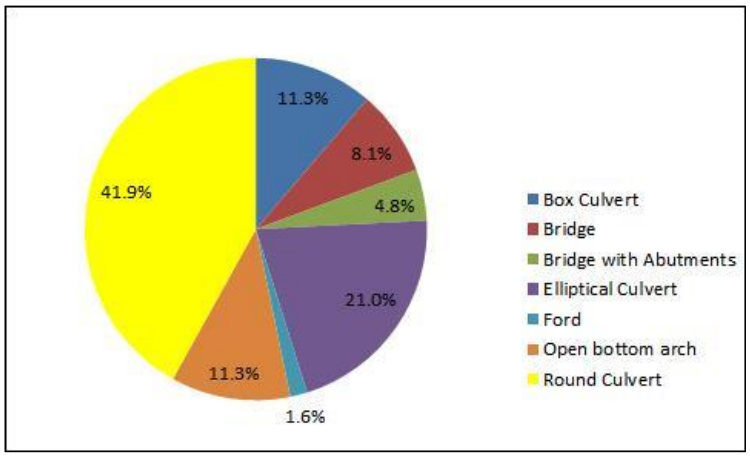
Source for all Stream Crossing Tables and Graphics:
Warner River Watershed Assessment: The Status of Stream Crossings in the Warner River Watershed, Revised ***February 2019***

Structure Types and Conditions

Some of the crossing assessments were completed on State-owned roads such as NH 103, and the Town would have no responsibility to repair these culverts. However, many of these **Aging Infrastructure** Town culverts are projected to overtop during **2**-year storm events. These should be monitored carefully when **Inland Flooding** becomes a possibility.

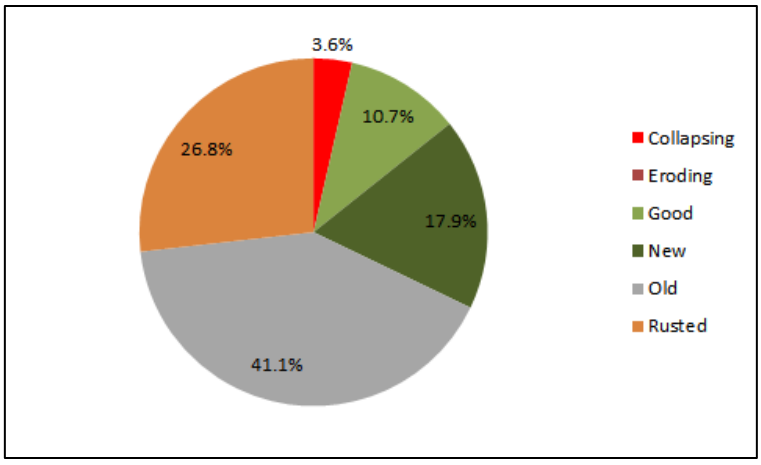
Figure 25 is a chart from the assessment indicating the percentage of stream crossing types in Warner. Of the assessed structures, the Town has mostly ***Round Culverts*** (**42%**), followed by ***Elliptical Culverts*** (**21%**) and an equal number of ***Box Culverts*** and ***Open Bottom Arch*** (**11%** each) structures.

Figure 25
Warner's Stream Crossing Structure Types in the Warner River Watershed



The assessment provided an overview of the conditions of the stream crossings. In Warner, most structures were ***Old*** (**41%**), followed by ***Rusted*** (**27%**), with **4%** ***Collapsing***. Better condition structures included ***New*** (**18%**) and ***Good*** (**11%**) of those crossings assessed as illustrated in **Figure 26**.

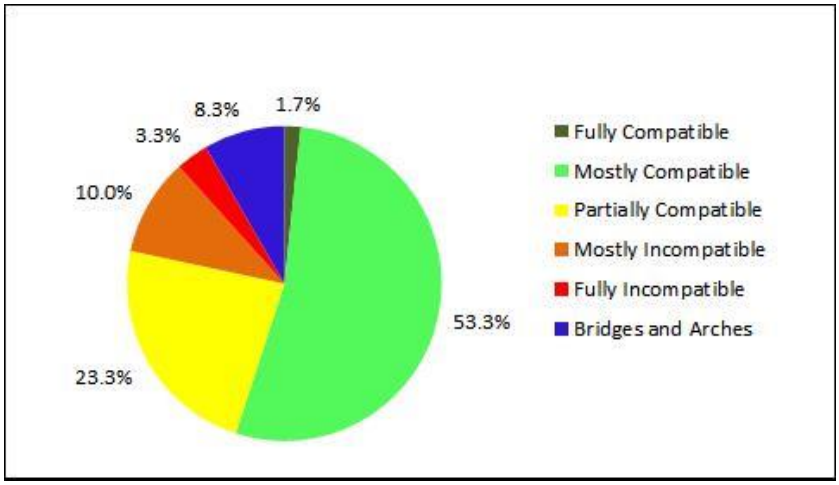
Figure 26
Warner's Conditions of Stream Crossing Structures



Geomorphic Compatibility

The geomorphic compatibility indicates constrictions that can obstruct the flow of water. Conclusions for each stream crossing ranges from ***Fully Compatible*** to ***Fully Incompatible*** and are determined by field variables such as Wetted width in structure (downstream side); Upstream bankfull widths; Angle of streamflow approaching structure; Culvert slope compared to channel slope; Upstream deposit types; Upstream deposit height > 0.5 bankfull height; Steeper stream segment within 1/3 mile upstream; Scour undermining downstream side of structure; Downstream bank heights taller than upstream bank height; Bank erosion (upstream and downstream); and Bank armoring (upstream and downstream). The geomorphic results for Warner are summarized in **Figure 27.**

Figure 27
Warner's Geomorphic Compatibility Status for Stream Crossings



Warner's assessed stream crossings are ***Mostly Compatible*** (**53%**) followed by ***Partially Compatible*** (**23%**) crossings. The Town also has some geomorphically ***Mostly Incompatible*** (**10%**) and ***Fully Incompatible*** (**3%**) stream crossings. These locations are where the Town should focus its future upgrade and rehabilitation efforts.

Aquatic Organism Passage

The ability of aquatic organisms such as young wild brook trout and adult wild brook trout to pass unobstructed through the stream crossings is also rated. Aquatic organism are a measure of health of the watershed's overall ecosystem. Freshwater habitats are among the most threatened in the world, and fish populations have declined as a result of impairments such as dams, barriers, and culverts. Bridges and arch structures with natural stream beds typically support full fish passage. The majority of the Town of Warner's crossings are ***Reduced Passage*** (**36%**) followed by ***No Passage*** (**33%**) and ***Full Passage*** (**20%**). The full data is available for the Town and the watershed within ***The Status of Stream Crossings in the Warner River Watershed, Revised February 2019***.

Stream Crossing Assessment Map

The new ***Map 5 Culverts and Stream Crossings*** illustrates the geomorphic compatibility and aquatic organism passage compatibility of the assessed culvert and/or stream crossing locations, and illustrates the likelihood of water overtop of these structures during storm events. ***Map 5*** is a collaboration of many agencies, including Basil W. Woods Jr. Trout Unlimited Inc and Local Grass Roots, NH Geological Survey, NH Department of Environmental Services, NH Fish & Game, the CNHRPC, and the Town of Warner. The data compiled for these locations provides additional information to assist the Town with identifying culverts for management prioritization, and contributed to the development of **Table 31** above. For more information, visit the Warner River Watershed Conservation Project website.

One-Egress Roads

The Town of Warner has over **15** miles of roadway, mostly Town maintained Class V, that are dead-end roads or cul-de-sacs with only one way in and one way out. Hundreds of people live in approximately **276** homes along roads which have no secondary means of egress. Evacuation of many of these neighborhoods would be difficult, especially those along Kearsarge Mountain Road. The highest priority one-egress roads are displayed in **Table 32**, although there are a great many more one-egress roads in the Town than are listed here.

Table 32

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)	Approximate Length in Feet	Approximate Number of Homes on Road	Neighborhood Name (if any)
BROOKMEADOW LANE	Class V	Winter, Earthquake, Wind	Good	1,600	7	
CHEMICAL LANE	Class V	Winter, Earthquake, Wind, Flood, Fire	Fair	2,500	13	Chemical District
COLBY LANE	Class V	Winter, Earthquake, Wind, Fire	Fair	800	2	
COLLINS ROAD	Class V	Winter, Earthquake, Flood, Wind, Fire	Fair	7,800	16	Collins District
CUNINGHAM POND	Class V	Winter, Earthquake, Flood, Wind, Fire	Fair	11,000	7	
HORNE STREET	Class V	Winter, Earthquake, Flood, Wind, Fire	Fair	11,000	11	
KEARSARGE MOUNTAIN ROAD	Class V and Class III (State recreational)	Winter, Earthquake, Flood, Wind, Fire, Transportation, Utility, Hazardous Material	Good	5 Miles	116	Kearsarge Mountain
LATVIAN LANE and SURROUNDING ROADS	Class V and Private	Winter, Earthquake, Flood, Fire, Utility	Fair	7,500	35	
OLD DENNY HILL RD	Class V	Winter, Earthquake, Wind, Fire, Utility	Fair	2,500	8	

One-Egress Road Name*	Road Class (Class V, Class VI or Private)	Specific Hazard Concerns	Condition (Good, Fair or Poor)	Approximate Length in Feet	Approximate Number of Homes on Road	Neighborhood Name (if any)
WALDRON HILL RD	Class V	Winter, Earthquake, Fire, Wind, Utility	Good	5,000	40	
WEST ROBY DISTRICT ROAD	Class V	Winter, Earthquake, Flood, Wind, Fire	Fair	2,400	14	
WILLABY COLBY ROAD	Class V	Winter, Earthquake, Flood, Wind, Fire	Fair	2,400	7	
			Totals	**15.3 Miles**	**276**	**Homes**

Source: Public Works Director, Emergency Management Director

Community Facilities

The **Community Facilities** inventoried in **APPENDIX A** generally vulnerable to disasters and in need of careful consideration. Some facilities are vulnerable populations, places where people gather, the economic assets of the community, contain the history of the town, or 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 during a hazard event disaster.

Vulnerable Populations include: Boys and Girls Club (Simonds School) [~40 children], Brayside Apartments [~8 units], Davisville Apartments [~6 units], Kearsarge Mountain Estates Apartments [~12 units], Kearsarge Mountain Estates Apartments [~12 units], Kearsarge Mountain Road One Egress [~600 residents], Lutheran Latvian Homes & Seasonal Camps [~45 homes], Pleasant Lake Estates Manufactured Homes [~33 homes], North Ridge Estates 55+ [~35 units], North Village Road at Mink Hill Lane One Egress [~25 homes], Pine Rock Manor Assisted Living [~70 beds], Schoodac Road [~60 homes], Sky Island Apartments [~8 units], Warner 103 Condominiums [~2 units]. See also Shelters, Schools and Medical Facilities. Assessed structure (only) valuation for these vulnerable population facilities total **$9.6m**.

Economic Assets include those **businesses and services** that employ a large number of people or contribute to the local economy: A Warner Storage, Brayshaw Printing, Cyr Lumber Co & House Center, Knoxland Equipment, Madgtech, Market Basket, McDonalds , NH Park & Ride, NH State Liquor Store, Pellettieri Associates, Inc., Post Office, Premier Coach Company Charliebore Industries, School House Café, Sugar River Bank, Warner Fleamarket (Indoor), Warner Laundrymat, Warner Power. **AGRICULTURAL OPERATIONS** which bring economy and heritage to the community include: B&M Maples (Maple Syrup), Baker's Syrup (Maple Syrup), Beaver Meadowbrook Farm Sugar House (Maple Syrup), Blue Moon Berry Farm (Blueberries), Courser Farm (Produce, Cattle), Curly Q Farm (Alpaca & Horse Farm)- For Sale, Dun Fooling Farm (Hay), Double Clear Farm (Horse Boarding, Arena), Kearsarge Gore Farm (Organic Produce), Kearsarge Meadows (Horse Boarding & Training), Rhapsody Farm (Horse Boarding, Trail Riding, Arena), No Acre Farm (Dairy, Livestock), Rising Glory Lops (Rabbit Farm), Rogers Maple Syrup (Maple Syrup), The Vegetable Ranch (Organic Produce), Twin Ridge Farm (Horse Training & Boarding), Yankee Farmer's Market (Buffalo Farm), New Farm (Donkey, Pony Farm), Stoney Brook Farm (Seasonal Livestock). See also Hazardous Materials facilities. Assessed structure (only) valuation for these economic asset facilities total **$16.7m**.

Main Street Village Area businesses include those **businesses and services** situated along walkable East Main Street: Apartments Upper, Apartments West Side, Brookside Building (multiple), Brown Family Realty, Charlie Mac's Pizza, Country Cowebs, Faith Minton Yoga, Foothills Country Store, Foothills Restaurant, Kearsarge Insurance, Main Attractions (Salon), Main Street BookEnds, Schoodoc Coffee & Tea, Studio on Main, The Maples, The Local (Multiple), Velvet Moose Winter Cream Shoppe, Warner Pharmacy, Warner Public Market, Warner Wags. Assessed structure (only) valuation for these Main Street economic asset facilities total **$2.9m**.

Hazardous Materials Facilities include: Ajax Auto, Aubuchon Hardware, C&M Repair, Circle K Irving, Evans Fuel Mart Shell (Gas), Harry's Garage, Heselton Junkyard, Kearsarge Heating Oils, Lockes Junkyard, Nicom Coatings Corp., Rymes Propane. See also Economic Asset facilities. Assessed structure (only) valuation for these hazardous material facilities total **$2.0m**.

Cemeteries and Churches include: **CHURCHES** in Warner are Northeast Catholic College Church, NH Telephone Museum Basement Church, United Church of Warner. **CEMETERIES**: include Bartlett Family Cemetery, Bean Family Cemetery, Brown Family Cemetery, Coal Hearth Cemetery (81 lots), Colby Cemetery (22 lots), Davisville Cemetery (208 lots), Ferrin Cemetery, Gore/Flanders Cemetery (45 lots), Hoyt Cemetery (5 lots), Johnson Family Cemetery (7 lots), Kittredge Family Cemetery (11 lots), Lower Warner Cemetery (97 lots), Melvin Mills/Bagley Cemetery (47 lots), Morse Cemetery (10 lots), New Waterloo (1970) Cemetery (352 lots), Old Warner Village Cemetery (194 lots), Page Cemetery (45 lots), Parade Ground Cemetery (127 lots), Peaceful Retreat Cemetery, Pine Grove Cemetery, Pletcher Family Cemetery, Poor Farm Cemetery, Poverty Plains Cemetery, Pumpkin Hill Cemetery, Sanborn Cemetery, Schoodac Cemetery (242 lots), Seavey Family Cemetery, Sisco Cemetery, Tory Hill/Pattee Cemetery, Waterloo Cemetery, Welchans Cemetery, Wheeler Family Cemetery. Assessed structure (only) valuation for church facilities and headstone replacement estimates for cemeteries (**$50k** each) total **$2.2m**.

Historic Sites and Buildings include: Harris Lodge, Kearsarge Indian Museum, NH Telephone Museum, Old Fire Station, Old Meeting House, Old Odd Fellows Building, Warner Historic Society Building 1, Warner Historic Society Building 2. See also Recreational and Gathering Sites. Assessed structure (only) valuation for these historic facilities total **$1.9m**.

Recreational and Gathering Sites of both land and buildings include: American Legion, Bagley Park, Fall Foliage Festival (Annual Event), Kearsarge Performing Arts, Nature Discovery Center, Pleasant Lake Seasonal Campground [~54 sites], Riverside Park, Rollins State Park and Toll Booth, Silver Lake Swimming Area and Beach, Warner Fire Fighters Museum, Warner Fish and Game Club, Warner Historic Society Building 1, Warner Historic Society Building 2, Mount Kearsarge Indian Museum, NH Telephone Museum. Some of these sites can be Economic Assets to the Town even if the land is untaxable. Assessed structure valuations for the recreational facilities total **$2.3m**.

Future Development includes mostly residential development potential as most of the land in Warner is rural. **Approved Planning Board developments:** As of 02-19, there are no approved but unbuilt developments noted by the Hazard Mitigation Committee. **Legacy parcels** (large acre lots with development potential, random selection of non-conservation parcels) include- Map 3 Lot 40-1, Map 3 Lot 40-2, Map3 Lot 53, Map 3 Lot 51-3, Map 14 Lot 45, Map 14 Lot 7, Map 35 Lot 4-1, Map 35 Lot 4-2, Map 35 Lot 4-3, Map 35 Lot 5. There are too many large family legacy parcels to identify without an inventory. **Large-sized lots for sale 02-19 in Warner** include - Runaway Farm, Nichols Trust, Begin Construction, North Road Vacant Commercial For Sale Lot. Assessed valuation for the properties was not obtained.

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.

- Northeast Catholic College (~70) has one egress and many trees regularly fall down on the Kearsarge Mountain Road, forcing isolation for a period of time.
- (Vulnerable Populations Table) Sky Island apartments on Waldron Hill is vulnerable to power outages because of multiple trees down along the one access road (North Village Road). Could evacuate on Flanders Road (maintained), but limited access in and out depending where tree falls.
- Kearsarge Mountain Road residents and Latvian Neighborhood are especially vulnerable to power outages because of multiple trees down on the single access mountain road.
- Kearsarge Mountain Road has about 600 residents. The State road from Tory Rock has summer maintenance by State, winter maintenance by Town.
- (Economic Assets Table) Rain events could result in flooding issues along the Warner River and other water bodies in Town. River has many tributaries. Too general, flooding anywhere.
- Drought conditions can result in loss of water to agricultural farms and livestock farms. Water needed for irrigation and for animals. During power outages, opened Fire Station for water for animals. EOP item.
- Wind and winter events have resulted in loss of power to business which causes them to shut down. People who depend on these services (gas, food) are unable to receive them. EOP item, coordination with Eversource.
- Vehicle accidents at the Exit 9 roundabout could occur as the result of wind, winter, or tropical hazards. Accident rate has fallen since its installation. Less serious at lower speed.
- (Main St Businesses Table) Earthquake, heavy snow load on roof due to winter event could cause potential building collapse to certain Village buildings. CAP building and Simonds School have flat roofs. EOP item
- Water contamination or loss of water or sewage due to earthquake in the Warner Village area may have public health effects on businesses and residents. Some pipes are 100 years old and are more susceptible to breakage.
- TECH HAZARD- Loss of power to businesses could result in loss of income, which has a local ripple effect.

- (Hazardous Materials Table) Flooding along the Warner River can result in flooding to the tanks at Kearsarge Heating Oil. Toms Pond from Warner Power and along Warner River.
- A hazardous material spill in the area of I-89 at Exit 9 can result in evacuation and/or shelter in place for Evans Fuel Mart, Circle K, and Aubuchon Hardware. EOP item
- A propane incident at the Rymes Propane site can result in roadway being blocked to the residents on Chemical Lane- One way in/out roadway for all Residents. Two monitors are there as well as fire suppression.
- (Cemeteries & Churches Table) An earthquake high wind and lighting can result in potential building damage to the churches in Warner.
- Earthquake, high winds, lightning and winter storm can result in power loss to the churches which can result in closure of these community buildings.
- High winds and winter storms can result in down trees and damage to cemetery buildings or headstones. Have cut down hazardous trees in the past. Trees have fallen on Schoodac cemetery, breaking some stones.
- (Historic Sites & Buildings Table) Lighting can result in potential fire to any of the historic buildings, which may have people inside requiring rescue, and which may cause severe damage to or potential loss of the facility.
- High wind and winter storms can result in roof or building damage to these historical and cultural landmarks.
- (Recreation & Gathering Sites Table) Earthquake, wind, lightning and winter storms can result in damage to the recreational facilities and museums, preventing their use and possibly affecting the people present. Youth organizations have Policies. EOP item
- Water contamination can occur at the Silver Lake Beach, resulting in public health concerns if the beach is not closed quickly enough. DES tests regularly, was closed last year. Look into obtaining a testing kit, drive it to DES lab. EOP item.
- Flooding and tropical events can cause flooding of Riverside Park and Bagley Field, causing potential evacuation issues and damages to the facilities. In flood zones, that's why they are rec areas/flood storage areas. No projects noted.

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 Warner 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 Warner 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. Warner 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 **1,847**. Using **July 2018** online assessment data, **the total assessed value of all residential and non-residential structures ONLY in Warner (\$217,560,940) is the basis for loss estimation calculations.** ***Land and utilities are not included here.***

Potential Building Dollar Losses by SFHA Flooding

Using geographic information system (GIS) technology, parcels with buildings within the floodplain were identified using Warner's digital tax maps that contained assessing data concurrently with the 2010 FEMA Digital Flood Insurance Rate Maps (DFIRMs). An intersection operation identified all the parcels with buildings in the SFHAs, although this evaluation does not determine whether the building itself is situated within floodplain boundaries. ***Building Type*** was characterized into one of four categories, single-family homes, multi-family homes, manufactured homes, and non-residential buildings. Building number and value were excerpted from the assessing database. **Table 33** summarizes this data, identifying **31** primary buildings in the SFHA. ***Land value, building contents value and infrastructure were not considered in these calculations.***

Table 33

Building Value in the Special Flood Hazard Areas (SFHAs)

Building Type	Number of Buildings	Total Value of Buildings in SFHA	Average Replacement Value
Single Family Homes	21	$2,467,620	$117,506
Multi-family Homes	1	$235,890	$235,890
Manufactured Homes	1	$30,300	$30,300
Non-Residential Buildings	8	$3,673,220	$459,153
Totals	**31**	**$6,407,030**	-----

Sources: CNHRPC 2012 Digital Parcel Data Intersection with 2018 Assessing Data, 2010 DFIRMs

In **Table 33**, digital analysis and human interpretation identified **21** single family residential homes, **1** multi-family home, **1** manufactured home, and **8** non-residential buildings situated in the Special Flood Hazard Areas (SFHAs). As the Town's total number of **2017** housing units is estimated at **1,395**, **<2%** of Warner's parcels with buildings seem to be located in a floodplain area. The average replacement value is **\$118k** for a single-family home or **\$459K** 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 **\$6.4m**.

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 34 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 34

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	**$2,467,620**	$1,209,134	$690,934	$493,524
Multi-Family Homes	**$235,890**	$115,586	$66,049	$47,178
Manufactured Homes	**$30,300**	$14,847	$8,484	$6,060
Non-Residential Buildings	**$3,673,220**	$1,799,878	$1,028,502	$734,644

Sources: See Table 33; FEMA

If all **21** single family homes were damaged by a ***Two-Foot Flood (20% Damage)***, the dollar damage to the buildings *only* could be **$493k** while an ***Eight-Foot Flood (49% Damage)*** could cause **$1.2m** in damage. If all **8** non-residential buildings in the SFHA were damaged by a ***Two-Foot Flood***, the dollar damage to the buildings *only* could be **$735k** while an ***Eight-Foot Flood*** could cause **$1.8m** in damage. As only **1** multi-family home and **1** manufactured home were identified, the dollar damages of flooding would be more limited. Dollar damage estimations vary according to the standard percentages of damage levels associated with flooding levels set by FEMA.

Table 35 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 35

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	**$117,506**	$57,578	$32,902	$23,501
Multi-Family Homes	**$235,890**	$115,586	$66,049	$47,178
Manufactured Homes	**$30,300**	$14,847	$8,484	$6,060
Non-Residential Buildings	**$459,153**	$224,985	$128,563	$91,831

Sources: See Table 33; FEMA

One (**1**) single family home averages **$24k** when damaged by a ***Two-Foot Flood*** while an ***Eight-Foot Flood*** could cause **$58k** in damages. One (**1**) non-residential building compares at **$92k** for a Two-Foot Flood damages and at **$225k** 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 SFHA.

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 July 2018 assessed value of all residential, commercial, and industrial structures in Warner is $217,560,940 (no land) on 1,847 parcels.** Disaster damages are often illustrated in the following section utilizing a percentage range of town-wide building damage. At **1,395** housing units in Warner estimated from the **2017** NH Office of Strategic Initiatives (NH OSI) housing estimates, any type of disaster impact to **10%** of Warner housing units would yield **140** 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.

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 Warner. People who rely on private well water, which is nearly everyone in Warner, 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 Warner, 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 Warner River.

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. Historic Town Buildings, Simonds Elementary School, Town Hall, Odd Fellows Building, local museums, United Church of Warner, and newer Town of Warner facilities (Police, Fire, Public Works) are particularly at risk because of building sizes and/or their large numbers of people contained within. Interstate 89 travels through the Town and is paralleled by NH 103, becoming Main Street. The Exit 9 area is popular local destination as well as trip off the highway for a great number of people.

Loss of these or other community buildings or highways 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 with 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 **$1.1m** to **$2.2m** 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*** was 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 **$2.2m (for more localized downburst, high winds** and **hail, or tornadoes)** to **$10.9m (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 Warner 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 the West Joppa/ Dalton Covered Bridge, conflagration of the Main Street/Village area, communications tower with emergency response equipment, telephone lines, power lines, Town Office computer system, broadband cable internet service, and water and sanitary facilities. High buildings like those found along the Main Streets could be vulnerable without lightning rods. The most vulnerable populations include the people at the Simonds Elementary School, CAP Building, elderly housing facilities and assisted living facilities.

With a scenario of **0.5%** of buildings damaged throughout the Town, a **lightning strike** could potentially cause up to **$1.1m** 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 **West Branch Warner River**, the **Warner River** or **Hoyt Brook** would be the major causes of **ice jam flooding** which could recur in the future, particularly at West Joppa Road (Dalton Covered Bridge). Woody material causing **debris impacted infrastructure** may be more likely to impact bridges than ice jams, especially at the structurally deficient Town bridges at North Village Road over Silver Brook or Newmarket Road over Warner River (Waterloo Covered Bridge). Fourteen other (**17**) Town bridges mostly crossing Warner River and Colby Brook, French Brook, Meadow Brook, Willow Brook and Schoodac Brook, offer additional opportunity, and multiple additional small brooks culverts and drainage systems abound. 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 Warner 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 (**10**) of the **11** 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 **$1.2m** 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 Warner 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 Warner, wooded and forested sections vulnerable to tree fall, include the entire southern half of the Town in the Mink Hills. Many dead end or one-egress roads with residents having only one exit include Kearsarge Mountain Road and its associated neighborhoods. 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 **$2.2m** to **$10.9m** 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 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 southern half of the Town, many dead end roads with residents having only one exit including the 600 residents who live on or connecting to Kearsarge Mountain Road, and in the Mink Hills. Some of the publicly accessible conservation easements like Chandler Forest are particularly vulnerable to **wildfire** because there may accidental fire and there may not be people around to report it until the fire is large. 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 **$2.2m** 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 Warner 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.

Although the initial identification of Flood Hazard Boundary Maps were developed on **August 9, 1974** and later revised on **May 8, 1977**, the Town entered the regular phase of NFIP membership on **June 4, 1987** ten years later. This is also is when the first Flood Insurance Study (FIS) and the first FIRMs were dated and included the Special Flood Hazard Areas (SFHAs). 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, Warner's effective FIRMs are digital (DFIRMs) dated **April 19, 2010** as is the Merrimack County Flood Insurance Study (FIS) which includes Warner (community **#330123**); 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 36** summarizes the historical background of the Town's NFIP effective dates.

Table 36

NFIP History of Warner – Effective Dates

Version	Flood Insurance Study (FIS)	Flood Insurance Rate Maps
Original	June 4, 1987	June 4, 1987
Current	April 19, 2010	April 19, 2010

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

WARNER'S NFIP STATISTICS

In **Table 37** 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 Warner's **Hazard Mitigation Plan** versions, display the number of NFIP policies in force and paid loss statistics between **December 2002 and September 2018**.

Table 37

History of NFIP Policy and Paid Loss Statistics

Report Date	Policies in Force	Insurance in Force	Number of Paid Losses Since 1987	Total Losses Paid Since 1987
Dec 2002	9	$1,900,700	6	$2,255
Jun 2008	17	$5,006,600	11	$86,232
Dec 2012	20	$5,342,900	11	$86,232
Sep 2018	16	$4,863,400	11	$86,232

Source: Warner Hazard Mitigation Plans, FEMA last accessed 02-20-19

From Table 37, in **December 2002** prior to the severe flooding event period of **2005-2008**, only **9** properties in Warner were covered by NFIP flood insurance. By **June 2008**, that figure had jumped to **17** policies in Warner, and a total of **11** loss claims had been paid to owners in Town due to flooding damage. The **December 2012** snapshot displays the highest number of NFIP flood insurance policies in force in the Town, a total of **20**, likely a result of **2012 Hurricane Sandy**. By **September 2018**, with no severe flooding events since **2012** in the Central NH Region, the number of properties covered by flood insurance fell once again to **16**.

To date, since Warner joined the NFIP in **1987**, there have been **11** payouts totaling about **$86k** in paid losses to policyholders for insurance claims. There have been **6** new claims between **December 2002** and **June 2008**, but none since then to **February 2019**. The number of fluctuating policies could be 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.

Table 37 also illustrates that while the property owners anywhere in the entire Town of Warner are eligible to purchase flood insurance for their property, only **11** properties out of the **1,847** total parcels in the entire community are insured against flooding. As described previously, a total of **31** parcels with homes and non-residential buildings seem to be at least partially situated in the Special Flood Hazard Areas (SFHA). Assuming the **11** policy properties are within the SFHA, **35%** of buildings in the floodplain are insured against flooding.

Virtually all of Warner'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 **1992** 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 **December 2004**, Warner 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). By **April 2018**, **1** repetitive loss property (RPL) had been recorded in the community as sustained during the significant flooding and infrastructure damage disaster period of **2005-2012** (See **4 HAZARD RISK ASSESSMENT**). **Table 38** displays the repetitive loss data:

Table 38

Number of Repetitive Loss Properties

Building Type	Number of Repetitive Loss Properties
Single Family	1
Multi-Family	0
Non-Residential	0
Total Properties	**1**

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 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 Warner

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) identifies Warner as a repetitive loss community, which is based upon **Table 38** data, a new CAV will be undertaken every five years or if there is a severe flooding event. This classifies Warner as a Tier 1 community. Otherwise, a telephone call may be made to the community every 5-10 years or otherwise as needed when classified as a Tier 2 community.

On **April 21, 1997**, a CAV was held in Warner to review compliance with NFIP policies and educate staff on these policies. Warner's Floodplain Development Ordinance was determined to meet the minimum requirements for the NFIP. Warner's subdivision regulations did not include the minimum requirements for the program. At this time, the Town needed to enact the proper subdivision regulations in order to be in compliance with the program. Since the CAV, the regulations have been revised accordingly, bringing Warner into full compliance with the NFIP.

On **September 28, 2004**, another CAV was held in Warner to review compliance with NFIP policies. The current flood maps were reviewed. The Planning Board was reviewing an application which appeared to be in the floodplain. Owners of the property in the floodplain would be required to submit a "Letter of Map Revision" for removal. Building permits were also discussed. FEMA required that substantial improvements (50% of the market value) to structures within the floodplain would be necessary for submission of a building permit for both interior and exterior renovation. Following the CAV, changes were made to Warner's Floodplain Ordinance to require building permits for interior improvements.

The **2004** CAV was the last conducted. Tier 1 Warner experienced severe damages during the **April Spring 2007 Floods** (**$131k** Public Assistance federal funding received) and was impacted during **Tropical Storm Irene 2011** (**$11k** PA received). As needed, a follow up phone call should be made by NH OSI to request a review of Zoning Compliance Department procedures and the contents of the Floodplain Ordinance, Subdivision Regulations and Site Plan Review Regulations prior to **2024**, when this **2019 Plan** expires.

Floodplain Ordinance Amendments

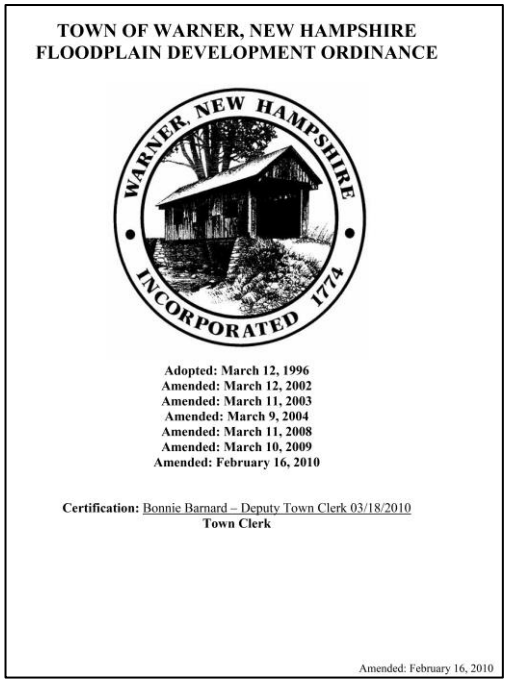
The Town of Warner has a Floodplain Development Ordinance that currently contains the required FEMA regulations to remain eligible for the NFIP. The Town of Warner approved their first Floodplain Ordinance on **March 12, 1996**; since then, the Floodplain Ordinance had been modified in **March 2002**, **2003, 2004**, **2008**, **2009**, and in **February 2010**.

When in **March 2008**, Warner again updated the Floodplain Development Ordinance to comply with recent changes to the NFIP program, the changes allowed the Selectmen to accept the new Flood maps expected to be approved in **2010** 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. In **March 2010**, the Town Clerk certified the revisions to the amended Floodplain District Ordinance.

The **2010** Warner Floodplain Development Zoning Ordinance contains 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 28**.

Figure 28
Latest Floodplain Development Zoning Ordinance



TOWN OF WARNER, NEW HAMPSHIRE
FLOODPLAIN DEVELOPMENT ORDINANCE

WARNER, NEW HAMPSHIRE
INCORPORATED 1774

Adopted: March 12, 1996
Amended: March 12, 2002
Amended: March 11, 2003
Amended: March 9, 2004
Amended: March 11, 2008
Amended: March 10, 2009
Amended: February 16, 2010

Certification: Bonnie Barnard – Deputy Town Clerk 03/18/2010
Town Clerk

Amended: February 16, 2010

Source: Section of Warner Zoning Ordinance 2010

NFIP Familiarity in Warner

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. Warner 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 **11** properties out of the **1,847** parcels in Warner 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 http://www.warner.nh.us/.

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 **Warner 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 Warner 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

TOWN DEPARTMENT AND BOARD ABBREVIATION KEY:

BD	Building Inspector (Department)
BN	Private Business (indicated)
BS	Board of Selectmen / Selectmen's Office
CC	Conservation Commission
EM	**Emergency Management**
FD	**Fire and Rescue Department**
HO	Health Officer
PB	**Planning Board**
PD	**Police Department**
PW	**Public Works Department**
SD	School District
TA	Town Administration
TR	Transfer Station
WD	**Water Village District & Waste Water Treatment (Water Precinct Commission)**

Primary Mitigation Department

PLANNING AND REGULATORY CAPABILITIES

The planning and regulatory capabilities displayed in Table 39 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 39

Planning and Regulatory Capabilities

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
WARNER PLANS AND PLANNING DOCUMENTS							
Mar 2017	**BN Pellettieri Associates, Inc. Business Preparedness Plan**	The Pellettieri Associates, Inc. plan is internally prepared – extensive employee contact information is obtained, maintained and disseminated to all personnel. All company vehicles and project foreman are outfitted with emergency numbers for the areas they are working, and have extensive first aid kits & PPE. CPR training and certification for employees is routinely conducted. Majority of employees are off-site during daytime. Business does not have emergency egress and employees have been stranded / prevented from working due to road obstructions and extensive power outages. Employees utilize cell phones and the office does coordinate group text messaging with information sent to all employees when warranted. Business has	Kearsarge Mountain Road	High	General Manager (Private business), Emergency Mgt	Participated in Town Hazard Mitigation Plan Update with Haz Mit Committee. Implemented recommended policies and procedures in Business Preparedness Plan. Installed permanent on-demand large capacity generator to maintain business operations during extended periods without power. Interior of building updated to LED fixtures	Business: Continue to monitor severe weather events and community with Town officials. EM: Obtain copies of the Business Preparedness Plan

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		a safety committee that meets monthly to conduct safety training, drills and education.				for increased fire safety.	
December 2018	**BN Sugar River Bank Preparedness Plan**	Sugar River Bank plan is internally prepared – extensive employee contact information is obtained, maintained and disseminated to all personnel. All Bank branches maintain an emergency call list for employees and upper management.	Entire Town and surrounding Communities	High	Sugar River Bank	All Branches update their succession plan annually. Work with local fire and police department to review plan procedures as applicable. Standby generator to be installed in December 2018.	Continue to update Bank's emergency plan on an annual basis. Internet service is required to effectively service bank's customers. Test standby generator on a normal basis.
June 2018	**CC Willow Brook Watershed Study 2007**	Conservation Commission seeking easements along Willow Brook. Producing lists of flora and fauna Work with owners to protect the flora and fauna..	Willow Brook Watershed	High	Cons Comm	Working with land owners to finalize protection easements. Working within Highway Department to protect streams from road erosion.	Continue to seek easements with land owners.
Feb 2018	**CC Natural Resource Inventory 2018**	Completed with help from Society for the Protection of NH Forests. Original in 2009.	Entire Town	High	Cons Comm	Working with CNHRPC to protect natural resources in the Mink Hill section of Warner.	Continue to work with State to enact laws to protect natural resources on Class VI roads.
June 2004	**CC Mink Hills**	This plan seeks to focus conservation easement acquisition activities more effectively and to identify other resource management and protection measures for use by land owners and	Mink Hill section of Warner	Moderate	Cons Comm	Work with land owners to obtain conservation easements.	Continue to focus on conservation easements in the Mink Hills.

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		land managers. The plan also addresses the goal of increasing protection for historical resources, particularly stone structures that abound in this area, and other physical evidence of the Town's early settlement patterns					
May 2016	**CC Warner River Study for brook trout**	Assessment of native brook trout in the Warner River watershed.	Warner River watershed	**High**	CC/NH F&G	Assessed culvert pipes with Warner to prioritize storm volubility and fish passage.	Grant funds available for culvert pipe prioritized by storm volubility and fish passage.
Sep 2016	**EM Emergency Operations Plan (EOP) 2016**	Describes who's responsible for what actions during an emergency, includes evacuation plan. Includes general warning systems, chain of command, lists of resources. Was partially activated in Nov 2018 snow storm (road closure coordination with Eversource and TDS for phone), for May 2018 tornado (same as above), for Nov 2016 ice storm and included a Warming Center at Town Hall with United Church of Warner for food.	Entire Town	**High**	Emergency Management	EOP was updated in 2016. Was partially activated in Nov 2018 for snow storm, in May 2018 for tornado, and in Nov 2016 for ice storm.	Develop a new EOP activation procedure. Update to include new Fire Station/ EOC location. Continue training and drills, exercises.
Mar 2019	**EM Hazard Mitigation Plan 2019**	The updated 2019 Haz Mit Plan (from Mar 2014) will encompass all natural hazards from the 2018 State MHMP and human and tech hazards.	Entire Town	**High**	Emergency Mgt	Plan is used by the Planning Board & Depts for improvements (CIP, road projects, project planning, etc)	Update to current standards in 2019. Increase public awareness and involvement.
May 2011, Jul 2018	**PB Master Plan 2011**	Updated yearly. Includes schedules and projects. Used by all Boards. Master Plan is currently	Entire Town	**High**	Planning Board	2018 – Reviewed transportation chapter for	Full update to Master Plan slated for 2020.

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		being updated. Full update completed in 2011 with CNHRPC				changes that need to revise & update.	Will be reviewed in 2019.
October 2018	**PB Capital Improvements Program 2019-2025**	Strategic 6-year long term planning for improvement of Town equipment over $25,000 Put funding away. Several Capital Reserve Funds, sometimes take out funding intended for another project.	Entire Town	High	Planning Board	Updated annually to reflect new projects from departments and agencies. Public hearing held and approved by Planning Board	Continue to update annually and place funding into CRF for select hazard mitigation projects
May 2018	**PW Silver Lake Dam Plan**	Low Hazard Dam. NH DES conducts inspections with written report. Funds in Highway budget for dam maintenance.	Silver Lake Dam	High	Public Works	Drained and Inspected by NHDES in 2014. Valves need to be replaced. Preventative maintenance on an annual basis.	Continue training of Personnel in dam operations. Schedule inspection & maintenance to drain/repair valves-2019.
August 2017	**SD Emergency Management Plan for Simonds Elementary School**	The EMP contains information for drills, what students, parents, and teachers will do in the event of an emergency. All schools in the Kearsarge Regional School District utilize the same plan with specific operating procedures for each school.	Simonds Elementary School	High	School Principal	Drill conducted according to a schedule. Meeting with Town emergency responders during the school year.	Continue to add changes from the drill exercises to make it safer for students.
November 2018	**SD/ FD School Reaction Plans**	Fire Dept works with School staff. Have had meetings and discussions on how we would utilize each of our resources depending on various issues presented with various situations at School. We would always use a joint command structure when we have an incident at the power plant. School and Warner	Simonds Elementary School	High	Fire Dept with School Principal	Reviewed and conducted drills semi-annually. Met with head of new School. Last drill Oct 2017	Continue existing activities, which includes involve drills, exercises, and site visits. Continue to do annual site visits and examination of fire protection systems. Included the

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		Fire Dept need to work well together. Have continued with the drills Held a fire/haz mat/mass casualty exercise in June 2008. Tour of School buildings in August 2012.					Central NH Haz Mat
WARNER BUILDING CODES, PERMITTING, INSPECTIONS							
March 2009	**BD Building Code Ordinance**	Town adopts and enforces the State Building Code RSA 155-A as it may be amended in accordance with RSA 674:51 which: authorizes and gives authority to the Local Enforcement Agency to issue building permits and certificates of occupancy; authorizes the Board of Selectmen to establish fees for building permits, certificates of occupancy and building inspection; and authorizes the Zoning Board of Adjustment to act as the Building Code Board of Appeals. State has adopted statewide requirements for compliance of residential (2009 IRC) and commercial (2009 IBC) building codes.	Entire Town	**High**	BOS Planning Board	Review State Building Code as amended for the most recent & current editions	Review and update Ordinance as necessary. Continue with compliance & enforcement practices
December 2018	**BD/FD State Life Safety Code 2009, Construction Inspected by Town.**	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/ Fire Dept	Conducts inspections as required by the Town's Building Inspection.	Continue to conduct inspections.
November 2018	**BD/FD Building Inspection**	Building inspection are required for : driveways, heating systems, foundations, rough framing, plumbing,	Entire Town	**High**	BD/Fire Dept	Application updated in November of 2018.	Continue to conduct inspection for compliance with applicable

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		electrical, chimneys & fireplaces, insulation, final inspection and occupancy permit.					codes. Update application as needed.
January 2019	**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 - Storage - Detention and correctional	Places of Assembly, Day Cares, and Educationa l sites	High	Fire Dept	Continued inspections for these 3 types of buildings	Continued inspections for these 3 types of buildings
February 2018	**PW Bridge Inspections**	Routine inspections of the 19 Town-owned bridges in Warner. The State conducts by-annual inspections of all bridges.	19 Town-owned Bridges	High	Public Works Dept	Continued to regularly monitor the condition of all bridges, particular attention to red listed bridges.	Continue to inspect bridges for repairs and replacement. Continue to place bridge improvement funding into the Capital Improvements Program (CIP).
December 2018	**PW Infrastructur e Inspections**	DPW conducts routine inspections and general maintenance of the Town's infrastructure.	Town Buildings	High	Public Works Dept	Completed routine inspections of Town buildings and roads.	Continue to place funds into operating budgets. Continue to place infrastructure repairs and upgrades into the Capital Improvements Program (CIP).

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May 2018	**PW Silver Lake Dam Inspection**	NH DES conducts annual inspection with written report. Funds in Highway budget for dam maintenance/repairs.	Silver Lake Dam	High	Public Works	Drained and Inspected by NHDES in 2014. Valves need to be replaced. Preventative maintenance on an annual basis.	Continue training of Personnel in dam operations. Schedule inspection & maintenance to drain/repair valves-2019.
WARNER LAND USE ORDINANCES, REGULATIONS, and TOWN ORDINANCES							
March 1995	**BS Street Numbering Ordinance**	Establishes a procedure for administration and enforcement of uniform addressing system for residential, multi-family and commercial structures with the Town of Warner.	Entire Town	High	Selectmen Office/911 Coordinator	New numbers assigned for driveway permits. Update to 911 book used by emergency responders.	Assign new numbers for driveways as needed. Coordinate with the State on 911 updates Receive updated Maps.
Mar 1995	**BS/EM Emergency Management Ordinance**	The ordinance covers planning, training, operating emergency functions in town. Town Director updated the Selectmen as needed. Emergency Operations Plan developed and exercised.	Entire Town	High	Emergency Management	New EOP approved in 2016. Several exercises held. Storm events in 2016, 2017, and 2018.	Continue to update BOS on Emergency Management matters. Continue to hold drills and exercises to better prepare responders for disaster events.
Jan 2019	**BS/PD Parking Ordinance**	Requires that vehicles not be parked on Town roads between the hours of midnight and 6:00am from November 15 thru April 15.	Entire Town	High	Selectmen, Police Dept	Continued enforcement of the Ordinance.	Revise as necessary to comply with State Statue and continued enforcement.
March 2006	**BS/PW Solid Waste Ordinance**	Disposal of refuse by commercial haulers and the residents of Warner. Mandatory Recycling of cardboard, paper, plastics, glass, metal, aluminum. Use of the Transfer Station.	Entire Town	Moderate	Selectmen Office/ DPW	Continued enforcement of Ordinance. Encourage recycling by businesses and residents.	Monitor enforcement of the Ordinance Public education on recycling by businesses and residents.

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Mar 1995	**EM Hazard Materials Cost and Recovery Ordinance**	Ordinance covers spills, clean-up costs. Special fund established for replacement of equipment and training. Spillers are billed by the Town.	Entire Town	High	Fire Dept / Emergency Mgt	Restock material used for minor spills not billable.	Update to stay current with State changes as necessary. Hold training for F/D personnel.
March 2018	**PB Zoning Ordinance**	Zoning ordinance are adopted at Town Meetings to promote the health, safety and welfare of inhabitances, and preserve the values and charm now attached to the Town.	Entire Town	High	Planning Board	Reviewed by Board to reflect new updated to State Statue. Definitions to be voted on in 2019 town meeting.	Review and update as necessary to comply with State Law.
February 2017	**PB Subdivision Regulations**	Rules and regulations to control the subdivision of land pursuant to RSA 674:35,36, New Hampshire Revised Statutes Annotated (RSA), 1983, as amended. As provided in said Laws, no subdivision, either public or private, shall be authorized in the Town until it has been submitted and approved by the Warner Planning Board.	New Subdivisions	High	Planning Board	Updated in 2017 and used by PB when reviewing applications	Review and revise as necessary to comply with State Statue. Continue to use when reviewing applications.
February 2017	**PB Site Plan Review Regulations**	Site Plan Review Regulations and the site review procedure for nonresidential and multi-family development within the town and its environs as stated in RSA 674:44 is to :provide for the safe and attractive development of the site and guard against such conditions as would involve danger or injury to health, safety, or prosperity	Entire Town	High	Planning Board	Updated in 2017 and used by PB when reviewing applications	Revise the Site Plan application process to streamline review
March 2010	**PB Floodplain Development Ordinance**	Regulations in this ordinance shall apply to all lands designated as special flood hazard	All land designated in special flood	High	Planning Board/.Building Inspector	Review Building permits and Site Plans	Review and update as necessary to comply with

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		areas by the Federal emergency Management Agency (FEMA) in its "Flood Insurance Study for the County of Merrimack, NH" dated April 19, 2010, or as amended, together with the associated Flood Insurance Rate Maps dated April 19, 2010 or as amended, which are declared to be a part of this ordinance and are hereby incorporated by reference.	hazard areas as defined by FEMA Flood Maps.			submitted for compliance with Flood Hazard areas.	FEMA. Continued enforcement of regulations.
November 2006	**PB Earth Excavation Regulations**	Regulation are to: provide for reasonable opportunities for excavation; minimize safety hazards which can be created by open excavations; ensure that the public health and welfare will be safeguarded; protect natural resources and the environment; and maintain the aesthetic features of the Town. No earth materials in the Town shall be removed except in conformance with these regulations.	Entire Town	Moderate	Planning Board	Monitor existing sites for compliance. Review and approve new excavation sites.	Monitor existing sites for compliance. Review and approve new excavation sites.
March 2014	**PB Wireless Telecommunication Facility Ordinance**	Ordinance is designed and intended to balance the interests of the residents of Warner, telecommunications providers, and telecomm customers in the siting of telecommunication facilities within the Town of Warner, so as to ensure coordinated development of communications infrastructure while preserving the health,	Entire Town	High	Planning Board	Review applications for new towers and/or new carriers on existing towers.	Update Ordinance as necessary. Continue to process application for new towers and/or carriers on existing towers.

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		safety, and welfare of the town and its residents.					
January 2018	**PB Driveway Regulations**	These regulations shall apply to the installation of all temporary and permanent access points onto the Town of Warner roads, including any changes to existing driveways beyond normal maintenance. All developments located on a state road must obtain a driveway permit from the NH Department of Transportation prior to the issuance of a certificate of occupancy for new construction or final acceptance for existing construction	Entire Town	**Moderate**	Public Works Director/Planning Board	Enacted in January 2018	Ensure compliance with regulation.
February 2017	**PB Soils Erosion and Sediment Control Plan Requirement (Subdivision & Site Plan)**	Erosion Plan – major subdivisions and site plans must provide an engineered erosion & sedimentation control plan. Some individual house lots have bonds to cover their culverts.	Entire Town (New Developments)	**Moderate**	Planning Board	Revised for stormwater engineering in 2015	Continue to review the regulation and update as necessary to fit Warner's changing needs.
February 2017	**PB Drainage and Grading Plan Requirement (Subdivision & Site Plan)**	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.
February 2017	**PB Road Design and Construction Standards (Subdivision Regulations**	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 Public Works Dept	Increased pavement requirements from 3" to 4" total height.	Continue to review the regulation and update as necessary to fit Warner's changing needs.

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March 1995	**PD Obstruction of Street Law**	Adopted State of NH RSA 31:39, 47:11 Enforce free passage of public safety on public highways and sidewalks.	Entire Town	**High**	Police Dept	Review and revise as necessary.	Monitor and enforce as necessary.
Mar 1995	**PD Open Container Ordinance**	Open Container Law 95-4 prohibits any person to possess an open container or alcohol or consume an alcoholic beverage on public property or to possess an open container in a motor vehicle on public property.	Entire Town	**High**	Police Dept	Continued enforcement Revenue from fines comes to Town.	Continued enforcement.
October 1998	**PD Animal Control Ordinance**	Requires persons with animals to maintain control of their animals to maintain free passage and safety of pedestrians or vehicular traffic.	Entire Town	**High**	Police Dept	Continued enforcement of the Ordinance.	Revise as necessary to comply with State Statue and continued enforcement.
February 2018	**WD Wellhead Protection Regulations**	Drinking water protection areas as designated by State RSA. Designated area is posted.	Precinct Area	**Moderate**	Water Precinct	Sent out educational mailers about oil, fertilizers, other items getting into the water table.	Monitor proposed construction etc around wellheads and provide mailers to and more public awareness.

Source: Warner Hazard Mitigation Committee

ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capabilities in Table 40 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 40

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
WARNER ADMINISTRATIVE PROGRAMS, POLICIES, MUTUAL AID AGREEMENTS, PARTNERSHIPS							
September 2015	**BS Class VI Road Policy**	Must upgrade roads to bring up to Class V standards before building or logging. Director of Public Works will bring updates to the Selectmen as needed.	Class VI roads	**High**	Selectmen Office	Road Policy in place- References State RSA's and have not issued building permits on class VI Roads.	Monitor and update policy as necessary.
October 2008	**EM NIMS Adoption**	Resolution to adopt National Incident Management System (NIMS) for all emergencies within the Town. Requires the use of ICS by all town departments/agencies involved in emergency Management activities.	Entire Town	**High**	Emergency Management	Used by all Depts engaged in emergency response- Storm in Nov 2018. Continue training of personnel.	Continue to ensure NIMS strategies are used by all Town Depts. Continue to receive training to stay current.
September 2018	**EM MOU with Northeast Catholic College**	Memorandum of Understanding (MOU) with Northeast Catholic College for framework to utilize Administration building as a Warming Center/Shelter during emergencies.	Entire Town	**High**	Emergency Mgt	MOU established in September 2018	Review and update MOU as necessary. Conduct joint training and exercises to become better prepared to handle emergencies.
January 2019	**EM Reverse 911 Policy for Use in Warner**	NH911 is in process of revising current Reverse 911 policy for the State. New policy will allow communities to send out	Entire Town	**Moderate**	Emergency Mgt	New policy, in process. Personnel trained in	Establish Town procedure for use by emergency responders

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		more information on emergency situations.				operation of reverse 911	once State sets up new program.
Nov 2018	**EM/BS Warner Alerts on Town Website**	Emergency management and Board of Selectmen can access the Warner Alert emergency section of the Town's website. An email/text goes out to people who have signed up.	Entire Town (people who subscribe)	Moderate	Emergency Mgt	Last used for the Nov 20 2018 snow storm, and has been used 3-5 times. Implemented in Jan 2017	Upgrade the system (Website), increase the number of subscribers
March 2017	**FD Constitution and By-Laws**	Written Procedures by which the Fire Department operates. Committee review and submits changes to membership for vote of approval.	Entire Town	High	Fire Dept	Have been revised and updated. They are always a work in progress.	Continue to review and update and add new sections when relevant.
October 2018	**FD Mutual Aid Agreement (MAA) with Capital Area Fire Mutual Aid Compact (CAFMAC)**	Warner is a member of Capital Area Fire Mutual Aid Compact with 22 towns in the greater Concord area. Concord Fire Alarm is the dispatch center for CAFMAC. All towns required to have MAA drill in community at least every other year.	Capital Area, including Warner	High	Fire Dept	Drill in Warner in 2018.	Continued expansion of MAAs to other communities, and continued response and communications capabilities
November 2018	**FD Mutual Aid Agreements (MAA) with Kearsarge Mutual Aid System (KMAS)**	Warner is a member of Kearsarge Mutual Aid System with 13 towns in the greater Kearsarge area. New London Dispatch dispatches for several of the KMAS communities. Meetings are held By-monthly.	Kearsarge Mutual Aid System communities including Warner	High	Fire Dept	Mutual Aid drills attended Continue responses to other communities when requested.	Continued expansion of MAAs to other communities, and continued response and communications capabilities
May 2018	**EM Capital Area Public Health Network Member**	Regional calibration of communities in planning for and dealing with Public Health issues including the distribution of vaccines or pharmaceuticals for communicable disease, human, biological problems, exposure to	Entire Town	High	Emergency Mgt	Attended meetings, training sessions and drills.	Continue to participate in planning for and dealing with public health issues.

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		chemicals, etc. Regional Shelter for communities.					
October 2017	**EM Coordinate Using School Buses for Evacuation**	Coordinate with the District bus provider and Emergency Management to enable school buses to be used for evacuating residents in the event of an emergency/disaster event.	Entire Town	**High**	School District and Emergency Mgt	Informal agreement with bus provider to utilize buses during emergency disaster event.	Work to develop written agreement with Bus Company. . Hold drills. Improve communication between Town and Bus Company.
October 2007	**FD Water Resource Plan (Dry Hydrants)**	NCRC&D participated in the development in 2007. Have installed 7 dry hydrants up through 2012. Four were installed under Pre-Disaster Mitigation (PDM) FEMA Grant.	Entire Town	**High**	Fire Dept/ Emer Mgt	Maintain the existing hydrants. Test hydrants on an annual basis.	Update plan to reflect installation of new dry hydrants and continue to apply for grants.
October 2012	**FD Dry Hydrant Installation Program**	Installed dry hydrants in accordance with rural fire protection program. FEMA grant to install 4 hydrants from the plan: Waterloo Covered Bridge, Poverty Plains Road pump site, Mason Hill Road private pond, and Pleasant Pond near the Town beach in Sep 2009. Installed 3 hydrants from the plan: Melvin Road, at Warner Power on the Warner River, and at the Town's Silver Lake Dam in Sep 2012	Rural Areas: Waterloo Covered Bridge, Poverty Plains Road, Mason Hill Road, Pleasant Pond	**High**	Fire Dept	Test and inspect on an annual basis. Need to rework 3 of the dry hydrants with new fittings.	Seek new site for installation of new dry hydrants. Continue to test and inspect-conduct maintenance as necessary.
October 2018	**FD Call "Response Cards"**	Call "Response Cards" indicates who responds to which emergencies or disasters within the Mutual Aid (MAA) Compact. Town has 8 primary zones and target areas for MAA towns coming in.	Entire Town	**High**	Fire Dept	Being reviewed by FD committee More work to be done.	As Warner grows, reevaluate the effectiveness of the 8 protection zones and target areas.
Regular updates as	**HO State Procedures for**	They are reporting procedures and keep information chain open.	Entire Town	**Moderate**	Health Officer	Works w/ State officials on	Continue to receive updates from the State

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of Jan 2019	**Communication**	State sends out emails regularly about reports on Salmonella, testing results, etc. for local community only.				health related matters.	and act accordingly with a file copy of record.
Jul 2017	**PD Mutual Aid Agreement (MAA)**	Mutual aid agreement with 11 towns Merrimack County Sheriff's, in addition to State Police. Dispatch out of Merrimack County.	Entire Town	**High**	Police Dept	Added 2 new towns to agreement. Assisted other Police Depts	Address terrorism in the drills. Work on active shooter issues with businesses and schools.
December 2018	**PD Standard Operating Procedures**	Recently updated policies. Pursuit policies, death notifications, arrest procedures, etc. Very effective for a liability aspect, and a guideline for officers when gauging situations.	Entire Town	**High**	Police Dept	Continue to review and revise Last revision December 2018.	Continue updating Standard Operating Procedures to maintain compliance and uphold safety.
July 2017	**PD Mountain Bike Patrol Unit**	Program established 2013 with funding from grant Service added to department from 2013-2014.	Center of town and immediate surrounding location	**High**	Police Dept	Program was stopped in 2017 due to loss of staff.	Program will be re-established when sufficient personnel are on staff to implement.
June 2018	**PB/PW/PD Traffic Count**	Road traffic counts are conducted on different town roads each year. Counts are used by DPW and the Planning Board.	Entire town	**High**	Planning Board, with Police Dept and Public Works	2018 Traffic road count conducted utilizing request from PD and DPW	Continue to conduct traffic counts on an annual basis on Town Roads. Road counts to be determined with input for DPW and PD.
February 2018	**PW NH Public Works Mutual Aid Program for Highway Equipment**	Member of the NH PW Mutual Aid Program. Equipment/Staff sent for 1998 ice storm.	Entire Town	**High**	Public Works Dept	Continue to pay dues to participate in the Agreement.	Establish communication protocol with the Mutual Aid towns.
November 2018	**PW Informal Winter Road (Plowing) Maintenance Policy**	Plowing started at about 3" of snow. Each employee has their own route. 6 employees, plus PT people in winter. Director calls when it's time to start route.	Entire Town	**High**	Public Works Dept	Draft plan being reviewed by DPW and Board of Selectmen.	Plowing Policy development in process by the Board of Selectmen.

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April 2018	**PW Standard Operating Procedures**	Have informal procedures which are not written. Employees typically act as required for any situation that arises.	Entire Town	High	Public Works Dept	Used during the 2018 Tornado event in Town.	Work to establish written SOPs.
April 2018	**PW Public Protection and Hazard Correction Procedures**	Dept. has unwritten procedures in place to protect the public first then correct the problem after being notified about a hazard by a Public Safety Official.	Entire Town	High	Public Works Dept	Used during the Tornado in April 2018.	Develop a written policy to enable other Depts to understand the responsibility
October 2018	**PW Procedures to Cutback Overgrown Limbs (Unwritten)**	Removing overhanging (hazardous) limbs near power-lines will reduce that potential hazard in the Town. PW communicates with Eversource 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. PW follows RSAs for cutting trees along roadside.	Roadways	High	Public Works Dept	Continued annually, hazardous trees identified and removed.	Draft written policy to address whole process. Continue best management practices for roadside tree trimming.
Feb 2019	**SD Blizzard Bags for Children Unable to Attend Due to Hazard Event**	The School developed an information packet if children cannot attend school for a period of time. They are called "Blizzard Bags." This successful program is recurring each year.	Simonds Elementary School	High	School Principal	Teachers revised BB curriculum and added 3 more days (8 total days)	Continue to improve contents and system for the Blizzard Bags.
October 2009	**SD/ BS Safe Routes to School Travel Plan 2009**	The Safe Routes to School (SRTS) Travel Plan project was completed by the School and Town Departments together. Several projects were identified. A project to extend the Main Street sidewalk to the Elementary School to make it safer for students to walk to school was initiated in 2012 but was unable to progress at the	Elementary School and Warner Village Area	High	School District and Selectmen Office	The Safe Routes to School Grant received for sidewalks was closed out by NHDOT in January 2014	Revisit the SRTS Travel Plan to see if any low-cost projects could be implemented

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
		municipal level at that time, in 2013.					
December 2018	**SD School Evacuation and Lockdown Procedures**	Evacuations and lockdowns are drilled within the Simonds Elementary School.	Simonds School evacuate to Municipal Building	**Moderate**	School Principal /Town Responders.	Drilled Mar 2018, and monthly with school as described.	Continue to review and enhance procedures to address the ever changing potential hazards within the school systems, and work with Town entities for overall cooperation.
November 2018	**WD Written Agreement with Concord for Septage Hauling**	Agreement with Concord to ensure that when the Town sludge holding tanks start to get full, the excess sludge is transported to Concord Treatment Plant.	Precinct	**High**	Board of Commissioners	Agreement Updated annually.	Continue to maintain the agreement with Concord, keep current with Town's needs.
October 2018	**WD Fire Hydrant Flushing Programs**	Water department flushes all hydrant within the District on a scheduled basis-normally twice per year.	Water Precinct	**High**	Water Precinct	Performed usually twice per year- depending on well capability.	Continue flushing on an annual basis as the water system will permit.
November 2018	**Warner River Local Advisory Committee**	NH River Management and protection Plan for the Warner River. Five communities are part of the Council.	Warner River	**Low**	Warner River Advisory Council	Established in 2018. Several communities help to advise residents of the Council.	Establish By-Laws and River Management Plan. Stream flow study.
WARNER TECHNICAL SKILLS, TRAINING AND DRILLS							
November 2018	**BS Attendance at Seminars by Town Officials**	Seminars by NH HSEM, LGC, others attended by Selectmen, Health Officer, Planning Board. Regularly attend as workshops come up.	Entire Town	**High**	Town Admin	Several town officials have attended seminars/ workshops on an	Make more time and money available to more officials/staff.

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
						annual basis.	
July 2018	**BS Joint Selectmen's Meetings with Surrounding Towns**	Periodic meetings held, including for regional issues. Have also attended with Hopkinton and Webster on landfill issues. Have had discussions with Elementary School for drainage issues, etc.	Entire Town	**Moderate**	Board of Selectmen	Selectmen have meet with surrounding communities and have hosted a Joint Selectmen's meeting in 2018.	Continue to meet with surrounding Town as issues develop.
April 2015	**EM Haz-Mat ALOHA, CAMEO and MARPLOT Modeling**	Computer modeling programs for hazardous materials and situations.	Entire Town	**Moderate**	Emergency Mgt	Information out of date. Received information from Eversource.	Need to update information and programs.
May 2018	**EM Capital Area Public Health Network Member**	Regional calibration of communities in planning for and dealing with Public Health issues including the distribution of vaccines or pharmaceuticals for communicable disease, human, biological problems, exposure to chemicals, etc. Regional Shelter for communities.	Entire Town	**High**	Emergency Mgt	Attended meetings, training sessions and drills.	Continue to participate in planning for and dealing with public health issues.
October 2018	**EM Emergency Management Training**	Applicable emergency management training to all town departments and EOC Staff. Conducted ICS, NIMS, EOC Workshops, and WEBEOC training.	Entire Town	**High**	Emergency Mgt	Attend training sessions as available thru the State.	Expand trainings Schedule Web EOC training.
August 2017	**EM Town Wide Drills**	Work with NHHSEM to facilitate exercises. Conducted several exercises in the past, including a table-top winter storm, 3-state hurricane exercise, school exercise, gasoline spill drills on I-89 exits, mass casualty with Northeast Catholic College, Capital Area	Entire Town	**High**	Emergency Mgt	Drills in 2017 Winter Storm T/T exercise, 2018 drill with Amateur Radio-Communication drill April.	Publicize the drills more to the public and the results of exercises that have been conducted. Update EOP to address new EOC at new Fire Station.

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
		health Network tabletop exercise.					
2017	**FD Central NH Haz Mat Team Drills and Training**	Available through Capital Area Mutual Aid. The Warner FD department has trained with the team at the awareness level which coordinates with the hazardous materials team.	Entire Town	**High**	Fire Dept	Participated in a Mutual Aid haz mat drill.	Continue training with the team and holding Department training on haz materials.
November 2018	**FD Fire Academy Training**	Fire Department personnel have undergone required training thru the Fire Academy.	Entire Town	**High**	Fire Dept	Members continue to receive training provided by the Fire Academy.	Continue to check training schedule for available courses to attend.
December 2018	**FD In-Service Training**	Monthly training held on equipment procedures, water rescue, mass casualty, etc. Dept has 33 volunteers, some are cross- trained for EMS also.	Entire Town	**High**	Fire Dept	Monthly training on all areas of firefighting.	Continue in-service training in addition to specialized training at the state fire academy. Investigate outside training sources as available.
January 2019	**FD CPR/First Aid training**	CPR and First Aid training for Fire and Rescue members. Goal is to have all members certified in CPR/First Aid.	Entire Town	**Moderate**	Fire Dept	Continue to hold refresher training.	Receive training and maintain certificate.
December 2018	**PD Three Levels of Police Training**	Progressive training is available to officers: first, Police Academy basic training, second, field training program by three field training officers who document training to Town. Third, annual in-service training: including but not limited to computer crime, taser, urban rifle, accident reconstruction.	Entire Town	**High**	Police Dept	Added taser training.	Continue to train to maintain qualification.
December 2018 New	**PD CPR/First Aid Training**	CPR and First Aid training for Police Dept. personnel	Entire Town	**High**	Police Dept	Participated in the CPR and first aid trainings	Receive training and maintain certificate.

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
October 2018	**PW Dept of Public Works Training**	Employees attend training for equipment, winter maintenance at LGC. At UNH T2, try to send some employees to training, to include: culvert installation, roadway maintenance, gravel maintenance, etc.	Entire Town	High	Public Works	Department training when scheduled permits. Personnel attended seminars through LGC.	Send employees to more training.
September 2017	**PW Training, Road Agent Certified as a Master Roads Scholar**	This is a consistent effort to improve service delivery through education acquired by participating in online training activities and program offered through the LGC.	Entire Town	High	Public Works Dept	Department personnel have attended training sessions. Working toward Road Scholar Certification	Send all Public Works Department staff for training.
Dec 2018	**SD Pre-Determined Evacuation Sites (3)**	First Simonds School evacuation site: United Church, 43 E Main St (have arranged for bus pickup at that site). Second off-site evacuation site: CAP Building, 49 W Main Street. Third off-site evacuation site for Simonds children: Warner Town Hall, 5 E Main Street.	Simonds Elementary School	High	School Principal	Offsite evacuation drill to the Church in Dec 2018. About twice per year, fall & spring.	Continue to hold evacuation exercise annually.
Sep 2018	**SD Bus Company Contract for Student and Driver Safety**	Contract with Transportation and Student company. New bus has camera and radios to enhance student and driver safety, communication, and discipline. Goffstown Trucking-938-6464	Simonds Elementary School	High	School Principal	Coordinated regarding routes and discipline	Continue to monitor the new routes implemented to shorten travel time
Mar 2019	**SD Ten Drills Per Year**	Drills include fire, hazardous materials, off-site evacuation, lock down drill, Shelter in place, etc. Two people sweep for wheelchairs or walkers after all children	Simonds Elementary School	High	Kearsarge Regional SAU 65	School District in the process of updating the EOP. Drills with	Children with disabilities require updates to personal plans on a regular basis. Continue

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
		have left the building. Includes metal fire escapes which are used at least once a year.				children monthly	working with vendor for updates / improvements in air isolation.
October 2018	**SD Crisis Prevention Institute (CPI) Training**	This is an ongoing training for school staff in crisis prevention.	Simonds Elementary School	High	Kearsarge Regional SAU 65	Now mandatory. All teachers working with students in crisis are CPI trained.	Train all school staff in CPI
November 2018	**SD CPR/ First Aid**	School District provides training for staff in CPR and First Aid. Only a few staff members are certified in CPR/ First Aid	Simonds Elementary School	Low	Kearsarge Regional SAU 65	Staff have recertified	Certify more staff members in CPR/ First Aid
WARNER ASSETS, SECURITY, AND RESOURCES (SPECIALIZED EQUIPMENT)							
December 2018	**EM Base Radio for EOC**	A base radio serves the primary EOC at the Fire Station, funded through the State in Dec 2010.	Entire Town	High	Emergency Mgt	Base radio moved for old EOC to new location in 2018.	Coordinate with AERES for agreement to operate amateur radio in New EOC.
February 2019	**EM Emergency Operations Center**	Primary operations center located at the new Fire Station, 148 West Main Street. New EOC has a dedicated office with desks, computers, phone lines, two-way radio system, TVs and white boards. Building is equipped with Fire Alarm and Sprinkler System.	Fire Station, West Main	High	Emergency Mgt	EOC operational in Feb 2019, including a new EOC office that includes computers, phones, generator, radio system with antenna.	Upgrade computers, communications, and continue to update technology at the EOC.
September 2018	**EM Warming Center Shelter**	Cooling/Warming center designated at Town Hall. MOU w/Northeast Catholic College for backup center. Coordinate shelter ops with CAPHN.	Town Hall. Northeast Catholic College	High	Emergency Mgt	New MOU in 2018.	Review MOU and update as necessary. Conduct training and drill on shelter operations.
December 2018	**EM Back-up Generator**	Town Hall is equipped with backup generator	Town Hall	High	Emergency Mgt	Tested weekly	Continue to perform

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
	for Town Hall	and auto Transfer Switch for building. EMPG funded.				under load. Contract for normal maintenance.	maintenance and testing of system.
December 2018	**EM List of Priority Buildings for Electrical Power Restoration**	Coordinate with Eversource for power restoration of Priority Buildings such as the Schools, Fire Department, Police Department, Warner Town Hall. Also consider the Exit 9 area.	Town Buildings, Main Street, Exit 9 Area	**High**	Emergency Mgt	New Fire Station (West Main) added to list in 2018.	Update Priority list as necessary.
October 2018	**FD Station Backup Generator**	Generator is a 50 KW fixed unit fueled by propane. Automatic Transfer Switch provides backup power for interrupted service to Fire Station which is the Town's primary Emergency Operations Center	Entire Town	**High**	Fire Dept	50 KW generator moved to new Fire Station in October 2018.	Continue to conduct routine maintenance and weekly test of generator under load.
August 2018	**FD Radio Communication**	FD has multi-channel radios within the new station in Radio Room and in vehicles and several portables on digital system.	Entire Town	**High**	Fire Dept	Mobile/ portable radios programed to Narrow band.	Replace existing portables with new units as grants/local budget permits.
October 2018	**FD OHRV & Four Wheeler**	Equipment includes one OHRV and Four Wheeler. Having these vehicles provides better access which may not have been possible and a higher level of life safety. The OHRV is equipped w/two way radio. Both units are on trailers. The FD also has a light trailer.	Entire Town	**High**	Fire Dept	Training held in 2018 for FD personnel.	Continue to conduct training sessions and maintenance as required.
September 2017	**PD Generator Backup Power**	15KW generator with 1,000 gallon propane tank in the Police Station. Now equipped with Auto Transfer Switch.	Entire Town	**High**	Police Dept	Changed to a 15 KW generator. Provided power to entire building.	Continue to conduct maintenance on the generator and system. Test run under load.

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
October 2017	**PW Department Backup Generator**	Highway Department serves as backup Emergency Operations Center. New 39 KW generator installed with auto transfer switch.	Public Works Dept	**High**	Public Works	New 39 KW generator installed with auto transfer switch. Power the whole building.	Continue to conduct maintenance on the generator and system. Test run under load.
January 2016	**PW Radios for Highway Department with Town Frequency**	Highway Department reworked mobile radios and establish common frequencies with Town Departments to be more able to respond to emergencies.	Entire Town	**High**	Public Works	Programmed radios for narrow ban operation. Able to talk to FD and PD on Local frequency.	Maintain radios and replace as necessary.
November 2017	**PW Road Equipment Vendors and Subcontract-ors List**	The list of private contractors/ vendors and the equipment they own can be tapped as a resource during disasters and emergencies to fill in where labor and equipment is necessary but is in short supply.	Entire Town	**Moderate**	Public Works Dept	List updated as part of the EOP Resource list.	Continue to update as necessary.
Feb 2013	**SD Buzz-in Locked Door for Elementary School**	Elementary school has a buzz-in lock door. Card swipe system to be installed by the end of February 2013. Personnel will require a card to enter the school.	Simonds Elementary School	**High**	School Principal	Ensured all emergency responders have a swipe card for quick access	Increase the number of doors with card swipe system
November 2018	**SD Security Camera and New Entrance**	Security measures are being undertaken at the Elementary School. New HD security camera was installed at front entrance and a new entrance will be completed by April 2019	Simonds Elementary School	**Low**	Kearsarge Regional SAU 65	New HD security camera installed at front entrance	New entrance will be installed by April 2019
October 2018	**SD Teacher Emergency Supply Backpacks**	Some emergency supplies like rubber gloves, flashlight, toilet paper, clipboard, space blankets for every child, granola bars, scissors, first aid kit, duct tape, class lists, etc in every classroom. Master	Simonds Elementary School	**High**	School Principal	Outdated and expired supplies were replaced.	Continue to update supplies at least annually, discuss with teachers, Training on backpack usage

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
		backpack with emergency information for every child, incident command vest in office.					
Dec 2018	**WD Royce Well Generator**	Pump site is equipped with a backup generator to power the water pumps.	Water Precinct Areas	High	Water Precinct Comm	Tested generator on a normal basis. Exercise held for generator usage	Continue with the maintenance as required
August 2003	**WD Two (2) Water Supply Wells**	Water Precinct currently has 2 public water wells. Looking to establish a third water source, away from the Warner River, to have 3 wells service the area.	Water Precinct Areas	High	Water Precinct Comm	Looking into a study for grants to support backup systems from the Town Forest	Relocate a third water source away from the River.
September 2007	**WD Two (2) Water Tanks for Backup Water Source**	Water Precinct capacity of two tanks is nearly 300,000 gallons. Serves as backup water source and for fire protection.	Water Precinct Areas	High	Water Precinct Comm	Cleaned the larger water tank	Continue with the maintenance as required.
July 2018	**WD Sewage Treatment Plant Backup Generator**	New 60 KW backup generator with transfer switch installed.	Waste Water Treatment Plant	High	Water Precinct Comm	New Generator installed.	Continue to perform maintenance and testing of system.

Source: Warner Hazard Mitigation Committee

FINANCIAL CAPABILITIES

The financial resources in Table 41 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 41

Financial Capabilities

Latest Adoption or Version Date	Capability Assessment: Financial	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
WARNER FINANCIAL PROGRAM OR FUNDING RESOURCE FOR HAZARD MITIGATION PROJECTS							
January 2018	**BS 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 Emergency Mgt	Used for Cat A Debris Removal. Used for Cat C- Road Repairs due to washouts.	Continue to utilize the FEMA PA program to help with disaster costs
2014	**BS FEMA Pre-Disaster Grants**	Program allows communities to apply for funds for Hazard Mitigation project. Projects are identified in the Hazard Mitigation Plan.	Entire Town	**Moderate**	Selectmen, Emergency Mgt	Used to install 4 dry hydrants	Continue to utilize the FEMA Pre-Disaster Grant for projects that help reduce disaster costs
August 2018	**PB Capital Improvements Program (CIP) 2019-2025 Project Funding**	Program reviewed on an annual basis. Sets aside funds for large equipment/ projects.	Entire Town	**High**	Planning Board	Funds have been added into Capital Reserve Fund for bridge improvements	CIP could include expensive or long-term hazard mitigation projects
WARNER POTENTIAL FUNDING PROGRAMS FOR FUTURE HAZARD MITIGATION PROJECTS							
March 2019	**BS Town Operating Budget**	Budget can contain funding for outreach programs, mitigation projects. Town Meeting	Entire Town	**High**	Town Admin. All department budgets	March 2019 budget included funding for	Town Warrants will be including funding for

Latest Adoption or Version Date	Capability Assessment: Financial	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effective-ness	Respons-ibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
		will determine figure for Operating Budget- BOS can move funds from one line to another as necessary.				selected Haz Mit projects, public outreach	selected Haz Mit project
October 2017	**BS 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 until Sate aid funds are available for local bridge projects.	Local Bridge in Warner	**Moderate**	Town Admin, Public Works Dept	Had been used to replace the Bartlett Loop Bridge	Identify Bridges and submit applications.
March 2000	**CC Current Use Penalty-Conservation Easements**	Tax penalty for land taken out of current use goes to special fund for Conservation Easement	Entire town	**High**	Cons Comm	Funds collected are used to conserve farmland, Mink Hill forest and stream frontage.	Continue to seek easements to conserve land and resources within Warner.
December 2018	**EM Emergency Management Operating Budget**	Budget can contain funding for outreach programs, mitigation projects. Can also be used for match under EMPG grants.	Entire Town	**High**	Emergency Mgt	EMPG grant for new Fire Station equipment - 2018	Use Emergency Management Operating Budget to finance future hazard mitigation improvements
September 2018	**PB Capital Improvements Program (CIP) 2019 Project Funding**	Sets aside funds for large equipment/ projects.	Entire Town	**High**	Planning Board	Reviewed annually and updated to reflect new projects.	CIP could include expensive or long-term hazard mitigation projects

Source: Warner Hazard Mitigation Committee

EDUCATION AND OUTREACH CAPABILITIES

In Table 42, 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 42

Education and Outreach Capabilities

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 Effective-ness	Respons-ibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
WARNER PUBLIC OUTREACH PROGRAM, EDUCATIONAL ACTIVITY, NOTIFICATIONS							
Available since 2018	**BS Public Notification Procedure**	Radio stations to notify public in the event of emergency are 99.1 and 102.3.	Entire Town	Moderate	Board of Selectmen	Has not yet been used	Place information on the Town's website and Town Report, and Town Newsletter. Ensure this is placed into EOP.
Nov 2018	**EM Warner Alerts on Town Website**	Emergency management and Board of Selectmen can access the Warner Alert emergency section of the Town's website. An email/text goes out to people who have signed up.	Entire Town (people who subscribe)	Moderate	Emergency Mgt	Last used for the Nov 20 2018 snow storm, and has been used 3-5 times since Implemented in Jan 2017	Upgrade the system (Website), increase the number of subscribers
January 2019	**EM Reverse 911 Notification System for Use in Warner**	Access to NH911 will allow Town Officials to send emergency notification to residents and the general public traveling thru Warner.	Entire Town	Moderate	Emergency Mgt	Need to identify more Town Officials to receive training in procedures.	Establish procedure for use by emergency responders once State sets up new program. Attend training in use of system.
October 2018	**EM Public Outreach for General Hazards**	General info on hazards available in Library, Town Hall, and Town's website. Articles placed in the Town's newsletter.	Entire Town	Moderate	Emergency Mgt	Placed information about preparing for emergencies in Town Report	Update website to allow more information be available to post.
Decembe r 2018	**EM Functional/**	Functional Needs Survey- distributed to	Entire Town	Low	Emergency Mgt	Need to conduct	Annual update of information,

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 Effective-ness	Respons-ibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
	Medical Needs Survey for Residents	town residents via website and in newsletter. Create and implement Functional/Medical Needs database based upon responses from residents.				more public education on benefits of information.	expansion of database capabilities.
October 2018	**EM NH Alert**	People choose to receive notification calls from NH Alert, a statewide app. Town has advertised for people to join.	Entire Town, General Public	**Low**	Emergency Mgt	Information appears on Town's Website.	Publicize better to ensure more people are connected
Fall 2018	**EM EAS (Emergency Alert System)**	In place in the state, working on regionally. Not a town function, Television, radio, via national alert service.	Entire Town	**Moderate**	NHHSEM/ Emergency Mgt	Has been used for severe weather alerts to warn public	Continue to inform public of EAS and its functions
October 2018	**FD Public Outreach**	FD holds Open house thru the summer on Sundays, participate in community functions, Fire Prevention Week, tours for school children, fire inspections, etc.	Entire Town	**High**	Fire Dept	Held Open House May-Aug on Sundays and standby at Fall Foliage Festival annually	Continue to expand and add new outreach programs.
Aug 2018	**PD Drug Take Back Protocol**	People can drop off narcotics or whatever people have with immunity and also unused prescription medication. Getting people to turn their medicine in is difficult. No box on-site but can receive from people, log into evidence room, and obtain court order for incineration.	Police Station	**High**	Police Dept	Receive prescription drugs from residents, procedure for intake and incinerated	Maintain the intake and incineration protocol as is since PD does not qualify for box with 24/7, camera, etc.
Mar 2019	**PD/ SD DARE Program**	Program with 5th graders to promote healthy relationships and student wellness.	Simonds Elementary School	**High**	PD and Simonds Principal	Began in January 2019 for the annual 10 week program	Continue with program, consider different start months as needed
2014	**SD MOU School Resource**	Educational tool not only for drugs but safety protocol for	Simonds Elementary (also for	**High**	Police Dept	New capability. Officer on	Hire a full time resource officer for the District

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 Effective-ness	Respons-ibility	Changes Since Last Haz Mit Plan (2014)	Future Improvements to Capability
	Officer/ Education for Students	children. MOU with Sutton with Police Chief for Simonds and Kearsarge District.	School, Middle and High Schools in Sutton)			call, assisted with several incidents	
Spring 2017	**SD Community Outreach & Safety Programs**	Program based on good decision making for 5th Grade classes on bicycle safety, etc.	Simonds Elementary School	**High**	Simonds School Principal & Police Dept.	Held a 2017 Health and Safety Fair in the spring	Develop a Bicycle Safety program. Planning a spring 2019 health and Safety Fair, bi-annual.
Mar 2019	**SD School District Automated Calling System**	Used only for school emergencies. Automated phone, text, email service to parents for alert. Used for snow delays and snow days. A new version is being tested - text, then audio from Department using Blackboard Connect	Entire Town	**High**	Kearsarge Regional SAU 65	Integrated PowerSchool data into Blackboard Connect contact information	Update regularly when parents require notification. School District Communication Committee is redrafting protocols when there is a safety concern
Dec 2018	**WD Well Head Protection Area Signage Indicating Location and Restrictions**	Signage informing the public about where the watershed is posted along Main Street about the Watershed Protection Area.	Water Precinct Areas	**High**	Water Precinct Comm	Sign has been replaced due to vandalism	Monitor signage and replace signs that have been removed or vandalized.

Source: Warner 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 43**.

Table 43

Mitigation Support and Resource Documents

Latest Adoption or Version Date	Mitigation Support and Resource Documents Not Listed within Capability Assessment Tables
2007	USGS Flood of May 2006 in NH
Feb 2007	NH DHHS NH Influenza Pandemic Public Health Preparedness & Response Plan 2008
2008	USGS Flood of April 2007 in NH
2009	NFPA 1 Fire Code 2009
2009	Warner Safe Routes to School Travel Plan 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
Aug 2016	CAPHN Capital Area Public Health Network Public Health Emergency Preparedness and Response Plan for the Capital Area 2016
As provided	NHDES Dam Emergency Action Plans for High, Significant & Low Hazard Dams

Latest Adoption or Version Date	Mitigation Support and Resource Documents Not Listed within Capability Assessment Tables
2018	USGS Preliminary Stage and Streamflow Data at Selected Stream Gages for Flood of Oct 2017
Mar 2018	NH DOT Recommendations for the Ten-Year Transportation Improvement Plan (Projects) 2019-2028
Jul 2018	NH DHHS NH Arboviral Illness Surveillance, Prevention and Response Plan & Map 2018
Oct 2018	State of NH Multi-Hazard Mitigation Plan Update 2018
Oct 2018	Draft West Central Rail Trails Plan 2018
Begin work 2019	Warner River Local Advisory Committee's River Corridor Management Plan 2020

Source: Warner 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 **2003 Plan** or previous **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 26 total** 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 44** 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 Warner's activities. Deleted Actions are listed in **Table 45.**

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 46** 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 *Town Hazard Mitigation Plan*.
Preparedness	**Short Term**	Action assists or supports planning, protective activities, public education, training and exercise. ↪ Best suited for ***Town Emergency Operations Plan***.
Response, Recovery, Other Related	**Short Term**	Action supports preventative, response, recovery-related, repeated or deferred maintenance activities. ↪ Best suited for ***Town Emergency Operations Plan***.

HAZARDS CONSIDERED

With **23** 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 Warner.

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 **23** 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.

Warner'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 three previous Plans, the Actions numbers, denoted by years, were recorded as such:

#1- 2003 to	**#8- 2003**
#9- 2008 to	**#67- 2008**
#68- 2014 to	**#93-2014**

A total of **27** mitigation Actions have been **Completed** from the **Hazard Mitigation Plans** as shown in **Table 44**. This includes **2** (**n/l**) Actions that had inadvertently not been described and/or prioritized, and **10** Actions completed since the **2014 Plan**. Although listed as **Completed**, **5** of these **2014** Actions are to be repeated for effectiveness and will remain as active Actions within the **2019 Plan**'s **Mitigation Action Plan**.

Table 44

Completed Mitigation Actions

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx $ Cost	Natural Hazards Addressed
---	n/l 2008	**Complete the Natural Resource Inventory**	Jan 2009	Conversation Commission	$ unknown	Lightning, Wildfire, River, Wind/Tropical, Dam Release
32	n/l 2008	**Develop Information/ Schooling Packet (Blizzard Bags) for Children Unable to Attend Due to Hazard Event**	Oct 2009	Simonds School Principal	$0	Winter, Public Health, Extreme Temps
33	#9-2008	**Install Dry Hydrant in Rural Areas (at Waterloo Covered Bridge)**	Sept 2009	Fire Chief	$5,000	Lightning, Wildfire
33	#10-2008	**Install Dry Hydrant in Rural Areas (on Poverty Plains Road)**	Sept 2009	Fire Chief	$5,000	Lightning, Wildfire
33	#11-2008	**Install Dry Hydrant in Rural Areas (on Pleasant Pond)**	Sept 2009	Fire Chief	$5,000	Lightning, Wildfire
33	#12-2008	**Install Dry Hydrant in Rural Areas (on Mason Hill Road)**	Sept 2009	Fire Chief	$5,000	Lightning, Wildfire
32	#13-2008	**Update Town Building Code to Current State Statutes**	Ma 2010	Planning Board	$250	Earthquake, Lightning, Wildfire, Wind/Tropical

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx $ Cost	Natural Hazards Addressed
34	#14-2008	Obtain Digitized NFIP Maps from FEMA	Apr 2010	Board of Selectmen, Emergency Management	$0	Inland Flooding, River Haz
32	#15-2008	Purchase Buzz-in Locked Door for Elementary School	Aug 2010	Simonds Elementary Principal	$2,500	Human, Cyber
33	#16-2008	Complete the Master Plan Update	May 2011	Planning Board	$16,000	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat
32	#17-2008	Purchase 8-10 Additional Portable Digital Radios for Fire Department	Dec 2011	Fire Chief	$17,000	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat, Mass Casualty, Radiological, Terrorism
34	#18-2008	Investigate and Install a Permanent Generator for Fire Station	Feb 2012	Fire Chief	$22,000	Extreme Temps, Wind/Tropical, Winter, Utility, Haz Mat, Mass Casualty,
33	#19-2008	Install Dry Hydrant in Rural Areas (on Melvin Road)	Sep 2012	Fire Chief	$5,000	Lightning, Wildfire
33	#20-2008	Install Dry Hydrant in Rural Areas (at Warner Power (Warner River)	Sep 2012	Fire Chief	$5,000	Lightning, Wildfire
33	#21-2008	Install Dry Hydrant in Rural Areas (at Silver Lake Dam)	Sep 2012	Fire Chief	$5,000	Lightning, Wildfire
	#22-2008	Develop and Implement a Plan to Place Real-Time Public Notification Information on Town Website	Dec 2012	Board of Selectmen	$300 - $1,000	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat, Mass Casualty, Radiological, Terrorism
32	#23-2008	Acquire Digital Radios for Highway Department and Establish Common	Jan 2013	Public Works Director	$6,000	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx $ Cost	Natural Hazards Addressed
		Frequencies with Town Departments				Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat, Mass Casualty, Radiological, Terrorism
COMPLETED FROM 2014 PLAN						
35	#32-2008	**Erect New Water Protection Area Signage along Main Street**	Fall 2014	Warner Village Water District	$1,000	Public Health (Water Quality)
36 R	#42-2008	**Promote Public Awareness of Watershed Protection Regulations**	Nov 2014 (signage)	Warner Village Water District	$600	Public Health (Water Quality)
36 R	#43-2008	**Encourage Recycling by Businesses and Residents**	Apr 2015 (brochure)	Board of Selectmen	$700	Public Health (Water Quality), Haz Mat
36 R	#57-2008	**Update the Subdivision and Site Plan Regulations to Reflect Updated Master Plan**	2016 (last updated)	Planning Board	$200	Earthquake, Landslide, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Aging Infrastructure, Utility, Crash, Haz Mat
36 R	#59-2008	**Update the Zoning Ordinance to Reflect Updated Master Plan**	2016 (last updated)	Planning Board	$1,500 - $2,000	Drought, Earthquake, Landslide, Extreme Temps, Lightning, Wildfire, Inland Flooding, River Haz, Wind/Tropical, Winter, Public Health, Aging Infrastructure, Utility, Crash, Haz Mat
36	#72-2014	**Resurface Face of Silver Lake Dam**	Fall 2013	Public Works Department	$3,000	Inland Flooding, Dam, Aging Infrastructure
35	#74-2014	**Replace/Repair North Road Culvert over French Brook**	Aug 2013	Public Works Department	$10,000 or $220,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
35	#78-2014	**Replace Old Denny Hill Road Culvert along Ditch Line**	Oct 2014	Public Works Department	$5,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
29	#88-2014	**Replace/ Repair Fish & Game Culvert on Bartlett Loop Road over Willow Brook**	Apr 2015	Public Works Department	$6,000 or $220,000	Wind/Tropical, Inland Flooding, Aging Infrastructure, Winter, River, Landslide, Scouring & Erosion
36 R	#93-2014	**Update the Zoning Ordinance to Comply with NFIP Requirements**	2010 (last updated)	Planning Board	$0	Inland Flooding, River

Priority Score (2014)	Action Number	Action	Completed By Date	Who is Responsible	Approx $ Cost	Natural Hazards Addressed

Source: Warner Hazard Mitigation Committee

The pink highlighted rows indicate the **41** total **Deleted** Actions in Table 45 from 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 45

Deleted Mitigation Actions

Priority Score (2014)	Action Number	Action	Deleted Date	Who is Responsible	Approx $ Cost	Why Deleted? The Action…
33	#1-2003	Provide Outreach to Dam Owners	Jan 2013	Emergency Management	$500	Was modified and incorporated into another activity
25	#2-2003	Provide Funding for Conservation Easement Monitoring	Jan 2013	Conservation Commission	$200	Was financially infeasible
29	#3-2003	Develop Town-wide Alarm System	Feb 2013	Emergency Management Director	$5,000 - $10,000	Was modified and incorporated into another activity
30	#4-2003	Identify Additional Shelters, Both In and Out of Town	Feb 2013	Emergency Management Director	$0	Was modified and incorporated into another activity
35	#26-2008	Raise Manhole Pits on West Joppa Road and Construct Levee	Jan 2013	Warner Village Water District	$200,000 or higher	Duplicated existing efforts
35	#27-2008	Perform Drill on Silver Lake Dam	Jan 2013	Emergency Management	$250	Was modified and incorporated into another activity
32	#28-2008	Develop Flyers to Promote Roof Shoveling	Feb 2013	Fire Department	$500	Duplicated existing efforts
32	#29-2008	Encourage Bradford's Severe Storm Monitoring of Lakes Todd, & Massasecum	Feb 2013	Emergency Management Director	$50	Was modified and incorporated into another activity
30	#30-2008	Fund Conflict Resolution Workshop for Town Officials and Staff	Feb 2013	Board of Selectmen	$1,000	Duplicated existing efforts
DELETED FROM 2019 PLAN						
35	#7-2003	Utilize Town Website and Newsletter to Publicize Emergency Management Information	Jan 2019	Emergency Management	$600 - $700	Was a preparedness, response or recovery activity
34	#8-2003	Develop a Disaster Pamphlet for Residents	Jan 2019	Emergency Management	$750	Was a preparedness, response or recovery activity

Priority Score (2014)	Action Number	Action	Deleted Date	Who is Responsible	Approx $ Cost	Why Deleted? The Action…
36	#31-2008	Install Railing Around Roof of Elementary School	Jan 2019	Simonds Elementary	35,000	Was an unrealistic activity
31	#34-2008	Enforce Town 911 Ordinance	Jan 2019	Board of Selectmen	$1,000	Was a preparedness, response or recovery activity
31	#35-2008	Encourage NH DES Enforcement of Dam Regulations and Communication with Town	Jan 2019	Emergency Management	$250	Was a preparedness, response or recovery activity
36	#36-2008	Monitor Weather and Warner River Water Levels	Jan 2019	Emergency Management	$250 annually	Was a preparedness, response or recovery activity
36	#37-2008	Replace Emergency Supply Items in Teacher Backpacks	Jan 2019	Simonds Elementary	$100	Was a preparedness, response or recovery activity
33	#38-2008	Develop Enhanced Communications Systems	Jan 2019	Emergency Management	$2,500 annually	Was a preparedness, response or recovery activity
33	#40-2008	Maintain Communication System with Bradford for Lake Todd Dam Breach & Lake Massasecum	Jan 2019	Emergency Management	$50	Was a preparedness, response or recovery activity
36	#44-2008	Promote CIP at Town Meeting and in Town Report	Jan 2019	Planning Board	$0	Was a preparedness, response or recovery activity
35	#45-2008	Publicize Town-wide Drills and Exercises	Jan 2019	Emergency Management	$0	Was a preparedness, response or recovery activity
36	#46-2008	Plan and Execute Terrorism Drills and Active Shooter Drills in Vulnerable Buildings	Jan 2019	Police Department	$2,000 annually	Was a preparedness, response or recovery activity
36	#47-2008	Enable Expanded Highway Department Training	Jan 2019	Public Works Department	$1,000	Was a preparedness, response or recovery activity
36	#48-2008	Train Highway Department on Silver Lake Dam Procedures	Jan 2019	Public Works Department	$0	Was a preparedness, response or recovery activity
36	#49-2008	Undertake Hazardous Response Training	Jan 2019	Fire Department	$240	Was a preparedness, response or recovery activity
36	#50-2008	Hold Annual Evacuation Plan Exercise for Elementary School	Jan 2019	Simonds School	$100	Was a preparedness, response or recovery activity
36	#51-2008	Enable Expanded Police Department Training on Current Topics	Jan 2019	Police Department	$1,000	Was a preparedness, response or recovery activity
35	#52-2008	Continue to Investigate Outside Training Resources for Fire Department	Jan 2019	Fire Department	$0	Was a preparedness, response or recovery activity
34	#53-2008	Train Town Personnel and Officials on Emergency Management Procedures and NIMS Compliance	Jan 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…
32	#54-2008	Train with and Utilize Haz Mat ALOHA, CAMEO, and MARPLOT on a Regular Basis	Jan 2019	Emergency Management	$0	Was a preparedness, response or recovery activity
36	#55-2008	Update Police Department Standard Operation Procedures	Jan 2019	Police Department	$0	Was a preparedness, response or recovery activity
36	#56-2008	Establish Improved Communication Protocol with Local Highway Mutual Aid Towns	Jan 2019	Public Works Department	$500	Was a preparedness, response or recovery activity
36	#58-2008	Develop Pandemic Response Plan for Elementary School	Jan 2019	Simonds School	$0	Was a preparedness, response or recovery activity
36	#60-2008	Update Personal Safety and Evacuation Plans for Children with Disabilities at Elementary School	Jan 2019	Simonds School	$0	Was a preparedness, response or recovery activity
35	#62-2008	Produce Written Standard Operating Procedures for Highway Department	Jan 2019	Public Works Department	$50	Was a preparedness, response or recovery activity
34	#63-2008	Update Emergency Management Plan, and Add Waste/ Debris Management Section	Jan 2019	Emergency Management	$2,502	Was a preparedness, response or recovery activity
33	#64-2008	Develop Plan for Evacuation of Animals and Identify Shelters	Jan 2019	Emergency Management	$200	Was a preparedness, response or recovery activity
33	#66-2008	Encourage Village Businesses to Develop Business Emergency Plan	Jan 2019	Kearsarge Chamber of Commerce	$0	Was a preparedness, response or recovery activity
32	#86-2014	Install a Fire Suppression System at the Public Works Department and Transfer Station	Jan 2019	Public Works Department	$70,000 - $80,000	Was incorporated into another activity
33	#89-2014	Develop Volunteer List for Warming Center Staffing	Jan 2019	Emergency Management & Board of Selectmen	$100	Was a preparedness, response or recovery activity
32	#90-2014	Identify At-Risk Populations	Jan 2019	Emergency Management	$250	Was a preparedness, response or recovery activity
34	#92-2014	Participate in National Flood Insurance Program (NFIP) Training	Jan 2019	Building Department	$100	Was a preparedness, response or recovery activity

Source: Warner Hazard Mitigation Committee

The tan highlighted rows in Table 46 indicate the **30 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 46

Deferred Mitigation Actions

Priority Score (2014)	Action Number	Action	Deferred Date	Who is Responsible	Approx $ Cost	Why Deferred? Because…	Hazards Addressed
30	#5-2003	**Establish Culvert Replacement Program**	Jan 2019	Public Works Department	$2,500	Action was a lower priority than other Town activities	Flood, Ice Jam, Scouring & Erosion, Debris, Sinkhole
30	#6-2003	**Identify Emergency Access from Kearsarge Mountain**	Jan 2019	Emergency Management	$250,000	Town lacked funding capability and Action was a lower priority than other Town activities	Winter, Wind, Wildfire, Tree Debris, Utility Outage
34	#33-2008	**Designate Class VI Roads as Fire Lanes**	Jan 2019	Board of Selectmen	$250	Action was a lower priority than other Town activities	Lightning, Wildfire, Wind, Winter, Tree Debris, Utility
33	#39-2008	**Locate a Third Public Water Source**	Jan 2019	Warner Village Water District	$20,000	Action was a lower priority than other Town activities	Earthquake, Drought, Public Health, Hazardous Materials, Water Quality
32	#41-2008	**Purchase Generator for McDonald Pump Station**	Jan 2019	Warner Village Water District	$1,000	Action was a lower priority than other Town activities	Earthquake, Wind, Tropical, Utility Outage, Flood, Health
36	#42-2008	**Promote Public Awareness of Watershed Protection Regulations**	Jan 2019	Warner Village Water District	$600	Action needs to be repeated for effectiveness (publicity)	Flood, Earthquake, Public Health, (Water Quality), River
36	#43-2008	**Encourage Recycling by Businesses and Residents**	Jan 2019	Board of Selectmen	$700	Action needs to be repeated for effectiveness (publicity)	Hazardous Materials, Public Health, (Water Quality), River
36	#57-2008	**Update the Subdivision and Site Plan Regulations to Reflect Updated Master Plan**	Jan 2019	Planning Board	$200	Action needs to be repeated for effectiveness (2020)	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire
36	#59-2008	**Update the Zoning Ordinance to Reflect Updated Master Plan**	Jan 2019	Planning Board	$1,500 - $2,000	Action needs to be repeated for effectiveness	Drought, Earthquake, Temperature, Wind, Flood, Landslide,

Priority Score (2014)	Action Number	Action	Deferred Date	Who is Responsible	Approx $ Cost	Why Deferred? Because…	Hazards Addressed
							Lightning, Health, River, Winter, Solar, Tropical, Wildfire
35	#61-2008	Add Watershed Protection Regulation Updates to Planning Board Regulations	Jan 2019	Planning Board	$200	Action was a lower priority than other Town activities	Flood, Earthquake, Public Health, (Water Quality), River
33	#65-2008	Encourage Development of New Flood Insurance Study	Jan 2019	Board of Selectmen	$0	More time is required for completion	Flood, River Ice Jam, Scouring & Erosion
26	#67-2008	Identify and Map Cell Tower Communication Gaps in Warner	Jan 2019	Emergency Management	$150	Town lacked staff or volunteer capability	Winter, Wind, Utility, Transportation Accident
36	#68-2014	Replace Ladd Lane Culvert over Davis Brook	Jan 2019	Public Works Department	$10,000	Town lacked funding capability	Flood, Ice Jam, Scouring & Erosion, Debris
36	#69-2014	Reconstruct 250 Feet of Retreat Road	Jan 2019	Public Works Department	$5,000	Action was a lower priority than other Town activities	Flood, Scouring & Erosion, Debris
36	#70-2014	Install Dry Hydrant on West Joppa Road	Jan 2019	Fire Department	$5,000	Action was a lower priority than other Town activities	Lightning, Wildfire, Drought, Hazardous Materials, Fire
36	#71-2014	Install Dry Hydrant on West Roby District Road	Jan 2019	Fire Department	$5,000	Action was a lower priority than other Town activities	Lightning, Wildfire, Drought, Hazardous Materials, Fire
36	#73-2014	Replace North Village Road Culvert over Silver Brook at Dam	Jan 2019	Public Works Department	$10,000 - $20,000	Town lacked funding capability (in CIP)	Flood, Ice Jam, Scouring & Erosion, Debris
35	#75-2014	Replace Collins Road Culverts over Intermittent Streams	Jan 2019	Public Works Department	$6,000 - $10,000	Town lacked funding capability	Flood, Ice Jam, Scouring & Erosion, Debris
35	#76-2014	Replace Schoodac Road Culvert over Intermittent Stream	Jan 2019	Public Works Department	$220,000	More time is required for completion	Flood, Ice Jam, Scouring & Erosion, Debris
35	#77-2014	Replace Poverty Plains Road Culvert over Stream	Jan 2019	Public Works Department	$220,000	Action was a lower priority than other Town activities (in CIP)	Flood, Ice Jam, Scouring & Erosion, Debris
35	#79-2014	Replace Red Chimney Road Culvert over Ballard Brook	Jan 2019	Public Works Department	$175,000 - $200,000	Town lacked funding capability (in CIP)	Flood, Ice Jam, Scouring & Erosion, Debris
35	#80-2014	Replace Mink Hill Lane Culvert over Silver Brook	Jan 2019	Public Works Department	$220,000	Town lacked funding capability	Flood, Ice Jam, Scouring & Erosion, Debris
35	#81-2014	Replace East Joppa Road Culvert over Bartlett Brook	Jan 2019	Public Works Department	$5,000 - $10,000	Town lacked funding capability	Flood, Ice Jam, Scouring & Erosion, Debris

Priority Score (2014)	Action Number	Action	Deferred Date	Who is Responsible	Approx $ Cost	Why Deferred? Because…	Hazards Addressed
35	#82-2014	**Replace Newmarket Road Culvert over Davis Brook**	Jan 2019	Public Works Department	$40,000	Town lacked funding capability	Flood, Ice Jam, Scouring & Erosion, Debris
35	#83-2014	**Replace Henniker Road Culvert over Intermittent Stream**	Jan 2019	Public Works Department	$5,000 - $10,000	Town lacked funding capability	Flood, Ice Jam, Scouring & Erosion, Debris
34	#84-2014	**Install Dry Hydrant on Burnt Hill Road**	Jan 2019	Fire Department	$6,000	More time is required for completion	Lightning, Wildfire, Drought, Hazardous Materials, Fire
32	#85-2014	**Retrofit the Town Hall with a Sprinkler System**	Jan 2019	Board of Selectmen	$50,000 - $60,000	Town lacked funding capability	Lightning, Fire, Hazardous Materials, Conflagration
32	#87-2014	**Install Standby Generator for North Ridge Elderly Housing**	Jan 2019	Board of Directors for Facility	$20,000 - $25,000	Town lacked funding capability	Temperature, Fire, Public Health, Wind, Winter
32	#91-2014	**Educate Property Owners on Warner River Erosion along Susceptible Roads**	Jan 2019	Emergency Management & Board of Selectmen	$300 - $500	Action needs to be repeated for effectiveness	Flood, Erosion and Scouring, River
36	#93-2014	**Update the Zoning Ordinance to Comply with NFIP Requirements**	Jan 2019	Planning Board	$0	Action needs to be repeated for effectiveness	Flood, River Ice Jam, Scouring & Erosion, Tropical

Source: Warner Hazard Mitigation Committee

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 Warner 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 Warner.

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

ACTION MATRIX

A listing of **30 Deferred** mitigation Actions from **2014** and **22 New** mitigation Actions from **2019,** important to the Town of Warner, was developed for evaluation. 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, **#94- 2019** through **#115- 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.

Warner'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 1-5*** of the **Hazard Mitigation Plan 2019**, the **Mitigation Action Plan** shown in **Table 47** ***Planning and Regulatory***; **Table 48** ***Structure and Infrastructure***; **Table 49** ***Natural Systems Protection;*** and **Table 50** ***Education and Outreach*** should be able to guide future hazard mitigation efforts in the Town through an annual implementation process.

Thirty (**30**) **Deferred** Actions from **2014** and **22** **New** Actions from **2019** combine to develop the **52** Actions of the **2019** **Mitigation Action Plan**. The **Deferred** Actions' cells are highlighted in tan.

Table 47

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
#57-2008	Update the Subdivision and Site Plan Regulations to Reflect Updated Master Plan to Reduce the Risk of Natural Hazards to Property	Medium Term 3-4 Years	61	Planning Board	$200	Project will reflect the Town's input into the updated 2020 Master Plan and will enable the Town to have a basis for new and updated regulations. Site Plan and Subdivision Regulations were updated last in 2017.	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for public noticing for two public hearings.	Planning Board Budget
#59-2008	Update the Zoning Ordinance to Reflect Updated Master Plan to Reduce the Risk of Natural Hazards to Property	Long Term 4 to 5 Years	64	Planning Board	$1,500 - $2,000	Project will reflect the Town's input into the updated 2020 Master Plan and will enable the Town to have a basis for new and updated Zoning Ordinances.	Drought, Earthquake, Temperature, Wind, Flood, Landslide, Lightning, Health, River, Winter, Solar, Tropical, Wildfire	Entire Town	Cost is for public noticing for two public hearings and legal review of new ordinances as well as printing new Zoning Ordinances.	Planning Board Budget
#61-2008	Add Watershed Protection Regulation Updates to Planning Board Regulations to Protect the Water Quality of Town Wells	Short Term 1-2 Years	74	Planning Board	$200	Project will enable the Town to protect the supply and remains compliant with State regulations. Warner Village Water District would also be involved.	Flood, Earthquake, Public Health, (Water Quality), River	Town wells	Cost is for notification of public hearings and reprinting of the regulations. Labor is provided in-kind.	Warner Village Water Precinct Budget
#65-2008	Encourage Development of New Flood Insurance Study to More Accurately Depict	Long Term 4 to 5 Years	70	Board of Selectmen	$0	Project will provide an updated study. The previous study was completed in 1987. The new study will consider the changes to the Town since the previous	Flood, River Ice Jam, Scouring & Erosion	Warner River	Cost is for engineering study of the Warner River and other	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
	Location of Floodplains in Warner					study, and new technology will ensure a greater degree of accuracy. The Town desires its own study instead of the county-wide study completed in 2010. The FEMA RiskMap project for the Contoocook River Watershed initiated with a Discovery Meeting in Dec 2018 and the Warner River was supported for a FIS by the Town, LOMAs and various studies. The Board of Selectmen should write a letter to follow up with the meeting and encourage the Warner River's selection.			water sources within the town addressing growth changes for new NFIP Maps.	
#67-2008	**Identify and Map Cell Tower Communication Gaps in Warner to Raise Awareness of Possible Communication Issues During Disasters**	**Short Term 1-2 Years**	**50**	Emergency Management	$150	During a disaster it is imperative to know where the cell phone communication "holes" are, especially with the potential for accidents. I-89 runs through Warner, with Exits 8 & 9, and Warner Fire and Rescue Department are often the first on scene.	Winter, Wind, Utility, Transportation Accident	Entire Town, I-89	Costs are for map development with a cellular company or with Central NH RPC with in-kind staff assistance.	Emergency Management Budget
#93-2014	**Update the Zoning Ordinance to Comply with NFIP Requirements to Reduce the Impact of Flooding**	**Short Term 1-2 Years then Ongoing**	**67**	Planning Board	$0	The Zoning Ordinance needs to be updated as new requirements to the National Flood Insurance Program are necessary for retention of NFIP participation. The Floodplain Ordinance protects life and property by regulating distance of structures to flood hazard areas, regulating elevation, clarifying definitions, regulating new structures and encroachments, stating duties of	Flood, River Ice Jam, Scouring & Erosion, Tropical	Floodplains	Cost is $0 due to in-kind staff and/or volunteer labor, and language is provided by the NH Office of Energy and Planning.	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
						the Code Enforcement Officer, etc. In 2010, the Town adopted the recommended updates to the ordinance. The existing ordinance is amended with federal updates on a recurring basis.				
#94-2019	**Obtain Dam Emergency Action Plans for the Silver Pond & Bear Pond Dams**	**Short Term 1-2 Years**	**71**	Emergency Management	$0	The two Low Hazard Dams, Bear Pond owned by Contoocook Village Precinct and Silver Pond owned by Town, have Dam Emergency Action Plans. This information can help reduce injuries or property damage if Town officials could plan for the possibility or encourage necessary repairs.	Dam, River, Debris	Silver Pond & Bear Pond Dams	Cost is in-kind staff and volunteer labor.	N/A

Source: Warner Hazard Mitigation Committee

Table 48

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
#5-2003	**Establish Culvert Replacement Program to Reduce the Impact of Floods and Erosion**	**Short Term 1-2 Years**	**73**	Public Works Department	$2,500	Project will maintain proper drainage to prevent erosion of roadways and damage to public and private property. UNH has a program to have people come out and GPS the culverts and place into a software program.	Flood, Ice Jam, Scouring & Erosion, Debris, Sinkhole	Entire Town	Cost is for developing the plan, GPSing the culverts and generating a map, and public hearing on the document. Other costs will be in-kind staff labor.	Public Works Department Budget
#6-2003	**Identify and Engineering Plan of Emergency Access from Kearsarge Mountain for Evacuation to Reduce the Risk of Wildfire, Winter Storms, Fallen Trees and Power Outages**	**Long Term 4-5 Years**	**49**	Emergency Management	$250,000	Project will provide an alternative egress to residents and the general public. The College and tourists on the Mountain could total up to a thousand people on the weekend and special events. The EMD has brought the project to the CIP Committee and Board of Selectmen, and the project had been included in the CIP for the last 5 years and continues to be an action items in the CIP. This project may run beyond the timeframe of this Plan.	Winter, Wind, Wildfire, Tree Debris, Utility Outage	Kearsarge Mountain Road	Cost is for engineering study on a location, not construction.	Warrant Article through Capital Improvement Program
#33-2008	**Identify, Designate and Sign Class VI Roads as Fire Lanes**	**Short Term 1-2 Years**	**75**	Board of Selectmen	$250 posting + $750 signage	Policy under RSA 229:5 will protect private and public property for wildfires and fires in addition to recreation access. Fire Chief will partner with the Board of Selectmen to identify	Lightning, Wildfire, Wind, Winter, Tree Debris, Utility	Multiple Class VI town unmaintained roads	Cost will pay for the public hearing notice required for the Board of Selectmen hearing and	Fire Department Operating Budget

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
						and designate the roads and erect signage.			signage for 5 roads (10 signs at $75).	
#68-2014	**Upgrade Ladd Lane Culvert over Davis Brook to Reduce the Impact of Floods and Erosion**	**Short Term 1-2 Years**	**69**	Public Works Department	$10,000	Two 36" culverts on Ladd Lane are rotted out and need to be upsized to 48" corrugated steel.	Flood, Ice Jam, Scouring & Erosion, Debris	Ladd Lane over Davis Brook	Cost is for replacement of failing culverts with a new 48" X 30 ft PVC pipe.	DPW Budget
#69-2014	**Reconstruct 250 Feet of Retreat Road to Reduce Erosion and the Risk of Washouts**	**Medium Term 3-4 Years**	**71**	Public Works Department	$7,000	Stop on-going erosion occurring to the road bed by adding 60' of 24"pipe and raise roadbed.	Flood, Scouring & Erosion, Debris	Retreat Road area	Cost is for upgrading existing road bed.	DPW Budget
#70-2014	**Install Dry Hydrant on West Joppa Road to Reduce the Impact of Fire, Wildfire and Lightning**	**Short Term 1-2 Years**	**74**	Fire Department	$5,000	Improved fire protection by installing dry hydrant to protect public and private property. Hydrant to be installed in accordance with the Rural Water Supply Plan.	Lightning, Wildfire, Drought, Hazardous Materials, Fire	West Joppa Road on Warner River	Cost is for permits, installation of 8" PVC pipe for dry hydrant & associated fittings.	Cap. Reserve Dry Hydrant Fund
#71-2014	**Install Dry Hydrant on West Roby District Road to Reduce the Impact of Fire, Wildfire and Lightning**	**Short Term 1-2 Years**	**74**	Fire Department	$5,000	Improved fire protection by installing PVC pipe dry hydrant to protect public and private property. Will update Rural Water Supply Plan once completed.	Lightning, Wildfire, Drought, Hazardous Materials, Fire	West Roby District Road on Warner River	Cost is for permit, installation of 8 "PVC pipe for dry hydrant & associated fittings.	Cap. Reserve Dry Hydrant Fund
#73-2014	**Rehabilitate North Village Road Culvert over Silver Brook at Dam to Reduce the Impact of Floods and Erosion**	**Short Term 1-2 Years**	**68**	Public Works Department	$30,000-50,000	Culvert is 7 X 9 X 50 Ft multi-plate that is rotting below water line. Needs to be repaired in-kind and when funds are available, to be replaced with open bottom box culvert.	Flood, Ice Jam, Scouring & Erosion, Debris	North Village Road at Silver Brook	Cost is for design and installation of open bottom box culvert engineered to handle storm surge.	CIP - Cap Reserve Fund

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
#75-2014	**Upgrade Collins Road Culverts over Intermittent Streams to Reduce the Impact of Floods and Erosion**	**Medium Term 3-4 Years**	**69**	Public Works Department	$6,000 - $10,000	Three undersized culverts on Collins Road, 15", 18" and 24", need to be upgraded to larger-sized culverts. During rain and flooding events, the road will wash out which results in road closings. All culverts along Collins Road have this problem and need to be upgraded in order for the road to function properly.	Flood, Ice Jam, Scouring & Erosion, Debris	Collins Road over Intermittent Streams	Cost is for replacement of failing culvert with adequately sized PVC culvert pipes.	DPW Budget
#76-2014	**Upgrade Schoodac Road Culvert over Intermittent Stream to Reduce the Impact of Floods and Erosion**	**Long Term 4-5 Years**	**65**	Public Works Department	$220,000	The undersized culvert of Schoodac Road needs to be upsized and the road bed needs to be raised by several feet. When the Warner River backs up and the intermittent stream flows, the road floods and the shoulders erode.	Flood, Ice Jam, Scouring & Erosion, Debris	Schoodac Road over Intermittent Stream	Cost is for culvert replacement with upgraded open bottom box culvert adequately sized by engineer.	CIP - Cap Reserve Fund & DPW Budget Will try to apply for Hazard mitigation Grant
#77-2014	**Upgrade Poverty Plains Road Culvert over Stream to Reduce the Impact of Floods and Erosion**	**Long Term 4-5 Years**	**65**	Public Works Department	$220,000	Existing 7 X 9 X50 ft multi plate culvert is rotted below the waterline. Replace this multi plate culvert with a bottomless box culvert. Need to be replaced when funds become available.	Flood, Ice Jam, Scouring & Erosion, Debris	Poverty Plains Road over Stream	Cost is for design and installation of open bottom box culvert, approx. size 8" X 8" X 60 ft.	CIP - Cap Reserve Fund
#79-2014	**Upgrade Red Chimney Road Culvert over Ballard Brook to Reduce the Impact of Floods and Erosion**	**Medium Term 3-4 Years**	**68**	Public Works Department	$175,000 - $200,000	Culvert is 5' by 40 ft concrete undersized. To be replaced with an 8 or 9 foot open bottom box culvert. Replace 2nd 4 ' x40 ft oval pipe. Replace with an 8 to 9 foot open bottom pipe taking into consideration fish migration.	Flood, Ice Jam, Scouring & Erosion, Debris	Red Chimney Road over Ballard Brook	Cost is for design and installation of open bottom box culvert.	CIP - Cap Reserve Fund & DPW Budget

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
#80-2014	**Upgrade Mink Hill Lane Culvert over Silver Brook to Reduce the Impact of Floods and Erosion**	**Long Term 4-5 Years**	**65**	Public Works Department	$220,000	Culvert is multi-plate that is rotting below water line. Needs to be repaired in-kind and when funds are available, to be replaced. 7'X 9' by 50ft Replace with Open Bottom Box Culvert to be sized by engineer.	Flood, Ice Jam, Scouring & Erosion, Debris	Mink Hill Lane over Silver Brook	Cost is for design & installation of Open Bottom Box Culvert with rip rap to protect opening of culvert.	CIP
#81-2014	**Upgrade East Joppa Road Culvert over Bartlett Brook to Reduce the Impact of Floods and Erosion**	**Long Term 4-5 Years**	**66**	Public Works Department	$5,000 - $10,000	Existing pipe is 24" by 80 ft Concrete pipe. Replace with 5 FT ' by 80 ft plastic pipe and add rip rap as appropriate at ends.	Flood, Ice Jam, Scouring & Erosion, Debris	East Joppa Road over Bartlett Brook	Cost is for purchase and installation of culvert pipe	DPW Budget
#82-2014	**Upgrade Newmarket Road Culvert over Davis Brook to Reduce the Impact of Floods and Erosion**	**Long Term 4-5 Years**	**67**	Public Works Department	$40,000	Culvert is Concrete undersized 30" by 60 ft causing washouts. Replace with 5 ft by 60 ft plastic culvert pipe.	Flood, Ice Jam, Scouring & Erosion, Debris	Newmarket Road over Davis Brook	Cost is for purchase and installation of culvert pipe	CIP
#83-2014	**Upgrade Henniker Road Culvert over Intermittent Stream to Reduce the Impact of Floods and Erosion**	**Medium Term 3-4 Years**	**69**	Public Works Department	$5,000 - $10,000	Culvert is corrugated steel 18" by 80 ft undersized and rotted. Replace with 36"X 80 ft Plastic Culvert Pipe.	Flood, Ice Jam, Scouring & Erosion, Debris	Henniker Road over Intermittent Stream	Cost is for the purchase and installation of pipe.	DPW Budget
#84-2014	**Install Dry Hydrant on Burnt Hill Road to Reduce the Impact of Fire, Wildfire and Lightning**	**Short Term 1-2 Years**	**74**	Fire Department	$6,000	Improved fire protection by installing PVC pipe dry hydrant to protect public and private property Will update Rural Water Supply Plan once completed. Discussions have been held with landowner and an easement is required.	Lightning, Wildfire, Drought, Hazardous Materials, Fire	Burnt Hill Road	Cost is for permit, installation of 8" PVC pipe for dry hydrant & associated fittings.	Cap. Reserve Dry Hydrant Fund
#85-2014	**Retrofit the Town Hall with a Sprinkler System to Reduce the Impact of Fire Events**	**Short Term 1-2 Years**	**71**	Board of Selectmen	$75,000 - $100,000	Town Hall is over 100 years old. Engineered drawings for retrofitting of a sprinkler system have been acquired. Warrant article to prepared for 2020.	Lightning, Fire, Hazardous Materials, Conflagration	Town Hall	Cost is for installation of retrofitted sprinkler	Town Hall Capital Reserve Fund (in CIP)

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
									system for Town Hall.	
#87-2014	**Encourage the Installation of a Standby Generator for North Ridge Elderly Housing to Reduce the Impact of Wind, Storm or Winter Events**	**Short Term 1-2 Years**	**67**	Board of Directors for Facility	$20,000 - $25,000	Install Standby Generator capable of providing power to the 35 units during loss of power. This will enable residents to remain at the facility during storm/disaster events. Many residents do not have vehicles for transportation.	Temperature, Fire, Public Health, Wind, Winter	North Ridge Elderly Housing	Cost is for generator, transfer switch and necessary wiring to hook into electrical system.	Grants to be Researched, possibly EMPG
#95-2019	**Install Transfer Station Fire Suppression System to Reduce the Impact of Fire Events**	**Short Term 1-2 Years**	**69**	Public Works Department	$80,000	The Transfer Station and Highway Department (new 20 year steel frame building) do not have a fire suppression systems. DPW building and assets at risk of loss because current building is not equipped with fire suppression system. Nor does the Town Hall, although a 2019 Warrant Article will request connection to Town water system for this purpose.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Transfer Station	Cost is for a fire suppression system.	Warrant Article through Capital Improvement Program
#96-2019	**Install Public Works Building Fire Suppression System to Reduce the Impact of Fire Events**	**Short Term 1-2 Years**	**69**	Public Works Department	$200,000	The Transfer Station and Highway Department (new 20 year steel frame building) do not have a fire suppression systems. Single water source cistern for both buildings ($100,000).	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Public Works Building	Cost is for installation of cistern or well and associated pumps to be able to supply building with water in the event of fire.	Warrant Article through Capital Improvement Program
#97-2019	**Continue to Replace Old Water Pipes as Necessary in Coordination with Other Projects to Protect Groundwater**	**Long Term 4-5 Years**	**67**	Warner Village Water District	$200,000	Warner Village Water Precinct has some 100-year old iron sewer pipes in need of replacement on West Main, East Main, Kearsarge Mtn Road. They have to eventually be replaced	Flood, Scouring & Erosion, Earthquake, Water Quality, Public Health	Warner Village Water District	Cost is for permits and pipe replacement.	WV District Warrant article

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
	and Reduce Risk of Flooding and Earthquake					because of lead solder. Village District tests for lead regularly, have replaced some pipes. When underground Town projects are initiated, the pipes are replaced in these areas. Project likely more than 5 years.				
#98-2019	**Replace Dry Hydrant Fittings and/or Pipes on the Pleasant Pond, Warner Power, Poverty Plains, Retreat Road Dry Hydrants to Reduce the Impact of Rural Wildfires**	**Short Term 1-2 Years**	**75**	Fire Department	$7,500	Some of the Town's dry hydrants do not work because the plastic fittings are shrinking - may work sometimes and not others. The need exists to fix these long term.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Pleasant Pond, Warner Power, Poverty Plains, Retreat Road	Cost is for replacement of dry hydrant fittings on 4 # of hydrants.	Capital Reserve Funds
#99-2019	**Upgrade the Drainage of the Dalton/Joppa Covered Bridge Abutments to Ensure Adequate Drainage and Reduce Flooding and Scouring of Bridge**	**Short Term 1-2 Years**	**75**	Public Works Department	$3,000	Town bridge 191/122 (Dalton/Joppa Covered Bridge) repairs will be done by Spring /Summer 2019 (weather permitting). Drainage problem on the south side of the hill. Water freezes in catch basin, wrong grade. Town has funding set aside to replace drain grate >$3,000.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Dalton/Joppa Covered Bridge	Cost is for drain grate and materials labor is in-kind.	PWD Bridges Maintenance Operating Budget
#100-2019	**Install Simonds School Fire Suppression System to Reduce the Impact of Fires and a Generator to Reduce the Impact of Wind, Storm or Winter Events**	**Long Term 4-5 Years**	**63**	Simonds Elementary School	$200,000	Simonds School needs a installed generator to run the school functions in the event of power outage. The building has no sprinkler system, does have a fire alarm system. Limited traffic location for evacuation of children, shuts down entire Main Street area. Kids drill evacuation to the Church, buses pick them up, worked well. School in	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Simonds School	Cost is for installation labor, pipe materials, ($175,000) generator, concrete pad, wiring ($25,000).	School District CIP, then Warrant Article (School)

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
						process of removing asbestos floor tiles. District has been replacing rooms each summer, have several rooms to go. 7 communities in District. Kids have to remain in school if power outages occur. Placing an installed generator still requires fuel delivery. Project may go beyond 5 years. Water District may first have to bring 6" water system to the School while they are replacing pipes to Town Hall.				
#101-2019	**Replace the Simonds School Roof Fire Escape to Reduce the Injury Potential During Evacuations**	**Long Term 4-5 Years**	**55**	Simonds Elementary School	$20,000	The Simonds School fire escape across the top roof is not ideal but is usable. Must be shoveled during snow weather, kids use it and could evacuate from it if needed. Should be replaced in about 5-10 years.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Simonds School	Cost is for installation labor and metal fire escape materials.	School District CIP, then Warrant Article (School)
#102-2019	**Install Lightning Rods and Grounding Panels at the Police Department, Fire Station, Transfer Station, Public Works Facility, and Pillsbury Free Library to Reduce the Impact of Lightning**	**Long Term 4-5 Years**	**70**	Board of Selectmen with Fire Department and Emergency Management assistance	$25,000	Most Town Buildings do not have lightning rods and surge protectors at the main electrical box source to offset lightning strikes. Lightning is a concern as the computer systems are vulnerable as well as the buildings themselves and their contents. Lightning has caused similar problems in surrounding communities.	Lightning, Wildfire, Drought, Hazardous Materials, Fire, Human	Police Department, Fire Station, Transfer Station, Public Works Facility, and Pillsbury Free Library	Estimated cost is for 6 Town Buildings rod, electrical panel, wires and labor.	Operating Budget of Town Depts or CIP to get all Buildings done at once
#112-2019	**Install a Static River Gage at West Roby District Road on the Warner River to**	**Medium Term 3-4 Years**	**75**	Emergency Management	$2,500	Install a static river gage on the West Roby District Road bridge to have an immediate, monitorable early warning		Old Bridge Abutment at West Roby	Estimated cost is for installation and materials for a	Emergency Management

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
	Reduce the Impact of Flooding					system for high flood events. This is a low-cost measure that could be observed by the public.			static river gage.	Operating Budget or EMPG or HMPG

Source: Warner Hazard Mitigation Committee

Table 49

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
#39-2008	**Locate a Third Public Water Source to Increase Capacity and Protect Water Quality**	**Long Term 4-5 Years**	**62**	Warner Village Water District	$1m	Project will locate a well that is farther away from the existing wells and to mitigate a potential hazardous material spill impact to the Warner River. During drought conditions, having a backup well is prudent. Good sources further north on the River, have land that should be feasible from previous studies.	Earthquake, Drought, Public Health, Hazardous Materials, Water Quality		Cost is will fund an engineering study, permitting, piping to identify a suitable location for a third well.	Warner Village Water District user fees, additional tax in Precinct, USDA Rural Utilities Development and CDBG Grants
#41-2008	**Acquire and Install Portable Generator for McDonald Pump Station to Maintain Water Quality During Power Outages**	**Long Term 4-5 Years**	**67**	Warner Village Water District	$10,000	Severity and duration of weather conditions would disable the power system feeding the pumps, and the inability to be able to get a hauler in to haul the septage. Portable on McDonald's property.	Earthquake, Wind, Tropical, Utility Outage, Flood, Health	McDonald's Area	Cost is for hiring an outside contractor to install all wiring and controls, generator is portable from PD at HD	Warner Village Water District Budget
#103-2019	**Research and Install Beaver Deceiver Devices at a Trial Location Where Beaver Activity is Highest to Discourage the Development of Natural Dams**	**Short Term 1-2 Years**	**69**	Public Works Department	$2,500	Beaver dam issues have been experienced in the Mink Hills, French Brook/North Road, Mason Hill/Bagley Pond, Poverty Plains Road/wetland culvert, Schoodac Road/Schoodac Brook, Childrens Brook/Pumpkin Hill Road, Silver Lake. Breakage at some locations may washout roads	Flood, Dam, Wind, Debris	Entire Town	Cost is for hiring an outside contractor to install purchased devices	Grants to be determined

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
#104-2019	**Develop a Hazard Tree Removal Policy Enabling the Advance Trimming of Hazardous Trees to Reduce Storm Damage**	**Short Term 1-2 Years**	**75**	Board of Selectmen with Public Works Dept	$250	There are many vulnerable Populations and groups of residents in Warner residing on roads with only one way in/out. Sky Island apartments on Waldron Hill is vulnerable to power outages because of multiple trees down along the one access road (North Village Road). Could evacuate on Flanders Road (maintained), but limited access in and out depending where tree falls. Kearsarge Mountain Road has this same problem (about 60 homes) as does Northeast Catholic College. Developing a hazardous tree removal policy may help eliminate some of these situations.	Wind, Tropical, Winter, Lightning, Wildfire	Entire Town	Cost is for public hearing noticing.	Town Office Operating Budget
#105-2019	**Replace Sewer Lines on West Main Street from Cap Building, and Other Sewer Pipes to Protect Watershed Water Quality**	**Long Term 4-5 Years**	**66**	Warner Village Water District	$300,000	Water contamination or loss of water or sewage due to earthquake in the Warner Village area may have public health effects on businesses and residents. Some pipes are 100 years old and are more susceptible to breakage. CAP Building is priority.	Earthquake, Drought, Public Health, Hazardous Materials, Water Quality	Kearsarge Mountain Road, West Main Street, other Warner Village Water District areas	Cost is for design, installation, permitting, engineering, materials.	Warner Village Water District user fees, additional tax in Precinct, USDA Rural Utilities Development and CDBG Grants

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
#113-2019	**Install Water Line on Kearsarge Mountain Road**	**Short Term 1-2 Years**	**73**	Warner Village Water District with Town	$160,000	Associated with Town Hall and School pipes. $15k engineering costs already done.	Earthquake, Drought, Public Health, Water Quality		Cost is for design, installation, permitting, engineering, materials.	Town Office Operating Budget and Water Precinct Budget
#114-2019	**Develop Stormwater Infrastructure Asset Management Plan for Stormwater Runoff in the Village**	**Long Term 4-5 Years**	**62**	Town Administration	$25,000	Stormwater treatment system would be necessary before release of water into the Warner River via the MS4 program. Has applied once, will apply in the fall. Later on, will need the construction component of the stormwater system.			Cost is for the Plan.	Reimbursement grant from NHDES, forgivable loan - Safe Water Revolving Funds

Source: Warner Hazard Mitigation Committee

Table 50
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
#42-2008	Promote Public Awareness of Watershed Protection Regulations to Protect the Water Quality of Town Wells	Short Term 1-2 Years, then Ongoing	71	Warner Village Water District	$0	Project will protect the Warner Village Water supply from infiltration of chemicals, runoff, etc. Just a notice sent out yearly with the invoice.	Flood, Earthquake, Public Health, (Water Quality), River	Warner Village Water District	Cost is for in-kind staff and volunteer labor.	N/A
#43-2008	Encourage Recycling by Businesses and Residents to Reduce the Risk of Fires, Hazardous Materials Spills, and to Preserve Public Health and Water Quality	Short Term 1-2 Years, then Ongoing	70	Board of Selectmen	$700	Project will protect the environment, reduce air emissions, improve water quality, and protect against improper hazardous waste disposal. Project will also save the Town money. Poster flyers are located at Town Buildings. Incorporate into quarterly newsletter.	Hazardous Materials, Public Health, (Water Quality), River	Entire Town	Cost is for paper, printing, and bulk-mailing a flyer to households in Warner.	Transfer Station Budget/ Highway Department Budget
#91-2014	Educate Property Owners on Warner River Erosion along Susceptible Roads to Reduce the Risk of Erosion, Scouring and Washout	Short Term 1-2 Years, then Ongoing	69	Emergency Management & Board of Selectmen	$700	This will help to educate land owners in delicate areas of potential damage and in remediation actions. Coordinate with Warner River Local Advisory Committee. Place in quarterly newsletter. Town website	Flood, Erosion and Scouring, River	Warner River, floodplains, Brooks	Cost is for necessary materials, literature and various notification methods to communicate information.	Emergency Management Budget
#106-2019	Develop a Public Education Program about Potential Water Contamination in Village Area from Sewer Line Breakage	Short Term 1-2 Years, then Ongoing	71	Warner Village Water District	$300	Water contamination or loss of water or sewage due to earthquake in the Warner Village area may have public health effects on businesses and residents. Some pipes are 100 years old and are more	Earthquake, Public Health, (Water Quality)	Warner Village Water District	Cost is for paper and printing.	Warner Village District Operating Budget or User Fees

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
						susceptible to breakage. Educational materials are sent out regularly on various topics, business inspections, in quarterly invoices.				
#107-2019	**Develop a Public Education Program for Tying Down Propane Tanks in Areas Susceptible to Flooding to Reduce the Risk of Explosion and Hazardous Spills**	**Short Term 1-2 Years, then Ongoing**	**71**	Emergency Management with Fire Dept assistance	$500	(Haz Materials) Flooding along the Warner River can result in flooding to the tanks at Kearsarge Heating Oil. Toms Pond from Warner Power and along Warner River. Information can be placed in the quarterly newsletter, Town report. May work with fuel companies to have them hand out flyers.	Flood, Hazardous Materials, Fire / Explosion	Warner River, floodplains, Brooks	Cost is for paper and mailing.	Emergency Management Budget
#108-2019	**Provide Public Education on Emergency Shelter Activations to Reduce the Risk of Disasters to the Population**	**Short Term 1-2 Years, then Ongoing**	**68**	Emergency Management	$0	Promote where to find this information for all age groups during storm or disaster events. Town website, newsletters, flyers. Programs in the schools may help to hand out to students, school newsletter. United Church is looking to purchase a generator as a second emergency shelter.	Earthquake, Temperature, Wind, Flood, Winter, Solar, Tropical, Wildfire, Hazardous Materials	Entire Town	Cost is for in-kind staff and volunteer labor.	N/A
#109-2019	**Provide Public Education on Subscribing to Emergency Warning Systems**	**Short Term 1-2 Years, then Ongoing**	**68**	Emergency Management	$0	Provide Public Education on Subscribing to Emergency Warning Systems (Warner Alert on Town website, NHHSEM alerts). (FOR EOP: Post road closures on Warner Alerts, Town website's emergency section which generates emails or text messages). [see above for distribution]	Earthquake, Temperature, Wind, Flood, Winter, Solar, Tropical, Wildfire, Hazardous Materials	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
#110-2019	**Require Town Staff to Take Courses Related to the Prevention of Cyberattacks on the Town Computer Systems**	**Short Term 1-2 Years, then Ongoing**	**71**	Town Administration with IT assistance	$150	Care must be taken with municipal data. With sophisticated cyber attack methods, the Town staff in all Departments should be trained in how to identify threats and where to report them.	Cyber	Town Computer Systems	Cost is for IT time an in person class for employees, then following up with webinars. Town staff and volunteer labor is in-kind.	Town Admin OP
#111-2019	**Provide Public Education on How to Personal Prevent Cyber Attacks and Breaching of Data, Identify Theft**	**Short Term 1-2 Years, then Ongoing**	**67**	Emergency Management, Town Admin PD	$0	Bank sends out information to customers. Quarterly newsletters referring govt sites, subscriptions, monitoring for malware. Newsletter articles. Police Dept has flyers in the lobby	Cyber	Entire Town	Cost is for in-kind staff and volunteer labor.	N/A
#115-2019	**Obtain Information on Municipal Protection from Electromagnetic Pulse (EMP) and Provide Public Education on Personal Protection**	**Short Term 1-2 Years, then Ongoing**	**61**	Emergency Management	$250	Website, newsletter, brochures about developing EMP protection plan to protect municipal and personal electronics. There are several ways to protect against an EMP attack. One EMP protection technique is known as electrical shielding. If an electrical cable includes a grounded shield, the electromagnetic pulse won't penetrate the shield. The town must research, be prepared and provide the information to residents.	Solar, Geomagnetic Storms, Terrorism	Entire Town	Cost is for paper brochures.	Emergency Management Budget

Source: Warner Hazard Mitigation Committee

Great 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 Warner, 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. Warner's **Mitigation Action Plan** STAPLEE rating is shown in **Figure 29** and includes a basic benefit-cost ranking as shown in yellow.

Figure 29
Enhanced STAPLEE Ranking of Mitigation Actions

Action Number	Does the Action..... or Is the Action..... 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?)	Implemented Quickly? (See also Action Plan for Timeframe)	Socially Acceptable ? (People like it)	Politically Acceptable ? (Public Officials like it)	Admini-stratively 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
#104-2019	Develop a Hazardous Tree Removal Policy Enabling the Advance Trimming of Hazardous Trees to Reduce Storm	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	75
#112-2019	Install a Static River Gage at West Roby Disgrict RoAD ON THE Warner Road	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	75
#33-2008	Identify, Designate and Sign Class VI Roads as Fire Lanes	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	75
#98-2019	Replace Dry Hydrant Fittings and/or Pipes on the Pleasant Pond, Warner Power, Poverty Plains, Retreat Road	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	75
#99-2019	Upgrade the Drainage of the Dalton/Joppa Covered Bridge Abutments to Ensure Adequate	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	75
#61-2008	Add Watershed Protection Regulation Updates to Planning Board Regulations to Protect the Water	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	74
#70-2014	Install Dry Hydrant on West Joppa Road to Reduce the Impact of Fire,	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	74
#71-2014	Install Dry Hydrant on West Roby District Road to Reduce the Impact of Fire, Wildfire and Lightning	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	74
#84-2014	Install Dry Hydrant on Burnt Hill Road to Reduce the Impact of Fire, Wildfire and Lightning	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	74
#113-2019	Install Water Line on Kearsarge Mountain Road	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5	73
#5-2003	Establish Culvert Replacement Program to Reduce the Impact of Floods and Erosion	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	73
#106-2019	Develop a Public Education Program about Potential Water Contamination in Village Area from Sewer Line	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	71
#107-2019	Develop a Public Education Program for Tying Down Propane Tanks in Areas Suceptible to Flooding to Reduce the Risk of Explosion and Hazardous Spills	5	5	5	5	5	4	5	5	5	5	5	5	5	5	2	71
#110-2019	Require Town Staff to Take Courses Related to the Prevention of Cyberattacks on the Town Computer Systems	5	5	5	5	5	5	5	5	5	5	5	1	5	5	5	71
Action Number	Does the Action..... or Is the Action..... 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?)	Implemented Quickly? (See also Action Plan for Timeframe)	Socially Acceptable ? (People like it)	Politically Acceptable ? (Public Officials like it)	Admini-stratively 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 Number	Does the Action..... or Is the Action..... 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?)	Implemented 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
#42-2008	Promote Public Awareness of Watershed Protection Regulations to Protect the Water Quality of Town Wells	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	71
#69-2014	Reconstruct 250 Feet of Retreat Road to Reduce Erosion and the Risk of Washouts	5	5	5	5	4	4	4	5	5	5	5	5	4	5	5	71
#85-2014	Retrofit the Town Hall with a Sprinkler System to Reduce the Impact of Fire Events	5	5	5	5	4	5	5	5	5	5	5	3	4	5	5	71
#94-2019	Obtain Dam Emergency Action Plans for the Silver Pond & Bear Pond Dams	3	4	5	5	5	5	5	5	4	5	5	5	5	5	5	71
#102-2019	Install Lightning Rods and Grounding Panels at the Police Department, New Fire Station, Transfer Station, Public	5	5	5	5	3	4	5	5	5	5	5	5	3	5	5	70
#43-2008	Encourage Recycling by Businesses and Residents to Reduce the Risk of Fires, Hazardous Materials Spills, and to Preserve Public Health and Water	5	5	5	5	5	4	5	5	5	5	5	5	5	5	1	70
#65-2008	Encourage Development of New Flood Insurance Study to More Accurately Depict Location of Floodplains in Warner	5	5	5	5	3	5	5	2	5	5	5	5	5	5	5	70
#103-2019	Research and Install Beaver Deceiver Devices at a Trial Location Where Beaver Activity is Highest to Discourage the Development of	5	5	5	3	5	4	4	5	5	5	5	5	5	5	3	69
#68-2014	Upgrade Ladd Lane Culvert over Davis Brook to Reduce the Impact of Floods and Erosion	5	5	5	5	4	5	5	5	5	5	5	5	4	5	1	69
#75-2014	Upgrade Collins Road Culverts over Intermittent Streams to Reduce the Impact of Floods and Erosion	5	5	5	5	4	5	5	5	5	5	5	5	4	5	1	69
#83-2014	Upgrade Henniker Road Culvert over Intermittent Stream to Reduce the Impact of Floods and Erosion	5	5	5	5	4	5	5	5	5	5	5	5	4	5	1	69
#91-2014	Educate Property Owners on Warner River Erosion along Susceptible Roads to Reduce the Risk of Erosion, Scouring and Washout	5	5	5	5	5	3	4	5	5	5	5	5	5	5	2	69
#95-2019	Install Transfer Station Fire Suppression System to Reduce the Impact of Fire Events	5	5	5	5	4	5	5	5	5	5	5	5	4	5	1	69
#96-2019	Install Public Works Building Fire Suppression System to Reduce the Impact of Fire Events	5	5	5	5	4	5	5	5	5	5	5	5	4	5	1	69
#108-2019	Provide Public Education on Emergency Shelter Activations to Reduce the Risk of Disasters to the Population	5	5	5	5	5	5	5	5	5	5	5	2	5	5	1	68
#109-2019	Provide Public Education on Subscribing to Emergency Warning Systems	5	5	5	5	5	5	5	5	5	5	5	2	5	5	1	68
#73-2014	Rehabilitate North Village Road Culvert over Silver Brook at Dam to Reduce the Impact of Floods and Erosion	5	5	5	5	4	4	4	4	5	5	5	5	4	5	3	68
#79-2014	Upgrade Red Chimney Road Culvert over Ballard Brook to Reduce the Impact of Floods and Erosion	5	5	5	5	4	5	5	5	5	5	5	5	3	5	1	68
#111-2019	Provide Public Education on How to Personal Prevent Cyber Attacks and Breaching of Data	5	5	5	5	5	5	5	5	5	5	5	1	5	5	1	67
#41-2008	Acquire and Install Portable Generator for McDonald Pump Station to	5	5	5	5	5	3	3	5	5	5	5	5	5	5	1	67
Action Number	Does the Action..... or Is the Action..... 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?)	Implemented 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 Number	Does the Action..... or Is the Action..... 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?)	Implemented 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
#82-2014	Upgrade Newmarket Road Culvert over Davis Brook to Reduce the Impact of Floods and Erosion	5	5	5	5	3	5	5	5	5	5	5	5	3	5	1	67
#87-2014	Encourage the Installation of a Standby Generator for North Ridge Elderly Housing to Reduce the Impact of Wind, Storm or Winter Events	5	5	5	5	4	5	4	5	5	5	5	3	5	5	1	67
#93-2014	Update the Zoning Ordinance to Comply with NFIP Requirements to Reduce the Impact of Flooding	5	5	5	5	5	3	3	5	5	5	5	5	5	4	2	67
#97-2019	Continue to Replace Old Water Pipes as Necessary in Coordination with Other Projects to Protect Groundwater and Reduce Risk of	5	5	5	5	2	5	5	3	5	5	5	5	3	5	4	67
#105-2019	Replace Sewer Lines on West Main Street from Cap Building, and Other Sewer Pipes to Protect Watershed	5	5	5	5	2	5	5	4	5	5	5	5	2	4	4	66
#81-2014	Upgrade East Joppa Road Culvert over Bartlett Brook to Reduce the Impact of Floods and Erosion	5	5	5	5	2	5	5	5	5	5	5	5	3	5	1	66
#76-2014	Upgrade Schoodac Road Culvert over Intermittent Stream to Reduce the Impact of Floods and Erosion	5	5	5	5	2	5	5	5	5	5	5	5	2	5	1	65
#77-2014	Upgrade Poverty Plains Road Culvert over Stream to Reduce the Impact of Floods and Erosion	5	5	5	5	2	5	5	5	5	5	5	5	2	5	1	65
#80-2014	Upgrade Mink Hill Lane Culvert over Silver Brook to Reduce the Impact of Floods and Erosion	5	5	5	5	2	5	5	5	5	5	5	5	2	5	1	65
#59-2008	Update the Zoning Ordinance to Reflect Updated Master Plan to Reduce the Risk of Natural Hazards to	3	5	5	5	4	3	3	5	5	5	5	5	5	4	2	64
#100-2019	Install Simonds School Fire Suppression System to Reduce the Impact of Fires and a Generator to	5	5	5	5	1	5	3	5	5	5	5	3	1	5	5	63
#114-2019	Develop Stormwater Infrastructure Asset Management Plan for Stormwater Runoff in the Village	5	5	5	5	3	3	3	5	5	5	5	5	3	4	1	62
#39-2008	Locate a Third Public Water Source to Increase Capacity and Protect Water Quality	5	5	5	4	2	5	5	5	5	5	5	3	2	5	1	62
#115-2019	Obtain Information on Municipal Protection from Electromagnetic Pulse (EMP) and Provide Public Education on Personal Protection	5	5	5	5	5	3	3	4	4	5	5	1	5	5	1	61
#57-2008	Update the Subdivision and Site Plan Regulations to Reflect Updated Master Plan to Reduce the Risk of	3	5	5	5	4	2	3	5	5	4	5	5	5	3	2	61
#101-2019	Replace the Simonds School Roof Fire Escape to Reduce the Injury Potential During Evacuations	5	5	5	1	1	5	5	5	5	5	5	1	1	5	1	55
#67-2008	Identify and Map Cell Tower Communication Gaps in Warner to Raise Awareness of Possible	1	5	5	1	3	5	5	5	3	5	5	1	2	3	1	50
#6-2003	Identify and Engineering Plan of Emergency Access from Kearsarge Mountain for Evacuation to Reduce	5	5	5	5	1	3	3	4	5	2	5	3	1	1	1	49
Action Number	Does the Action..... or Is the Action..... 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?)	Implemented 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

Source: Warner 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 an 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. 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 51**.

Table 51

Committee Assessment of Priority Natural Hazards with No Mitigation Actions

CONCERN	Natural Hazard	Committee Assessment
HIGH	Drought	See Actions.
LOW	Earthquake	Not a priority but see Actions.
LOW	Landslide	Not a priority.
HIGH	Extreme Temperatures	See Actions.
MEDIUM	Wildfire	See Actions.
MEDIUM	Lightning	See Actions.
MEDIUM	Inland Flooding	See Actions.
MEDIUM	River Hazards	See Actions.
HIGH	Public Health	See Actions.
LOW	Solar Storms and Space Weather	Not a priority but see Actions.
HIGH	High Wind Events	See Actions.
MEDIUM	Tropical and Post-Tropical Storms	See Actions.
HIGH	Severe Winter Weather	See Actions.

Source: Warner Hazard Mitigation Committee

9 ANNUAL IMPLEMENTATION AND EVALUATION

The Town received FEMA approval for the prior **Hazard Mitigation Plan** in **March 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 Warner will review, monitor, and update its new **Warner 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
- ✓ Deputy Emergency Management Director
- ✓ Town Administration
- ✓ Fire Chief
- ✓ Police Chief
- ✓ Public Works Director
- ✓ Building Inspector/ Zoning Compliance Officer
- ✓ Health Officer
- ✓ Transfer Station Supervisor
- ✓ Warner Village Water Precinct Supervisor
- ✓ 1 Board of Selectmen member
- ✓ 1 Planning Board member
- ✓ 1 Conservation Commission member
- ✓ 1 Economic Development Committee member (as available)
- ✓ 1 Energy/Solar Committee member
- ✓ 1 Simonds School Representative or School District Representative
- ✓ 1 Pillsbury Free Library member
- ✓ 1 Parks and Recreation member
- ✓ Members at Large (Stakeholders)

Stakeholders who should be solicited to attend meetings and to participate equitably in the Plan development process include representatives from the Warner Main Street business community, Community Action Program, Historical Society, Churches, Mount Kearsarge Indian Museum, Mink Hills neighborhood, local State Representatives, Kearsarge Area, Chamber of Commerce, campgrounds, agricultural/farming operations, trail groups, other neighborhoods, non-profits, area emergency management directors, local, State or Federal agency 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 52**.

Table 52

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 *$ available*	**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 *Infrastructure projects underway*	**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** *Budget determined*	**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: Warner 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 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, Warner 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 Warner, and will be posted on the Town of Warner website at http://www.warner.nh.us/. 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.

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 **Warner 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 Warner has a comprehensive network of plans, processes, champions, regulations, and budgets to ensure its local objectives, projects and budgets are fulfilled. The **Warner Hazard Mitigation Plan 2014** is a tool for community betterment which works most effectively when partnering with existing planning mechanisms. Since the original **2003 Plan**, the overall integration and importance of the **Warner Hazard Mitigation Plans** into existing Town planning mechanisms continues to grow.

For instance, the **2014 Plan** was not adopted as part of the Planning Board's Master Plan, yet the **Capital Improvements Program 2019-2025** was updated annually to reflect new projects from Departments, including the Public Works Department funding that upgraded culverts in the **Mitigation Action Plan**. The Zoning Ordinance was revised annually since **2014** and the Subdivision and Site Plan Review Regulations were updated in **2017**, all of which indirectly support hazard mitigation planning principles instead of having voted in specific changes as a result of the **2014 Plan**. Annual budgets for Emergency Management considered the **2014 Hazard Mitigation Plan** findings and led to the construction of a new Emergency Operations Center, completed in **2019**. Grants obtained by the Board of Selectmen enabled the installation of the Fire Department's dry hydrants as identified in the **2014 Plan**. The Warner Village Water District used the **2014 Plan** ideas to support its watershed signage project. The overall Town operating budget included funding for selected hazard mitigation projects and public outreach, and supported hazard mitigation planning where feasible or supported by voters.

Moving forward, the Town has room for further improvement of the **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 **Warner Master Plan** was adopted in **2006**, developed by the Planning Board with assistance from the CNHRPC, as an update to the comprehensive **1996 Master Plan**. The Master Plan is being updated again in **2019** (began in 2016), with the goal of rotating Chapter review and revision annually. Chapters updated include Housing and Demographics, Economic Development; Natural Resources, Community and Recreational Facilities, Natural Hazards, Utilities and Public Services, Transportation, Regional Concerns, Future Land Use, and Implementation. The Planning Board is currently working with the CNHRPC to update the Master Plan Chapters for an updated **2020** Master Plan.

The Planning Board should consider adopting the Hazard Mitigation Plan Update as a separate Chapter to its Master Plan in accordance with **RSA 674:2.II(e)**. The **Hazard Mitigation 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.

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

Warner's last adopted **Capital Improvements Program (CIP)** is a **6**- year plan for **2019-2025** with some portions of the plan encompassing a **10**-year view. 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 projects and equipment replacement identified as addressing needs cited in the Update. Depending on the Town's funding needs, Capital Reserve Funds for such items as road & bridge improvements should be identified where appropriate as addressing 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 Hazard Mitigation Committee 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 Warner, 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. When possible, Warner 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

With obtaining assistance from the HMC, the Department or Board is given the responsibility to ensure their Actions are completed, either by working on the Actions allocated to him/her 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 planned Town of Warner improvement projects to specific projects and objectives of the Hazard Mitigation Plan Update 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, and Budget Committee members;
- Provide personal invitations to Town Department heads;
- Provide personal invitations to the agencies, neighborhoods, and entities listed earlier in **9 ANNUAL IMPLEMENTATION AND EVALUATION**;
- Post public meeting notice flyers on the Town's website at http://www.warner.nh.us/ and in the Town Offices, Town Library, Post Office, and/or local business(es);
- Submit media releases to the Concord Monitor (a paid, regional daily newspaper serving over **40** communities around the Concord area) and the Intertown Record (a mailed weekly, local free newspaper serving several Kearsarge-area communities).

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 will be invited as will the NH Homeland Security and Emergency Management Field Representative for Merrimack County. 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 Warner 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 http://www.warner.nh.us/. The Town Administration and the HMC should consider developing a new section of the Town website dedicated to Hazard Mitigation Committee activities and the **2019 Plan**. This webpage should be kept updated with meeting notices and materials used by the Hazard Mitigation Committee. A new section 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. A number of Action

Plan items which will be undertaken relate to public education and involvement and this website 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 52**.

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:

- **Permanent Hazard Mitigation Committee Establishment**
- **Organization of Public Invitees to Join Meetings**
- **HMC Interim Meeting (IM) Publicity Tracking 2019-2024**
- **Annual Interim Plan Update Evaluation Worksheet 2019-2024**
- **Hazard Mitigation Actions Status Tracking 2019-2024**
- **Department Mitigation Action Progress Report 2019-2024**
- **Attendance Sheet Example**
- **Agenda IM1 Example**
- **Agenda IM2 Example**

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-E** are included under a separate electronic or paper document to maintain the relative brevity of this **Hazard Mitigation Plan Update**.

Listing of Warner 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**
- **E Photographic History of Hazard Events**

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 Warner.

11 MAPS

Five (**5**) detailed Maps were created during the development of the **Warner 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 Warner 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 Warner 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 Warner.

- **Map 1 - Potential Hazards**
- **Map 2 - Past Hazards**
- **Map 3 - Critical and Community Facilities**
- **Map 4 - Potential Hazards and Losses**

New ***Map 5 Culverts and Stream Crossings*** illustrates the geomorphic compatibility, aquatic organism passage (AOP) compatibility, and structure vulnerability to storm events of the assessed culvert and/or stream crossing locations. ***Map 5*** is a collaboration of many agencies, including Basil W. Woods Jr. Trout Unlimited Inc and Local Grass Roots, NH Geological Survey, NH Department of Environmental Services, NH Fish & Game, the Central NH Regional Planning Commission (CNHRPC), and the Town of Warner. The **February 2019** data compiled for these locations provides additional information to assist the Town with identifying culverts for management prioritization. For more information, visit the websites of these agencies or the Warner River Watershed Conservation Project.

- **Map 5 – Culverts and Stream Crossings**