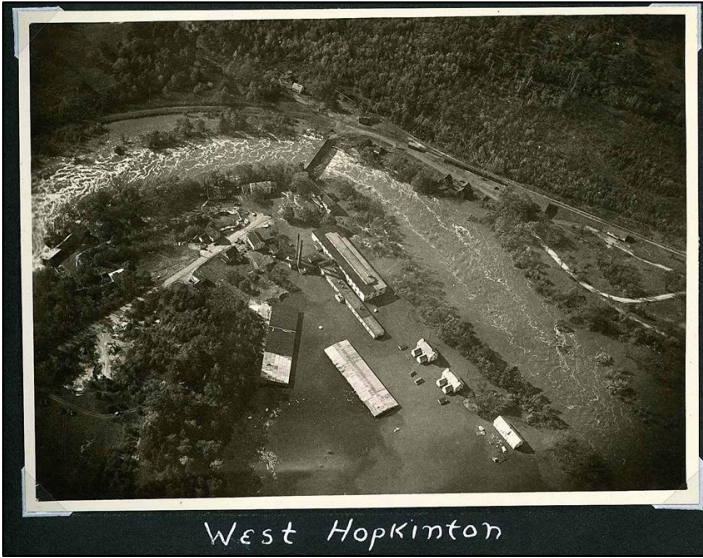


**DRAFT for Public Information Meeting Review  
at Select Board Meeting 05-13-24**

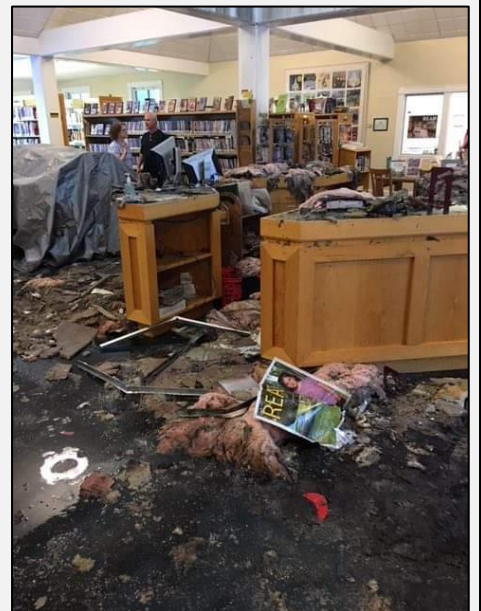
# **Hazard Mitigation Plan Update 2024**



## **Town of Hopkinton New Hampshire**

**Adopted by the Hopkinton  
Select Board  
Mon xx, 2024**

**Approved by NH HSEM/FEMA  
Mon xx, 2024**



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# Town of Hopkinton, NH

## Hazard Mitigation Plan Update 2024

Select Board Adopted **Month xx, 2024**

NH HSEM/FEMA Approved **Month xx, 2024**



### Town of Hopkinton

330 Main Street  
Hopkinton, NH 03229  
Phone: (603) 746-3170  
[www.hopkinton-nh.gov](http://www.hopkinton-nh.gov)

### Central NH Regional Planning Commission (CNHRPC)

28 Commercial Street, Suite 3  
Concord, NH 03301  
Phone: (603) 226-6020  
[www.cnhrpc.org](http://www.cnhrpc.org)



### NH Department of Safety (NH DOS)

**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](http://www.nh.gov/safety/divisions/hsem)  
<https://prd.blogs.nh.gov/dos/hsem>



### US Department of Homeland Security

#### Federal Emergency Management Agency (FEMA), Region 1

99 High Street, Sixth Floor  
Boston, Massachusetts 02110  
Phone: (617) 223-9540  
[www.fema.gov](http://www.fema.gov)

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## 1 PLANNING PROCESS

The Town’s Hazard Mitigation Committee reformed in **2023** to update the Plan which included incorporation of the new *FEMA Local Mitigation Planning Policy Guide, effective April 19, 2023* requirements, revising outdated material with current information, and providing the latest **5**-year history of Hopkinton since the last Plan was approved in **January 2017**. A new online community survey was made available to the public for wider input, and the new plan development procedure was documented in the **Methodology** section.

### Certificate of Adoption, 2024

Town of Hopkinton, NH  
Select Board  
Town Hall  
330 Main Street  
Hopkinton, NH 03229

#### A Resolution Adopting the Hopkinton Hazard Mitigation Plan Update 2024

WHEREAS, the Town of Hopkinton 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 2024** 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 Hopkinton has developed and received conditional approval from the NH Homeland Security and Emergency Management (NHHSEM) for its **Hazard Mitigation Plan Update 2024** under the requirements of 44 CFR 201.6; and

WHEREAS, public and Committee meetings were held between **January 2023** through **April 2024** regarding the development and review of the **Hazard Mitigation Plan Update 2024**; and

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

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

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**Town of Hopkinton, NH Hazard Mitigation Plan Update 2024**

**1 PLANNING PROCESS**

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

RESOLVED by Town of Hopkinton Select Board:

The **Hazard Mitigation Plan Update 2024** is hereby adopted as an official plan of the Town of Hopkinton; 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 Select Board by the Emergency Management Director or designee.

IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Hopkinton this xx<sup>nd</sup> day of Month 2024.

**Hopkinton Select Board**

\_\_\_\_\_  
Sabrina Dunlap, Chair                      date

\_\_\_\_\_  
Thomas Lipoma, Select Board              date  
Member

\_\_\_\_\_  
Ken Traum, Vice Chair                      date

\_\_\_\_\_  
Jeffrey S. Donohue, Select Board              date  
Member

ATTEST

\_\_\_\_\_  
Steven Whitley, Select Board              date  
Member

SEAL

**Town Clerk**

\_\_\_\_\_  
Christine Johnson, Town Clerk/Tax Collector              date

## Plan Process Acknowledgments

The Select Board-appointed Hazard Mitigation Committee was comprised of these individuals on behalf of their respective Departments, Boards or Committees who met between **January 2023** through **April 2024** to develop the **Hopkinton Hazard Mitigation Plan Update 2024**:

- **Jeffrey Yale**, Hopkinton Emergency Management Director
- **Neal Cass**, Hopkinton Town Administrator
- **Thomas J. Hennessey**, Hopkinton Police Chief
- **Melissa Courser**, Hopkinton Police Department Administrative Assistant
- **Dan Blanchette**, Hopkinton Public Works Director
- **Karen Robertson**, Hopkinton Planning and Zoning Director
- **Paula Simkins**, Hopkinton Recreation Committee Chair
- **Sam Currier**, Hopkinton Water and Sewer Committee Chair

The following Central NH Regional Planning Commission (CNHRPC) staff facilitated and prepared the Hazard Mitigation Plan Update:

- **Stephanie Alexander**, CNHRPC Senior Planner
- **Matthew Baronas**, CNHRPC Regional Planner (GIS)
- **Vincent Pagano**, CNHRPC Regional Planner (GIS)
- **Eliane Spalding**, CNHRPC Planning Intern and Hopkinton resident

### PARTICIPATION FROM NON-HAZARD MITIGATION COMMITTEE MEMBERS

Several other Town staff, non-Town-affiliated individuals or other agency representatives attended one or more Committee meetings and/or contributed information to the content of the Plan. Members of the public\* participated as fully as appointed members in the Hazard Mitigation Committee meetings during the meetings they attended.

- **Stephen Dermody**, US Army Corps of Engineers
- **Rich Little**, TDS Telecom, Associate Manager

PARTICIPATION FROM SOCIALLY VULNERABLE AND UNDERREPRESENTED COMMUNITIES

All non-Committee members were invited to participate fully in the meeting discussions and activities. Aside from the general meeting postings and notifications on the Town website, the Hopkinton Hazard Mitigation and Severe Weather Survey, and other methods of promotion, the Hopkinton Hazard Mitigation Committee reached out by personal contact to several organizations that represent and support socially vulnerable people and traditionally underrepresented communities within the Town.

These included local manufactured housing park owners, social support organizations, and local businesses such as Capital Area Public Health Network, Colonial Village Pharmacy and Supermarket, Hopkinton Dial-A-Ride, Meadows of Hopkinton Mobile Home Park and Deer Meadow Mobile Home Park, Hopkinton State Fair, and Hopkinton School District.

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

These identified individuals and groups were placed onto the Committee’s agenda and meeting notification distribution email lists for primary meetings. When there was no response after several attempts at communication, email notifications ceased so unwanted “spamming” did not occur. Anyone attending the Hazard Mitigation Committee meetings had the opportunity to actively participate in discussions and decision making. See also **Table 1.2**.

- **James Richardson**, Capital Area Public Health Network CAPHN Preparedness Contractor



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## Authority

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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, and Flood Mitigation Assistance (FMA) 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 Hopkinton is required to submit for FEMA approval a revised **Hazard Mitigation Plan Update** every five years.

The newest version of New Hampshire Homeland Security and Emergency Management (NH HSEM)'s *State of New Hampshire Multi-Hazard Mitigation Plan 2023* was approved **October 6, 2023** for the next five years. The State's Plan guides local hazard mitigation planning and allows for New Hampshire to receive federal Hazard Mitigation Assistance (HMA) funding programs to provide to local communities for mitigation, after disasters, and for emergency management assistance.

Prior versions of the Town's Hazard Mitigation Plan are noted in the **Final Plan Dates** section. A **2020** Building Resilient Infrastructure and Communities (BRIC) 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 **Hopkinton Hazard Mitigation Plan Update 2024** has been developed in accordance with the Disaster Mitigation Act of **2000** and the *FEMA Local Mitigation Planning Policy Guide, effective April 19, 2023*. The most recent Plan development standards provided by FEMA Region I have also been incorporated. The hazard mitigation planning effort of the Town is a regular process and this Plan is considered a "living document."

The new Hopkinton Hazard Mitigation Committee was established by the Select Board to begin meeting **April 2023** and guided the development of the Plan. The appointed Committee consisted of the Town's Police, Fire, and Ambulance Departments, Emergency Management Department, Public Works, Transfer Station, Building Department, and Administrative Staff. Hybrid meetings were held, with an in-person meeting at the Contoocook Fire Station with Zoom Webinar hosted and advertised by the Town.

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

Methodology

The **Hopkinton Hazard Mitigation Plan Update 2024** was developed over a seven-month period with a group of Town staff members and volunteers, open to public participants, and the CNHRPC comprising the Hazard Mitigation Committee. The **2023** methodology for Plan development is summarized in this section. The **Hazard Mitigation Plan** is designed differently from the **2017 Plan** with the intent to better conform to the current approvable Central NH Region format and incorporating the new **2023 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, 2023** by using its terminology and some of its tasks, ensuring **Hopkinton’s Plan Update 2024** begins to follow a standardized approach to Plan construction and content endorsed by FEMA. Many of the vital sections of the **2024 Plan Update** will be contained in **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 1.1**. Work Sessions were designed to accomplish what could not be completed at meetings due to time constraints and additional information to process. All meetings were publicly accessible by Zoom.

**Table 1.1**  
**Meeting Schedule and Agenda Activities**

Meeting	Date	Agenda Activities – See APPENDIX C	Attended by Public and Stakeholders
<b>Meeting 1</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	01-31-23	Discuss Process and Schedule; Review Declared Disasters and Public Assistance Funding to Hopkinton; Develop New Hazard Identification and Risk Assessment (HIRA), Begin to Identify Recent Potential and Past Hazard Locations 2017-2023; Schedule Meetings	US Army Corps of Engineers
<b>Work Session 1</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	02-14-23	Finish Past Hazard Events 2017-2023; Finalize Hopkinton Haz Mit and Severe Weather Survey on Survey Monkey; Update Critical and Community Facilities Vulnerability Assessment and Develop Problem Statements; Revise Maps 1-2	None, HMC & CNHRPC only
<b>Work Session 1.2</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	03-07-23	Status Check on Survey Responses; Finish Critical and Community Facilities Vulnerability Assessment Updates and Develop Problem Statements; Revise Maps 1-2	None, HMC & CNHRPC only

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## Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

### 1 PLANNING PROCESS

Meeting	Date	Agenda Activities – See APPENDIX C	Attended by Public and Stakeholders
<b>Work Session 1.3</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	03-21-23	Repeat Survey Promotion; Finish Update of Critical and Community Facilities Vulnerability Assessment and Problem Statements; Review & Revise of Maps 1-2	None, HMC & CNHRPC only
<b>Meeting 2</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	04-11-23	Finalize Problem Statements and Identify Those to Utilize as NEW 2024 Mitigation Actions; Review and Update Goals and Objectives; Status Report of Outstanding Items	None, HMC & CNHRPC only
<b>Work Session 2</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	04-18-23	Finalize Problem Statements and Identify Those to Utilize as NEW 2023 Mitigation Actions; Department Roundtable- Review & Update of Capability Assessment; Status Report of Outstanding Items	TDS Telecom
<b>Work Session 2.2</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	05-09-23	Finalize Problem Statements and Identify Those to Utilize as NEW 2024 Mitigation Actions; Status Report- Capability Assessment; Schedule Additional Meetings, Status Report: Outstanding Items	None, HMC & CNHRPC only
<b>Meeting 3</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	06-06-23	Determine Status of the 2017 Mitigation Actions; Review & Update Capability Assessment; Review Draft Survey Results; Begin to Develop Mitigation Action Plan 2024; Schedule New Meetings	None, HMC & CNHRPC only
<b>Work Session 3</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	06-20-23	Complete Last Capability Assessment Items; Develop Mitigation Action Plan 2024; Review Local Haz Mit Actions for Possible Inclusion; Begin to Prioritize Mitigation Action Ranking Scores for Action Achievability	None, HMC & CNHRPC only
<b>Work Session 3.2</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	07-11-23	Develop Mitigation Action Plan 2024; Review Local Haz Mit Actions for Possible Inclusion; Begin to Prioritize Mitigation Action Ranking Scores for Action Achievability; Next Meetings	None, HMC & CNHRPC only
<b>Work Session 3.3</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	07-18-23	Finish Mitigation Action Plan 2024; Review Local Haz Mit Actions for Possible Inclusion; Prioritize Mitigation Action Ranking Scores for Action Achievability; Next Meetings	None, HMC & CNHRPC only
<b>Work Session 3.4</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	08-08-23	Prioritize Mitigation Action Ranking Scores for Action Achievability Using Enhanced STAPLEE; Determine Natural Hazard highest Magnitude and Change in Intensity ; Provide Observations of the 2017 Plan and New 2024 Plan Update; Status Reports; Next Meetings	Capital Area Public Health Network
<b>Work Session 3.5</b>	08-15-23	Determine Natural Hazard highest Magnitude and Change in Intensity; Provide Observations	None, HMC & CNHRPC only

Meeting	Date	Agenda Activities – See APPENDIX C	Attended by Public and Stakeholders
<i>Remotely held via Zoom Webinar, In person at Fire Station</i>		of the 2017 Plan and New 2024 Plan Update; Status Reports; Next Meetings	
<b>Work Session 3.6</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	09-12-23	Provide Observations of the 2017 Plan and New 2024 Plan Update; Equity & Resilience Discussion; Status Reports; Overview of Meeting 4/Work Session 4 and Public Information Meeting	Capital Area Public Health Network
<b>Meeting 4</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	11-21-23	Review Draft Hazard Mitigation Plan Update 2024; Overview of Work Session 4 Tasks; Schedule Public Information Meeting	None, HMC & CNHRPC only
<b>Work Session 4</b> <i>Remotely held via Zoom Webinar, In person at Fire Station</i>	04-09-24	Review Draft Hazard Mitigation Plan Update 2024; Overview of Work Session 4 Tasks; Schedule Public Information Meeting	None, HMC & CNHRPC only
<b>Public Information Meeting</b> <i>In person at Fire Station</i>	05-13-24	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.	HMC, Select Board, public

Source: Hopkinton Hazard Mitigation Committee Agendas, 2023

For all meetings, hosted remotely via Zoom and in-person at the Contocook Fire Station, CNHRPC staff took a roll call during each meeting and completed a meeting match timesheet for participants 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** and in **Table 1.1**. 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 **2024 Plan Update** section. Maps were reviewed and updated by the Committee and guests and revised using a Geographic Information System (GIS) by CNHRPC.

In between meetings, Town staff and volunteers and CNHRPC staff researched and collected information for the Chapters. CNHRPC updated and rewrote Chapters, tables, and sections as appropriate. The Chapters were also updated by revising the document to the current FEMA standards and the *2023 State Multi-Hazard Mitigation Plan*.

**OPPORTUNITY FOR PUBLIC PARTICIPATION**

Several types of public participation were possible throughout the planning process. These ranged from in-person and online Hazard Mitigation Committee meetings, responding to the online survey, and attending the Public Information Meeting.

**Public Invited to Attend Hopkinton’s Hazard Mitigation Committee Meetings**

Hopkinton went to lengths to have an inclusive hazard mitigation planning process. The most successful avenue was the online Hazard Mitigation and Severe Weather Survey where **87** responses were provided. Information to the general public on how, when and where to attend Committee meetings was included on the survey, on the Town website and social media pages, on the Town calendar, and through regular

**Public Outreach Strategy**

Many individuals and agencies were personally invited to attend and participate in the Hopkinton Hazard Mitigation Plan Committee meetings by email, personal discussions, and by phone call. They included Town Boards and Committees, Town Departments, Hopkinton School District, NH Homeland Security and Emergency Management (NHHSEM) Representatives, local Emergency Management Directors and others, along with general email invitations through the Town’s public notification email list. In addition, an online and highly publicized Severe Weather and Hazard Mitigation Survey yielded **87** responses.

The Hazard Mitigation Committee itself was comprised of Town Department staff and volunteers, including Town Administration, Fire Department, Public Works Department, Police Department, Planning Department, Water Works, and Hopkinton School District. Other staff members or volunteers may have occasionally participated on behalf of their Departments.

The public process for this Plan included posting the meeting information on the Town’s online calendar and website at [www.Hopkinton-nh.gov](http://www.Hopkinton-nh.gov). Meetings were held remotely via the secure Zoom Webinar platform hosted by the Town. For the first meeting, the Town advertised by sending a mass email to the Town’s notification list and posting flyers and meeting announcements at the Town Hall. Notifications or the Agenda were placed on the Town bulletin boards. Copies of publicity for the Plan are included in **APPENDIX C**.

The Central NH Regional Planning Commission staff facilitated the Hazard Mitigation Committee meetings, guided the planning process, compiled new and old data, updated information, and prepared the 2024 Plan documents, Appendices, and Maps.

The draft **Hazard Mitigation Plan 2024** was presented at a specially noticed Public Information Meeting on May 13, 2024 during a Select Board’s meeting to obtain additional public input. This meeting was publicly noticed on the Town website and calendar and on the Select Board’s Agenda. 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**.

email distribution lists. The Committee meetings were held both at the Contocook Fire Station with a remote hybrid option using Zoom Webinar.

Table 1.2

Meeting Invitations and Participation

Invitations and Participation		
MUNICIPAL INVITEES	How Invited	Participation (see Also Table 1.1)
General Public	Town website Meetings Calendar <a href="https://www.hopkinton-nh.gov/">https://www.hopkinton-nh.gov/</a> Zoom Webinar Paper surveys left at the Community Center	Completed Online Surveys (87) Attended HMC Meetings  No paper Surveys completed
Town Boards (volunteer) Planning Board Zoning Board Conservation Commission Select Board	Discussed at Board meetings, Received all HMC Meeting Emails	People serving on Boards who were also Town staff may have participated (see Meeting Timesheets)
Town Departments & Staff Fire Department Town Administration Police Department Public Works Department Planning Department Recreation Department Human Services Department	Appointed by Select Board, Received all HMC Meeting Emails	Hazard Mitigation Committee Not all attended meetings (see Meeting Timesheets)
Non-Municipal Local Stakeholders	How Invited	Participation
Hopkinton School District SAU 66	Received all HMC Meeting Emails	Did not attend meetings, may have submitted surveys
Hopkinton State Fair Organization	Received all HMC Meeting Emails	Did not attend meetings, may have submitted surveys
US Army Corps of Engineers	Received all HMC Meeting Emails	Did not attend meetings, may have submitted surveys
TDS Telecom	Received all HMC Meeting Emails	Attended some HMC meetings (see Meeting Timesheets)
Colonial Village Pharmacy	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings, may have submitted surveys
Deer Meadow Manufactured Housing Park Cooperative	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings, may have submitted surveys
The Meadows of Hopkinton	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings, may have submitted surveys
Hopkinton Dial-A-Ride	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings, may have submitted surveys
Abutting Community EMDs	How Invited	Participation (No or type)
Concord EMD Henniker EMD Dunbarton EMD Bow EMD Warner EMD Webster EMD Weare EMD	Emailed Stakeholder invitation; Emailed Agendas (did not spam)	Did not attend meetings

Invitations and Participation		
Capital Area Public Health Network	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Attended some HMC meetings (see Meeting Timesheets)
Concord Monitor	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings
Regional & State Stakeholders	How Invited	Participation (No or type)
Central NH Regional Planning Commission	Contracted by Select Board	Facilitated Plan update on behalf of community, attended all meetings
Capital Area Public Health Network	Received all HMC Meeting Emails, phone call	Attended some HMC meetings (see Meeting Timesheets)
NH Homeland Security and Emergency Management	Received all HMC Meeting Emails	Did not attend meetings
Unitil	Received some HMC Meeting emails (did not spam)	Did not attend meetings
Eversource	Received some HMC Meeting emails (did not spam)	Did not attend meetings
NH Department of Transportation District 5	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings
Concord Monitor	Emailed Stakeholder invitations; Emailed Agendas (did not spam)	Did not attend meetings

**Public Input from the Hazard Mitigation Committee Meetings**

The public notification is described in the Public Outreach Strategy sidebar. Members of the public who attended the HMC meetings are indicated in the **Acknowledgements** and by the Meeting Timesheets in **APPENDIX C Meeting Information**, in addition to Public Information Meeting attendees. 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 **17** posted meetings or to contact the Town Administrator/Emergency Management Director for more information prior to the Select Board adoption of the Plan.

**Public Input from the Public Information Meeting**

The **Public Information Meeting (PIM)** was held on May 13, 2024. The Hazard Mitigation Committee members presented portions of the Plan and had the Maps available for display. Agenda are included in **APPENDIX C**. Held during a scheduled Select Board meeting, the PIM offered additional opportunity for the public to listen to presentations, ask questions and had the opportunity to review the final draft Plan document, Appendices and Maps.

Hopkinton Community Survey for Hazard Mitigation and Severe Weather Events

To obtain broad public input on hazard mitigation and severe weather events, an online community survey posted on Survey Monkey was developed in February 2023 and remained open through the May 13, 2024 Public information Meeting. Every person on the Town’s public email distribution list received notification of the survey, the Town website prominently published its link, as did Department social media. A total of **87** responses was received from the community at large. Following the HIRA hazard list, the survey asked respondents seven questions:

➤➤ **Q1** Which road(s) or areas are you most concerned about in Hopkinton when severe weather or other hazard events occur? Check all that apply.

Respondents were concerned about many roads and areas in town. Most frequently respondents noted I-89 and NH 103 (each >43% of respondents). US 202/NH 9 and Contoocook Village (each >30% of respondents) were also top choices, followed by Main Street, and Maple Street/ NH 127 (each >19% of respondents). Large groups of respondents indicated US 202/NH 9 ramps, Hopkinton-Everett Reservoir (floods), Contoocook River (floods) (each >12% of respondents). Additional roads and areas were identified by selection and by write-in response.

[Note: most of these locations are not Town of Hopkinton-controlled; they are state and federal assets.]

➤➤ **Q2** How concerned are you about the following natural hazards, severe weather events, or human/technological hazards impacting Hopkinton? (On an Extremely Concerned-Very Concerned-Moderately Concerned-Slightly Concerned-Not Concerned 1-5 scale)

Aggregated responses of Extremely Concerned + Very Concerned hazards indicated responses were most concerned about Aging Infrastructure (59%), High Wind (57%), Public Health (48%) and Long Term Utility Outage. Overall Climate Change (26%), Drought (21%), and Severe Winter Weather (20%) were the highest responses in the remaining Extremely Concerned (but non-aggregated) event categories.

➤➤ **Q3** Natural hazards can have a significant impact on a community but planning for or mitigating these events can help lessen the impacts. Planning may require Town funds as well as federal funds in addition to Town staff support and volunteer support. Please indicate how important you believe these mitigation planning priorities are for Hopkinton: (On an Extremely Important-Very Important-Moderately Important-Slightly Important-Not Important 1-5 scale).

The aggregated Extremely + Very Important top three mitigation planning priorities were to protect public facilities and operations (like Schools and dams) (69%), limit development in hazard areas (66%), followed closely by protecting town facilities and operations (64%).



- **Q4 & Q6** Can you describe any notable hazard events or severe weather events you experienced in Hopkinton? If yes, please provide brief comments on up to 2 events by describing what happened (What), the location (Where), the approximate month and year of the occurrence (When), and how you and your household were impacted.

Respondents most frequently recalled tree fall events, ice storms, and power outages as notable events. The locations occurred throughout town, and the dates were either uncertain or are regular occurrences. Impacts included transportation disruption to/from homes, power outages, and tree damages.

- **Q5 & Q7** How bad would you rate Event 1 & 2? (On an adjustable scale bar between 0-100, 0-Not Too Bad/ 50-Bad/ 100-Worst in Memory).

Respondents provided a wide range of ratings for the events they recounted, averaging 53 on the scale.

- **Q8** In your household, has anyone completed any of the following preparedness or mitigation activities? Check all that apply.

Regarding mitigation and preparedness, respondents most frequently removed hazardous trees at their home (68% of respondents), talked about what to do in case of severe weather emergency or natural disaster (53% of respondents), subscribed to an emergency alert service (48% of respondents), and make a 72-hour emergency kit (34% of respondents).

- **Q9** What are the best ways for you to receive information about disasters and severe weather events in Hopkinton? Please check your top 4:

Respondents preferred to learn about disasters and severe weather by Town E-Alerts Notification Email (58% of respondents), Local Television WMUR 9 (53% of respondents), cell phone app like CodeRed or NH Alerts (53% of respondents), and Internet News Media (46% of respondents). Secondary choices included Town Website, Town Social Media, and Local Radio Stations.

- **Q10** Please feel free to provide any other information related to severe weather, disasters, and hazard mitigation in Hopkinton in the space below.

Only 8 respondents added Q10 write-comments, so there were no common threads. But, each question of the survey offered additional room for write-in choices or comments. The summary of survey responses including all write-in comments are provided in **APPENDIX F COMMUNITY SURVEY**.

Public input from the **87** survey responses was used to confirm Town Department and operations priorities, and specifically informed the Town on how the public wishes to be notified during a disaster

event. The natural hazards of greatest concern to the public, wind, public health, climate change, drought, and winter storms, are being addressed in **8 MITIGATION ACTION PLAN**.

### How Public and Community Input Was Incorporated into the Plan

Aside from the Community Survey responses, the general public has not shown much interest in updating the **Hopkinton Hazard Mitigation Plan** compared to surrounding communities, but the level of interest is similar to previous **Plan** update cycles. During periods of relatively few major weather events, emergency declarations, or disaster declarations, the public tends to not participate until they experience a significant event and want to affect change. It is difficult for New Hampshire communities including Hopkinton to retain volunteers for their regular municipal committees. Volunteers often are available during the evening after their jobs have ended while Department staff, who hold the bulk of the update information needed for the **Plan**, are available during the daytime because their jobs require nighttime meetings or calls. Town Department staff and others participating in the Plan update process are often Hopkinton residents.

Survey responses were not directly incorporated into the Plan. Although the prioritization of hazards from the public were slightly different – a higher focus on human and technological hazards- the Town of Hopkinton works to combat the effects of climate change (wind, storms, flood, drought) and severe weather through Department and Committee work. The public survey results were used to bolster Department priorities but did not directly change the Plan’s content. Results confirmed what the Town already knew.

Anyone who participated in developing the **Hazard Mitigation Plan 2024**, including the members of the general public, Hazard Mitigation Committee, Town staff, Town volunteers, stakeholders, and guests, attended meetings and worked on the following group tasks as noted in the Agendas **Table 1.1**, including: **Goals and Objectives (CHAPTER 3)**, **Hazard Identification Risk Assessment** and identification of new hazard events since the last Plan (**CHAPTER 4**), **Critical and Community Facilities Vulnerability Assessment (CHAPTER 5)**, **Capability Assessment (CHAPTER 6)**, identifying the **Status of Prior Actions (CHAPTER 7)**, developing **Mitigation Action Plan** from problem statements, new ideas, and deferred Actions, and completing the **Enhanced STAPLEE Action Prioritization (CHAPTER 8)**. These primary tasks are the basis upon which the **Hazard Mitigation Plan** is founded, about **75%** of the document. These sections are found in the **TABLE OF CONTENTS**.

**COMPLETION OF THE PLAN STEPS AND DATES**

On May 13, 2024, 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 May xx, 2024, 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 Month xx, 2024, Hopkinton 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 Select Board, is submitted.

On Month xx, 2024, the Select Board **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 Month xx, 2024, Hopkinton 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 Month xx, 2029.

**Final Plan Dates**

The following is a summary of the required dates which guide the adoption and update of the **Hopkinton Hazard Mitigation Plan**. Included is the history of the Plan approvals and lapsing dates as shown in **Table 1.2**.

**Table 1.2  
Hopkinton’s Hazard Mitigation Plan Adoption History**

Year of FEMA-Approved Hazard Mitigation Plan	Adoption by Hopkinton Select Board	NHHSEM/ FEMA’s Formal Approval	Plan Lapse
Original 2004	02/23/04	05/04/04	05/04/09
Update 2010	06/07/10	06/07/10	06/07/15
Update 2017	01/17/17	01/30/17	01/30/22
Update 2024	xx/xx/24	xx/xx/24	xx/xx/29

Source: Plan Adoption History

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## 2 COMMUNITY PROFILE

It has been over seven years since the last Plan was written, with some basic information available from the newest **2020** decennial US Census beginning in mid-2021. The best available new data has been used in this Chapter to portray the population, housing, and overall demographic picture of present-day Hopkinton. 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**. New sections have been added on Social Vulnerability, Climate Resilience, Climate Change, and the Hazard Vulnerability section from **4 HAZARD RISK ASSESSMENT** has been moved to this chapter.

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

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The Town of Hopkinton is situated in Central New Hampshire within Merrimack County. It is bordered by the communities of Warner and Webster to the north, Bow, Dunbarton and Weare to the south and Henniker to the west. The State's capital City of Concord borders the Town along Hopkinton's eastern boundary. US Routes 9/202 and NH Route 103 and NH Route 127 are essential travel corridors for commuters, often used by those desiring to bypass Interstate 89. The north-south traveling Interstate 89 bisects Hopkinton, traveling from Concord to Warner. The US Route 9/202 bisects the lower third of the community in an east-west direction traveling from Concord to Henniker.

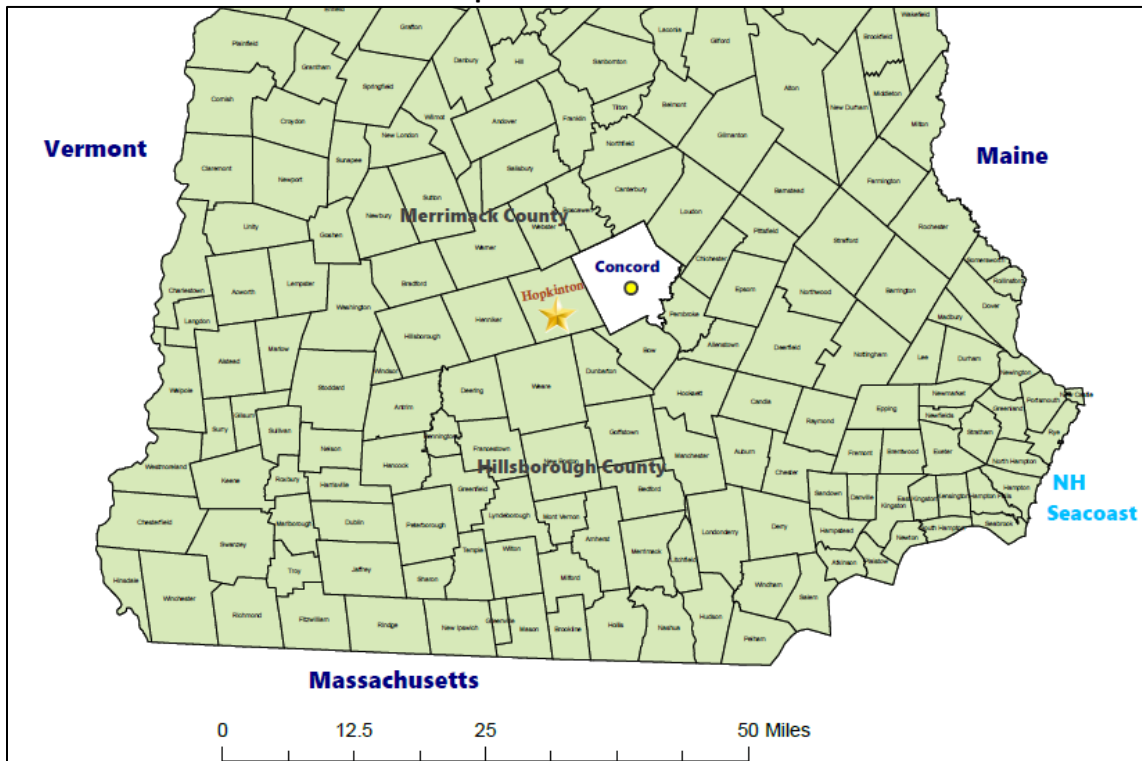
Hopkinton is growing as a bedroom community to Concord and Hooksett with traffic concerns and new housing developments. With easy access to I-89, Hopkinton may continue to experience substantial growth until rising development pressures require zoning changes or non-maintained road upgrades.

HOPKINTON'S LOCATION IN NH

Merrimack County in which Hopkinton 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. Geographically, Hopkinton abuts northeastern Concord, about 5 miles to downtown Concord from the Town Hall and about 55 miles east of the Vermont state border, between Concord and Keene on NH 9/US 202. The Town of Hopkinton's context within Merrimack County and the State of New Hampshire is shown in Figure 2.A.

Figure 2.A  
Hopkinton in the State



HOPKINTON'S LOCATION IN CENTRAL NH

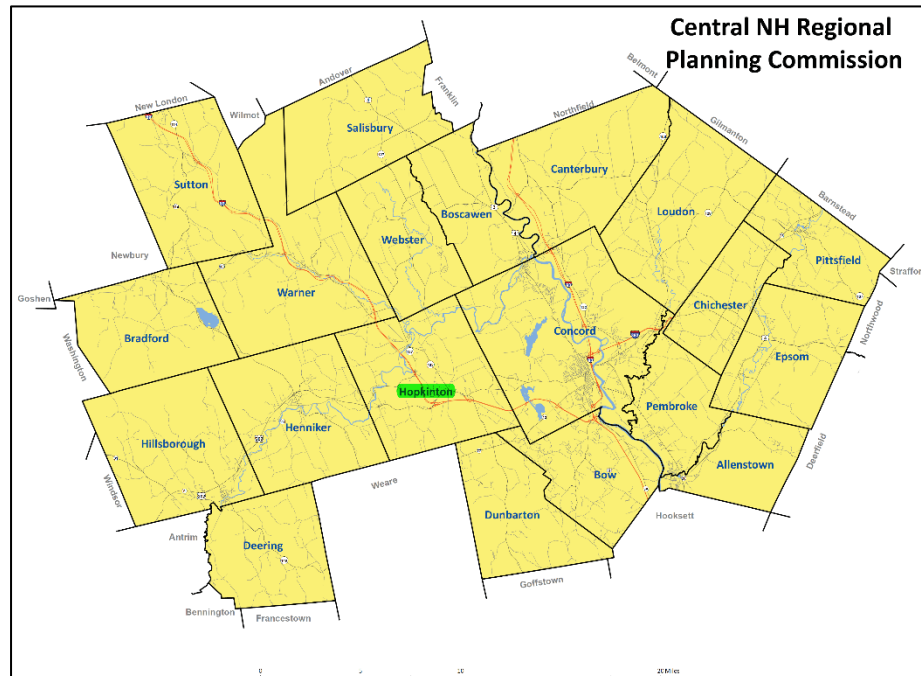
The Town is a voluntary member of the Central New Hampshire Regional Planning Commission. The 19 Towns and 1 City comprising the Central NH Region contain several major rivers and New Hampshire and Interstate highways. Hopkinton's historically rural identity, commuting accessibility, available services, and attractive neighborhoods, all through which the Contoocook River flows, could ensure regular future development within the community that borders Concord.

The Blackwater River (Salisbury, Webster, Hopkinton) and the Warner River (Bradford, Sutton, Warner, Webster, Hopkinton) flow south into the Contoocook River. The Contoocook River flows in a north-easterly direction through Hillsborough, Henniker, Hopkinton, Concord and Boscawen until its confluence with the Merrimack River in Boscawen/Penacook (Concord). The Contoocook River and the Merrimack River 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 too converges with 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 3 flow north-south and US 4/202 traverses in an east-west direction. Dozens of NH state highways crisscross the entire region.

Hopkinton can be accessed via I-89 Exits 4, 5 & 6, NH 9, NH 103, NH 127, and US 202. A map of the Central NH Region in which Hopkinton is situated, with the region's major routes, is displayed in Figure 2.B.

Figure 2.B Hopkinton in the Central NH Region



Population and Housing Growth

A new Master Plan was developed by the Planning Board, with hopes of continual update of chapters in forthcoming years. The current **2022 Hopkinton Master Plan** was adopted by the Planning Board in **May 2022** and is considered a “living” document as one or two chapters are reviewed and updated annually. Most chapters from the **2012 Master Plan** were included, but as the Town grows much of the base data will become historic information not included in future versions. The **2022 Hopkinton Master Plan** contains a Vision Chapter, Housing, Economic Base, Transportation, Existing and Future Land Use, Natural Resources, Community Facilities, and Implementation Chapters. The **Hazard Mitigation Plan 2024** could be adopted as an Appendix or a Chapter to the **2022 Master Plan** by the vote of the Planning Board. 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 Hopkinton.

POPULATION AND HOUSING TRENDS

The following tables contain the newest consistent data on housing and population growth which depict development trends over time. Shown in **Table 2.1**, Hopkinton’s population and housing boomed during the **1970-1980** decade (**+28%** people, **+37%** homes) and following into the **1980-1990** decade (**+25%** people, **+38%** homes). Beginning with the **1990-2000** decade (**+12%** people and **+15%** homes), population and housing trends slowed dramatically. The **2000-2010** decade which included a series of significant natural disasters and an economic recession shows Hopkinton experienced much slower growth (**+4%** people and **+8%** homes), the slowest growth period in **50** years. The new **2020** Census population housing unit figures calculated **+6%** people and **+3%** housing units between **2010-2020**, a small sign of renewed growth. This trend is found throughout the Central NH region.

**Table 2.1**  
Overall Population and Housing Growth Trends in Hopkinton, 1970-2020

Growth	Population	Net Change		Housing Units	Net Change	
		#	%		#	%
1970 Census	3,007	N/A	0	1,022	N/A	0
1980 Census	3,861	854	28.4%	1,395	373	36.5%
1990 Census	4,806	945	24.5%	1,924	529	37.9%
2000 Census	5,399	593	12.3%	2,210	286	14.9%
2010 Census	5,589	190	3.5%	2,381	171	7.7%
2020 Census	5,914	325	5.8%	2,451	70	2.9%
Total Change from 1970 – 2020 Census	---	2,907	96.7%	---	1,429	139.8%
2022 ACS	6,036			N/A	---	---

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 2019 Group Quarters.  
US Census 2020 Population, American Community Survey (ACS) 2015-2019, 2017-2021



### CHANGES IN POPULATION AND HOUSING TRENDS SINCE THE LAST PLAN (2017)

Since the **2017 Plan**, new **2020** Census population and housing unit figures calculated **+6%** people and **+3%** housing units between **2010-2020**, a small sign of renewed growth. This is a slight increase in growth over the previous decade.

#### Population and Housing Evaluation

Using the available Census data, the Town grew by **+2,907** people and **+1,429** housing units by confirmed Census counts and estimates from **1970-2020**. In **Table 2.1**, Hopkinton's confirmed **2020** Census population of **5,914** shows an overall increase of about **+96.7%** in population between **1970-2020**, up from **3,007** people in **1970**. Hopkinton experienced a larger proportionate increase of housing units between **1970-2020**, with a **+140%** (**1,429** units) increase since **1970** to total **2,451** units by **2020**.. Between **2010-2020**, the Town's population increased by **+325** people while during the same time housing units increased by **+70** units.

Overall, population growth trends are recovering over the **2010-2020** decade, while the number of new housing units is slowing. The overall population growth rate by percentage in Hopkinton since **1970** is smaller than other than the geographically medium-sized population communities in the Central NH region.

Over the **1970-2020** period, the number of people living in each housing unit has declined steadily from its high of **2.9** people per housing unit in **1970** to its steady low of **2.4** people per housing unit in **2020**. Overall, these numbers are higher in comparison to other medium-sized population Central NH Region towns and likely indicate an aging population living together or new families living in town.

#### Population Density

Another good measurement of community population and housing change is population density, or how many people live in a square mile of land area. Although Hopkinton encompasses a total land area of **43.1** square miles (**27,698** acres), an additional **1.8** square miles (**1,153** acres) is water area (**45.1** total square miles). Over the **50-year** period between **1970-2020**, the data for population density in Hopkinton is displayed in **Table 2.2**.

Table 2.2

Population Density in Hopkinton, 1970-2020

Municipality Size		Persons per Square Mile					
Land Acreage	Land Area in Square Miles	1970	1980	1990	2000	2010	2020
27,698	43.3	69	89	111	125	129	137

Sources: Table 2.1, NH Office of Planning and Development GIS acreage calculations, 2013

From Table 2.2, the overall population density between 1970 and 2020 increased from 69 people per square mile in 1970 to an estimated high of 137 people per square mile in 2020. Hopkinton is a geographically medium-sized community in the Central NH Region at 45.1 square miles including water acreage. Hopkinton has a comparatively moderate number of people per square mile as compared to other medium-sized Central NH Region communities and communities statewide.

Precise changes since the last 2017 Plan cannot be measured with the new 2020 Census figures, although as noted, comparisons between the decades can be made.

CHANGES IN DEVELOPMENT SINCE THE LAST PLAN (2017)

The highest density of population in Hopkinton is found in Contoocook Village along Main Street, Maple Street, Park Avenue, Kearsarge Avenue and Pine Street. This area contains a small business center and many homes. Residential land uses are scattered throughout the community, with greater concentrations located in areas east of I-89. Technological hazards like transportation accidents or natural hazards like winter storms, freezing rain, snowmelt and flashfloods may be the greatest threats to the population living along major transportation routes or backwoods Class V and VI roads.

New Construction

Table 2.3 displays Hopkinton’s estimated new home and new building construction permits issued by the Building Inspector between 2018-2023. During this 6-year period, a total of 99 new construction permits for homes and housing units have been issued, but not necessarily built. For counts of newly developed units, data on the number of certificates of occupancy issued would be helpful for future Plans to understand what was actually constructed.

**Table 2.3**  
**New Construction Permits Issued by Building Type, 2018-2023**

Building Type	2018	2019	2020	2021	2022	2023*	2018-2023* Totals	2010-2015 Totals (Last Plan)
Single Family Homes	11	12	15	13	15	5	71	39
Multi-family Homes	0	0	0	2	1	7	10	0
Manufactured Homes	1	1	2	0	0	1	5	1
Non-Residential Buildings	0	0	0	0	0	0	0	1
Accessory Dwelling Units	0	2	1	1	4	5	13	N/A
<b>Totals</b>	<b>12</b>	<b>15</b>	<b>18</b>	<b>16</b>	<b>20</b>	<b>18</b>	<b>99</b>	<b>41</b>

Source: Hopkinton Building Permit Software, \* to date 09-23

From **Table 2.3**, **71** permits were issued for new single family homes, with **13** permits for new accessory dwelling units, over the last **6** years. Five **5** new construction permits for manufactured homes were issued during the period, with **10** multi-family and **1** non-residential permits issued, totaling **99** new commercial/ industrial/ exempt permits. The most active years were **2022** and **2023** to date when respectively, a total of **20** and **18** new permits were issued.

It is important to note that the number of permits *issued* does not necessarily equate to buildings *constructed*. When using these figures, compared to most similar-sized Central NH region communities, Hopkinton issued more new construction permits between **2018-2023**.

Comparing the data to the last **2017 Plan**, Hopkinton issued more than double the number of building permits between **2018-2023** than between **2010-2015** when **41** permits were issued. There was an emphasis on single family permits (**39**) during this previous period.

Yet, there are no large subdivisions or new site plans approved over the last five years despite the number of new construction permits issued. As of September 2023, few lots are for sale in Hopkinton to purchase. Many large lots are already under conservation or owned by the federal government.

The Contoocook River runs through Hopkinton in a general west-east pattern. Since much of Hopkinton’s overall compact development is located in Contoocook Village, the Village area is vulnerable to the impacts of **flooding** and most of the homes this area are located in the floodplain. Interstate I-89 bisects the Town in a general north-south direction. **Transportation accidents** on I-89 could inhibit the ability of people to travel or could result in secondary impacts to residents and businesses. The Town has no other specific areas of vulnerability for residents as multiple severe weather events could impact the same areas or miss areas entirely. The Hopkinton-Everett Flood Control Area is staffed by the US Army Corps of Engineers and is designed to flood.

Land Use and Zoning

According to NH Office of Planning and Development’s geographic information system (GIS) calculations, Hopkinton has a total land area of **27,698** acres, or **45.1** square land miles. An additional **1,153** acres (about **1.8** square miles) is water area, to total **28,851.6** Town acreage within Hopkinton’s political boundaries. The GIS land acreage figure is slightly larger than the most recent **MS-1 2023** assessing reporting calculation of **28,667** total land and water acres for the Town. Certain acreages are often posted in more than one land use category for taxation purposes, and certain other land acreage is not displayed on MS-1 reports to the NH Department of Revenue Administration. Reviewing the assessing information closely should clarify the answer as to why this discrepancy exists. Small differences between the actual taxable land calculations from the assessing records and the acreage from the basic GIS calculations are often found and are not unusual.

For New Hampshire and specifically the Central NH Region, Hopkinton is considered a geographically moderate-sized community in terms of land area and contains typical population and housing figures. Hopkinton’s proportion of residential land is about the same as most towns in the Central NH Region.

CHANGES IN LAND USE SINCE THE LAST PLAN (2017)

The total number of Hopkinton parcels is **3,261** in **2023**, up from 3,237 in 2017, an increase of **+24** parcels from **2017**.

Land Use Types and Acreage

**Table 2.4** provides a snapshot of the Town’s **2023** land use acreage from the Town’s assessing database. Land use categories were combined for ease of summary. Forest Land is the most extensive land use type, comprising **41%** of the Town’s land area. Exempt land accounts for almost **28%** of the land area (federal flood control). Residential land use at **20%** is the next highest, followed by Farmland (**7%**), wet acres (**3%**), commercial and industrial (**<2%**), and utility (**0.4%**) land uses situated in Hopkinton.

Table 2.4  
Land Use Acreage, 2023

Land Use Category 2023	Acres	% of Town 2023	% of Town 2017
Residential	5,646.0	19.7%	43%
Commercial & Industrial	450	1.6%	2.9%
Utilities	102	0.4%	0.4%
Exempt	7,912	27.6%	27.9%
Farm Land	1,899	6.6%	6.1%
Forest Land, Open Space, Unproductive, Recreation	11,708	40.8%	19.8%
Wet	950	3.3%	0.1%
Totals	28,667	100.0%	100.0%

Source: Hopkinton Assessing Database, 2023

The land use changes represented in **Table 2.4** between **2017** and **2023** display how land is now classified by landowners and assessing agencies. This is reflected in the reclassification of residential land to forest land (likely to use the lower-taxed Current Use benefit for parcels **10** acres and greater). Whenever a Current Use parcel is subdivided or has its use changed, the owner must pay a penalty tax to the Town. Commercial, Utility, Exempt, and Farm Land remained very constant since **2017**.

**CHANGES IN ZONING SINCE THE LAST PLAN (2017)**

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.

**Hopkinton Zoning**

The perspective of the Town’s Zoning Districts offers another way to view how the land is utilized within Hopkinton in **Table 2.5**. Several tables of dimensional and density regulations pertaining to water and septic, lot frontages, setbacks, buffers and lot sizes, etc. are available within the Zoning Ordinance. The ordinance includes a table of uses, indicating what types of facilities are permitted in which District. Several commercial and residential districts fall within Hopkinton, over which floodplain and wetlands protection overlay districts apply further regulation.

**Table 2.5  
Hopkinton Zoning Districts, 2023**

Zoning District	Abbreviation	Acreage
Residential/Agricultural	R-4	14,396
Low Density Residential	R-3	6,071
Medium Density Residential	R-1	3,117
High Density Residential	R-1	3,449
Commercial	B-1	32
Industrial	M-1	923
Village High Density Residential	VR-1	82
Village Commercial	VB-1	97
Village Industrial	VM-1	4
	<b>Total</b>	<b>28,171</b>
Zoning Overlay District	Abbreviation	Acreage
Floodplain Development Overlay District	FPP	n/a
Wetlands Conservation	W-1	n/a
Hopkinton Village Precinct Overlay	HVP	n/a

Zoning District	Abbreviation	Acreage
Commerce & Community Overlay District	CCOD	n/a
<b>Other Zoning Ordinances pertaining to use of land</b>		
Conservation Subdivisions		
Manufactured Housing		
Parking Regulations		
Signage		
Recreational Camping/Facilities/Vehicles		
Excavation		
Affordable Housing		

Source: Town of Hopkinton Zoning Ordinance, March 2023

The content of the Hopkinton Zoning Ordinance undertakes multiple small changes annually to revise, add new, tighten and recodify zoning regulations. Changes since 2017 include: Growth Management re-adoption, Accessory Dwelling Unit regulation, Zoning Map revision for a handful of parcels, revisions to the Table of Uses (including the use of solar power), definition changes related to housing terminology, home business and telecommuting clarification, multi-family dwelling unit maximums, table of dimensional requirement changes. A new Commerce & Community Overlay District permits mixed-use development, and the new Affordable Housing section allocates a Housing Committee to help address any deficiencies.

The Planning and Building website at <https://www.hopkinton-nh.gov/planningbuilding> contains all of the ordinances, regulations, and proposed zoning amendments governing the use of land.

**Town Building Codes and Regulatory Protections**

More than zoning helps to keep the Town resilient to new building and (re)development. The Town has a Planning and Building office with staff people assigned to the role of Planning Director and Code Enforcement Officer. Short and long-range planning documents provide guidance and activities are regulated under Building Codes and Subdivision and Site Plan Regulations. All of these codes and regulations mean Hopkinton businesses, residents and visitors are safer from the dangers of severe weather and natural disasters, including flooding, high wind, and earthquake events.

Table 2.6

Hopkinton Building Codes and Regulatory Protections, 2023

Regulation	Date	Who Oversees
Master Plan 2012	May 2022 (last Chapter adopted)	Planning Board
Subdivision Regulations	April 2021	Planning Board
Site Plan Review Regulations	April 2021	Planning Board
Zoning Ordinance	March 2024	Planning Board
Capital Improvements Program	Dec 2022	Select Board
State Building Code- International Building Code (IBC) 2018. Includes Residential, Commercial, Plumbing, Electrical, Energy	State adopted in 2022, so did Hopkinton	Building Inspector
NFPA 1 Fire Inspection Code 2018	State adopted in 2022, so did Hopkinton	Fire Department
NFPA 101 Life Safety Codes Occupancy Inspections	State adopted in 2022, so did Hopkinton	Fire Department

Source: Capability Assessment, Chapter 6

Hopkinton has many Town Ordinances (or Policies) that are no land-use based. Overseen by the Select Board, the ordinances and regulations include parking, plowing, sidewalks, and more that re immediately applicable to all who fall under its definitions. They can be accessed here at <https://www.hopkinton-nh.gov/town-administrator/pages/ordinances-town-policies>. **6 CAPABILITY ASSESSMENT** contains the full list of plans, codes, policies, SOPs, etc.

**FUTURE DEVELOPMENT IN HOPKINTON 2024-2029**

The Town allowed its growth management ordinance to expire in 2022, thereby enabling the potential for future affordable housing development. The new Housing Committee will be working on equitable housing opportunities and regulations.

Between **2024-2029**, the Hazard Mitigation Committee predicts an increase in interest rates but while absorbing a large influx of out of region residents, mostly from cities. Only higher income people can afford to move and purchase a home in Hopkinton, and many of these people work from home. This again raises the need for more and better quality on internet, cellular, and VOIP services.

Future subdivisions are anticipated along Class VI roads and backlands. Developers are looking for space to build while landowners look for an easy way to generate cash. Accessory dwelling units (ADUs) are anticipated to increase, which will naturally expand the capacity for enabling the seniors to age in place, while in time becoming rental units that will enable singles, couples or small families to live in Hopkinton. Some ADUs are generational while others are a source of rental income for the single family homeowner. Future subdivisions may be designed with an eye toward providing affordable, workforce housing, but they will be more difficult to develop Hopkinton – the land is expensive, the easiest land

has already been developed, and the housing market is too expensive for median incomes to afford. New neighborhoods will have to upgrade Class VI roads to Class V standards, will need to construct new roads, and will be situated on slopes and near wet areas. The Town has many 10-20 acre lots that could be subdivided in the future. This is a topic the new Housing Committee will tackle.

Many of the Town's existing roads and homes are located in remote locations, but some are located in the Village and Main Street and in residential communities like the manufactured housing parks. About **100** dwelling units were newly constructed since the **2017 Plan**. Hopkinton is highly accessible by interstate and state highway to Concord, Manchester, Boston, Lebanon, Vermont and the seacoast. Residents are aging and many employed adults work from home. Technological infrastructure stress requires upgrade to meet demand. Since much of the easily developable land in Town has already been built or subdivided, future developments may occur on the (upgraded) Class VI roads, lots built on backlands, near **wetlands** or **steep slopes**, or in-fill development in the Village or Main Street areas. **Floods, landslides, erosion, and fires** could occur in these potential 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 **wash out** roads.

Much of the land in Hopkinton is under permanent conservation easement, is a State Park or is owned by the US Army Corps of Engineers and cannot be developed. Many remaining parcels keep the potential for subdivisions in the future when the lots change hands to younger generations ("legacy parcels") if the largest parcels are not placed under conservation. Conservation land is highly preferable by the Town, especially along the **Contocook River** or existing conservation lands.

When developments come before the Planning Board, potential hazards including **flooding, fire, traffic accidents, and evacuation** are regularly considered. A Technical Review Committee and the developers should try to solve the problems before a project is brought to the Planning Board to be 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 change, and attention should be focused on the hazards any new development could face during the consideration process. Techniques to mitigate identified hazards could be undertaken before the facilities are sited and constructed.

The main natural hazards for this community remain **wildfire, flood, severe wind events, severe winter weather, debris impacted infrastructure** (trees down on powerlines and trees/powerlines down on roads), **aging infrastructure** and **utility 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. A few agricultural operations are present. New (or replacement) buildings and infrastructure and potential future development appear in **APPENDIX A Critical and Community Facility Vulnerability Assessment**.



## Social Vulnerability and Equity in Hopkinton

According to the US Census’ American Community Survey (ACS), Hopkinton seems to contain fewer socially vulnerable or underrepresented populations as compared to Merrimack County and the State of New Hampshire as a whole. Risk assessments can be done by reviewing Census data and ACS figures over time for median income, gender, age groups, renters, people with limited English proficiency, racial and ethnicity changes in Town.

Reviewing the NH Department of Health and Human Services’ Social Vulnerability by Town comparisons can be quite helpful in determining social risks and vulnerabilities. This examination uses existing Census and American Community Survey Data to extract comparisons for each community. For further evaluation, comparisons to the percentages of Merrimack County and New Hampshire are provided in

Table 2.7.

Table 2.7

Hopkinton’s Change Social Vulnerability Index by Census Tract, 2017-2021

Social Vulnerability Index Category	Census Tract Dataset	Town 2013-2017	Town 2017-2021	Merrimack Cty 2017-2021	NH 2017-2021
Household Composition/ Disability	Children under 18	21.9%	19.2%	19.1%	19.0%
	Disability age 5 and older	11.7%	10.9%	14.3%	13.3%
	Elderly age 65 and over	23.0%	17.3%	18.4%	18.2%
	Single parent, % of households with children	17.5%	25.3%	29.1%	30.3%
	Population in group quarters	0.0%	0.0%	4.2%	2.9%
Housing/ Transportation	Large apartment buildings 10+ units	0.6%	0.0%	9.7%	10.2%
	Mobile Homes, % of housing units	7.9%	5.7%	6.2%	5.4%
	No vehicle, % of households	0.6%	0.0%	5.3%	4.7%
	Renter occupied, % of housing units	14.3%	10.3%	26.8%	28.4%
	Commute time greater than 35 minutes	19.2%	12.9%	24.9%	25.7%
Race/ Ethnicity and Language	Total Black, Indigenous and Persons of Color; Hispanic or non-white race	3.1%	4.1%	8.4%	11.1%
	Limited English proficiency age 5 and over	0.8%	0.0%	0.7%	1.0%
Socioeconomic Status	Education age 25+ without high school diploma	1.0%	2.9%	6.4%	6.4%
	Health insurance, <65 years without	6.9%	5.3%	6.8%	7.1%
	Income per capita (inflation adjusted to most recent year of 5-year est)	\$43,674	\$51,589	\$40,054	\$43,877
	Median household income	\$84,456	\$100,665	\$82,457	\$83,449
	Population living below federal poverty level	3.8%	5.9%	7.0%	7.4%
	Unemployed, age 16 and over seeking work	3.8%	5.0%	3.6%	3.8%

Source: [https://wisdom.dhhs.nh.gov/wisdom/dashboard.html?topic=social-determinants-of-health&subtopic=social-determinants-of-health&indicator=social-vulnerability-index-\(svi\)](https://wisdom.dhhs.nh.gov/wisdom/dashboard.html?topic=social-determinants-of-health&subtopic=social-determinants-of-health&indicator=social-vulnerability-index-(svi))

As a percentage of total population, Hopkinton has an equal number of children under 18, fewer single parent households, far fewer renter occupied units, and fewer people living below the federal poverty level, than compared to Merrimack County and New Hampshire in **2021**. Two of the most notable facts, the per capita income over **\$51,000** and the median household income over **\$100,000**, are significantly higher than Merrimack County and New Hampshire in **2021**. Most of the comparisons between 2013 and **2021** are similar, except fewer elderly over age **65** are living in Hopkinton now. With the high cost of housing in Hopkinton, renters and seniors can get priced out of the market. Hopkinton has fewer disabled people, fewer single parent households, fewer mobile home units, far fewer renters, far fewer without a high school diploma, and fewer without health insurance under age **65** than Merrimack County and the state.

Those who live in Hopkinton have more advantages (by percentage of population) than those living in Merrimack County and New Hampshire. There are a few underrepresented groups that could use additional attention, according to the figures:

- Make the Town more affordable to renters by increasing the number of rental and affordable homes.
- Increase opportunities for non-white populations to live in Hopkinton.
- Continue to support the 65+ population with options like accessory dwelling units and affordable housing.
- Increase the number of multi-unit housing buildings in Town.
- Provide retail and service jobs in the community for the unemployed to access.

The Town continues to host several manufactured housing parks, The Meadows (75 homes), Deer Meadow (50 homes) and Elm Brook Village (30 homes). Other vulnerable populations are the Hopkinton Schools, Little Tooky Area camps (25 homes), Sandy Beach Family Campground (100 sites). Two independent schools, Beech Hill School and Contoocook School (NFI North) also contain younger populations of children for large portions of the day. St. Methodios Faith and Heritage Center is a religious facility and camp where more than 200 people can be accommodated overnight. Vulnerable populations are particularly susceptible to **evacuation problems**, **public health** issues, **human** and **technological** hazards, as well as **all the natural hazards**. See **5 CRITICAL AND COMMUNITY FACILITY VULNERABILITY ASSESSMENT** for a more complete discussion.

## EQUITABLE COMMUNITY ACTIVITIES AND RESOURCES SINCE LAST PLAN (2017)

The Town has taken many steps to become more friendly to underrepresented populations.

- ➔ **New Housing Committee** and affordable housing. Upcoming new developments. Affordable Plans for 8 unit and 11 6+5 units condo housing, duplexes which is new for Hopkinton. A newly established Housing Committee is working toward this goal. The location is on east side of town off of Boundtree North East with proximity to I-89, a very desirable building lot. The Housing Comm is just beginning, trying to find affordable locations to build.
- ➔ **The Town's Welfare budget** has remained constant over 5 years. Budget is very low now \$55,000 (only spent 20% of it by Sep 1) in 2023 because people who needed it left their homes in Hopkinton because of NH's housing problem. It costs \$600,000 for a new house in Hopkinton. Manufactured homes on rented/leased land are selling at \$250,000, but prospective buyers cannot obtain financing for them. Five years ago, these same homes were priced in the \$80-\$100,000 range. Interest rates are higher because the land is leased and 20% down payment is needed. Renters with leases expired have their rents raised and cannot afford to live in Hopkinton.
- ➔ **Added Accessory Dwelling Units (ADUs)** to single family housing according to new state law. Living traditionally, with three generations, is what people are now doing. Parents and adult children are switching homes.
- ➔ The Hopkinton School population has dropped but is finally stable now. The School system has one of the highest test scores in New Hampshire.
- ➔ **The annual Hopkinton Fair.** Hopkinton Fire Department staffing goes from 3 per day to 11 per day for 5 days. Attendee population ranges from 6,000 to 30,000 people per day. Traffic has not been an issue. Weather was excellent in 2023 (rain tends to keep people away that day). The Fair has been organized and held for 104 years. The Fairground roads have been widened over time. Crowds seem the same size or larger, probably not as many local people attend now as they used to.
- ➔ **Municipal solar array and Community Power.** The Town is installing its first municipal solar array at the Transfer Station to help the Town and its residents "buy down" the cost of electricity. A Community Power study may encourage voters to opt in to lower electricity costs.
- ➔ **The closest homeless resource** is the Friendly Kitchen in Concord, which serves about 75 clients for dinner daily as of July 2023.

## Climate Change Resilience

The Town has proven resilient to storms and climate change because the immediate needs caused by extreme weather and storms has resulted in immediate attention to the issues.

The Town is experiencing increasing temperatures, more rain, less snow, and storms are bigger. The frequency of torrential downpours has increased which impacts the **Contoocook River**, **Warner River**, brooks, and waterways often washout or erode portions of gravel roads, ditches, and drainage systems. However, the US Army Corps of Engineers' dams and levees in the Hopkinton-Everett Flood Control Area and the Hopkinton Dam keeps the major **Contoocook River** flooding in check.

Current winter storms require the highway crew to use more material (sand, salt, etc) for snow plowing & maintenance, with the warmer weather temperatures resulting in more de-icing treatment during each storm. The Town budget has, with the approval of voters, increased accordingly to meet the demand. Road washouts have increased because of prolific downpours instead of gentle rain. The mud season is occurring earlier because of fewer snowstorms and fewer days of frozen ground.

Windstorm events have become more frequent and more severe, with the continuing need for clearing trees, utility lines and debris from roads. This problem is compounded by an uncountable number of dying ash trees within the road rights of way that are particularly susceptible to these wind events, so tree removal budgets are higher each year. Fewer wildfires occurred which is fortunate with the dry, drought conditions impacting Hopkinton over much of the last few years. Recent temperature warming could negatively impact the Town's informal beach congregation areas with toxic cyanobacteria blooms, aquatic invasive species, or e.coli; Elm Brook State Park with its public summer beach has a solid history of closures due to cyanobacteria in the last five years.

Town Department operating budgets need to continue to increase to meet Hopkinton's growing climate change needs. Vehicle fuel allowance, road material, and tree removal budgets have required increases to accommodate the weather conditions.

See **4 HAZARD RISK ASSESSMENT** for more specific data tables and discussions on climate change, temperatures, and trends in Hopkinton and the Central NH region area over decades.

### CLIMATE RESILIENCY IN HOPKINTON SINCE THE LAST PLAN (2017)

- ➔ **Resilience:** Flooding and droughts occurred nearly all of the last 5 years. Winter storms are icy and longer mixed precipitation storms – lots of town plow and road treatment over budget. Salt budget raised from \$50,000 in 2017 to \$120,000 today because of the types of storms now experienced. Salt washes off regularly. It costs about \$6,000 to salt all paved roads once (could occur 2-3 times per storm). Diesel fuel is now \$5/gallon; budget increased from \$50,000 to \$95,000 today for diesel fuel. The wet snow effect on trees and power lines seems more severe.

Hopkinton has its own sand resources which saves money. Still, the 2017 sand budget of \$40,000 ranges to \$90,000 annually today. The Town is spending a lot more on overtime costs although town was short staffed. These longer storms take a toll on the drivers.

- ➔ **Flooding:** This summer, 2023: In July, heavy rains caused flood conditions like typically seen in early spring. Hopkinton used to get snowmelt all at once. Culvert upgrades are built for larger volume storms. Town experienced drought for six months, then inches of rain each week. There were 2 instances (storms) of flash flooding with ditch washouts in July 2023. Only 7 days in July did not have precipitation in 2023. People report floods, residents and Departments respond to needs. Hopkinton has been designed to flood with the ACOE Hopkinton-Everett Lakes and reservoir. The Town has good water distribution here, dam control, culvert upgrade program – each one has increased in size to accommodate the new needs. The Town also has a significant amount of land under permanent conservation, all of which helps to buffer flood conditions.
- ➔ **Lightning level** extremely high (LAL5) on Sep 9-10, 2023. Bolts were coming down very fast. Although this intensity was unusual, Hopkinton is experiencing more lightning storms that are intense. No reported strikes with damage. Storm cells are large, may be supercells. One town might be hit hard, yet an abutting Town might not get much rain, wind or lightning.
- ➔ The Planning Board enabled greater protection from natural disasters/hazards when they adopted an **underground utilities ordinance**. Also, new buildings will be sprinklered, with fire hydrants connected to the municipal system which has great pressure and is gravity fed.
- ➔ **A new Energy Committee** formed to address the need for alternative power in Town. Solar energy exemptions are available to reduce owner taxation. One of their future projects is a ground-mount solar array at the Hopkinton Wastewater Treatment Plant. The Town intends to purchase the new array directly and is not considering power purchase agreement (PPA) or other investor-funded solutions. This is a grant funded project after a NH DES energy audit. The Town is served by Eversource of New Hampshire and has additional structures on the same site that may be considered for group net metering.
- ➔ **A new Solid Waste Committee** formed with the purpose of reducing the waste flow into the Transfer Station and to address new and emerging contaminants like PFAS. Contaminated soil from the Water Treatment Facility is being landfilled and capped.
- ➔ **A new Housing Committee** is seeking options to enable new affordable and workforce housing for renters and owners.

## BARRIERS TO CLIMATE RESILIENCE IN HOPKINTON

- ➔ **Limited resources.** The Town budget is finite unless raised annually and higher budgets are mostly paid for by property taxation. The rate paid by property owners in 2022 was \$22.68 per \$1,000 of valuation for just the municipal budget. When including the local school, state school, and county taxes, the total property tax rate paid by property owners in Hopkinton was \$32.25/\$1,000 of valuation. With the average home valued at \$600,000, owners must pay over \$19,000 annually in taxes.
- ➔ **The Town must prioritize its needs** where the highest need is resolved and lower priorities may not be completed.
- ➔ **PFAS.** This emerging contaminant is difficult to remove. The Town installed a clean water filtration system for 6 homes the Transfer Station. Barrier is past activities effecting now. A new well with no contamination has been dug and the water is tested regularly. Present PFAS contained- removed Teflon tape from pipes. The new Solid Waste Committee has been established to look at this problem as well as overall waste reduction.
- ➔ **Energy efficiency.** Many older buildings are expensive to retrofit. Most Town buildings have been redone in last 15 years except for Town Hall. Plans are in the works to retrofit the Town Hall and this high cost means other projects cannot be completed.

## Flooding Vulnerability in Town

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Flooding can be a more easily locatable hazard since waterbodies and roadways can be used to approximate the range of future potential flooding areas. The waterbodies, road washout locations, and a discussion of the federal Hopkinton Dam and Hopkinton-Everett Flood Control Area are listed in detail below.

### WATERBODIES

Hopkinton has several areas particularly susceptible to both storm flooding and controlled flooding with the location of the US Army Corps Hopkinton-Everett Flood Control Reservoir in the western half of town. The Contoocook River bisects the Town in a west-east pattern western and many brooks abound.

The **Blackwater River** and the **Warner River** both converge into the **Contoocook River** within a mile of each other. A few large brooks in Town flow year-round including Dolf Brook, Hardy Spring Brook, and Boutwell Mill Brook. The area above the Hopkinton-Everett Reservoir is hydrologically active and different types of hazard events could introduce more water into the fluvial system and cause overflow.

These large watercourses and numerous individual brooks and ponds in Hopkinton contribute to flooding these and other areas in Town:

- **Watercourses:** Contoocook River, Warner River, Blackwater River, Hardy Spring Brook, Dolf Brook, Browns Brook, Meadow Brook, One Stack Brook, Boutwell Mill Brook and several unnamed Brooks.
- **Waterbodies:** Hopkinton-Everett Flood Control Reservoir, Carr Pond, Clement Pond, Grassy Pond, Rolf Pond, Dolf Brook, Kimball Pond, Whittier Pond, Drew Lake. Many unnamed wetlands are found within Hopkinton.

### ROAD WASHOUTS

Some of the local Town Class V maintained roads in Hopkinton are constructed using ditching; storm drains are found along the densely developed paved roads. About **80** miles of the Town maintained (Class V) roads are located throughout Hopkinton. Many of the above culvert upgrades have been developed into Actions, with many culvert and drainage projects undertaken annually.

ANNUAL MINOR FLOODING. As part of the Flood Control Area, the US Army Corps of Engineers often floods these roads annually during the spring:

- Thain Road, Sugar Hill Road.

ANNUAL MINOR FLOODING/WASHOUT. These locations often washout during times of heavy rain or snowmelt.

- Brockway Road, Branch Londonderry Turnpike, Old Putney Road, Old Stage Coach Road, Thain Road, Patch Road, Clement Hill Road, Boundtree Road, Crowell Road, Hatfield Road, Moran Road, Pet Dow Road, and Old Homes Road experience minor washouts.

SIGNIFICANT FLOODING

- Sugar Hill and Thain Roads closed, 100-year floods – Hopkinton-Everett Dam (April 2010).
- Thain Road closed, 100-year floods – Hopkinton-Everett Dam (March 2011).
- Mostly gravel roads wash out, and when they do, the water erodes the ditch line.
- Beaver dam construction and failure impacts streams and waterbodies that flow into culverts.
- Roads do not consistently wash out, just during the significant flooding events.

**EROSION**

**Erosion** along the **Contoocook River**, **Warner River** and/or **Blackwater River** could occur at locations along its banks. Although the **Contoocook River** is monitored by the US Army Corps of Engineers, the Town should remain alert for potential developing erosion sites. **Blackwater River** banks have been seen eroding into the water. Brooks in Hopkinton can also be prone to erosion or scouring of the streambed. The Hazard Mitigation Committee identified the following as potential future hazards in the case of **stream bank erosion and scouring**:

- The Meadows of Hopkinton Manufactured Housing
- Little Tooky Road Residences
- Kimball Pond Swimming Area
- Kimball Lake Recreation Area
- Burrage Road (Contoocook River)

The proximity to the Contoocook River and the presence of several lakes and ponds makes the Town particularly susceptible to flooding. The following areas have been identified by the Hazard Mitigation Committee as being immediately susceptible to the impacts to **flooding**:

- Little Tooky Road Residential Homes
- The Meadows of Hopkinton Manufactured Housing
- Contoocook Village Downtown
- Flintlock Road

**DAM BREACH SUSCEPTIBILITY**

There are many human-built and natural beaver dams along the brooks in Hopkinton. **High Hazard** dams owned by the US Army Corps of Engineers (US ACOE) which could have catastrophic consequences if a



dam failure occurred, particularly downstream while many **Significant Hazard** dams are owned by the Town of Hopkinton. As needed, the US ACOE releases water in a controlled flooding to prevent a dam breach. The following areas have been classified by the NH Department of Environmental Services as being hazardous if **dam breach flooding** were to occur:

- ➔ **High** D121.019 Hopkinton Flood Control Dam (USACOE) 76 feet high, 220 acres water.
- ➔ **High** D121.020 Hopkinton Dike Elm Brook H2 (USACOE) 115 feet high, 214 acres water.
- ➔ **High** D121.035 Hopkinton Flood Control Spillway H3 (USACOE) 76 feet, 220 acres water.
- ➔ **Significant** D121.001 Hoague Sprague Dam (West Hopkinton Hydro) 28 feet high, 2 acres water.
- ➔ **Significant** D121.028 Hopkinton Sewage Lagoon (Town) 18 feet high, 1.6 acres water.
- ➔ **Significant** D121.038 Transfer Station Lagoons Dam.
- ➔ **Low** D121.002 Contoocook Village Dam (Town) 12 feet high, 10 acres water.
- ➔ **Low** D121.004 Grassy Pond Dam (NH F&G) 8.5 feet high, 35 acres water.
- ➔ **Low** D121.008 Kimball Lake Dam (Town) 7 feet high, 27 acres water.
- ➔ Non Menace Kimball Pond Dam (Town)

#### US ACOE HOPKINTON-EVERETT RESERVOIR AND DAMS

The following technical information is excerpted directly from the USACOE's website at [www.nae.usace.army.mil](http://www.nae.usace.army.mil). The dam at Hopkinton Lake, located on the **Contoocook River** in Hopkinton, and the dam at Everett Lake, located on the Piscataquog River in Weare, are connected by a two-mile long canal and in moderate to severe flooding are operated as a single flood damage reduction project. The Hopkinton-Everett Lakes project provides flood protection to residential, commercial, and industrial property downstream on the **Contoocook** and **Piscataquog** rivers, which are tributaries of the **Merrimack River**. Hopkinton Lake protects the communities of Concord (including the Contoocook and Penacook sections), Boscawen, Dunbarton, and Bow, while Everett Lake protects Manchester (including the Riverdale section) and Goffstown.

Most flooding on the **Contoocook River** is either minor or moderate and does not require the transfer of excessive floodwaters through the canals. Since the project's completion in December 1962, the diversion of Contoocook River floodwaters from behind the dam at Hopkinton Lake to the flood storage area behind the dam at Everett Lake has occurred only seven times, the last in April 1987 when the combined reservoir area of the two dams was filled to 95 percent of capacity, its highest level ever.

The flood storage area behind Hopkinton Lake totals 3,700 acres and extends about 8.5 miles upstream through Henniker to the Contoocook Valley Paper Company. This acreage includes areas that are

normally empty and areas that have permanent bodies of water. Some of the larger bodies of water behind the dam at Hopkinton Lake include the 220-acre permanent pool on the **Contoocook River**, which has a maximum depth of 14 feet; the 456-acre Elm Brook Pool; the 47-acre Drew Lake, which makes up the upper 2,000 feet of Canal II; and two lakes, approximately 87 and 35 acres respectively, located within the confines of Stumpfield Marsh. The flood storage area behind Everett Lake totals 2,900 acres and extends westerly up the Piscataquog River in Weare; northerly up Choate Brook, which lies mostly in Weare with a small portion lying in Dunbarton; and northerly up **Stark Brook** in Dunbarton. This acreage includes a 130-acre permanent pool with a maximum depth of 15 feet. Together, the flood storage areas behind both dams can hold 52.6 billion gallons of water, which would cover approximately 8,000 acres (12.5 square miles). This is equivalent to 6.8 inches of water covering its drainage area of 446 square miles. The lakes and all associated project lands cover 9,945 acres.

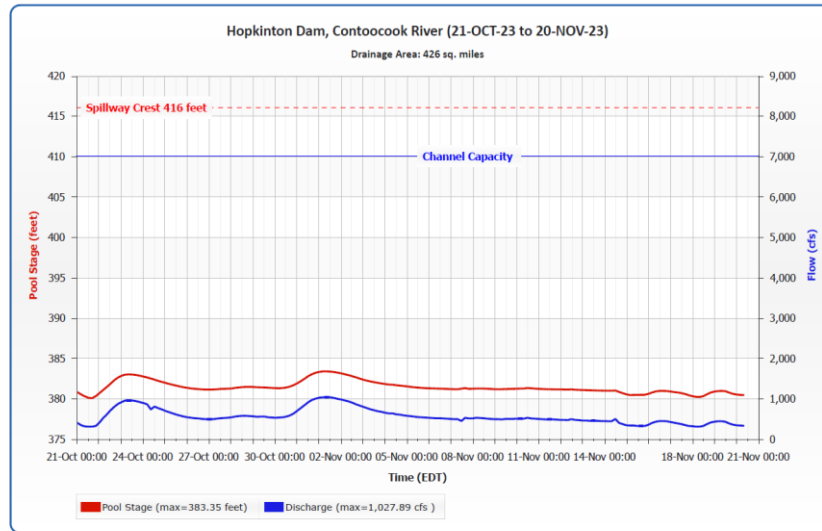
The Hopkinton-Everett Flood Control Reservoir, with its dams, lakes, and dikes, was designed to enable area flooding when conditions require it. US ACOE staff is available onsite in Hopkinton at the Flood Control offices and controls the amount of water behind the dam when water volume becomes too high. Although there are no residences within the designated flood areas, a small network of roads are traversable during times when there is no flooding. These roads are gated to deny passage during managed flooding.

The US Army Corps of Engineers New England Reservoir Regulation Section enables a quick view of the status of Hopkinton dam and reservoir, including data in flow, pool feet, gate operation, outflow, capacity, stream gage levels and more available to the public to review.

**Hopkinton Dam Info**

Drainage Area	426 square miles
Channel Capacity	7,000 cubic feet per second
Storage at Spillway	6.5 inches/ 70,00 acre-feet
Normal Pool	380 feet summer/ 382 feet winter
Number of Gates	8
Spillway Crest	416 feet

Figure 2.C  
Hopkinton Dam 30-Day Pool Stage and Discharge (Oct-Nov 2023)



Various real-time and historic data are available to the public for viewing on the USACOE New England Reservoir Control website.

**Flooding Resource Links:**

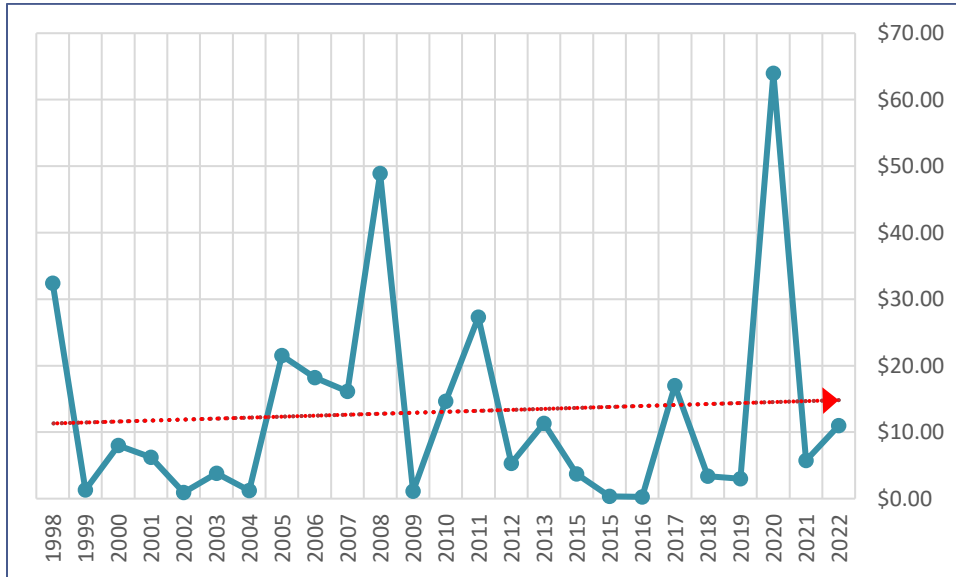
- FEMA Map Center  
<https://msc.fema.gov/portal/home>
- US Army Corps of Engineers NAE Reservoir – Hopkinton Dam Data  
[https://reservoircontrol.usace.army.mil/nae\\_orcs/cwmsweb/cwms\\_web.cwmsweb.cwmsindex](https://reservoircontrol.usace.army.mil/nae_orcs/cwmsweb/cwms_web.cwmsweb.cwmsindex).

### Local Climate and Extreme Weather

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 Hopkinton can expect to see in terms of extreme weather in the future.

Figure 2.D

NOAA NH Hazardous Weather Damage Costs in \$ Millions, 1998-2022



Source: National Oceanic and Atmospheric Administration, last accessed 03/24. Adjusted for inflation [Consumer Price Index CPI]

After accounting for inflation, the costs of damages in New Hampshire have slightly increased from hazardous weather over the last 25 years according to the trendline displayed in the associated chart for Figure 2.D. The highest damage costs correlate to the 1998 (\$32m) and 2008 (\$49m) ice storms and the 2020 climate change winter/windstorms damages (\$65m). The number of injuries and fatalities have a less distinct association, with the highest casualties shown in 2015 (36), 2013 (30) and 2003 (31), often for snowstorms. However, the single greatest number of fatalities during this time period occurred in 2005 (4), likely during the time of the Oct 2005 Columbus Day Floods that struck the southwestern section of the State very hard.

### LOCAL MICROCLIMATE DATA OVER 80 YEARS

In the State, in the Central NH Region and in Hopkinton, like in any other locales, exist our own “micro-climate” areas that can be analyzed for future susceptibility to disasters and hazard events. Micro-climate areas can be identified when neighboring towns, or even sections of a community, experience slightly different weather impacts because of varying topography, elevation, watershed, river basin, interstate, built environment situations, and other reliable geographic or atmospheric factors.

The Central NH Region’s weather history is summarized to provide a view of the trends around the Concord area where weather measurements have been taken at the Concord Airport since 1868. Hopkinton is geographically close to the City of Concord, abutting the City to the west. Concord Municipal Airport resides (within 10 miles of Contoocook Village in Hopkinton. These measurements should have some reasonable basis in Hopkinton, although small unique microsystems are found throughout the Town. As the closest large and longest active weather station, and for CNHRPC Region continuity, the Concord measurements will be used for Hopkinton.

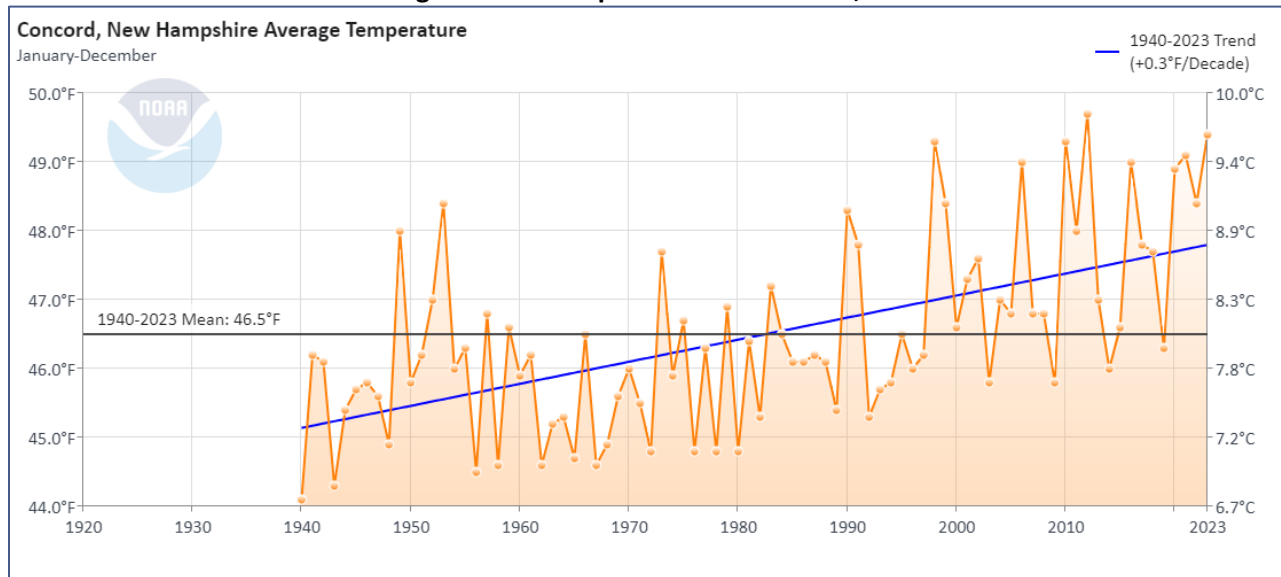
Annual Average Temperature

Figure 2.E displays Concord’s average annual temperature (Jan-Dec) between 1940 (44.1°F) and 2023 (49.4°F) with a mean (normal) temperature over the 1940-2023 period of 46.5°F. The warmest years during this 83-year period are all after 1998: 2012 (49.7°F) with a +3.2°F departure from normal, 2023 (49.4°F) with a +2.9°F departure from normal, and 2010 and 1998 (49.3°F) at +2.8°F departure from the normal mean 46.5°F.

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 1940 at 44.1°F, 1943 at 44.3°F, 1956 at 44.5°F, and 1958 and 1962 at 44.6°F. The displayed trend line allows a definitive way of averaging all temperatures and illustrates an average +0.3°F temperature increase trend per decade. This annual average increase is about +2.6°F total during this 83-year period in Concord.

Figure 2.E

NOAA Average Annual Temperature for Concord, 1940-2023



Source: National Oceanic and Atmospheric Administration, last accessed online 03-29-24

Annual Average Minimum Temperature

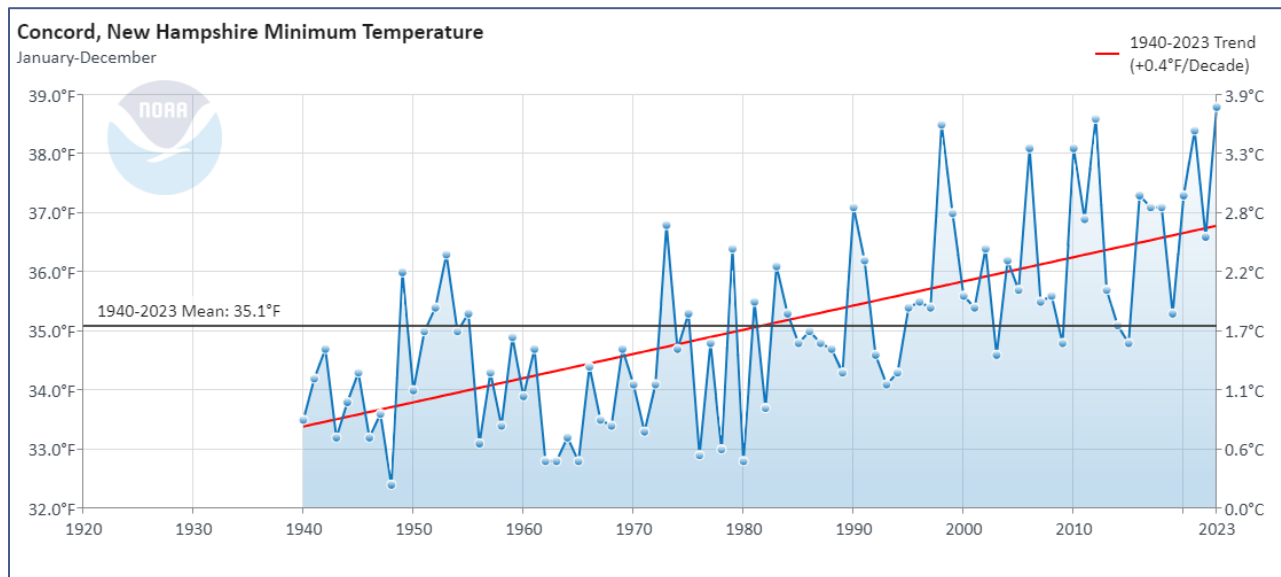
Another way to evaluate how the temperatures is to measure the minimum annual temperatures and maximum annual temperatures are changing. Both the coldest and the hottest temperatures are growing warmer in the Central NH region, which includes Hopkinton.

Figure 2.F displays the minimum average temperatures for Concord, with a mean (average) of 35.1° F for 1940-2023. In 2023, the minimum average temperature was 38.8° F, as compared to the 1940 minimum average temperature of 33.5° F. Within this 83-year period, the lowest minimum was 32.4° F in 1948, followed by 32.8° F (1962, 1963, 1965, 1980), 32.9° F (1976).

The highest minimums were in 2023 (38.8° F), in 2012 (38.6° F), 1998 (38.5° F), tied in 2006 and 2010 (38.2° F), followed 2021 (38.4° F). In fact, the top 10 highest minimums have occurred since 1990 during the 83-year data span, indicating the coldest temperatures are growing warmer. The trend line indicates a +0.4° F increase per decade between 1940-2023, about a +3.2° F increase in minimum average temperatures as shown in Figure 2.F.

Figure 2.F

NOAA Minimum Average Temperatures for Concord, 1940-2023



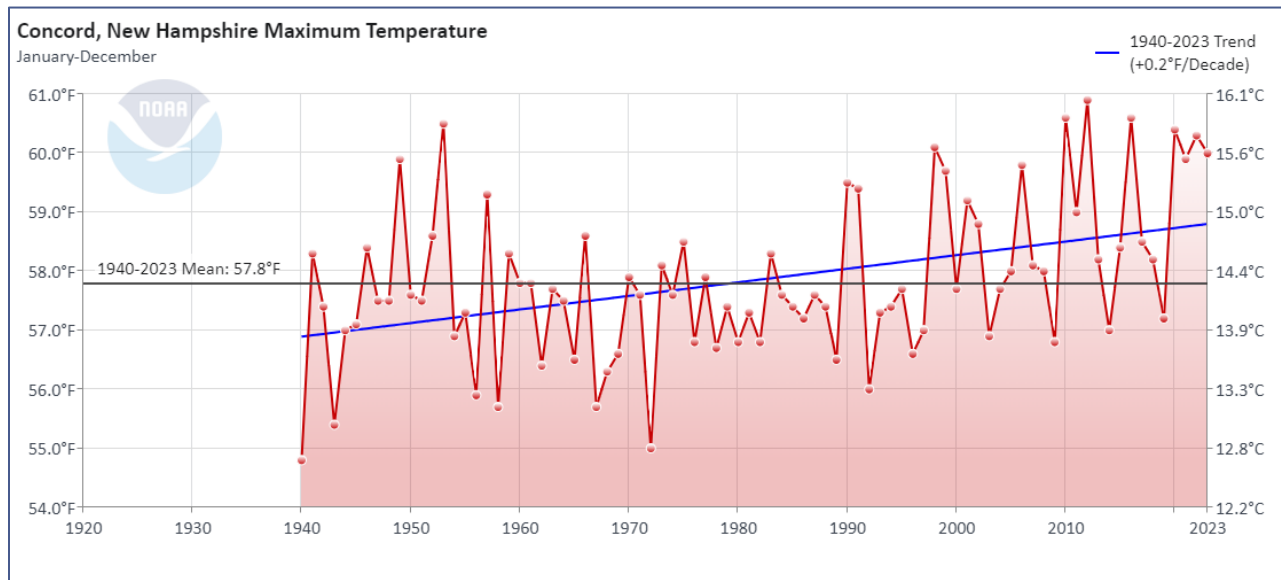
One future data set the Town of Hopkinton would like to compare is these temperature trends (by year) with wind speed changes between 1940-2020. Do the wind and temperature changes match? Wind data was not available using this NOAA resource, which is now: NOAA National Centers for Environmental information, Climate at a Glance: City Time Series, published December 2023, retrieved March 2024.

Annual Average Maximum Temperature

Figure 2.G displays the maximum average temperatures between 1940-2023, with a mean (average) of 57.8° F annually. In 1940, highest maximum average temperature was 54.8° F while in 2023 the highest maximum was 60.0° F.

The lowest maximums were 54.8° F in 1940, 55.0° F in 1972, 55.4° F in 1943, 55.7° F in 1958, 55.7° F. The highest maximums in Concord were 60.9° F in 2012, 60.6° F in 2010 & 2016, 60.5° F in 1953 followed by 60.4° F in 2020. Eight (8) of the top 10 highest maximums have occurred since 1990 during the 83-year data span. These numbers indicate the hottest temperatures in the Central NH Region are growing warmer. The +0.2° F trendline per decade results in a +1.8° F increase in the maximum average temperatures as shown in Figure 2.G.

Figure 2.G NOAA Maximum Average Temperatures for Concord, 1940-2023



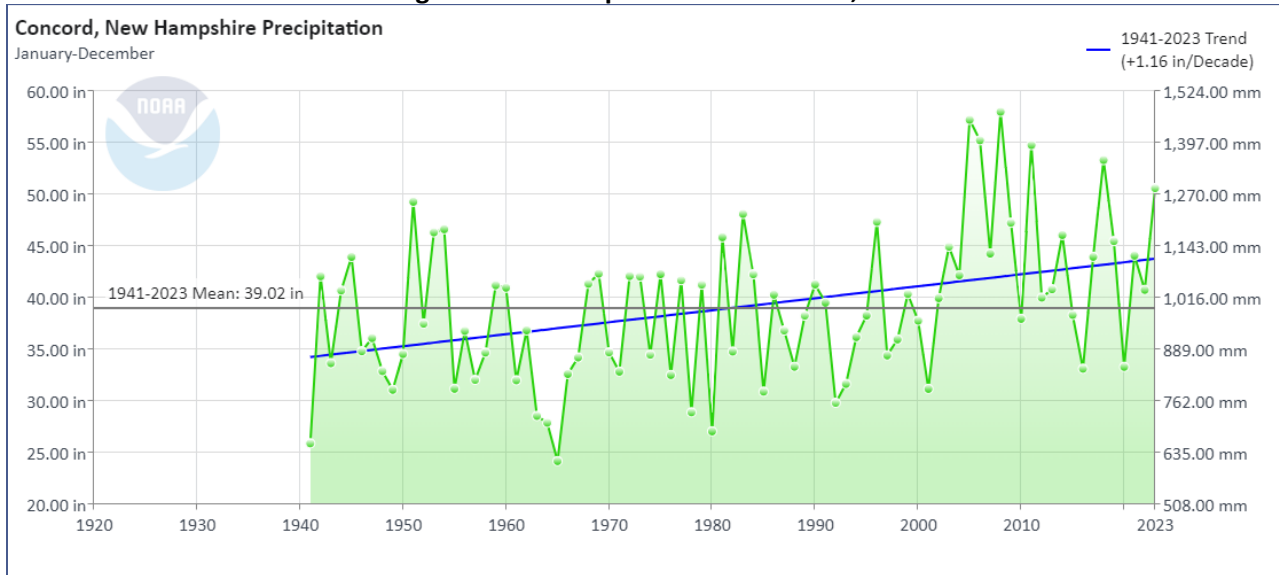
Annual Average Precipitation

For precipitation (rain) changes, Figure 2.H displays Concord’s average annual inches between 1941 and 2023. Varying seasonal rainfall amounts continue over the decades. The mean annual precipitation during this period is 39.02” annually. In 1941, the amount of precipitation was 25.91” while in 2023 the precipitation totaled 50.61”.

The wettest year in Concord was 2008 at 58.00”, 2005 at 57.22”, 2006 at 55.24”, 2011 at 54.78”, 2018 at 53.33”, followed by 2023 at 50.61”. The years with the least amount of rainfall were 1965 at 24.19”, 1941 at 25.91”, 1980 at 27.07”, 1964 at 27.90”, 1963 at 28.56”, followed by 1978 at 28.91”. The trend

line serves the same purpose to illustrate an increase of **1.16"** in precipitation per decade, or about a **+10"** increase in the annual average precipitation during this **80+-year** period from **1941-2023** in Concord. Hopkinton will have experienced similar conditions as shown in **Figure 2.H**.

**Figure 2.H**  
**NOAA Average Annual Precipitation for Concord, 1941-2023**

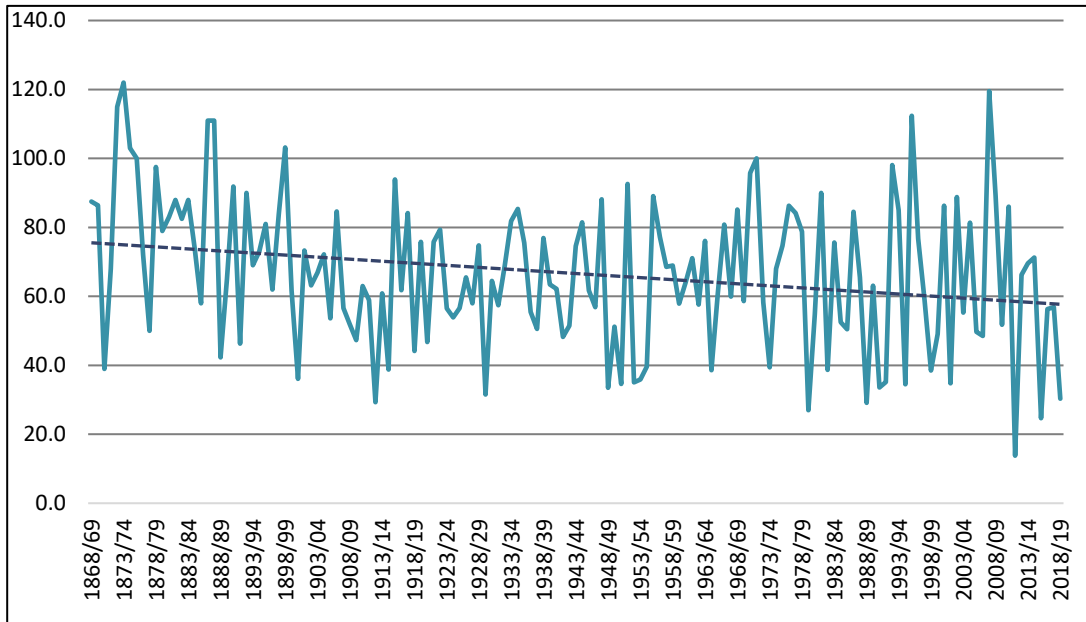


Annual Average Snowfall

The National Oceanic and Atmospheric Administration (NOAA) seasonal snowfall totals were compiled by CNHRPC for Concord, where snowfall data gathering began in **1868**. **Figure 2.I** 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 2.I  
Seasonal Snowfall Totals for Concord, 1868-2019



Source: National Oceanic and Atmospheric Administration Data as compiled by CNHRPC

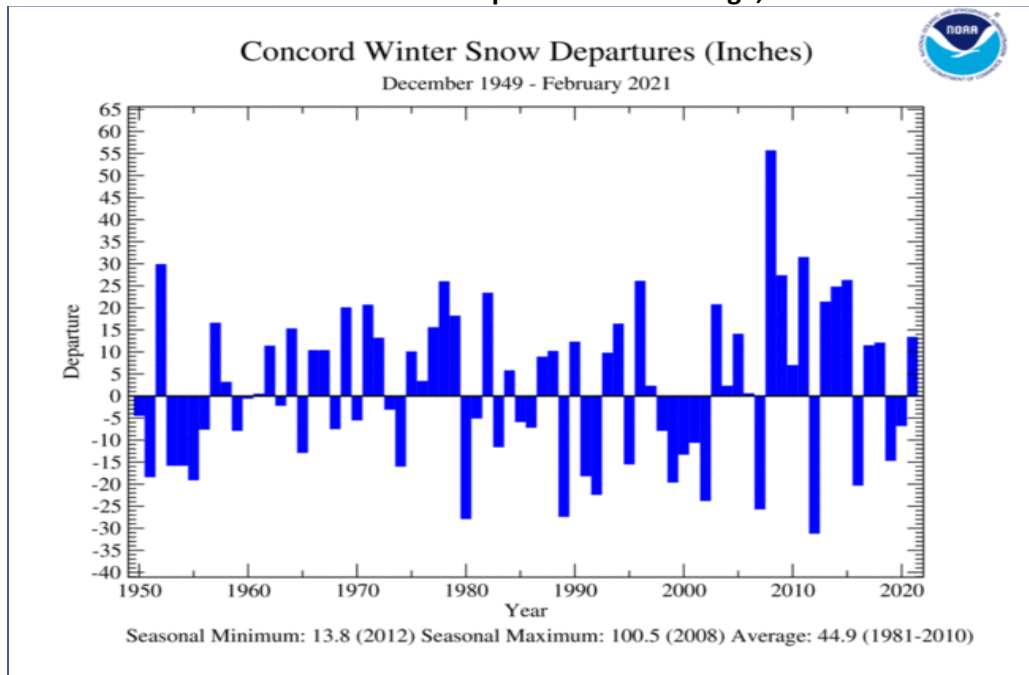
Five (5) of the top 10 lowest snow accumulations occurred since 1990. The 2018/19 season ended with 30.3", ranking 6th out of 151 years of records. Hopkinton is geographically close to Concord (5 miles) and likely shares similar snowfall accumulation trends over time.

Annual Snowfall Departure from Normal

Displayed in Figure 2.J 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 2020, 58.2" of snowfall occurred, which is 13.3" higher than what normally falls (44.9"). Since 1949, the year with the highest amount of snowfall was 2008 with 100.5" and the lowest snowfall was 13.8" in 2012.

Figure 2.J  
Concord Winter Snowfall Departure from Average, 1949-2021



Source: National Oceanic and Atmospheric Administration, National Climate Report February 2021  
last accessed 03-31-21

**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 Hopkinton. 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.

Originally developed in **2014**, the updated *New Hampshire Climate Assessment June 2022* by University of New Hampshire’s Sustainability Institute reviewed current climate conditions and projected future conditions of New Hampshire’s weather stations under potential low and high emission scenarios. The Central NH Region and the Town of Hopkinton are within southern New Hampshire. The past and future Southern NH climate overview is illustrated in **Figure 2.K**.

As a result of anticipated extreme weather continuing and climate changes in Central NH and Hopkinton, 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, which may

result from climate change. For more information on these topics, refer to the [Central NH Regional Plan 2015](#).

**More Human Health Emergency Events**

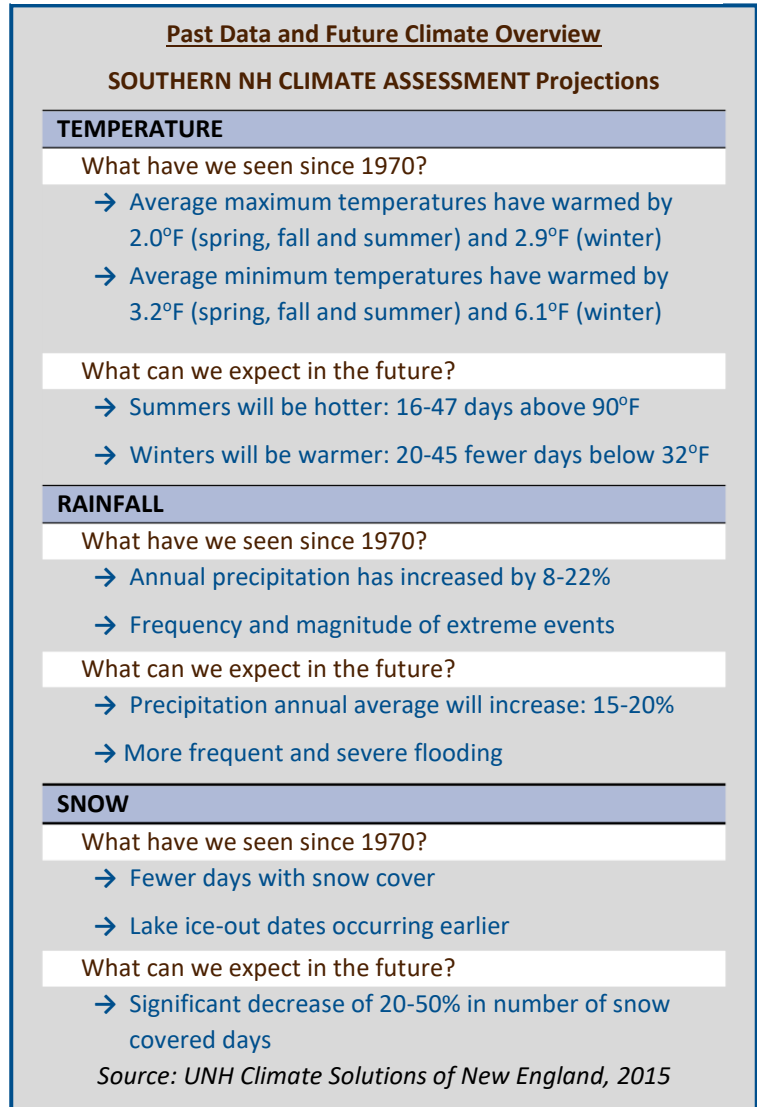
- ☞ Illnesses such as heatstroke, fainting, and heat exhaustion.
- ☞ Excess heat especially dangerous for the aging population and residents without air conditioning.
- ☞ Increase in greenhouse gas emission, energy demand, and air conditioning use and cost.
- ☞ More favorable conditions for insects carrying 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.

Figure 2.K

**Southern NH Climate Assessment Projections**



**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 Woolly Adelgid, Emerald Ash Borer, Red Pine Scale, Lantern Moth is nearby here.
- ☞ 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. Dam operators may quickly release water without notification to municipalities.

**Increasing Municipal Transportation Systems Maintenance Needs**

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

**Aging and Inadequate Stormwater Infrastructure**

- ☞ Stormwater infrastructure such as catch basins, pipes, discharge points, and culverts that redirect stormwater runoff can be impacted by flooding and cannot perform their function.
- ☞ Blocking of water can lead to flooding of the area and roadways, potentially leading to the closure of nearby roads.
- ☞ Components of stormwater infrastructure are outdated, and increased flows add 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 areas.

**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 intensified 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 systems.
- ☞ 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; 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.
- ☞ Temperatures are expected to slow weight gain and lower the volume of milk produced by dairy cows.
- ☞ Higher overnight temperatures are anticipated to prevent dairy cows and cattle from recovering from heat stress.
- ☞ Warmer temperatures and an increase in carbon dioxide in the air create a more ideal environment for pests and weeds, potentially increasing the use of herbicides and pesticides on crops.

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 Hopkinton. 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**.

#### Climate Change Resource Links:

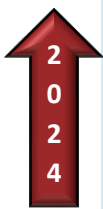
- National Oceanic and Atmospheric Administration (NOAA) Hazard Stats by State and Year  
<https://www.weather.gov/hazstat>
- NH Climate Assessment 2021  
<https://scholars.unh.edu/sustainability/71/>
- NOAA Weather Data in Concord NH  
[https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/city/time-series/USW00014745/tavg/12/12/1920-2023?base\\_prd=true&begbaseyear=1920&endbaseyear=2023&trend=true&trend\\_base=10&begtrendyear=1920&endtrendyear=2023](https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/city/time-series/USW00014745/tavg/12/12/1920-2023?base_prd=true&begbaseyear=1920&endbaseyear=2023&trend=true&trend_base=10&begtrendyear=1920&endtrendyear=2023)
- NOAA National Centers for Environmental information, Climate at a Glance: City Time Series, published December 2023, retrieved March 2024  
<https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/city/time-series>
- NOAA National Climate Report 2021 Snowfall Departure from Normal  
<https://www.ncdc.noaa.gov/sotc/national/202102/supplemental/page-5>  
<https://www.ncdc.noaa.gov/monitoring-content/sotc/national/2021/feb/Concord.gif>

### Hopkinton’s Hazard Vulnerability Changes Since the 2017 Plan

The following statements are the Hazard Mitigation Committee’s overall assessment of the Town’s change in vulnerability to disasters since the **2017 Plan**. Natural disasters are the focus of discussion in the **Hopkinton Hazard Mitigation Plan Update 2024**, but acknowledgements of the potential for human and technological disasters to occur in Hopkinton are provided.



**Natural Disasters Vulnerability** The Town’s overall vulnerability to natural disasters **is believed to have INCREASED over the last 5 years**. Factors considered include the Town’s aging population, the costly climate and severe weather impacts, tree fall during wind or winter events, warming winters, continuing disasters and hazard events, and the same number of Town emergency and response personnel have remained about the same as in 2017. More regular and severe storms have been experienced, resulting in higher costs, more damages from road flooding, more debris and slower damage repair. Regular infrastructure improvements and upgrades, better traffic flow in downtown Contoocook, more attention to social issues (housing) and good preparation and mitigation to date help to offset greater damages.



**Human and Technological Disasters Vulnerability** 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 technological escalation in the future. The Town is better protected than in the past through partnerships and best practices, updated SOPs to combat human hazards, regular Information Technology (IT) improvements tightened the digital informational services. Yet, the Town has an ongoing struggle to contain the many facets of human and technological hazards. I-89 runs through Hopkinton and crashes can cause ecological disasters. Electricity and internet availability are often difficult to obtain and internet will continue to be a premium service. The Town must stay in a mainly reactive position due to costs and staffing, although training and response to human and technological incidents improved. With costly infrastructure, it will remain difficult to keep ahead of technological disasters.

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### 3 GOALS AND OBJECTIVES

The overall purpose of this Plan is to reduce future losses to life and property from potential hazard events by identifying appropriate **Actions** to implement during the five-year span of this Plan.

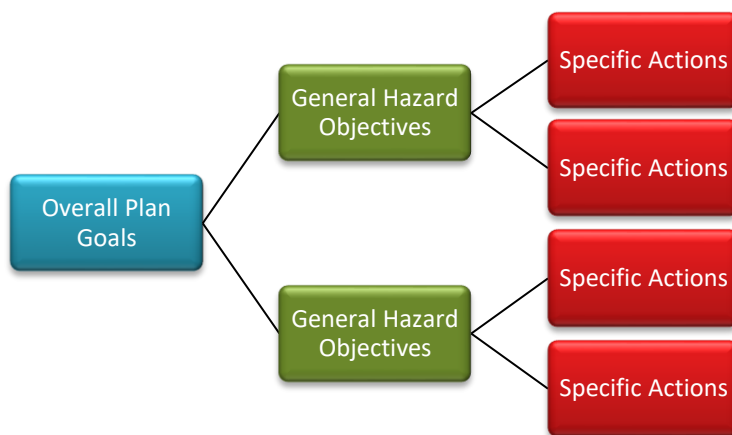
Inspired by early *State of New Hampshire Hazard Mitigation Plans*, the Hopkinton’s **Goals** were initially developed in the previous **Hopkinton Hazard Mitigation Plans**. To conform with the latest state and federal guidance while attending to the Town’s needs, the **Goals** and **Objectives** were reviewed and updated as applicable by the Hazard Mitigation Committee during a public meeting for the **2024 Plan**. Lastly, with the most recent change in hazard types utilized in the *State of New Hampshire Multi-Hazard Mitigation Plan 2023*, 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. Their relationship is displayed in **Figure 3.A**.

The overall **Goals** 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**.

**Figure 3.A**  
Relationship of Gals, Objectives and Actions



**HAZARD CATEGORIES**

From the **Hazard Identification and Risk Assessment**, the individual natural hazards under consideration have been grouped into similar event types for simplification of determining Objectives. These *Main Hazard Categories* in **Table 3.1. Objectives** begin to narrow down the focus of the overall **Goals** into hazard minimization statements and will use these categories.

Finally, **Actions** are the specific activities or projects which can be undertaken to accomplish an **Objective**. The **Action** is the target to reach to help mitigate hazards in the community. The completed **Action** fulfills the associated **Objectives**. Actions will be listed and reviewed later in **8 MITIGATION ACTION PLAN**.

**Table 3.1  
Updated Hazards for Objectives 2024**

Main Hazard Category	Specific Hazards Included	Hazard Type
Drought	Drought	Hydrologic
High Wind/ Tropical/ Storms	Thunderstorms, Downbursts, High Winds, Tornadoes, Tropical and Post-Tropical Cyclones, Hail	Atmospheric
Wildfire /Fire/ Lightning	Wildfire, Lightning, Fire	Hydrologic/Atmospheric
Flood/ River	Dam Failure, Inland Flooding, River Hazards	Hydrologic
Winter	Winter Storms, Blizzard, Ice Storm	Atmospheric
Extreme Temperatures	Cold Wave, Heat Wave	Atmospheric
Earthquake/ Landslide	Earthquake, Landslide	Geologic
Public Health/ Biological	Swimming Water Quality, Air Quality, Drinking & Surface Water Quality, Infectious Diseases, Arboviral Diseases, Tickborne Diseases	Biologic
Solar	Geomagnetic Storms, Solar Radiation, Radio Blackout	Space Weather
Hazardous Materials/	Hazardous Materials, Radiological	Haz Mat
Human Hazard	Crash, Mass Casualty Incident, Cyber Event, Terrorism/ Violence	Human
Technological	Aging Infrastructure, Conflagration (Fire), Long Term Utility, Outage	Technological

The Hopkinton Hazard Mitigation Committee aimed to develop at least one Plan **Objective** for each of the *Main Hazard Categories* noted.

Overall Hazard Mitigation Plan Goals

Natural hazards are the focus of this Hazard Mitigation Plan 2024. Because Human and Technological hazards are also a concern for emergency responders, they have appeared in prior Plan versions and are demoted in importance, but are still considered, in each section of this 2024 Plan. The following Goals for the Hazard Mitigation Plan 2024 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 slightly revised from the 2017 Plan to accommodate consistent grammar and to reflect updated hazards. The Hazard Mitigation Goals are displayed in Figure 3.B.

Figure 3.B

Hazard Mitigation GOALS

- 1 To reduce the risk of injury in the Town from the impacts of natural hazards, severe weather, disasters, and human and technological hazards.
- 2 To reduce the risk of potential damage in Town to public and private property, infrastructure, critical facilities, historic resources and the natural environment from the impacts of natural hazards, severe weather, disasters, and human and technological hazards.
- 3 To enhance communication and public outreach, educational programs and enforcement activities to help protect the community from the impacts of natural hazards, severe weather, disasters, and human and technological hazards.

Source: Hopkinton Hazard Mitigation Committee

General Hazard Mitigation Objectives

Main natural hazard event categories of **Drought, High Wind/Tropical, Wildfire/Fire/Lightning, Flood/River, Winter, Extreme Temperatures, Earthquake/Landslide, Public Health/Biological, Solar** are intended to encompass their respective full sub-hazards range described in this Plan. The non-natural hazard categories of **Hazardous Materials/Radiological, Human, and Technological** are secondary to the natural hazards but also receive **Objectives**. Many of the hazards included in the **2017 Plan** did not have an Objective, which is now rectified in the **2024 Plan**. The **General Objectives** are developed by addressing the primary hazard events that could impact Hopkinton. 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 are secondary to (are caused by) the natural and weather hazards. **General Hazard Mitigation Objectives** were crafted for the **Hopkinton Hazard Mitigation Plan 2024** as displayed in **Figure 3.C**.

Figure 3.C

Hazard Mitigation OBJECTIVES

<b>1</b>	<b>Drought</b>	Minimize the impact of drought events to agricultural areas, private and municipal wells, and other locations.
<b>2</b>	<b>High Wind/ Tropical</b>	Minimize the damage to life, property, and infrastructure from severe wind events, including thunderstorms, hail, downbursts, tornadoes, hurricanes and tropical storms, including damage resulting from tree debris.
<b>3</b>	<b>Wildfire/ Fire/ Lightning</b>	Minimize the damage to life, property, and infrastructure, including the conservation properties, areas of Town Forest, State Parks, woodlands, and communication towers from wildfires, brushfires, other outdoor fires, and lightning.
<b>4</b>	<b>Flood/ River</b>	Minimize the damage to life, property, and infrastructure from floodwaters or erosion from the Contoocook River, Blackwater River, Whittier Pond, Boutwell Brook and floodplains, from the Hopkinton-Everett Dams, Contoocook Dam and other dams, from Kimball Pond and other ponds, wetlands, and streams in Town.

5	Flood/ River	Minimize the damage to life, property and infrastructure caused by snowmelt and precipitation resulting in erosion and flooded roads; culvert washouts, small dam failures, or debris (tree limbs, leafy material/ sediment, beaver dam breakage, etc).
6	Winter	Minimize the damage to life, property and infrastructure from winter weather events, including storms, snow, ice and minimize damage from utility failure, tree fall, blocked transportation routes, and roof collapses.
7	Extreme Temperatures	Minimize the damage to life, property and infrastructure due to temperature fluctuation resulting from climate change, including excessive heat events, energy consumption, heat waves, extreme cold events, and wind chill.
8	Earthquake/ Landslide	Minimize the threat of potential landslide or rockslide areas along local roads and excavation areas.
9	Earthquake/ Landslide	Engage in public awareness of local earthquake activity and safety precautions.
10	Public Health/ Biological	Minimize the threat or impact of public health events to the public, including close-quarter communicable diseases (coronavirus, influenza, hepatitis, meningitis), air and water quality decline, biological infestations (milfoil, emerald ash borer), arboviral (mosquito) and tick-borne diseases, and substance misuse, etc.
11	Solar	Minimize the impact to life, property and infrastructure from solar storms and space weather, including solar winds, geomagnetic storms, solar radiation, and radio blackout.

12	Hazardous Materials/ Radiological	Minimize the damage to life, property, and infrastructure from hazardous materials exposure, chemical spills, trucking accidents, and radiological materials incidents, including impacts and exposures caused by brownfields sites, leaking underground storage tanks, cargo railway, and occupational sites.
13	Human	Minimize the damage to life, property and infrastructure from human threats such as transportation crashes, sabotage/vandalism, terrorism, hostage situations, arson, mass casualty, civil disturbance, and cyber events.
14	Technological	Minimize the damage from multiple hazards to the aging infrastructure of the community, including bridges, culverts, dams, local roads, lines, State roads (NH 103, NH 127, NH 9/US 202, I-89 and ramps) and seek to maintain operational efficiency.
15	Technological	Minimize the impact to life, property and infrastructure from the risks of various utility outages, such as live wire dangers and long-term outages in electrical power, internet and telecommunications services and fire conflagration and explosion, especially near densely populated areas or buildings, from fuel tanks, high tension power lines, and vehicles.

Source: Hopkinton Hazard Mitigation Committee

## 4 HAZARD RISK ASSESSMENT

Natural disasters, severe weather events and technological, and human hazards that *previously* occurred in Hopkinton 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. Included in this assessment are a **Change in Intensity** and **Highest Magnitude** of each natural hazard. The major disasters declarations covering the Central NH Region (Hillsborough County and Merrimack County) were inventoried and additional hazard events occurring in Hopkinton and the surrounding area have been described. FEMA Public Assistance funding to the Town is detailed for each disaster declaration. A review of climate variations is described for the region to provide perspective on how the weather may change over time. All information was updated for the **2024 Plan**.

As noted in **3 GOALS AND OBJECTIVES**, the natural hazards and Natural Hazard Categories themselves have slightly altered to better fit with the *State of New Hampshire Multi-Hazard Mitigation Plan 2024* and federal guidelines. No hazards were removed. Natural hazards such as **Avalanche, Tsunami, Volcanic Activity**, and **Coastal Flooding** were not discussed in Hopkinton’s **2024 Plan** because they have no ascertained relevance to the Town. While there is a distinct emphasis on natural hazards, **Hazardous Materials/ Radiological, Human, and Technological** hazard events are described if a notable impact was found on the Town.

Main Hazard Category	Specific Hazards Included
Drought	Drought
High Wind/Tropical/Storms	Thunderstorms, Downbursts, High Winds, Tornadoes, Tropical and Post-Tropical Cyclones, Hail
Wildfire/Fire/Lightning	Wildfire, Lightning, Fire
Flood/River/Dam	Dam Failure, Inland Flooding, River Hazards
Winter/Ice	Winter Storms, Blizzard, Ice Storm
Extreme Temperatures	Cold Wave, Heat Wave
Earthquake/Landslide	Earthquake, Landslide
Public Health/Biological	Swimming Water Quality, Air Quality, Drinking & Surface Water Quality, Infectious Diseases, Arboviral Diseases, Tickborne Diseases
Solar	Geomagnetic Storms, Solar Radiation, Radio Blackout
Hazardous Materials/Radiological	Hazardous Materials, Radiological
Human Hazard	Crash, Mass Casualty Incident, Cyber Event, Terrorism/ Violence
Technological	Aging Infrastructure, Conflagration (Fire), Long Term Utility, Outage

Within these *Main Hazard Categories* are numerous related *Specific Hazards*, most 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**, and **Overall Risk**, **Change in Intensity**, and **Highest Hazard Magnitude**, for each hazard in a numerical format as determined by the Hazard Mitigation Committee. Scale definitions and the process to define hazards are discussed.

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*Many of these examined natural hazards 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.*

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Using this broad vision allows Hopkinton 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

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Twenty-two (**22**) natural, technological, and human hazards are evaluated within this Plan. The **14** natural hazards are ranked within the **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 Hopkinton 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 **2023** 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 two **Hazard Mitigation Plan** cycles) to **Highly Likely/4** (76-100% chance in **10** years) as shown below.



**Probability of Occurrence in 10 Years**

1	<b>Unlikely</b>	0 - 25% chance
2	<b>Possible</b>	25 - 50% chance
3	<b>Likely</b>	51 - 75% chance
4	<b>Highly Likely</b>	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 must 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 2024**. However, **Dam Failure** was promoted to a natural hazard and was rated because of its close correlation to **Flooding**.

**Severity of Impact to the Town**

1	<b>Limited</b>	<b>Human:</b> Injuries treatable with first aid. <b>Essential Services/Infrastructure:</b> Minor “quality of life disturbance; Shutdown for 3 days or less. <b>Property Damage or Economic Impact:</b> Less than 10%.
2	<b>Significant</b>	<b>Human:</b> Significant injuries or illnesses result in no permanent disability. <b>Essential Services/Infrastructure:</b> Shutdown for up to 2 weeks. <b>Property Damage or Economic Impact:</b> 10% to 25%.
3	<b>Critical</b>	<b>Human:</b> Significant injuries or illnesses result in permanent disability. <b>Essential Services/Infrastructure:</b> Complete shutdown for at least 2 weeks. <b>Property Damage or Economic Impact:</b> 25% to 50%.
4	<b>Catastrophic</b>	<b>Human:</b> Death or multiple deaths. <b>Essential Services/Infrastructure:</b> Complete shutdown for 30 days or more. <b>Property Damage or Economic Impact:</b> 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 an **EXTREME, 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 Probability and Severity	NATURAL HAZARD CONCERN SUMMARY	Numeric Overall Risk Score
1	LOW	1.0 – 4.9
2	MEDIUM	5.0 – 7.9
3	HIGH	8.0 – 11.9
4	EXTREME	12.0 – 16.0

**HAZARD IDENTIFICATION AND RISK ASSESSMENT SCORES**

The highest possible **Overall Risk** score a natural hazard could be ranked using this **Hazard Identification Risk Assessment (HIRA)** system is **16.0** while the lowest score a hazard could be ranked is **1.0**. 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 the **Probability of Occurrence in 10 Years** and the average of the three **Severity of Impact to the Town** figures.

Out of the ranked natural hazards, Hopkinton’s **Overall Risk** scored between **2.0 – 12.0** out of a possible Risk score of **16**, as displayed with calculated decimals in **Table 4.1**. Only one hazard, **Heat Wave**, was ranked **EXTREME**. Several were ranked **LOW**. Comparing the natural hazards broadly since **2017**, significant increases in **Overall Risks** were seen in **Heat Wave** (now **12.0**), **Lightning** (now **9.3**), and **Tornados** (now **6.7**) in **2023**. Rating **Public Health** and **Solar Storms** was new in **2023**.

**Table 4.1**

**Highest Overall Risk Hazards and Hazard Events Since the Last Plan**

Natural Hazard Event	HIRA Overall Risk 1-16	NATURAL HAZARD CONCERN SUMMARY	Notable Hazard Events Within the Last 5 Years? (See Table 4.5)	Mitigation Actions Developed (see Ch 8)	Comparison to 2017 HIRA Overall Risk 1-16*
Drought	5.3	MED	Yes	Yes	5.0
Wildfire	6.7	MED	Annual	Yes	2.7
Winter Storms	8.0	HIGH	Annual	Yes	8.0
Ice Storm	7.0	MED	Yes	Yes	8.0
Cold Wave	9.3	HIGH	Yes	Yes	8.0
Heat Wave	12.0	EXTREME	Yes	Yes	4.0
Small Dam Failure	5.3	MED	Annual	Yes	6.0
Large Dam Failure	4.0	LOW	No	Yes	6.0
Inland Flooding	6.7	MED	Yes	Yes	6.0
River Hazards	2.0	LOW	Annual	Yes	5.0

Natural Hazard Event	HIRA Overall Risk 1-16	NATURAL HAZARD CONCERN SUMMARY	Notable Hazard Events Within the Last 5 Years? (See Table 4.5)	Mitigation Actions Developed (see Ch 8)	Comparison to 2017 HIRA Overall Risk 1-16*
Earthquake	3.0	LOW	Annual	Yes	3.0
Landslide	1.0	LOW	No	Yes	2.0
Public Health/Biologic	8.0	HIGH	Yes	Yes	N/A
Solar Storms	2.0	LOW	Yes	Yes	N/A
High Winds	9.3	HIGH	Yes	Yes	9.3
Thunderstorms	10.7	HIGH	Yes	Yes	9.3
Downbursts	5.3	MED	No	Yes	5.0
Lightning	9.3	HIGH	Yes	Yes	5.3
Tornados	6.7	MED	No	Yes	1.7
Hail	9.0	HIGH	Yes	Yes	9.3
Tropical and Post Tropical Cyclones	6.0	MED	Yes	Yes	4.0
<b>No</b> = No notable impacts since the last Plan. <b>Yes</b> = Notable impact events added to Table 4.5. <b>Annual</b> = Annual occurrence with variable impacts; any notable impacts added to Table 4.5.					*Or equivalent hazard to 2024 Plan

Source: Compilation of Hopkinton HMC Data

INTENSITY CHANGE AND HIGHEST MAGNITUDE SCORES

In the HIRA, a Change in Intensity of each rated natural hazard over the next 10 Years was expressed by the Committee on a 25% scale, with 0% No Change in 10 Years, -100% Extreme Decrease, and 100% Extreme Increase in 10 Years. Each natural hazard’s Intensity Change was based on the evaluation of past and current weather changes and an overall feel for how the climate could change in Hopkinton over the next 10 years.

Natural Hazard Intensity Change in Next 10 Years								
-100%	-75%	-50%	-25%	0%	25%	50%	75%	100%
Extreme Decrease	High Decrease	Moderate Decrease	Slight Decrease	No Change	Slight Increase	Moderate Increase	High Increase	Extreme Increase

Identification of the Highest Magnitude or Extent of each natural hazard in the HIRA could reach in 10 Years was determined by using the most common scientific scales. Extent is defined by a geographic area or dimension while magnitude is defined by the representative strength of an event. Sometimes, a natural hazards’ Highest Magnitude or Extent was rated by more than one scale.

Table 4.2  
Predictions for Future Natural Hazard Events Over Next 10 Years

Natural Hazard Event	Intensity Change %	Highest Magnitude of Hazard	Scale Range	Scientific Scales Used
Drought	+25%	D3 Extreme Drought	D0 Abnormally Dry to D4 Exceptional Drought	US Drought (D-scale) Monitor Intensity Scale
Wildfire	+25%	Orange Very High	Low (Green) to Extreme (Red) Fire Danger	National Fire Danger Rating System
Winter Storms	0%	4 Crippling	1 Notable to 5 Extreme Snowfall	Northeast Snowfall Impact Scale (NESIS)
		Major Impacts (Red)	No Impacts to Extreme Winter Impacts	NWS Winter Storm Severity Index (WSSI)
Ice Storm	+25%	4 (Purple)	0 Damage to 5 Ice Damage	Sperry-Piltz Ice Accumulation Index
Cold Wave	0%	<=10 minutes	<5 minutes to > 2 hours for Frostbite Times	NOAA Wind Chill Temperature Index
Heat Wave	+25%	Class III Hot	Class IV Very Warm to Class I Extremely Hot	NOAA Heat Index
Small Dam Failure	0%	High Hazard Class	Non-Menace to High Hazard Dam Class	NHDES Dam Hazard Classifications
Large Dam Failure	0%	High Hazard Class	Non-Menace to High Hazard Dam Class	NHDES Dam Hazard Classifications
		Pool Stage 548'	512' Pool Stage to 566' Spillway Crest Webster	USACOE Blackwater River at Blackwater Dam
		Pool Stage 400'	375' Pool Stage to 415' Spillway Crest Hopkinton	USACOE Contoocook River at Hopkinton Dam (USGS River Gage #01085500)
Inland Flooding	+25%	< 100 Year Flood	100 Year to 500 Year Flooding	Special Flood Hazard Areas (SFHAs) on 2010 & Preliminary Digital Flood Rate Insurance Maps (Zones A, AE, X)
		>40% High (Red)	>5% Marginal to >70% High Rainfall Risk	NOAA Excessive Rainfall Risk Categories
River Hazards	+25%	Much Above Normal Stream Flow (Blue)	Much Below Normal Flow (Red) to Much Above Normal Stream Flow (Blue)	National Water Dashboard (USGS Stream Gages, Groundwater Monitors)
		12' Major Flood Stage (Purple)	6' Action Stage to 12' Major Flood Stage Warner	USGS Warner River Flood Stage at Davisville (River Gage #01086000)
		16' Moderate Flood Stage	10' Action Stage to 20' Major Flood Stage Contoocook	USGS Contoocook River Flood Stage at Henniker West Ave (River Gage #01085000, NOAA #HENN3)
Earthquake	0%	VI Strong (Yellow)	I Not Felt to X Extreme Shaking Intensity	USGS Modified Mercalli Intensity Scale

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

4 HAZARD RISK ASSESSMENT

Natural Hazard Event	Intensity Change %	Highest Magnitude of Hazard	Scale Range	Scientific Scales Used
		4.5 MM	<1.5 Magnitude to 8> Magnitude	KGS Earthquake Moment Magnitude (Size) Scale, formerly Richter Magnitude
Landslide	0%	Relatively Low Risk (Blue)	Very Low Risk (Blue) to Very High Risk (Red)	No widely-used scale; FEMA National Risk Index Map
Public Health/Biologic	+25%			
Swimming Water Quality		Cyanobacteria at Elm Brook	Bacteria Advisory to Bacteria Warning	NHDES Cyanobacteria/Public Beach Bacterial Warning Levels
Air Quality		Very Unhealth (Purple)	Good to Hazardous Air Quality	NHDES Air Quality Index
Drinking & Surface Water Quality		Red Severe	Good Water Quality (Green) to Severe Water Quality (Red)	NHDES Watershed 305(b)Assessment Summary Reports by Watershed 2020-2022
Infectious Diseases		High (Orange)	Minimal (White - Very High (Red)	NHDHHS Acute Respiratory Activity by County (weekly map)
Arboviral Diseases		High (Orange)	No Risk (Yellow) to Very High Risk (Red)	NHDHHS Arboviral Risk Map by Town (annual)
Tickborne Diseases		260 cases/year (Merr Cty)	Rate Per 100,000 persons - Latest 2017-2021 (4 years) = 131 (Merr Cty), 101 (Hills Cty)	NH DHHS Reported Cases of Lyme Disease by County 2017-2021
Substance Misuse		1-25 EMS Drug Overdose/Abuse Incidents/ year	NH DHHS Drug Monitoring Initiative (Map) Monthly and YTD	NH DHHS Drug Monitoring Initiative
Solar Storms	+25%			
Geomagnetic Storms		G3 Strong	G1 Minor to G5 Extreme Geomagnetic Storm	NOAA Geomagnetic Storms Scale
Solar Ration		S3 Strong	S1 Minor to S5 Extreme Solar Radiation	NOAA Solar Radiation Storms Scale
Radio Blackout		R3 Strong	R1 Minor to R5 Extreme Radio Blackouts	NOAA Radio Blackouts Scale
High Winds	+25%	12 Hurricane Force	0 Calm to 12 Hurricane Force Wind	Beaufort Wind Scale (Land)
Thunderstorms	+50%	4 Moderate (Red)	1 Marginal to 5 High Thunderstorm Risk	NOAA Severe Thunderstorm Risk Categories
Downbursts	0%	Microburst <2.5 miles	<2.5 miles wide Microburst to >2.5 miles wide Macrobust	NOAA Downbursts
Lightning	+50%	LAL5 Frequent	LAL 1 No Thunderstorms to LAL 6 Dry Lightning Activity	NWS Lightning Activity Level (LAL)
Tornados	+25%	EF1 86-110 mph	EF0 65-85mph to EF5 >200 mph	NOAA Enhanced Fujita Scale
Hail	+25%	1 3/4" Golf Ball Dized	1/4" Pea Size to 4.5" Grapefruit Size Hail Stones	NOAA Hail Size

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Natural Hazard Event	Intensity Change %	Highest Magnitude of Hazard	Scale Range	Scientific Scales Used
		<b>H4 Severe 25-40mm</b>	H0 5mm Hard Hail Storm to H10 >100mm Super Hail Storm	TORRO Hailstorm Intensity Scale Adapted
<b>Tropical and Post Tropical Cyclones</b>	<b>0%</b>	<b>Category 2, 96-10 mph</b>	Category 1 74-95 mph Minimal to Category 5 >157 mph Catastrophic Winds	NOAA Saffir-Simpson Hurricane Wind Scale

Source: Hopkinton Hazard Mitigation Committee 2023

HAZARD IDENTIFICATION AND RISK ASSESSMENT RATINGS AND POTENTIAL HAZARD EXTENT

Included with the **Table 4.3 Hazard Identification Risk Assessment (HIRA)** are the final figures and a description of the potential locations or extent such a hazard might impact Hopkinton. Dates and descriptions of the new hazard impacts within the last **5** years are provided in a later table, **Table 4.5 Local and Area Hazard Event and Disaster History (Sequential)**.

Table 4.3

Natural Hazard Identification and Risk Assessment (HIRA) and Potential Extent (Present and Future)

Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
<b>HYDROLOGIC Hazards</b>						
<b>DROUGHT</b>	4	1	2	1	5.3	<b>Entire Town / Region.</b> Areas susceptible include farms, orchards, tree farms. Also vulnerable are those residences with private dug wells and Town or community (serving over 25 people) water supplies. Drought means increased risk of brush fire with dry vegetation.
<b>WILDFIRE</b> Brushfire, Outdoor Fires, Accidental, etc	4	2	1	2	6.7	<b>Entire Town.</b> Areas most susceptible include residential backyards, Town and State forests, Elm Brook State Park, wooded areas, recreation areas, conservation areas, open recreation fields, locations difficult to access by vehicles. Susceptible structures include: aboveground utilities, transformers, telecommunications towers.
<b>Cold Weather Storms (ATMOSPHERIC Hazards)</b>						
<b>WINTER STORMS, BLIZZARD</b> (winds >35 mph, visibility <0.25 mile, >3 hours), <b>NOR'EASTER</b> (tropical pattern, low pressure, follows East Coast)	4	2	2	2	8.0	<b>Entire Town.</b> Areas of particular concern include roof collapse anywhere, dams, bridges, vulnerable populations, Schools, assisted living or over age 55+ communities. Roadways (fallen trees), electrical power utilities, communications network, local government operations are susceptible to damage to debris impacted infrastructure. Remote areas in the Town may be more difficult to access and/or without power (including heat) for a longer period of time. Most vulnerable populations may be subject to

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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
						cold temperature, snow isolation, transportation accidents, power failure and communications failure.
<b>ICE STORM</b>	<b>3</b>	2	2	3	<b>7.0</b>	<b>Entire Town.</b> See also Winter Storms. Interstates 89, their Exit ramps, and NH 103 might have the greatest opportunity for vehicle crash. On Town roads, the ice can weigh down trees and branches, causing breakage and downed power lines. Ince storms historically create more damage than snowstorms.
<b>Extreme Temperatures (ATMOSPHERIC Hazards)</b>						
<b>COLD WAVE</b> Wind Chill, Freezing	<b>4</b>	3	2	2	<b>9.3</b>	<b>Entire Town.</b> The socially vulnerable populations of Hopkinton will be more vulnerable to cold waves.
<b>HEAT WAVE</b> Excessive Heat	<b>4</b>	4	3	2	<b>12.0</b>	<b>Entire Town.</b> Vulnerable populations most susceptible to extreme heat include: all Schools and daycare, those populations in Appendix A. Shelters may need to be opened as cooling centers during extended heat conditions.
<b>Flooding (HYDROLOGIC Hazards)</b>						
<b>SMALL DAM FAILURE</b> Water Overtop, Breach, Beaver, etc.	<b>4</b>	1	2	1	<b>5.3</b>	<b>Areas downstream (and inundation) of Low Hazard, Non-Menace (NM) hazard classifications and beaver dams.</b> If failed, could present a problem to those downstream or directly nearby. Areas particularly susceptible include: Meadows of Hopkinton manufactured housing, Little Tooky Road residences, Contoocook Village Downtown. Many beaver dams are situated within wetlands alongside roadways, and if one or many are breached, local road flooding will occur.
<b>LARGE DAM FAILURE</b> Hopkinton Dam Reservoir & H2 Elm Brook Park Dike, H3 Cressey Rd Dike	<b>1</b>	4	4	4	<b>4.0</b>	<b>Areas downstream (and inundation) of Significant Hazard (S), High Hazard (H) dams and the US ACOE Hopkinton-Everett Reservoir.</b> These dams, if failed, could present a severe problem to those downstream or directly nearby. Damage from Hopkinton Flood Control Dam, Flood Control Spillway (Hopkinton-Everett Reservoir), Elm Brook Dam, Hoague Sprague Dam, Contoocook Village Dam, Kimball Lake Dam.



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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
<b>INLAND FLOODING</b> Rain, Snow Melt, Flash Floods- Cause Ditch Erosion, Washouts, Pond Overtop, etc	4	1	2	2	6.7	<b>Entire Town.</b> Runoff from impervious surfaces and roadways or from tree cover and fields can cause floods over the Entire Town. Susceptible areas include: Warner River & Blackwater River, Contoocook River. Area above Hopkinton-Everett Reservoir. Runoff from roadways or heavy rain can cause floods over the Entire Town.
<b>RIVER HAZARDS</b> Flood, Ice Jams, Scouring, Erosion, Channel Movement, Debris, etc	2	1	1	1	2.0	<b>Floodplains, roadways of Town.</b> Areas prone to flooding in the Town include: Floodplains of Warner / Blackwater / Contoocook Rivers, Hardy Spring Brook, Browns Brook, Dolf Brook, Boutwell Mill Brook, Meadow Brook, Kimball Pond, Flood Control Reservoir, Clement Pond. Meadows of Hopkinton manufactured housing, Little Tooky Road residences, Contoocook Village Downtown. Runoff from roadways or heavy rain can cause floods over the <b>Entire Town.</b> <b>Warner / Blackwater / Contoocook Rivers and crossing infrastructure.</b> Hopkinton-Everett Flood Control Dam ice jams could endanger the bridges or dams. Sites susceptible to debris impacted infrastructure (bridges and dams) include those downstream of the Flood Control Dam.
<b>GEOLOGIC Hazards</b>						
<b>EARTHQUAKE</b> >4.0MM	3	1	1	1	3.0	<b>Entire Town.</b> The Central NH Region is seismically active and earthquakes are regularly felt from area epicenters. Damage to utility poles and wires, roadways and infrastructure (water and waste water treatment facilities, bridges, dams) can be significant. Areas with underground utilities, community water systems, cisterns, old buildings, Contoocook Village and wooden covered bridges are particularly susceptible.
<b>LANDSLIDE</b> Soil, Rockslide, Excavation Areas, etc	1	1	1	1	1.0	<b>Slopes greater than 15%</b> (few if any locations in Town noted). Roads with steep ditching or embankments are most vulnerable to landslides. River and brook banks can also slide, usually known as erosion: Contoocook River, Blackwater River, Warner River.
<b>Public Health (BIOLOGIC) Hazards</b>	4	2	2	2	8.0	

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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
Swimming Water Quality					<p><b>The three Rivers in Hopkinton and Elm Brook State Park</b> are the most likely locations to be influenced by swimming water quality. Cyanobacteria is a common summer occurrence at Elm Brook.</p> <p><b>Entire Town.</b> Air quality is generally good but can be influenced from wildfires in Canada and in the mid-west.</p> <p><b>Aquifers and surface water.</b> Water is treated for municipal Hopkinton customers but most residents obtain their water from private wells or community water systems.</p> <p><b>Most susceptible transfer sites:</b> Schools/daycares, health clinics, eating establishments, populated areas, large employers, senior apartments, stores and public assembly venues (see Appendix A). Also, programs with public outreach such as: Meals-on-Wheels, VNA, senior and recreational programs, etc.</p> <p><b>Entire Town.</b> The Town is nearly completely forested and has a large proportion of waterbodies. Mosquitos have countless locations to breed.</p> <p><b>Entire Town.</b> With much of the Town forested and the remaining in residential land use, there is ample opportunity for ticks to thrive. Animals including herds of deer are found throughout Hopkinton.</p> <p><b>Entire Town.</b> All populations are vulnerable to the misuse of substances, illegal drugs, prescription drugs, OTC drugs, alcohol, and other substances.</p>	
Air Quality						
Drinking & Surface Water Quality						
Infectious Diseases						
Arboviral Diseases						
Tickborne Diseases						
Substance Misuse						
<b>SOLAR STORMS AND SPACE WEATHER Hazards</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2.0</b>	
<b>GEOMAGNETIC STORMS</b>					<p><b>Entire Town.</b> Emergency dispatch would be greatly impacted by any solar storm events. Communications failure would be worse if it occurred at the Fire and Police Depts, Public Works Department or Town Hall, especially during a holiday, or if power failure inhibited emergency dispatch and EOC operations. However if high tension transmission lines were disrupted regionally, a community could lack electricity until the grid is restored.</p>	
Aurora Borealis						
<b>SOLAR RADIATION</b>						
<b>RADIO BLACKOUT</b>						

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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
<b>Warm Weather Storms (ATMOSPHERIC Hazards)</b>						
<b>HIGH WINDS</b>	4	2	2	3	9.3	<b>Entire Town.</b> Contoocook Village and other populated areas. Vulnerable populations, Schools, populated. Wooded and forested sections of Town would be difficult to access with trees and power lines down on these significant commuter routes or residential roads, Route 103, US Routes 202/9, Main Street.
<b>THUNDERSTORMS</b>	4	2	3	3	10.7	<b>Entire Town.</b> Areas of particular concern include dams, bridges, vulnerable populations, Schools, assisted living or over age 55+ communities. Roadways (fallen trees), electrical power utilities, communications network, local government operations are susceptible to damage to debris impacted infrastructure.
<b>DOWNBURSTS</b>	2	2	3	3	5.3	<b>Entire Town.</b> Along College Hill Road, which sustained damage. Contoocook Village and other populated areas. Vulnerable populations, Schools, populated. Wooded and forested sections of Town would be difficult to access with trees and power lines down on these significant commuter routes or residential roads, Route 103, US Routes 202/9, Main Street. Taller buildings, telecommunications towers, aboveground utilities particularly vulnerable.
<b>LIGHTNING</b>	4	2	2	3	9.3	<b>Entire Town.</b> Areas most susceptible include forested areas, conservation areas, open recreation fields, locations difficult to access by vehicle, points of higher elevation than surrounding area. Susceptible structures include: generators, aboveground utilities, transformers, telecommunications towers, churches and tall buildings.
<b>TORNADOES</b>	2	3	3	4	6.7	<b>Entire Town.</b> Along College Hill Road, which sustained damage. Contoocook Village and other populated areas. Vulnerable populations, Schools, populated. Wooded and forested sections of Town would be difficult to access with trees and power lines down on these significant commuter routes or residential roads, Route 103, US Routes 202/9, Main Street. Taller buildings, telecommunications towers, aboveground utilities particularly vulnerable.

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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
<b>HAIL</b>	3	3	3	3	9.0	<b>Entire Town.</b> As a component of storms, hail can be damaging to vegetation, cars, homes, and can quickly turn roadways icy.
<b>TROPICAL AND POST-TROPICAL CYCLONES</b> Hurricanes, Tropical Storms, Tree Debris	3	2	2	2	6.0	<b>Entire Town.</b> Areas of particular concern include dams, bridges, vulnerable populations, Schools, assisted living or over age 55+ communities. Roadways (fallen trees), electrical power utilities, communications network, local government operations are susceptible to damage to debris impacted infrastructure
<b>NOT APPLICABLE TO TOWN &amp; REGION</b>						
<b>COASTAL FLOODING</b> (Hydrologic Hazard)	n/a	n/a	n/a	n/a	n/a	
<b>AVALANCHE</b> (Geologic Hazard)	n/a	n/a	n/a	n/a	n/a	
<b>TSUNAMI</b> (Geologic Hazard)	n/a	n/a	n/a	n/a	n/a	
<b>VOLCANIC ACTIVITY</b> (Geologic Hazard)	n/a	n/a	n/a	n/a	n/a	
<b>Technological and Human Hazards</b>						
<b>AGING INFRASTRUCTURE</b> Bridges, Roads, Stormwater, Water Treatment, Wastewater	not scored	not scored	not scored	not scored	N/A	<b>Dams, bridges, culverts, roadways.</b> Most prominent dams and bridges that could experience debris impacted infrastructure included in Appendix A. Culverts that regularly washout (including those in need of upgrade) include: Dolph Brook and the culvert replacement Table in the Plan. Prominent roadways - routes I-89, Route 103, Routes 202/9, commuter roadways or residential roads that are commonly blocked or that would impact the greatest number of people if blocked by downed trees or power/utility lines.
<b>CONFLAGRATION (FIRE)</b>	not scored	not scored	not scored	not scored	N/A	<b>Entire Town.</b> Areas most susceptible include: Contoocook Village, Main Street area and other populated areas. Vacant foreclosure homes or seasonal buildings in the Town and

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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
						buildings in densely populated areas or residential manufactured home communities. Vehicle fires could occur anywhere, parking lots, driveways, roadways.
<b>HAZARDOUS MATERIALS</b> Haz Mat Spills, Brownfields, Trucking, etc	not scored	not scored	not scored	not scored	N/A	<b>Most significant routes where vehicular traffic transports hazardous waste include:</b> Vehicular traffic Interstate 89 and exit ramps and interchange, Route 9/202, NH Route 127. Homes, businesses, vulnerable populations along the transportation routes could be vulnerable. Largest or most dangerous stationary sites that store and/or handle haz mat on site include those in Appendix A. Also sites those that store fertilizer, pesticides, fuel, etc. Occupational haz mat sites where spills could occur include: medical facilities, Schools, manufacturing, etc. Same for radiological waste.
<b>RADIOLOGICAL</b> Trucking, Stationary Sites, etc (Not within a 10-mile Emergency Planning Zone (EPZ) )	not scored	not scored	not scored	not scored	N/A	
<b>LONG TERM UTILITY OUTAGE</b> Power, Water, Sewer, Gas, Internet, Communications, Live Wire Danger, etc	not scored	not scored	not scored	not scored	N/A	<b>Entire Town.</b> Sites and areas most susceptible include: vulnerable populations (Appendix A). Wooded, forested and more remote sections of Town would be difficult to access. Trees and/or power lines down on these routes or residential roads would be problematic and include: Route 103, US Routes 202/9, Interstate 89.
<b>TRANSPORTATION CRASH</b> Vehicle, Airplane, Helicopter, Rail, Interstate, Pedestrian, Bicycle, etc	not scored	not scored	not scored	not scored	N/A	<b>Roadways.</b> Interstate 89 and exit ramps, Route 9/202, NH Route 127, local Class V roads. See Map 4 for regular accident locations - at certain intersections, curves, straightaways, hills. Drones can cause problems if the operator loses control. Pedestrian and bicycle crashes should also be considered. Air traffic routes fly over the Hopkinton area but must keep away from the US ACOE dams at the Flood Control Reservoir.
<b>MASS CASUALTY INCIDENT</b> As a result of any hazard event	not scored	not scored	not scored	not scored	N/A	<b>Entire Town.</b> Large events could occur at the Hopkinton Fairgrounds, at one of the schools, or during Town Meeting or along Interstate 89 to cause mass casualty incidents. The closest hospital is Concord Hospital, just miles from Hopkinton Center.
<b>TERRORISM/ VIOLENCE</b> Active Shooter, Hostage, Public Harm, Civil Disturbance/ Unrest,	not scored	not scored	not scored	not scored	N/A	<b>None anticipated.</b> Most susceptible sites could include: Town Hall, Hopkinton Schools, Post Office, Flood Control Reservoir. Also communication towers, major employers (especially those with large quantities of haz materials), health clinics, grocery or convenience stores, restaurants,

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Natural Hazard Categories with Technological, Human Hazard Categories	Probability Occurrence in 10 Years 1 Unlikely 2 Possible 3 Likely 4 Highly Likely	Severity of Impact			OVERALL RISK 1.0 -16.0	Potential Locations /Extent in Town (Present and Future)
		Human Injury Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Essential Services or Infrastructure Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic	Property Damage or Economic Impact 1 Limited 2 Significant 3 Critical 4 Catastrophic		
Politically Motivated Attacks, Incendiary Devices, Sabotage, Vandalism, etc						high volume roadways, water supply infrastructure or dams, Post Office, all governmental facilities, state facilities, political offices or rallies, churches, etc.). <b>Town systems or facilities.</b> Sabotage would be most likely to occur Town computer systems & website, Town buildings, utilities, dams, water supplies, water and waste water treatment facilities, cemeteries, vacant buildings, under bridges. <b>Entire Town, but isolated incident.</b> Hostage situations are isolated events. Locations where hostages could be taken include: Town Hall and other public buildings, Schools, banks, Post Office, workplaces, grocery and convenience stores, restaurants, high density population areas (Contoocook Village, manufactured housing communities, apartment buildings), domestic home situations. <b>None</b> as locations where civil disturbance could occur should be limited. Occasions include: Town Meetings, voting day, during visits from political candidates, sporting events, large events such as Old Home Day or veteran's parades, school graduation. Locations include Schools, recreational fields, Town Hall, stores, restaurants, establishments serving alcohol, high density population areas (Contoocook Village, manufactured housing parks, neighborhoods), Police and Fire stations.
<b>CYBER EVENT</b> Computer Systems Attack, Website Overtake, Cloud Data Breach, \Telephone Rerouting, Identity Theft, Phishing, Ransomware, Virus, Phone Scams, etc	not scored	not scored	not scored	not scored	N/A	<b>Town files server or cloud, School District files server or cloud.</b> A cyber event could occur in any digital location with no warning.

Source: Hopkinton Hazard Mitigation Committee

## Central NH Region Major Disaster Declarations, 1973-2023

The Central NH region, which encompasses parts of Merrimack County (**18** communities) and Hillsborough County (**2** communities), has been damaged by **31** presidentially-declared major disasters [DR-] and presidentially-declared emergencies [EM-] in the last **50** years between **1973-2023**. Some of these are double-counted by being designated both EM- and DR- in the same county. Yet storms that qualify as a disaster in one community, like Hopkinton, may not yield the same damages in surrounding towns. When the Pre-Damage Assessment (PDA) figures are provided to FEMA after a storm, sometimes they are not high enough on a County basis to be declared a disaster.

*Although a natural disaster typically befalls multiple counties in New Hampshire, only those major disaster (DR-) or emergency declarations (EM-) within either Hillsborough County or Merrimack County were identified in this Plan.*

*Disaster declarations* [DR-] within a county enable the ability to receive Public Assistance (PA) funding and Individual Assistance (IA) funding, Hazard Mitigation Grant Program (HMGP) *plan* funding is typically made available to all communities statewide, and for those towns with an active, approved Hazard Mitigation Plan, HMGP *project* funding becomes available. *Emergency declarations* [EM-] are often proclaimed for counties in New Hampshire to help communities receive funding for less serious hazard events that may have caused more damage in nearby declared declaration [DR-] counties or states. EM- declarations typically open Hazard Mitigation Grant Program (HMGP) plan and project funding for communities with an active hazard mitigation plan.

Over the last **18** years (**2005-2023**), the Central NH region containing communities within Merrimack and Hillsborough Counties experienced **18** presidentially- declared natural major disasters [DR-] or presidentially- declared emergency declarations [EM-] which differ between DR- or EM- depending on which county was declared. The earliest Central NH region declarations spanned **1973** to **2004** (**32** years) and yielded total **13** disasters of both [DR-] and [EM-].

### PUBLIC ASSISTANCE GRANT FUNDING

For the global COVID-19 pandemic DR-4516 from **2020-2022**, the Town received a total of **\$112,514** in COVID funding, including GOFERR funds (**\$87,393**), Election Grant funds (**\$14,317**), and Public Safety funds (**\$10,804**). The last weather disaster declared in Merrimack County in which Hopkinton is located was the **October 2017** Wind and Rainstorm (Tropical Storm Phillippe). The last weather event for which Hopkinton applied for and received federal Public Assistance funding (**\$32,854**) was the snowstorm event in **February 2013**. Details of Central NH region declared disasters and emergency declarations since **1973** and federal

funding provided to the Town of Hopkinton are displayed in **Table 4.4**. Most of these disasters will be described within the following **Past Disasters and Severe Weather Events** section.

**Table 4.4**  
**Central NH Region Major Disaster Declarations, 1973 to 2024**

FEMA DR- or EM-	Year	Local Disaster Name	Incident Period	DR-MER	DR-HIL	DR- Other Cty	\$ FEMA Public Assistance (PA) Funding to TOWN
Next DR							
4516 EM-3445	2020	(COVID-19 Pandemic) Novel Coronavirus Public Health Pandemic	Jan 20, 2020-April 2022	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$112,514 includes GOFERR, Election Grant and Public Safety funds
4355	2017	Severe Rain and Wind Storm from Tropical Storm Phillippe	Oct 28-30	MER	---	BEL-CAR-COO-GRA-SUL	\$0
4209	2015	Severe Winter Storm and Snowstorm	Jan 26-28	---	HIL	ROC-STR	n/a
4105	2013	Severe Winter Storm and Snowstorm	Feb 8-10	MER	HIL	BEL-CAR-CHE-STR-SUL-ROC	\$32,854
4095 EM-3360	2012	Hurricane Sandy	Oct 26-Nov 8	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$0
4049	2011	(Halloween) Severe Storm and Snowstorm	Oct 29-30	---	HIL	ROC	n/a
EM-3344	2011	(Halloween) Severe Storm and Snowstorm	Oct 29-30	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$0
4026	2011	Tropical Storm Irene	Aug 26-Sep 6	MER	---	BEL-COO-CAR-GRA-STR-AUL	\$0
EM-3333	2011	Tropical Storm Irene	Aug 26-Sep 6	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$0
1913	2010	Severe Storms and Flooding	Mar 14-31	---	HIL	ROC	n/a
1892	2010	High Winds, Rain, Snow	Feb 23-Mar 3	MER	HIL	GRA-ROC-SUL-STR	\$0
1812	2008	(Ice Storm) Severe Winter Storm	Dec 11-23	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$50,706
EM-3297	2008	(Ice Storm) Severe Winter Storm	Dec 11-23	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$0
1799	2008	Severe Storms and Flooding	Sep 6-7	MER	HIL	---	\$0
1782	2008	Tornado, Severe Winds, Heavy Rains	24-Jul	MER	---	BEL-CAR-ROC-STR	\$0
1695	2007	Severe Storms and Flooding	Apr 15-23	MER	HIL	BEL-CAR-CHE-COO-GRA-ROC-STR-SUL	\$38,448
1643	2006	(Mother's Day) Severe Storms and Flooding	May 12-23	MER	HIL	BEL-CAR-GRA-ROC-STR	\$33,741



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FEMA DR- or EM-	Year	Local Disaster Name	Incident Period	DR-MER	DR-HIL	DR- Other Cty	\$ FEMA Public Assistance (PA) Funding to TOWN
1610	2005	(Columbus Day) Severe Storms and Flooding	Oct 7-18	MER	HIL	BEL-CHE-SUL	\$19,248
EM-3258	2005	Hurricane Katrina Evacuation	Aug 29-Oct 1	MER	HIL	BEL-CAR-CHE-COO- GRA-ROC-STR-SUL	\$0
EM-3211	2005	Snowstorm	March 11-12	---	HIL	CAR-CHE-ROC-SUL	n/a
EM-3207	2005	Snowstorm	Jan 22-23	MER	HIL	BEL-CAR-CHE-GRA- ROC-STR-SUL	\$12,359
EM-3193	2003	Snowstorm	Dec 6-7	MER	HIL	BEL-CAR-CHE-COO- GRA-SUL	\$15,086
EM-3177	2003	Snowstorm	Feb 17-18	MER	HIL	CHE-ROC-STR	\$12,272
EM-3166	2001	Snowstorm	Mar 5-7	MER	HIL	CHE-COO-GRA-ROC- STR	\$12,740
1231	1998	Severe Storms and Flooding	Jun 12-Jul 2	MER	HIL	BEL-CAR-GRA-ROC- SUL	\$0
1199	1998	Ice Storms	Jan 7-25	MER	HIL	BEL-CAR-CHE-COO- GRA-STR-SUL	\$0
1144	1996	Severe Storms and Flooding	Oct 20-23	MER	HIL	GRA-ROC-STR-SUL	\$0
1077	1995	Storms and Floods	Oct 20-Nov 15	MER	---	CAR-CHE-COO-GRA- SUL	\$0
EM-3101	1993	Blizzards, High Winds and Record Snowfall	Mar 13-17	MER	HIL	BEL-CAR-CHE-COO- GRA-ROC-STR-SUL	\$0
917	1991	Hurricane Bob, Severe Storm	Aug 18-20	---	HIL	CAR-ROC-STR	no data
876	1990	Flooding and Severe Storm	Aug 7-11	MER	HIL	BEL-CAR-CHE-COO- GRA-SUL	no data
789	1987	Severe Storms, Flooding	Mar 30-Apr 11	MER	HIL	CAR-CHE-GRA-ROC- SUL	no data
771	1986	Severe Storms, Flooding	Jul 29-Aug 10	---	HIL	CHE-SUL	no data
399	1973	Severe Storms, Flooding	Jul 11	MER	HIL	BEL-CAR-CHE-COO- GRA-STR-SUL	no data
Weather Disasters DR- & EM-Pandemic Funds DR-4516*			<b>Total Public Assistance to TOWN 1993-2023**</b>				<b>\$227,452</b>
			<b>Total GOFERR Assistance to TOWN 2020-2022**</b>				<b>\$112,514</b>
<b>* CARES Act/NH Governor's Office for Emergency Relief and Recovery (GOFERR) 2020-2022</b> <a href="https://www.goferr.nh.gov/welcome">https://www.goferr.nh.gov/welcome</a>			<b>Total Federal Disaster Funding to TOWN 1993-2023**</b>				<b>\$339,966</b>

Source: [http://www.fema.gov/disasters/grid/state/33?field\\_disaster\\_type\\_term\\_tid\\_1=All](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 and include only PA and HMGP. PA dataset available at <https://www.fema.gov/openfema-dataset-public-assistance-funded-projects-details-v1> July 2023

To help reclaim some of the costs these disasters wrought on town property and infrastructure and for additional staff time, Hopkinton 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 (**2023**). Hopkinton in Merrimack County was eligible for reimbursement for up to a total of **28** disasters and emergency declarations. This detail is displayed previously in **Table 4.4** and is summarized to rounded in the forthcoming **Table 4.5** for each disaster. The most weather expensive disaster for Hopkinton in terms of FEMA Public Assistance (PA) funds received for recovery was the **DR-1812 December 2008 Ice Storm** after which Hopkinton received **\$50,700** for **2** applications for project funding to help repair local Town roads and several bridges. Total PA funding to date totals almost **\$228,000**.

#### **2020 GOVERNOR'S OFFICE FOR EMERGENCY RELIEF AND RECOVERY (GOFERR)**

The NH Governor's Office for Emergency Relief and Recovery (GOFERR) at <https://www.goferr.nh.gov/> provides transparent review and access to the state's CARES Act - Coronavirus Relief Fund allocations for the DR-4516 COVID-19 Pandemic. The US HR 748 Coronavirus Aid, Recovery, and Economic Security (CARES) Act enacted 3/27/20 provided **\$1.25b** to the state and was one of several relief bills and funding sources for the COVID-19 disaster. The GOFERR is making these funds available through various programs. Municipalities, businesses, and individuals were to apply to several funding programs through GOFERR.

Hopkinton’s Past Disasters and Severe Weather Events

The Town of Hopkinton 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 Hopkinton and its residents. Public Assistance disaster funding opportunities open to communities when a disaster is declared within a county. The Town of Hopkinton applied for and received this funding for several recently declared disasters.

Although New Hampshire experienced more disasters than those shown in **Table 4.5**, typically only those which occurred as declared disasters [DR-] or emergency declarations [EM-] in the Central NH region (Merrimack and Hillsborough Counties) were described. Sometimes a disaster occurring in a nearby county, such as Rockingham County in proximity to Hopkinton, will be included. Refer to the *State of New Hampshire Multi-Hazard Mitigation Plan 2023* for a complete list of disasters which impacted the rest of New Hampshire.

Also identified were numerous past hazard events or severe weather events that occurred locally in the community and within the area that were impactful enough to note in **Table 4.5 Local and Area Hazard Event and Disaster History (Sequential)**. 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 Hopkinton in the last 5 years, this means the Hazard Mitigation Committee did not recall an event of significance since the **2017 Plan**.

COLOR KEY for **Table 4.5**:

Declared Disasters (DR-) or Emergency Declaration (EM-) in Merrimack County or Hillsborough County in Central NH Region NOT ELIGIBLE FOR PA Funding in Hopkinton	DR- or EM- County ELIGIBLE FOR PA FUNDING PA \$ Received by Hopkinton	Other Hopkinton Local Hazard or Severe Weather Event	Regional Hazard Event with Hopkinton Impacts
--	---	--	--

This breakdown of hazards is identical to the list of natural disaster categorizations found also in **3 GOALS AND OBJECTIVES**.

Table 4.5

Local and Area Hazard Event and Disaster History (Sequential- Latest to Earliest)

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
TOWN TO ADD NEW EVENT ROWS HERE																			
TOWN TO ADD NEW EVENT ROWS HERE																			
Hazard Events 2024-2017 (Since Last Plan)																			
N'oreaster Winter and Ice Storm	2024	Apr 3-4	No	N/A	After a winter season of an extreme variation of temperatures and storms - wet snow dumps and melting- during winter 2023-2024, this early April N'oreaster walloped New Hampshire with 220,000 customers without electricity within one week after Eversource and NH Electric Cooperative cleaned up after the previous storm. Between 10-20" fell on the state, with wind gusts up to 50 mph.	Hopkinton received about 9" of snow, although in Contoocook levels were reported to be about 7". Many local roads were closed and the electricity was out on many roads for 6-21 hours. The Slusser Center was opened for a warming center. Regular updates were placed on the Town website so residents could keep posted.	CNHRPC, NHPR		+			+	+						+
Regional Winter and Rainstorm	2024	Jan 12-13	No	N/A	About 16,000 total customers, 2/3 NH Electric Co-op customers and 1/3 Eversource customers, were without electricity during this second wet snow, high temps, rain, and severe windstorm event across the state. Major coastal flooding was	The Central NH region received snowfall between 3-6" with subsequent rain and high temps to melt the snow. In Warner, localized culvert flooding on North Road near the former landfill from the	CNHRPC, WebEOC, Warner Hazard Mitigation Committee		+		+	+	+						+

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					experienced with wind gusts exceeding 60 mph along the seacoast and in northern NH. Hampton was again inundated by several feet of water and seafoam and opened its warming shelter through high tide.	North Road culvert led to some driveway flooding. High winds were the greatest problem. The rain melted most of the remaining snow, resulting in ponding and mild flooding.													
<b>Regional Winter and Rainstorm</b>	2024	Jan 9	No	N/A	About 7,500 total customers were without electricity during this wet snow, high temps, rain, and severe wind event across the state. Major coastal flooding was experienced with wind gusts exceeding 60 mph. Hampton was flooded by several feet of water and seafoam and opened its warming shelter through high tide.	The Central NH region fared much better with snowfall between 6-10" with subsequent rain and high temps to melt the snow. The Suncook River predicted to overflow at Minor Flood Stage at N Chichester gage. In Warner, the earlier Jan 6-8 snowfall ranges between 7-12" in Warner depending on where located. Wind drifts moved the powder snow. During the Jan 8-10 week event, 5-6" additional snow, then 2-3 inches of water. Slush and mud in driveways.	CNHRPC, WebEOC, Warner Hazard Mitigation Committee		+		+	+	+						+
<b>Regional Earthquake Loudon Epicenter 2.0M</b>	2024	Jan 3	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. For perspective, usually around a dozen	On Jan 3, a 2.0M earthquake in Loudon, its epicenter between Old Shaker Road and Pine Island Brook was recorded. Its depth was 5.0km and the Mercalli Intensity was rated a III.	USGS Earthquake Hazards Map, CNHRPC							+					

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					earthquakes are recorded in NH annually. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	Local residents may well have felt and reported these earthquakes.													
<b>Regional Earthquake Concord Epicenter 2.7M</b>	2023	Dec 22	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. For perspective, usually around a dozen earthquakes are recorded in NH annually. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	On Dec 22, a 2.7M earthquake in Concord was recorded with the epicenter between the Steeplegate Mall and the Soucook River. Its depth was 5.0km and the Mercalli Intensity was rated a V (Very Light). Local residents may well have felt and reported these earthquakes. Local reports indicate a loud boom and small rattling was felt.	USGS Earthquake Hazards Map, CNHRPC							+					
<b>DR- Severe Storms and Flooding</b>	2023	Dec 17-21	DR-4761	N/A for Merr or Hills County	A heavy rain and wind event caused over 50,000 electric outages in the state, mostly within Eversource and Unitil areas. Extensive wind, downed trees and powerlines, and flooding on local Central NH roadways as identified in Loudon, Pembroke, Dunbarton, and Salisbury in the Central NH region. Coastal storm surge and localized river flooding reported. Not declared a disaster in Merrimack or Hillsborough Counties.	Hopkinton experienced localized flooding on roadways and temporary power outages.	CNHRPC, WebEOC		+		+	+	+						+

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Regional Earthquakes 1.0M - 3.0M	2023	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. Between January-July 2023, two earthquakes were recorded in the Central NH Region. For perspective, usually around a dozen earthquakes are recorded in NH annually. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	On Jan 25, a 1.9M earthquake struck Bow off Bog Road at Allen Road. Its depth was 8.9km and the Mercalli Intensity was rated a III. On Feb 24, a 2.1M earthquake was recorded in Warner on East Chimney Road at 5.0km in depth. This quake also had a Mercalli Intensity rating of III. Hopkinton residents may well have felt and reported these earthquakes. Local news reports indicate a loud boom and small rattling felt for the Warner quake.	USGS Earthquake Hazards Map, CNHRPC							+					
DR- Severe Storms and Flooding	2023	Jul 9-17	DR-4740	N/A for Merr or Hills County	New Hampshire experienced severe flooding, resulting in many bridge and road washouts. Nearby Hillsboro NH lost sections of major connecting roads. Many croplands, property, and roads were damaged throughout the state.	Hopkinton experienced moderate-severe flooding in this time and the days after. Houston's Pine Lane Farm reported major losses of crops, totaling approximately 100 acres of hay & corn lost.	Hopkinton Hazard Mitigation Committee, Pine Farm Lane, CNHRPC				+								
Regional Thunderstorm and Hailstorm	2023	June 2	No	No	This June 2023 storm is representative of the multiple hailstorms New Hampshire communities are subjected to annually. In Central NH, there are 2-3 storms in which hail of notable size occurs each year. Whenever hail occurs, a possibility for power outages	Along with gusty winds, trees down, lightning, and flash flood conditions, hail was reported up to 1.5" in diameter across the Central NH region, with higher diameter hail in Hooksett (also in Merrimack County) and	hailpoint.com, CNHRPC		+	+	+								

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					and downed trees onto roadways exists.	Manchester. Likely Hopkinton was subjected to >1" hailstones.													
<b>Regional Extreme Cold Temperatures</b>	2023	May 18	No	N/A	All across the Northeast, cold temperatures records were broken. Montpelier fell to 25 degrees, Lebanon NH fell to 23 degrees.	New Hampshire temperatures fell into the low 20s on this night bringing a late frost to newly planted crops or overwintering orchards. This event continued to threaten crops this late in the season.	CNHRPC., NOAA National Climate Report						+						
<b>Regional Thunderstorm and High Winds</b>	2023	April - Nov ANNUAL	No	N/A	Numerous notable thunderstorms, with rain, lightning, wind, flooding, and erosion/washout occurred in the Central NH region in 2023. These storms include Apr 18-19- Heavy rainstorm and winds caused treefall. July 12- thunderstorm, wind. Nov 29- Heavy winds caused treefall on utility lines. Dec 26- storm described under DR- 4693	During these more common thunderstorms, Hopkinton typically experiences flooding in several low areas such as Patch Rd, Briar Hill Rd, and along the Contoocook River. Those sections of road with culvert washouts and erosion are reconstructed to higher storm standards. Many gravel driveways or roads experience some extent of washout. If winds are high enough, treefall on roads and utility lines, and therefore power outages, is a regular outcome. Lightning can strike the highest trees or buildings, or flat sports fields.	Hopkinton Hazard Mitigation Committee, CNHRPC		+	+	+								+
<b>Regional Extreme Cold</b>	2023	Feb 3-4	No	N/A	Most communities in Central NH including Hopkinton experienced	Hopkinton experienced these conditions, with	Hopkinton Hazard						+						



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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

4 HAZARD RISK ASSESSMENT

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Temperatures					negative temperatures (-10 to -19 degrees F) plus windchill, ranging as low as -45 degrees for a 36-hour period.	damaging impacts on fruit crops.	Mitigation Committee, CNHRPC												
Regional Earthquakes 1.0M - 3.0M	2022	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. In 2022, 3 earthquakes were recorded in the Central NH Region. This year, 12 earthquakes were recorded in NH. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	On Feb 17, a 1.8M earthquake was recorded in Warner west of Clough Sanborn hill, depth 5.0km. On Aug 6, a 1.2M earthquake was recorded in Salisbury on a hill west of Little Hill Road at 5.0km in depth. On Aug 7, a larger 2.3M quake was recorded in Antrim, West of Concord St at a 5.0km depth. This quake had a Mercalli Intensity rating of IV. Hopkinton residents may well have felt and reported these earthquakes.	USGS Earthquake Hazards Map, CNHRPC							+					
Hopkinton Drought Conditions	2017-2022	ANNUAL	No	N/A	Merrimack County and portions of Hillsborough County have experienced light to moderate drought conditions for much of the last 5 years, except for most of 2023.	The 14-acre spring-fed Contoocook Village Precinct Bear Pond drops about a foot & varies seasonally. Hopkinton should continue to assume annual drought conditions will occur in sections of town each year.	CNHRPC, Hopkinton Hazard Mitigation Committee	+											
DR- Severe Storms and Flooding	2022	Dec 26	DR-4693	N/A for Merr or Hills County	Pembroke Plausawa tower came down in the last wind event, day after Christmas. CAMAFC equipment on the ground, diverted to another tower for	Hopkinton experienced flooding in several low areas – such as Patch Rd, Briar Hill Rd, and along the Contoocook River. Many	Hopkinton Hazard Mitigation Committee,		+		+	+	+						+

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire/	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health/	Solar	Haz Mat/Radiological	Human	Technologic
					simulcast and microwave system. Pembroke has rehabilitation cost on their most recent FEMA claim. Central NH region experienced heavy rain and a wintry mix. The combination of snowmelt and precipitation caused many towns to experience flooding. A recent snowstorm on Dec 16 caused snow accumulation, which contributed to the later flooding.	sections of roads in Hopkinton had culvert washouts and other similar damage. All dirt driveways or roads experienced some extent of washout. According to NOAA data, the Warner River reached a height of 8.6 ft. Pictures are available of washouts and road flooding. As a member of Capital Area Mutual Aid Fire Compact, Hopkinton may have experienced communications delays during this holiday time. Rain and flooding closed Branch Londonderry Tpk & Boundtree for 1 day. Culvert failures included Penacook Rd, at the intersection of Briar Hill.	CNHRPC, NOAA web												
<b>Hopkinton Mast Yard State Forest Wildfire</b>	2022	N/A	No	N/A	Mutual Aid likely assisted. The Mast Yard State Forest is also located in Concord.	Hopkinton Fire Fighters responded to a very small Mast Yard State Forest wildfire in 2022, <1 acres. In addition, they responded to one 5-acre fire adjacent to the State Forest in 2022.	Hopkinton Hazard Mitigation Committee, CNHRPC			+									

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Regional Thunderstorm and High Winds	2022	Nov 29	No	N/A	The Central NH region experienced severe thunderstorms with high winds, rain, and lightning.	Heavy winds caused treefall on utility lines. Flash flooding conditions especially along roadsides may have also been met in some Hopkinton locations.	Hopkinton Hazard Mitigation Committee, CNHRPC		+	+	+								
Regional Geomagnetic Storms	2022	Apr 4	No	N/A	Many towns utilized the CAFMAC antennas for emergency communication. The geomagnetic storm would have impacted any of these towns as well.	Geomagnetic storm impacted CAFMAC microwave antennas on Mount Kearsarge, Oak Hill, Plausawa Hill, and towers on Pat's Peak. Some damaged antennas needed replacement. The impact of the storm on the antennas disrupted 911 communications which were rerouted through the Lakes Region dispatch.	CNHRPC, Hopkinton Hazard Mitigation Committee									+			+
Regional Thunderstorm and High Winds	2022	Apr	No	N/A	The Central NH region experienced severe thunderstorms with high winds, rain, and lightning.	Heavy winds caused treefall on utility lines. Flash flooding conditions especially along roadsides may have been met in some Hopkinton locations.	Hopkinton Hazard Mitigation Committee, CNHRPC		+	+	+								
Regional Earthquakes 1.0M - 3.0M	2021	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. In 2021, 3 earthquakes were recorded in the Central NH Region. This year, 7 earthquakes were recorded in NH. For the stronger	On Mar 6, a 1.7M earthquake was recorded in Hopkinton on Fire Pond Drive at a depth of 5.0km. This quake had a Mercalli Intensity rating of III. On Aug 1, a 1.8M earthquake was recorded in Canterbury south of Boyce Road at 2.8km in depth. This quake also had a	USGS Earthquake Hazards Map, CNHRPC							+					

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	Mercalli Intensity rating of III. On Nov 30, a 1.9M quake was recorded in Canterbury on Hayward Brook north of Hoit Road at a 4.7km depth. Hopkinton residents may well have felt and reported these earthquakes.													
<b>Regional G3 Geomagnetic Storms</b>	2021	Oct 30-31	No	N/A	NOAA issued a G3 “strong” geomagnetic storm watch. A storm of this capacity can cause voltage irregularities on protection devices, potentially harmful currents in power grids, disruptions in global positioning systems (GPS), as well as the potential to cause high frequency radio blackouts. Visible effects of a geomagnetic storm include enhancing the visibility of the aurora borealis across large parts of the United States and Europe. A geomagnetic storm of this size likely reaches large portions of the earth, including the entire northeast of the United States and the Central NH Region.	There were no known impacts in the Town, but predictions had noted potential radio interference, potential harmful currents in the power grid, and potential disruptions to global positioning systems (GPS).	CNHRPC, NOAA, CNN									+			+
<b>Seabrook Nuclear Unusual Events Alerts</b>	2021	Oct 22-23	No	N/A	Site Area Emergency only. Although most Central NH towns are just outside the 50-mile EPZ, situational awareness is preferred	Hopkinton is outside the 50-mile EPZ, although situational awareness is preferred.	CNHRPC, WebEOC										+		

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic	
Regional Arboviral Risk	2021	Oct 6	No	N/A	Towns in Merrimack County experienced higher arboviral risk levels than other counties.	Hopkinton had 1 or more positive cases of Jamestown Canyon Virus from mosquitos.	CNHRPC, WebEOC, NHDHHS													
New Hampshire Statehouse Vaccine Protest	2021	Sep 14	No	N/A	Protest at New Hampshire State House in Hopkinton. Rally against vaccine mandates. Surrounding town response authorities were likely notified in the event additional aid was required.	Civil Disturbance as a protest at the NH State House against Vaccine mandates. No known damage or violence occurred. Town personnel and resources were likely directed towards ensuring safety during the protest. No known Hopkinton exposure, but mutual aid may have been called.	CNHRPC, WebEOC, Hopkinton Monitor													
Regional Tropical Storm Henri	2021	Aug 19-27	No	N/A	Strong tropical storm with flash flooding, high winds 30-40 mph, power outages, tree damage, heavy rain between 2 and 4 inches in NH.	Hopkinton likely felt similar effects as the rest of the state including heavy rain, high winds, potential flooding, tree damage, and power outages.	CNHRPC, WebEOC, NH HSEM		+		+									
Regional Air Quality Advisory	2021	Aug 12-13	No	N/A	NHDES expected ground-level ozone concentrations to rise to levels that are unhealthy for those who are sensitive.	Hopkinton potentially had the same increased concentrations of fine particle air pollution that could be harmful.	CNHRPC, WebEOC, NHDES													
Regional Air Quality Advisory	2021	Jul 26-27	No	N/A	NHDES expected concentration of fine particle air pollution to reach unhealth levels for those who are sensitive throughout the entire state.	Hopkinton likely had increased concentrations of fine particle air pollution that could be harmful.	CNHRPC, WebEOC, NHDES													

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic	
Regional Wildfire Smoke Advisory	2021	Jul 20	No	N/A	NHDES declared smoke advisory expecting concentrations of fine particle air pollution from smoke to reach levels that could cause respiratory health effects for those who are sensitive throughout the state.	Hopkinton likely experienced degraded air quality which would have had a greater impact on the young, elders, and those with breathing problems.	CNHRPC, WebEOC, NHDES													
DR- Severe Storms and Flooding	2021	Jul 29-Aug 2	DR-4624	N/A for Merr or Hills County	Heavy rainfall 0.5-2 inches in areas throughout the state sufficient to produce flooding. This was not a declared disaster in Merrimack or Hillsborough Counties	Hopkinton experienced heavy rainfall and likely flooding, especially along roads, leading to washouts.	CNHRPC, WebEOC, NH HSEM		+		+									
DR- Severe Storms and Flooding	2021	Jul 18	DR-4622	N/A for Merr or Hills County	Heavy rainfall 0.5-2 inches in areas throughout the state sufficient to produce flooding. This was not a declared disaster in Merrimack or Hillsborough Counties	Hopkinton experienced heavy rainfall and likely flooding, especially along roads, leading to washouts.	CNHRPC, WebEOC, NH HSEM		+		+									
Regional Extreme Hot Temperatures	2021	Jun 29	No	N/A	Heatwave experienced throughout the state. Extreme temperatures from 90-100 degrees were recorded at various times this summer.	Hopkinton experienced extreme temperatures with high heat and humidity. (Hopkinton 96 degrees).	CNHRPC, WebEOC, NH WMUR						+							
Hopkinton Thunderstorms and High Winds	2021	Spring - Summer	No	N/A	This was two seasons of thunder and rainstorms in the Central NH region.	Windstorms in Hopkinton were reported on 3/2 and 3/29 of 2021. No major damage reported in the Town. Thunderstorms and high winds reported on 5/26, 7/21, and 7/23.	CNHRPC, NOAA web		+		+									
Regional Drought	2021	May	No	N/A	Much of Merrimack and Hillsborough counties experienced moderate levels of drought.	Hopkinton likely experienced moderate drought conditions.	CNHRPC, WebEOC, NCEI/NOAA	+												

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Regional Geomagnetic Storms	2021	Apr 4	No	N/A	The geomagnetic storm impacted multiple CAFMAC microwave antennas throughout the region. Many regional towns utilize these antennas, and their communications were disrupted including for 911 calls.	A geomagnetic storm impacted CAFMAC microwave antennas on Mount Kearsarge, Oak Hill, Plausawa Hill, and Pat's Peak Towers some needed replacing. The impact from the storm disrupted 911 communications in Hopkinton.	CNHRPC, Local Hazard Mitigation Committees									+			+
Regional Snowstorm	2021	Feb 1-2	No	N/A	Severe snowstorm impacting the state resulting in 3-16 inches of snow.	Hopkinton likely experienced several inches of snow and potential tree damage, and power outages. Town Public Works Dept handled as a typical storm.	CNHRPC, WebEOC, NH WMUR					+	+						+
Regional Earthquakes 1.0M - 3.0M	2020	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. In 2020, 3 earthquakes were recorded in the Central NH Region while 9 total earthquakes were recorded in NH. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	On Jan 6, a 2.1M earthquake was recorded in Northfield (also in Merrimack County) at I-93 south of railroad track at a 5.0km depth. This quake had a Mercalli Intensity rating of III. On Mar 8, a 1.9M earthquake was recorded at Dunbarton/Weare Townline, south of Clough Park Rd at 5.0km in depth. This quake also had a Mercalli Intensity rating of III. On Mar 15, a large 2.1M earthquake was recorded in Tilton on Lowes Drive (also in	USGS Earthquake Hazards Map, CNHRPC							+					

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						Merrimack County) at 4.5km in depth. This quake was strongly felt, a Mercalli Intensity rating of V. Hopkinton residents may have felt and reported the earthquakes.													
Regional Christmas Rain and Windstorm	2020	Dec 25	No	N/A	Heavy rain and strong winds throughout the state. 1.5-2.5 Inches of rain and gusts of wind from 45-55mph. Combined with snowmelt the storm caused flooding.	Hopkinton likely felt strong winds and heavy rains potentially causing flooding, tree damage, and road closures.	CNHRPC, WebEOC, NH WMUR		+		+		+						
Regional Snowstorm	2020	Dec 17	No	N/A	Severe snowstorm impacting the state resulting in 5-25 inches of snow.	Hopkinton likely received several inches of snow, causing tree damage and potential power outages.	CNHRPC, WebEOC, NH HSEM, manchester inklink.com					+							
Regional Drought	2020	Dec	No	N/A	Drought conditions in Merrimack and Hillsborough counties ranging from D1 Moderate Drought to, D2 Severe Drought, and further east D3 Extreme Drought.	Hopkinton likely experienced moderate or severe drought conditions.	CNHRPC, WebEOC, NCEI/NOAA	+					+						
State General Election Security	2020	Nov 3	No	N/A	The NH general election occurred hosted at 307 polling locations across the state, involving 185 town police departments and state police.	Hopkinton hosted their local election sites and town authorities were required for logistics and security.	CNHRPC, WebEOC, NH State Police											+	
Regional Drought	2020	Oct	No	N/A	Moderate, severe, and extreme drought conditions affecting the state, very high fire danger declared.	Hopkinton likely experienced severe or extreme drought conditions.	CNHRPC, WebEOC	+					+						
Regional Drought	2020	Sep	No	N/A	Drought conditions in Merrimack and Hillsborough counties	Hopkinton likely experienced severe drought conditions.	CNHRPC, WebEOC, NCEI/NOAA	+					+						



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					ranging from D1 Moderate Drought to, D2 Severe Drought.															
Regional Tropical Storm Isaias	2020	Aug 3-6	No	N/A	Tropical storm with extreme wind gusts, flash flooding, high rainfall, tree damage, and power outages.	Hopkinton experienced the same storm effects including high wind, flooding, rainfall, tree damage, and power outages.	CNHRPC, WebEOC, NH SEOC, NHPR.org		+		+									+
Regional Drought	2020	Jul	No	N/A	Much of the state including the Hopkinton area experienced moderate levels of drought.	Hopkinton reported experiencing moderate drought conditions.	CNHRPC, WebEOC, NHDES	+					+							
COVID-19 Pandemic	2020-2022	Mar-Apr	DR-4516	\$112,514	The NH Governor issued social activities restrictions, minimal public meetings, remote meetings held, social distance practices in April 2020 for all counties. Cases closely tracked by NH Division of Health and Human Services and NH HSEM. The State EOC was activated.	The Town follows the Governor's order and CDC advisories on meetings, masks, social distancing. Hand sanitizing/masking station is available, signs are posted, front door is often locked. Multiple funding programs were applied for \$112,514 in COVID funding, including GOFERR funds (\$87,393), Election Grant funds (\$14,317), and Public Safety funds (\$10,804).	CNHRPC, NH HSEM, NH DHHS, WMUR								+					
Regional Extreme Cold Temperatures and Snowfall	2020	Feb 13	No	N/A	Wind Chill advisory with temperatures of 15-25 below zero during the night. Snow showers also occurred throughout the state.	Hopkinton likely experienced extreme cold temperatures and windchill as well as snowfall.	CNHRPC, WebEOC, NH WMUR						+							
Regional Snowstorm	2020	Feb 7-8	No	N/A	Regional storm with many hours of snow, freezing rain, sleet, and rain across the state. Resulting in ice accumulation. Just under	Hopkinton likely experienced the winter storm precipitation, ice accumulation, and many power outages.	CNHRPC, WebEOC, NH WMUR					+	+							+

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					27,000 power outages were reported.														
Regional Air Quality Advisory	2020	Jan 22	No	N/A	NHDES expected concentration of fine particle air pollution to reach unhealth levels for those who are sensitive. Especially in the southwestern region of the state.	Hopkinton potentially had increased concentrations of fine particle air pollution that could be harmful.	CNHRPC, WebEOC, NHDES									+			
Regional Earthquakes 1.0M - 3.0M	2019	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. In 2019, 2 earthquakes were recorded in the Central NH Region while 11 total earthquakes were recorded in NH. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	On Mar 16, a 2.3M earthquake was recorded in Canterbury on Bryant Brook east of Intervale Road at a 4.1km depth. This quake had a Mercalli Intensity rating of III. On Sep 28, a 0.8M earthquake was recorded in Henniker, west of Peasely Road and south of Bear Road at a 5.2km depth. Hopkinton residents may have felt and reported the earthquakes.	USGS Earthquake Hazards Map, CNHRPC							+					
Regional Snowstorm	2019	Dec 29	No	N/A	Severe snowstorm impacting the state resulting in 6-10 inches of snow mixed with rain in the central part of the state.	Hopkinton experienced heavy snow, ice, tree damage, and power outages.	CNHRPC, WebEOC, NH HSEM, NH SEOC				+	+	+						+
Regional Snowstorm	2019	Dec 2	No	N/A	Severe snowstorm impacting the state resulting in 1-12 inches of snow.	Hopkinton experienced heavy snow likely causing tree damage and power outages.	CNHRPC, WebEOC, NH HSEM, WMUR					+							+
Regional Drought	2019	Winter	No	N/A	Drought conditions experienced in many areas of NH during the winter of 2019.	Boutwell Mill Brook and Brockway Preserve on Farrington Corner Rd experienced moderate drought levels. Filling town	CNHRPC, Hopkinton Hazard Mitigation Committee	+					+						

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						water from Fire Station to fill up their tank, suggested using microbial hoses.															
Regional Merrimack Station Coal Plant Protect (Bow)	2019	Dec 8	No	N/A	Protest at Merrimack Station in Bow. Rally against the functions of the station for environmental reasons.	Hopkinton is located about 15 miles to the northwest of the station. Mutual aid personnel and resources were required to safely manage or arrest the protestors who were on private property and caused minor vandalism.	Human (Civil Disturbance)												+	+	
Regional Snowstorm	2019	Oct 16-17	No	N/A	Regional Nor'easter with snow, freezing rain, and high winds caused tree damage and power outages.	Hopkinton experienced snow, freezing rain, and heavy winds likely resulting in multiple road closures due to tree and utility pole damage, power outages occurred.	CNHRPC, WebEOC					+	+							+	
Regional Merrimack Station Coal Plant Protect (Bow)	2019	Sep 28	No	N/A	Protest at Merrimack Station in Bow. Rally against the functions of the station for environmental reasons.	Hopkinton is located about 15 miles to the northwest of the station. Mutual aid personnel and resources were required to safely manage or arrest the protestors who were on private property and caused mild vandalism.	Human (Civil Disturbance)													+	+
Hopkinton Cyanobacteria at Elm Brook Park	2019 (ANN UAL)	Jul 22	No	N/A	Elm Brook State Park is located in the federal ACOE flood control area in Hopkinton. The Park has trails, a small sandy beach on an aging, vegetated pond, and recreational facilities. As part of the Hopkinton-Everett Flood	A cyanobacteria bloom occurred along Elm Brook Park beach and shorelines. Cyanobacteria exceeded the safe threshold, NHDES issued an advisory which resulted in the beach's	CNHRPC, WebEOC, NHDES						+		+						

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					control area, the park and surrounding areas are designed to flood if the volume of Contoocook River and the reservoirs cannot be contained.	closure. Warming temperatures cause the toxic bacteria to grow here.													
DR-Severe Storms and Flooding	2019	Jul 11-12	DR-4457	N/A for Merr or Hills County	Repeated severe thunderstorms resulted in flash flooding throughout regions of New Hampshire. This was not a declared disaster in Merrimack or Hillsborough Counties	Hopkinton likely experienced storms producing heavy rain causing the potential of flooding.	CNHRPC, WebEOC, FEMA, Boston Globe		+	+	+								
Regional Extreme Hot Temperatures	2019	Jul 19	No	N/A	High heat and humidity temperatures ranging from 90-100 degrees Fahrenheit	Hopkinton likely experienced the same high temperatures as the rest of the state	CNHRPC, WebEOC						+						
Hopkinton Cyanobacteria at Elm Brook Park	2019	Jun 26	No	N/A	Elm Brook State Park is located in the federal ACOE flood control area in Hopkinton. The Park has trails, a small sandy beach on an aging, vegetated pond, and recreational facilities. As part of the Hopkinton-Everett Flood control area, the park and surrounding areas are designed to flood if the volume of Contoocook River and the reservoirs cannot be contained.	A cyanobacteria bloom occurred along Elm Brook Park beach and shorelines. Cyanobacteria exceeded the safe threshold, NHDES issued an advisory which resulted in the beach's closure. Warming temperatures cause the toxic bacteria to grow here.	CNHRPC, WebEOC, NHDES						+		+				
Regional Snowstorm	2019	Dec 29	No	N/A	Severe snowstorm impacting the state resulting in 6-10 inches of snow mixed with rain in the central part of the state.	Hopkinton experienced heavy snow, ice, tree damage, and power outages.	CNHRPC, WebEOC, NH HSEM, NH SEOC				+	+	+						+
Regional Snowstorm	2019	Dec 2	No	N/A	Severe snowstorm impacting the state resulting in 1-12 inches of snow.	Hopkinton experienced snow likely experienced tree damage and power outages.	CNHRPC, WebEOC, NH HSEM, WMUR					+							+

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Regional Hepatitis A Outbreak	2019	May	No	N/A	A significant increase in the number of people in the state diagnosed with Hep A. 10 Cases diagnosed in Merrimack County including one death. 36 Cases in Hillsborough County.	No impact on Hopkinton, although some residents may have been impacted.	CNHRPC, WebEOC, DHHS													
Regional Spring Flooding	2019	Apr 19-22	No	N/A	Warmer weather, snowmelt, and heavy rain causes regional spring flooding.	Hopkinton likely experienced flood conditions from the rain and its rivers.	CNHRPC, WebEOC, NBC Boston, NHDOT Twitter				+	+	+							
Regional Fire at Murry Farm Greenhouses (Concord)	2019	Apr 10	No	N/A	Mutual aid companies were required in response to a fire at Murray Farm in Concord.	Hopkinton provided mutual aid in fire response at Murray Farm in Concord which sits along the Contoocook River. One or more greenhouses caught fire.	CNHRPC, Concord Monitor			+										
Regional Snowstorm	2019	Feb 12-13	No	N/A	Snow and wintery mix storm throughout the state. 6-12 inches of snow mixing with sleet, freezing rain, and rain throughout the storm	Hopkinton likely experienced heavy snow and other precipitation causing potential for tree damage and power outages.	CNHRPC, WebEOC, WMUR		+		+	+	+							+
Regional Snowstorm	2019	Jan 20	No	N/A	Severe snowstorm impacting the state resulting in 4-12 inches of snow.	Hopkinton experienced 4.5 inches of snow, and likely freezing rain, high wind, tree damage, and power outages.	CNHRPC, WebEOC NH HSEM, NOAA, WMUR		+			+								+
Regional Earthquakes 1.0M - 3.0M	2018	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are	On Mar 7, a strong 2.4M earthquake was recorded in Concord at Hopkinton town line, along Contoocook River at a 3.2km depth. This quake	USGS Earthquake Hazards Map, CNHRPC							+						

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					usually <3.0M. In 2018, 4 earthquakes were recorded in the Central NH Region while 13 total earthquakes were recorded in NH. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	had a Mercalli Intensity rating of IV. On Jun 27, a 1.1M earthquake was recorded in Webster in the hills south of New London Drive at a 5.0km depth. On Aug 2, a 1.3M earthquake was recorded in Hopkinton at Exit 7 on I-89 at a 1.4km depth. On Oct 15, a 1.6M earthquake was recorded in Boscawen at the Webster town line at 4.8km depth. Hopkinton residents may well have felt and reported these earthquakes.													
<b>Hopkinton Cyanobacteria at Elm Brook Park</b>	2018	Aug 18	No	N/A	Elm Brook State Park is located in the federal ACOE flood control area in Hopkinton. The Park has trails, a small sandy beach on an aging, vegetated pond, and recreational facilities. As part of the Hopkinton-Everett Flood control area, the park and surrounding areas are designed to flood if the volume of Contoocook River and the reservoirs cannot be contained.	A cyanobacteria bloom occurred along Elm Brook Park beach and shorelines. Cyanobacteria exceeded the safe threshold, NHDES issued an advisory which resulted in the beach's closure. Warming temperatures cause the toxic bacteria to grow here.	CNHRPC, WebEOC, NHDES						+		+				
<b>Regional Flash Flooding</b>	2018	Aug 3-6	No	N/A	Central NH region and area towns may have received intense rains resulting in flash flooding.	Hopkinton likely experienced flood conditions from the rain and its rivers.	CNHRPC, Hopkinton Hazard Mitigation Committee				+								

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Hopkinton Lightning and Fire at Library	2018	Jul 18	No	N/A	Capital Area Fire Compact Mutual Aid communities likely responded to the call for assistance.	On July 18 Town Library's cupola was struck by lightning and the building caught fire. The fire burned out the computer and alarm systems. Otherwise, the building was extensively damaged from sprinklers and smoke, not the fire. Books, carpet, furniture and computers damaged by sprinklers and smoke. The cost was \$700,000 to repair.	Hopkinton Hazard Mitigation Committee, CNHRPC		+	+									
Hopkinton Cyanobacteria at Elm Brook Park	2018	June 13	No	N/A	Elm Brook State Park is located in the federal ACOE flood control area in Hopkinton. The Park has trails, a small sandy beach on an aging, vegetated pond, and recreational facilities. As part of the Hopkinton-Everett Flood control area, the park and surrounding areas are designed to flood if the volume of Contoocook River and the reservoirs cannot be contained.	A cyanobacteria bloom occurred along Elm Brook Park beach and shorelines. Cyanobacteria exceeded the safe threshold, NHDES issued an advisory which resulted in the beach's closure. Warming temperatures cause the toxic bacteria to grow here.	CNHRPC, WebEOC, NHDES						+		+				
DR- Severe Snowstorm	2018	Mar 13	DR-4371	N/A for Merr or Hills County	Severe snowstorm impacting the state resulting in 8-25 inches of snow. This was not a declared disaster in Merrimack or Hillsborough Counties	Hopkinton experienced heavy snow likely resulting in tree damage and power outages.	CNHRPC, WebEOC, NH HSEM, WMUR					+	+						

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
DR- Severe Storms and Flooding	2018	Mar 2-8	DR-4370	N/A for Merr or Hills County	Severe storm, rain, and wind causes flooding and near 60,000 state residents experiencing electrical outages. This was not a declared disaster in Merrimack or Hillsborough Counties	Hopkinton likely experienced the heavy rain and wind causing electrical outages.	CNHRPC, WebEOC, FEMA		+		+								+
Regional Earthquakes 1.0M - 3.0M	2017	ANNUAL	No	N/A	The Central NH Region is situated on deep fault lines that span northeast into the Lakes Region. Although the Central NH Region experiences several earthquakes annually, they are usually <3.0M. In 2017, 1 earthquake was recorded in the Central NH Region while 9 total earthquakes were recorded in NH. For the stronger earthquakes, the Mercalli Intensity ratings are provided as a result of aggregated self-reporting to the USGS.	On Feb 27, a 1.9M earthquake was recorded in Webster in the hills between Battle Street and Clothespin Road at a 8.9km depth. This quake had a Mercalli Intensity rating of III. Hopkinton residents may well have felt and reported this earthquake.	USGS Earthquake Hazards Map, CNHRPC							+					
DR- Severe Storms and Flooding	2017	Jul 1-2	DR-4329	N/A for Merr or Hills County	New Hampshire experienced severe flooding in the North Country area, in Grafton and Coos Counties. Not a declared disaster for Merrimack or Hillsborough Counties.	Hopkinton likely experienced rain, but the impacts were not notable.	Hopkinton Hazard Mitigation Committee, CNHRPC				+								
DR- Severe Storms and Flooding	2017	Mar 14-15	DR-4316	N/A for Merr or Hills County	New Hampshire experienced heavy snowstorms impacting Belknap and Carroll. Town Meetings throughout NH were postponed as a result of this storm. Not a declared disaster for Merrimack or Hillsborough Counties.	Hopkinton experienced heavy snowfall and it was unusual during Town Meeting season. The Highway Department plowed, salted, and sanded.	Hopkinton Hazard Mitigation Committee, CNHRPC					+	+						



Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Regional Merrimack County Severe Drought Emergency	2017	Feb	No	N/A	Severe Drought (D2) intensities are found in all communities of Merrimack County and all but the western edge of Hillsborough County in Central NH. The State's counties have been experiencing levels of drought for over a year. The NH DES has issued a series of statements and tips for homeowner water conservation. As of September 2016, residents and municipalities are requested to voluntarily conserve water. Some communities or water precincts have enacted water restrictions or bans for certain water usage. More restrictions may be enacted or may eventually be required by the State if conditions remain the same or worsen.	The Severe Drought (D2) conditions as of 02/17 continue to cover the entire community of Hopkinton.	CNHRPC, Hopkinton Hazard Mitigation Committee, US Drought Monitor NH, NH DES	+											
Hazard Events 2016-2005																			
Hopkinton Drought Emergency 2016	2016	Sep	No	N/A	Extreme Drought (D3) intensities are found in northern Hillsborough and southern Merrimack Counties. Some of the communities in the Central NH Region are experiencing Severe Drought (D2) or Moderate Drought (D1) conditions. The NH DES has issued a series of statements and tips for homeowner water conservation. As of September	The Extreme Drought (D3) conditions as of 09/15/16 cover the entire community.	US Drought Monitor NH, NH DES	+											

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					2016, residents and municipalities are requested to voluntarily conserve water. Some communities or water precincts have enacted water restrictions or bans for certain water usage. More restrictions may be enacted or may eventually required by the State if conditions remain the same or worsen.														
<b>Regional Earthquake 2.9M 2016 Warner Epicenter</b>	2016	Mar 21	No	N/A	Epicenter in Warner/Hopkinton area, 2.8 magnitude. Felt in the Central NH Region/most of Merrimack County, light in Hillsborough County. Felt most strongly in Hopkinton, Henniker, Warner, Webster, Salisbury, Franklin, Canterbury, Concord, and Hillsborough.	Reports were made to the USGS from Hopkinton residents feeling the earthquake as a rumble or loud noise.	Hopkinton Hazard Mitigation Committee, USGS							+					
<b>Regional Earthquake 2.2M 2015 Epsom Epicenter</b>	2015	Aug 2	No	N/A	Epicenter around Epsom in the Central NH Region in Merrimack County, felt in nearby locations including Concord, Hopkinton, Allenstown, Loudon Chichester and Pittsfield.	Reports were also likely made to the USGS from Hopkinton residents feeling the earthquake.	Earthquaket rack.com							+					
<b>Regional Tornado, Severe Thunderstorms</b>	2015	Jul 31	No	N/A	In Warner, NWS confirmed an EF-0 tornado touched down in the evening. It had a maximum wind speed of 75 mph and was 100 yards wide. Town officials said the tornado ripped the roof off a barn, but there were no injuries reported.	N/A, although Warner abuts Hopkinton to the north	WMUR		+										

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DR- Severe Winter Storm and Snowstorm - January Blizzard 2015	2015	Jan 26-28	DR-4209	N/A for Merrimack County	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.	No funding applied for/received (Hillsborough County disaster). Hopkinton experienced heavy snow on their school bus routes. Lots of wind and snow ensured some power failures and tree debris, but the Town did not have an emergency with this storm.	Hopkinton Hazard Mitigation Committee, fema.gov, Boston Globe					+							+
NH Thanksgiving Day Snowstorm	2014	Nov 27	No	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 power outages in NH, the 4th largest blackout in history. large amount of snowfall in very short time period. Merrimack County has about 6-12" of snow, far less than other counties. Extreme wind gusts reached 110 mph in Concord.	Not a declared disaster. Hopkinton did not experience severe problems.	Concord Monitor, Hopkinton Hazard Mitigation Committee					+	+						
Hopkinton Public Health Human EEE Virus	2014	Fall	No	N/A	The New Hampshire Department of Health and Human Services (DHHS) is announcing the second human case of Eastern Equine Encephalitis (EEE) this season in New Hampshire, in an adult from Hopkinton. The first human case of EEE in New Hampshire this season was confirmed on August 22nd in Conway, NH. Other EEE positive tests this	The second human case of Eastern Equine Encephalitis (EEE) this season in New Hampshire, in an adult from Hopkinton. The disease has also appeared in a horse. Due to this human case, the risk level for human illness in Hopkinton will be raised to	Hopkinton Town website, Hopkinton Hazard Mitigation Committee					+			+				

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					year include 6 mosquito batches and a mule; there have been no positive test results so far for West Nile Virus (WNV).	high, and the surrounding towns to moderate risk.													
Hopkinton McLane Diesel Truck Rollover	2014	Feb	No	N/A	N/A	The McLane Fuel distribution center had a diesel truck rollover on Route 127/Maple Street.	Hopkinton Hazard Mitigation Committee												+
Hopkinton Fires in 2013	2013	Jan-Dec	No	N/A	Wildfires can cross community borders although none were thought to have done so from Hopkinton.	12 structure fires, 0 vehicle fires, 7 wildfires, 1 outside rubbish fire, and 1 other fire were reported in Hopkinton in 2013 (21 total)	National Reporting System, NH Department of Safety, Hopkinton Fire Department			+									
Regional Earthquake 2.6M 2013 Warner Epicenter	2013	Oct 11	No	N/A	Epicenter in Warner, 2.6 magnitude. Felt in the Central NH Region/northern Merrimack County, most strongly in Hopkinton, Henniker, Warner, Webster, Concord, Salisbury, Franklin	Reports were made to the USGS from Hopkinton residents	USGS							+					
Hopkinton Public Health Hepatitis Virus	2013	Jul 20-Aug 3	No	N/A	According to CBS News Boston, Up to 600- 1,000 people who ate or drank at an American Legion Hall or the Covered Bridge Restaurant in Hopkinton, N.H., are being asked to get vaccinated after a bartender was diagnosed with hepatitis A.	After the disclosure, the Hopkinton Point of Distribution (POD) center at the Hopkinton High School opened to provide vaccinations to those exposed to the disease.	CBS Boston News, Medscape.com, Hopkinton Hazard Mitigation Committee								+				
DR- Severe Winter Storm and Snowstorm -	2013	Feb 8-10	DR-4105	\$32,854	Winter Storm 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.	Hopkinton received \$32,854 in FEMA Public Assistance funding for protective measures (snow removal). The Town	FEMA, Hopkinton Hazard Mitigation Committee					+							

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Winter Storm 2013					Disaster declaration received for emergency protective measures in eight counties of the State.	opened the Slusser Senior Center as a shelter for people.													
DR-Hurricane Sandy 2012	2012	Oct 26- Nov 8	DR-4095 EM-3360	\$0	Merrimack County and Hillsborough County received a disaster declaration for Emergency Protective Measures. Five counties experienced severe damage from heavy winds and moderate flooding, 218,000 customers without power. Fallen trees and debris closed roads, building and vehicle damage.	No funding applied for/received. Hopkinton likely experienced severe winds, power failures, and tree debris.	Hopkinton Hazard Mitigation Committee, FEMA, Nashua Telegraph		+		+								+
Hopkinton Fires in 2012	2012	Jan-Dec	No	N/A	Wildfires can cross community borders although none were thought to have done so from Hopkinton.	8 structure fires, 3 vehicle fires, 8 wildfires, 1 outside rubbish fire, 1 special outside fire, and 1 other fire were reported in Hopkinton in 2012 (22 total)	National Reporting System, NH Department of Safety, Hopkinton Fire Dept			+									
Regional Earthquake 4.0M 2012 Hollis ME Epicenter	2012	Oct 16	No	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 Hopkinton with an earthquake of this magnitude as it was felt around the Central NH Region.	Concord Monitor, Earthquaket rack.com							+					

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire/	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health/	Solar	Haz Mat/Radiological	Human	Technologic
Hopkinton Microburst 2012	2012	Jul 17	No	N/A	About 20,000 electric customers lost power during this summer wind and rain storm. Power lines down & failure for several days. Trees and debris along roadways required clean up.	During the event, the Fire and Police services were tied up. Four main roads were blocked for 2-3 days, including South Road, College Hill Road, Hatfield Road, and Thain Road. The 60-80 mph microburst traveled in a north-south direction crossing Route 127 and US Route 4/202. On College Hill Road, a vehicle was crushed and a home was damaged by falling trees but there no injuries. Took the Public Works Dept 1 month to clean up all the debris.	Hopkinton Hazard Mitigation Committee, WMUR		+										
Hopkinton PWD Garage Fire 2012	2012	Jun 27	No	N/A	N/A. Very likely Capital Area Mutual Aid fire response from neighboring communities assisted with this event.	A three-alarm fire that destroyed the Hopkinton Public Works garage appears to have started in a dump truck. The truck caught fire for a unknown reason and exploded, which lit the rest of the truck and the PWD building on fire. PWD crew removed several vehicles from the garage. The new metal roof caved in on the grader, the most expensive piece of equipment. The building was a total loss.	Hopkinton Hazard Mitigation Committee, Union Leader			+								+	

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Hopkinton 2011 Fires	2012	---	No	N/A	Wildfires can cross community borders although none were thought to have done so from Hopkinton.	1 structure fire and 1 outside fire were reported in Hopkinton in 2011 (2 total)	National Reporting System, NH Department of Safety, Hopkinton Fire Dept			+									
Regional Halloween Snow Storm 2011	2011	Oct 29-30	4049	N/A for Merr Cty	FEMA-4049-DR. Towns in Central NH were impacted by this shocking, early severe snowstorm, although a major disaster declaration was <u>not declared in Merrimack County</u> . Halloween festivities were cancelled in most communities, to the heartbreak of young children. In Hillsborough County, damages were at the equivalent of \$5.11 per capita (400,721 people in 2010). The storm was also declared in Rockingham County.	Hopkinton experienced heavy snow which broke the Town's new snow blower.	FEMA, Hopkinton Hazard Mitigation Committee					+	+						
DR- Tropical Storm Irene 2011	2011	Aug 26-Sep 6	4026	\$0	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.	No funding applied for/received. There were powerlines down in Hopkinton, downed trees, but not considered an emergency.	FEMA, Hopkinton Hazard Mitigation Committee		+		+								+

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DR- Bow Route 3A Downburst	2011	Sep 5	4026	\$0	In nearby Bow, a 60mph microburst damaged or destroyed a dozen campers in the area of Route 3A between Grandview and Down Road. No injuries were reported. Telephone service at the Town's Police dispatch center was also disrupted.	N/A, although Bow abuts Hopkinton to the southeast. This isolated incident was an impact of Tropical Storm Irene.	Union Leader		+										
Hopkinton Boat Fire on Lake Josylvia (Clement Pond)	2011	---	No	N/A	N/A	A boat exploded on Clement Pond for unknown reasons. The NH DES was called in for spill containment.	Hopkinton Hazard Mitigation Committee			+							+		
NH April Fool's Snowstorm	2011	Apr 1	No	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.	N/A, but Hopkinton likely experienced some snow and inconvenience.	wmur.com					+							
Hopkinton 2010 Fires	2012	---	No	N/A	Wildfires can cross community borders although none were thought to have done so from Hopkinton.	13 structure fires, 1 vehicle fires, 6 wildfires, 3 outside rubbish fires, 4 special outside fires, and 1 other fire were reported in Hopkinton in 2010 (28 total)	National Reporting System, NH Department of Safety, Hopkinton Fire Dept			+									
Concord Hospital Bomb Threats	2010	Oct 1	No	N/A	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	N/A, although Concord abuts Hopkinton to the east.	Concord Hazard Mitigation Task Force 2011											+	



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					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.														
<b>Earthquake 3.4M 2010 Boscawen Epicenter</b>	2010	Sep 26	No	N/A	"A magnitude 3.4 earthquake rattled buildings and nerves across much of New Hampshire Saturday night. The quake occurred at 11:28 p.m. and was centered about 10 miles north of Concord, according to the U.S. Geological Survey. State police said they received reports from residents across the state who reported what they thought was an explosion. The quake was felt in Fremont, Derry, Durham, Henniker, Penacook and Raymond. There were no reports of damage." The quake was felt all over the state, Southern Maine and Massachusetts, but most reports were received from the Central NH region.	Reports may have been made to the USGS from Hopkinton with the epicenter less than 5 miles to the northeast in Boscawen.	Union Leader, USGS							+					
<b>Hopkinton Drought</b>	2010	Summer	No	N/A	N/A although the region was experiencing mild drought conditions	Several people in Town reported that their wells went dry. Some people had difficulties with providing water to their livestock	Hopkinton Hazard Mitigation Committee	+											
<b>Quebec-Ottawa Earthquake 5.0M</b>	2010	Jun 23	No	N/A	Earthquake lasted about 30 seconds, epicenter near Buckingham, Quebec 35 north of Ottawa. Ottawa declared this	People were reporting that their household china was rattling, but there was no damage	Hopkinton Hazard Mitigation Committee							+					

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					earthquake the most powerful in 65 years. Tremors felt in Central NH.														
Loudon Pleasant View Greenhouse Fire	2010	Jan 21	No	N/A	Pleasant View Gardens suffered a fire which destroyed about 30,000 square feet of greenhouses, plus a building. The cause is undetermined. This was a significant commercial fire.	N/A, although Loudon is 2 communities to the east of Hopkinton and is also in the Central NH Region	Loudon Hazard Mitigation Committee, Hopkinton Hazard Mitigation Committee			+								+	
DR- Severe Storms and Flooding March Storm & Flood 2010	2010	Mar 14-31	DR-1913	\$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)	No funding applied for/received in Hopkinton.	FEMA, Hopkinton Hazard Mitigation Committee				+								
DR- Severe Winter Storm Feb-Mar Storm 2010	2010	Feb 23-Mar 3	DR-1892	\$0	High winds, rain, and snow over a week-long period. Primary impact was debris removal and repair reimbursement for fallen trees and powerlines. In the Concord area, 21,000 Unutil customers were out of power.	No funding applied for/received in Hopkinton.	fema.gov, Unutil Energy Systems, Hopkinton HMC					+							
Hopkinton Blackwater River Erosion at East Penacock Road	2009	---	No	N/A	N/A, although the Blackwater River flows through Salisbury and Webster in the Central NH Region before reaching Hopkinton	Due to the rising and dropping of the elevation of the Blackwater River erosion has occurred just north of the bridge off East Penacock Road. Erosion along the Blackwater River	Hopkinton Hazard Mitigation Committee				+								

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						embankments causes debris to be caught along the East Penacook Road bridge abutments which can be dangers to those workers that must remove the debris. A member of the Public Works Department was in need of emergency medical services as he had suffered an injury during the removal process													
Dr- Severe Winter Storm - December 2008 Ice Storm	2008	Dec 11-23	DR-1812	\$50,706	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. The weight of the ice caused branches to snap, and trees to either snap or uproot, and brought down power lines and poles across the region. About 400 thousand utility customers	Hopkinton received \$50,706 in FEMA Public Assistance funding for protective measures for this severe ice storm. Snow and ice resulted in down power lines, trees and the closure of ten roads in Hopkinton. It was estimated that Hopkinton home and business owners lost power from three to nine days depending upon their location. No injuries or property loss were reported. The estimated cost to the Town from the storm is estimated at \$77,000. This does not include money that residents had to pay for clean-up and housing.	FEMA, Concord Monitor, Hopkinton Hazard Mitigation Committee					+							+

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					lost power during the event, with some customers without power for two weeks. Property damage across northern, central and southeastern New Hampshire was estimated at over \$5 million. Event was the largest power outage in New Hampshire's history.														
<b>DR- Severe Storms and Flooding - Patriot's Day Flood</b>	2008	Sep 6-7	DR-1799	\$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).	No funding applied for/received in Hopkinton.	FEMA, Hopkinton Hazard Mitigation Committee				+								
<b>Hopkinton Multiple Bird EEE 2008</b>	2008	Jul	No	N/A	The State began to experience an influx of infected birds, horses from EEE, a mosquito borne disease. These diseases were usually confined to a handful of cases annually in one section of New Hampshire. Merrimack County seems to be a hotbed over time.	Dead birds were reported in various places throughout the town. The birds were tested by the State lab and determined to be infected with EEE. There were no human cases reported.	Hopkinton Hazard Mitigation Committee								+				

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DR- Tornado, Severe Winds, Heavy Rains	2008	Jul 24	DR-1782	\$0	An F2-F1 tornado touched down in Rockingham County then proceeded into another county. Then in Merrimack County, the tornado was rated up to an F-3 and killed a woman in Deerfield trapped in a collapsed house. In the county, there was substantial damage totaled the equivalent of \$1.12 per capita (146,455 people in 2010) for the towns' debris removal reimbursement costs. A total of 123 residences statewide were affected, with 17 destroyed and another 37 suffering major damage. Damage was estimated to exceed \$10 million. Hillsborough County was not declared.	N/A, the path did not travel through Hopkinton but occurred 3 communities to the east in the Central NH Region. In Epsom, 84,000 acres were destroyed and there was significant damage to personal property, destroying or damaging 9 homes.	FEMA, Epsom Hazard Mitigation Committee		+										
Hopkinton 3 Building Collapses 2008	2008	Feb	No	N/A	N/A	Feb 2008 - As a result of heavy snow build-up there were two residences in which roof trusses had broken and ceilings had cracked. In each case occupants were required to leave their residence. Mar 2008- A landscaping business' roof had collapsed with the building being declared a total loss. There were no injuries as a result of the incident. Oct 2008 - The Select Board closed Columbia Hall as a	Hopkinton Hazard Mitigation Committee, Concord Monitor					+							

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

4 HAZARD RISK ASSESSMENT

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
						result of structural reports received indicating that condition of the scissor trusses and the potential for failure at any time causing a domino effect and an implosion of the roof.													
Hopkinton Severe Snow Storm 2007	2007	Winter	No	N/A	N/A	With the Public Works Department having difficulty in keeping up with the storm and the amount of snow fall schools were closed and some were without power.	Hopkinton Hazard Mitigation Committee					+							
Hopkinton Kimball Pond Dam Breach 2007	2007	Summer	No	N/A	N/A	The dam at Kimball Pond swimming area had breached in 2007 due to heavy rain. The dam caused minor washout and erosion downstream with no injuries or property damage reported. The new dam was rebuilt in 2007 at a cost of approximately \$260,000.	Hopkinton Hazard Mitigation Committee				+								
Hopkinton Blue/Green Algae at Elm Brook 2007	2007	August	No	N/A	N/A	Blue/Green Algae found at the swimming area at Elm Brook. The swimming area was closed to for approximately four weeks	Hopkinton Hazard Mitigation Committee								+				
Concord Hazardous Materials Flooded 2007	2007	May 27	No	N/A	Fifty-three businesses were forced to close at the Concord Center on Ferry Street in Concord when state officials	N/A, although Concord abuts Hopkinton to the west	Concord Monitor				+						+		

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					discovered more than 70 buckets of formaldehyde, motor oil, roofing tar and cleaning solvents in the flooded basement. There were no reported injuries but some workers complained of headaches and dizziness.														
<b>DR- Severe Storms and Flooding - April Spring Floods</b>	2007	Apr 15-23	DR-1695	\$38,448	Extensive flooding caused by severe storms impacted seven counties, including Merrimack and Hillsborough. Across the region, indirect peak discharge measurements on stream gages on the Suncook River at Short Falls Road in Epsom were 14,100 ft <sup>3</sup> , which was determined to be greater than 100-year flood discharge levels. 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. Power outages persisted, and stream and river flooding continued across the region.	Hopkinton received \$38,448 in FEMA Public Assistance funding for roads and bridges work, including Irish Hill, Clemet Hill, Pleasant Lake Road, Line Hill Road, Kast Hill Road. During this time, Hopkinton emergency services were in close contact with the Army Corps of Engineers at the Hopkinton Dam. Residents in the Meadows Mobile Home Park were warned of the potential of flooding and asked to voluntarily leave their homes. While most residents in the potential flood hazard area of the mobile home park had left their homes one resident remained which later resulted in the Hopkinton Fire Department having to use their forestry vehicle to rescue the resident.	FEMA, USGS Flood of 2007, Hopkinton Hazard Mitigation Committee		+		+								

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
						Peak discharge measures on stream gages on the Contoocook River below Hopkinton Dam were 5,370 ft <sup>3</sup> /second, which were at 2-5 year flood discharge levels.													
Hopkinton Slusser Senior Center Arson 2007	2007	Jan 15	No	N/A	N/A	According to investigators, a fire that destroyed a senior center under construction appeared to be caused by arson. The two-story building was being framed and was set to open in the spring	Hopkinton Hazard Mitigation Committee, Concord Monitor			+								+	
DR- Webster Pillsbury Lake Dam Breach	2006	May 15	DR-1643	N/A	The Pillsbury Lake Dam in Webster, holding back an artificial lake of about 70 acres, was breached by flooding due to heavy rains. Floodwaters punched out a 20-foot breach in the dam. The dam created the Pillsbury Lake District with about 180 households. The Lake's level fell from 15 feet at its deepest point to about 2 feet at that same point following the event.	N/A, although Webster abuts Hopkinton to the north	Concord Monitor				+								
DR- Bow Landslide During Mother's Day Floods	2006	May 14-17	DR-1643	N/A	Backyard material slid toward a Bow home on Mother's Day catching a family, with one young child and expecting another, by surprise. No one was injured by the mudslide but thousands of dollars of property damage were caused. The debris and mud that slid and	N/A, although Bow abuts Hopkinton to the east	WMUR News				+			+					



Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					caused the damage came from land that didn't belong to the family. They had to move out for 10 days until a contractor deemed the property safe.														
DR- Suncook River Avulsion in Epsom	2006	May 14-17	DR-1643	N/A	The Suncook River through Epsom changed its course during this recent heavy rain event and its resultant flooding. The River shifted hundreds of meters, flowing around two dams, creating about a mile of new river through a sand pit a half mile from its original course, and leaving a similar length of dry riverbed. The water carved through peat bogs and tore away a corner of a sand excavation pit. Epsom, Allenstown, and Pembroke later dealt with siltation and erosion issues from the new river course.	N/A but Hopkinton is within the Central NH Region, 3 towns away from the Suncook River. See storm effects on Hopkinton below	Concord Monitor				+								
DR- Severe Storms and Flooding - Mothers Day Flood	2006	May 12-23	DR-1643	\$33,741	Extensive flooding caused by severe storms impacted seven counties including Merrimack and Hillsborough. 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.	Hopkinton received \$33,741 in FEMA Public Assistance funding for extreme flooding and washout damage to roads, culverts, bridges, water control facilities, and for debris removal	FEMA, Hopkinton Hazard Mitigation Committee				+								

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire/	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health/	Solar	Haz Mat/Radiological	Human	Technologic
Webster Wildfire	2006	Apr	No	N/A	A wildfire in Webster burned over fire acres throughout the night. Fire crews had to dig embers out of the soil that were 4 to 5 inches deep. The Forest Ranger commented that embers embedded that deep in soil at that time of year was unusual.	N/A, although Webster abuts Hopkinton to the north	WMUR 4/20/2006			+									
Regional Train Wildfire	2006	Apr 29	No	N/A	A freight train sparked brush fires along tracks in Bow, Hooksett and Manchester. In Bow, a 50' by 350' fire was spreading toward the woods when officials arrived on the scene. Concord Fire Chief said that fires sparked by trains are not unusual and they are typically caused by exhaust coming out of the stack.	N/A although Bow abuts Hopkinton to the southeast.	WMUR News			+									
Concord Statehouse Iraq Public Unrest	2006	Mar 18	No	N/A	A reported 400 citizens marched in Concord to recognize the 3 year anniversary of the beginning of the war in Iraq. The protestors marched around downtown Concord and finished in front of the statehouse.	N/A although Concord abuts Hopkinton to the east.	NH Independent Media Center				+								
DR- Severe Storms and Flooding - Columbus Day Flood	2005	Oct 7-18	1610	\$19,248	Extensive flooding caused by severe storms impacted five counties. Alstead had several fatalities as the result of dam failure.	Hopkinton received \$19,248 in FEMA Public Assistance funding. Roads and culverts were damaged by flooding and washouts, debris clogged culverts, roads were washed out and slopes were eroded.	FEMA, Hopkinton Hazard Mitigation Committee				+								

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Regional Thunderstorms and Lightning 2005	2005	Jun 12	No	N/A	During a thunderstorm, lightning struck and severely damaged the historic Loudon Town Hall on Clough Hill Road. Winds from a severe thunderstorm knocked down trees and power lines down in the towns of Warner, Hopkinton, Concord, Bow, Loudon, and Hopkinton in Merrimack County.	Hopkinton is one of those communities that experienced the thunderstorm and lightning event	CNHRPC, Hopkinton Hazard Mitigation Committee, Area Hazard Mitigation Committees		+	+									
Canterbury Explosion at Gold Star Sod Farm	2005	Jan 23	No	N/A	A near-fatal explosion occurred at the Gold Star sod farm in Canterbury. Gasoline fumes ignited a propane heater, triggering a fiery explosion and fire that consumed a large workshop and part of the main storage building. Fire crews from several departments battled the fire and laid sand down as a buffer between a nearby river in order to prevent contamination as pesticides and other chemicals burned.	N/A, although Canterbury is 2 communities to the northeast from Hopkinton in the Central NH Region	Concord Monitor			+							+		
EM- Snow Emergency	2005	Jan 22-23	EM-3207	\$12,359	Record and near record snowstorm for 8 NH counties including Merrimack and Hillsborough. Emergency protective measures declared for reimbursement.	Hopkinton received \$12,359 in FEMA Public Assistance funding for snow removal (protective measures).	FEMA, Hopkinton Hazard Mitigation Committee					+							
Hazard Events 2004-1973																			
Regional Earthquake 2.2M 2004 Henniker-	2004	Jan 20	No	N/A	An earthquake measuring 2.2 on the Richter Scale was centered in the Henniker- Hopkinton area. Shaking and noise were	An earthquake measuring 2.2 on the Richter Scale was centered in the Hillsborough- Hopkinton	Hopkinton Hazard Mitigation Committee,							+					

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Hopkinton Epicenter					reported, but no damage occurred.	area. Shaking and noise were reported, but no damage occurred.	Concord Monitor, January 2004, USGS												
EM- Snow Emergency	2003	Dec 6-7	EM-3193	\$15,086	Record snow fall event impacting much of New England. In NH, 8 counties received emergency protective measures, including Merrimack and Hillsborough.	Hopkinton received <b>\$15,086</b> in FEMA Public Assistance funding for snow removal (protective measures).	FEMA					+							
Hopkinton Dry Kiln Fire 2003	2003	---	No	N/A	N/A	A dry kiln at Herrick Millworks was totally destroyed as a result of fire. Cause of the fire is unknown.	Hopkinton Hazard Mitigation Committee				+								
EM- Snow Emergency	2003	Feb 17-18	EM-3177	\$12,272	Record and near record snowstorm for 5 NH counties including Merrimack and Hillsborough. Emergency protective measures declared for reimbursement.	Hopkinton received <b>\$12,272</b> in FEMA Public Assistance funding for snow removal (protective measures).	FEMA					+							
NH Drought Emergency 2002	2002	Aug	No	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.	The Town of Hopkinton worked with Concord to pump extra water from the Contoocook River into Penacook Lake, the City's reservoir. The Town also approved \$55,000 for emergency river water pumping.	Concord Monitor 8/20/02	+											
Hopkinton Suspicious Powder Mailings 2002	2002	---	No	N/A	N/A	There were several reports of a powder substance being mailed to prominent State and/or Federal officials living in Hopkinton. Due to the	Hopkinton Hazard Mitigation Committee											+	

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
						heightened level of security for the US, the substances were tested for biological or chemical substances and the results were negative.													
EM- Snow Emergency	2001	Mar 5-7	EM-3166	\$12,740	Record and near-record snowfall from late winter storm, emergency declaration was issued for protective measures. Merrimack, Hillsborough and 5 other counties declared eligible.	Hopkinton received \$12,740 in FEMA Public Assistance funding for snow removal (protective measures).	FEMA					+							
Hopkinton Wildfire 1999	1999	May	No	N/A	N/A	A wildfire in the area of Ridge Lane and Clement Hill Road had burned approximately twenty acres. Due to limited access, helicopters were used to contain the fire. It was noted that the ability of the helicopter to gain water from Clement Pond helped reduce any potential impact on residences in the area.	Hopkinton Hazard Mitigation Committee			+									
Hopkinton Microburst 1999	1999	July	No	N/A	Several downbursts impacted three counties in New Hampshire, including Hillsborough County. It resulted in 2 deaths. Also, two roofs were blown off and widespread power outages occurred. The downburst was designated a macroburst > 2.5 miles wide.	Areas off Camp Merrimac Road, Broadcove Road, and Penacook Road were impacted by a microburst. Large trees were destroyed and roads were closed. There were no reported injuries.	Hopkinton Hazard Mitigation Committee		+										

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Hopkinton Wildfire 1998c	1998	---	No	N/A	N/A	A wildfire between Brockway Road and the high tension lines was a significant threat to homes in the vicinity. It was estimated that approximately seven acres was impacted	Hopkinton Hazard Mitigation Committee			+									
Concord Library and NHTI Bombs	1998	Oct	No	N/A	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. About a dozen buildings were evacuated after the New Hampshire Technical Institute in Concord received an anonymous call warning that three bombs had been placed on campus. This event followed the bomb scares at the Concord Library.	N/A, although Concord abuts Hopkinton to the east and the Statehouse is only miles away.	AP Online 11/01/98, NH Homeland Security and Emergency Management											+	+
Hopkinton Gould Hill & Putney Hill Tornado	1998	July	No	N/A	N/A	A tornado touched down in the Gould Hill and Putney Hill areas impacting approximately five acres causing trees to be downed and roads to be closed. No injuries were reported.	Hopkinton Hazard Mitigation Committee		+										
DR- Severe Storms and Flooding	1998	Jun 12-Jul 2	1231	\$0	Heavy flooding in six counties, including Merrimack and Hillsborough Counties. Damages of \$3.4m for all counties.	As Hopkinton is within Merrimack County, it likely experienced heavy rains and some flooding.	FEMA				+								

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic	
DR- Ice Storm of 1998	1998	Jan 7-25	1199	\$0	This ice storm was the first to test our 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.	The Town didn't apply for/receive funding. As the entire state and Central NH region experienced the ice storm, it is very likely Hopkinton did as well.	FEMA, US Army Corps of Engineers NH Storms database, Hopkinton Hazard Mitigation Committee					+								
Bradford Milfoil Lake Massasecum	1996	Summer	No	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. Eventually, the weed was harvested.	N/A, although Bradford abuts Hopkinton to the north	Blaisdell Lake Property Owners Association, Inc. August 3, 2002								+					
DR- Severe Storms and Flooding	1996	Oct 20-23	1144	\$0	Heavy rains caused flooding in six counties, including Merrimack and Hillsborough Counties. Damage totaled \$2.3m for all counties.	The Town didn't apply for/receive funding. As Hopkinton is within Merrimack County, it is likely experienced heavy rains and possibly some flooding.	FEMA, NH HSEM				+									

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
DR- Storms and Floods	1995	Oct 20- Nov 15	1077	\$0	Four NH counties were damaged by excessive rain, high winds and flooding, including Merrimack (not Hillsborough).	The Town didn't apply for/receive funding.	FEMA, Federal Register				+								
Hopkinton Chemical Fire 1994	1994	---	No	N/A	N/A	The New Hampshire Hazmat Team was called to assist in an unknown chemical fire in a trailer at the Hopkinton Solid Waste Facility. It was determined that the fire was a result of a mixer of various household cleaners. No human injuries reported.	Hopkinton Hazard Mitigation Committee											+	
DR- Hurricane Bob	1991	Aug 18-20	DR-917	No data available	Public assistance was available for Hillsborough County and 2 other counties (not Merrimack) for damages caused by Hurricane Bob. The 2 seacoast counties fared the worst.	As the Town is within Merrimack County, it is likely experienced heavy rains, tree debris, power outages and possibly some flooding.	FEMA		+		+								+
DR- Flooding and Severe Storm	1990	Aug 7-11	DR-876	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 Hopkinton is within Merrimack County, it is likely experienced heavy rains and possibly some flooding.	FEMA, NH HSEM				+								
DR- Severe Storms and Flooding	1987	Mar 30- Apr 11	DR-789	No data available	Flooding caused by snowmelt and intense rain was felt in seven counties, including Merrimack and Hillsborough Counties. Nearly \$5m in damages.	As Hopkinton is within Merrimack County, it is likely experienced heavy rains and possibly some flooding.	FEMA, Hopkinton Hazard Mitigation Committee				+								
DR- Severe Storms and Flooding	1986	Jul 29- Aug 10	DR-771	No data available	Severe summer storms with heavy rains, tornadoes, flash floods, and severe winds, damaged the road network statewide. Disaster was declared	It is likely Hopkinton experienced heavy rains and possibly some flooding.	FEMA, NH HSEM				+								



Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic	
					in Cheshire, Sullivan and Hillsborough Counties ( <u>not Merrimack</u> ).															
Dunbarton Radon Testing	1986	-1987	No	N/A	In Dunbarton, a citizen initiative of well water testing, primarily around the Town Center, found that the radon levels in the community exceeded all levels in the country. The Elementary School well tested fine, but the church had a very high concentration, as well as the rest of the area at the top of the hill around the Town Offices. Residents and Town officials placed filtration systems in their homes and public buildings. The information garnered interviews with WMUR Channel 9 and a series of public meetings to raise the awareness of Town residents. Although there is no specific Town program in place, residents can test their wells using kits available at the NH Dept of Environmental Services.	N/A, although Dunbarton abuts Hopkinton to the south	Dunbarton Hazard Mitigation Committee, 2005												+	
2 Hopkinton Plane Crashes	1984	-1994	No	N/A	N/A	1984- A twin engine plane crashed on Beech Hill. It was reported that the incident had occurred due a problem with fuel. There were no injuries because of the plane crash. 1994- An ultra-light	Hopkinton Hazard Mitigation Committee													+

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						place crashed in the Jewett Road area of Town. The reason for the crash is unknown; however, the pilot was able to walk away from the accident.													
<b>Earthquake 4.5M Sanbornton</b>	1982	Jan 18	No	N/A	An earthquake originating near 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.	With a quake of this size, it is highly likely Hopkinton experienced some strong shaking and noise	Earthquake rack.com							+					
<b>Concord Beaver Meadow Tornado</b>	1979	Jul 27	No	N/A	In Concord, a small twister was sighted at Beaver Meadow, where 13 trees were toppled, including a 100-foot tall pine. The duration was about 15-20 seconds.	N/A, although Concord abuts Hopkinton to the east	Concord Monitor		+										
<b>NH Blizzard of 1978</b>	1978	Feb 5-7	No	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	Although it is unknown what Hopkinton experienced, it is likely many of the same depths and effects occurred across the Town.	American Meteorological Society, Northeast States Emergency Consortium					+							

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					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.														
Quebec Earthquake	1973	Jun 15	No	N/A	An earthquake originating near the Quebec border at a scale of 4.8 was felt in various locations throughout the State.	N/A, although some Hopkinton residents may have felt the effects. Impacts were felt throughout NH.	Northeast States Emergency Consortium							+					
DR- Severe Storms and Flooding	1973	Jul 11	DR-399	No data available	All counties in the State of NH experienced storm damage and were declared disaster areas, including Merrimack and Hillsborough Counties.	No information available	FEMA		+		+								
<b>Hazard Events Before 1973</b>																			
Hopkinton Heavy Snow	1969	---	No	N/A	N/A	Snow was so heavy in Hopkinton that one town resident reported having to have oil delivered gallon by gallon on foot because the truck couldn't make it up through the snow.	Interview with Mildred Raymond, author of the bicentennial edition of the Hopkinton History, found in the Antiquarian Society files					+							

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
Hopkinton Three River Ice Jams	1968	to 1979	No	N/A	N/A, although the Contoocook River flows through several Central NH communities.	The Cold Regions Research and Engineering Laboratory (CRREL) lists three ice jams that have occurred in Hopkinton but provides no detail on impacts of these jams. The jams occurred in March of 1968, February 1970, and March 1979. The construction of the Hopkinton-Everett Dam mitigated some of the flooding caused by ice jams.	Cold Regions Research and Engineering Laboratory					+							
NH Older Hurricanes	1954	to 1991	No	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), Doria on August 28, 1971, Bell on August 10, 1976, Gloria on September 27, 1985, and Bob in 1991.	Downed trees, wind damage, and flooding was likely experienced in Hopkinton during many of these hurricanes.	NH Homeland Security and Emergency Management, Hopkinton Hazard Mitigation Committee		+		+								
Regional 10 Severe Snowstorms, mid 1900s	1940	to 1978	No	N/A	Ten severe snowstorms are documented in south-central New Hampshire during this time span, February 14-15, 1940 (depths over 30" and high winds), February 14-17, 1958 (20-33"), March 18-21, 1958 (22-24"), March 2-5, 1960 (up to 25"), January 18-20, 1961 (up to 25", blizzard conditions), January	Although it is unknown what Hopkinton experienced, it is likely many of the same depths occurred.	American Meteorological Society					+							

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/Dam	Winter/Snow/Ice	Extreme Heat/Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					11-14, 1964 (up to 12”), January 29-31, 1966 (up to 10”), February 22-28, 1969 (24-98”, slow-moving storm), December 25-28, 1969 (12-18”), January 19-21, 1978 (up to 16”).														
Hopkinton Hurricane of 1938	1938	Sep 12	No	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. Downed trees caused extensive damage to homes, businesses and community infrastructure. President Roosevelt ordered emergency aid be sent to NH, including to Merrimack County.	This hurricane caused damage with both flooding and wind. In Hopkinton the flooding was worse than it had been in 1936 when the Contoocook River flooded the village. There was massive tree damage and the roofs of several buildings at the Hopkinton Fairgrounds were torn off.	Wikipedia, Concord Monitor, Freak Winds of New Hampshire		+		+					+			+
Hopkinton Flood of 1936	1936	Mar 11-21	No	N/A	Simultaneous high snowfall totals, heavy rains, and warm weather combined to hit all of New England. Floods killed 24 people, caused \$133,000,000 in damage, and made 77,000 people homeless in New England. The great flooding of 1936 resulted from heavy rains and rapid snow pack melt. Snow north of Concord contributed to the higher waters in the Winnepesaukee, Contoocook and Pemigewasset Rivers that were largely responsible for the destruction in Concord and the	Warm weather and heavy rains caused flooding throughout NH. Hopkinton residents suffered severe losses. Everything from the Boston & Maine Railroad Station to the Gristmill was shut down from flooding. The Gristmill foundation washed away. Much of Contoocook Village, the town center of Hopkinton, was flooded with water several feet deep. Heavy currents brought ice and	Concord Monitor, Union Leader, Flood Waters, New Hampshire 1936 and Hopkinton Antiquarian Society files, Army Corps of Engineers Ice Jam				+	+			+				+

Event	Year	Date	DR-EM-	FEMA PA Funding \$	Area Impact Description	Local Impact Description	Source	Drought	High Wind/Tropical/Downburst	Wildfire/Fire	Inland Flood/River/ Dam	Winter/Snow/ Ice	Extreme Heat/ Cold	Earthquake/Landslide	Public Health	Solar	Haz Mat/Radiological	Human	Technologic
					surrounding area. NH issued boil water warnings to everyone.	lumber rushing into the village square. Rescue boats capsized. After this flood, discussions led to construction of the Hopkinton-Everett Dam.	Database, Hopkinton Hazard Mitigation Committee												
Hopkinton Snow Drifts of 1887	1887	March	No	N/A	N/A	Drifting snow made roads impassible and blocked train service. It took two selectmen going to Town Hall over two and a half hours to travel three miles. Some drifts were over ten feet deep.	Letter in the Hopkinton Antiquarian Society files					+							
Hopkinton Bridge Washout 1852	1852	Spring	No	N/A	N/A, although the Contoocook River flows through several Central NH communities.	Floods washed away a stone bridge across the Contoocook River.	Life and Times in Hopkinton, NH				+								
Hopkinton Droughts (2) 1775-1840	1775	to 1840	No	N/A	N/A although droughts affect regional areas	in 1775, Conditions were so dry that all of the cattle in town were brought to the Contoocook River where they stayed until the drought ended. In 1840, Trees had to be cut down to use the leaves for livestock feed.	Life and Times in Hopkinton, NH	+											

Source: Hopkinton Hazard Mitigation Committee and CNHRPC

## Description and Magnitude of Hazards

A compilation of past hazards that have occurred in Hopkinton 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.

The **2024** natural hazard categorization identified previously which separates the primary natural hazards into groupings is also used as a framework to describe and evaluate each of the hazards. The human and natural hazards included in previous Plans are also considered here since they do have impacts on Hopkinton.

Each hazard is generally described and then is noted how and where it could occur in Hopkinton. Details related to the scientifically measured magnitude scales are provided.

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.

Hazard Type	Main Hazard Category	Specific Hazards Included
Hydrologic	<b>Drought</b>	Drought
	<b>Wildfire</b>	Wildfire, Fire
	<b>Flood/River</b>	Dam Failure, Inland Flooding, River Hazards
Atmospheric	<b>High Wind/Tropical/Storm</b>	Thunderstorm, Downburst, High Wind, Tornado, Tropical and Post-Tropical Cyclone, Hail
	<b>Lightning</b>	Lightning
	<b>Winter</b>	Winter Storm, Blizzard, Ice Storm
	<b>Extreme Temperature</b>	Cold Wave, Heat Wave
Geologic	<b>Earthquake/Landslide</b>	Earthquake, Landslide
Biologic	<b>Public Health/Biological</b>	Swimming Water Quality, Air Quality, Drinking & Surface Water Quality, Infectious Diseases, Arboviral Diseases, Tickborne Diseases, Substance Misuse
Heliospheric	<b>Solar</b>	Geomagnetic Storm, Solar Radiation, Radio Blackout
Haz Mat	<b>Hazardous Materials/Radiological</b>	Hazardous Materials, Radiological
Human	<b>Human Hazard</b>	Crash, Mass Casualty Incident, Cyber Event, Terrorism/Violence
Technological	<b>Technological</b>	Aging Infrastructure, Conflagration (Fire), Long Term Utility, Outage

Several natural hazards in the **State of New Hampshire Hazard Mitigation Plan 2023** are not pertinent in Hopkinton. These hazards are **Coastal Flooding**, **Avalanche**, **Tsunami**, and **Volcanic Activity**. These are not discussed in Hopkinton’s Plan.

**HYDROLOGIC HAZARDS**

The hydrologic hazards evaluated in the **Hazard Mitigation Plan** are:

Hazard Type	Main Hazard Category	Specific Hazards Included
Hydrologic	<b>Drought</b>	Drought
	<b>Wildfire</b>	Wildfire, Fire
	<b>Flood/River</b>	Dam Failure, Inland Flooding, River Hazards

**Drought**

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Drought	5.3	MED	+25%	D3 Extreme Drought	D0 Abnormally Dry to D4 Exceptional Drought	US Drought (D-scale) Monitor Intensity Scale

A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects growing or living conditions. Droughts are becoming more common in New Hampshire, often coupled with regular, severe, heavy rainstorms. Rain is unable to percolate into the soil, running off into ditches, overflowing wetlands and culverts, eroding roadways. The effect of droughts is indicated through measurements of soil moisture, groundwater levels, and streamflow. However, not all 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. The Town has the capability to implement or recommend volunteer water restrictions during dry conditions within the district area. The remaining residences, non-residential buildings and Town facilities rely either on community water systems pumped from bedrock or on individual well water systems which are not easily replenished during periods of drought. During the **2015-2022** drought periods, 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 uses larger water sources like the Contoocook River for pumping into tankers.



Table 4.6 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 4.6  
US Drought Monitor Intensity Scale

Category	Description	Description of Possible Impacts	Palmer Drought Severity Index (PDSI)
None	Normal or wet conditions	Normal or near normal conditions.	-1.9 to +1.9
D0	Abnormally Dry	Going into drought: - Short-term dryness, slow planting, growth of crops or pastures Coming out of drought: - Some lingering water deficits - Pastures or crops not fully recovered	-1.0 to -1.9
D1	Moderate Drought	- Some damage to crops, pastures - Streams, reservoirs or wells low, some water shortages developing or imminent - Voluntary water use restrictions requested	-2.0 to -2.9
D2	Severe Drought	- Crop or pasture losses likely - Water shortages common - Water restrictions imposed	-3.0 to -3.9
D3	Extreme Drought	- Major crop/pasture losses - Widespread water shortages or restrictions	-4.0 to -4.9
D4	Exceptional Drought	- Exceptional and widespread crop/pasture losses - Shortages of water in reservoirs, streams and wells creating water emergencies	-5.0 - higher

Drought Resource Links:

- US Drought (D-scale) Monitor Intensity Scale  
<https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH>
- National Integrated Drought Information System (New Hampshire)  
<https://www.drought.gov/drought/states/new-hampshire>

**Wildfire**

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Wildfire	6.7	MED	+25%	Orange Very High	Low (Green) to Extreme (Red) Fire Danger	National Fire Danger Rating System

Fire can be caused by several agents and can spread rapidly to consume property and endanger lives. This **2024 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, densely packed residential areas, cul-de-sacs, and roads or areas of Town 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**.

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. With the Town’s conservation lands, **wildfire** seems particularly relevant. The burning of brush, permitted or not, can become an uncontrollable brushfire in dry or unsuitable conditions.

Increased severity over recent years in California, Quebec and Nova Scotia has decreased capability to extinguish wildfires because of the personnel drawn from other parts of the country, including New Hampshire. Wildfires are unpredictable and usually destructive, causing both personal property damage and damage to community infrastructure and cultural and economic resources. Recent air quality impacts have been experienced by New Hampshire residents as a result of 2022-2023 Canadian and Nova Scotian wildfire smoke.

When wildfire occurs locally, there are several potential indices to gauge its extent and severity. The current standard of measuring wildfire magnitude is utilizing the National Wildfire Coordinating Group (NWCG)’s wildfire classification scale. **Table 4.7** displays the wildfire classification size per the number of acres burned.

**Table 4.7**  
**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 posts the National Fire Danger Rating System (NFDRS) information in a prominent location, at the Fire Station

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

**Wildfire Hazards Resource Links:**

- New Hampshire Department of Natural and Cultural Resources Division (NHDNCR) of Forest and Lands (DFL)  
<https://www.nh.gov/nhdf/community/daily-fire-danger.htm>
- National Wildfire Coordinating Group (NWCG) Incident Response Pocket Guide 2022  
<https://www.nwcg.gov/publications/461>

Inland Flooding

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Inland Flooding	6.7	MED	+25%	< 100 Year Flood	100 Year to 500 Year Flooding	Special Flood Hazard Areas (SFHAs) on 2010 & Preliminary Digital Flood Rate Insurance Maps (Zones A, AE, X)
				>40% High (Red)	>5% Marginal to >70% High Rainfall Risk	NOAA Excessive Rainfall Risk Categories

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 farming and enriches 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. The **500-year** floods are phrased as **0.2%** annual chance of flood.

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.

**Dam Breach, Release or Failure** has a close relationship with **Flood Hazards**, uses the NH DES Dam Hazard Classification categories, and has therefore been rated along with the natural hazards.

**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.

Special Flood Hazard Areas (SFHAs)

Base Flood Elevations (BFEs) are abundant within Central NH along the Merrimack River, Contoocook River, Blackwater River, Warner River, Soucook River, and Suncook River on the DFIRMS of 2009 (Hillsborough County) and 2010 (Merrimack County). In Hopkinton (#330120) New Hampshire (33011C), there are several 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 for Hopkinton are now set on an aerial photography background that displays roads, buildings, forested areas, waterbodies and watercourses. Hopkinton’s Zoning Ordinance references the 2010 maps appropriately as the official DFIRMS. The general Flood Zone types appear in Table 4.8.

Table 4.8  
Special Flood Hazard Area (SFHA) Zones on 2010 DFIRMS

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

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

Hopkinton DFIRMS can be viewed online at and downloaded from the FEMA Map Center website. Alternatively, the DFIRMS’ respective paper FEMA 2010 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.

New Preliminary May 2023 DFIRMS were produced for the Contoocook River area and remain in this draft format subject to revision until they become the new official maps. Although the DFIRMS are available at the FEMA Map Center, the digital floodplain layer is not yet posted online. This site should be regularly reviewed to download the data once available to the public.

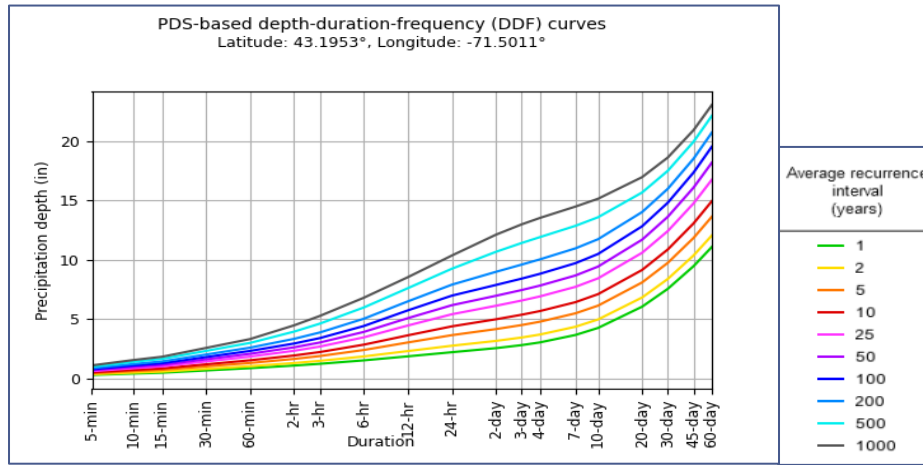
Excessive Rainfall

Inland flooding can come from many sources, including rainfall, snowmelt, and inundation. NOAA tracks storm systems that include excessive rainfall categories exceeding flash flood guidance within 25 miles of a point. These range from Marginal Risk (Green), isolated flash floods to High Risk (Pink), widespread flash floods. As more summer storms impact the Central NH region and the Northeast, excessive rainfall is likely to continue to occur due to climate change. Excessive rainfall can occur throughout Hopkinton and can impact roadways and waterbodies.

Understanding WPC Excessive Rainfall Risk Categories				
<p><b>No Area/Label</b></p> <p>Flash floods are generally not expected.</p> <p><a href="http://www.wpc.ncep.noaa.gov">@NWSWPC</a></p>	<p><b>MARGINAL (MRGL)</b></p> <p><b>Isolated flash floods possible</b></p> <p>Localized and primarily affecting places that can experience rapid runoff with heavy rainfall.</p>	<p><b>SLIGHT (SLGT)</b></p> <p><b>Scattered flash floods possible</b></p> <p>Mainly localized. Most vulnerable are urban areas, roads, small streams and washes. Isolated significant flash floods possible.</p>	<p><b>MODERATE (MDT)</b></p> <p><b>Numerous flash floods likely</b></p> <p>Numerous flash flooding events with significant events possible. Many streams may flood, potentially affecting larger rivers.</p>	<p><b>HIGH (HIGH)</b></p> <p><b>Widespread flash floods expected</b></p> <p>Severe, widespread flash flooding. Areas that don't normally experience flash flooding, could. Lives and property in greater danger.</p>
<p>Flash flooding near me?</p>	<p>Flash Flooding</p> <p>NO Flash Flooding</p>			
		<p>5% &gt;</p>	<p>15% &gt;</p>	<p>40% &gt;</p>
		<p>50% &gt;</p>	<p>70% &gt;</p>	<p>70% &gt;</p>

The NWS developed a precipitation model that shows how much rain can fall during a period (duration) and charts the curve of the rainfall depth across the average yearly recurrence interval. At the nearby Concord Municipal Airport which collects weather and precipitation data, in 12 hours if 2" of rain falls, this is considered an annual occurrence. Yet, if in 12 hours 5" of rain falls, this is considered a 50-year occurrence at this location as shown in Figure 4.A. This model will vary depending on the location. Based on forecasting for each storm, the probability of flooding can be explained to the public using the Excessive Rainfall Risk image above.

Figure 4.A  
NWS Precipitation Frequency Depth Recurrence at Concord Municipal Airport



Inland Flooding Resource Links:

- FEMA Flood Map Service Center  
<https://msc.fema.gov/portal/home>
- NH OPD Current NH Floodplain Mapping Activities  
<https://www.nheconomy.com/office-of-planning-and-development/what-we-do/floodplain-management-program/floodplain-maps>
- FEMA Flood Zone Designation Descriptions (2010)  
[https://efotg.sc.egov.usda.gov/references/public/NM/FEMA\\_FLD\\_HAZ\\_guide.pdf](https://efotg.sc.egov.usda.gov/references/public/NM/FEMA_FLD_HAZ_guide.pdf)
- NOAA Excessive Rainfall Outlook  
[https://www.wpc.ncep.noaa.gov/qpf/excessive\\_rainfall\\_outlook\\_ero.php](https://www.wpc.ncep.noaa.gov/qpf/excessive_rainfall_outlook_ero.php)
- NOAA Atlas 14 Point Precipitation Frequency Estimates NH  
[https://hdsc.nws.noaa.gov/pfds/pfds\\_map\\_cont.html?bkmrk=nh](https://hdsc.nws.noaa.gov/pfds/pfds_map_cont.html?bkmrk=nh)

**River Hazards**

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
River Hazards	2.0	LOW	+25%	<b>Much Above Normal Stream Flow (Blue)</b>	Much Below Normal Flow (Red) to Much Above Normal Stream Flow (Blue)	National Water Dashboard (USGS Stream Gages, Groundwater Monitors)
				<b>12' Major Flood Stage (Purple)</b>	6' Action Stage to 12' Major Flood Stage Warner	USGS Warner River Flood Stage at Davisville (River Gage #01086000)
				<b>16' Moderate Flood Stage (Red)</b>	10' Action Stage to 20' Major Flood Stage Contoocook	USGS Contoocook River Flood Stage at Henniker West Ave (River Gage #01085000, NOAA #HENN3)

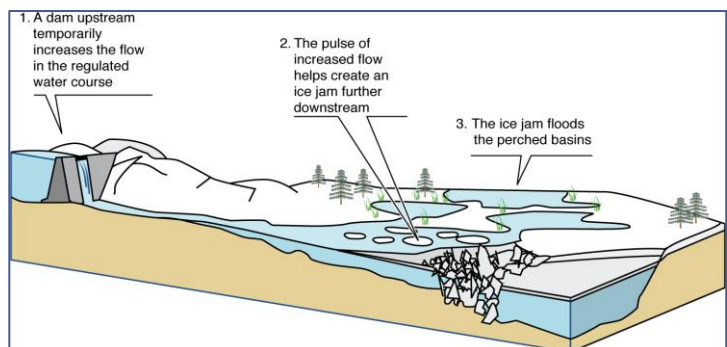
There are several types of **River** hazards examined in the **Hazard Identification and Risk Assessment**. River hazards are considered different from flooding in this **Hazard Mitigation Plan**. They include ice jams, scouring of banks and infrastructure, erosion of banks and shoreline, channel movement,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

**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. While the Contoocook River has been known to have ice jams periodically, the jams are usually downstream or upstream of Hopkinton. The presence of the Hopkinton-Everett Flood Control Reservoir ensures there are few jams within the Town of Hopkinton.

There is no standardized magnitude scale of ice jams. The US Army Corps of Engineers (ACOE) maintains the Ice Jam Database, Bulletins & Surveys website which locates

**Typical Ice Jam Commencement**





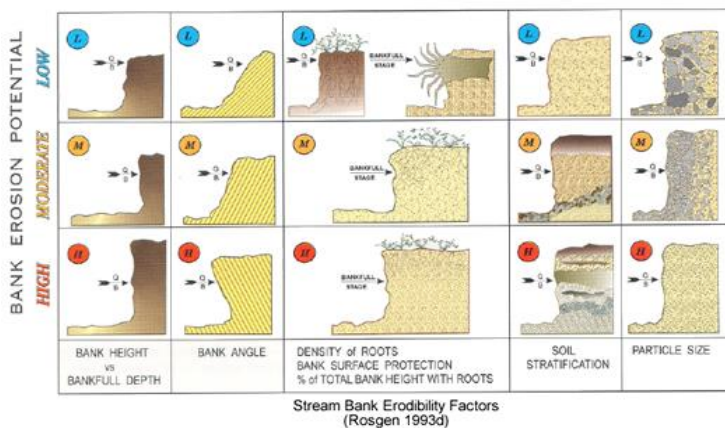
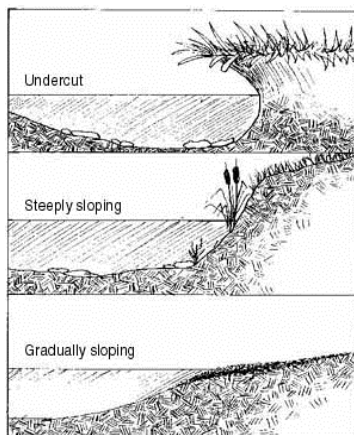
where known ice jams are presently occurring and where they have occurred in the past. Reports can be generated in various formats so emergency responders can identify the locations of prior ice jams and begin to mitigate the effects of future events.

**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. Visual bank erosion characteristics give cues as to how a bank can react to further water interference. In Hopkinton, fluvial geomorphology is most pertinent to the **Contocook River**. There is no standardized magnitude scale of fluvial or bank erosion.

**Bank Erosion Characteristics**



River Height and Flow Volume by Stream Gages

Stream gages are dynamic measurement tools that enable immediate warning of river volume. The National Water Dashboard includes an inventory of the USGS Stream Gages and Groundwater Monitors, enabling flow levels between Much Below Normal Flow <10% (Red) to Much Above Normal Flow >90% (Blue). The USGS National Water Dashboard is an interactive map which monitors Stream Gages and other water mapping layers to predict how much below normal to how much above normal flow conditions are for that particular day of the year. At least 10 years (10 data points) of data are needed for this evaluation.

USGS Streamflow Status Levels

USGS Streamflow Status Levels	Flow %
All Time High for this Day	100%
Much Above Normal	>90%
Above Normal	76%- 90%
Normal	25%- 75%
Below Normal	10%- 24%
Much Below Normal	<10%
All Time Low for this Day	0%

Locally, stream gages give warning of flood conditions in Hopkinton. The USGS Warner River Flood Stage at Davisville (River Gage #01086000) indicates when the upstream of Warner River, which flows into the Contoocook River, reaches 12’ (Major Flood Stage) or higher. USGS Contoocook River Flood Stage at Henniker West Avenue (River Gage #01085000, NOAA #HENN3) monitors the Contoocook River as measured in Henniker, which can reach 20’ (Major Flood Stage) or higher. Both rivers are stopped before entering Contoocook Village however by the US Army Corps of Engineers Flood Control Area and the Hopkinton Dam. The river gage flood stage information is shown in **Table 4.9**.

Table 4.9

River Gage Flood Stage Categories

Flood Stage Category	Davisville (Warner) Flood Water Height in Feet #01086000	Henniker (Contoocook) Water Height in Feet #01085000	What Flood Stage Category Means
Major Flood Stage	12	20	Flooding has increased in spatial extent. Road closures more widespread, and feet of water may enter structures.
Moderate Flood Stage	10	16	Road closures more numerous. Water starts to enter homes and businesses.
Flood Stage	8	12	Flooding expands in spatial extent resulting in greater inundation of farmland and recreational areas. Few road closures possible.
Action Stage	6	10	Streams and river are out of their banks. Flooding confined to greenways, farmland, and isolated secondary roads.
Below Flood Stage	< 6	< 10	Normal stream and river levels up to bank full.

The US Army Corps of Engineers constructed and maintains the Hopkinton-Everett Flood Control Dam and area. Designed to flood during inundation conditions, the flood control area covers the southwestern section of Hopkinton. With a drainage area of 426 square miles, the normal pool height during the summer was 380 feet and is 382 feet during the winter. Up to eight gates can be moved to adjust the water flow during high water conditions.

Gages that measure the height and volume of water along rivers are very helpful tools in understanding what level of flooding will become a concern. Flood stage measurements differ per river and these indicators help the community prepare for flood conditions.

#### River Hazards Resource Links:

- US Army Corps of Engineers (ACOE)  
<https://icejam.sec.usace.army.mil/ords/f?p=1001:7>
- National Water Dashboard (USGS Stream Gages, Groundwater Monitors)  
<https://dashboard.waterdata.usgs.gov/app/nwd/en/?aoi=default>
- USGS Warner River Flood Stage at Davisville (River Gage #01086000)  
<https://water.weather.gov/ahps2/hydrograph.php?wfo=gyx&gage=davn3>
- USGS Contoocook River Flood Stage at Henniker West Ave (River Gage #01085000, NOAA #HENN3)  
<https://water.weather.gov/ahps2/hydrograph.php?wfo=gyx&gage=henn3>
- US Army Corps of Engineers Hopkinton-Everett Lakes, Contoocook  
<https://www.nae.usace.army.mil/missions/recreation/hopkinton-everett-lake>
- USGS Fluvial Erosion Hazards (FEH) Primer  
<https://geonarrative.usgs.gov/fehprimer>
- US Army Corps of Engineers (ACOE) New England Regulated River Basins  
[https://reservoircontrol.usace.army.mil/nae\\_ords/cwmsweb/cwms\\_web.cwmsweb.cwmsindex](https://reservoircontrol.usace.army.mil/nae_ords/cwmsweb/cwms_web.cwmsweb.cwmsindex)

Dam Failure

The overall ratings of **Dam Failure** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Small Dam Failure	5.3	MED	0%	High Hazard Class	Non-Menace to High Hazard Dam Class	NHDES Dam Hazard Classifications
Large Dam Failure	4.0	LOW	0%	High Hazard Class	Non-Menace to High Hazard Dam Class	NHDES Dam Hazard Classifications
				Pool Stage 548'	512' Pool Stage to 566' Spillway Crest Webster	USACOE Blackwater River at Blackwater Dam
				Pool Stage 400'	375' Pool Stage to 415' Spillway Crest Hopkinton	USACOE Contoocook River at Hopkinton Dam (USGS River Gage #01085500)

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.

There are three High Hazard dams, three Significant Hazard dams, and three Low Hazard dams in Hopkinton, most of which are located on the Contoocook River. The Contoocook River hosts the three High Hazard dams. The largest dam in Hopkinton is the Hopkinton Dam on the Contoocook River as monitored by the US Army Corps of Engineers. The Hopkinton Dam’s height water capacity is from 375' Pool Stage to 410' Channel Capacity to 415' Spillway Crest height. The upstream Blackwater Dam on the Blackwater River in Webster, which converges with the Contoocook River, is from 512' Pool Stage to 556' Channel Capacity to 566' Spillway Crest height. The one Significant Hazard dam on the Contoocook River and the two Town septage lagoons are Significant Hazard dams. Low Hazard dams are on the Contoocook River, Kimball Lake, and on Grassy Pond.

Although dam failure could be considered a **Technological Hazard**, failure is often a secondary hazard caused by flooding conditions and has been rated along with the natural hazards. Classifications of dams and their magnitude of failure can be measured by the NH DES Dam Hazard Classifications.

NH Dam Hazard Classification	
NON-MENACE Structure	Inspection
<p><b>NM</b> 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:</p> <ul style="list-style-type: none"> <li>○ Less than 6 feet in height if it has a storage capacity greater than 50 acre-feet;</li> <li>○ Less than 25 feet in height if it has a storage capacity of 15 to 50 acre-feet.</li> </ul>	Every 6 years *

DRAFT

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



ATMOSPHERIC HAZARDS

The atmospheric hazards evaluated in the **Hazard Mitigation Plan** are:

Hazard Type	Main Hazard Category	Specific Hazards Included
Atmospheric	<b>High Wind/Tropical/Storm</b>	Thunderstorm, Downburst, High Wind, Tornado, Tropical and Post-Tropical Cyclone, Hail
	<b>Lightning</b>	Lightning
	<b>Winter</b>	Winter Storm, Blizzard, Ice Storm
	<b>Extreme Temperature</b>	Cold Wave, Heat Wave

**High Wind**

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
High Winds	9.3	HIGH	+25%	12 Hurricane Force	0 Calm to 12 Hurricane Force Wind	Beaufort Wind Scale (Land)

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

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.

The Beaufort Wind Scale (Land) in **Table 4.10** as a form of wind magnitude measures the wind speed, description, and allocates a magnitude scale of 0 (Calm) -to 12 (Hurricane Force).

**Table 4.10**  
**Beaufort Wind Scale (Land Effects)**

Beaufort Number	Description	Speed in mph	Visual Clues and Damage Effects
0	Calm	Calm	Calm wind. Smoke rises vertically with little if any drift.
1	Light Air	1 to 3	Direction of wind shown by smoke drift, not by wind vanes. Little if any movement with flags. Wind barely moves tree leaves.
2	Light Breeze	4 to 7	Wind felt on face. Leaves rustle and small twigs move. Ordinary wind vanes move.
3	Gentle Breeze	8 to 12	Leaves and small twigs in constant motion. Wind blows up dry leaves from the ground. Flags are extended out.
4	Moderate Breeze	13 to 18	Wind moves small branches. Wind raises dust and loose paper from the ground and drives them along.
5	Fresh Breeze	19 to 24	Large branches and small trees in leaf begin to sway. Crested wavelets form on inland lakes and large rivers.
6	Strong Breeze	25 to 31	Large branches in continuous motion. Whistling sounds heard in overhead or nearby power and telephone lines. Umbrellas used with difficulty.
7	Near Gale	32 to 38	Whole trees in motion. Inconvenience felt when walking against the wind.
8	Gale	39 to 46	Wind breaks twigs and small branches. Wind generally impedes walking.
9	Strong Gale	47 to 54	Structural damage occurs, such as chimney covers, roofing tiles blown off, and television antennas damaged. Ground is littered with many small twigs and broken branches.
10	Whole Gale	55 to 63	Considerable structural damage occurs, especially on roofs. Small trees may be blown over and uprooted.
11	Storm Force	64 to 75	Widespread damage occurs. Larger trees blown over and uprooted.
12	Hurricane Force	over 75	Severe and extensive damage. Roofs can be peeled off. Windows broken. Trees uprooted. RVs and small mobile homes overturned. Moving automobiles can be pushed off the roadways.

**High Wind Hazards Resource Links:**

- National Weather Service Beaufort Wind Scale (on Land)  
<https://www.weather.gov/pqr/wind>



**Thunderstorm**

The overall ratings of **Thunderstorm** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Thunderstorm	10.7	HIGH	+50%	4 Moderate (Red)	1 Marginal to 5 High Thunderstorm Risk	NOAA Severe Thunderstorm Risk Categories

More commonly experienced are **severe windstorms**, **rainstorms** and **thunderstorms**. The most severe windstorms occur during all months of the year while thunderstorms 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 and hail hazards, making these storms among the most dangerous and widespread in New Hampshire. Tree limbs and utility lines can fall onto roadways, causing crash hazards and power and internet outages.

There are several types of thunderstorms:

- ➔ **Single-cell** – Ordinary, short, brief, weak storms that grow and die within an hour or so. They are typically driven by heat on a summer afternoon. Single-cell “popcorn” convection storms may produce brief heavy rain and lightning.
- ➔ **Multi-cell cluster** – Common, garden-variety thunderstorm in which new updrafts form along the leading edge of rain-cooled air (the gust front). Individual cells usually last 30 to 60 minutes, while the system as a whole may last for many hours. Multicell storms may produce hail, strong winds, brief tornadoes, and/or flooding.
- ➔ **Multi-cell line (squall line)** – Group of thunderstorms arranged in a line, often accompanied by squalls of high wind and heavy rain. Squall lines tend to pass quickly and are less prone to produce tornadoes than are supercells. They can extend laterally for hundreds of miles but are typically only 10 or 20 miles wide.
- ➔ **Supercell- single cell** - Thunderstorm lasting for hours, characterized by updrafts over 100 mph with giant hail and tornados, high precipitation and flash flooding.
- ➔ **Derecho (squall line)**- Long-lived, straight-line winds associated with a thunderstorms which blow out in front of the squall line, appearing from large, shelf-like cloud formation. Derechos can be as large as **200** miles wide in extent with gusts of at least **58** mph. They can last up to **12** hours or more and are associated with very strong straight-line winds. Derechos can knock over trees and power lines and cause rain and lightning to come from all directions.

Although a thunderstorm may comprise many variables, generally, a severe thunderstorm (Marginal 1-Slight 2 categories) produces winds of at least 58 mph, could produce hail at up 1" in diameter, and could produce localized tornadoes. These storms can be expected to occur several times per year in New

Hampshire. Structural damage to trees, roofing, and vehicles implies the occurrence of a significantly severe thunderstorm, with an annual to lifetime chance (Enhanced 3- High 5 categories).

Severe Thundstorm Outlook Categories

Understanding Severe Thunderstorm Outlook Categories						
LEVEL	CATEGORY	DETAILS	SUMMARY	How many severe storms are possible?	How bad could the worst storms be?	DEFINITIONS
	General Thunderstorm	Although severe weather is not expected, <i>all</i> thunderstorms can produce deadly lightning, gusty winds, and small hail.	No severe thunderstorms expected	None to Numerous	Similar to storms your area experiences many times per year	<b>Severe Storm</b> Any storm that contains at least one of the following:
<b>1</b>	<b>Marginal (MRGL)</b>	<b>Some storms could be capable of damaging winds and severe hail. Localized tornado threat could develop.</b>	Isolated severe storms possible	None to Numerous	Similar to storms your area may experience several times per year	<b>Wind gusts of at least 58 mph</b>
<b>2</b>	<b>Slight (SLGT)</b>	<b>Increased confidence that some storms will contain damaging winds, severe hail, and/or tornado potential.</b> <i>A few severe storms could be significant</i>	Isolated to scattered severe storms expected	None to Numerous	Similar to storms your area may experience a few times per year	<b>Hail at least one inch in diameter</b>
<b>3</b>	<b>Enhanced (ENH)</b>	<b>High confidence that several storms will contain damaging winds, severe hail, and/or tornadoes.</b> <i>Several severe storms could be significant</i>	Scattered to numerous severe storms expected	None to Numerous	Similar to intense storms your area may only experience once or twice per year	<b>Tornado</b>
<b>4</b>	<b>Moderate (MDT)</b>	<b>High confidence that many storms will contain damaging winds, severe hail, and/or tornadoes.</b> <i>Several severe storms likely to be significant</i>	Scattered to numerous severe storms expected	None to Numerous	Similar to intense storms your area may only experience once per year or less	<b>Significant Severe</b> Any of the following hazards:
<b>5</b>	<b>High (HIGH)</b>	<b>High confidence that an outbreak of storms will contain tornadoes, damaging winds, and/or severe hail.</b> <i>Tornado outbreak and/or widespread damaging winds</i>	Numerous severe storms expected	None to Numerous	Very intense storms your area may only experience once or twice in a lifetime	<b>Wind gusts of at least 75 mph</b> <b>Hail at least two inches in diameter</b> <b>Tornado of at least EF-2 rating</b>

Thunderstorm Hazards Resource Links:

- National Weather Service Thunderstorm Outlook Severity  
[https://www.spc.noaa.gov/new/images/SPC\\_outlook\\_final\\_updated.png](https://www.spc.noaa.gov/new/images/SPC_outlook_final_updated.png)
- NWS Storm Prediction Center  
<https://www.spc.noaa.gov/classic.html>
- NOAA Jetstream Online Education Tool  
<https://www.noaa.gov/jetstream>
- NOAA Types of Thunderstorms  
<https://www.noaa.gov/jetstream/tstrmtypes>
- NOAA Derechos  
<https://www.noaa.gov/jetstream/derechos>

**Hail**

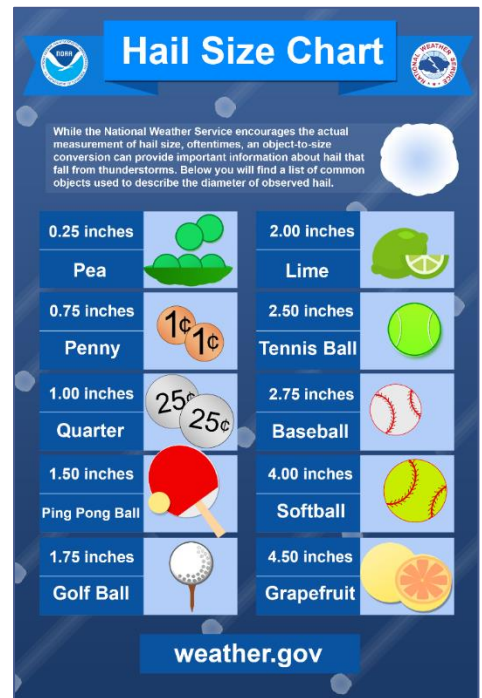
The overall ratings of Hail in Hopkinton from the HIRA are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Hail	9.0	HIGH	+25%	1 3/4" Golf Ball Dized	1/4" Pea Size to 4.5" Grapefruit Size Hail Stones	NOAA Hail Size
				H4 Severe 25-40mm	H0 5mm Hard Hail Storm to H10 >100mm Super Hail Storm	TORRO Hailstorm Intensity Scale Adapted

Thunderstorms include hail, hard balls of frozen water ranging from under pea-sized to softball-sized which rain down onto trees, roof, vehicles and roads. Often hail is damaging to vehicles and landscaping.

According to NOAA, hailstones are formed when raindrops are carried upward by thunderstorm updrafts into extremely cold areas of the atmosphere and freeze. Hailstones then grow by colliding with liquid water drops that freeze onto the hailstone’s surface. The hail falls when the thunderstorm’s updraft can no longer support the weight of the hailstone. Smaller hailstones can be blown away from the updraft by horizontal winds, so larger hail typically falls closer to the updraft than smaller hail. If the winds near the surface are strong enough, hail can fall at an angle or even nearly sideways. Wind-driven hail can tear up siding on houses, break windows and blow into houses, break windows on and dent the roofs of cars, and cause severe injury and/or death to people and animals.

The NOAA Hail Size chart describes the size of hail. In the Central NH region, hail has been reported recently as larger than a quarter dollar (>1”). In Maine and New Hampshire, hail is fairly common during well-developed thunderstorms. Although most hail that reaches the ground in northern New England is an inch or less in diameter, occasionally hailstones over 2 inches in diameter will fall. Large hailstones can fall at speeds faster than 100 mph and can do considerable damage to cars, homes, and buildings, and can be a significant threat to people, as well.



The intensity of hail, or how large and damaging hail can become, can be depicted by the Tornado and Storm Research Organization’s (TORRO) Hailstorm Intensity Scale, developed by researchers in the United Kingdom. The TORRO ranges from the smallest value of H0 (<5 mm and causing no damage) to the largest

value of H10 (>100 mm and causing extensive structure damage and potential fatalities). The TORRO scale is displayed in Table 4.11.

Table 4.11  
TORRO Hail Intensity Scale

Scale	Intensity Category	Typical hail Diameter (mm)	Size Object Comparison	Typical Damage Impacts
H0	Hard Hail	5	Pea	No damage
H1	Potentially Damaging	5-15	Mothball	Slight general damage to plants, crops
H2	Significant	10-20	Marble, grape	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	Ping pong ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	Golf ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60	Hen's egg	Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75	Tennis ball	Severe roof damage, risk of serious injuries
H8	Destructive	60-90	Orange	Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100	Softball	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Hail Hazards Resource Links:

- NOAA Thunderstorm Infographics with Hail Size Chart  
[https://www.weather.gov/vef/Thunderstorm\\_Infographics](https://www.weather.gov/vef/Thunderstorm_Infographics)
- National Weather Service Estimating Hail Size  
<https://www.weather.gov/boi/hailsize>
- TORRO Hailstorm Intensity Scale  
<https://www.torro.org.uk/research/hail/hscale>
- NOAA Severe Weather 101 Hail Basics  
<https://www.nssl.noaa.gov/education/svrwx101/hail/>

**Tornado**

The overall ratings of **Tornado** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Tornado	6.7	MED	+25%	EF1 86-110 mph	EF0 65-85 mph to EF5 >200 mph	NOAA Enhanced Fujita Scale

Significantly high winds 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.

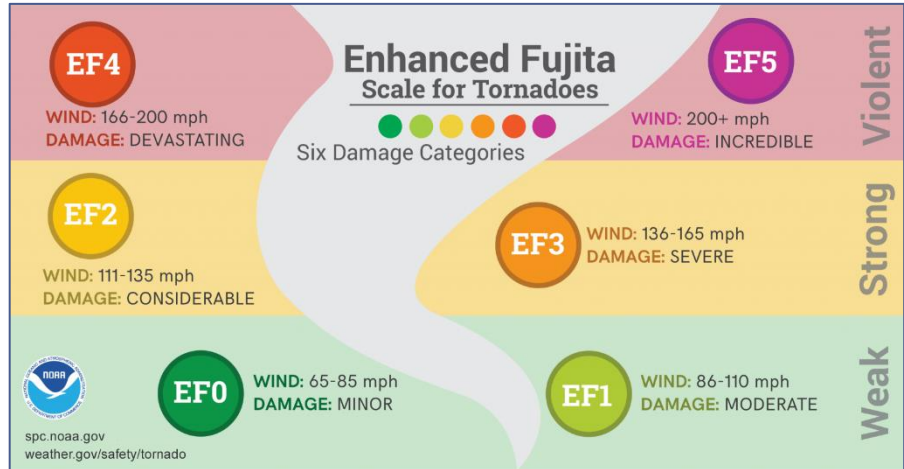
Tornadoes produce the most violent winds on earth, at speeds of **200** mph or more. In addition, tornadoes can travel at a forward speed of up to 70 mph. Damage paths can extend in excess of one-mile wide and **50** miles long. Violent winds and debris slamming into buildings cause the most structural damage.

A tornado occurring in Hopkinton 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 (111-135 mph). Tornado magnitude is measured by the Enhanced Fujita (EF) Scale and is provided in **Table 4.12**.

**Table 4.12**  
**Enhanced Fujita (EF) Scale**

EF Rating	3-Second Gust mph
EF0	65-85 mph
EF1	86-110 mph
EF2	111-135 mph
EF3	136-165 mph
EF4	166-200 mph
EF5	over 200 mph

Aside from the I-89 and US 202 corridors, most sections of the Hopkinton are forested and its Class V and Class VI gravel roads run the risk of isolation through **debris impacted infrastructure** (trees down on roads and powerlines) after a **tornado**, resulting in **power failure** and the potential for delayed emergency access until the way is cleared. Wooded and forested sections of Town are vulnerable to tree fall. One-egress roads and remote neighborhoods are especially at risk from the impacts of high wind events, including tornadoes.



**Tornado Hazards Resource Links:**

- National Weather Service Enhanced Fujita (EF) Scale  
<https://www.weather.gov/oun/efscale>
- National Weather Service Tornado Infographics  
[https://www.weather.gov/wrn/tornado\\_infographics](https://www.weather.gov/wrn/tornado_infographics)

**Downburst**

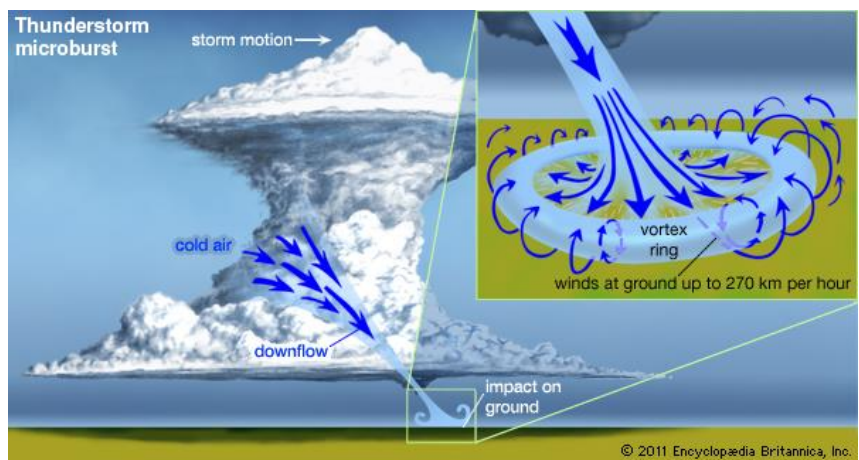
The overall ratings of **Downbursts** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Downburst	5.3	MED	0%	Microburst <2.5 miles	<2.5 miles wide Microburst to >2.5 miles wide Macroburst	NOAA Downbursts

Originating from a strong thunderstorm, an intense downburst called a microburst is a severe localized downdraft blowing over a horizontal area. When these downdrafts reach the ground, they spread out very quickly causing strong and often damaging winds at the ground. Downburst damage is often referred to as straight-line wind damage since fallen trees generally line up in the same direction. In Maine and New Hampshire, most thunderstorm wind damage is caused by downbursts. These "straight line" winds are distinguishable from tornadic activity by the pattern of destruction and debris. Downbursts can produce winds of up to **168** mph and are life threatening. Downbursts are quite common during Central NH’s hot weather months. The “dry” microbursts or macrobursts are strong downdrafts known to occur in Central New Hampshire almost annually, but the “wet” microbursts accompanied by rain are uncommon in the Northeast.

**Downbursts** 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.

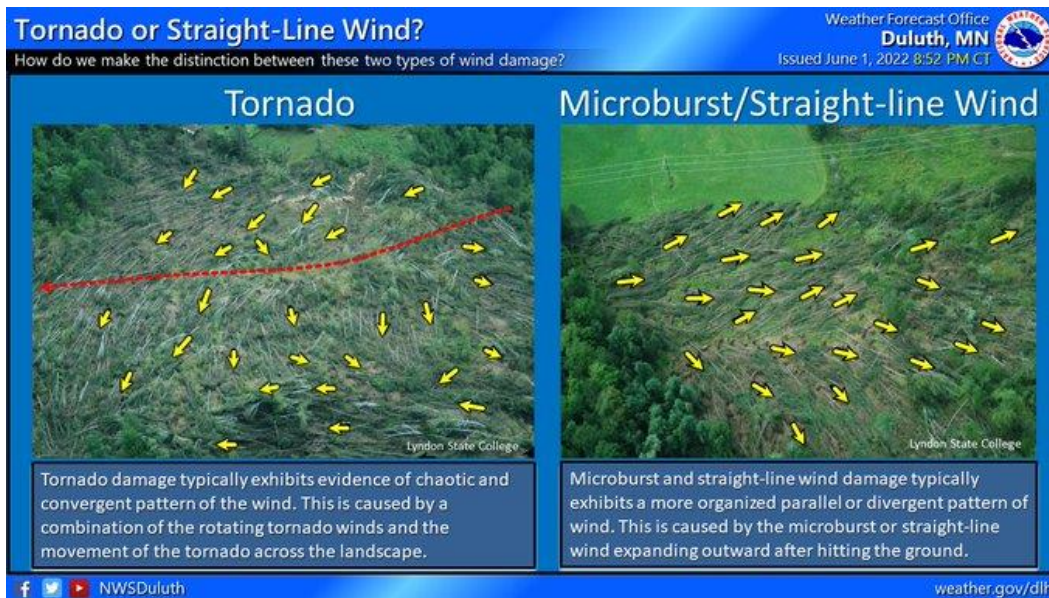
**Microburst Forming from Thunderstorm Cloud**



Two sizes of downbursts occur in New Hampshire and their magnitudes are categorized by extent as well as on the Enhanced Fujita Scale.

- A **microburst** is a small downburst with an outflow, defined as cooled air quickly moving outward from the storm, less than **2.5 miles (<4 km)** in horizontal diameter and lasting **2-5 minutes**. Despite their small size, microbursts can produce destructive winds up to **168 mph**, producing tornado-like damage up to an **EF-4** scale event. Microbursts get their name because they generally affect a much smaller geographical area, but the winds in a microburst can be very intense. Like the general downburst, most of the damage with microbursts lines up in one direction, although, there may be a tendency for the damage to radiate outward. Microbursts are usually accompanied by heavy rain and/or hail and can have winds as strong as those in a small tornado.
- A **macroburst** is larger than a microburst, with a horizontal extent greater than **2.5 miles (>4 km)** in diameter. A macroburst is not quite as strong as a microburst but can still produce winds as high as **130 mph**. Damaging winds generally last longer, from **5 to 20 minutes**, and produce tornado-like damage up to an **EF-3** scale event.

NWS Tornado Damage vs. Microburst Tree Damage Comparison



Downburst Hazards Resource Links:

- NOAA Thunderstorm Hazards – Macrobursts and Microbursts  
[https://www.noaa.gov/jetstream/wind\\_damage](https://www.noaa.gov/jetstream/wind_damage)
- NWS Straight-Line Winds vs. Tornado Differences  
[https://www.weather.gov/iwx/2013\\_straight-line\\_winds\\_vs\\_tornado](https://www.weather.gov/iwx/2013_straight-line_winds_vs_tornado)
- NOAA National Severe Storms Laboratory Damaging Winds  
<https://www.nssl.noaa.gov/research/wind/>



**Tropical and Post-Tropical Cyclone**

The overall ratings of **Tropical and Post Tropical Cyclone** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Tropical and Post Tropical Cyclone	6.0	MED	0%	Category 2, 96-10 mph	Category 1 74-95 mph Minimal to Category 5 >157 mph Catastrophic Winds	NOAA Saffir-Simpson Hurricane Wind Scale

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

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 Hopkinton 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.

Table 4.13

**Saffir-Simpson Hurricane Wind Scale**

Category	Sustained Wind Speed mph	Types of Damage Due to Hurricane Winds
--	< 38 mph	<b>Tropical Depression</b>
--	39-73 mph	<b>Tropical Storm</b>
1	74-95 mph	<b>MINIMAL. Very dangerous winds will produce minimal damage.</b> 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	<b>MODERATE. Extremely dangerous winds will cause moderate damage:</b> 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.

Category	Sustained Wind Speed mph	Types of Damage Due to Hurricane Winds
3	111-129 mph	<b>EXTENSIVE. Extensive damage will occur:</b> 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	130-156 mph	<b>EXTREME. Catastrophic damage will occur:</b> 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	157 mph or higher	<b>CATASTROPHIC. Catastrophic damage will occur:</b> 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.








The Saffir-Simpson Hurricane Wind Scale **measures the magnitude of wind event** on a **1** through **5** rating basis. The definitions of Category **1** through **5**'s sustained wind miles per hour and their respective threats to people, different types of homes, shopping centers, trees, power lines, water, and more are displayed in **Table 4.13**.

**Tropical Depression**

An organized group of thunderstorms that persists for **24** hours is called a tropical disturbance. When winds exceed **30** mph, it becomes a tropical depression. The Earth's rotation (coriolis effect) drives wind around the warm core of the storm. For the storm to continue to strengthen, it must remain over warm water and encounter minimal wind shear. This is when vertical winds slant the storm, dispersing the heat over a larger area, degrading the storm. Without wind shear, the cyclone remains upright and continues to develop.

**Tropical Storm**

When winds reach **39** mph, the cyclone becomes a tropical storm and meteorologists give the storm system a name, alphabetically chosen from a pre-selected annual list for the Atlantic Ocean tropical storms. These lists are recycled every six years, but the names of deadly or costly storms are changed in future rotations. For instance, the **2023** Atlantic hurricane season, a strong El Nino year with record warm Atlantic

	Category	Wind Speed	Storm Surge	Damage
	Tropical Depression	0 - 38 mph	0 feet	
	Tropical Storm	39 - 73 mph	0 - 3 feet	
	Category 1 Hurricane	74 - 95 mph	4 - 5 feet	Minimal
	Category 2 Hurricane	96 - 110 mph	6 - 8 feet	Moderate
	Category 3 Hurricane	111 - 129 mph	9 - 12 feet	Extensive
	Category 4 Hurricane	130 - 156 mph	13 - 18 feet	Extreme
	Category 5 Hurricane	157 mph or higher	18 feet or higher	Catastrophic

sea surface temperatures, ranks **4th** for the most-named storms in a year: **20** named storms, which included seven hurricanes and three major hurricanes.

**Tropical Storm or Post Tropical Storm Hazards Resource Links:**

- NWS Saffir-Simpson Hurricane Winds Scale  
<https://www.nssl.noaa.gov/research/wind>
- NOAA National Hurricane Center Tropical Storm Names  
<https://www.nhc.noaa.gov/aboutnames.shtml>
- NWS Climate Prediction Center  
<https://www.cpc.ncep.noaa.gov/>
- National Weather Service Storm Surge Threat  
<https://www.weather.gov/mhx/HTIStormSurge>
- NWS National Hurricane Center Hurricanes.gov  
<https://www.nhc.noaa.gov/>

Lightning

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Lightning	9.3	HIGH	+50%	LAL5 Frequent	LAL 1 No Thunderstorms to LAL 6 Dry Lightning Activity	NWS Lightning Activity Level (LAL)

The NOAA National Severe Storms Laboratory defines lightning as a giant spark of electricity in the atmosphere between the clouds, the air, or the ground. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges build up enough, this insulating capacity of the air diminishes, forming a rapid discharge of electricity (lightning). The flash of lightning temporarily equalizes the charged regions in the atmosphere until the opposite charges build up again.

All thunderstorms contain lightning, but not all lightning is caused by thunderstorms. Lightning can also be seen during volcanic eruptions, surface nuclear detonations, and heavy snowstorms. 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.” Lightning can strike where it is not raining, or even before rain reaches the ground.

There are four main types of lightning:

- ➔ **Cloud-to-ground (CG)** strike is the most common type of lightning, reaching toward the surface.
- ➔ **Cloud flashes like intra-cloud (IC) or sheet lightning** occur either in the same cloud or from cloud-to-air (CA) and do not reach the ground.
- ➔ **Cloud-to-cloud (CC)** or spider lightning travel among and illuminate multiple clouds.
- ➔ **Transient luminous events (TLE)** are rarely observed from the ground and occur in the high atmosphere above the storms.

Where the CG lightning will strike downward, a channel current of **1-2** inches develops toward the earth’s surface. As lightning nears the ground, objects like trees, telephone poles, and buildings start sending up static electricity sparks to meet this channel. Taller objects such as trees and historic buildings with cupolas, or hills are more likely than the surrounding ground to produce one of the connecting sparks and

so are more likely to be struck by lightning. Yet lightning can strike the ground in an open field even if the tree line is nearby. The National Weather Service provides information about lightning safety.

The magnitude of 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 NWS Lightning Activity Level (LAL) measures the magnitude of lightning strikes as displayed in **Table 4.14**.

**Table 4.14**  
**Lightning Activity Level (LAL)**

Level 1-6	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

**Lightning Hazards Resource Links:**

- National Weather Service Lightning Activity Level  
<https://graphical.weather.gov/definitions/defineLAL.html>
- National Weather Service Lightning Safety Tips and Resources  
<https://www.weather.gov/safety/lightning>
- National Oceanic & Atmospheric Administration (NOAA) Severe Storms Laboratory Lightning Basics Education  
<https://www.nssl.noaa.gov/education/svrwx101/lightning>

Winter Storms

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Winter Storms	8.0	HIGH	0%	4 Crippling	1 Notable to 5 Extreme Snowfall	Northeast Snowfall Impact Scale (NESIS)
				Major Impacts (Red)	No Impacts to Extreme Winter Impacts	NWS Winter Storm Severity Index (WSSI)

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 **¼"** 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, blizzard conditions often 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.

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 Hopkinton 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.

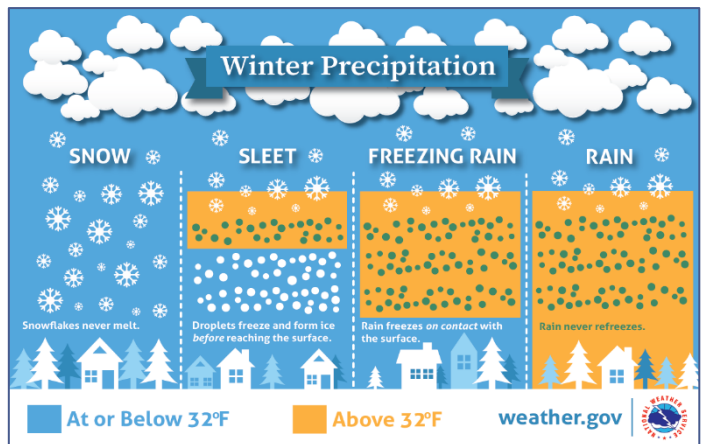
Extreme cold temperatures are associated with continental Arctic air masses. The actual temperatures reached depend specifically on the nature of the cold air mass and where it originated. In general, those from the Arctic regions are the coldest. Though cold temperatures are dangerous, they become more 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.

Heavy snow can immobilize a region, strand commuters, stop the flow of supplies, and disrupt emergency responders. Accumulations of snow can knock down trees and power lines and cause some roofs to collapse. Homes and farms may be isolated for days and unprotected livestock may be lost while businesses either close or are open with reduced hours. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on New Hampshire communities.

Winter precipitation includes the following types of weather described and is summarized below:

- ➔ **Blizzard:** Winds of 35 mph or more with snow and blowing snow reducing visibility to less than ¼ mile for 3 hours or more.
- ➔ **Blowing Snow:** Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- ➔ **Snow Squalls:** Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- ➔ **Snow Showers:** Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- ➔ **Snow Flurries:** Light snow falling for short durations with little or no accumulation.
- ➔ **Freezing Rain:** Occurs when the layer of freezing air is so thin, raindrops do not have enough time to freeze before reaching the ground.
- ➔ **Sleet:** Frozen raindrops occurs when the layer of cold, freezing air along the surface is thicker than the warmer air above. This causes the raindrops to freeze before reaching the ground.
- ➔ **Ice Storm:** Results in the accumulation of at least 0.25" of ice on exposed surfaces. Creates hazardous driving and walking conditions, and tree branches and powerlines can easily snap under the weight of the ice.
- ➔ **Lake Effect Storm:** Cold, dry air mass moves over the Great Lakes regions, picking up moisture from the Great Lakes. This air, now full of water, dumps the water as snow in areas to the south and east of the Lakes.



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.

**Winter Storm Severity Index (WSSI)**

Potential Winter Storm Impacts	
0	<b>No Impacts</b> Impacts not expected.
1	<b>Limited Impacts</b> Rarely a direct threat to life and property. Typically results in little inconveniences.
2	<b>Minor Impacts</b> Rarely a direct threat to life and property. Typically results in an inconvenience to daily life.
3	<b>Moderate Impacts</b> Often threatening to life and property, some damage unavoidable. Typically results in disruptions to daily life.
4	<b>Major Impacts</b> Extensive property damage likely, life saving actions needed. Will likely result in major disruptions to daily life.
5	<b>Extreme Impacts</b> Extensive and widespread severe property damage, life saving actions will be needed. Results in extreme disruptions to daily life.

Severe winter weather magnitude can be measured using several different scales and indices including the Winter Storm Severity Index (WSSI), the NCDRC Regional Snowfall Index (RSI) for the Northeast and forecasted weather advisories.

The NOAA Weather Prediction Center uses a Winter Storm Severity Index (WSSI), a 1-5 color-coded indices from 0- No Impacts to 5- Extreme Impacts which is used on the winter maps to predict storms **1-3** days out. The WSSI does not depict official warnings of an event.

The Northeast Snowfall Impact Scale (NESIS), upon which was built the national Regional Snowfall Index (RSI) is used to categorize significant snowstorms for the eastern seaboard. The NESIS/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 after the fact. The NESIS differs from these other indices because it includes population, a social component.

The NESIS is based on the spatial extent of the storm, the amount of snowfall, and the juxtaposition of these elements with population. The indices in **Table 4.15** measure the magnitude of a snowstorm in the Northeast, which includes New Hampshire.

**Table 4.15**  
**Regional Snowfall Index (RSI) for the Northeast (NESIS)**

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



Several types of public alert warnings are issued for people to have a chance to prepare and respond accordingly to the winter weather threat. Winter warnings are the most serious alert and represent different types of storms forecasted as displayed in **Table 4.16**.

Winter Alerts	
<p>✳ <b>Winter Watch</b> <b>BE PREPARED</b></p>	<p>Issued in the 24 to 72 hour forecast timeframe when the risk of a hazardous winter weather event has increased (50 to 80% certainty). It is intended to provide enough lead time so people can prepare.</p>
<p>✳ <b>Winter Advisory</b> <b>BE AWARE</b></p>	<p>Advisories are issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence (generally greater than 80%). An advisory is for less serious conditions that cause significant inconvenience and, if caution is not exercised, could lead to situations that may threaten life and/or property.</p>
<p>✳ <b>Winter Warning</b> <b>TAKE ACTION</b></p>	<p>Warnings are issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence (generally greater than 80%). A warning is used for conditions posing a threat to life or property within the next 12-36 hours.</p>

**Table 4.16**  
**Winter Weather Warning Events**

Warning Type	Criteria	Description for Next 12-36 Hours
<b>Blizzard Warning</b>	<b>Gusts &gt;= 35 mph, visibility &lt;1/4 mile</b>	Blizzard event is imminent or expected in the next 12 to 36 hours. Sustained wind or frequent gusts greater than or equal to 35 mph will accompany falling and/or blowing snow to frequently reduce visibility to less than 1/4 mile for three or more hours.
<b>Ice Storm Warning</b>	<b>½" ice over 50% of area</b>	An ice storm event is expected to meet or exceed local ice storm warning criteria in the next 12 to 36 hours. Criteria for ice is 1/2 inch or more over at least 50 percent of the zone or encompassing most of the population.
<b>Winter Storm Warning</b>	<b>7" snow in 12 hrs, or 9+" snow in 24 hrs over 50% of area</b>	A winter storm event (heavy sleet, heavy snow, ice storm, heavy snow and blowing snow or a combination of events) is expected to meet or exceed local winter storm warning criteria in the next 12 to 36 hours. Criteria for snow is 7 inches or more in 12 hours or less; or 9 inches or more in 24 hours covering at least 50 percent of the zone or encompassing most of the population. Use "mid-point" of snowfall range to trigger warning (i.e 5 to 8 inches of snow = warning). Criteria for ice is identical to Ice Storm Warning.
<b>Lake Effect Snow Warning</b>	<b>7" snow in 12 hours, limited area</b>	A lake effect snow event is expected to meet or exceed local lake effect snow warning criteria in the next 12 to 36 hours. Widespread or localized lake induced snow squalls or heavy snow showers which produce snowfall accumulation to 7 or more inches in 12 hours or less. Lake effect snow usually develops in narrow bands and impacts a limited area within a county or forecast zone. Use "mid-point" of snowfall range to trigger warning (i.e 5 to 8 inches of snow = warning).
<b>Wind Chill Warning</b>	<b>Low temps to -25°F</b>	Wind chill temperatures are expected to meet or exceed local wind chill warning criteria in the next 12 to 36 hours. Wind chill temperatures may reach or exceed -25°F.

Source: [Weather.gov](http://Weather.gov), compiled by CNHRPC 2021

**Recent Severe Winter Weather in New Hampshire**

The winter season is shifting to January – April, instead of the traditional November to February. The most recent winter seasons have resulted in a recurring snow-and-melt cycle. Winter snowstorms will drop 6” or more of snow, then will melt within a week or two, or winters will result in little snowfall. These patterns have been more consistently occurring since **2018** in Central New Hampshire. Warmer weather winter storms have the potential to inflict more damage than many hurricanes because the high storm surge and high winds can last from **12 - 72** hours, while the duration of hurricanes ranges from **6 - 12** hours.

**Winter Storms Hazards Resource Links:**

- NWS Winter Storm Severity Index (WSSI)  
<https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php?id=HGX>
- NOAA Northeast Snowfall Impact Scale (NESIS)  
<https://www.ncei.noaa.gov/access/monitoring/rsi/nesis>
- NOAA Regional Snowfall Index for US  
<https://www.ncdc.noaa.gov/snow-and-ice/rsi>
- NWS Winter Weather Preparedness Week  
[https://www.weather.gov/bou/winter\\_wx\\_preparedness\\_week](https://www.weather.gov/bou/winter_wx_preparedness_week)

Ice Storms

The overall ratings of **Ice Storms** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Ice Storm	7.0	MED	+25%	4 (Purple)	0 Damage to 5 Ice Damage	Sperry-Piltz Ice Accumulation Index

Sleet occurs when snowflakes only partially melt when they fall through a shallow layer of warm air. These slushy drops refreeze as they next fall through a deep layer of freezing air above the surface, and eventually reach the ground as frozen rain drops that bounce on impact.

Freezing rain occurs when snowflakes descend into a warmer layer of air and melt completely. When these liquid water drops fall through another thin layer of freezing air just above the surface, they don't have enough time to refreeze before reaching the ground. Because they are "supercooled," they instantly refreeze upon contact with anything that that is at or below 0 degrees C, creating a glaze of ice on the ground, trees, power lines, or other objects. A significant accumulation of freezing rain lasting several hours or more is called an ice storm.

Accumulation of ice on roads, trees, and utility lines are dangerous for travelers until the roads are cleared and the utility lines are repaired. Ice storms occur in New Hampshire, especially when warmer winter temperatures mix with precipitation. **Table 4.17** displays the ice damage index.

**Table 4.17**  
**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.
	0.25 to 0.50	25 - 35	
	0.50 to 0.75	15 - 25	

Ice Damage Index	Average NWS Ice Amount in Inches	Wind Speed mph	Ice Damage and Impact Descriptions
	0.75 to 1.00	< 15	Outages lasting 1-5 days. Warming sites needed.
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](http://www.spia-index.com) copyright 2009 (adapted by CNHRPC)

Ice Storm Hazards Resource Links:

- NWS Ice Storms  
<https://www.weather.gov/safety/winter-ice-frost>
- NOAA National Severe Storms Laboratory – Severe Winter Weather 101  
<https://www.nssl.noaa.gov/education/svrwx101/winter/types>
- Sperry-Piltz Ice Accumulation Index  
<https://www.spia-index.com/index.php>

**Extreme Heat (Heat Wave)**

The overall ratings of **Extreme Heat or Heat Wave** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Heat Wave	12.0	EXTREME	+25%	Class III Hot	Danger (Orange) – Extreme Danger (Red)	NOAA Heat Index

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

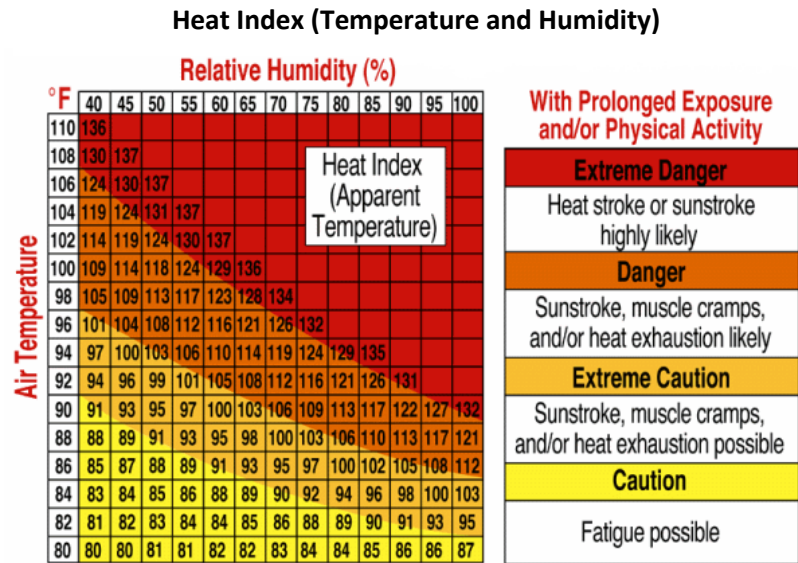
The National Weather Service categorizes a **Hot Day** when temperatures reach **90°** or warmer. An official **Heat Wave** is defined as three or more consecutive days with the temperature reaching or exceeding **90°**.

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

Excessive Heat Alerts	
<p><b>Excessive Heat Outlook</b></p> <p><b>BE AWARE</b></p>	<p>The <b>Excessive Heat Outlooks</b> are issued when the potential exists for an excessive heat event in the next <b>3-7</b> days. An Outlook provides information to those who need considerable lead-time to prepare for the event.</p>
<p><b>Excessive Heat Watch</b></p> <p><b>BE PREPARED</b></p>	<p>A <b>Heat Watch</b> is issued when conditions are favorable for an excessive heat event in the next <b>24 to 72</b> hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.</p>
<p><b>Excessive Heat Warning</b></p> <p><b>TAKE ACTION</b></p>	<p>An Excessive <b>Heat Warning</b> is issued within <b>12</b> 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 <b>105°F</b> or higher for at least <b>2</b> days and nighttime air temperatures will not drop below <b>75°F</b>; however, these criteria vary across the country, especially for areas not used to extreme heat conditions. If you don't take precautions immediately when conditions are extreme, you may become seriously ill or even die.</p>
<p><b>Heat Advisory</b></p> <p><b>TAKE ACTION</b></p>	<p>A <b>Heat Advisory</b> is issued within <b>12</b> 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 <b>100°F</b> or higher for at least <b>2</b> days, and nighttime air temperatures will not drop below <b>75°F</b>; however, these criteria vary across the country, especially for areas that are not used to dangerous heat conditions. Take precautions to avoid heat illness. If you don't take precautions, you may become seriously ill or even die.</p>

Excessive heat is measured by the NOAA’s Heat Index and 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 the Heat Index.

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**. Strong winds, particularly with very hot, dry air, can be extremely hazardous due to dehydrating effects.



**Extreme Heat Hazards Resource Links:**

- National Integrated Heat Health Information System (Data & Mapper) <https://www.heat.gov>
- US EPA Climate Change Indicators: Heat Waves <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves>
- NOAA Jet Stream-Heat Index <https://www.noaa.gov/jetstream/synoptic/heat-index>
- NWS Heat Watches and Warnings <https://www.weather.gov/safety/heat-ww>

Extreme Cold (Cold Wave)

The overall ratings of **Extreme Cold or Cold Wave** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Cold Wave	9.3	HIGH	0%	<=10 minutes	<5 minutes to > 2 hours for Frostbite Times	NOAA Wind Chill Temperature Index

A **cold wave** is a rapid fall in temperature within 24 hours and extreme low temperatures for an extended period. The temperatures classified as a cold wave are dependent on the location and defined by the local National Weather Service (NWS) weather forecast office.

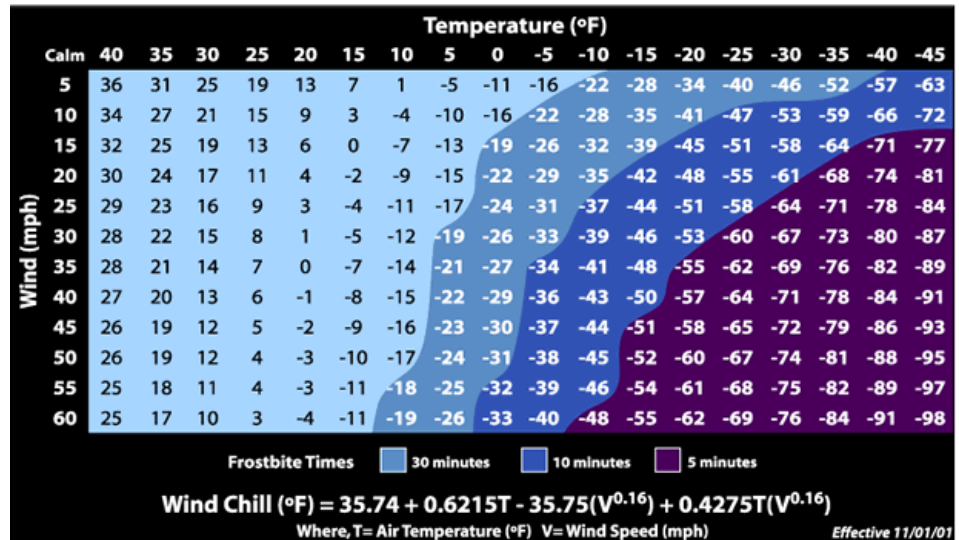
Extreme cold temperatures are associated with continental Arctic air masses. The actual temperatures reached depend specifically on the nature of the cold air mass and where it originated. In general, those from the Arctic regions are the coldest. Though cold temperatures are dangerous, they become more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

Extreme cold magnitude can be measured for **windchill** using the **NWS Windchill Temperature (WCT) Index**, 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.

Windchill Temperature & Wind Index



NWS Windchill Chart



To determine the wind chill temperature, find the value closest to outside air temperature and the value that most closely represents present wind speed. Wind chill temperature is the value where lines drawn from the air temperature and wind cross. The colder and windier, the faster frostbite and hypothermia will occur.

Cold weather warnings incrementally warn people of the dangers of **extreme cold**. The local

National Weather Service provides watches, advisories, and warnings of wind chill.

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

In addition to cold winds, the National Weather Service provides **extreme cold** guidance for several stages of weather alerts that are usually directed towards vegetation and crops. However, these freezing stages can also apply to watercourses, to animals kept outdoors or in barns, and to infrastructure such as bridges, dams, and roads (“black ice”).

Frost to Freeze Alerts	
* <b>Frost Advisory</b>  <b>BE AWARE</b>	A <b>Frost Advisory</b> is issued when areas of frost are expected or occurring, posing a threat to sensitive vegetation. Frost develops on clear, calm nights and can occur when the air temperature is in the mid-30°Fs. Each plant species has a different tolerance to cold temperatures.
* <b>Freeze Watch</b>  <b>BE PREPARED</b>	NWS issues a <b>Freeze Watch</b> when there is a potential for significant, widespread freezing temperatures (below 32°F) within the next 24-36 hours. A freeze watch is issued in the autumn until the end of the growing season and in the spring at the start of the growing season.
* <b>Freeze Warning</b>  <b>TAKE ACTION</b>	When temperatures are forecasted to go below 32°F for a long period of time, NWS issues a <b>Freeze Warning</b> . This temperature threshold kills some types of commercial crops and residential plants.
* <b>Hard Freeze Warning</b>  <b>TAKE ACTION</b>	NWS issues a <b>Hard Freeze Warning</b> when temperatures are expected to drop below 28°F for an extended period of time, killing most types of commercial crops and residential plants.

The **extreme cold** is difficult to define because what constitutes **extreme cold** varies in different parts of the country. Generally, in New Hampshire **extreme cold hazards** can arise through a combination of wind chill, below freezing cold temperatures, and winter storm events. In the Northeast, **extreme cold** means temperatures below zero (**-0°F**). Extended **extreme cold** durations are often referred to as cold snaps.



Although New Hampshire residents are used to frosts, freezes and vegetation protection, **extreme cold** may cause water pipes to freeze and burst in homes that are poorly insulated or without enough heat. The demand for additional heating fuel is necessary during **extreme cold** events, and often electricity failure is experienced during winter storms with **extreme cold**. Exposure to cold conditions can cause frostbite or hypothermia and become life-threatening. Infants, children, and elderly people are most susceptible. Most New Hampshire households are become used to winter storm events and use woodstoves, or propane or electric generators to keep homes warm during extreme cold when power failure occurs. Recommendations are to maintain at least **72** hours' worth of fuel, food, water, medical supplies, medications, and warm clothing in a storm emergency kit as well as to keep vehicles fueled.

Frostbite is damage to body tissue caused by **extreme cold**. A wind chill of **-20°F** will cause frostbite in just **30** minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose. Additional exposure can turn the appendage purple, a dangerous condition. If symptoms are detected, get medical help immediately. If help must wait, slowly re-warm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

Hypothermia is a potentially deadly condition when the body temperature drops to less than **95°F** through exposure to **extreme cold** or extended cold or water submersion. For those who survive, there are likely to be lasting kidney, liver and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. Take the person's temperature and if below **95°F**, seek medical care immediately. If help must wait, place the person into a lukewarm bath to warm the core gradually.

#### Extreme Cold Hazards Resource Links:

- NWS Windchill Chart  
<https://www.weather.gov/bou/windchill>
- NWS Wind Chill Warning vs. Watch  
<https://www.weather.gov/safety/cold-wind-chill-warning>
- FEMA Cold Wave Risk Index (Maps)  
<https://hazards.fema.gov/nri/cold-wave>

GEOLOGIC HAZARDS

Hazard Type	Main Hazard Category	Specific Hazards Included
Geologic	Earthquake/Landslide	Earthquake, Landslide

Earthquake

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Earthquake	3.0	LOW	0%	VI Strong (Yellow)	I Not Felt to X Extreme Shaking Intensity	USGS Modified Mercalli Intensity Scale
				4.5 MM	<1.5 Magnitude to 8> Magnitude	KGS Earthquake Moment Magnitude (Size) Scale, formerly Richter Magnitude

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 possibly snow avalanches, which are not considered relevant to Hopkinton’s geography. 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 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.

Because the first-used Richter scale method could not account for large magnitude (size) earthquakes, a new logarithmic (base 10) Moment Magnitude (MM) Scale was developed to better measure earthquake magnitude. For each number going up on the scale, the ground motion recorded by a seismograph is increased by tenfold (10 times). The Moment Magnitude records the *energy* of an earthquake.

An earthquake’s *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 4.18** 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 4.19

Modified Mercalli Intensity (MMI) and Earthquake Moment Magnitude (MM) Scales

Approx. Moment Magnitude (MM)	Modified Mercalli Intensity (MMI)	Damage Category	Perceived Shaking	Potential Impacts			
				People's Reaction	Furnishings	Built Environment	Natural Environment
< 3	I	Instrumental	Not felt	Not felt.	N/A	Passing truck vibrations and noises	Changes in level and clarity of well water are occasionally associated with earthquakes not felt by people
3 – 3.4	II	Just Perceptible	Weak	Felt by a few.	Delicately suspended objects may swing.	N/A	Trees and bodies of water sway.
3.5 - 4	III	Slight	Weak	Felt by several. Vibrations like a truck passing.	Hanging objects may swing appreciably. Vehicles rocked slightly.	N/A	N/A
4.1 – 4.4	IV	Moderate	Light	Felt by many. Sensation like heavy truck striking building.	Dishes rattle. Vehicles rocked noticeably.	Walls creak, windows rattle.	N/A
4.5 – 4.8	V	Rather Strong	Moderate	Felt by nearly all. Frightens a few.	Pictures swing out of place; small objects move; a few objects fall from shelves within the community.	A few instances of cracked plaster and cracked windows in the community.	Trees and bushes shaken noticeably.
4.9 – 5.4	VI	Strong	Strong	Frightens many. People move unsteadily	Many objects fall from shelves. Damage is slight.	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.

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

Source: compiled by CNHRPC, updated June 2023

Most earthquakes in the Central NH region are kilometers deep in bedrock and are of a <3 Magnitude. Little impact is observed or felt during these quakes.

Earthquake Hazards Resource Links:

- US Geological Survey Modified Mercalli Intensity Scale  
<https://www.usgs.gov/media/images/modified-mercalli-intensity-scale>
- US Geological Survey Earthquake Magnitude, Energy Release, Shaking Intensity  
<https://www.usgs.gov/programs/earthquake-hazards/earthquake-magnitude-energy-release-and-shaking-intensity>
- USGS ShakeMap Earthquake Instrumental Intensity  
<https://earthquake.usgs.gov/data/shakemap>
- Moment Magnitude  
<https://geokansas.ku.edu/measuring-earthquake-magnitude-and-intensity>

**Landslide**

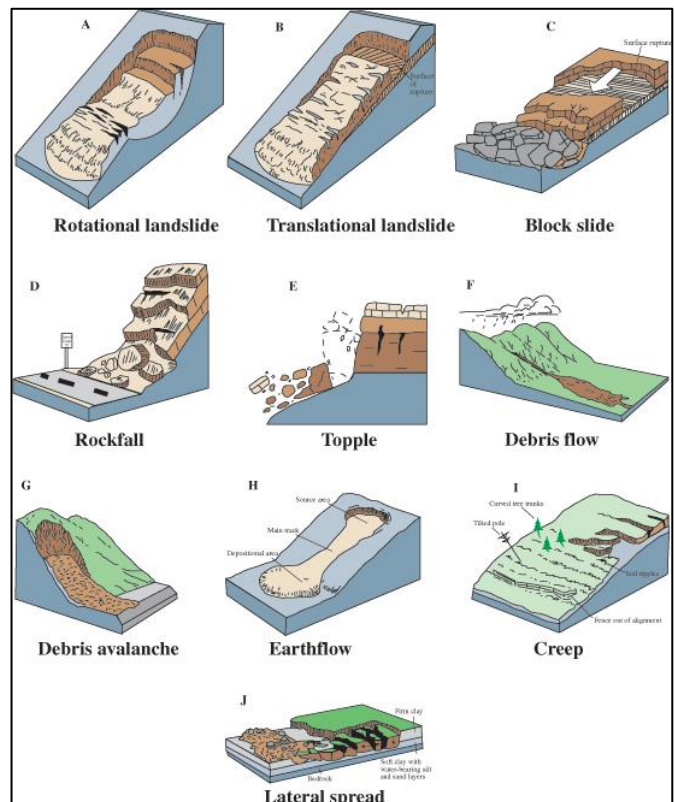
The overall ratings of **Landslide** in Hopkinton from the **HIRA** are:

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Landslide	1.0	LOW	0%	Relatively Low Risk (Blue)	Very Low Risk (Blue) to Very High Risk (Red)	No widely-used scale; FEMA National Risk Index Map

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** could damage or destroy State roads or local Class V roads, electrical and telephone lines, buildings, sewers, bridges, dams, forests, parks, and farms and landslides are dangerous to people. Different types of landslides could occur depending on geography and conditions.

There is no known standardized measurement of landslide magnitude available. However, FEMA’s National Risk Index Map of natural hazards includes landslides, so the Hazard Mitigation Committee chose to use their rating (Relatively Low Risk) for Merrimack County.

**USGS Basic Types of Landslides**



**Landslide Hazards Resource Links:**

- FEMA National Risk index Map (Landslides) <https://hazards.fema.gov/nri/map>
- USGS Landslide Hazards Program <https://www.usgs.gov/programs/landslide-hazards>
- USGS The Landslide Handbook—A Guide to Understanding Landslides <https://pubs.usgs.gov/circ/1325>

**BIOLOGIC HAZARDS**

Hazard Type	Main Hazard Category	Specific Hazards Included
Biologic	Public Health/Biological	Swimming Water Quality, Air Quality, Drinking & Surface Water Quality, Infectious Diseases, Arboviral Diseases, Tickborne Diseases, Substance Misuse

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
<b>Public Health/Biologic</b>	<b>8.0</b>	<b>HIGH</b>	<b>+25%</b>			
Swimming Water Quality				<b>Cyanobacteria at Elm Brook</b>	Bacteria Advisory to Bacteria Warning	NHDES Cyanobacteria/Public Beach Bacterial Warning Levels
Air Quality				<b>Very Unhealthy (Purple)</b>	Good to Hazardous Air Quality	NHDES Air Quality Index
Drinking & Surface Water Quality				<b>Red Severe</b>	Good Water Quality (Green) to Severe Water Quality (Red)	NHDES Watershed 305(b)Assessment Summary Reports by Watershed 2020-2022
Infectious Diseases				<b>High (Orange)</b>	Minimal (White - Very High (Red)	NHDHHS Acute Respiratory Activity by County (weekly map)
Arboviral Diseases				<b>High (Orange)</b>	No Risk (Yellow) to Very High Risk (Red)	NHDHHS Arboviral Risk Map by Town (annual)
Tickborne Diseases				<b>260 cases/year (Merr Cty)</b>	Rate Per 100,000 persons - Latest 2017-2021 (4 years) = 131 (Merr Cty), 101 (Hills Cty)	NH DHHS Reported Cases of Lyme Disease by County 2017-2021
Substance Misuse				<b>1-25 EMS Drug Overdose/Abuse Incidents/ year</b>	NH DHHS Drug Monitoring Initiative (Map) Monthly and YTD	NH DHHS Drug Monitoring Initiative

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 Hopkinton. 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 **black-legged ticks** in the Town's heavily forested sections and into State Forests. The **coronavirus** global pandemic is contagious between humans in aerosol /droplet form and is much more contagious and deadly than influenza.

Other wide-spread public health hazards include **water quality degradation** (failing septic systems, flooding, pipes breaking, runoff, haz mat spills) 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.

The NH DHHS maintains [NH Health WISDOM](#), a database portal 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 in the state at any given time.

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 Hopkinton. The Town of Hopkinton is an active member of the [Capital Area Public Health Network](#) and has a designated Point of Dispensing (POD) location at the NH Technical Institute Community College in Concord.

### **Biological Infestation**

Depending on the type of biological invasive species, a different State department monitors and reports their appearance within New Hampshire.

#### **Invasive Insect Pests**

The [NH Department of Agriculture, Markets and Foods Division of Plant Industry's](#) mission is to promote and protect plant health by curtailing the spread of dangerous insects, diseases and weeds moved in commerce. A biological pest, the [Emerald Ash Borer](#), has consumed most of the Central NH Region's ash trees. Only a minority have not been infected. Active logging operations are asked to identify them. The [Hemlock Woolly Adelgid](#) and [Elongate Hemlock Scale](#) are infesting hemlock trees, and the [Red Pine Scale](#)



are infesting our local pine trees (hyperlinks lead to recent NH maps of known infestations). These forest problems have been increasing over the years in Merrimack County and surrounding areas.

### Invasive Land Plants

Invasive plants like need to be managed or removed. The [NH Department of Agriculture, Markets and Foods Division of Plant Industry](#) (NHDAMF) also regulates invasive upland plants: It is illegal in New Hampshire to collect, transport, sell, distribute, propagate or transplant any living or viable portion of any listed prohibited invasive plant species including all of their cultivars, varieties, and specified hybrids.

### Invasive Aquatic Plants and Insects

The NHDES hosts an [invasive aquatic species program](#) and maintains a [statewide map of the invasive aquatic plant infestations](#) along with an accompanying [list of infested waterbodies](#). and invertebrate pest species and [NH Fish and Game](#) regulating invasive aquatic invertebrates. For public waters throughout the region, the NHDES Volunteer Rivers AP and NH Lakes Association can check help monitor [invasive water species](#).

### Public Beach Monitoring

The NH Department of Environmental Services [Public Beach Inspection Program](#) regularly tests public beaches, both freshwater and saltwater, for the presence of bacteria, like cyanobacteria and e. coli, and dangerous species like jellyfish. Cyanobacteria advisories are issued when there are blooming conditions and cyanobacteria cell concentrations exceed 70,000 cells/ml in recreational waters. Freshwater beach standards for e. coli is 1 sample > 158 counts/100 ml.

**Milfoil** infestation can occur on public ponds of 10 acres or greater. Rivers can carry invasive species like **zebra mussels**. The US Army Corps of Engineers public beach at Elm Brook State Park off the Contoocook River is subject to such biological hazards, having regularly been closed for cyanobacteria. The [NHDES OneStop](#) data resource center can be accessed to provide reports on potential water hazards.

### Cyanobacteria

Blooms are dynamic. Cyanobacteria are natural components of water bodies worldwide, though blooms and surface scums may form when excess nutrients are available to the water. Some cyanobacteria produce toxins that are stored in the cells and released into the water when the cells die. Toxins can cause both acute and chronic health effects that vary in severity. Acute health effects include irritation of the skin and mucous membranes, tingling, numbness, nausea, vomiting,



*Cyanobacteria Bloom in Loudon, 2022*

seizures, and diarrhea. Chronic effects may include liver and central nervous system damage. Be cautious of lake water that has a surface scum, changes colors, or appears to have green streaks or blue-green flecks aggregating along the shore.

If a person or animal is sick from a potential cyanobacteria exposure, please seek medical attention. Inform your physician or veterinarian that you or your pet may have been exposed to toxic cyanobacteria via recreation.

The NHDES Public Beach Monitoring system tests for cyanobacterial conditions at certain known, specific swimming areas. The mapping system includes Warnings, Advisories, and Alerts for fecal bacteria and cyanobacteria at <https://experience.arcgis.com/experience/180c28fa3a4c4371a9771d999454e8c4/>. No river, lake or pond locations are monitored by this program in Hopkinton, although the Town-owned Kimball Pond/Kimball Lake between US 202 and I-89 is used as the Town beach and Elm Brook State Park is used for recreation including as a beach.

Public Beach Safety	
<b>WARNING</b>	CLOSED- Bacteria levels exceed recreational health threshold of 70,000 cells/ml (cyanobacteria)
<b>ADVISORY</b>	CLOSED – Continued weekly sampling and likely bacteria/toxin exposure
<b>ALERT</b>	POSSIBLE Bacterial Alert – stay wary
<b>OK</b>	NO Advisory or Advisory Removed

**Swimming Warning (Advisory)**

Advisories are lake-wide warnings issued when cyanobacteria cell counts exceed the recreational health threshold of 70,000 cells/mL. Surface blooms can rapidly change and accumulate in various locations around a waterbody. Please continue to monitor shorelines for changing conditions. NHDES advises lake users to avoid contact with the water in areas experiencing blooms. Pets and livestock should also be kept out of the water.

When an advisory is issued, resampling is performed weekly until the bloom subsides. Advisories are issued from May 15 through October 15. Advisories are not based on toxin evaluation but occur at cyanobacteria cell count densities when toxin production may be likely and are intended as a precautionary measure for short term exposure to cyanotoxins.

**Swimming Alert**

Alerts are issued 1) based on a photo before NHDES can analyze a sample; 2) when the cyanobacteria density is approaching the recreational health threshold but does not yet exceed it; or 3) if a bloom was reported but may have passed by the time a sample was reviewed but could reoccur. Alerts are intended to serve as statements to be on the watch for a potential cyanobacteria bloom. Waterbody users should avoid contact with bloom material and keep pets and livestock out of the water. Sometimes alerts become advisories, and sometimes they pass. Alerts remain active for a week. Resampling only occurs if further bloom reports are submitted. Alerts are issued year-round as needed.

**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 calculates Total Maximum Daily Load (TMDL) reports of pollutants for the state’s water every two years.

**Surface Water Quality**

**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. Various publications describe 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.

Although there is no recognized, universal water quality index, state and federal testing is completed to ensure the quality of New Hampshire’s **surface waters**. NHDES completed recent Water Quality Assessments (Section 305(b) of the Clean Water Act) of the state’s rivers and brooks, covering all of Hopkinton’s waters with a comprehensive report within each watershed. An assessment summary is provided for aquatic life, fish consumption, swimming, and boating.

<b>Watershed 305(b) Water Quality Assessment Index</b>	
<b>Good (2-Good)</b>	Meets water quality standards/thresholds by a relatively large margin.
<b>Marginal (2-Marginal, 2-OBS)</b>	Meets water quality standards/thresholds, but only marginally.
<b>Likely Good (3-PAS)</b>	Limited data available. However, the data available suggests the parameter is Potentially Attaining Standards (PAS).
<b>No Current Data (3-ND)</b>	Insufficient information to make an assessment decision.
<b>Likely Bad (3-PNS)</b>	Limited data available. However, the data available suggests the parameter is Potentially Not Supporting (PNS) water quality standards.
<b>Poor (4A, 4B, 4C)</b>	Not meeting water quality standards/thresholds. The impairment is marginal.
<b>Severe (5-Poor)</b>	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.

Like most Central NH region towns, fish consumption from local waters in Hopkinton is unadvisable. Figure 4.B displays an excerpt of the latest surface water assessment.

Figure 4.B  
Hopkinton Water Quality Assessment Excerpt 2020/2022



Assessment Unit ID	Map Label	Assessment Unit Name	Aquatic Life	Fish Consump.	Swimming	Boating
NHIMP700030505-01	I*01	Martin Dam		4A-M	3-ND	3-ND
NHIMP700030505-02	I*02	Hardy Spring Brook - Wildlife Pond	3-ND	4A-M	3-ND	3-ND
NHIMP700030505-03	I*03	Contoocook River - Hoague-Sprague Dam	3-ND	4A-M	3-ND	3-ND
NHIMP700030505-04	I*04	Contoocook River - Contoocook Village Dam	3-ND	4A-M	3-ND	3-ND
NHIMP700030505-05	I*05	Unnamed Brook - Recreation Pond Dam	3-ND	4A-M	3-ND	3-ND
NHIMP700030505-06	I*06	Unnamed Brook - Farm Pond Dam	3-ND	4A-M	3-ND	3-ND
NHLAK700030505-01	L*01	Clement Pond	4A-M	4A-M	3-PAS	3-ND
NHLAK700030505-01-02	L*01-02	Clement Pond - Camp Merrimac Beach	3-ND	4A-M	2-M	2-G
NHLAK700030505-03	L*03	Grassy Pond	3-ND	4A-M	3-ND	3-ND
NHLAK700030505-04	L*04	Rolf Pond	3-ND	4A-M	3-ND	3-ND
NHLAK700030505-04-01	L*04-01	Rolf Pond - Sandy Beach Campground Beach	3-ND	4A-M	2-G	2-G
NHLAK700030505-05	L*05	Carr Pond	5-P	4A-M	3-ND	3-ND

Drinking Water Quality

Drinking water quality is a separate issue from surface water and is testing handled differently. According to the NHDES Drinking Water and Groundwater Bureau, naturally occurring contaminants are common in groundwater in New Hampshire. About half of the state’s bedrock wells have radon at levels of concern and an estimated 30% have arsenic at levels that exceed the 5 ppb limit that is enforceable in public water systems. Iron and manganese are also quite common at levels that taste bad or cause staining of laundry or fixtures. Manganese may also occur at potentially unsafe levels. Fluoride, beryllium, and radionuclides other than radon are less common but do occur naturally at levels of concern for human consumption throughout the state. Dug wells are less likely to have problems with minerals (arsenic, radon, etc.) but are more likely to have issues with bacteria low pH, road salt and nitrate. New, rising contaminants like Per- and Polyfluorinated Substances (PFAS) are being discovered in water supplies.

Most Hopkinton residents use private drilled wells for their water consumption. Any testing is completed, or mitigation installed, at the desire and expense of the property owner.

Those who obtain drinking water from public water systems have a regular testing schedule for contaminants, with an annual report available to customers. NHDES may require a water system to implement a drinking water advisory to protect public health. Such advisories may be



issued after detection of E. coli bacteria, a nitrate or nitrite exceedance, a lapse in system integrity, failure of a treatment process, or suspicion of other water-borne pathogens. Drinking water advisories are posted on the NH DES website and customers are notified locally.

In Hopkinton, the Hopkinton Village Precinct’s Water Department covers the compact area of Main Street, South Road, NH 103, Hill Road and Briar Hill Road and includes Kimball Lake. The Village Precinct provides water services with a total distribution length of around 17,000 pipe feet. Annual reports about water quality and testing results are provided to customers.

**Air Quality**

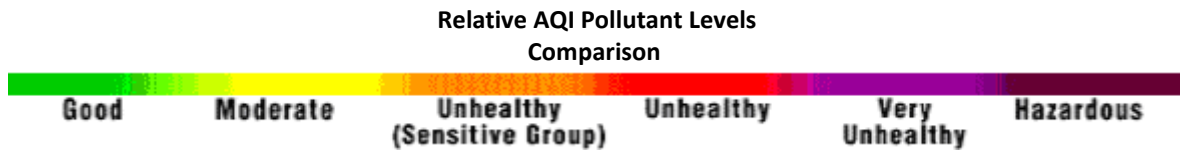
**Air quality** is a particular danger to the young, elderly people, and those with Chronic Obstructive Pulmonary Diseases (COPD), asthma and other breathing diseases. Ground level ozone and particle pollution are monitored, reported and forecasted for New Hampshire counties. The [Map of Current Air 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’s air is also impacted by industries and wildfires across the United States and Canada. Greenhouse gases from industrial pollution and manufacturing contributes to poor **air quality**.

The US EPA places these categories into an Ozone and Particulate Pollution table that provides a particulate value of indices to use for magnitude:

**Table 4.20  
EPA Air Quality Index (AQI) Basics for Ozone and Particle Pollution**

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
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**Infectious Diseases**

The *2023 State Multi-Hazard Mitigation Plan* includes **Infectious Diseases** as a natural hazard. From this resource, the definition and extent of the potential magnitude of public health threats are identified as follows. These disease levels are described at the US Center for Disease Control (CDC) and included measures New Hampshire has been practicing for COVID-19, including masking, social distancing, staying at home, and quarantine. However, the levels have been archived by the CDC and are no longer actively published.

The magnitude and severity of infectious and/or respiratory diseases are described by 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 diseases relates to the disease occurrence:

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

The NH Department of Health and Human Services Infectious Disease Control provides information about all types of illnesses spread by community transmission. These illnesses include, but are not limited to flu, sexually transmitted infections, illnesses someone has gotten while in a hospital or other healthcare setting, hepatitis, tuberculosis, Legionnaires disease or HIV, rabies, and Lyme disease.

### Coronavirus (Respiratory Infectious)

Coronaviruses are a large family of viruses, but only several types are known to commonly cause infections in people, with these common human coronaviruses usually causing mild to moderate respiratory illness (like the common cold). Newer human coronaviruses, like Severe Acute Respiratory Syndrome (SARS), Middle Eastern Respiratory Syndrome (MERS), and the COVID-19 can cause more severe symptoms. The COVID-19 disease is originally thought to have spread from animals to humans, but now person-to-person spread is occurring. The virus is spread through the air by coughing and sneezing; by close personal contact, such as touching or shaking hands; and by touching an object or surface with the virus on it, then touching mouth, nose, or eyes before washing hands.

During **March 2020-May 2023** when COVID-19 was extremely active and contagious, the NH Department of Health and Human Services maintained a [COVID-19 dashboard website](#) with current information, statistics, legislation, and testing locations, and resources. Community practices such as social distancing (staying at least **6** feet away from people outside of one's household), wearing cloth or medical facial masks, sanitizing hands, monitoring for symptoms, working from home, remote schooling, and staying at home when possible are the ways to fight the COVID-19. Vaccinations and boosters were necessary and are now an annual (endemic) necessity. Even four years after the pandemic, people throughout the New Hampshire and United States recall feeling stifled and restricted and despite the new variants and the endemic nature of COVID-19, often disregard the community protection practices. With home testing and self-isolation, it is not possible to track new cases unless hospitalization occurs.

Johns Hopkins Coronavirus Resource Center reports in New Hampshire a total of **378,428** confirmed cases and **3,003** deaths from COVID-19, with nearly **73%** of the state's population fully vaccinated. Johns Hopkins stopped collecting data as of **March 10, 2023**, resulting in three years of global data. These figures correlate with data formerly posted by the NH DHHS.

Through March 10, 2023, Johns Hopkins reports nearly **104 million** positive cases in our country and over **1.1 million** people have died in the United States alone from COVID-19 complications. Globally, nearly **677 million** people tested positive and nearly **6.9 million people** died during this time.

Since **March 2, 2020**, a total of **1,354** cases had officially tested positive in Hopkinton through **May 2023**. But with time and home testing, the actual figure will be much higher: the number of cases are sure to be under-reported and under-counted, especially as new variants arise and extend the endemic stage of the coronavirus.

### Influenza (Respiratory Infectious)

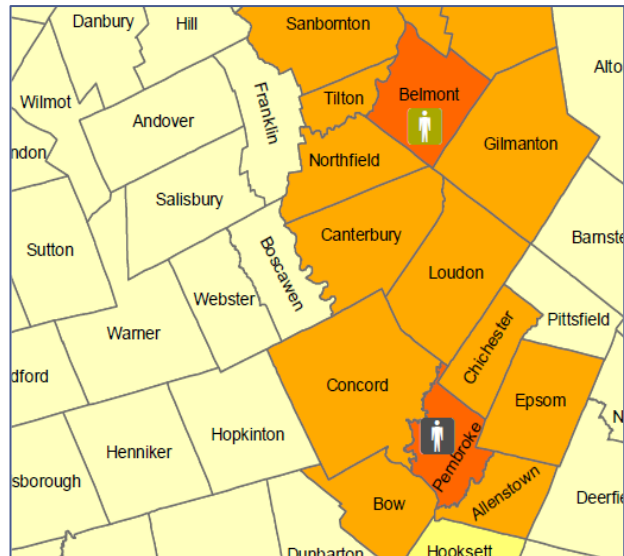
Each week during the flu season, the NH DHHS undertakes Acute Respiratory Illness (ARI) Surveillance by county and produces a state-wide map indicating the levels of likely infection. Its color-codes indices are Minimal (white), Low (light green), Moderate (green), Elevated (orange), High (dark orange), and Very High (red).

The COVID-19 pandemic made plans like the *State of New Hampshire Influenza Pandemic Public Health Preparedness and Response Plan 2007* obsolete and no longer available to the public. Few new public health plans have been developed and published for public access, although practices and procedures have arisen to meet the newest public health challenges after consulting with the Centers for Disease Control and Prevention (CDC). As a growing high-density community, Hopkinton may be particularly vulnerable to influenza-like respiratory illnesses.

**Arboviral Transmission Diseases**

Annually, the [NH DHHS publishes the State of New Hampshire Arboviral Illness Surveillance, Prevention, and Response Plan](#) and its associated [Arboviral Risk Map 2023](#). There are 44 species of mosquitos in New Hampshire, but only some species carry Eastern Equine Encephalitis Virus (EEEV), an alphavirus maintained in wild birds; West Nile Virus (WNV), a flavivirus also maintained in wild birds; or Jamestown Canyon Virus (JCV), a bunyavirus maintained in deer. The mosquitos can then infect people, horses, and other animals. Human cases of arboviral transmitted diseases are uncommon but can be severe, resulting in neurologic conditions ranging to death.

Arboviral Risk Map Excerpt 2023



New mosquito-borne illnesses are being identified in New Hampshire over time, with WNV in 2000, EEEV in 2004, and JCV in 2013. Testing and surveillance are also conducted for St. Louis Encephalitis (SLE) and Powassan Virus (POWV). Risk levels are Baseline (white), Low (yellow), Moderate (orange), High (dark orange), and Very High (red).

**Tickborne Transmission Diseases**

With the transition to warmer weather, tickborne diseases are increasing in New Hampshire. These five are Lyme Disease, Anaplasmosis, Babesiosis, Powassan Virus, and Borrelia miyanotoi. In New Hampshire, these diseases are all transmitted by the bite of the black legged tick, formerly known as the deer tick. Other tickborne diseases such as ehrlichiosis, tularemia and Rocky Mountain Spotted Fever can be caught when traveling to other parts of the country, including other New England states.

The State posts factsheets and other resources such as the [State of NH Tickborne Disease Prevention Plan 2015](#) to raise awareness and educate people how to avoid tick bites and when to seek medical attention. [Tick Free NH](#) is another popular educational resource site.



In **2019**, the NH DHHS ceased tracking Lyme disease and other tickborne diseases for the public by Town (county data is available to 2021). In **2019**, Hopkinton had a reported case number of greater than **200** infected people that year. Since that time, no specific increase in Lyme Disease or tickborne diseases in Hopkinton residents has been anecdotally noted but there is no publicly available data to support this conclusion.

### Substance Misuse

New Hampshire has seen a rise in the number of heroin and opioid deaths over the last few years. Even Hopkinton has been subject to additional calls for service for overdose. Along with the use of these substances is a commensurate amount of buying and/or making of illegal drugs. The State has made national headlines since **2014** for its problems with overdoses and its public recognition of the problem, and the lack of State medical examiner staff overall to determine the cause of death of suspected overdose decedents.

By **2023**, overdose from opioids (up **6%**), meth (up **54%**), and cocaine (up **56%**) had increased in the state in comparison with previous years. Fentanyl was present in **324** of the **381** confirmed overdose deaths in **2023**. The New Hampshire Drug Monitoring Initiative (DMI) contains an online map and data viewer portraying the state's and counties' statistics for EMS suspected drug overdose or abuse incidents, EMS Narcan administration, opioid-related emergency department visits, drug overdose deaths, and other metrics by month and year. The data available to the public is aggregated by county, but health care personnel and emergency responders may have more specific figures available for communities. Hillsborough County had the highest number of overdose deaths at **3.4** deaths per **10,000** population; Merrimack County in which Hopkinton is located had **2.02** overdose deaths per **10,000** people. In Hopkinton in **2023**, between **1-5** people died from overdose, as confirmed by the State Medical Examiner's Office. For Merrimack County, the age group of **30-39** years old has the greatest number of drug overdose/abuse logs. Prescription drug take back boxes at local Police Departments and events that advertise their ability encourage the responsible disposal of drugs and medications.

The NH DHHS and the Capital Area Public Health Network should be notified of all public health infectious emergence threats.

#### Public Health Hazards Resource Links:

- NH Department of Environmental Services (NHDES) Healthy Swimming Mapper  
<https://experience.arcgis.com/experience/180c28fa3a4c4371a9771d999454e8c4>
- NHDES Health Advisories: Beach, Air Quality Action, Drinking Water (Data & Mapper)  
<https://www.des.nh.gov/advisories>
- NHDES Water Quality Assessment Total Maximum Daily Load (TMDL)  
<https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment>
- NHDES Water Quality Assessment Mapper and Report  
<https://www.arcgis.com/apps/webappviewer/index.html?id=d1ba9c5ec85646538e032580e23174f7>

DRAFT

- NHDES Drinking Water Advisories  
[https://www4.des.state.nh.us/Advisories/Drinking\\_Water](https://www4.des.state.nh.us/Advisories/Drinking_Water)
- NHDES Drinking Water and Groundwater Bureau  
<https://www.des.nh.gov/water/drinking-water>
- NH Department of Health and Human Services (NH DHHS) COVID-19 Dashboard  
<https://www.nh.gov/covid19/index.htm>
- NH DHHS Mosquito-Born Illnesses Tracking and Information  
<https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control/mosquito-borne-illnesses>
- NH DHHS Infectious Disease Control  
<https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control>
- NH DHHS Drug Monitoring Initiative (DMI) Data Reports  
<https://www.dhhs.nh.gov/programs-services/health-care/substance-misuse-data-page>
- NH DHHS WISDOM  
<https://wisdom.dhhs.nh.gov/wisdom/#main>
- NH DHHS Tick-Born Illnesses Tracking and Information  
<https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control/tickborne-diseases>
- Capital Area Public Health Network  
<http://www.capitalareaphn.org>
- Centers for Disease Control (CDC) Travel Alert Levels for Outbreak and Disease  
<https://wwwnc.cdc.gov/travel/notices>
- US Environmental Protection Agency (US EPA) Air Quality Index  
<https://www.airnow.gov/aqi/aqi-basics>
- Johns Hopkins Coronavirus Resource Center  
<https://coronavirus.jhu.edu/region/us/new-hampshire>

HELIOSPHERIC HAZARDS

Hazard Type	Main Hazard Category	Specific Hazards Included
Heliospheric	Solar	Geomagnetic Storms, Solar Radiation, Radio Blackout

Solar storms and space weather 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.

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.

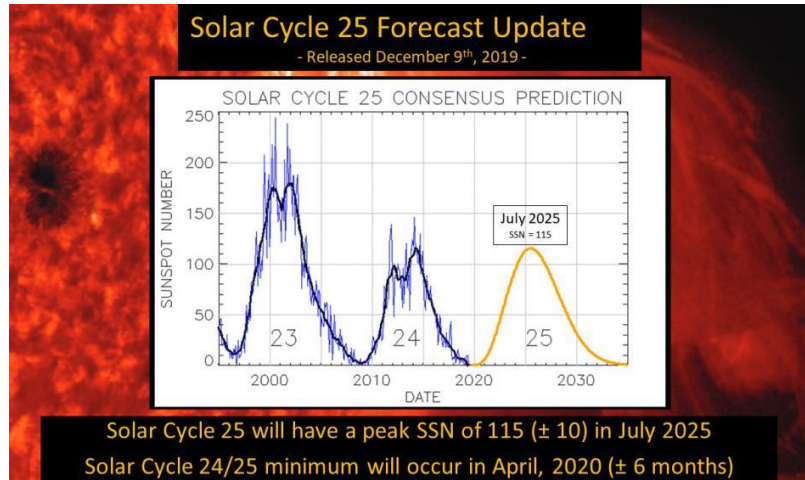
Solar Storms

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

Natural Hazard Event	HIRA Overall Risk 1-16	HAZARD CONCERN SUMMARY	Intensity Change % Next 10 Yrs	Highest Magnitude Next 10 Yrs	Scale Range	Scientific Scales Used
Solar Storms	2.0	LOW	+25%			
Geomagnetic Storms				G3 Strong	G1 Minor to G5 Extreme Geomagnetic Storm	NOAA Geomagnetic Storms Scale
Solar Ration				S3 Strong	S1 Minor to S5 Extreme Solar Radiation	NOAA Solar Radiation Storms Scale
Radio Blackout				R3 Strong	R1 Minor to R5 Extreme Radio Blackouts	NOAA Radio Blackouts Scale

The Sun's activity cycle, called the "solar cycle," takes approximately 11 years during which the Sun’s magnetic field flips and the Sun's north and south poles switch places. Then it takes about another 11 years for the Sun’s north and south poles to flip back again. The Sun is now in Solar Cycle 25 according to NASA, which began in December 2019 at the minimum end of Solar Cycle 24, which was considered a weak cycle.

For Solar Cycle 25, solar activity is expected to ramp up until the predicted solar maximum as early as 2024, but this cycle is also predicted to be a weak cycle. The solar cycle affects activity on the surface of the Sun, such as sunspots which are caused by the Sun's magnetic fields. As the magnetic fields change, so does the amount of activity on the Sun's surface. Giant eruptions on the sun, such as solar flares and coronal mass ejections, increase during the solar cycle. These eruptions send powerful bursts of energy and material into space. When the sun's magnetic poles flip, the effects ripple through the solar system since the heliosphere — the region of space influenced by the solar wind — extends billions of miles beyond Pluto.



Magnitude scales for solar storm impacts, **Geomagnetic Storms (G)**, **Solar Radiation Storms (S)**, and **Radio Blackout (R)** are provided in **Table 4.21**, **Table 4.22**, and **Table 4.23** respectively. The Kp is the planetary disturbance index, with 9 the highest.

**Table 4.21**  
**Solar Storms: Geomagnetic Storm (G) Magnitude Scale**

Magnitude Scale	Description	Effect of Geomagnetic (G) Storm	Frequency Per Solar Cycle
<b>GEOMAGNETIC STORM (G)</b>			
<b>G1 Geomagnetic</b>	<b>Minor</b> Kp=5	<ul style="list-style-type: none"> <li>✦ Power systems: Weak power grid fluctuations can occur.</li> <li>✦ Spacecraft operations: Minor impact on satellite operations possible.</li> <li>✦ Other systems: Migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).</li> </ul>	1,700 per cycle (900 days per cycle)
<b>G2 Geomagnetic</b>	<b>Moderate</b> Kp=6	<ul style="list-style-type: none"> <li>✦ Power systems: High-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage.</li> <li>✦ Spacecraft operations: Corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions.</li> <li>✦ 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.).</li> </ul>	600 per cycle (360 days per cycle)
<b>G3 Geomagnetic</b>	<b>Strong</b> Kp=7	<ul style="list-style-type: none"> <li>✦ Power systems: Voltage corrections may be required, false alarms triggered on some protection devices.</li> <li>✦ 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.</li> <li>✦ 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.).</li> </ul>	200 per cycle (130 days per cycle)
<b>G4 Geomagnetic</b>	<b>Severe</b>	<ul style="list-style-type: none"> <li>✦ Power systems: Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid.</li> </ul>	100 per cycle

Magnitude Scale	Description	Effect of Geomagnetic (G) Storm	Frequency Per Solar Cycle
	Kp=8	<ul style="list-style-type: none"> <li>✦ Spacecraft operations: May experience surface charging and tracking problems, corrections may be needed for orientation problems.</li> <li>✦ 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.).</li> </ul>	(60 days per cycle)
G5 Geomagnetic	Extreme Kp=9	<ul style="list-style-type: none"> <li>✦ 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.</li> <li>✦ Spacecraft operations: May experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites.</li> <li>✦ 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.).</li> </ul>	4 per cycle (4 days per cycle)

Table 4.22

Solar Storms: Solar Radiation (S) Magnitude Scale

Magnitude Scale	Description	Effect of Solar Radiation (S) Storm	Frequency Per Solar Cycle
<b>SOLAR RADIATION (S)</b>			
S1 Solar Radiation	Minor	<ul style="list-style-type: none"> <li>✦ Biological: None.</li> <li>✦ Satellite operations: None.</li> <li>✦ Other systems: Minor impacts on HF radio in the polar regions.</li> </ul>	50 per cycle
S2 Solar Radiation	Moderate	<ul style="list-style-type: none"> <li>✦ Biological: Passengers and crew in high-flying aircraft at high latitudes may be exposed to elevated radiation risk.</li> <li>✦ Satellite operations: Infrequent single-event upsets possible.</li> <li>✦ Other systems: Small effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected.</li> </ul>	25 per cycle
S3 Solar Radiation	Strong	<ul style="list-style-type: none"> <li>✦ 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.</li> <li>✦ Satellite operations: Single-event upsets, noise in imaging systems, and slight reduction of efficiency in solar panel are likely.</li> <li>✦ Other systems: Degraded HF radio propagation through the polar regions and navigation position errors likely.</li> </ul>	10 per cycle
S4 Solar Radiation	Severe	<ul style="list-style-type: none"> <li>✦ Biological: Unavoidable radiation hazard to astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</li> <li>✦ 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.</li> <li>✦ Other systems: Blackout of HF radio communications through the polar regions and increased navigation errors over several days are likely.</li> </ul>	3 per cycle
S5 Solar Radiation	Extreme	<ul style="list-style-type: none"> <li>✦ 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.</li> <li>✦ 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.</li> <li>✦ Other systems: Complete blackout of HF (high frequency) communications possible through the polar regions, and position errors make navigation operations extremely difficult.</li> </ul>	Fewer than 1 per cycle

Table 4.23

Solar Storms: Radio Blackout (R) Magnitude Scale

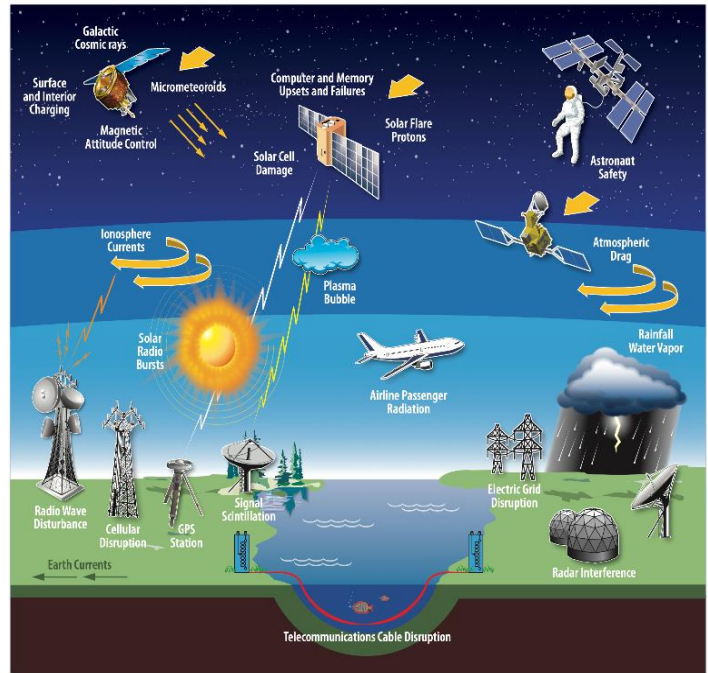
Magnitude Scale	Description	Effect of Radio Blackout (R)	Frequency Per Solar Cycle
<b>RADIO BLACKOUT (R)</b>			
<b>R1 Radio Blackouts</b>	<b>Minor</b>	<ul style="list-style-type: none"> <li>✦ HF Radio: Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and en route aviators in this sector.</li> <li>✦ 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.</li> </ul>	2,000 per cycle (950 days per cycle)
<b>R2 Radio Blackouts</b>	<b>Moderate</b>	<ul style="list-style-type: none"> <li>✦ 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.</li> <li>✦ 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.</li> </ul>	350 per cycle (300 days per cycle)
<b>R3 Radio Blackouts</b>	<b>Strong</b>	<ul style="list-style-type: none"> <li>✦ HF Radio: Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth.</li> <li>✦ Navigation: Low-frequency navigation signals degraded for about an hour.</li> </ul>	175 per cycle (140 days per cycle)
<b>R4 Radio Blackouts</b>	<b>Severe</b>	<ul style="list-style-type: none"> <li>✦ 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.</li> <li>✦ 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.</li> </ul>	8 per cycle (8 days per cycle)
<b>R5 Radio Blackouts</b>	<b>Extreme</b>	<ul style="list-style-type: none"> <li>✦ 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.</li> <li>✦ 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.</li> </ul>	Less than 1 per cycle

Many residents in the Central NH region enjoy the aurora borealis viewed from Mount Kearsarge, visible to Hopkinton in the north, although when this phenomenon occurs, a geomagnetic storm is reaching New Hampshire. Emergency response personnel could monitor these storms from the Mount Kearsarge Fire Tower in Warner or from Pat’s Peak in Henniker, or possibly the Oak Hill Fire Tower in Loudon. From an individual standpoint, little can mitigate the impacts of space weather.

Solar Weather Hazards Resource Links:

- NOAA Space Weather Prediction Center Solar Cycle 25 Forecast Update  
<https://www.swpc.noaa.gov/news/solar-cycle-25-forecast-update>
- NOAA Space Weather Scales  
<https://www.swpc.noaa.gov/noaa-scales-explanation>
- NOAA's Space Weather Prediction Service  
<https://www.swpc.noaa.gov>

NASA Potential Space Weather Impacts



NON-NATURAL HAZARDS

Hazard Type	Main Hazard Category	Specific Hazards Included
Haz Mat	<b>Hazardous Materials/ Radiological</b>	Hazardous Materials, Radiological
Human	<b>Human Hazard</b>	Crash, Mass Casualty Incident, Cyber Event, Terrorism/ Violence
Technological	<b>Technological</b>	Aging Infrastructure, Conflagration (Fire), Long Term Utility Outage

Because the **Hazard Mitigation Plan 2024** has a distinct focus on natural hazards, there will be little examination of human or technological hazards which can be described and acted upon in the local *Emergency Operations Plan*. While an effort will be made to concentrate discussions and evaluation on the natural hazards, there will be no magnitude, extent, or indices descriptions of non-natural hazards.

There is often some overlap between **Hazardous Materials** and **Technological Hazards** as secondary hazard effects of natural hazard events or disasters. A **flood** can cause an old bridge (**Aging Infrastructure**) to fail; **high winds** can cause electric lines to fall (**Utility Outage**). It is acknowledged that **Human**, **Technological**, and **Hazardous Materials** hazards could occur in Hopkinton, and that the existing preparedness, response, and recovery plans and teams across the region will participate to fix the issues. These non-natural hazards are often noted when discussing the impacts of natural hazards or mitigation because they are often the easiest to mitigate.

Hazardous Materials/Radiological

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 the program of holding biennial



municipal Household Hazard Waste (HHW) collection days is crucial to helping to maintain a healthy environment for Hopkinton's residents.

Radiological hazards are unlikely to occur unless at occupational sites or along transportation routes during vehicle crashes. Hopkinton is outside of the 50-mile Emergency Planning Zone (EPZ) for Seabrook Nuclear Power Plant. Nuclear power plants produce roughly 20% of the nation's power and 3 million Americans live within 10 miles of a nuclear power plant, but most are being phased out. 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.

### 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 Route 4/202 or US Route 3; on NH Route 3A, NH Route 9, NH Route 13, NH Route 28, NH Route 31 NH Route 49, NH Route 77, NH 103, NH Route 106, NH Route 107, NH 114, NH Route 127, NH Route 129 and NH Route 132 or on their bypasses, interchanges, Exits and on/off ramps. These are high speed corridors with high traffic volumes. Many local roads allow for residential and commuter vehicles at low speeds. A vehicle-pedestrian or vehicle-bicycle crash has a greater casualty rate on the local and state roads as different road users use the same limited space.

In the region, the railroad lines along the Merrimack River create the potential for a (railcar) transportation accident. Trains could potentially derail, causing injuries or fatalities and hazardous materials spills. In the Central NH Region, the Concord-Lincoln Line runs 73 miles between Concord and Lincoln. The New Hampshire Maine Line runs between Concord, Nashua and Lowell, MA. Several communities through which these lines travel have expressed the concern about hazardous material spills due to transportation crashes or sabotage. Concord Municipal Airport is a small airport in the Central NH region used by private small planes, but Manchester-Boston Regional Airport (MHT) can be accessed via I-293 in about 45 minutes. Air traffic can also be hazardous to the region's citizens. Small air traffic sites such as JBI Helicopter in Pembroke, local helipads in communities, and small private air strips increase the chances for a possible aviation crash, especially in the higher elevations around Mount Kearsarge and Pat's Peak. With the technological prominence of personal drones that can be flown within site of the user, possibilities for drone crashes with people, infrastructure or vehicles increase.

### Mass Casualty Incident

**Mass casualty** is the situation for which local, regional, state and national personnel train for treating large numbers of people who are injured from any natural, human or technological disaster. The Central NH Region has many partners for mass casualty training and preparation. [Capital Area Public Health Network](#) (CAPHN) works to promote, protect, and improve the health and well-being of communities within the

Capital Area of New Hampshire through the proactive, coordinated, and comprehensive delivery of essential public health services. These include substance misuse prevention, suicide prevention, public health emergency preparedness, vaccinations, and more. The staff works with area emergency management directors. Across New Hampshire, there are **13** regional public health networks.

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

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

### Terrorism/Violence

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

### **Sabotage/Vandalism**

**Sabotage** is a deliberate action aimed at someone or some institution 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. Vandalism is the willful defacement or destruction of property.

### 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 situation results 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 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 oriented toward 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, Hopkinton's local government and residents should be prepared to address **cyber events** in the various and growing forms they take.

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**.

### 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 Interstate 89, US 202, NH 9, NH 103, and NH 127 in Hopkinton. The Town is responsible for nearly **80 miles** of local Class V gravel and paved roadways, sidewalks, as well as the bridges and culverts. 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 (NH DOT) for roads and bridges and revolving loans from the NH Department of Environmental Services for water infrastructure.

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

### Bridges, Culverts, Roads

Debris impacted infrastructure regularly occurs along the Central NH Region's rivers and streams and 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.

Some of the gravel Town roads in Hopkinton are constructed using ditching instead of storm drains. The Town is not required to develop and maintain MS4 stormwater regulations. Some of the Town maintained roads are gravel, enabling easier maintenance and washout repair. Bridges and dams are described in the **APPENDIX A Critical and Community Vulnerability Assessment**.

### Conflagration Fire

Fires which are not natural hazards are often associated with vehicles, structures or hazardous materials spills, or sometimes an explosion. A fire in a densely built or traveled area can become a deadly conflagration. These types of fires 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.

### 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. Another common source of energy, coal, can be potentially hazardous because coal power plants emit chemicals such as mercury and sulfur dioxide.

Any service-providing businesses in Town (gas station, bank, fast food, convenience, etc.) would 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 Hopkinton 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 Rescue Department and Police Department conduct welfare checks for many residents known to be in need.

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 US Energy Information Administration data from **2022** reports much of the State's electricity (**58%**) is provided by the Seabrook Nuclear Power reactor. The remaining **14%** of electricity was generated from renewable sources, including solar, hydroelectric, wind, and biomass and Natural gas-fired (**15%**) and small amounts of coal-fired and petroleum-fired electricity.

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 snowstorm, ice storm, or other severe weather event, customers can easily lose power and/or other utilities. Hopkinton is served by Eversource and Unitil.

### **Communications Systems Failure**

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

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

Regional and state communications are often co-located on the tower upon which Town's emergency communications are based. The Town is a member of the Capital Area Mutual Aid Fire Compact which is a centralized communications hub for emergency fire and medical communications. The CAMAFC has redundancy sharing with the Lakes Region Fire Mutual Aid Compact. A series of towers throughout the region carry emergency communications.

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 **Hopkinton Hazard Mitigation Plan 2017**.

The identification of Critical and Community Facilities within Hopkinton 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 Hopkinton 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 Apr 2022 assessing software and the 2022 MS-1 Summary of Inventory Valuation 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 Hopkinton 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 Assessed Value* \$	Primary Hazard Vulnerabilities
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## Critical Facilities

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**Critical Facilities** are categorized as those Town or State buildings or services that are required to keep the community running during a disaster. The personnel in the Hopkinton Town Department facilities, the Town Offices, Fire and Rescue Department, Police Department, Public Works Department, Hopkinton-Webster Transfer Station, and Hopkinton Village Water Precinct, provide the services necessary for coordinating everyday activities and for emergency response. Other critical partners such as the Schools District provide essential services. Many staffed and unstaffed support facilities are located in Hopkinton, such as the Hopkinton Town Library. Maintained roads, dams, and bridges are required for safe operation during both normal times and hazard events. Utilities or utility features such as cisterns, culverts, dry hydrants, telecommunications towers, phone and internet switching stations, gas lines, water & sewer lines, and electric transmission lines are included because of the essential communication and utility services provided, and their significant impact on Hopkinton residents when they fail. Other **Critical Facilities** would include educational facilities, medical facilities, and emergency shelters.

Many critical facilities are located in Hopkinton. 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. However, the assessed structure valuation does not reflect actual structure replacement (rebuilding) which would likely far exceed the valuations in many cases. 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: Contoocook Village Water Precinct (Water Plant) (g), Hopkinton Fire Department (Contoocook) (g), Hopkinton Fire Station (Hopkinton), Hopkinton Police Department (g), Fire Station Annex (garage on same lot as fire station), Hopkinton Town Hall, Hopkinton Water Precinct (Facility), Public Works Garage (g), Town Archives (Bates Building), Transfer Station, Wastewater Treatment Plant (g). **Assessed structure (only) valuation for these essential facilities total \$11.7m.**

**Utilities** include: **WATER AND WASTEWATER:** Army Corps of Engineers Offices for Hopkinton Everett Dam, Community Well, Contoocook Water Precinct Tank and Pump Station, Deer Meadows Water Treatment Facility (private), Elm Brook Village Private Well and Treatment Facility, The Meadows Water Pumping Station (private), Wastewater Pumping Station at Riverway Park with Gazebo. **ELECTRIC, INTERNET, TELEPHONE:** Comcast Corporation, Consolidated Communication of Northern New England, Eversource Power Substation, Eversource Power Utility (All lines, poles & substations), Granite State Telephone, Green Mountain Power, Hopkinton Hydro Plant (Town Dam leased to operator), New England Hydro Transmission Corp., New England Power Company, 6 TDS Switching Stations, TDS Telecom Utility (All lines, poles & substations), Unitil Energy Systems Inc. **TELECOMMUNICATIONS TOWERS:** Telecommunication Colocation Silo (AT&T Stonynook Farm Silo), Telecommunication Tower (ETS/Eastern) (AT&T, T-Mobile), Telecommunication Tower (TDS) - FD Lead Tower Communications Equipment & CAMFAC Simulcast (Verizon, T-Mobile, Sprint, US Cellular, AT&T), Telecommunications Tower (American



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Tower)(Verizon, Sprint), Telecommunications Tower (U.S. Cellular, Verizon, T-Mobile), Telecommunications Tower (US Cellular, Verizon, T-Mobile). FIRE SUPPRESSION: Dry Hydrant (Town), Dry Hydrant (Town), Dry Hydrant (Town), Dry Hydrant (Town), Dry Hydrant (Town), Fire Pond (Deer Meadows), Peaked Hill Cistern (proposed). **Assessed structure (only) valuation for these utility structures total \$39.9m.**

**Dams include:** **3 High Hazard (H) Dams:** D121.019 Hopkinton Flood Control Dam (USACOE), D121.020 Hopkinton Dike Elm Brook H2 (USACOE), D121.035 Hopkinton Flood Control Spillway H3 (USACOE). **3 Significant Hazard (S) Dams:** D121.001 Hoague Sprague Dam (West Hopkinton Hydro), D121.028 Hopkinton Sewage Lagoon (Town), D121.038 Transfer Station Lagoons Dam. **3 Low Hazard (L) Dams:** D121.002 Contoocook Village Dam (Town), D121.004 Grassy Pond Dam (NH F&G), , D121.008 Kimball Lake Dam (Town). Non-Menace Dams: D121.003 Whittier Pond Dam (Town, Hydro), D121.005 Dolf Brook Dam (Ransmeier), D121.009 Drew Lake North Outlet (USACOE), D121.010 Larry Jones Dam (USACOE), D121.011 Recreation Pond (Madden), D121.012 Recreation Pond Dam (Kimball), D121.13 Martin Dam (Patenaude), D121.014 Farm Pond Dam (Haines), D121.017 Recreation Pond (England), D121.021 Wildlife Pond (Unknown), D121.022 Fire Pond Dam (Town), D121.023 Recreation Pond (Moose Hill Orchard), D121.024 Swimming Hole Dam (Town), D121.025 Dufault Recreation Pond Dam (Dufault), D121.026 Recreation Pond (Woetzel), D121.027 Stockwell Dam (Audubon NH), D121.031 Recreation Pond Dam (Miller), D121.033 Debruyne Rec./Fire Pond Dam (Debruyne), D121.034 Detention Pond Dam (Town), D121.036 Pond Place Dam (640 Maple St LLC), D121.037 Kimball 2 Dam (Windhurst). **Estimated structure (only) repair values for these dams total \$13.5m.**

**Bridges include:** **7 TOWN BRIDGES:** 055/112 (Town) Rowells Covered Bridge, 085/068 (Town), 130/154 (Town), 134/166 (Town), 144/168 (Town), Former 154/136 (Town) Culvert (red listed), Former 178/039 (Town) Culvert. **21 STATE BRIDGES:** 049/096 (State), 056/093 (State), 057/111 (Private), 059/111 (State) 086/084 (State), 089/114 (State) Officer Sean M Powers Memorial Bridge, 090/143 (State), 091/143 (State), 092/138 (State), 093/138 (State), 100/114 (State), 102/143 (State) Leroy R Kimball Bridge, 108/078 (State), 110/081 (State), 111/082 (State), 113/079 (State), 123/077 (State), 141/073 (State), 142/073 (State) 148/070, (State), 164/061 (State), **Estimated structure (only) rehabilitation values for these bridges total \$47m.**

**Shelters, Schools, and Medical Facilities include:** SCHOOLS: Beech Hill School (Independent 6-8), Contoocook School (NFI North), Harold Martin School, Hopkinton High School (POD & Town Shelter) (g), Maple Street School, School District (SAU #66), Slusser Center [Cooling shelter] (no generator). MEDICAL FACILITIES: Apple Tree Animal Hospital, Aurora Chiropractic Health Center, Dr. Bruce Trivellini DDS, Dentistry, Dr. Pamela Weitzel DMD, Dentistry, Family Tree Health Care Clinic (Concord Hospital affiliate), Hopkinton Animal Hospital. **Assessed structure (only) valuation for these schools, medical facilities and shelters totals \$27.2m.**

## CRITICAL FACILITY 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. See **APPENDIX A CRITICAL AND COMMUNITY FACILITIES VULNERABLE ASSESSMENT** for the referenced Tables:

Essential Facilities Table

- ⊙ No emergency power at Town Office or Transfer Station. The Town Hall needs a generator in the event of extended power outages.
- ⊙ Historic documents are located in the basement of the Bates Building in a concrete building/vault and are unprotected from water (mold). Need to stabilize the humidity.
- ⊙ A vault would be more secure with controlled access.
- ⊙ Town has a digital inventory of all historical and present records.
- ⊙ Wastewater Treatment Plant requires operating system upgrades. Needs sludge removal and upgrades to pumps and computerized system. Sludge is not spread on fields (PFAS would be included).
- ⊙ Complete asset management plan end of 2023. Will install solar power for 100% operating power capacity by ARPA grant, to be first in NH.
- ⊙ PFAS is a significant concern, but there is not much that can be done. Fire Dept uses foam without PFAS.
- ⊙ INFO: Fire Dept has solar system to supply 80% of FD power, 234 panels on 4 zones. Only municipal operational solar array so far. No batteries, they have a short lifespan compared to solar panels.
- ⊙ INFO: Many personal residential solar arrays also have batteries onsite and the TDS Switching Station fiber/phones keeps a full battery system onsite, a sophisticated setup. Most copper sites have batteries, replaced every 4-5 years by TDS. Fiber sites like across from cemetery = no battery, no electrical needed. Hopkinton Village has fiber optic.
- ⊙ INFO: TDS each year chooses the best locations for fiber optic, replacement from copper lines. Customers must switch over to fiber or they will lose service. Every area in Hopkinton serviced by TDS has fiber optic (to Exit 4/Hopkinton Village), except Sandy Beach Resort Campground.
- ⊙ INFO: Town Hall has lightning rods. No lightning suppression equipment or grounding systems. No modern lightning suppression system on municipal buildings. Primex was not supportive, noncommittal regarding installation of suppression system.
- ⊙ INFO: Harold Martin School does not have installed generator even though FD has requested it (under control of Hopkinton School District). Building renovated with many features, but it is not fire suppressed (doesn't meet code) without electricity.

Emergency Mgt Dept maintains the generator at the High School. Library will install a generator.

#### Utilities Table

- ⊙ Set up a new dry hydrant at Briar Hill Road to replace the lost pumping sites at Dolf Brook (new culvert & road work). Missed opportunity during the culvert replacement.
- ⊙ Town emergency radios do not work well in concrete or metal buildings. Could be broadcast through fire alarm frequency, like a building repeater - choose a channel. PD, maybe not a solution as easy. Some radio service doesn't work in Hopkinton High School. Difficult to mandate without cooperation, cost to retrofit (buildings constructed prior to code) is extremely high.
- ⊙ INFO: Fire Dept cleans and maintains and tests dry hydrants annually.

#### Dams Table

- ⊙ Obtain Dam Emergency Plans of Low, High, and Significant Dam Hazard Classification dams to understand the problem of potential dam breach (EMD). Hopkinton Dam redone about 1 year ago (Franklin Dam DEAP being done now).
- ⊙ Establish communication between dam owners and the Town regarding potential issues, maintenance problems with the dam, or water level rise (most are not more than a swale).
- ⊙ If a new hydro contract is not renewed (40-year expires in 09-23) on the Town Contoocook River Dam. Town Meeting warrant article in 2023 to renew lease, in negotiation right now with Select Board
- ⊙ If the Kimball Lake dam (Town owned) failed, the water could wash out Main Street in Hopkinton. Dam is maintained and inspected by the state annually. Funds set aside for eventually rebuilding in CRF.

#### Bridges Table

- ⊙ 9'9" Rowe Covered Bridge classified as Height & Weight 9 Tons. Every couple of years it's necessary to fix the problem. Shortest route from highway to campground on Clement Hill. Clearance is the issue. Sometimes propane or utility trucks will go over bridge. Signage is adequate. Need to keep it as historic. Video surveillance would help identify culprits. Damaged every 3-5 years.
- ⊙ Graffiti inside railroad bridge (state owned), so infrequent it's not much of a problem.
- ⊙ INFO: In the past, Bridges have been used by people for jumping into the waters below, for recreation. Town Ordinance in place to prevent.
- ⊙ INFO: No more redlisted bridges in Town, but 1 redlisted culvert - Broad Cove over Dolf Brook. Will schedule to replace.

#### Shelters, Schools and Medical Facilities Table

- ⊙ In some Town schools, serious security system issues were identified. Some parts have been addressed as of 2023 (door entry system, camera upgrades). Harold Martin

School was recently upgraded. Maple Street School was improved. High School door system upgraded. However, the High School's (Town Shelter) main entrance follows through the gym and cafeteria. A proposed bond for an upgraded High School entrance & elevator, staff member reception in basement was not approved by voters.

- ⊙ HSEM completed on site survey to schools, invite PD & FD to listen to suggestions. Fire Code and security issues are often conflicting. Need to compromise to fit best. Regularly expensive, must be creative for security retrofits. Example: Fire alarm pull, steady stream of kids exiting building - prime for active shooter. Some of the upgrades would require variance from Fire Marshal Office and Fire Chief approval. Coordination & training between Fire & Police would be needed. Schools are committed to get some of these things done, like the entrance.
- ⊙ INFO: A plan is being developed to evaluate human hazards, actively work on identifying physical elements, but very expensive.
- ⊙ INFO: Slusser Center serves as cooling shelter and does not have generator for warming. Good for small groups instead of opening High School (no A/C). Hopkinton Town Library can serve as cooling center too.

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 2024**. 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.

Like most communities, the Town of Hopkinton has hundreds of culverts and is not known to have a mapped inventory. The Public Works Department maintains multiple Town culverts daily (debris removal, clearing, repairs) and keeps pace with culvert upgrades as long as Town voters continue to annually fund the projects. Yet upgrading all culverts that require this action in the next 5 years would be unrealistic. A prioritization of the culverts in greatest need of upgrade is necessary.

**Table 5.1** displays Hopkinton’s initial listing of culverts in need of most urgent upgrade and approximately when the upgrades should occur. The intent is to upgrade failing culverts with either open box culverts or to bridge standards, respectively. The estimated cost for these projects reaches **\$1.8m** for the Town to pay for materials, permitting, study and design. Labor for the smaller projects is performed by Town staff and is usually considered an in-kind cost. For larger projects, contracted engineering, design and permitting may need to occur and would be included in the respective cost estimates. The optimal timeframe for these upgrades to protect the Town from **Inland Flooding, River Hazards** and **Aging Infrastructure** is between **2024-2029** which is within the span of this **2024 Plan**.

**Table 5.1  
Town-Owned Culverts in Need of Upgrade Through 2029**

Action #	Location of Culvert(s) to Upgrade	# of Culverts	Intersecting Water	Issue(s) with the Culvert(s)	Upgrade Diameter Inches	Estimated Upgrade Year	Total Approx \$ Cost for All
#34-2016	Broadcove Road Bridge	1	Dolf Brook	A 9' box culvert will be installed in 2024 to upgrade the aging metal corrugated culverts.	9'	2024	\$750,000
#07-2011	East Penacook Road	1	N/A	Culvert will be upgraded to a bridge. In NHDOT Ten Year Plan to be completed in 2025 (requested Bridge Aid in 2017 to assist with cost).	12'	2025	\$750,000
#37-2016	Boundtree Road	1	Hardy Spring Brook	A 9' box culvert will be installed in 2025 to upgrade the aging metal corrugated culverts.	9'	2025	\$300,000
Totals		15					\$1,800,000

Source: Hopkinton 2024 Mitigation Action Plan

This table can help the Town develop a formalized culvert upgrade and maintenance planning document. Mapped drainage facilities permit 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 clearer and may be more successful at Town Meeting with such a plan.

Some of the culverts listed in **Table 5.1** have been developed into **Mitigation Action Plan** items in **8 MITIGATION ACTION PLAN**.

Like all communities, the Town owns and maintains hundreds of culverts. Most of the culverts are maintained (debris removal) on a regular basis and are upgraded when a specific need arises, such as a flood event which causes road erosion or washout. A comprehensive inventory of culverts and culvert conditions was conducted in Hopkinton to develop a Culvert Maintenance Program and policy followed by the Public Works Department.

**MOST VULNERABLE ROADS AND NEIGHBORHOODS**

The Town of Hopkinton owns about **90** total miles of roadway including **80.0** miles of Town maintained Class V (both paved and unpaved roads) and **10.4** miles unmaintained Class VI roads. Although not responsible for the maintenance of private roads (**16.0** miles) and State highways (**45.6** miles), these roads can also experience storms, natural hazard events, and other problems. Many of these roads are remote, have significant elevation changes, or are dead-end roads or cul-de-sacs with only one way in and one way out. Hopkinton residents reside in neighborhoods, subdivisions, and within cul-de-sacs. When trees and powerlines fall onto roads or floods or wildfire hazards are occurring, evacuation of most of these neighborhoods would be difficult. The Town’s Road mileage, classification, and surface type are displayed in **Table 5.2**.

**Table 5.2**  
**Town Road Length and Classification**

Hopkinton Roads Legislative Classification	Total Length in Miles	Percentage of Road Network
Class I (State Primary Highway)	37.5	24.7%
Class II (State Secondary Highway)	8.1	5.4%
Class III (State Recreational)	0.0	0.0%
Class IV (Urban Maintained)	0.0	0.0%
Class V (Town Maintained)	80.0	52.6%
Class VI (Town Unmaintained)	10.4	6.8%
Private	16.0	10.5%
<b>Totals</b>	<b>151.9</b>	<b>100.0%</b>

Source: NHDOT GIS Mileage by Town and Legislative Class, January 2024

The Town of Hopkinton is responsible for the maintenance of **80** miles of Town owned roads, some of which are paved and some of which are unpaved. Compared to other small-sized Central NH region communities, the Town of Hopkinton hosts fewer than average roadway miles.

**One-Egress Roads and Cul-de-Sacs**

The Town of Hopkinton has over **20** miles of roadway, including Town maintained Class V, unmaintained Class VI and private roads, that are dead-end roads or cul-de-sacs with only one way in and one way out. At least **7** communities with **25** or more homes are located on one-egress roads. Overall, approximately **800** homes with the US Census **2020** average of **2.41** people per housing unit, means there are likely over Hopkinton **1,900** residents that live on a one egress road. Awareness of potential vulnerabilities may help with evacuation and other emergency planning as well as long term mitigation projects in these areas. Evacuation of many of these neighborhoods, most of which are forested, would be difficult. All identified one-egress roads are displayed in **Table 5.3**.

**Table 5.3**  
**One-Egress Roads (Dead End) and Cul-de-Sacs**

One-Egress (One Access/ Exit) Road Name	Road Class (Class V, Class VI or Private)	Specific Hazard Concerns	Condition (Good, Fair or Poor)	Approx. Length in Feet	Approx. # of Homes on Rd
Amesbury Lane	Class V	Winter, Flooding, Tree Fall	Good	3,291	52
Apple Tree Lane	Class V	Erosion, Tree Fall, Winter	Good	412	9
Autumn Ridge Road	Class V	Winter, Tree Fall	Good	825	7
Barton Corner Road	Class V	Winter, Erosion, Tree Fall	Good	1,493	8
Bass Lane	Private	Flooding, Erosion, Tree Fall, Winter	Fair	1,096	4
Bassett Mill Road	Class V	Flooding, Erosion, Tree Fall, Winter	Fair	5,635	16
Blaze Hill Road	Class V	Erosion, Winter, Tree Fall	Good	260	2
Brookwood Lane	Class V	Erosion, Winter, Tree Fall	Good	1,418	13
Buckingham Lane	Class V	Erosion, Tree Fall, Winter	Good	728	4
Burnham's Intervale Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	3,878	18
Burrage Road	Class V	Flooding, Erosion, Tree Fall, Winter	Fair	1,961	2
Camp Merrimac Road	Class V	Flooding, Erosion, Tree Fall, Winter	Fair	3,845	6
Checkerberry Lane	Class V	Winter, Erosion, Tree Fall	Good	872	10
Clarke Lane	Class V	Erosion, Tree Fall, Winter	Good	1,580	9
Cottage Street	Class V	Winter	Good	300	2
Country Club Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	1,839	6
Elizabeth Lane	Class V	Erosion, Tree Fall, Winter	Good	980	6
Fieldstone Road	Class V	Winter, Tree Fall, Erosion	Good	1,450	8
Fire Pond Road	Private	Flooding, Erosion, Tree Fall, Winter	Good	2,518	78

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

5 COMMUNITY VULNERABILITY ASSESSMENT AND LOSS ESTIMATION

One-Egress (One Access/ Exit) Road Name	Road Class (Class V, Class VI or Private)	Specific Hazard Concerns	Condition (Good, Fair or Poor)	Approx. Length in Feet	Approx. # of Homes on Rd
Fletcher Lane	Class V	Winter, Erosion, Tree Fall	Good	783	3
Galloping Hill Road	Class V	Winter, Erosion, Tree Fall	Good	3,220	27
Garrison Lane	Class V	Flooding, Erosion, Tree Fall, Winter	Good	1,724	4
George Road	Class V	Erosion, Tree Fall, Winter	Good	1,130	3
Granite Valley	Class V	Winter, Erosion, Tree Fall	Good	789	3
Hedgerose Lane	Class V	Erosion, Tree Fall, Winter	Good	2,776	14
High Pond Road	Class V	Flooding, Erosion, Tree Fall, Winter	Fair	959	5
Hopkins Green Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	2,058	19
Hutchins Hill Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	2,000	11
Irish Hill Road	Class V	Flooding, Erosion, Tree Fall, Winter	Fair	4,900	13
Lilac Lane	Class V	Winter, Tree Fall	Good	372	2
Little Frost Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	2,532	4
Little Tooky Road	Class V	Winter, Flooding, Erosion, Tree Fall	Fair	4,551	38
Lower Straw Road	Class V	Erosion, Tree Fall, Winter	Good	2,530	12
Meadows Drive	Private	Flooding, Erosion, Tree Fall, Winter	Good	3,546	64
North Shore Drive	Private	Erosion, Winter, Tree Fall	Poor	5,086	21
Orchard Way	Class V	Tree Fall, Winter, Erosion	Good	450	4
Peaked Hill Drive	Class V	Flooding, Erosion, Tree Fall, Winter	Good	1,141	24
Perch Lane	Private	Flooding, Erosion, Tree Fall, Winter	Fair	1,186	12
Pet Dow Road	Class V	Winter, Erosion, Tree Fall	Fair	669	2
Pike Lane	Private	Flooding, Erosion, Tree Fall, Winter	Fair	791	2
Riverside Drive	Class V	Winter, Flooding	Fair	1,137	4
Roberts Road	Class V	Erosion, Winter, Tree Fall	Good	645	4
Rolfe Pond Drive	Private	Flooding, Erosion, Tree Fall, Winter	Poor	3,068	25
Smithfield Road	Class V	Winter, Tree Fall, Erosion	Good	676	16
South Shore Drive	Private	Erosion, Winter, Tree Fall	Poor	1,572	7
Spring Street/Krzyzaniak Lane /Pinewood Drive /Hardy Lane/Snowshoe Trail	Class V	Flooding, Erosion, Tree Fall, Winter	Good	4,500	69
Stonybrook Lane	Class V	Flooding, Erosion, Tree Fall, Winter	Good	966	4
Taylor Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	1,268	6
Tebrok Road	Class V	Tree Fall, Winter, Erosion	Good	636	6



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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

5 COMMUNITY VULNERABILITY ASSESSMENT AND LOSS ESTIMATION

One-Egress (One Access/ Exit) Road Name	Road Class (Class V, Class VI or Private)	Specific Hazard Concerns	Condition (Good, Fair or Poor)	Approx. Length in Feet	Approx. # of Homes on Rd
Turnberry Lane	Class V	Flooding, Erosion, Tree Fall, Winter	Good	656	7
Upper Straw Road	Class V	Erosion, Tree Fall, Winter	Good	6,669	34
Watchtower Road	Class V	Erosion, Winter, Tree Fall	Good	1,255	12
West Ridge Circle	Class V	Erosion, Winter, Tree Fall	Good	1,455	11
White Tail Run	Class V	Winter, Erosion, Tree Fall	Good	900	8
Willoughby Road	Class V	Flooding, Erosion, Tree Fall, Winter	Good	1,034	6
Woodland Drive	Class V	Winter, Flooding, Tree Fall	Good	1,524	19
Woodwells Garrison Road	Class V	Winter, Flooding, Tree Fall	Good	1,500	n/a
<b>Total Feet One-Egress Roads:</b>				<b>107,141.0 feet</b>	<b>800</b>
				<b>Total Miles One-Egress Roads:</b>	<b>20.3</b>
					<b>Vulnerable Homes</b>

Source: Hopkinton Town Administrator (Tax Maps July 2023)

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## Community Facilities

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

**Vulnerable Populations** include: ASSISTED LIVING OR GROUP QUARTERS: None in Hopkinton. CAMPGROUNDS OR SEASONAL HOUSING: Sandy Beach Family Campground [~100 sites], St. Methodios Faith & Heritage Center (Camp Merrimac) [200+ beds]. CHILD CARE FACILITIES: None in Hopkinton. MANUFACTURED HOUSING NEIGHBORHOODS: Deer Meadow Manufactured Housing Park [~50 homes], Elm Brook Village Manufactured Housing [~30 units], The Meadows – Manufactured Housing [~75 homes]. APARTMENTS AND INDEPENDENT LIVING: 1966 Maple Street Apartments, Davis Building Apartments [~7 units], Little Tooky Area [~25 camps transitioned into homes], Maple Street Condos {5 units}, Park Lane 55+ Independent Living [~30 apartments], Peaked Hill Condos [24 units], Pond Place Apartments [5 units], River Grant Condos [32 units], Smithfield Condominiums [~12 units]. **Assessed structure (only) valuation for these vulnerable population facilities total \$41.5m.**

**Economic Assets** include those LARGE BUSINESSES and services that employ a large number of people or contribute to the local economy: Colonial Pharmacy (part of Park Ave. Plaza below), Everyday Cafe, Gobi Library Solutions (Book Distributor), Barrel & Basket Bakery, HP Fairfield (sanders, plowers), IRG Mill Work Production, Lake House Tavern, Marklin Candle (beeswax candles), McLane North East (Grocery Distribution Center), Park Ave Plaza (Groceries, Laundry, Therapist), Prototech (sheet metal fabrication), Prototech (sheet metal fabrication), Riverside Pizza. AGRICULTURAL: Beech Hill Farm Stand & Ice Cream Barn, Bohanan Farm-Contoocook Creamery Store (cheese, meat, eggs, milk), Dearborn Treefarm (Christmas trees), Gould Hill Orchard (apples, cider, blackberry), Pine Lane Farm (dairy), Work Song Farm (food co-op garden). See also **Hazardous Materials** facilities. **Assessed structure (only) valuation for these economic asset facilities total \$21.9m.**

**Hazardous Materials Facilities** include: HR Clough, Inc. (oil and propane distributor, pump-paid gasoline pumps), Contoocook Auto Clinic Gas and Car Repair, Mobil Gas (Mr. Mike's), Stock Metals (metal fabrication). SALVAGE YARD: Chad's Automotive/Salvage Yard (Separate Business), Roy Richardson's Auto Salvage, James Snedeker Removal/Salvage Yard, Clark Street Brownfield/Multiple Businesses. AUTO REPAIR SHOPS: Kimballs Garage Auto Repair, Schoch's Auto Body, Papertech Property Potential

Brownfields (BioEnergy-to burn construction debris). See also **Economic Asset** facilities. **Assessed structure (only) valuation for these hazardous material facilities total \$2.9m.**

**Cemeteries and Churches** include: CHURCHES: Countryside Community Church, First Congregational Church, St. Andrew's Church, United Methodist Church. CEMETERIES: Blackwater Cemetery, Clement Hill Cemetery, Contoocook Village Cemetery, Hardy Cemetery, Hues/Wilson/Koch Cemetery (private), New Hopkinton Cemetery, Old Hopkinton Cemetery, Putnam Cemetery, Putney Hill Cemetery, Single Grave, Stumpfield Cemetery (moved to back of CVC, fenced off). **Assessed structure (only) valuation for church facilities and headstone replacement estimates for cemeteries total \$5.2m.**

**Historic Sites and Buildings** include: [Town Hall on NH Registry] - see Essential Facilities, Contoocook Railroad Bridge (NH Div. Historical Resources), Contoocook Railroad Depot, Hopkinton Historical Society (William H. Long Memorial Building), Houston Barn (Town owned) (Preserved Barn NH Registry), Rowell Covered Bridge (Town). See also **Recreational and Gathering Sites**. **Assessed structure (only) valuation for these historic facilities total \$2.7m.**

**Recreational and Gathering Sites** of both land and buildings include: EASEMENTS AND CONSERVATION: Hopkinton Village Greenway (trailhead at Kimball Lake), Bermuda Harris, Beyer Property, Bohanan Farm, Brockway Preserve-Audubon, Carson Property, Chase Sanctuary-Audubon, Contoocook Overlook, Elm Brook Park, Hawthorne Town Forest, Houston Intervale, Little Tooky Trail, Mast Yard Forest, Ransmeier Woods, Rice Property, Rollins Property, Smith Pond Bog, Stevens Rail Trail, Sweatt Preserve. Some of these sites can be **Economic Assets** to the Town even if the land is untaxable. Only some structure valuations were available. **Assessed valuations for the recreational facilities for land and/or structures total \$14.3m.**

**Future Development** includes both residential and commercial development potential in Hopkinton. FUTURE DEVELOPMENTS: As of **05-23** there are several APPROVED/UNBUILT developments or potential developments according to the Planning Board: Bound Tree Apartments. LEGACY PARCELS (large lots with development potential): BEECH HILL RD, BOUND TREE RD, BRIAR HILL RD, BROAD COVE & BRIAR, BROCKWAY RD, BURNHAM INTERVALE RD, CAMP MERRIMAC RD, CLEMENT HILL RD, GOULD HILL RD, HATFIELD RD, HATFIELD RD, HATFIELD RD, HATFIELD RD, JEWETT RD, KAST HILL RD, MAPLE ST, OLD HOLMES RD, PATCH RD, PENACOOK RD(&808), PINE ST, SOUTH RD, SOUTH RD, SUGAR HILL RD. LOTS IN HOPKINTON FOR SALE 05-23: lots for sale during this snapshot include: Bound Tree Road Lot (vacant) Bound Tree Road Lot (SF), Maple Street Lots 23, 24, 25 (Comm), Upper Straw Road Lots (vacant), Bridgetree Farm and B&B (Ag-Comm), Maple Street Lot (vacant SF), Hedgerose Lane Lot (SF). **Assessed valuation for the Potential/Approved PB Developments (LAND) Legacy Parcels (LAND) and Lots for Sale properties (LAND) only totals \$12.3m.**

## COMMUNITY FACILITY 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. See **APPENDIX A CRITICAL AND COMMUNITY FACILITIES VULNERABLE ASSESSMENT** for the referenced Tables:

Vulnerable Populations Table

- ⦿ I-89 is the most serious corridor for trucking haz mat, no manufacturing risk here.
- ⦿ About 20-30+ neighborhoods have limited access/egress on cul-de-sacs, they only have 1 way in and 1 way out. Wildfire, WUI, wind, winter, power outage, tree debris = evacuation issues. I-89 also bisected roads when constructed.
- ⦿ ADU has units #1 and #2, and #A, and #B.
- ⦿ Driveways need to meet stricter regulations (20' paved) than new roadways under 1,000' (16' wide, gravel).
- ⦿ The Town has limited availability of food, goods and services available for purchase and consumption during an emergency.
- ⦿ A large-scale evacuation has a potential for traffic congestion and vehicular accidents.
- ⦿ About 50,000 people daily at Hopkinton Fair pass at least once per year while (6,000 residents). Would be good to obtain the number and location of residents who don't have vehicles or don't drive. Town has MOU with bus transportation company (kept locally).
- ⦿ Harold Martin & Maple Street School only 1 way access/egress. Would be very difficult to evacuate. Location for parent staging would be necessary.

Economic Assets Table

- ⦿ Drought impact on agricultural operations. All dairy farms rely on the Contoocook River and have means of watering from river during drought if needed. Manure runoff. Could happen but contamination has not been recorded. Most farms have wells. Sandbank Farm is on the Contoocook River (manure pits). They didn't flood at high water 1986.
- ⦿ Drought can magnify the effects of wildfire and lightning to tree farms and all over the community. Town is in process of upgrading GIS capabilities and could add an agricultural and forestry layer.
- ⦿ Fertilizing farms – lime powder (non-reactive) dumped out of a truck, fertilizers (ammonium nitrate) delivered in pallets – applied within a week. Apple orchards might be most prominent users of pesticides or herbicides or insecticides. (Golf course fills out Tier II)
- ⦿ INFO: Year round Farmer's Market (Maple Street School in winter, baked goods, potatoes, arts and crafts Nov-Apr). Riverway Park summer market gazebo May-Oct.

Hazardous Materials Table

- ⦿ If Contoocook Auto or Mr Mike's gas spills, they are next to the Contoocook River and could cause surface water contamination. But any spills that permeated could cause groundwater contamination. (DES would be brought in for clean-up for spills over 25 gallons).
- ⦿ If a haz mat issue occurs at an Pine Street, Maple Street or Main Street facility, widespread evacuation and detour would be necessary. Both the High School and Middle School (Maple Street) are close. NH 127 and NH 103 commuter routes run through the area.
- ⦿ INFO: Detours are listed in the EOP. Depending on what is shut down. If whole downtown closed, would be a larger detour.
- ⦿ The Paper Mill bio-energy site has potentially old, contaminated soil. The owners did not want to work with EPA funds to develop an assessment. Old paper mill foundation is exposed, open steel structures, lean-to shed structure, and open walls of a pit - vacant and are open on site. When it was a bio-energy plant (burning construction debris), the plant was shut down by the Town because regulations changed. This is the entrance to the Town NH 103/Maple Street. Town approached owners first around 2013 for greenhouses, but they did not want to work with Town.
- ⦿ Apartments for lease onsite at the hydro dam site across the street from the Paper Mill. Have lobbyists.
- ⦿ Junkyards – the Town does not have any junkyards, official or unofficial.

Cemeteries & Churches Table

- ⦿ There are numerous single graves in town (not a cemetery), which makes it is easy for one grave to be lost over time. Cemetery Committee should have an inventory. An entire cemetery was relocated from Stumpfield. Lands in danger of development
- ⦿ Thawing and freezing over time of old stones can cause cracks. Budget available for repair. Cemetery trustees have an ongoing schedule of repair of stones and filling in sinkholes each year. Cemeteries have a lot of trees and tree debris and do try to monitor hazardous trees.
- ⦿ Church weathervanes may or may not be connected to lightning grounding rods. NFPA does not have lightning rods and grounding systems in their code. Considered old technology. NFPA 780 Safety Standards for Churches and Lightning Protection
- ⦿ Churches may continue to be a public health transmission site. They have influence over their parishioners, many of whom are elderly (above 67 retirement age). Aging at a higher rate than the community at large. Many churches broadcast their sermons for all parishioners to attend at home.
- ⦿ INFO: Demo on gravestone cleaning was done by repair expert in 2022. Encouraging residents to maintain them.

Historic Sites & Buildings Table

- Many historic sites are in the floodplain. Railroad bridge in Contoocook Village. Most of the floodplain is guarded by the Hopkinton Everett reservoir dam & dikes. Elm Brook area would be the first to be flooded if the spillway was breached.
- Fire (lightning, arson, accidental) are considered high hazard risks for the wooden historical sites in town. Town buildings like the Slusser Center (burned while in construction due to funding controversy) in 2005 and the First Town Hall was set on fire hundreds of years ago. The Highway Garage burned 10 years ago [truck based- JY & NC to send photos] and the Library around 2018 was struck by lightning (photos).
- INFO: ACOE: if there was a complete dam failure, it would take 2 hours for full effect of flooding to reach center of Hopkinton (waves of flooding, filling spillways)

Recreation & Gathering Sites Table

- The Town may not have an evacuation plan for large scale events (other than Hopkinton Fair, getting people off the grounds).
- Potential for civil disturbances when large crowds gather.
- Town has ATV trails, Concord-Sunapee trail - gated access. Town trails are gated wider than 52", most trails are accessible by UTV. Town FD has the keys. Fire Dept has Bound Tree UTV trails in GIS format –[will send SA the most up to date map.]
- The location of where people are situated differ from. Where are people, what is the shortest route?
- Broken legs & arms are common, 3-10 per year. Most injuries are from ATVs and motorcycles. LOCATION is problem – need to triangulate. The snowmobile system uses many of the same trails as the ATV club.
- Out of town trail users are often asking the Town Depts where the trail heads and parking areas are located.
- Fast seasonal lightning, tornado, storms can impact rec fields water/beach/user rivers as can wind. Hurricanes and earthquakes can have an impact.

Future Development Table

- Generally, most sites do not have town water or town sewer, making development of residential, commercial or manufacturing more expensive.
- Generally, any significant development would require substantial town road improvements, including widening of existing roads, converting Class VI roads to Class V, installation of culverts. Committee has inventoried all Class VI roads, will develop a policy for development. Allows development on first 300' for most Class VI roads, will identify those that should be converted to trails.
- Wetlands and slope impairments would inhibit development. Access to major highways is limited.

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- ⦿ Large 100+ acres single family home parcels (some of which are farms) are situated throughout the town, including in the villages. Open Space Committee has clearly defined parcels that they'd like preserved.
- ⦿ INFO: Fairgrounds is about 68 acres (38 acres of parking plus 30 acres of buildings & grounds).

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

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## Potential Losses from Natural Disasters

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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 Hopkinton. 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 Hopkinton 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 models 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.
- Cost effectiveness of common mitigation strategies: like retrofitting or elevating structures.

Federal, State and local government agencies and the private sector can order HAZUS-MH free-of-charge from the FEMA Distribution Center. Hopkinton 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**.

**CALCULATIONS 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 **Sep 2023** is **3,261**. Using Hopkinton’s MS-1 **2023** valuation data, **the total assessed value of all residential and non-residential structures ONLY in Hopkinton (\$227,618,888) is the basis for loss estimation calculations. Land and utilities are not included here.**

Potential Building Dollar Losses by SFHA Flooding

Beginning with the **2017 Plan’s** base data, the value of parcels with potential buildings within the floodplain were updated using Hopkinton’s online digital tax maps. No geospatially analysis with the **2010** FEMA Digital Flood Insurance Rate Maps (DFIRMs) digital map was possible, but a manual examination had been undertaken to try to identify all 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 5.4** summarizes this data, identifying **16** primary buildings by address in the SFHA. **Land value, building contents value and infrastructure were not considered in these calculations.**

**Table 5.4**  
**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	14	\$1,769,900	\$126,421
Multi-family Homes	0	\$0	N/A
Manufactured Homes	1	\$75,600	\$75,600
Non-Residential Buildings	1	\$198,200	\$198,200
<b>Totals</b>	<b>16</b>	<b>\$2,043,700</b>	<b>---</b>

Sources: Hazard Mitigation Plan 2017, updated with Assessing Database by Town Administrator, Sep 2023

In **Table 5.4**, updating the 2017 data identified **14** single family residential homes, **0** multi-family homes, **1** manufactured home, and **1** non-residential building which may be situated within the Special Flood Hazard Areas (SFHAs). Using the Town’s estimated number of **2020** Census housing unit count (**2,451**), **< 0.6%** of Hopkinton’s residences seem to be located in a floodplain area. The average replacement value is

**\$126k** for a single-family home or **\$76k** for a manufactured home, or **\$198k** 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 **\$2.0m**.

There are alternative ways to calculate potential SFHA losses. In the following tables, the average building replacement value was calculated by adding the assessed values of all structures in the special flood hazard areas and dividing by the number of structures. The Federal Emergency Management Agency (FEMA) has developed a process to calculate potential loss for structures during flooding. The potential loss was calculated by multiplying the average replacement value by the percent of damage expected from the hazard event, and then by multiplying that figure by the number of structures.

*The costs for repairing or replacing infrastructure such as bridges, railroads, power lines, roads, drainage systems, telephone lines, or natural gas pipelines, land destruction, and the contents of structures are not included in these building damage estimates.*

**Table 5.5** 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 5.5**

**Total Buildings Dollar Damage Ranges 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	\$1,769,900	\$867,251	\$495,572	\$353,980
Multi-Family Homes	\$0	\$0	\$0	\$0
Manufactured Homes	\$75,600	\$37,044	\$21,168	\$15,120
Non-Residential Buildings	\$198,200	\$97,118	\$55,496	\$39,640

Sources: See **Table 5.4**; FEMA calculations used

If all **14** single family homes were damaged by a **Two-Foot Flood (20% Damage)**, the dollar damage to the *buildings* could be **\$354k** while an **Eight-Foot Flood (49% Damage)** could cause **\$867k** in *building* damage. If (all) the **1** manufactured home identified in the SFHA was damaged by a **Two-Foot Flood (20% Damage)**, the damage could be **\$15k** for *buildings* only, while an **Eight-Foot Flood (49% Damage)** could cause **\$37k** in *building* damage. If (all) the **1** nonresidential building in the SFHA was damaged by a **Two-Foot Flood**, the dollar damage to the *buildings* only could be **\$40k**, while an **Eight-Foot Flood** could cause **\$97k** in *building* damage. Dollar damage estimations vary according to the standard percentages of damage levels associated with flooding levels set by FEMA.

Table 5.6 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 5.6

Individual Building Dollar Damage Ranges 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	\$126,421	\$61,947	\$35,398	\$25,284
Multi-Family Homes	\$0	\$0	\$0	\$0
Manufactured Homes	\$75,600	\$37,044	\$21,168	\$15,120
Non-Residential Buildings	\$198,200	\$97,118	\$55,496	\$39,640

Sources: See Table 5.4; FEMA calculations used

One (1) single family home average \$25k when damaged by a **Two-Foot Flood** while an **Eight-Foot Flood** could cause \$62k in building damages only. One (1) manufactured-family home compares at \$15k for a **Two-Foot Flood** in building damages only and at \$37k for an **Eight-Foot Flood**. One (1) non-residential building in the SFHA is could have \$40k in building damages for a **Two-Foot Flood**, while experiencing \$97k in building only damages for an **Eight-Foot Flood**.

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

**Potential Building Dollar Losses by Other Natural Hazards**

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

Building damage by natural disasters in New Hampshire is not limited to SFHA flooding alone, which is easier to quantify and predict. Simple calculations can be made based upon generalizations of a disaster impacting a certain percentage of the number of buildings in the Town. The MS-1 2023 valuation data, the total assessed value of all residential and non-residential structures ONLY in Hopkinton (\$227,618,888) is the basis for loss estimation calculations on 3,261 parcels. Land and utilities are not included here. Disaster damages are often illustrated in the following section utilizing a percentage range of town-wide building damage. At 2,451 housing units in Hopkinton counted in the preliminary 2020 US Census, any type of disaster impacting 10% of Hopkinton housing units would yield 245 damaged homes.

The inventory of Town sites or buildings in **APPENDIX A CRITICAL AND COMMUNITY FACILITIES VULNERABILITY ASSESSMENT** indicates which hazards each site is most susceptible to and provides its assessed valuation. This dollar value can be used as a damage estimate from the natural hazard events listed below. Yet the potential losses discussed in this section involve all buildings across the community to provide a more distinct portrait of potential losses using the assessed valuation of all town buildings. Damages from natural hazards to anything other than buildings, such as infrastructure, land, humans or building contents, are not examined here. Specific individual studies would be needed to assess more detailed scenarios. Following are potential building-only dollar damages from select natural hazards.

### Drought

**Drought** is often declared on state-wide or region-wide basis, and sometimes by individual community. 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, agriculture and forestry operations would be most affected and the risk of wildfire increases.

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 and forested lands may be among the most affected by drought. Many farm operations have been inventoried in Hopkinton. Some people who rely on private well water have found their dug wells running dry in **2015-2016** and again in **2018** and **2020** and have needed to dig bedrock wells. Agricultural operations run the risk of high damage from **drought** which also brings economic consequences. In Hopkinton, these areas include maple tree crops, livestock, produce, orchards, tree farms and hay fields. Conservation land forests in Town are also susceptible to loss and fire during **drought** conditions.

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

### Earthquake or Landslide

**Earthquakes** can cause buildings and bridges to collapse, disrupt water supplies, electricity and phone lines and are often associated with **landslides** and **flash floods**. Buildings that are not built to a high seismic design level or are large in size could be susceptible to structural damage. Large facilities or historic buildings including the Contoocook Covered Bridge, Town Hall, cemetery headstones, Contoocook Dam and the US Army Corps facilities, many homes in downtown Contoocook, Hopkinton High School, manufactured housing parks, and densely populated locations are particularly at risk because of building sizes, building age, and/or their large numbers of people contained within or nearby. Important highways I-89, NH 103, US 202, NH 9 and NH 127 and many other primary travel ways flow over major bridges.

Loss of infrastructure 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 of Boscawen, Webster, Hopkinton proper, Hopkinton (Contoocook), Henniker, Hillsborough, Salisbury, 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 **\$2.3m** in building-only damage costs, 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 nor cold is measurable for dollar damage. Hopkinton has many vulnerable populations, including public schools, concentrated Contoocook Village, Hopkinton Schools, Slusser Community Center, multi-family neighborhoods, manufactured housing parks, remote neighborhoods on cul-de-sacs, and more. A detailed inventory of **Vulnerable Populations** can be undertaken by the Town and regularly updated which can be used by emergency responders to ensure susceptible people remain healthy. Dollar damage estimates are not feasible for **extreme temperature** hazards.

### High Wind Events, Downburst, Tornado, Storm 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. High wind events could be particularly fierce in areas at higher elevations along corridors such as I-89. The Town typically clears trees along roads for each storm (wind, snow, ice, etc), working with Eversource and Unitil to get electricity reconnected.

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 **\$2.3m** (for more localized **downburst, high winds** and **hail, or tornadoes**) to **\$11.4m** (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 Hopkinton are at specific risk but lightning strikes can cause fires. Damages will vary according to the value of the structure and home and the contents inside, and dollar amounts would depend on if the hazard hit an area with a high density of buildings. Specific sites which would cause the greatest impact if

struck by **lightning** include conflagrations in the Village area, high density multi-family neighborhoods around the wildland urban fire interface areas, manufactured housing parks, cul-de-sac neighborhoods; high elevations; densely populated buildings including the Schools; historic buildings like the Town Hall and Hopkinton Library which suffered a devastating lightning strike in 2018. Town Facilities like the DPW Highway Garage, Town Hall, Fire Station, Police Department and Transfer Station are necessary for governmental function and provision of basic services.

The Town's utilities, including powerlines, high tension powerlines, telecommunications towers, switching stations, telephone lines and broadband cable internet service, gas lines, water and wastewater facilities and their software control systems, as well as the municipal and School computer systems, are vulnerable to **lightning strike**. Tall buildings could be vulnerable without lightning rods.

With a scenario of **0.5%** of buildings damaged throughout the Town, a **lightning strike** could potentially cause up to **\$1.1m** in building-only damage costs alone, not including contents, infrastructure, land, or additional damage through fire spreading.

#### Public Health

Dollar damage estimates are not feasible for **public health** hazards, with such a variety of potential issues, locations, and populations.

#### River Hazards

**Ice jams** on the **Contoocook River, Warner River, Blackwater River** or one of the major brooks could cause inland inundation **flooding**, with the potential for recurrence. Woody material causing **debris impacted infrastructure** may be more likely to impact bridges than ice jams, especially the structurally deficient State or Town bridges. Several bridges or roads span across the rivers, named brooks and many unnamed brooks. Small brooks culverts and drainage systems offer additional opportunity for ice jams, debris blockage, and more.

This average figure of **\$750,000** can be used for one (1) local bridge *replacement* in Hopkinton 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 **river hazard** damages is if half (7) of the **14** 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 **\$177k** in *building* damage costs.

#### Winter Weather (Snow, Ice)

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 Hopkinton 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 Hopkinton, wooded and forested sections vulnerable to tree fall, include the entire Town. 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 **\$2.3m to \$11.4m** 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, antenna arrays, electrical grids, and technology. The Town, School, and Village Water Precincts' equipment, along with state and county technology, are vulnerable to **solar storms**, such as antennas and repeaters computer systems, emergency response dispatch systems, electricity, internet, satellite dishes, and software programming interruption that upkeeps essential functions. Although a potential natural hazard, dollar damage estimates are 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. Subdivisions in remote hilltop locations and on private, cul-de-sac or non-Town maintained roads are especially vulnerable.

The public access conservation lands and their trails offer wonderful recreational opportunities for residents and visitors. Forests and woodlands are particularly vulnerable to **wildfire** because accidental human-caused fires could occur. Remote fires might not be reported until they become large enough to be spotted. 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 **\$2.3m** in *building*-only damage costs, 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 Hopkinton agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding. For more information on the National Flood Insurance Program, visit <https://www.floodsmart.gov/why/why-buy-flood-insurance>.

The initial identification of Hopkinton’s Flood Hazard Boundary Maps was produced on **August 23, 1974**, and later the first Flood Insurance Rate Maps (FIRM) were developed on **May 17, 1988** over a decade later and included the Special Flood Hazard Areas (SFHAs). The Town entered the regular phase of NFIP membership on this date. Hopkinton’s first Flood Insurance Study (FIS) was produced in **May 1978**. No amended FIS or FIRMs were developed for the Town until over four decades later, consistent with other Central NH Region communities in **2010**.

In the present day, Hopkinton’s effective FIRMs are digital (DFIRMs) dated **April 19, 2010** as is the Merrimack County Flood Insurance Study (FIS) which includes Hopkinton (community #330116); individual community FIS are no longer being developed. These **2010** newest documents were adopted by the Select Board, supersede all previous NFIP documentation, and are placed into the Town Zoning Ordinance. **Table 5.7** summarizes the historical background of the Town’s NFIP effective dates.

**Table 5.7**  
**NFIP History of Hopkinton – Effective Dates**

FIS Version		Flood Insurance Study (FIS)	Flood Insurance Rate Maps (FIRMS)
Original Hopkinton Town	#330116	May 17, 1988	May 17, 1988
Current Merrimack County		April 19, 2010	April 19, 2010
Preliminary Merrimack County, NH	33013CV001B	October 12, 2022	October 12, 2022
Preliminary Merrimack County, NH	33013CV001C	May 25, 2023	May 25, 2023

Source: FEMA Merrimack County Flood Insurance Study (FIS) Table 9 & Bibliography, 2010; Preliminary 2022 & 2023 Merrimack County FIS



DRAFT

Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

5 COMMUNITY VULNERABILITY ASSESSMENT AND LOSS ESTIMATION

The Preliminary October 12, 2022 Merrimack County Flood Insurance Study (FIS) contains some revised Digital Flood Rate Insurance Maps (FIRMs) for Concord but it is not yet effective, so it remains notable but not included within the table. Further, a new May 25, 2023 Merrimack County FIS was produced for the western half of Merrimack County. As of April 1, 2024 neither FIS has been approved. See section on INLAND FLOODING in this Chapter for more detailed information.

**FLOOD INSURANCE STUDY**  
FEDERAL EMERGENCY MANAGEMENT AGENCY


VOLUME 1 OF 4

**MERRIMACK COUNTY,  
NEW HAMPSHIRE**  
(ALL JURISDICTIONS)

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ALLENSTOWN, TOWN OF	330103	NORTHFIELD, TOWN OF	330118
ANDOVER, TOWN OF	330104	PEMBROKE, TOWN OF	330119
BOSCAWEN, TOWN OF	330105	PITTSFIELD, TOWN OF	330120
BOW, TOWN OF	330107	SALISBURY, TOWN OF	330121
BRADFORD, TOWN OF	330106	SUTTON, TOWN OF	330122
CANTERBURY, TOWN OF	330108	WARNER, TOWN OF	330123
CHICHESTER, TOWN OF	330109	WEBSTER, TOWN OF	330236
CONCORD, CITY OF	330110	WILMOT, TOWN OF	330124
DANBURY, TOWN OF	330111		
DUNBARTON, TOWN OF	330202		
EPSOM, TOWN OF	330112		
FRANKLIN, CITY OF	330113		
HENNIKER, TOWN OF	330114		
HILL, TOWN OF	330214		
HOOKSETT, TOWN OF	330115		
HOPKINTON, TOWN OF	330116		
LOUDON, TOWN OF	330117		
NEW LONDON, TOWN OF	330230		
NEWBURY, TOWN OF	330226		

REVISED: **PRELIMINARY**  
10/12/2022

FLOOD INSURANCE STUDY NUMBER  
33013CV001B  
Version Number 2.6.3.6



2022 Table 1: Listing of NFIP Jurisdictions with DFIRM Panels (Hopkinton only)

Hopkinton, Town of	330116	01070003, 01070006	33013C0314E, 33013C0318E, 33013C0485E, 33013C0492E, 33013C0501E, 33013C0502E, 33013C0503E, 33013C0504E, 33013C0506E, 33013C0507E, 33013C0510F, 33013C0511E, 33013C0515E, 33013C0520F, 33013C0530F, 33013C0540F
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**FLOOD INSURANCE STUDY**  
FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 4


**MERRIMACK COUNTY,  
NEW HAMPSHIRE**  
(ALL JURISDICTIONS)

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ALLENSTOWN, TOWN OF	330103	NORTHFIELD, TOWN OF	330118
ANDOVER, TOWN OF	330104	PEMBROKE, TOWN OF	330119
BOSCAWEN, TOWN OF	330105	PITTSFIELD, TOWN OF	330120
BOW, TOWN OF	330107	SALISBURY, TOWN OF	330121
BRADFORD, TOWN OF	330106	SUTTON, TOWN OF	330122
CANTERBURY, TOWN OF	330108	WARNER, TOWN OF	330123
CHICHESTER, TOWN OF	330109	WEBSTER, TOWN OF	330236
CONCORD, CITY OF	330110	WILMOT, TOWN OF	330124
DANBURY, TOWN OF	330111		
DUNBARTON, TOWN OF	330202		
EPSOM, TOWN OF	330112		
FRANKLIN, CITY OF	330113		
HENNIKER, TOWN OF	330114		
HILL, TOWN OF	330214		
HOOKSETT, TOWN OF	330115		
HOPKINTON, TOWN OF	330116		
LOUDON, TOWN OF	330117		
NEW LONDON, TOWN OF	330230		
NEWBURY, TOWN OF	330226		

PRELIMINARY  
5/25/2023

REVISED:

FLOOD INSURANCE STUDY NUMBER  
33013CV001C  
Version Number 2.6.3.6



2023 Table 1: Listing of NFIP Jurisdictions with DFIRM Panels (Hopkinton only)

Hopkinton, Town of	330116	01070003, 01070006	33013C0314F, 33013C0318F, 33013C0482F, 33013C0485F, 33013C0492F, 33013C0501F, 33013C0502F, 33013C0503F, 33013C0504F, 33013C0506F, 33013C0507F, 33013C0510F, 33013C0511F, 33013C0515F, 33013C0520F, 33013C0530F, 33013C0540F
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HOPKINTON NFIP STATISTICS

In **Table 5.8** 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 the Town. Five snapshots in time, one from each of Hopkinton’s previous **Hazard Mitigation Plans** and two from the **2024 Plan** period display the number of NFIP policies in force and paid loss statistics between **December 2003 – February 2024**, the last date of accessible data.

**Table 5.8**  
History of NFIP Policy and Paid Loss Statistics

Report Date	Policies in Force	Insurance in Force	Number of Paid Losses Since 1988	Total Losses Paid Since 1988	Type of Current NFIP Policies in Force			
					Single Family	2-4 Family	Other Residential	Non-Residential
Dec 2003	0	\$1,827,000	1	\$7,767				
Jan 2009	23	\$4,404,800	1	\$14,585				
Feb 2016	28	\$6,229,700	4	\$25,056				
Nov 2022	12	\$3,483,600	4	\$25,056				
Feb 2024	10	\$2,858,000	4	\$25,056	10	0	0	0

Source: Hopkinton Hazard Mitigation Plans; Floodsmart.gov  
NH Office of Planning and Development Floodplain Management April 2023

From **Table 5.8**, after the severe flooding event period of **2005-2008**, **23** properties in Hopkinton were covered by NFIP flood insurance in **Jan 2009**, followed by an increase to **28** properties by **Feb 2016**. The highest number of policies in Town in **Feb 2016** covered **28** properties for **\$6.2** million. Only **4** paid losses totaling **\$25,056** have been claimed in Hopkinton to date.

Since the **2017 Plan**, the number of properties (policies) covered by flood insurance fell to **10** total policies in the community in **2022**, covering only **\$2.9** million in damage. Normally, the number of policies would fluctuate, influenced by the number of current severe flooding events, recent changes in flood insurance regulation, the higher cost of insurance, uncertainty about exact floodplain location, mortgage requirements, the changing real estate market, and assumptions that flood insurance is unnecessary if one’s property is outside of the floodplain. Since there has been no recent severe flooding, fluctuation did occur in Hopkinton and is remaining consistent.

**Table 5.8** also illustrates that while the property owners anywhere in the entire Town of Hopkinton are eligible to purchase flood insurance for their property, still **10** properties out of the **3,261** total parcels in the entire community are insured against flooding. As described previously, a total of **16** parcels with homes and non-residential buildings seem to be at least partially situated in the Special Flood Hazard Areas (SFHA).

Assuming the **10** NFIP policy properties are located within the SFHA floodplains, then **63%** of buildings in the floodplain are insured against flooding.

All of Hopkinton’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. Buildings and properties are especially vulnerable to **Contoocook River Flooding** from the **Blackwater River** and **Warner River** inflow before the US ACOE Hopkinton Dam.

**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 **1988** 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 **1988**.

As of **Dec 2023**, Hopkinton 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 Planning and Development (NH OPD). Records indicate no repetitive losses have ever been filed in Hopkinton. **Table 5.9** displays the general existing repetitive loss data in **2023**:

**Table 5.9**  
**Number of Repetitive Loss Properties**

Building Type	Number of Repetitive Loss Properties as of 12-23	Number of Buildings Acquired by Town	Remaining Repetitive Loss Buildings
Single Family	0	0	0
Multi-Family	0	0	0
Non-Residential	0	0	0
<b>Total Properties</b>	<b>0</b>	<b>0</b>	<b>0</b>

Source: NH Office of Planning and Development (NH OPD) 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 repetitive losses occur, the Town could 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.

The Town maintains awareness of when parcels in the floodplain become available for sale or by tax deed. The Town has the opportunity to remove buildings from the **Contocook River** floodplain downstream from the Hopkinton Dam when opportunities arise.

## 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 Hopkinton

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 Planning and Development (NH OPD) did not identify Hopkinton as a repetitive loss community, which is based upon **Table 5.9** data, Hopkinton is classified as a Tier 2 community. For a Tier 1 community that has experienced repetitive losses, a new CAV will be undertaken every five years or if there is a severe flooding event. For towns without any repetitive losses, they are classified as Tier 2 where a telephone call may be made to the Town every 5-10 years or otherwise as needed when so classified.

The last technical Community Assistance Visit was undertaken in **2005**, according to NH Office of Planning and Development’s (NH OPD). Any minor problems with the floodplain management regulations or process was rectified at that time. In **Sep 2023**, NH OPD provided “housekeeping” revisions to Hopkinton’s Zoning Ordinance in time for Town Meeting approval as well as amendments for the Planning Board’s Site Plan Review Regulations to maintain NFIP compliance. The Subdivision Regulations were deemed compliant at that time.

Hopkinton is not a repetitive loss community and there have been no significant flooding events since the last **2017 Plan**. To ensure continuation of safe policies, a follow-up regulation/ordinance review should be undertaken by NH OPD to review Building Department procedures and the contents of the Floodplain Ordinance, Subdivision Regulations and Site Plan Review Regulations remain compliant with NFIP policies prior to **2028**, when this Plan expires.

Floodplain Development District Ordinance

The Town of Hopkinton has a Floodplain Ordinance that currently contains the required FEMA regulations to remain eligible for the NFIP. The Town of Hopkinton approved their first Floodplain Ordinance at Town Meeting in **March 1988** prior to becoming a NFIP member on **May 17, 1988**. The Zoning Ordinance does not indicate all revision dates, but a few revision dates are noted according to prior Hazard Mitigation Plans.

The last major revision was **March 2010** to adopt the new **2010** Merrimack County Flood Insurance Study (FIS) and the accompanying **April 19, 2010** Digital Flood Insurance Rate Maps (FIRMS) DFIRMS.

<b>March 9, 1988</b>	Added Section XVII Floodplain Development Ordinance (Article 7).
<b>March 11, 1997</b>	Amended Floodplain Ordinance to fulfill FEMA model regulations.
<b>March 2008</b>	Revised and added Floodplain Ordinance language .
<b>March 2010</b>	Adopted new April 2010 DFIRMs and Floodplain Ordinance language.
<b>TBD</b>	Pending: Preliminary October 2022 Floodplain Maps and Preliminary May 2023 Floodplain Maps

The **2023** Hopkinton Floodplain Management Zoning Ordinance contains the elements requested to date by FEMA and the NH Office of Planning and Development’s Floodplain Management Program. A Floodplain Development Overlay District map is available at the Town’s Planning Office. An excerpt of the Floodplain Ordinance is displayed in **Figure 5.A**.

NFIP Familiarity in Hopkinton

According to NFIP policies, when an applicant files a request for a building permit in the floodplain, the applicant must include an elevation certificate 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. To reduce flood risks, the Building Inspector, Town Assessor, Town Administrator, Town Planner, 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.

Association of State Floodplain Managers

[www.floods.org](http://www.floods.org)

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 (NH HSEM) or the NH Office of Planning and Development (NH OPD) 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://training.fema.gov/is/searchis.aspx?search=NFIP>.

An essential step in mitigating flood damage is Town and property owner participation in the NFIP. Hopkinton should work to consistently enforce NFIP compliant policies to continue its participation in this program. Town staff field 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 issue is to have a survey completed 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.

When possible, Town staff should try to promote flood insurance to property owners in Town; recall 10 properties out of the 3,261 parcels in Hopkinton are protected by flood insurance and currently take advantage of the NFIP insurance opportunity. Informational links for the public on flood topics could be located on the Town's website at [www.hopkinton-nh.gov](http://www.hopkinton-nh.gov).

Figure 5.A Latest Floodplain Development Ordinance

SECTION XVII  
FLOODPLAIN DEVELOPMENT ORDINANCE

The following Regulations shall apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency in its "Flood Insurance Study of the County of Merrimack, NH" dated April 19, 2010, together with the associated Flood Insurance Rate Maps dated April 19, 2010, and are declared to be part of the Hopkinton Floodplain Development Ordinance.

**17.1 DEFINITION OF TERMS**

**17.1.A.1 Area of Special Flood Hazard** is the land in the flood plain with a community subject to a one percent or greater chance of flooding in any given year. The area is designated a Zone(s) "A" and "AE" on the Flood Insurance Rate Map.

**17.1.B.1 Base Flood** means the flood having a one percent chance of being equaled or exceeded in any given year.

**17.1.B.2 Basement** means any area of the building having its floor subgrade (below ground level) on all sides.

**17.1.B.3 Building** See "Structure."

**17.1.D.1 Development** means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.

**17.1.F.1 FEMA** means the Federal Emergency Management Agency.

**17.1.F.2 Flood or Flooding** means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) The overflow of inland or tidal waters.
- (2) The unusual and rapid accumulation or runoff of surface waters from any source.

**17.1.F.3 Flood, 100 Year** See "Base Flood."

**17.1.F.4 Flood Elevation Study** means an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation, and determination of mudslide (i.e., mudflow) and/or flood-rated erosion hazards.

**17.1.F.5 Flood Insurance Rate Map (FIRM)** means an official map of a community, on which the Federal Emergency Management Agency has delineated both the special hazard areas and the risk premium zones applicable to the community.

**17.1.F.6 Flood Insurance Study** See "Flood Elevation Study."

**17.1.F.7 Floodplain or Flood-prone Area** means any land area susceptible to being inundated by water from any source (see definition of "flooding").

**17.1.F.8 Flood Proofing** means any combination of structural and non-structural additions, changes, or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

Hopkinton Zoning Ordinance 2023 | Page 132

Source: Section of Hopkinton Zoning Ordinance March 2023; <https://www.hopkinton-nh.gov/administrator/files/floodplain-development>

**NFIP SUBSTANTIAL DAMAGE/SUBSTANTIAL IMPROVEMENT**

A goal of National Flood Insurance Program (NFIP's) is to reduce flood risk after a flood event occurs. The program does this through substantial damage/substantial improvement rules. Whenever a structure in the FEMA Special Flood Hazard Area (**1%** chance flood, or **100**-year floodplain) has been damaged by any origin (flood, fire, tornado, blizzard, etc.), the community is responsible for determining whether or not the cost of repairs to the structure is equal to or exceeds **50%** of the market value of the structure. If it is, then the entire structure must be brought into compliance with the current building code.

Substantial damage/substantial improvement determinations allow communities to require owners of structures built before the community joined the NFIP (before **May 1988** for Hopkinton) to comply with current construction standards. Communities are responsible for making substantial damage/substantial improvement determinations and notifying property owners.

In Hopkinton, the Planning & Building Department (<https://www.hopkinton-nh.gov/planningbuilding>) which includes the Planning Department and Building Department is responsible for making substantial damage/substantial improvement determinations. The Building Inspector can perform this duty, with the Planning Director as a backup.

Currently, there are adequately trained staff available to undertake these determinations, although more training would be useful. The Building Inspector will work closely with Planning Department staff and Assessing Office staff to make necessary determinations.

The process for determination of substantial damage/substantial improvement in Hopkinton is as follows:

- Usually, the Building Inspector meets with the applicant to discuss the project and requirements prior to the applicant completing the building permit application <https://www.hopkinton-nh.gov/planningbuilding/pages/applications-forms-documents>.
- As part of the building permit process, it is determined whether the property is in the floodplain.
- The Town of Hopkinton Zoning Ordinance Section XVII Floodplain Development Ordinance on the Town website ([at zoning ordinance 2023.pdf on hopkinton-nh.gov](#)) is referenced.
- If the property is in the floodplain, using the plans submitted with the building permit, it is determined whether substantial damage determinations can be made or substantial improvements are proposed.
- The Building Inspector follows up with a letter or email to the applicant as needed. While e-mail is a primary source of information dissemination to individual property

owners, final determinations are made in writing to the owner and any known representatives.

- The Town refers to FEMA P-758 as a guide when making substantial damage/substantial improvement determinations. This is helpful when applying the standards of the Town's Floodplain Development District.
- Before a flooding event, emergency alerts are sent out via cell phone apps, on Facebook pages, and on the Town website. When requested, the Town initially communicates substantial damage/substantial improvement requirements to property owners by email.

Information including NFIP Elevation Certificate and Instructions, Request to change a Flood Zone Determination, State Building Code for Flood Hazards, NH Flood Hazards Handbook and more are posted online available for the public to access at:

<https://www.hopkinton-nh.gov/planningbuilding/pages/floodplain>.

#### DIGITAL FLOOD INSURANCE RATE MAPS FROM FLOOD INSURANCE STUDY

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 Hopkinton.

#### Special Flood Hazard Areas (SFHA)

**Base Flood Elevations (BFEs)** are abundant within Central NH along the **Merrimack River, Contoocook River, Blackwater River, Soucook River** and **Suncook River** on the DFIRMs of **2010**. In **October 2022**, a new Merrimack County Preliminary Flood Insurance Study (FIS) was completed for the eastern half of Merrimack County with a focus on the sub-watersheds (Version E FIRM panels). In **May 2023**, the FIS was modified again to incorporate revisions to the western half of the county with a similar focus on the sub-watersheds (Version F FIRM panels). As of **Jan 2024**, both of these sets of revisions remain Preliminary, yet this Plan will examine the changes as the newest available FEMA floodplain information available.

In Hopkinton, there is only the set of Preliminary **May 2023** revised DFIRMs to review. Both sets of draft Preliminary DFIRMs include current aerial photography. More specific locations of the SFHAs are displayed in a clearer color scheme, and new **Zone A** and **Zone X** areas are identified. New, specific BFEs measurements were plotted and the regulated floodway areas **Zone AE** are slightly adjusted. Hopkinton's Preliminary **2023** DFIRMs are under review and are subject to further revision.

The primary DFIRMs (Version F) identifying floodplains in Hopkinton (**330116**) which are along the Contoocook River are NH (**D33013C**) **#0503, #0504, #0501, #0502, #0506**, and **#0318**. Also included is



#0314 which follows a section of the **Blackwater River** only. Some of the **Contoocook River** panels are shared with the **Warner River** and **Blackwater River**. These seven (7) DFIRMs include regular BFEs along their span through Town and have SFHA **Zone AE** (1% annual risk of flooding) with floodways.

These DFIRMs display the SFHA **Zone AE** (1% annual risk of flooding) without floodways, SFHA **Zone A** (1% annual risk of flooding) except for #0314 in Hopkinton, and **Zone X** (0.2% annual risk of flooding) locations. These are highlighted blue in **Table 5.10**.

The remaining DFIRMs covering the community, #0507, #0485, #0510, #0492, #0511, #0515, #0520, and #0540, display SFHA **Zone A** (1% annual risk of flooding) and/or **Zone X** (0.2% annual risk of flooding) locations. These are typically found along the major brooks, ponds, and wetlands in Town. A new DFIRM panel #482F was produced when a section of #0485 was reevaluated to provide more specific SFHA information.

The remaining DFIRM #0530 does not display floodplains within Hopkinton, although it does so for an abutting community. **Table 5.10** also provides this information.

Table 5.10

Locations of Hopkinton Special Flood Hazard Areas (SFHA) on May 2023 Preliminary DFIRMS

Panel NH 33013CV 001B	Flood Zones in Hopkinton 330116	New PRELIM 05-23 BFEs	Water Body Areas in Floodplains	2010 Base Flood Elevations (BFEs)	Community of Hopkinton Geographic Location
0314F	AE with floodway, AE, X	360	Blackwater River	360	Small northeastern section of Town, shares short northern border with Webster.
0318F	AE with floodway, AE, A, X	354 (DMB). 353 (CR).	Contoocook River, Deer Meadow Brook	359, 359 (CR). 360 (DMB).	Northeastern corner bordering Webster and Concord.
0501F	AE with floodway, AE, A, X	362 (CR). 360, 359, 358, 357 (WR).	Warner River, Contoocook River, Browns Brook, Hardy Spring Brook, Hopkinton-Everett Flood Control Reservoir	364 (CR). 362 (WR).	Northern-central border with Warner, northern-east border with Webster. Contains Interstate I-89 and Route 127.
0502F	AE with floodway, AE, A, X	359, 358, 357, 356 (WR). 362, 359, 357, 356, 355 (CR). 360, 359 (BWR).	Contoocook River, Warner River, Blackwater River, Browns Brook	362, 361, 361, 361, 360 (CR). 362, 362 (WR). 360 (BWR).	Northern-central border with Webster. Contains Route 127. Confluence of Warner River and with Contoocook River.
0503F	AE with floodway, AE, A, X	370, 366, 365, 364, 363 (CR).	Contoocook River, Hardy Spring Brook, Hopkinton-Everett Flood Control Reservoir	383, 370, 367, 366, 366, 365, 365, 364	Western-central section containing Route 127. Part of I-89, and Hopkinton Dike/Elm Brook Dam
0504F	AE with floodway, AE, A, X	363, 362 (CR).	Contoocook River, Unnamed Brook, Hopkinton-Everett Flood Control Reservoir	365, 365, 364	Geographic center of the community. Contains I-89 junction with Route 127, NH 103.
0506F	AE with floodway, AE, A, X	359 (BWR).	Contoocook River, Blackwater River, Deer Meadow Brook, Dolf Brook	360, 360, 359 (CR). 360 (BWR).	Northeastern section of Town, shares short western border with Concord.

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

5 COMMUNITY VULNERABILITY ASSESSMENT AND LOSS ESTIMATION

Panel NH 33013CV 001B	Flood Zones in Hopkinton 330116	New PRELIM 05-23 BFEs	Water Body Areas in Floodplains	2010 Base Flood Elevations (BFEs)	Community of Hopkinton Geographic Location
		355, 354, 353 (CR). 354 (DMB).			
<b>0482F NEW for 05-23</b>	A, X	N/A	<b>Hardy Spring Brook, Clement Pond, Grassy Pond</b>	----	NEW panel for 05-23. Takes the place of the northeastern section of Panel 485 because of new & greater detail. Northwestern section of Hopkinton, shares border with Warner, small section of western border with Henniker.
<b>0485F</b>	A, X	N/A	<b>Hardy Spring Brook, Carr Pond, Clement Pond, Grassy Pond, Rolf Pond</b>	N/A	Northwestern corner, shares western border with Henniker, northern border with Warner.
<b>0492F</b>	A, X	N/A	<b>Contoocook River</b>	N/A	Short western-central border shared with Henniker. Contains Routes 9/202, NH 127.
<b>0507F</b>	A, X	N/A	<b>Dolf Brook</b>	N/A	Eastern border of Town, shares western border with Concord.
<b>0510F</b>	A, X	N/A	<b>Dolf Brook, Kimball Pond, Whittier Pond, Unnamed Brook</b>	N/A	Central and eastern-central sections of Town. Eastern border shared with Concord. Contains Whittier Pond, Routes 9/202 and Route 127.
<b>0511F</b>	A, X	N/A	<b>Contoocook River, Hopkinton-Everett Flood Control Reservoir</b>	N/A	Western section of Town containing Routes 9/202. Shares western border with Henniker.
<b>0515F</b>	A, X	N/A	<b>Hopkinton-Everett Flood Control Reservoir, Drew Lake, Hopkinton Lake</b>	N/A	Southwestern corner of Town and the south-central section. Shares southwest border with Henniker. Contains Routes 9/202.
<b>0520F</b>	A, X	N/A	<b>Flood Control Reservoir, Drew Lake, Canal #2, One Stack Brook, One Stack Brook Trib B, Boutwell Mill Brook, Boutwell Mill Brook Trib B., Kimball Pond, Smith Pond</b>	N/A	Southeastern-central area. Shares southern border with Dunbarton. Contains Interstate 89 and Routes 9/202. Southeast section of ACOE Hopkinton-Everett Flood Control Reservoir
<b>0530F</b>	None	N/A	<b>N/A</b>	N/A	Eastern edge of Hopkinton, short section of Hopkinton Road at border with Concord
<b>0540F</b>	A	N/A	<b>Boutwell Mill Brook, Boutwell Mill Brook Tributary A</b>	N/A	Southeastern corner of Hopkinton, shares southern border with Bow and eastern border with Concord. Contains I-89 and Routes 9/202.

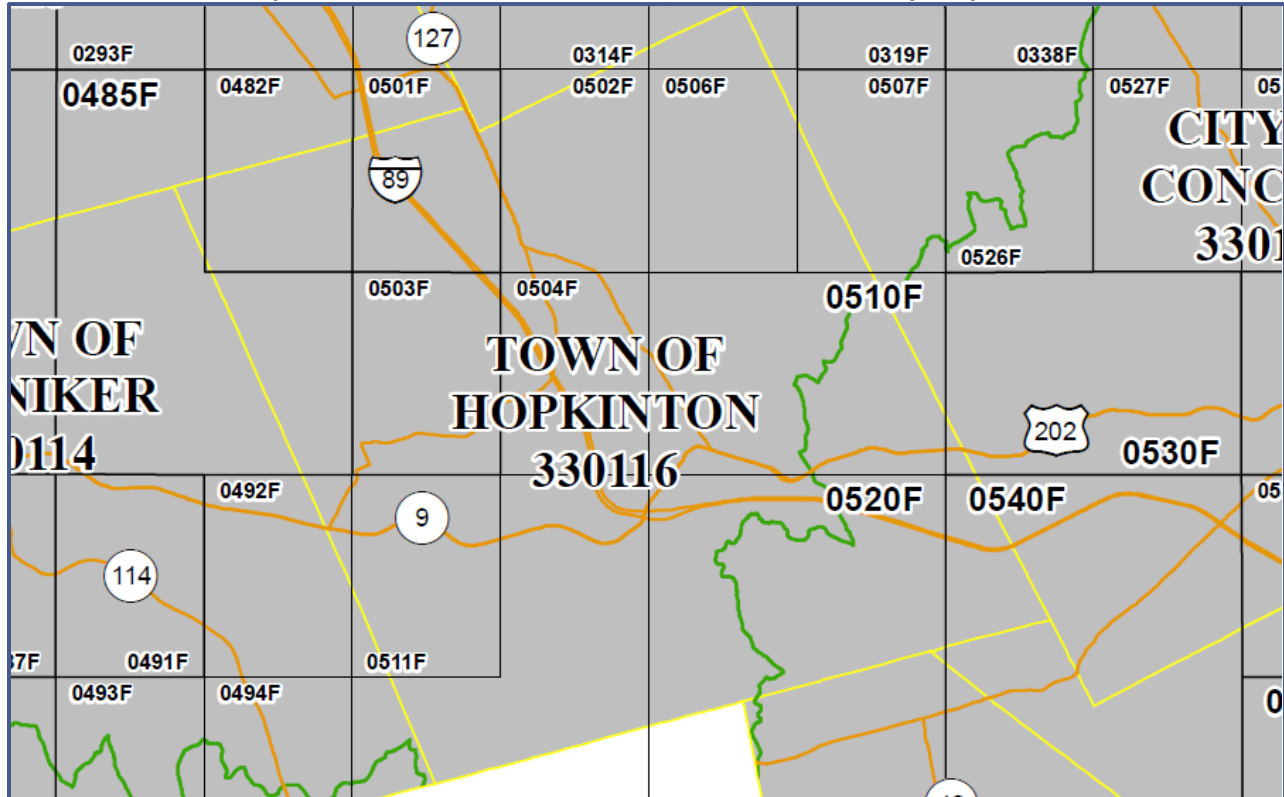
Sources: FEMA Map Center <https://msc.fema.gov/portal/home> (last accessed 11-23)

FEMA Flood Insurance Study Merrimack County, NH PRELIMINARY 05/25/2023 33013CV001B

Version Number 2.6.3.6

Figure 5.B displays the relative location of each of the DFIRM panels in the community used in Table 5.10. This set of DFIRMs is excerpted from the Preliminary Merrimack County Flood Insurance Study (FIS) of May 2023. One additional DFIRM panel was added, #0482F, which had been part of the large scale panel of #0485 in 2010. The graphic illustrates the numbering system of the DFIRMs and how they are not consecutive.

Figure 5.B  
Hopkinton DFIRM Panel Locations (330116), Preliminary May 2023

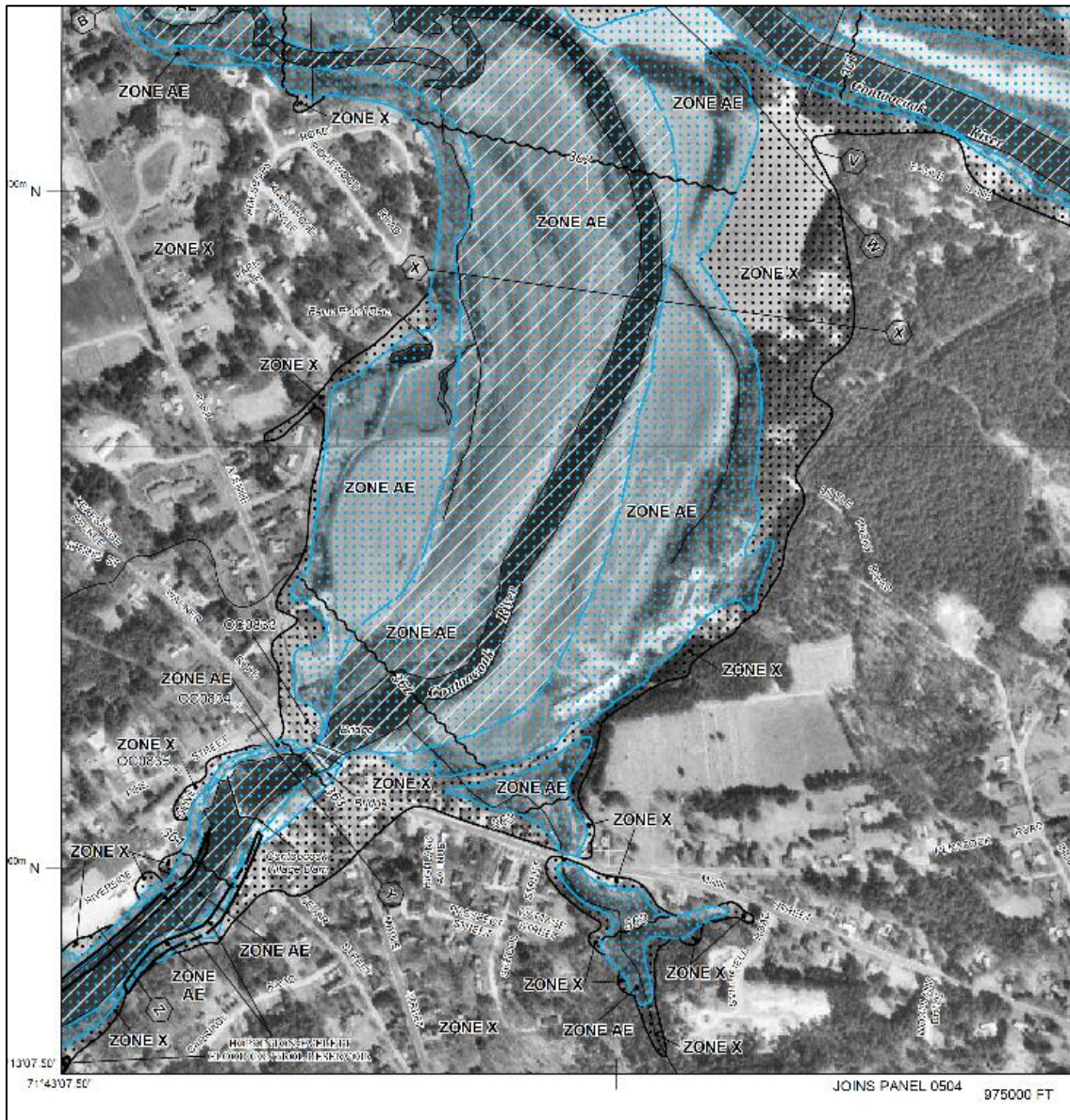


Sources: FEMA Map Center <https://msc.fema.gov/portal/home> (last accessed 11-23)  
FEMA Flood Insurance Study Merrimack County, NH PRELIMINARY 05/25/2023, 33013CV001B  
Version Number 2.6.3.6

A zoomed-in view in **Figure 5.C** of the Contocook Village DFIRM #502 from 2010 illustrates the current, compliant floodplain appearance, a significant upgrade from the previous series of paper maps. The 2010 maps were set on an aerial photography background that displays roads, buildings and forested areas.

Figure 5.C

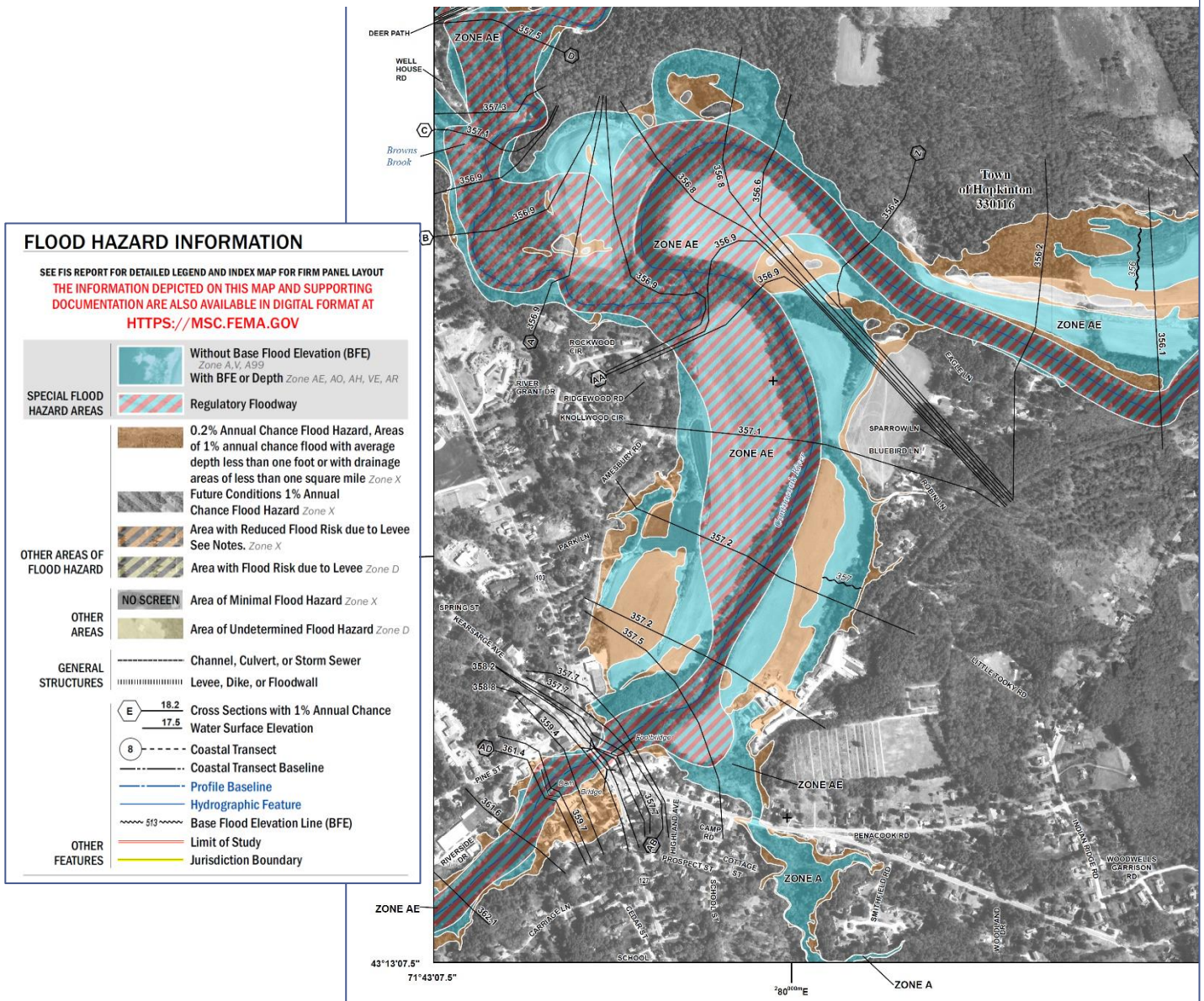
Zoom View of Hopkinton FEMA DFIRM Panel Location #0502 (2010)



The Preliminary 2023 Panel map of the same location roughly compares with the 2010 DFIRM. with. The new DFIRM provides greater clarity and adjustments made to the Special Flood Hazard Areas (SFHAs). Small changes to Base Flood Elevations (BFEs) and the Contoocook River's Regulatory Floodway are also indicated with these revisions in Figure 5.D.

Figure 5.D

Zoom View of Hopkinton 2023 FEMA Preliminary DFIRM Panel Location #0502F (2023)



Sources: FEMA Map Center <https://msc.fema.gov/portal/home> (last accessed 11-23)  
 FEMA Flood Insurance Study Merrimack County, NH PRELIMINARY 05/25/2023, 33013CV001B  
 Version Number 2.6.3.6

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Community Vulnerability and Loss Resource Links:

- Town of Hopkinton Floodplain Construction Information  
<https://www.hopkinton-nh.gov/planningbuilding/pages/floodplain>
- Town of Hopkinton Planning and Building Department Applications  
<https://www.hopkinton-nh.gov/planningbuilding/pages/applications-forms-documents>
- FEMA Map Center  
<https://msc.fema.gov/portal/home>
- FEMA Emergency Management Institute Training (NFIP)  
<https://training.fema.gov/is/searchis.aspx?search=NFIP>
- Floodsmart.gov NFIP/FEMA Sponsored  
<https://www.floodsmart.gov/>
- National Association of Floodplain Managers  
<https://www.floods.org/>

## 6 CAPABILITY ASSESSMENT

Local mitigation capabilities are existing authorities, plans, ordinances, policies, mutual aid, programs, staffing, technical skills and assets, funding, outreach, public education, and resources that reduce hazard impacts or that could be used to help implement hazard mitigation activities. These capabilities were inventoried for the **Hopkinton Hazard Mitigation Plan Update 2024**.

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**.

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 **2017 Hazard Mitigation Plan**; and Future Improvements to the Capability.

<b>FOUR CAPABILITY ASSESSMENT TABLES</b>
<p><b>Planning and Regulatory</b></p> <ul style="list-style-type: none"> <li>• Plans and Planning Documents</li> <li>• Building Codes, Permitting, Inspections</li> <li>• Land Use Ordinances, Regulations</li> </ul>
<p><b>Administrative and Technical</b></p> <ul style="list-style-type: none"> <li>• Administrative Programs, Policies, Mutual Aid Agreements, Partnerships, Operations, Procedures</li> <li>• Staff and Volunteers</li> <li>• Technical Skills, Training, Drills</li> <li>• Assets, Security, Resources (Specialized Equipment)</li> </ul>
<p><b>Financial Resources</b></p> <ul style="list-style-type: none"> <li>• Financial Programs or Funding Resource for Hazard Mitigation Projects</li> <li>• Future Financial Resources to Explore for Haz Mit Projects</li> </ul>
<p><b>Education and Outreach</b></p> <ul style="list-style-type: none"> <li>• Public Outreach Program, Educational Activity, Notifications</li> </ul>

Town Capabilities and Review of Existing Plans

A summary of the items within the four Capability tables is provided here to offer a portrait of resources Hopkinton 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**

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

**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.

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

Primary Mitigation Department

and have a positive relationship to the **Hazard Mitigation Plan 2024**.

DEPARTMENT ABBREVIATION KEY:

BI	Building Inspector/Code Enforcement Officer
CC	Conservation Commission
EM	Emergency Management
FD	Fire Department
PWD	Public Works Department
LU?	Land Use Department?
PB	Planning Board
PD	Police Department
PRI	Private or Non-Town
SB	Select Board
HSD	Hopkinton School District
TA	Town Administration
TR	Transfers Station
WW	Wastewater Treatment
MW	Municipal Water



PLANNING AND REGULATORY CAPABILITIES

The planning and regulatory capabilities displayed in **Table 6.1** 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 hazard mitigation goals, objectives, and/or Actions.

**Table 6.1**  
**Planning and Regulatory Capabilities**

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
<b>HOPKINTON PLANS AND PLANNING DOCUMENTS</b>							
May 2023	CC Natural Resource Inventory	The 2004 National Resource Inventory was prepared with the assistance of the Society for the Protection of NH Forests. Includes: Natural Resource Co-occurrence, Wildlife Habitat Co-occurrence, Conservation Lands, Upland Habitat and Water Resources	Entire Town	High	Conservation Commission	Used by the Planning Board and Conservation Commission in application reviews	Review and update as needed; protect areas that are important natural resources for the Town
April 2021	CC Open Space Plan	Plan identifies areas in Town that are highly desirable to protect from development	Entire Town	High	Conservation Commission	Last purchase was a 2023 easement	Update the Open Space Plan
January 2017	EM Hazard Mitigation Plan	Latest FEMA approved Haz Mit Plan will expire currently updating as of 06-2023	Entire Town	High	Emergency Management	Reviewed Plan, completed some projects	Implement the Haz Mit Plan by meeting quarterly to review Action progress and evaluate the Plan, changing Action priorities as needed.
April 2014	EM Emergency Operations Plan	Updated EOP, ESFs included, WebEOC	Entire Town	High	Emergency Management	Updated in 2014	Ensure that EOP addresses all existing and potential emergency situations.

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
2021	<b>EM Public Health Emergency Management Plan Components</b>	Emergency Response Plan (includes West Nile, EEE, Smallpox, more) for public health coordinates all Town departments and officials. Hopkinton Middle/High School is designated Point of Distribution (POD) by NH HSEM. The plan is tested annually with participating communities through the Capital Area Public Health Network (CAPHN)	Entire Town, CAPHN Communities	High	Emergency Management	POD activated in 2014 for local Hopkinton hepatitis incident, regular tabletop exercises with CAPHN, drills on POD in 2013	Place all components of the Public Health EMP into 1 document as a Plan and drills and annual updates as needed.
August 2022	<b>HSD Hopkinton High School Emergency Management Plan (School)</b>	High School has its own EMP since it will become Town shelter during disasters. Subcommittees oversee different components. Includes contingency plans. Have been working with NH HSEM and had an independent consultant to assess all 3 school facilities	Hopkinton High School	High	School District	Revised annually, regular drills, new safety features such as locking door mechanisms, controlled access, keyed entry, etc.	Update the High School EMP and undertake improvement measures for the 3 schools (School). Working to implement NHHS recommendations
August 2022	<b>HSD Harold Martin School (K-3) Emergency Management Plan (School)</b>	Safety Comms include faculty, parallel preparations for all 3 schools. Subcommittees oversee different components. Includes contingency plans. Have been working with NH HSEM and had an independent consultant to assess all 3 school facilities	Harold Martin School	High	School District	Meets 4 times annually	Update the Plan and undertake improvement measures for the 3 schools (School) Working to implement NHHS recommendations
August 2022	<b>HSD Maple Street School (4-6) Emergency Management Plan (School)</b>	Safety Comms include faculty, parallel preparations for all 3 schools. Subcommittees oversee different components. Includes contingency plans. Have been working with NH HSEM and had an independent consultant	Maple Street School	High	School District	Meets 4 times annually	Update the Plan and undertake improvement measures for the 3 schools (School) Working to implement NHHS

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
		to assess all 3 school facilities					recommendations
August 2022	<b>HSD School District SAU #66 Emergency Management and Response Plan (School)</b>	Plan includes activation of emergency responders in Town, evacuation, lock down, shelter in place, etc procedures. Covers the entire District. Subcommittees oversee and update the 3 different school EMPs.	School District (3 Hopkinton Public Schools)	High	School District	Procedures have been drilled	Practice using alternate evacuation routes in schools, ensure adequate exit signage, revise if changes are made to individual school EMPs (School)
May 2022	<b>PB Master Plan</b>	Improve Town infrastructure, protect environmental, guideline for Depts, basis for ordinances and regulations	Entire Town	High	Planning Board	Referenced regularly at PB meetings, on PB Agenda monthly, updated MP in 2022	Update the Master Plan and include discussion and recommendations from Hazard Mitigation Plan
September 2022	<b>PRI Beech Hill School Emergency Management Plan (private)</b>	Safety Comm in place. Plans include contingency operations to address various hazards.	Beech Hill School	High	Beech Hill School (Private)	Reviewed annually	Be involved with Plans, encourage the Board to review and update the EMP annually and to provide a copy to the Town. (Private)
September 2022	<b>PRI Contoocook NFI Independent School Emergency Management Plan (private)</b>	Evacuation and shelter plans, utilize several concepts from SAU 66.	Contoocook NFI School	High	Contoocook NFI School (Private)	Reviewed annually	Be involved with Plans, encourage the Board to review and update the EMP annually and to provide a copy to the Town. (Private)
August 2022	<b>PRI Hopkinton Fairgrounds Emergency Management Plan (private)</b>	Plans identify evacuations, fires, bombs, medical emergencies, and dignitary security operations.	Hopkinton Fairgrounds	High	Hopkinton Fairgrounds Board of Directors (Private)	Reviewed annually by Board of Directors, changes made as necessary to accommodate various	Be involved with Plans, encourage the Board to review and update the EMP annually and to provide a copy to the Town. (Private)

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
						types of events.	
December 2022	<b>PRI McLanes of New England Emergency Management Plan (private)</b>	Plans include alarms, workplace violence, evacuations, safety oversight team, structural catastrophes for this business.	McLane Concord, Maple Street	High	McLanes NE (Private)	Reviewed annually	Be involved with Plans, encourage the Board to review and update the EMP annually and to provide a copy to the Town. (Private)
November 2022	<b>PRI EBSCO (Yankee Book) Emergency Management Plan (private)</b>	Plans include alarms, off sight evacuation, hazards in the workplace for this business.	Yankee Book, Maple Street	High	Yankee Book (Private)	Reviewed annually	Be involved with Plans, encourage the Board to review and update the EMP annually and to provide a copy to the Town. (Private)
June 2015	<b>PRI Park Avenue Apartments Emergency Management Plan (private)</b>	Affordable housing community on Park Lane, 30 residences, 1 bedroom apartments to qualified residents. Plans include alarms, off sight evacuation, hazards in the workplace.	Park Avenue Apartments, Park Lane	High	Park Avenue Apartments (Private)	Reviewed annually, no recent changes	Be involved with Plans, encourage the Board to review and update the EMP annually and to provide a copy to the Town. (Private)
10/2022	<b>PWD Road Maintenance Program</b>	Road maintenance program is a 10 year schedule program with funding from the Highway Block Grant and Town's budget.	Town Roads	Moderate	Public Works Department	A more comprehensive plan has been developed. A list of roads is made annually describing which treatments are needed	Update the Plan annually to keep the existing document more useful
2023-2028	<b>SB Capital Improvements Program Dec 2022</b>	Includes Police, Public Works, Fire, and other Depts' capital expenditures over a 6-year period. Can contain haz mit Actions funded in CIP, infrastructure improvements.	Entire Town	High	CIP Committee (Select Board)	Maintained a full 20-year basic CIP of known projects & improvements and developed	Update the CIP on a yearly basis and add hazard mitigation actions to the 2024-2029 CIP.

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
						annual for the first 6 years.	
<b>HOPKINTON BUILDING CODES, PERMITTING, INSPECTIONS</b>							
2018	<b>BI State Building Code- International Building Code (IBC) 2018</b>	Contains a suite of residential, commercial, plumbing, electrical, mechanical, energy, and existing buildings	Entire Town	High	Building Inspection	State adopted the new 2018 code in 2022. Town applies codes to construction	Apply the new 2018 codes. When State adopts newer codes, Hopkinton will too.
2018	<b>FD NFPA 1 Fire Inspection Code</b>	FD follows the NFPA codes, but is considering making changes to fit the Town	Entire Town	High	Fire Department	State adopted the new 2018 code in 2022. FD issued permits for 2015 code until 2018 code applied, then issued permits under 2018 code.	State of NH will soon adopt 2021 code with few revisions. Follow 2021 codes when adopted by State.
2018	<b>FD NFPA 101 Life Safety Codes Occupancy Inspections</b>	Contains 15 types of occupancies that may be inspected by Fire Departments, although it's not well communicated to residents: <u>- Places of Assembly</u> - Mercantile - Business - Health Care - Ambulatory Health Care - Residential Board and Care <u>- Day Care</u> <u>- Educational</u> - Apartment Buildings - Lodging or Rooming Housing - Hotel or Dormitory - 1 and 2 Family Dwellings	Places of Assembly, Day Cares, and Educational sites	High	Fire Department	State adopted the new 2018 code in 2022. FD issued permits for 2015 code until 2018 code applied, then issued permits under 2018 code.	State of NH will soon adopt 2021 code with few revisions. Follow 2021 codes when adopted by State.

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		- Industrial - Storage - Detention and correctional					
April 19, 2010	<b>SB FEMA Flood Insurance Rate Maps</b>	Adopted by Town in, used for Merrimack River, streams, brooks	Floodplains	High	Select Board	FEMA has not provided new maps since 2010, although some of the Upper Merrimack River watershed was redone. Hopkinton panels were not redone. Collected LOMRs & LOMAs for landowners.	Use the latest FEMA Panel maps in Town offices and note any substantial deviations. Review the 2022 Preliminary Flood Insurance Study to determine if any procedures need to change.
<b>HOPKINTON LAND USE ORDINANCES, REGULATIONS</b>							
June 2006	<b>PB Procedure for New Homes Beyond 1,000' from Intersection Required to be Sprinklered</b>	Any new home which is located beyond 1,000' of road from an intersection is required to be sprinklered. This is a standard practice that PB uses as a condition of approval	Entire Town	High	Planning Board	PB follows procedure, but not used since June 2006	Investigate the possibility of mandating (ordinance) the NFPA testing and maintenance of existing residential sprinkler systems
November 1988	<b>PB Septic System Setbacks</b>	No closer than 75-feet from a well or a water body	Entire Town	Moderate	Planning Board	Planning Board followed and enforced regulations	Review the setbacks to ensure they still meet the Town's needs.
2018 ACTION #01-2011	<b>PB Floodplain Development Ordinance (Zoning Ordinance)</b>	Adopted 1987 and amended in 1994, 1997, 2007 and 2018 in accordance with the National Flood Insurance Rate Program	Entire Town-Floodplains	Moderate	Planning Board	Town followed FEMA changes	Update the Floodplain Ordinance When Changes are Required

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2023	<b>PB Wetlands Overlay District Ordinance (Zoning)</b>	Adopted 1988 and amended in 1994 and 1999 and 2023. Wetlands are not considered part of the minimum size of a lot in all districts	Entire Town-Wetlands	Moderate	Planning Board	Planning Board followed and enforced ordinance	Review the ordinance to ensure it still meets the Town's needs.
March 2022	<b>PB Shoreline Protection Ordinance (Zoning)</b>	Hopkinton adopted more stringent standards than the minimum State standards as it relates to solid waste facilities or facilities which store or incinerate solid waste, construction or demolition debris	Entire Town-Shorelines	Moderate	Planning Board	Planning Board followed and enforced ordinance	Review the language to ensure it still meets the Town's needs.
April 2021	<b>PB Site Plan Review Regulation Requirements</b>	Adopted 2012; detail design standards include erosion control, pedestrian and vehicular safety.	Entire Town	Moderate	Planning Board	PB revised to address current design standards.	Review the requirements to ensure they still meet the Town's needs.
2012	<b>PB Subdivision Regulation Requirements</b>	Adopted 1989 and amended in 1991, 1992, 1995, 1997, 2002, 2003, 2005, 2007 and 2012. Stormwater run-off, erosion and sediment control, adequacy of existing and/or proposed drainage facilities, road design standards, flood hazard area impact, requires underground utilities, environmental restoration plan, and addresses the need for fire protection.	Entire Town	Moderate	Planning Board	PB revised to require restoration of disturbed areas.	Review the requirements to ensure they still meet the Town's needs.
March 2023	<b>PB Zoning Ordinance</b>	Adopted 1988 and amended each year from 1989 through 2015. Density and Growth Management controls, Flood Plain development, Wetlands protection standards, and expanded public open space.	Entire Town	Moderate	Planning Board	PB revised to readopt Growth Management Control, Excavation standards, definitions, and uses permitted.	Review the ordinance to ensure it still meets the Town's needs.
March 2022	<b>PB</b>	Adopted 1988 and readopted every five	Entire Town	Moderate	Planning Board	PB monitored	Review the ordinance to

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	<b>Growth Management Ordinance (Zoning Ordinance)</b>	years. Monitors, evaluates and establishes a rate of residential growth that is intended to not unreasonably interfere with Hopkinton's reasonable expansion of services.				growth, reviewed standards and revised to address recognize capacity of services.	ensure it still meets the Town's needs.
March 2022	<b>PB Conservation Subdivisions Ordinance (Zoning Ordinance)</b>	Provides standards for residential development of land in conjunction with the permanent protection of a portion of the property as undeveloped open space.	Entire Town	Moderate	Planning Board	Planning Board followed and enforced ordinance	Evaluate to ensure that reasonable development standards are permitted while continuing to provide opportunities to preserve open space.
May 2003	<b>PB Stormwater Construction and Maintenance Standards (Subdivision Regulations)</b>	Stormwater drainage system construction in accordance with drainage laws of NH, NH Standard specifications for Road and Bridge Construction and American Association of State Highway and Transportation Officials.	Entire Town	Moderate	Planning Board	Planning Board followed and enforced regulations	Review the requirements to ensure they still meet the Town's needs.
May 2003	<b>PWD Road Design and Construction Standards (Subdivision Regulations)</b>	Specifies method of construction and materials. Contains NH DOT roadway and drainage standards.	Entire Town-Roadways	Moderate	Public Works, Selectmen, Planning Bd	Depts followed and enforced regulations	Review the standards to ensure they still meet the Town's needs.

Source: Hopkinton Hazard Mitigation Committee



ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capabilities in **Table 6.2** 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 6.2

Administrative and Technical Capabilities

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
<b>HOPKINTON ADMINISTRATIVE PROGRAMS, POLICIES, MUTUAL AID AGREEMENTS, PARTNERSHIPS, OPERATIONS, PROCEDURES, TOWN ORDINANCES</b>							
Sep 2022	<b>CC Conservation Commission Acquisition of Easements</b>	Program evaluates and purchases key open space parcels and/or easements when opportunities arise	Entire Town	Moderate	Conservation Commission	Reviewed properties to ascertain suitability for acquisition	Consider property review and evaluation to make priority purchases
Currently & regularly in use (06-23)	<b>EM Communication with US Army Corps of Engineers</b>	Communication with representatives of the Army Corps of Engineers and the Emergency Management Director is regular. Various meetings to review activities at State Park, water quality and flooding	Entire Town, Hopkinton-Everett Reservoir Dam	Moderate	Emergency Management	Met at least monthly	Regular communications which include contact via radio
January 2023	<b>FD Fire &amp; Rescue Mutual Aid Agreement</b>	Member of Capital Area Fire Compact, renews annually. 20 Towns provide assistance. Meet nine times per year. Pay dues annually. Have access to Haz mat team as result of membership. All computerized through dispatch	Entire Town, Compact Area Communities	High	Fire Department	Updated the Towns involved in Compact, participated in monthly drills	Propose more training such as technical rescue-specific trainings.
December 2022	<b>FD Central NH Hazardous Materials Team Member</b>	Strike Team from Capital Area Compact can assist with different alarms and bring specific equipment. Massive undertaking,	Entire Town, Compact Area Communities	High	Fire Department	Team developing Haz Mat Transport Study, met quarterly	Fire Dept's participation in drills and meetings

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		Towns get billed for the services rendered.					
June 2023, under constant revision	<b>FD Fire Department Standard Operating Guidelines (SOGs)</b>	Standard Operating Guidelines recently updated, emergency response, operations, support, incident command. Broad scope to handle calls.	Entire Town	High	Fire Department	Updated the SOGs to stay constant with current guidelines. Including Ice Rescue (phased out private Rescue), SOGs are a work in progress. Operating procedures were changing regularly during COVID 2020-2022 and Dept members fulfilled requirements.	Step by step process to update and train & certify Fire Dept Members. Continue with Mutual Aid to receive and provide assistance during calls.
Currently & regularly in use (06-23)	<b>FD On-Call Fire &amp; Rescue Coverage</b>	Members arrive for incidents. Have 37 firefighters presently. Coverage is 24/7.	Entire Town	High	Fire Department	Began developing SOPs	Increase participation of members in training
November 2021	<b>PD Police Department Mutual Aid Agreements</b>	Perpetual mutual aid contract with Hopkinton's 7 abutting communities, including other communities as needed during special events such as the Hopkinton Fair	Entire Town, Mutual Aid Communities	High	Police Department	Reviewed and updated in November 2021	Amend PD MUAs as determined necessary and as statutorily required
2023	<b>PD Police Department Standard Operating Procedures (SOPs)</b>	Follow General Policies & Rules of Conduct, training at Police Academy & in-service training: firearms, CPR, first aid, batons, etc.	Entire Town	High	Police Department	Updated in accordance with changes to State laws	Amend SOPs as determined necessary and as statutorily required
January 2023	<b>PWD NH Public Works Mutual Aid</b>	PWD pays \$25/year to join NH's network of public works officials. Mutual aid of staff and	Public Works Department	High	Public Works Department	Updated annually	Maintain current effectiveness by monitoring,

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	Agreement Member	equipment available across the state	t, Entire State				evaluating, and updating agreement
January 2015	PWD Winter Maintenance Policy	Snow plowing, sanding and salting roads vary based on the temperature, type of storm, and condition of road. Originally Adopted 1978, Recorded 1992	Roadways, Entire Town	High	Public Works Department	PWD followed policy	Amend the Winter Maintenance Policy as Determined necessary, such as Emergency Parking and Sidewalk Maintenance and as Statutorily Required
August 2018	PWD Culvert Condition GPS Inventory	Inventory using GPS in 2013 by CNHRPC records condition of culverts, can be used on maps or as database	Roadways, Entire Town	Moderate	Public Works Department	Developed in 2013 Updated 2018	Update the culvert inventory and incorporate into a culvert replacement program
January 2023	PWD Culvert and Storm Drain Maintenance Program	Protocol is to replace when a culvert fails. Replace all suspect culverts before a road receives upgraded treatment	Town Roads	Moderate	Public Works Department	Culverts maintained & replaced	Upgrade Culverts as Needed and Incorporate into Maintenance Program
Jan 2019	PWD Procedure on Tree or Limb Reporting to Utility Companies	Limbs down are reported to 911 or Utility Company or Highway Dept. Assessment is taken and either handled or correct agency is notified.	Town Roads	High	Public Works Department	Used procedure at least annually. In house procedure; do not go near downed lines, report to appropriate agency	Maintain current effectiveness by monitoring, evaluating, and updating agreement
August 2005	SB State 911 Street Address System Ordinance (Selectmen Ordinance)	House numbering and street naming ordinance. Have two Main Streets, for example.	Entire Town	High	Select Board	Used the new E911-provided addresses for new homes and development.	Review the existing street numbering and road names and bring all into compliance at one time.

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2022	TA Interoperability Communication Among Town Departments	Work cooperatively during emergencies. Use cell phones and digital radio and personal communication. Multi-channel frequencies. All Depts have analog and digital, so could communicate with HD low band (analog).	Entire Town	High	Town Administration	Provided HD with a low band frequency (analog only). Obtained emergency operations frequency (formerly rescue band) for the Town.	Upgrade the radios to utilize the most current technologies. Purchase digital radios for the HD radios so all Depts can communicate on digital devices.
2019 Safety Plan	TA Joint Loss Committee / Employee Safety Program	7 staff members on Committee to promote safe and healthful work environment. Use of safety equipment; personal protective equipment; training courses and materials.	Entire Town, Town Hall	High	Town Administration	Fully updated Safety Plan in 2019. Met quarterly, provided trainings for staff. All CPR certified (2-year cert). Workers comp claims have declined.	Review the Employee Safety Program every five years. Include more consistent training for staff, including Primex programs.
<b>HOPKINTON TECHNICAL SKILLS, TRAINING, AND DRILLS</b>							
N/A	EM Radio Compatibility Between Police and Fire Departments	Police and Fire Departments have digital equipment and therefore can communicate always via radio	Police Department	High	Emergency Management	Radio communication works between the two Depts. Have added a Town of Hopkinton frequency	Maintain current radio compatibility effectiveness by monitoring, evaluating, and updating radio compatibility annually
35 Staff & Volunteers certified	EM Red Cross CPR Certification	Town staff and volunteers earned CPR certifications. , PWD, all town staff trained in CPR each year	Entire Town	Moderate	Emergency Management	Staff recertified in CPR	Update CPR certifications on regular basis
40 Staff & Volunteer	FD Firefighter Training	All firefighters and EMTs are certified as Fire Fighter level 1 (<30), level 2 (15), and level 3 (4),	Fire Department	High	Fire Department	Increased training for firefighters	Certify both FT and PT firefighters through the Fire Academy

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		and the rest are not yet certified FF 1.					
28-30 Staff & Volunteers	<b>FD Hazardous Materials Skills Training</b>	Most are Operational Level 2 (18), and some are Awareness Level 1 (16 members). At least one (1) Technician level 4. Decon level (3) has some trained members.	Fire Department	High	Fire Department	Attended Haz Mat training, for Decon people working in hot zone. Responded to haz mat calls for Central NH Ha Mat Team. Hopkin has 6-7 members are certified to Decon level.	Maintain more people at the Decon level and support their training with the Central NH Haz Mat team.
Cloud based, current as of June 2023	<b>FD Image Trend</b>	State supported Image Trend Fire reporting system, and TEMSIS (Rescue) all reports sent monthly. Town maintains the latest software. Supported by Fire Marshal's Office for use and update.	Fire Department	High	Fire Department	Migrated from Firehouse Incident Reporting System to Image Trend.	Reporting requirements may change within 18 months, keep computers and software current for compliance with state Fire Marshal.
7 EMTs 6 AEMTs 7 Paramedics	<b>FD EMT/ Paramedic Skills Training</b>	Currently have 20 EMTs/paramedics. Rescue Department is part of Town services. Three are full time, 4 are on per diem list. Rescue part was private, now it is Fire and Rescue Dept services. Supported highly by the Town for its needs.	Fire Department	High	Fire Department	Changed from privatized rescue service, purchased 2 ambulances, with a 2024 order. Have a Rapid Sequence Innovation (RSI) protocol which is becoming more prevalent. Purchased ventilator on both ambulances, stretcher load systems. Have an aggressive and well supported	Maintain certification and attain more EMTs. Obtain ultrasound equipment.

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						ambulance service.	
January 2023	<b>HSD School District Drills</b>	8 drills in each of the 3 schools required annually. 4 fire, intruder, shelter in place, lockdown, general evacuation. Town FD and PD are often involved in drills.	Hopkinton High School, Maple Street School, Harold Martin School	High	School District	Drills held at least 8 times/year in each school	Undertake drills and revising procedures including developing an alternate evacuation route for each School for fires and for the Hopkinton Fairground. (School)
Current as of June 2023	<b>FD IAmResponding</b>	Communications web-based information tool to help first responders respond to emergency calls. Capital Area Fire Mutual Aid will be getting 24 towns onboard within the next year. Used as a database as well as a current real-time response tool. When multiple towns use the tool, better and faster response by mutual aid partners.	Entire Town	High	Fire Department	Utilized the system daily to keep track of dispatch and sending alerts and alarms for more people. Preplanned address can be identified for special needs. Can identify rural water sources, mapping locations. Can load the mutual aid Town's information.	Add every building and site as pre-planned in the town, every building with sprinkler system & hydrants, special needs information (can identify pesticides & fertilizers, has mat). Software is complex so regular use by FD members is necessary for effectiveness.
All paid staff	<b>HSD School District Training</b>	All School staff, including custodians, trained bloodborne pathogens, and global harmonization system MSDS standardized every 2 years for every staff member. 13 staff are certified in UST Class C.	Hopkinton High School, Maple Street School, Harold Martin School, SAU Office	High	School District	Train staff every 2 years	Enhance the School emergency training required by all School District Employees (School)

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10 staff	<b>PWD Public Works Department Skills Training</b>	Can learn safety/ operation of chain saws during tree and limb debris clearing after storms, fire safety/ extinguishing, other related training	Public Works Department	High	Public Works Department	Completed additional training.	Maintain current effectiveness by monitoring, evaluating, and updating training program
10 staff	<b>PWD T2 Educational Program</b>	Personnel have taken courses on road maintenance and safety to ensure use of Best Management Practices	Public Works Department	High	Public Works Department	Completed additional training.	Maintain current effectiveness by monitoring, evaluating, and updating training program
10 staff	<b>PWD Public Works Department Training on Driver Safety Class</b>	Staff should be refreshed on driver safety by taking a class	Public Works Department	Moderate	Public Works Department	Completed additional training.	Seek out available classes to enhance PWD staff, driver safety skills.
5 Staff	<b>TR Transfer Station Employee Training</b>	Attend classes on haz waste, C&D, mixed paper, fire, etc held by NHDES. To maintain certification, employees must attend one workshop a year. # is certified in Haz Mat.	Transfer Station	High	Transfer Station	Completed regular training	Transfer station employee training
Monthly as of May 2023 (~30 staff)	<b>TA Cyberattack Prevention Training for Staff</b>	Program where training emails are delivered to staff with a list of tasks and quizzes at the end. Done through IT tech company- Computech Integrator. Emails sent to people with town email addresses.	Town Cloud	High	Town Administrator	Started in 2021 to ensure Town staff and town volunteers were insulated from cyberattack	Enhance training to meet new and ongoing cyber threats.
<b>HOPKINTON ASSETS, SECURITY, AND RESOURCES (SPECIALIZED EQUIPMENT)</b>							
June 2015	<b>EM Emergency Operations Center (EOC)</b>	Emergency Command Center in Contoocook Fire Station. Includes: antennas, radios, computers, satellite	Contoocook Fire Station	High	Emergency Management	New EOC constructed 2015	Develop EOC policy updates regarding its use, activation, and

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		television, telephone lines.					emergency procedures.
24 Sandbags	EM Sandbags	Sandbags are used to protect roads/structures/equipment Town-wide during changing flood conditions	Public Works Department, EOC	High	Emergency Management	Sandbags were available to use	Ensure enough sandbags are available always
5 portable generator and 1 permanent	FD Portable Generators	Currently have four (5) on wheels, one (1) permanent. Permanent is at the Contoocook Fire Station. Used for scene lighting. One is on engine 1, one is on the ladder truck, 3 suitcase generators, 1 older at Hopkinton Station.	Fire Department, available for Entire Town	High	Fire Department	Added one additional portable generator. Six generators tested and maintained on a monthly basis.	Fire Department needs are met, but permanent generator needed for Town Hall basis
3 Generators	FD Town Installed Generators	Enables running of heat & electricity during power failure at Public Works, Fire Department and High School	High School, Highway Garage, Fire Dept	High	Fire Department	Added generators to High School & Highway Garage	Add a generator set up at the Town Hall
44 FD Radios	FD Fire Department Digital Radios	Mobile radios are in all trucks plus Portables are in officers' vehicles	Fire Department, Entire Town	High	Fire Department	Radios are regularly used	Maintain current effectiveness by monitoring, evaluating, and updating digital radios annually
40 FD Pagers	FD Pagers	Used for emergency Notification for Fire, Rescue, EMS and Haz Mat Materials. All FFs have pagers. Have enough for everyone in the Dept. Tones come through lamResponding. Pagers are more effective for tones instead of receiving through cell phones. Some pagers work better than others.	Fire Department	High	Fire Department	Five Motorola Minotaur 6 pagers per year are purchased, everyone at Fire Dept receives one. Older pagers distributed to some Explorers.	Not able to hear all dispatches and there are about 30 second delay when cell phones receive tone. Will review technology to provide the best communication. Moving forward alerts may be received effectively



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							through cell phones as the goal.
12 AEDs	<b>FD Automatic Defibrillators (AEDs)</b>	Located in all schools and Town facilities, and for sports events for a total of about 12	Hopkinton High School, Maple Street School, Harold Martin School, Police, Fire, Public Works, Town Office	High	Fire Department	AEDs tested	Staff CPR and AED recertification bi-annually.
14	<b>HSD School Administrative Office &amp; SAU Panic Buttons</b>	Every Principal and Office Manager in the 3 schools have one, plus 4 are in the High School, SAU has 4. Now on the SD schedule to change the batteries.	Hopkinton High School, Maple Street School, Harold Martin School, SAU Office	High	School District	Tested and reset batteries, never been used	Test and train to use the panic buttons in the event of an emergency at school.
1 flood light	<b>PD Additional Flood Lighting</b>	Currently have one flood light (1) for Police Department. Used for scene lighting.	Police Department	High	Police Department	Light used when needed	Maintain current effectiveness by maintaining, evaluating, and upgrading flood lighting.
5 PD AEDs	<b>PD Automatic Defibrillators (AEDs)</b>	5 Portable AEDs used by the Police Department to have in their cruisers, have officers trained on their use.	Police Department, mobile	High	Police Department	Police Department CPR and AED recertification annually.	Police Department CPR and AED recertification annually.
1 generator	<b>PD Generator for Police Department</b>	Enables running of heat & electricity of the Police Department during power failure	Police Department	High	Police Department	Generator tested	Consider the generator permanently situated at the Police Station.
10 digital radios	<b>PD Inter-Operable</b>	Digital radios have ability to communicate with all Police, Fire and EMS services in the state who	Police Department	High	Police Department	Using radios and replaced as needed.	Seek grants for PD radio upgrades & replacements.

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	Digital Radios	also have digital equipment					
10 Barriers	PWD Jersey Barriers	Barriers readily stabilize a dangerous condition (shoulder washout) and/or direct traffic to alternate route without tying up Town personnel (directing traffic, etc.)	Public Works Department	High	Public Works Department	Barriers were used when needed	Acquire additional barriers as needed
8 spreaders and 12 snowplows	PWD De-icing Equipment for Public Works Department	De-icing equipment improves transportation systems throughout the town during severe winter weather conditions. This in-turn aids essential support services during response and recovery	Public Works Department	High	Public Works Department	Replaced equipment as needed	Seek out new alternatives to snow and ice removal while maintaining current effectiveness.
April 2023	TA Cartographic Associates GIS Digital Tax Maps	Provides layout of all parcels in town. Digital tax parcel maps can overlay onto critical facility sites and hazard event areas.	Entire Town	High	Town Administration	Upgraded tax maps annually with new subdivisions and lot line adjustments. Obtained \$25,000 InvestNH grant in 2023 to develop GIS layers related to housing.	Add additional layers to the Tax map GIS, like cemeteries, zoning layers through the InvestNH Grant. Upgrade to a staff only section (culverts, road conditions, and others).

Source: Hopkinton Hazard Mitigation Committee

**FINANCIAL CAPABILITIES**

The financial resources in **Table 6.3** 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) 2023 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 6.3**  
**Financial Capabilities**

<b>Latest Adoption or Version Date Latest Revised ?</b>	<b>Capability Assessment: Financial</b>	<b>Description Related to hazard mitigation planning and coordination</b>	<b>Location of Capability Entire Town or Selected Areas</b>	<b>Level of Effectiveness</b>	<b>Responsibility</b>	<b>Changes Since Last Haz Mit Plan (2017) / How Did Dept Use Capability?</b>	<b>Future Improvements to Capability/ Wish List for the Future?</b>
<b>HOPKINTON FINANCIAL PROGRAM OR FUNDING RESOURCE FOR HAZARD MITIGATION PROJECTS</b>							
March 2023	<b>EM Emergency Management Operating Budget</b>	Budget can contain funding for outreach programs, mitigation projects	Entire Town	High	Emergency Management	Developing the emergency management operating budget	Use Emergency Management Operating Budget to finance future hazard mitigation improvements
March 2023	<b>FD Fire Department Operating Budget</b>	Budget can contain funding for cisterns, dry hydrants, outreach programs	Entire Town	High	Fire Department	Developing the FD operating budget	Use FD Operating Budget to finance future hazard mitigation improvements
2024 (maybe)	<b>PWD NH Department of Transportation (NH DOT) Bridge Program</b>	The bridge program is an 80/20 funding opportunity, with only 20% required by towns. Using the CIP Capital Reserve Funds, towns can set aside money for the several years it takes for the state to undertake the local bridge project.	Currently have 1 bridge in program to receive funds in 2024 (maybe)	Low	Public Works Department	New Program to the Town. The bridge in program failed before funds were available 2 new bridges were added but doubtful funds will be available	Place bridges on list well before expected failure
2023-2028	<b>SB Town Capital Improvements Program</b>	Sets aside funds for large equipment/ projects.	Entire Town	High	CIP Committee	Updated associated costs during annual updates. Installed lots of	CIP is annually updated and could include expensive or long-term hazard

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
	(CIP) Project Funding					9' box culverts as upgrades, all in the CIP.	mitigation projects. Finish the identified culvert upgrades and bridge work.
December 2022	SB User Fees for Water, Sewer, Gas, or Electric	Portions of water and sewer user fees are set aside to upgrade infrastructure.	Portion of Town with service	High	Select Board (sewer) Water Commission	Rate increase has occurred	Improvements to water and sewer infrastructure.
COVID 2020	TA 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. Utilize the FEMA funding to help recover from declared disasters.	Entire Town	High	Town Administration	GOFERR funding, First Responder Stipend, Election	Utilize the FEMA PA program to help with disaster costs.
By spring 2024	MW Municipal Water Upgrades	Grant is DES Clean Water ARPA grant. Will be after the WWTF solar panels.	Water Treatment Facility on Bound Tree Road	High	Water Precinct	Obtained grants water asset management for upgrades to Water Treatment Facility	Look to obtain more grants for expansion and upgrade of facilities.
Fall 2023	SW Wastewater Treatment Plant Solar Panels	Under G&C final approval in May 2023 for the 100% solar panel electricity. Work will begin in fall 2023 to install panels. Grant is DES Clean Water ARPA grant.	Wastewater Treatment Plant on Contoocook River	High	WWTF Dept	Obtained grants for sewer asset management upgrades. Installed solar panels for 100% electric cost to operate WWTF.	Look to obtain more grants for expansion and upgrade of facilities.
<b>HOPKINTON FUTURE FINANCIAL RESOURCES TO EXPLORE FOR HAZ MIT PROJECTS</b>							
Not Yet Used	SB Warrant Articles	Warrant Articles could be used in the future to fund large Hazard Mitigation projects	N/A	High	Select Board	Board developed annual articles. If a new Haz mit project needed to be	Use warrant articles to finance future hazard mitigation improvements

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date Latest Revised ?	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 (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
						funded, the SB could draft a warrant article for Town Meeting.	
Not Yet Used	<b>PB Impact Fees for New Development</b>	PB is authorized to develop and implement, but currently have no documentation in place to implement	New development, Community Facilities	N/A	Planning Board	N/A	If Planning Board develops Impact Fee Studies, fees they may be used for future development.
2027 & 2029	<b>SB NH DOT Bridge Aid 80/20</b>	Hopkinton has had mixed success, Stickney Hill Rd bridge needed to be replaced without state funding. Now 2 bridges to complete.	Broad Cove Road Bridge and East Penacook Road	Moderate	Select Board	Broad Cove Road Bridge 2027 \$875,000 and East Penacook Road \$1.1m 2029	Consider adding new bridges to the list or new work to bridges after East Penacook Road in 2029.

Source: Hopkinton Hazard Mitigation Committee

EDUCATION AND OUTREACH CAPABILITIES

In Table 6.4, 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 6.4

Education and Outreach Capabilities

Latest Adoption or Version Date Latest Revised ?	Capability Assessment: Education and Outreach Programs	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
<b>HOPKINTON PUBLIC OUTREACH PROGRAM, EDUCATIONAL ACTIVITY, NOTIFICATIONS</b>							
Currently & regularly in use (06-2023)	FD NIXLE	People choose to receive notification calls. Town has advertised for people to join, used by Police, Public Works, and Fire Departments	Entire Town, General Public	Moderate	Fire Department	Participation in program	Utilize, monitor, and evaluate NIXLE review program for necessary changes.
December 2015	FD Fire Prevention Program in Schools	Fire prevention discussion held at all schools and Driver's Educations class. CPR and "Leaving the Nest" classes also given. Visits preschool-6 <sup>th</sup> grade during Fire Prevention Week. High School is "Leaving the Nest" course that discusses fire and careers. FT program with schools	Hopkinton High School, Maple Street School, Harold Martin School	High	Fire Department	Program reviewed and updated yearly.	Will require full-time intermediate to replace the on-call
Currently in use (06-23)	FD Fire Department Facebook Page	Fire Department Facebook Page used to provide information to the public about the Fire Department	Entire Town, General Public	Moderate	Fire Department	Updated Occasionally	Utilize page and provide regular public information.
Sep 2023	FD Fire Department Annual Open House	Open House each fall, introduce fire safety to the community	Entire Town, General Public	Moderate	Fire Department	Held annual open houses and in-school class trainings.	Maintain effectiveness of Open House to community.
Sept 2022	HSD School District Notification App.	Used only for emergencies. Automated phone, text, email service to parents	Public Schools, Entire Town	High	School District	Used successfully	Update regularly when parents require notification

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

6 CAPABILITY ASSESSMENT

Latest Adoption or Version Date Latest Revised ?	Capability Assessment: Education and Outreach Programs	Description Related to hazard mitigation planning and coordination	Location of Capability Entire Town or Selected Areas	Level of Effectiveness	Responsibility	Changes Since Last Haz Mit Plan (2017) / How Did Dept Use Capability?	Future Improvements to Capability/ Wish List for the Future?
		for alert. Used for snow delays and snow days.					
October 2023	PD Police Department Drug Take Back Box	Procedure to assist residents with disposal of outdated prescription drugs	Police Department General Public	High	Police Department	Nearly 500 pounds of prescription drugs collected	DEA and prescribing medical officials to collect outdated medications.
Currently & regularly in use (06-2023)	TA Town Facebook Page	Town Facebook Page with EM, Public Health, and Police info	Entire Town, General Public	High	Town Administrator	Post on a regular basis.	Utilize and update Town Facebook page to provide constant information.
Currently & regularly in use (06-23)	TA Town Website	Used by multiple Town Depts, available to residents and visitors, hosts Zoning amendment changes	Entire Town, General Public	High	Town Administration	Updated regularly with announcements, agendas, meeting notices, more	Make ongoing improvements to Town website to accommodate user needs.
Oct 2023	TS Transfer Station Household Hazardous Waste Disposal	Household hazardous material disposal program permits disposal of dangerous materials at the Transfer Station: propane tanks, dried paint cans, waste oil, waste antifreeze, batteries, tires	Transfer Station	Moderate	Transfer Station	Held HHW disposal in 2022 Hopkinton & Henniker have hazardous waste day annually.	Provide annual household hazardous waste disposal day service

Source: Hopkinton Hazard Mitigation Committee

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## 7 PRIOR ACTION STATUS

The **Hazard Mitigation Plan Update 2017** provided a basis to begin Action development, many of which originated from prior **Plans**. A review of the **2017** Actions is provided by the Hazard Mitigation Committee, determining which Actions have been **Completed**, **Deleted**, or **Deferred** to the **2024 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 **2017 Plan's deferred** Actions in addition to the **New** Actions from the **2024 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 **2017 Plan** are listed in **Table 7.1** along with completion dates.

Actions which were **Deleted** from the **2017 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 Hopkinton's activities. Deleted Actions are listed in **Table 7.2**.

Actions which were **Deferred** from the **2017 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 7.3** and have been re-prioritized with the **New** Actions in the **Mitigation Action Plan**.

Changes in priority of the **Deferred 2017** Actions occurred over the last five years. The **2017 Plan** used the **12-36 Priority Score enhanced STAPLEE** system while the **2024 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 **2024 Plan** into the **Mitigation Action Plan**.

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

Review of 2017 Actions

Hopkinton’s mitigation Actions from the **2017 Plan**, which included Actions from the Town’s previous Plans, were allocated **Action Numbers** and each **Project’s** status was determined by the Hazard Mitigation Committee as either **Completed**, **Deleted** or **Deferred**. Over the previous Plans, the Actions numbers denoted by years were recorded as such. Actions from the first **Plan** which were **Completed** or **Deleted** and identified as such in the **2017 Plan** were not given numerical identifiers (**#NA**).

HMP	Action # Range	
2007 Plan	#NA	#NA
2011 Plan	#1- 2011 to	#25- 2011
2017 Plan	#26- 2016 to	#41- 2016
2024 Plan	#42- 2024 to	#82- 2024

A total of **17** mitigation Actions were **Completed** from the previous **Hazard Mitigation Plans** as shown in **Table 7.1**.

Table 7.1  
Completed Mitigation Actions

Priority Score (2017)	Action Number	Action	Completed By Date	Who is Responsible	Approx \$ Cost	Natural Hazards Addressed
<b>COMPLETED AFTER 2024 Plan (from CHAPTER 8)</b>						
		See Chapter 8 – HMC to add completed Actions				
<b>COMPLETED BY 2024 Plan</b>						
35	#23-2011	Protect Infrastructure Against Earthquakes and Storms by Developing Site Plan and Subdivision Regulation Changes for Underground Utilities	Sep 2019	Planning Board	\$500	Earthquake, Wind/Tropical
35	#26-2016	Reduce the Risk of Injury from Natural Hazards by Requiring New Road Elevation and/or More than 1 Egress for New Developments	Around 2019	Planning Board	\$500	Storms, Flood, Erosion
36	#27-2016	Revise the Current Drainage, Slope and Elevation Standards in the Town's Road Construction Standards and Class VI Roads Policy to	Oct 2023	Select Board	\$0	Storms, Flood, Erosion

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

7 PRIOR ACTION STATUS

Priority Score (2017)	Action Number	Action	Completed By Date	Who is Responsible	Approx \$ Cost	Natural Hazards Addressed
		Reduce the Risk of Flooding and Erosion				
36	#28-2016	Reduce the Risk to Travelers During Snowstorms by Amending the Winter Road Maintenance Policy to Accommodate Emergency Parking and Sidewalk Maintenance	Winter 2018	Public Works Department with Town Administration	\$500	Winter, Ice
36	#29-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Briar Hill Road Culvert #1 at Dolf Brook	2018	Public Works Department	\$150,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#30-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Briar Hill Road Culvert #2 at Dolf Brook	2019	Public Works Department	\$50,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#31-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Briar Hill Road Culvert #3 at Dolf Brook	2020	Public Works Department	\$150,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#32-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Briar Hill Road Culvert #4 at Dolf Brook	2019	Public Works Department	\$150,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#33-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Rollins Road Culvert at Dolf Brook	2018	Public Works Department	\$60,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#35-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Stickney Hill Road Bridge at Boutwell Mill Brook	2019	Public Works Department	\$300,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#36-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Kearsarge Avenue Culvert at Browns Brook	2020	Public Works Department	\$200,000	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
<b>COMPLETED BY 2017 Plan</b>						
35	#03-2011	Provide Potable Water Supply to Residents with Contaminated Wells in the Area of the Former Landfill	Sep-10	Select Board	\$700,000 or \$3.5 million	Natural
31	#05-2011	Raise Road Surface of Branch Londonderry Turnpike and Replace Existing Steel Culvert with Concrete Box Culvert	Fall 2009 emergency culvert fix	Public Works Department	\$400,000	Natural
32	#06-2011	Upgrade 24" Steel Culvert Along Pleasant Pond Road with a 36" ADS Culvert	Fall 2014	Public Works Department	\$50,000	Natural
36	#08-2011	Install Additional Phone Lines at Fire Station	May-12	Fire Department	\$3,000	All

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

7 PRIOR ACTION STATUS

Priority Score (2017)	Action Number	Action	Completed By Date	Who is Responsible	Approx \$ Cost	Natural Hazards Addressed
35	#09-2011	Acquire Generator for High School for Emergency Town Shelter	Jul-11	Fire Department	\$110,000	All
33	#22-2011	Develop Residential Site Plan and Subdivision Regulation Changes for Emergency Vehicles	Apr-12	Planning Board	\$500	All

Source: Hopkinton Hazard Mitigation Committee

The pink highlighted rows indicate the total Deleted Actions in Table 7.2 from previous Hazard Mitigation Plans which will not be incorporated into the 2024 Plan as Deferred Actions. Many of the first set of Actions were Deleted because they were preparedness, response or recovery items and more appropriately belonged in the Town’s Emergency Operations Plan.

Table 7.2 Deleted Mitigation Actions

Priority Score (2017)	Action Number	Action	Deleted Date	Who is Responsible	Approx \$ Cost	Why Deleted? The Action...
<b>DELETED AFTER 2024 Plan (from CHAPTER 8)</b>						
		See Chapter 8 – HMC to add deleted Actions				
<b>DELETED FROM 2024 Plan</b>						
36	#01-2011	Update the Floodplain Zoning Ordinance to Comply with NFIP Requirements to Reduce Flooding Risk	06-23	Planning Department	\$0	Ongoing Action for Capability Assessment
<b>DELETED FROM 2017 Plan</b>						
35	#02-2011	Study Dam Breach Effect to the (Contoocook River) Kimball Stone Bridge (Dam)	03-16	Emergency Management	General Fund, Homeland Security Grant	No longer necessary
33	#04-2011	Encourage Tree Trimming by Unutil and PSNH	03-16	Public Works Department	N/A	No longer necessary
33	#10-2011	Acquire Bulldozer for Public Works Department	03-16	Public Works Department	Public Works Department Equipment Replacement (Capital)	This is a preparedness, response or recovery item

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

7 PRIOR ACTION STATUS

Priority Score (2017)	Action Number	Action	Deleted Date	Who is Responsible	Approx \$ Cost	Why Deleted? The Action...
					Improvement Plan)	
33	#11-2011	Acquire Portable Digital Sign Board	03-16	Public Works Department	Homeland Security Grant, Public Works Department Budget, or CIP Capital Reserve	This is a preparedness, response or recovery item
33	#12-2011	Improve Radio Equipment for Public Works Department	03-16	Public Works Department	\$50,000	This is a preparedness, response or recovery item
32	#13-2011	Acquire Generator for Town Hall for Disaster Operational Ability	03-16	Town Administration	\$10,500	This is a preparedness, response or recovery item
32	#14-2011	Continue to Develop Cyber Crimes Intelligence System	03-16	Police Department	\$30,000	This is a preparedness, response or recovery item
31	#15-2011	Develop Satellite Police Station at Fairgrounds	03-16	Police Department	\$60,000	This is a preparedness, response or recovery item
17	#16-2011	Acquire An Approved Water Rescue Boat	03-16	Fire Department	\$22,500	This is a preparedness, response or recovery item
36	#17-2011	Meet with Little Tooky Residential Development and Meadows Manufactured Housing Development for Evacuation Procedures	03-16	Emergency Management	\$0	This is a preparedness, response or recovery item
30	#18-2011	Develop Informational Brochures on Emergency Preparedness	03-16	Emergency Management	\$2,500	This is a preparedness, response or recovery item
35	#19-2011	Hold Training Drills and Mock Exercises with Schools	03-16	Emergency Management	\$1,000	This is a preparedness, response or recovery item
31	#20-2011	Participate in NFIP Training	03-16	Planning Department	\$0	This is a preparedness, response or recovery item
34	#21-2011	Update Emergency Operations Plan	03-16	Emergency Management	\$50	This is a preparedness, response or recovery item

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

7 PRIOR ACTION STATUS

Priority Score (2017)	Action Number	Action	Deleted Date	Who is Responsible	Approx \$ Cost	Why Deleted? The Action...
33	#24-2011	Develop and Implement a Residential Sprinkler System Ordinance	03-16	Planning Board	\$500	Not relevant - state project
29	#25-2011	Seek Grant Writer	03-16	Town Administration	\$0	No longer necessary

Source: Hopkinton Hazard Mitigation Committee

The tan highlighted rows in Table 7.3 indicate the 7 Deferred mitigation Actions from the 2017 Plan which also appear in the forthcoming 2024 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 2024 standards in later sections.

Table 7.3  
Deferred Mitigation Actions

Priority Score (2017)	Action Number	Action	Deferred Date	Who is Responsible	Approx \$ Cost	Why Deferred? Because...	Hazards Addressed
36	#07-2011	Reduce Flooding, Erosion and Overflow Damage by Upgrading 12' Diameter Steel Culvert Along East Penacook Road with Box Culvert	Jun 2023	Public Works Department	\$300,000	Needs more time to complete. In a plan to be completed in 2025. Requested in 2017 bridge aid to assist.	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#34-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Broadcove Road Bridge At Dolf Brook	Jun 2023	Public Works Department	\$300,000	2024 TBD	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#37-2016	Reduce Flooding, Erosion and Overflow Damage by Upgrading Bound Tree Road Culvert at Hardy Spring Brook	Jun 2023	Public Works Department	\$150,000	2025 TBD	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure
36	#38-2016	Place Key Wetlands and Slope Parcels Near the Highway into Permanent Conservation to Enhance the Flood Storage Capacity	Jun 2023	Conservation Commission	\$70,000	Some land was conserved, but more and targeted parcels through Open Space Plan	Flood, River
35	#39-2016	Upgrade Kimball Lake Dam to Protect	Jun 2023	Town Administration	\$600,000	Increased maintenance, but not yet upgraded. 2026	Dam, Flood, Winter, Aging

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Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

7 PRIOR ACTION STATUS

Priority Score (2017)	Action Number	Action	Deferred Date	Who is Responsible	Approx \$ Cost	Why Deferred? Because...	Hazards Addressed
		Properties from Flooding					Infrastructure, Wind/Tropical
35	#40-2016	Identify Additional Locations for and Install Dry Hydrants for Wildfire Suppression	Jun 2023	Fire Department	\$5,000 per dry hydrant	Have 5 DHs, a couple of others upcoming for 2 sites and 1 future pond. Lower priority, funding.	Wildfire, Lightning, Fire, Drought
36	#41-2016	Conduct Outreach with Volunteer Groups to Hold and Promote Natural Disaster Awareness and Mitigation Events	Jun 2023	Emergency Management	\$0	No staff, other actions took priority.	Wild, Tropical, Storms, Flood, River, Extreme Heat-Cold, Winter, Public Health, Lightning, Wildfire, Drought

Source: Hopkinton 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 Hopkinton 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 **2024 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 Hopkinton.**

Several uncompleted **Deferred** (2017) Hopkinton mitigation Actions have been carried forward into the **2024 Plan** with the updates to the evaluation, cost, prioritization, etc.

DESCRIPTION OF ACTION MATRIX

A listing of 7 Deferred mitigation Actions from 2017 and 39 New mitigation Actions from 2024 important to the Town of Hopkinton 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 2024 Plan. The 2024 Actions begin where the prior Actions left off, #42- 2024 through #80- 2024. 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 2017 Actions and the New 2024 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.

## Hopkinton’s Mitigation Action Plan 2024

At the meetings, the Hazard Mitigation Committee identified by consensus these mitigation Actions from the various **Assessments** and evaluations conducted. The process for Action development has been described in previous Chapters and sections. Combined with the visual *Maps 1-4* of the **Hazard Mitigation Plan 2024**, the **Mitigation Action Plan** shown in **Table 8.1 Planning and Regulatory**; **Table 8.2 Structure and Infrastructure**; **Table 8.3 Natural Systems Protection**; and **Table 8.4 Education and Outreach** should be able to guide future hazard mitigation efforts in the Town through an annual implementation process.

### MITIGATION ACTION PLAN

Seven (7) **Deferred** Actions from **2017** and **39 New** Actions from **2024** combine to develop the **46** Actions of the **2024 Mitigation Action Plan**. The **Deferred** Actions’ cells are highlighted in tan.

The **Actions** (projects) for the Town to work on and/or complete over the duration of this Plan include:

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**Table 8.1**  
**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
#40-2016	Develop An Assessment to Identify the Need for Additional Dry Hydrant Locations and Install Dry Hydrants for Wildfire Suppression	Medium Term 3-4 Years	70	Fire Department with Planning Board	\$5,000 per dry hydrant	The Town operates 5 dry hydrants and know of couple more sites upcoming (2 sites and 1 future pond). Develop an assessment to determine the need for hydrants and existing locations, and what is needed for repair and maintenance.	Wildfire, Lightning, Fire, Drought	Water Supplies	Cost is for permitting, contractor for installation, pipes and connectors	Building Permit fees, part of Private Development Costs
#42-2024	Promote the E911 Ordinance to Ensure Proper Place Signage and Address Numbering As Required By Permit to Reduce the Risk of Injury from Wind/Tropical, Winter, Rainstorms	Short Term 1-2 Years	64	Select Board with input from Depts & State E911	\$3,500	State 911 recommendations - 2 Main Streets, 2 Hopkinton Roads, Upper & Lower Straw Roads, Penacook & East Penacook Roads, Woodland Drive & Woodlands Garrison, Upper & Lower & Old Putney Hill Road, Stumpfield Road crosses 202, North Shore Road and South Shore Drive, and more. Incorrect road numbering of addresses. Ensure Numbering on Both the Mailbox And the Entrance to Each Residence for Accessory Dwelling Units ADUS. Will need to follow E911.	Storms, Wind, Utility, Debris, Winter	Entire Town	Public notices, signages, and GIS tax maps (cartographic Associates)	Public Works & Executive Operating Budgets
#43-2024	Revise the Road Construction Standards to Require An Emergency Egress Lane for All New Neighborhoods to Reduce the Impact of Wildfire, Winter and Wind Events	Medium Term 3-4 Years	59	Planning Board with input from the Housing Committee	\$500	As part of the zoning ordinance changes related to housing, a secondary means of egress is necessary. Consider approaching the old developments for an agreement to secure an emergency egress after (like Deer Meadows, Spring Street, Amesbury). Applicants of new developments would bear the cost of the new	Storms, Wind, Utility, Debris, Winter	New Developments	Cost is for public noticing of the new standards.	Planning Board Operating Budget

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						egresses. An egress could enable a density bonus if qualified.				
#44-2024	Inventory the Location of All Agricultural Operations to Include Farms, Produce Stands, Hayfields, Animal Stock, Maple Sugar Houses, and Tree Farms and Map the Properties on the Town GIS System to Reduce the Impact of Wildfire and Drought Conditions	Medium Term 3-4 Years	57	Planning Board	\$1,000	After placing the Town's agricultural operations on GIS maps for AxisGIS overlay, this could encourage formation of an Agriculture Committee in Town. Using existing digital land use sources to develop the GIS layer.	Drought, Wildfire	Agriculture Operations	Cost is for GISing the layer	Planning Board Operating Budget
#45-2024	Determine Which of the Inventory of Farms, Orchards, Tree Farms, and Other Businesses Might Need to Complete Tier II Reporting Forms to Reduce the Risk of a Hazardous Materials Incident	Medium Term 3-4 Years	67	Fire Department	\$0	Could be completed concurrently with #44, use #44 to develop the list and visit the sites. Many of the sites submit paper & binders. Not all sites have MSDS sheets. Files could be overlapped instead of having numerous reports. Should be submitted to Fire Dept digitally.	Hazardous Materials	Entire Town	Probably no cost (unless software is needed)	N/A
#46-2024	Map the Locations All Single and Family Cemeteries to Tax Maps into the Town of GIS System of During Land Development to Reduce the Risk of Erosion and Loss of Historical Assets During Flood Events	Short Term 1-2 Years then Ongoing	62	Cemetery Trustees	\$1,000	Many of the 1938 graves had been moved. Prevalence of small family plots in Town. Coordinate knowledge and place these plots and private cemeteries into the GIS system for AxisGIS accessibility. Consider the Locations of Family Plots, and Single Gravestones and offer to Help Owners Seek Federal Funding to Relocate Gravesites In	River Hazard, Erosion, Health	Private Family and Single Cemeteries	Create the GIS layer. Any relocations assistance would require federal funding directly to	Cemetery Trustees Operating Budget

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						Danger of Erosion to Flatter and Higher Ground In Town Cemeteries.			property owners.	
#47-2024	Review Appropriate Hopkinton Fairgrounds Evacuation Plans From Each Identified Location Annually and Adjust Where Needed to Reduce the Impacts of Evacuation	Short Term 1-2 Years then Ongoing	66	Police Dept and Fire Dept	\$0	38 acres of parking with 30 acres of fairground. Fair is a private event and hires municipal staff. The town hires extra people for the duration of the fair. Town still has the normal town business to conduct along with the new visitors to town and related fair issues. Multiple red & yellow gate on Park Ave, security green gate and blue gate on Kearsarge. Parking lot has access road from Park Avenue to Kearsarge Ave - have access to both streets. Hop High School parks numerous cars, George's Park, private lawns. Town does an annual lottery for non-profits to park at the George's Park. Local businesses do not benefit from the fair.	Hazardous Materials	Hopkinton Fairgrounds and Nearby Roadways	Cost is \$0 for in-kind staff and volunteer labor.	N/A
#48-2024	Install More Clear ATV and Snowmobile Trail Waypoint Markers and GPS Locations That Tie Into E911 Mapping System, Identifying Trailheads and Parking Areas	Short Term 1-2 Years	59	Fire Department	\$1,000	Conversation with E911 about how this would happen. Boundtree ATV Club looking into a new set of maps, good timing. Mount Kearsarge is the farthest trail. Snowmobile trails don't get as much snow. (Most hiking Conservation Commission has 3-season multi-use trails are easy, near roads and help. )	Wind, Storms, Lightning, Wildfire, Public Safety	Motorized Use Trails	Cost is for signage and waypoints (high estimate). E911 indicated their interest in mapping the trails.	Boundtree ATV Club if possible, Fire Department Public Relations Line
#49-2024	Develop A Class VI Policy for Land Development to Ensure Adequate Lot Sizing, Drainage, Erosion, and	Short Term 1-2 Years	65	Select Board, with Class VI Road Committee	\$0	For 2024 Town Meeting. Generally, any significant development would require substantial town road improvements, including widening of existing roads, converting Class VI roads to Class V, installation of	High Wind, Winter (access), Utilities, Wildfire	Town Class VI Roads, Town Services impact	Cost is \$0 for in-kind staff and volunteer labor.	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Appropriate Fit for the Community					culverts. Committee has inventoried all Class VI roads, will develop a policy for development. Allows development on first 300' for most Class VI roads, will identify those that should be converted to trails.				
#50-2024	Develop A Steep Slope Ordinance to Reduce the Risk of Landslide and Topographic Change During Developments	Short Term 1-2 Years	69	Housing Committee with Planning Board	\$1,000	Introduce to Town Meeting 2024. Slope impairments would inhibit development. Access to major highways is limited. All of the easy to develop lands have been built upon.	Landslide, Climate Change Effects	Steep Slopes, New Development	Cost is for public noticing and legal review of ordinance.	Planning Board Operating Budget
#51-2024	Adopt Subdivision and Site Plan Review Regulations That Require Cisterns for Phased Subdivisions to Ensure Adequate Town Services and Water Capacity to Reduce the Impact of Wildfire and Fire and Emergency Response	Short Term 1-2 Years	69	Planning Board with Fire Department, Police, Selectmen	\$1,000	Many of the undeveloped parcels in town are on steep slopes and Class VI. Town services must be adequate to keep pace with development: Fire, Police, Ambulance, Public Works, Solid Waste, Water, Sewer, etc. Increase town focus on cistern placement and maintenance during the plan approval process and ensure adequate water capacity along Class VI roads. If development is continued on Class VI roads, consideration for water supply needs to be provided. Regulation adoption.	Winter, High Winds, Landslide, Tropical/Post Tropical, Wildfire	New Developments, Phased Developments	Cost is for public noticing and legal review of ordinance.	Planning Board Operating Budget
#52-2024	Develop and Promote Public Health Policies and Procedures to Reduce the Impacts of Cyanobacteria and Infectious Diseases Like Coronavirus, Influenza, Arboviral (EEE, West Nile, Jamestown Canyon,	Short Term 1-2 Years	53	Health officer/Town Administrator with Select Board	\$500	Regarding COVID 2020-2022, Town posted all Executive Orders, DES Health closures, and CAPHN orders on the town website. All Town teams worked together - cleaning, sanitizing, masks, sneeze screens-successfully. Post together all previously developed protocols and policies. The policies will overlap with CAPHN and the project is to	Health (Infectious), Health (Invasive/Biological)	Entire Town	Cost is for copying costs, most will be available electronically.	Executive Budget Line

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Zika) and Tickborne Illnesses (Lyme, Leptospirosis, Etc)					place all previously used documentation into one Public Health Policy for the Town. Will work with the NHDES and NH Health and Human Services as needed when public health situations arise. Include information and safety tips related to arboviral (mosquito) illnesses and tickborne illnesses. Cyanobacteria standards and protocol needs to be included for more frequent algae blooms during warmer summers, especially at Elm Brook State Park and the public swimming ponds.				
#53-2024	Develop An Inventory of Carbon Footprint of Town and School Buildings and Consider Strategies to Reduce Greenhouse Gases	Medium Term 3-4 Years	65	Energy Committee	\$0	Consider installing an electric vehicle charging station at Town facilities and with large employers, new developments. Need to determine what steps to take to reduce greenhouse gas emissions. EV charging stations at Municipal Parking Lot (Cedar Street, Main Street in Contoocook) and Town Hall Main Street. See City of Concord 100% Renewable Energy 2019. Fire Dept has solar system to supply 80% of FD power, 234 panels on 4 zones. Only municipal operational solar array so far. No batteries, they have a short lifespan compared to solar panels. Many personal residential solar arrays are installed and have batteries onsite. TDS Switching Station fiber/phones keep a full battery system onsite, a sophisticated setup. Most copper	Climate Change-Greenhouse Gas, Extreme Temps, Winter, Wind, Tropical/Post Tropical	Municipal and School Buildings	Cost is for in-kind staff and volunteer labor. School contributions will also be in-kind.	N/A



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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						sites have batteries, replaced every 4-5 years by TDS. Fiber sites like across from cemetery = no battery, no electrical needed. Town is working toward 100% renewable (neutral carbon footprint).				
#81-2024	Study Building a Storm Shelter at Hopkinton High School to Reduce the Risk of Storms, Hail, Downburst, Tornado, Tropical	Medium Term 3-4 Years	54	Hopkinton School District, with Hopkinton Select Board, Emergency Management	\$10,000	Within the Hopkinton High School cinder/brick building that has a generator and serves as the Town Shelter could be considered a storm shelter. Produce a study to determine what would be needed to complete a 1,200 person shelter at the gym and lunch areas. Parking, classrooms might be able to accommodate.	Storms, Hail, Downburst, Tornado, Tropical	Entire Town, Hopkinton High School	Cost is \$10,000 to complete a engineering & feasibility study.	FEMA Emergency Preparedness grants
#82-2024	Develop an Infrastructure Assessment Plan for Sewer and/or Water Line Vulnerability to Reduce the Impact of Earthquakes	Long Term 4-5 Years	51	Public Works Department	\$25,000	Inventory the existing underground infrastructure and determine their capability for withstanding earthquakes. Develop an asset management plan for system expansion, then replace to most modern code to reduce the risk of breakage from earthquake or flood.	Flood, Earthquake, Public Health (Water Quality)	Water and Sewer Lines in Contoocook Village Water Precinct	Cost is \$10,000 to complete a engineering & feasibility study.	NH DES Asset Management Grants
	HMC ADD NEW ACTION HERE after 2024									
	HMC ADD NEW ACTION HERE after 2024									

Source: Hopkinton Hazard Mitigation Committee

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Table 8.2  
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
#07-2011	Upgrade the 12' Diameter Steel Culvert Along East Penacook Road With Box Culvert to Reduce the Impact of Flooding, Erosion and Overflow Damage	Short Term 1-2 Years	61	Public Works Department	\$750,000	Culvert will be upgraded to a bridge. In Ten Year Plan to be completed in 2025 (requested Bridge Aid in 2017 to assist with cost).	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure	East Penacook Rd	Cost is for engineering, permitting and installation by contractor. (Grants preferred)	NH State Bridge Aid 80/20, PWD Operating Budget, Possible Bond
#34-2016	Upgrade the Broadcove Road Bridge At Dolf Brook to Reduce the Impact of Flooding, Erosion and Overflow Damage	Short Term 1-2 Years	61	Public Works Department	\$750,000	A 9' box culvert will be installed in 2024 to upgrade the aging metal corrugated culverts.	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure	Broadcove Road at Dolf Brook	Cost is for permitting, engineering, construction, and materials.	NH State Bridge Aid 80/20, PWD Operating Budget, Possible Bond
#37-2016	Upgrade the Boundtree Road Culvert At Hardy Spring Brook to Reduce the Impact of Flooding, Erosion and Overflow Damage	Short Term 1-2 Years	61	Public Works Department	\$300,000	A 9' box culvert will be installed in 2025 to upgrade the aging metal corrugated culverts.	Flood, Winter, Erosion and Bed Scouring, Tree Debris, Aging Infrastructure	Boundtree Road at Hardy Spring Brook	Cost is for permitting, engineering, construction, and materials.	PWD Operating Budget
#54-2024	Purchase and Install A Generator for the Town Hall to Keep Essential	Medium Term 3-4 Years	73	Town Administrator, Buildings and	\$25,000	Generator 15-20kw, natural gas to serve the Town Hall. Would need to obtain a natural gas tank too.	High Wind, Thunder/Hail (Storm),	Town Hall (Main Street)	Cost is for labor, installation, electrical	EMPG 50/50, CIP Town Hall

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Governmental Services Functional During Power Outages Caused By Wind, Winter, Or Solar Storm Event			Grounds Dept (DPW)			Winter/Ice, Tropical, Utility, Solar		panels, and the generator.	Renovations CRF
#55-2024	Construct A Climate Controlled Vault to Protect Sensitive Town and Historical Records to Reduce the Impact of Water Or Fire Damage	Medium Term 3-4 Years	68	Town Administrator, Buildings and Grounds Dept (DPW), Archive Committee	\$50,000	Historic documents are located in the basement of the Bates Building in a concrete building/vault and are unprotected from water (mold). Need to stabilize the humidity. A vault would be more secure with controlled access. Town has a digital inventory of all historical and recent records.	Fire, Rainstorms, Wind/Tropical, Extreme Temps	Town Hall	Cost is for labor, installation, and the vault.	CIP, Town Hall Renovation CRF
#56-2024	Upgrade the Wastewater Treatment Plant to Improve Sludge Removal, Upgrade Pumps, and Upgrade Computerized System to Ensure Capacity and the Public Health and Safety of Residents	Medium Term 3-4 Years	58	Department of Public Works (Wastewater is a section)	\$1,500,000	Wastewater Treatment Plant requires operating system upgrades. Needs sludge removal and upgrades to pumps and computerized system. Sludge is not spread on fields (PFAS would be included). WW Dept will complete asset management plan by end of 2023. Will install solar power for 100% operating power capacity by ARPA grant, to be first in NH. PFAS is a known problem at the Transfer Station sewage lagoons, so the Town assumes PFAS is also located at the WWTF. PFAS is a significant concern, but there is not much that can be done. (Fire Dept uses foam without PFAS). Asset management work is underway July 2023 - NH DES Clean Water grant program 305b. \$30,000	Public Health, Inland Flooding, River Flooding, Aging Infrastructure	Wastewater Treatment Facility on Contoocook River and Its Waterline System	Cost is for sludge removal and upgrade the plant infrastructure, labor and materials.	CIP, Wastewater Treatment CRF, Sewer User Fees

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#57-2024	Install Solar Panels on the Wastewater Treatment Plant to Provide Renewable Energy Source to Power the Plant to Mitigate the Effects of Storm Events and Climate Change	Short Term 1-2 Years	70	Department of Public Works (Wastewater is a section)	\$350,000	By July 2024, Hopkinton WWTP will be the first facility to be run 100% sustainable in the State, net metered to feed the grid. Facility has a generator now, and Town wants to explore obtaining batteries in the far future for emergency nighttime use.	Solar, Utility, Climate, Storms	Wastewater Treatment Facility on Contoocook River	Cost is for solar panels, inverters, installation, and wiring infrastructure, labor.	Have a DES Sustainability Grant 100% \$250,000, and \$1,000 in tax credits
#58-2024	Collaborate With the Hopkinton School District to Assist With Obtaining A Generator for the Harold Martin School to Reduce the Risk of Fire (for Sprinklers)	Short Term 1-2 Years	67	Fire Chief to encourage School Facilities Director	\$0	Harold Martin School does not have installed generator, even though FD has requested for safety purposes. The building was renovated with many features, but the school is not fire suppressed without electricity (does not meet code with no electricity for sprinklers available). Need at least a generator for the suppression pump. School is making attempts to comply.	Utility, Winter, Wind, Fire, Public Safety	Harold Martin School	Cost is for School District to bear.	N/A
#59-2024	Install A Generator At the Slusser Community Center for A Warming and Cooling Shelter to Reduce the Impacts of Extreme Heat and Extreme Cold Events	Medium Term 3-4 Years	62	Department of Public Works (Buildings and Grounds)	\$25,000	Consider pairing up with the Town Hall generator purchase. Another 15-20 kw generator so the shelter can serve as a town warming or cooling shelter as needed. Fully AC building.	Winter, Wind/Tropical, Utility, Extreme Temps	Slusser Center	Cost is for labor, installation, electrical panels, and the generator.	EMPG 50/50, CIP Town Hall Renovations CRF
#60-2024	Install A New Dry Hydrant At Briar Hill Road to Replace the Lost Pumping Sites At Dolf Brook to Provide A Rural Fire Suppression Source	Long Term 4-5 Years	71	Fire Dept with DPW	\$10,000	This rural area has inadequate surface water supply to use in the event of a fire, remote from static water sources. Set up a new dry hydrant at Briar Hill Road to replace the lost pumping sites at Dolf Brook (during the new culvert & road work). This was missed opportunity to coordinate during the culvert	Wildfire, Lightning, Fire, Drought	Briar Hill Rd	Cost is for engineering permitting, labor, pipes, and materials. Pipes are about \$2,000,	USDA Rural Forest Fire Protection Grant, Fire Department Operating Budget, Emergency Management

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						replacement. May not ever occur at this point since an alternative water source is nearby - the entire layout is changed.			remainder \$8,000.	t Operating Budget, look into EMPG 50/50
#61-2024	Install A New Dry Hydrant In the Hatfield Area At Thain Road Private Pond to Provide A Rural Fire Suppression Source	Medium Term 3-4 Years	70	Fire Dept with DPW	\$5,000	Obtain an easement at Thain Road private pond so a new dry hydrant can be installed in the Hatfield area. Another potential site may be more beneficial with more water, but it is not ready yet (landowner may construct a pond). Permit by Notification for a small fee at DES.	Wildfire, Lightning, Fire, Drought	Thain Road, Hatfield Rd area	Cost is for easement, engineering, permitting, DPW labor, pipes, and gravel materials. Pipes are about \$2,000, remainder is by labor from landowner and DPW.	Partial landowner contribution, Parts will be under Fire Department Operating Budget
#62-2024	Upgrade the Existing Waste Water Pump System to Reduce the Risk of Sewage Overflow and Stormwater Flooding to Protect Water Quality and Public Health	Medium Term 3-4 Years	68	DPW Waste Water	\$1,500,000	The current pump system bring ww toward the river and pumps back up to Water Treatment Facility. The pumping station is difficult to maintain (in a 30' pit below the level of the river to reach the pump). This is an inefficient system that should be reviewed and upgraded by a wastewater engineer. PFAS is a known problem at the Transfer Station sewage lagoons, so the Town assumes PFAS is also located at the WWTF.	Aging Infrastructure, River, Flood, Health (Water Quality)	Contoocook River and WWTP	Cost is for upgrade of wastewater infrastructure, studies, engineering, materials, labor.	NHDES Clean Water Loan Forgiveness, User Fees, Operating Budgets, Bonds, NH DES Revolving Loan Fund
#63-2024	Assess (and/Or Remove) Large Wood Jams in the Warner River Annually to	Short Term 1-2 Years	54	Conservation Commission, Dept of	\$500	The Warner and Blackwater rivers converge with the Contoocook River. The Contoocook River has an Army Corps dam and reservoir and	Flood, Winter (Ice), Tree Debris,	Large Dam (Hopkinton Everett), Small	Cost is for canoe rentals for in-kind	Conservation Commission Budget

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	<b>Reduce the Risk of Flooding and Channel Movement</b>			Public Works (Highway), Warner River Local Advisory Committee, Contoocook River LAC, US Army Corps of Engineers		is a multi-jurisdictional river flowing north through Hopkinton. There are multiple communities upstream hosting the Contoocook, Warner, and Blackwater River town. Assess whether each wood jam in the Warner River and Blackwater River could have an impact on the Contoocook River during high flow events. Determine what needs to be done, if anything. Conservation Commission to assess and write a report to the Selectmen each year. No staffing or funding presently. The Town Department of Public Works pulls woody debris out of the Contoocook River. Army Corps has a catch dam for small debris.	Dam, Fluvial Erosion and Channel Movement	Dams downstream. Contoocook River upstream of dams	volunteer work to perform the assessment.	
	<b>HMC ADD NEW ACTION HERE after 2024</b>									
	<b>HMC ADD NEW ACTION HERE after 2024</b>									

Source: Hopkinton Hazard Mitigation Committee

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Table 8.3  
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
#38-2016	Place Key Wetlands and Slope Parcels Near the Highway Into Permanent Conservation to Enhance the Flood Storage Capacity	<u>Long Term</u> 4-5 Years <u>Phase I of III</u>	48	Conservation Commission	\$70,000	Some land was conserved, but more and targeted parcels through Open Space Plan. Phased over 15 years through 2039.	Flood, River	Floodplain	Current balance of LUTC Conservation Fund to purchase easements or parcels	Land Use Change Tax, Moose Plate Conservation, Donations
#39-2016	Upgrade Kimball Lake Dam to Protect Properties From Flooding and Increase Flood Storage Capacity	<u>Medium Term</u> 3-4 Years	66	Town Administration	\$600,000	Town owned dam needs increased maintenance, but not yet upgraded. Should be 2026	Dam, Flood, Winter, Aging Infrastructure, Wind/Tropical	Kimball Lake Downstream	\$600,000 estimate to upgrade Kimball Pond dam 8 years ago, same approx. size. Engineering, permitting, contracting cost	Warrant Article
#64-2024	Relocate the Contaminated Soil From the Transfer Station's Closed Lagoons Into A Sealed Landfill on the Same Site to Protect Water Quality and Public Health	<u>Short Term</u> 1-2 Years	64	Town Administration	\$1,200,000	The Town landfill was closed and sealed in Jan 2022. Monitoring wells are in place as part of the closed landfill project, monitored by Town engineers and reported to DES as part of closure permitting. Separate area from existing sealed landfill project will be identified and filled, sealed in July 2024.	River Hazard, Health (Water Quality), Climate	Transfer Station on Blackwater River	Cost is for the engineering, and construction of the sealed landfill.	NHDES Clean Water Loan Forgiveness, User Fees, Operating Budgets, Bonds, NHDES Revolving Loan Fund
#65-2024	Obtain Dam Emergency Action Plans of High, Significant, and Low	<u>Short Term</u> 1-2 Years	75	Emergency Management	\$0	DEAPs should be collected on an annual basis or whenever the next updates become available. Review and store them in the Emergency	Large Dam and Small Dam Failure,	Hopkinton Everett Dam, Significant,	Cost is for in-kind staff and	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Hazard Classification Dams In Hopkinton to Understand the Problems of Potential Dam Breach					Management Office. As needed, consult with property owners about private dam issues and work with the Army Corps to ensure the Town is doing all it can to reduce the impact to the Hopkinton Dam.	River Hazards	High and Low Hazard Dams on waterways	volunteer labor.	
#66-2024	Work With the NH 103 Property Owners to Obtain EPA Brownfields Funding to Clean Up the Contaminated Commercial Site	Long Term 4-5 Years (owner dependent)	50	Planning Board	\$0	Former BioEnergy plant burned wood chips for energy. Went out of business, (contract was modified by Eversource). Town can consider a solar panel array at the facility, which is the floodplain. The solar array use is allowed in the Zoning District. Electricity connections are already on the site. Another possible to consider the future includes town purchase and remediation, or sell to developers and turn into a town gateway on NH 103, but this would be owner dependent and expensive.	Haz Mat, Brownfields, Health (Soil & Water Quality), Solar	NH 103 Brownfields Site	Costs would be borne by the owner.	N/A
#67-2024	Implement the 2023 Natural Resources Inventory to Ensure Public Safety, Water Quality	Long Term 4-5 Years, Phase I of II	66	Conservation Commission	\$70,000	New NRI should be adopted in August 2023. Recommendations may cost money, but are not yet available for evaluation. Phase 1 of 2 (10 years)	Climate Change, Wind/Tropical, Storms, Water Quality	Entire Town	Current balance of LUTC Conservation Fund to purchase easements or parcels	Land Use Change Tax, Moose Plate Conservation, Donations
#68-2024	Locate and Purchase Prime Parcels for Permanent Conservation In Conjunction With the Findings of the 2023 NRI to Reduce the	Long Term 4-5 Years, Phase I of II	48	Open Space Comm (subcomm of Cons Comm)	\$2,500,000	Large 100+ acres single family home parcels (some of which are farms) are situated throughout the town, including in the villages. Open Space Committee has clearly defined parcels that they'd like preserved. \$2.5 million bond possible in early 2000s but was not yet used. (CC	Climate Change, Wind/Tropical, Storms, Water Quality, Wildfire, Lightning	Open Space Land	Cost is for the remaining half of the \$5,000,000 standby bond (requires	Standby Bond \$5m (Town Meeting)



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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Risk of Injury from Wildfire and Flooding					worked with 5 Rivers Trust even if the Town owns the lot. Bohanan was the last parcel in 2014).			Town Meeting majority vote to further bond).	
#69-2024	Remove the Hazardous Trees Proactively to Reduce the Risk of Wildfire and Reduce Tree Debris From Wind/ Tropical, Rainstorms, and Winter Weather and Ice	Medium Term 3-4 Years	68	DPW (Highway)	\$100,000	Ash trees are along all roads in community, they are all dead for a couple of years. Standing dead trees are becoming hazardous trees - wind, snow load, wildfire & lightning. Ash trees have a good root system, if struck by lightning, roots can survive. DPW spends a lot of time trimming/ cutting trees but does not have all the resources it needs to complete the removal.	Wind/ Tropical, Thunder/ Hail (Storm), Lightning, Wildfire, Drought, Winter, Utility Outage, Emerald Ash Borer, Woolly Adelgid (hemlock)	All town roads	Cost is for the DPW and contractor labor and equipment to remove the hazardous trees.	EMPG for \$60,000 50/50
#70-2024	Test Kimball Pond (Town Beach) for Cyanobacteria and E Coli and Educate Water Users About Proper Use of Waterbodies to Reduce the Risk of Public Health Events	Short Term 1-2 Years then Ongoing	64	Parks and Recreation	\$500	Algae blooms or e. coli can occur in smaller bodies of water (< 10 acres) – Kimball Pond (town pool). Be aware. Parks and Recs likely test. Riverfront properties have a lot of regulations. Public awareness using available materials, brochures and pamphlets. US ACOE tests Contoocook River regularly. Parks and Rec collects samples and drives to DES for confirmation	Health	Kimball Pond (Town) and Elm Brook (ACOE), Clement Pond (private association )	Cost of annual testing supplies used by Parks and Recreation Kimball Pond. Elm State Park is done by federal ACOE and Clement Pond is	Parks and Recreation Budget

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
									tested by homeowners association). Only cost is for the Town expenses.	
#71-2024	Purchase and Place Blackwater River Or Warner River Or Contoocook Upstream Shoreland Properties Under Permanent Conservation to Protects the Parcels From Long Term Development Effects Including Large Dam Failure, Small Dam Failure, Erosion, Channel Movement, and Sedimentation	Long Term 4-5 Years	68	Conservation Commission	\$3,000 annually	Blackwater River riverfront properties could be acquired or purchased as sales permit to enable better woody debris removal protection prior to the BW confluence with the CR. Conservation Commission program acquires donated or purchases easements and lands. The program evaluates and purchases key open space parcels and/or easements when opportunities arise. protect the watercourse and downstream Contoocook Hop-Ev Dam from future development and erosion, and tree debris..	Large Dam, Flood, Winter, Tree Debris, Fluvial Erosion and Channel Movement	Parcels abutting BW River or large brook shoreland	Cost is for survey and legal review of easement deeds.	Conservation Land Use Change Tax Fund
#72-2024	Inspect and Monitor Conditions of the Meadows Manufactured Housing Park Along the Warner River for Life Safety to Ascertain the Potential for Erosion and Bank Failure or Landslide	Short Term 1-2 Years then Ongoing	69	Police Department with Building Department and Fire Department	\$0	A homeowner's shed is nearly fallen into the river at the Meadows which is situated along the Warner River. The bank is about 40' and has a moderate slope (walkable), wooded to the bank, bare ground. Concern for mass bank failure and landslide. Potential health and safety problems arise if a large flood, or earthquake or erosion causes a landslide or mass bank failure. Monitor to ensure conditions do not get worse.	River, Flood, Erosion, Landslide, Public Safety	Warner River	Cost is \$0 for in-kind staff and/or volunteer labor conducted during normal duties to fulfill this Action.	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	HMC ADD NEW ACTION HERE after 2024									
	HMC ADD NEW ACTION HERE after 2024									

Source: Hopkinton Hazard Mitigation Committee

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Table 8.4  
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
#41-2016	Conduct Outreach to Town Residents and Businesses to Promote Natural Disaster Awareness and Mitigation Activities	Short Term 1-2 Years then Ongoing	60	Emergency Management	\$0	October Fire Prevention week talks to schools, talks with seniors for services the Fire Dept provides. Very engaged groups. Establish new opportunities and seek venues for personal communication in addition to enhancing the Emergency Management website, establishing a Facebook page, and obtaining printed materials from the Red Cross and FEMA. Visiting community groups (churches, civic organizations), brochures about proper shoreland stewardship to reduce flooding and erosion risk, fire, wildfire and lightning safety at home and at conservation areas, about extreme heat, about winter weather and about wind hazards with debris impacted infrastructure, and more. Develop a PSA Video on EM website. Residents should be able to set aside a 72-hour emergency kit.	Wild, Tropical, Storms, Flood, River, Extreme Heat-Cold, Winter, Public Health, Lightning, Wildfire, Drought	Entire Town	Cost is for in-kind volunteer labor and free materials from FEMA/Red Cross.	N/A
#73-2024	Educate Residents and Businesses About the Dangers of PFAS to Reduce Further Contamination of Groundwater and Surface Water	Short Term 1-2 Years	60	Waste Reduction Committee	\$500	Educate residents and businesses about the dangers of PFAS and provide a list of alternate products. Post online and print out hard copies of fact sheets for the Town office and Slusser Center.	PFAS, Public Health (Water Quality)	Entire Town	Cost is for printed materials. Labor is in-kind and volunteer.	Town Administration Operating Budget
#74-2024	Encourage the Churches to Install Lightning Rods and Grounding Systems	Medium Term 3-4 Years	55	Fire Dept	\$0	Most Town Buildings are believed to have lightning rods and grounding systems, but the tall, historic churches do not have them. It is unlikely there are dedicated grounding systems and	Lightning	Churches	Cost is \$0 for in-kind staff and/or volunteer labor conducted	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	on their Steeples Or Cupolas					circuit panels. Grounding is designed for electrical surges in the building, not for lightning. Surge protectors are used in many buildings for electronics. A lightning strike could destroy electronic equipment, cause local fires, and could create the need for immediate evacuation of church participants.			during normal duties to fulfill this Action.	
#75-2024	Work With the Churches and Slusser Center to Develop Effective Public Health Plans Including the Streaming of Services online to Homebound Residents	<u>Short Term</u> <u>1-2 Years</u>	59	Health officer	\$0	Churches may continue to be a public health transmission site. They have influence over their parishioners, many of whom are elderly (above 67 retirement age). Aging at a higher rate than the community at large. Many churches are streaming (Facebook) their sermons for all parishioners to attend at home.	Health	Churches, Slusser Center	Cost is \$0 for in-kind staff and/or volunteer labor conducted during normal duties to fulfill this Action.	N/A
#76-2024	Develop A Full, Detailed GIS Map of the Trail System and Its Amenities for Widespread Public Promotion to Reduce the Risk of Injury From Wind/Tropical, Lightning and Wildfire	<u>Long Term</u> <u>4-5 Years</u>	54	Conservation Commission with Eagle Scouts	\$1,000	Encourage recreational users to be prepared for the elements when hiking, camping, etc. The Trails Committee should publish full trails guide for the public, foldable map to be provided. Cons Comm is working on these items including a full GIS maps. Some trails have trailheads, parking areas or kiosks. Snowmobile club has maps available. Have kiosks at Kimball Cabins, Hawthorne Forest (Rollins Road), by Library (kiosk for Rail Trail), Little Tooky Road (town trails) - these have largely been Eagle Scout projects. Prioritize the kiosks over the next 5 years - three: Stevens Rail Trail, Pine Street Parking Area (Boundtree ATV Club trails), Ransmeier town trail.	Wind, Storms, Lightning, Public Safety	Trail System	Cost for the map development and printing is estimated for \$1,000.	Conservation Commission Budget

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
#77-2024	Promote the Establishment of an Agricultural Commission with a "Grow, Buy & Eat Local" Message to Support Nearby Farms & Orchards and Reduce the Impact of Aging Infrastructure, Greenhouse Gas Emissions, and Climate Change	Short Term 1-2 Years	62	Select Board with Economic Devt Committee	\$1,000	For Town Meeting 2024. In 2023, enormously high food prices with a deep freeze in Feb 2023 impacted local crops and orchards. The food situation is getting more difficult. A drought, severe winter season or high wind event/rain could greatly impact local food sources and economics. Supply chain issues from 2020-2022 and beyond remain a challenge for PPE, but also critical medical supplies, medications, groceries, gas, and other essential goods and services. Residents should be frequenting the farmer's markets (economics), purchasing goods from craftsman and local businesses where possible for overall local sustainability. State has supply caches for medical equipment, no local caches for items. Private sector helped extensively to get medical supplies and PPE for COVID pandemic. Farmer's Markets are held year-round. Establish an Agricultural Commission to assist, oversee, and educate residents about the availability of local food and products. Buy food and items locally to save on transportation costs (greenhouse gases). Severe weather (hail, rain, drought, wildfire, plant disease) on the agricultural and local farm operations in Town can be detrimental to the local economy. An Agricultural Commission needs to be on top of this. The Grow Local/Buy Local/Eat Local program can be promoted at booths at existing Town	Climate Change, Extreme Temps (Heat/Cold), Health, Waste Reduction, Drought	Existing and Future Agricultural Operations	Cost is for public noticing and legal review of ordinance.	Economic Development Budget

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
						functions, Town website and local business website promotion.				
#78-2024	Engage In Public Education and Business Education to Ensure Propane/LP/Fuel Tank Anchoring to Reduce the Impact of Flood, Wind/Tropical, and Earthquakes	Short Term 1-2 Years	66	Fire Department	\$0	Public education and business education on tank tie downs (wind/tropical, flood) is necessary to prepare for the next major flood or wind event. Approach businesses with large tanks and provide literature on requirements vs recommendations, BMPs. Ask businesses that sell tanks to place brochures on their counters. Utility companies may have more recent information on BMPs and regulations for tank anchoring. Ask them for materials, request they make customers aware. Obtain existing brochures to distribute and leave in businesses, post on Town website. Check the International Building Codes (IBCs) and the NFPA regulations to see if there are supporting regs.	River, Flood, Conflagration (Fire/Explosion)	Contoocook River, Blackwater River, Warner River	Cost is for in-kind volunteer labor and free materials from FEMA and from utility companies.	N/A
#79-2024	Develop a NFIP Public Awareness Program and Publicize the Availability of Flood Insurance to Contoocook River and Downtown Residents to Reduce the Risk of Flood Injury and Property Damage	Short Term 1-2 Years	56	Planning Department	\$0	Obtain selected FEMA publications on the NFIP and make the available to residents, developers, and business owners at Town Hall, Fire & Police Depts, on the Town website. Send application form or information to each property owner in the floodplain, include in tax bill.	Floods and Flash Floods, Rapid Snow Pack Melt, Erosion, Fluvial Erosion and Channel Movement	Entire Town	Cost is for in-kind volunteer labor and free materials from FEMA.	N/A
#80-2024	Promote Solar Storm and Geomagnetic Radiation Awareness and Mitigation on the Town Website to	Short Term 1-2 Years	49	Emergency Management	\$0	Set up an Emergency Management Website info posted of exiting info, links to inform residents, homeowners how to protect themselves and their	Solar, Utility, Communications	Entire Town	Cost is for in-kind staff and volunteer labor.	N/A

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Action Number	Action	Action Timeframe	Ranking Score	Who is Responsible	Approx Cost to Town	Description and Evaluation of Action	Hazards Mitigated?	Affected Location in Town	What Cost Will Pay For	How Funded
	Reduce Impacts of Solar Storms					homes against geomagnetic storms and solar radiation.				
	HMC ADD NEW ACTION HERE after 2024									
	HMC ADD NEW ACTION HERE after 2024									

Source: Hopkinton Hazard Mitigation Committee



### 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 **2024**, 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 **2017 Plan** had fewer questions and a rating scale of **1-2-3** resulting in a possible highest ranking total score of **36**. There is latitude in the **2024 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 (except the three new questions regarding funding, staffing, and historic preservation) 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?
- Does the action offer reasonable benefits compared to its cost in implementing?
- Is the action legal?

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

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- 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. Hopkinton's **Mitigation Action Plan** STAPLEE rating is shown in **Figure 8.A** and includes a basic benefit-cost ranking as shown in yellow.

Figure 8.A

Enhanced STAPLEE Ranking of Mitigation Actions

Action Number	Does the Action..... or Is the Action.....	Reduce Damage? (or injury)	Contribute to Town Objectives? (Supported by Master Plan or long term goals?)	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/neighbors like project)	Politically Acceptable? (Public Officials & decision makers like project)	Administratively Realistic? (Have admin skills, permitting, other paperwork)	Technically Feasible? (Have tech skills, technology or special equipment)	Have a Reasonable Cost to Benefits Gained? (Will project save \$\$ in long term?)	Legal? (Or will be legal upon completion)	Support or Protect the Environment? (Natural resources?)	Have the Funding? (Can funding be obtained?)	Have Necessary Staff or Volunteers?	Support Historic Preservation? (Sites, neighborhoods, culture?)	Ranking Score 15-75
#40- 2016	Develop An Assessment to Identify the Need for Additional Dry Hydrant Locations and Install Dry Hydrants for Wildfire Suppression	5	5	5	5	4	5	5	5	5	5	5	4	4	5	3	70
#42-2024	Promote the E911 Ordinance to Ensure Proper Place Signage and Address Numbering As Required By Permit to Reduce the Risk of injury from Wind/Tropical, Winter, Rain Storms	4	5	5	5	4	3	4	5	5	5	5	1	5	5	3	64
#43-2024	Revise the Road Construction Standards to Require An Emergency Egress Lane for All New Neighborhoods to Reduce the Impact of Wildfire, Winter and Wind Events	5	5	5	5	2	2	4	3	3	4	5	3	5	5	3	59
#44-2024	Inventory the Location of All Agricultural Operations to Include Farms, Produce Stands, Hayfields, Animal Stock, Maple Sugar Houses, and Tree Farms and Map the Properties on the Town GIS System to Reduce the Impact of Wildfire and Drought Conditions	4	4	5	5	3	5	5	3	3	2	5	4	3	3	3	57
#45-2024	Determine Which of the Inventory of Farms, Orchards, Tree Farms, and Other Businesses Might Need to Complete Tier II Reporting Forms to Reduce the Risk of a Hazardous Materials Incident	4	5	5	4	5	4	4	5	5	4	5	4	5	5	3	67
#46-2024	Map the Locations All Single and Family Cemeteries to Tax Maps into the Town of GIS System of During Land Development to Reduce the Risk of Erosion and Loss of Historical Assets During Flood Events	3	4	5	5	4	5	5	5	3	3	5	3	3	4	5	62
#47-2024	Review Appropriate Hopkinton Fairgrounds Evacuation Plans From Each Identified Location Annually and Adjust Where Needed to Reduce the Impacts of Evacuation	5	5	5	3	5	4	5	5	5	5	5	2	5	5	2	66
#48-2024	Install More Clear ATV and Snowmobile Trail Waypoint Markers and GIS Locations That Tie into E911 Mapping System, Identifying Trailheads and Parking Areas	5	5	5	2	4	4	4	4	4	5	5	2	4	4	2	59
#49-2024	Develop A Class VI Policy for Land Development to Ensure Adequate Lot Sizing, Drainage, Erosion, and Appropriate Fit for the Community	4	5	5	3	4	3	4	5	5	5	5	5	4	4	4	65
#50-2024	Develop A Steep Slope Ordinance to Reduce the Risk of Landslide and Topographic Change During Developments	5	5	5	5	4	4	4	5	5	5	5	5	4	4	4	69
#51-2024	Adopt Subdivision and Site Plan Review Regulations That Require Cisterns for Phased Subdivisions to Ensure Adequate Town Services and Water Capacity to Reduce the Impact of Wildfire and Fire and Emergency Response	5	5	5	5	4	4	4	5	5	4	5	5	4	5	4	69
#52-2024	Develop and Promote Public Health Policies and Procedures to Reduce the Impacts of Cyanobacteria and Infectious Diseases Like Coronavirus, Influenza, Arboviral (Eee, West Nile, JamesTown Canyon, Zika) and Tickborne Illnesses (Lyme, Leptospirosis, Etc)	5	4	5	2	3	3	4	4	4	4	5	2	3	3	2	53
#53-2024	Develop An Inventory of Carbon Footprint of Town and School Buildings and Consider Strategies to Reduce Greenhouse Gases	4	5	5	4	3	4	4	4	3	5	5	5	5	5	4	65
#81-2024	Study Building a Storm Shelter at Hopkinton High School to Reduce the Risk of Storms, Hail, Downburst, Tornado, Tropical	1	5	5	1	5	5	5	5	5	4	5	1	3	3	1	54
#82-2024	Develop an Infrastructure Assessment Plan for Sewer and/or Water Line Vulnerability to Reduce the Impact of Earthquakes	1	5	5	1	2	5	5	5	5	4	5	1	3	3	1	51
#07- 2011	Upgrade the 12" Diameter Steel Culvert Along East Penacook Road With Box Culvert to Reduce the Impact of Flooding, Erosion and Overflow Damage	4	5	5	4	4	3	4	5	5	3	5	4	3	4	3	61
#34- 2016	Upgrade the Broadcove Road Bridge At Doll Brook to Reduce the Impact of Flooding, Erosion and Overflow Damage	4	5	5	4	4	3	4	5	5	3	5	4	3	4	3	61
#37- 2016	Upgrade the Boundtree Road Culvert At Hardy Spring Brook to Reduce the Impact of Flooding, Erosion and Overflow Damage	4	5	5	4	4	3	4	5	5	3	5	4	3	4	3	61
#54-2024	Purchase and Install A Generator for the Town Hall to Keep Essential Governmental Services Functional During Power Outages Caused By Wind, Winter, Or Solar Storm Event	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	73

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# Town of Hopkinton, NH Hazard Mitigation Plan Update 2024

## 8 MITIGATION ACTION PLAN

Action Number	Does the Action..... or Is the Action.....	Reduce Damage? (or Injury)	Contribute to Town Objectives? (Supported by Master Plan or long term goals?)	Meet Regulations? (If there are any)	Protect Sensitive Structures? (Buildings, roads, culverts, human-made things?)	Implement Quickly? (See also Action Plan for Timeframe)	Socially Acceptable? (People/neighbors like project)	Politically Acceptable? (Public officials & decision makers like project)	Administratively Realistic? (Have admin skills, permitting, other paperwork)	Technically Feasible? (Have tech skills, technology or special equipment)	Have a Reasonable Cost to Benefits Gained? (Will project save \$\$ in long term?)	Legal? (Or will be legal upon completion)	Support or Protect the Environment? (Natural resources?)	Have the Funding? (Can funding be obtained?)	Have Necessary Staff or Volunteers?	Support Historic Preservation? (Sites, neighborhoods, culture?)	Ranking Score, 15-75
#55-2024	Construct A Climate Controlled Vault to Protect Sensitive Town and Historical Records to Reduce the Impact of Water Or Fire Damage	5	5	5	5	4	5	4	5	5	5	5	2	3	5	5	68
#56-2024	Upgrade the Wastewater Treatment Plant to Improve Sludge Removal, Upgrade Pumps, and Upgrade Computerized System to Ensure Capacity and the Public Health and Safety of Residents	4	5	5	4	3	3	4	4	4	3	5	5	3	4	2	58
#57-2024	Install Solar Panels on the Wastewater Treatment Plant to Provide Renewable Energy Source to Power the Plant to Mitigate the Effects of Storm Events and Climate Change	2	5	5	5	5	5	5	5	5	5	5	5	5	5	3	70
#58-2024	Collaborate With the Hopkinton School District to Assist With Obtaining A Generator for the Harold Martin School to Reduce the Risk of Fire (for Sprinklers)	5	5	5	5	3	5	5	4	5	5	5	3	5	5	2	67
#59-2024	Install A Generator At the Slusser Community Center for A Warming and Cooling Shelter to Reduce the Impacts of Extreme Heat and Extreme Cold Events	5	5	5	2	4	5	4	5	5	4	5	2	4	5	2	62
#60-2024	Install A New Dry Hydrant At Briar Hill Road to Replace the Lost Pumping Sites At Doll Brook to Provide A Rural Fire Suppression Source	5	5	5	5	3	5	5	5	5	4	5	4	5	5	5	71
#61-2024	Install A New Dry Hydrant in the Hatfield Area At Thain Road Private Pond to Provide A Rural Fire Suppression Source	5	5	5	5	2	5	5	5	5	4	5	4	5	5	5	70
#62-2024	Upgrade the Existing Waste Water Pump System to Reduce the Risk of Sewage Overflow and Stormwater Flooding to Protect Water Quality and Public Health	5	5	5	5	3	4	4	5	5	4	5	5	3	5	5	68
#63-2024	Assess (and/Or Remove) Large Wood Jams in the Warner River Annually to Reduce the Risk of Flooding and Channel Movement	4	3	5	3	4	3	3	3	4	3	5	4	4	3	3	54
#38-2016	Place Key Wetlands and Slope Parcels Near the Highway Into Permanent Conservation to Enhance the Flood Storage Capacity	4	3	5	3	2	3	3	3	4	3	5	3	2	3	2	48
#39-2016	Upgrade Kimball Lake Dam to Protect Properties From Flooding and Increase Flood Storage Capacity	5	5	5	5	4	4	4	5	5	4	5	4	4	4	3	66
#64-2024	Relocate the Contaminated Soil From the Transfer Station's Closed Lagoons into A Sealed Landfill on the Same Site to Protect Water Quality and Public Health	5	5	5	2	4	5	4	5	5	4	5	5	4	4	2	64
#65-2024	Obtain Dam Emergency Action Plans of High, Significant, and Low Hazard Classification Dams in Hopkinton to Understand the Problems of Potential Dam Breach	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	75
#66-2024	Work With the NH 103 Property Owners to Obtain EPA Brownfields Funding to Clean Up the Contaminated Commercial Site	3	4	5	2	1	2	5	3	3	4	5	5	3	3	2	50
#67-2024	Implement the 2023 Natural Resources Inventory to Ensure Public Safety, Water Quality	5	5	5	5	3	4	4	4	5	4	5	5	4	4	4	66
#68-2024	Locate and Purchase Prime Parcels for Permanent Conservation in Conjunction With the Findings of the 2023 NRI to Reduce the Risk of Injury from Wildfire and Flooding	4	3	5	3	2	3	3	3	4	3	5	3	2	3	2	48
#69-2024	Remove the Diseased and Dead Ash Trees Proactively to Reduce the Risk of Wildfire and Reduce Tree Debris From Wind/ Tropical, Rainstorms, and Winter Weather	5	4	5	3	5	4	5	5	5	5	5	5	4	5	3	68
#70-2024	Test Kimball Pond (Town Beach) for Cyanobacteria and E Coli and Educate Water Users About Proper Use of Waterbodies to Reduce the Risk of Public Health Events	5	5	5	1	5	5	5	5	5	5	5	2	5	5	1	64
#71-2024	Purchase and Place Blackwater River Or Warner River Or Contoosook Upstream Shoreland Properties Under Permanent Conservation to Protects the Parcels From Long Term Development Effects Including Large Dam Failure, Small Dam Failure, Erosion, Channel Movement, and Sedimentation	4	5	5	4	4	5	5	5	5	4	5	5	4	5	3	68
#72-2024	Inspect and Monitor Conditions of the Meadows Manufactured Housing Park Along the Warner River for Life Safety to Ascertain the Potential for Erosion and Bank Failure or Landslide	5	5	5	5	5	5	5	5	5	5	5	3	5	4	2	69
#41-2016	Conduct Outreach to Town Residents and Businesses to Promote Natural Disaster Awareness and Mitigation Activities	2	4	5	2	5	4	4	4	5	5	5	4	4	4	3	60
#73-2024	Educate Residents and Businesses About the Dangers of PFAS to Reduce Further Contamination of Groundwater and Surface Water	2	4	5	2	5	4	4	4	5	5	5	4	4	4	3	60
#74-2024	Encourage the Churches to Install Lightning Rods and Grounding Systems on their Steeple or Cupolas	3	3	5	4	4	3	3	3	4	3	5	2	5	3	5	55
#75-2024	Work With the Churches and Slusser Center to Develop Effective Public Health Plans Including the Streaming of Services Online to Homebound Residents	4	5	5	2	4	4	4	4	5	4	5	2	5	4	2	59
#76-2024	Develop A Full, Detailed GIS Map of the Trail System and Its Amenities for Widespread Public Promotion to Reduce the Risk of Injury From Wind/Tropical, Lightning and Wildfire	3	4	5	2	3	4	4	4	4	4	5	2	4	4	2	54
#77-2024	Promote the Establishment of an Agricultural Commission with a "Grow, Buy & Eat Local" Message to Support Nearby Farms & Orchards and Reduce the Impact of Aging Infrastructure, Greenhouse Gas Emissions, and Climate Change	3	4	5	2	4	4	4	4	5	5	5	5	5	5	2	62
#78-2024	Engage In Public Education and Business Education to Ensure Propane/LP/Fuel Tank Anchoring to Reduce the Impact of Flood, Wind/ Tropical, and Earthquakes	4	4	5	4	4	4	5	5	5	5	5	5	5	4	2	66
#79-2024	Develop a NFIP Public Awareness Program and Publicize the Availability of Flood Insurance to Contoosook River and Downtown Residents to Reduce the Risk of Flood Injury and Property Damage	3	4	5	2	4	4	4	5	5	4	5	2	4	3	2	56
#80-2024	Promote Solar Storm and Geomagnetic Radiation Awareness and Mitigation on the Town Website to Reduce Impacts of Solar Storms	3	3	5	3	3	3	3	3	3	3	5	3	3	3	3	49

Source: Hopkinton 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
<b>Ongoing</b>	Action undertaken throughout the life of the 5-year Plan
<b>Short Term</b>	Action should be undertaken during Years 1-2 of the Plan
<b>Medium Term</b>	Action should be undertaken during Years 3-4 of the Plan
<b>Long Term</b>	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.

**PROJECT PHASES**

Some of the Actions are anticipated for completion after the 5-year lifespan of this **2024 Plan**. Long Term Actions (Years **4-5** of the Plan’s lifespan) may often run several years beyond **2029**. For these Actions, a series of Phases will be identified, each representing a 5-year lifespan of the Plan. For example, a **Long Term Phase 1 of 3** Action indicates that through **2029**, 5 years of the project are expected to be worked on, plus an additional **10** years (two more 5-year Plan lifespans) of the project are expected.

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**Long Term (4-5 Years of the Plan)**

**Phase 1 (5 Years = lifespan of the current Plan)**

**Phase 2 (10 Years = 2 lifespans of the Plan)**

**Phase 3 (15 Years = 3 lifespans of the Plan)**

### COST TO BENEFIT ANALYSIS

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

Addressing Hazards with Actions

For the purposes of Action development, the main hazard categories of **Drought, High Wind/Tropical, Wildfire/Fire/Lightning, Flood/River, Winter, Extreme Temperatures, Earthquake/Landslide, Public Health/Biological, Solar** are considered precise enough to represent the hazards being addressed.

Many hazards overlap when an event occurs in Town. With individual, and often similar, natural hazards evaluated in this Plan, it is not always practical to list each one when describing potential Actions to address vulnerabilities. In many cases, listing the more encompassing main hazard categories should accurately define the issues of most 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.

Main Hazard Category	Specific Hazards Included
Drought	Drought
High Wind/Tropical/Storms	Thunderstorms, Downbursts, High Winds, Tornadoes, Tropical and Post-Tropical Cyclones, Hail
Wildfire/Fire/Lightning	Wildfire, Lightning, Fire
Flood/River/Dam	Dam Failure, Inland Flooding, River Hazards
Winter/Ice	Winter Storms, Blizzard, Ice Storm
Extreme Temperatures	Cold Wave, Heat Wave
Earthquake/Landslide	Earthquake, Landslide
Public Health/Biological	Swimming Water Quality, Air Quality, Drinking & Surface Water Quality, Infectious Diseases, Arboviral Diseases, Tickborne Diseases
Solar	Geomagnetic Storms, Solar Radiation, Radio Blackout
Hazardous Materials/Radiological	Hazardous Materials, Radiological
Human Hazard	Crash, Mass Casualty Incident, Cyber Event, Terrorism/ Violence
Technological	Aging Infrastructure, Conflagration (Fire), Long Term Utility, Outage

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 **Erosion** from the **River Hazards** category, **Storm** (generally applying to warm weather, all-encompassing **Thunderstorms, Hail**) or **Tree Debris** from the **Wind** category, **Water Quality** from the **Public Health** category, or **Communications** from the **Long Term Utility Outage**, to provide the specific information needed to understand certain issues in Hopkinton.

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 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 specific Actions associated with them in the **Mitigation Action Plan**. Otherwise, the reasons why no specific or feasible Actions were developed for the highest **Concerns** is described in **Table 8.5**.

Table 8.5

Committee Assessment of Natural Hazards with Mitigation Actions

CONCERN	Natural Hazard	Committee Assessment of Actions
MEDIUM	Drought	See Actions related to Drought, Lightning, Extreme Temperatures, and Fire.
MEDIUM	Wildfire	See Actions for Wildfire, Tree Debris, Lightning.
HIGH	Winter	See Actions related to Winter, overall Storms, Ice, Tree Debris, Utility Outage.
MEDIUM	Ice	See Actions related to Winter, overall Storms, Snow, Utility Outage, Tree Debris.
HIGH	Cold Wave (Extreme Temps)	See Actions related to Drought, Climate Change, Winter Weather, Extreme Heat.
EXTREME	Heat Wave (Extreme Temp)	See Actions related to Drought, Climate Change, Winter Weather, Extreme Cold, Storms.
MEDIUM	Small Dam Failure	See Actions related to River, Flood, Dam, Erosion, Landslide and overall Storms.
LOW	Large Dam Failure	See Actions related to River, Flood, Dam, Erosion, Landslide and overall Storms.
MEDIUM	Inland Flooding	See Actions related to Flood, Dam, Erosion, River, and Aging Infrastructure.
LOW	River Hazards	See Actions related to River, Flood, Dam, Erosion, Landslide and overall Storms.
LOW	Earthquake	See Actions related to Landslide, Erosion, Earthquake, Aging Infrastructure.
LOW	Landslide/Erosion	See Actions related to Landslide, Erosion, Earthquake, Aging Infrastructure, Scouring.
HIGH	Public Health	See Actions related to Public Health, Health (Water Quality), Infectious, Life & Safety and general natural disaster.
LOW	Solar Storms and Space Weather	See Actions related to Extreme Temperatures, Aging Infrastructure, Power Outage, Utility Failure.
HIGH	High Wind Events	See Actions related to Wind/Thunderstorm/Rain, Tropical, Tree Debris, overall Storms, Utility Outage.

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CONCERN	Natural Hazard	Committee Assessment of Actions
HIGH	Thunderstorms	See Actions related to Wind/Thunderstorm/Rain, Tropical, Hail, Tree Debris, overall Storms, Utility Outage.
MEDIUM	Downburst	See Actions related to Wind/Thunderstorm/Rain, Tropical, Tree Debris, overall Storms, Utility Outage.
HIGH	Lightning	See Actions related to Wildfire, Wind/Tropical (Storms), Fire, Tree Debris.
MEDIUM	Tornado	See Actions related to Wind/Thunderstorm/Rain, Tropical, Tree Debris, overall Storms, Utility Outage.
HIGH	Hail	See Actions related to Wind/Thunderstorm/Rain, Tropical, Tree Debris, overall Storms, Utility Outage.
MEDIUM	Tropical and Post-Tropical	See Actions related to Wind, Tropical, Tree Debris, overall Severe Weather Storms, Utility Outage.

Source: Hopkinton Hazard Mitigation Committee



## 9 ANNUAL IMPLEMENTATION AND EVALUATION

The Town received FEMA approval for the prior **Hazard Mitigation Plan** in **January 2017**. 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 Hopkinton will review, monitor, and update its new **Hopkinton Hazard Mitigation Plan Update 2024**.

### Implementation Challenges and Successes

Implementing a Hazard Mitigation Plan is not easy for a small New Hampshire community. No funding is available to oversee the Plan’s implementation, and funding might not be available for individual projects. A permanent, volunteer Committee would be needed to control this effort on a regular basis under direction of a Town staff member. There are many aspects to be considered for implementation, whether successful or unsuccessful.

#### GREAT MITIGATION PROJECTS... AND THE REALITIES OF PROJECT IMPLEMENTATION IN NH

These important but costly and/or time-consuming mitigation projects identified in Hopkinton’s **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 will continue.

New Hampshire relies on the **payment of property taxes** and a small selection of **limited state and federal funding opportunities** to develop annual municipal operating budgets that must be approved by voters (residents and property owners) at Town Meetings in most communities. Our population is aging and many are on a fixed income. 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 (excludes the Town of Hopkinton). Limitations for Action completion exist after the Hazard Mitigation Committee has developed its **Mitigation Action Plan**:

- ✧ **Town Meeting voters decide whether to approve new zoning ordinances** which can help mitigate hazards, and the Planning Board must first be supportive of any ordinance changes.
- ✧ **Town Meeting voters decide upon the \$ amount available to Department Operating Budgets** which often is just sustainable to enable. Voters try not to increase property taxes, which does not allow flexibility to plan ahead.
- ✧ **Town Meeting Voters decide upon expensive warrant articles and CIP items which may not include the Mitigation Action Plan** projects, and they may vote to not expend funds (Capital Reserve Fund) for, nor accept funds (grant) from, a mitigation project.
- ✧ **Town staff have much to accomplish for their normal duties and may not consider Mitigation Action Plan projects a priority.**
- ✧ **Town volunteers** are relied upon to do much of the hazard mitigation work in communities. Many volunteers are at or near retirement age and have held their positions for a decade or more. Few younger people are stepping up to take the place of exiting volunteers.
- ✧ **Town Boards and Departments set their internal priorities** which may not be the same as the **Mitigation Action Plan** projects, including regulation revisions, education and outreach, structural improvements, etc.
- ✧ **Communities often wait years to obtain grant funding for their priority projects** like bridge or road rehabilitation, stormwater upgrades, or brownfields assessments. Most funding programs require a cash match which is where most discretionary monies and Town staff time are channeled.
- ✧ **Communities do not have allocated funding for staff to review and evaluate the Plan** yearly as a Hazard Mitigation Committee, despite federal preference for this activity to occur. Many **Mitigation Actions** will be completed organically by local Departments and Boards instead of being led by a Hazard Mitigation Committee.
- ✧ **Communities feel more comfortable applying for State of New Hampshire grants than for federal grants.** Our State motto is “Live Free or Die” and this independent pride is carried over into people looking for municipal and state problem-solving funding first over federal funding. Grant administration is part of the equation, with less time available to spend administering complex funding programs.

From the outcomes of **2017 Plan**, the Hazard Mitigation Committee considered some of the specific challenges or barriers to its implementation:

**2017 PLAN IMPLEMENTATION CHALLENGES**

- ➔ Local funding is not as high as needed (infrastructure & natural systems actions are very expensive).
- ➔ Requested State 2017 bridge aid but funding was not available until 2024/25, resulting in price increases for materials (Broadcove Road at Dolf Brook culvert). Time increased to order and take delivery of an ambulance (now 2 years, was 6 months).
- ➔ Bond for \$2.5 million (rebuilding of Briar Hill and intersection of Penacook Rd and Briar Hill) on hold because Town cannot get contractors to do the work this year (spring 2024).
- ➔ No dedicated staff available to work on Plan implementation, no funding available. In general, town staffing was short during this period which included the 2020-2022 pandemic which was difficult and stressful to manage town business. The Town was “lost 2 years” in its overall progress.

Understanding the **2017 Plan** challenges enabled the Hazard Mitigation Committee to consider “lessons learned.” These lessons will become important for successful implementation of the **2024 Plan**:

**2017 PLAN LESSONS LEARNED**

- ➔ Emergency Management will try to accomplish more public education and outreach actions. Need a Part Time funded emergency management position to keep track of the HMP Actions and events, take care of calls from the public. Set up a job description, time, fund and hire to keep the Plan items on track. Also need a grant writer/administrator, maybe as part of EM position.
- ➔ Keep track of events and issues with social media to get the word out, possibly obtain a Public Information Officer (PIO) to keep people updated.
- ➔ Designate paid personnel to implement the Plan and keep track of hazard events, severe weather, and disasters.
- ➔ Actively implement the HMP to determine mitigation needs and keep pace with infrastructure upgrade needs.
- ➔ Make minor updates to Plan annually with an established Hazard Mitigation Committee with new information to reduce the level of effort required for the 5-year update.
- ➔ Collaborate with the Budget Committee, Select Board (review annually as part of annual Budget process), Planning Board, and CIP Committee to ensure mitigation actions are reviewed, funded and incorporated into the Capital Improvements Program but the annual town budgets for

Department (review annually as part of annual Budget process). PB is updating Critical Facilities Chapter of MP. Could adopt as a MP Chapter initially (ILU statute). Town Administrator is the single point of contact among the Boards/Departments and the HMP.

Even with the challenges, the Town of Hopkinton counted many successes since the **2017 Plan**. Important projects were started or completed and new Committees are working to accomplish priorities that often enhance the capability of hazard mitigation planning:

**2017 PLAN SUCCESS STORIES (INCLUDING ACTIONS COMPLETED)**

- ➔ Upgraded box culverts on Briar Hill, Rollins Rd from 2018-2020.
- ➔ Moved an engineered, constructed box culvert from Briar Hill in 2022 to red-listed and closed Stickney Hill Road Bridge at Boutwell Mill Brook.
- ➔ Upgrade Kearsarge Rd to box culvert bridge.
- ➔ Rehabilitated Penacook Road Bridge (abutment joints).
- ➔ Underground utilities regulations approved by Planning Board.
- ➔ Energy Committee established in 2022. Working on installation of solar town array, community power, energy conservation in town buildings, education of residents, installation of EV chargers.
- ➔ Bond \$10 million for restoration/renovation of all Middle/High School, Maple Street, Harold Martin schools – improved safety & security, energy efficiency – better insulated, replaced skylights w/more energy efficient, high efficiency LP heating and hot water.
- ➔ Added the Town Hall generator to the 2024 budget.
- ➔ Working with Waste Reduction Committee and Select Board to educate the public on PFAS, goal is to reduce solid waste intake, currently cleaning up the waste lagoon, storing on site under capped landfill.

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. Despite the different ways of evaluation and prioritization shown within the **Hazard Mitigation Plan 2024**, completion of Actions or implementation of the Plan may not occur within the next **5** years unless there is an urgent need such as a declared major disasters or emergency declaration (DR- or EM). A natural disaster may serve as the catalyst for project implementation and grant application, including the opening of federal grant funds.

Town Duties: Annual Monitoring and Update of the Mitigation Action Plan (CH 8)

The Select Board will 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 Select Board designee will continue to serve as Chair of the Committee for Hazard Mitigation meetings and will be officially appointed to such a capacity by the Board. Current Hazard Mitigation Committee members will be appointed to continue to participate as members of the permanent Committee. More information is provided in APPENDIX B.

Committee membership shall include:

- ✓ Emergency Management Director
- ✓ Deputy Emergency Management Director
- ✓ Town Administration
- ✓ Fire Chief or designee
- ✓ Ambulance/Rescue Chief or designee
- ✓ Police Chief or designee
- ✓ Public Works Director or designee
- ✓ Building Inspector/ Zoning Compl. Off.
- ✓ Welfare Officer/Health Officer
- ✓ Transfer Station Admin.
- ✓ Town Land Use Planner
- ✓ Select Board member
- ✓ Planning Board member
- ✓ Budget Advisory Committee member
- ✓ Hopkinton School District Representative
- ✓ Library Representative
- ✓ Historical Society member
- ✓ Conservation Comm Representative
- ✓ Parks and Recreation Comm Representative
- ✓ Contoocook Village Precinct representative
- ✓ Community (Stakeholders) at Large
- ✓ Unitil representative (Stakeholder)
- ✓ US Army Corps of Engineers (Stakeholder)

Stakeholders who shall be solicited to attend meetings and to participate equitably in the Plan development process include representatives from Hopkinton School District, Library, Historical Society, US Army Corps of Engineers, neighborhoods, local State Representatives, agricultural/farming operations, trails groups, business leaders, local non-profits including the Capital Area Public Health Network, area emergency management directors, local, State or other Federal agency representatives (such as NH HSEM), utility representatives (such as Unitil), and other members of the public. This composition provides a wide spectrum of potential interests and opportunities for partnership to develop and accomplish Actions.

HMC INTERIM MEETINGS AND ACTIVITIES

Pre-COVID, the HMC did meet several times per year to review and work on Plan implementation. Moving forward, this Committee will aim to meet up to 4 times per year to follow these potential future meeting activities to update the Mitigation Action Plan and complete the Plan’s annual evaluation as displayed in Table 9.1.

Table 9.1

Hazard Mitigation Committee Preliminary Annual Future Meetings and Activities

Meeting or Activity Month	ANNUAL Preliminary HMC Interim Meeting Agenda Items and Activities
JANUARY HMC Meeting <i>Budgets Determined</i>	<b>Town operating budgets are determined for the next year.</b> HMC assists Select Board and Budget Comm with getting their mitigation projects funded by Warrant Articles and written into Dept/Bd Operation budgets. Action implementation continues. HMC requests a <b>Progress Report #2</b> for This Year’s & Next Year’s Actions from responsible Depts/Bds by beginning of February. HMC continues update to the <b>Action Status File</b> using the <b>Department Mitigation Action Progress Reports</b> .
February-March	HMC staff updates <b>CHAPTER 8 Mitigation Action Plan Tables</b> using the revised <b>Action Status File</b> from the <b>Department Mitigation Action Progress Reports</b> . HMC staff provides revised <b>CHAPTER 8 Mitigation Action Plan Tables</b> to Department Heads/Board Chairs, keeps original Word and Excel files accessible on Town computer system and backed up to cloud.
APRIL HMC Meeting <i>\$ Available</i>	<b>Annual funding is received from March Town Meeting.</b> HMC completes annual update of the <b>CHAPTER 8 Mitigation Action Plan Tables</b> , polls Depts/Bds for new Hazard Events descriptions/impacts/locations/date to add to <b>CHAPTER 4 Local Hazard Event History Table</b> , requests photos of Hazard Events and updates <b>APPENDIX Photographic History</b> . HMC reviews and revises <b>CHAPTER 4 HIRA Table</b> . HMC determines Action Plan items to pursue for Year, including \$0 cost items.
May	HMC members ensure Depts/Bds are provided with information to work on their Actions for the Year. HMC members meet with Depts/Bds to discuss Action priorities and requests completion of This Year & Next Year Actions. Depts/Bds begin working on Actions. HMC posts a <b>Haz Mit/Severe Weather Survey</b> online for widespread public input. HMC helps Depts/Bds with grants for Actions.
JUNE HMC Meeting <i>Infrastructure Projects Underway</i>	<b>Infrastructure projects will be underway.</b> HMC requests a <b>Progress Report #1</b> for This Year’s & Next Year’s Actions from responsible Depts/Bds by beginning of July. HMC completes <b>Annual Evaluation of the Plan File</b> . HMC works with the CIP Committee to get certain projects placed into the CIP. Depts/Bds to begin placement of Next Year’s high-cost Action Plan items into the CIP.

Meeting or Activity Month	ANNUAL Preliminary HMC Interim Meeting Agenda Items and Activities
July- August	HMC assists Depts/Bds with their Operating Budget requests to include Next Year’s Actions, and to determine which Actions will have Warrant Articles. HMC staff continues assistance to Depts/Bds for <b>Action Plan</b> items. HMC continues update to the <b>Action Status File</b> using the <b>Department Mitigation Action Progress Reports</b> . HMC staff & members ensure Haz Mit Actions are added into the CIP.
SEPTEMBER HMC Meeting <i>CIP updated, Budgets drafted</i>	HMC to review <b>Action Status File</b> and identify Next Year’s Actions to accomplish (including \$0). HMC to review <b>Haz Mit/Severe Weather Survey</b> results to help guide Action priorities. HMC polls Depts/Bds for new Hazard Events descriptions/impacts/locations/date to add to <b>CHAPTER 4 Local Hazard Event History Table</b> , requests photos of Hazard Events and updates <b>APPENDIX Photographic History</b> . HMC reviews and revises <b>CHAPTER 4 HIRA Table</b> if needed.
October- December	HMC attends Select Board Dept/Bd Operation Budget meetings and suggests Warrant Articles for Action Plan items. HMC attends Budget Committee meetings scheduled through January to champion Action item funding.

Sources: Hopkinton Hazard Mitigation Committee

For each of the Hazard Mitigation Committee implementation meetings, the Emergency Management Director (or Staff Coordinator) will invite other Department members, Board and Committee members, Town Staff, Hopkinton School District representatives, US Army Corps of Engineers, Stakeholders, and other participants of the **2024 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 Hopkinton, and will be posted on the Town of Hopkinton website at [www.hopkinton-nh.gov](http://www.hopkinton-nh.gov).

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, shall be retained and compiled for inclusion into **APPENDIX C**.

The Emergency Management Director and Department heads will work with the Select Board 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.

Town Duties: Implementation and Evaluation of the Plan (Ch 8)

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 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 9.1. The primary implementation tasks are to be completed depending on when the Town prepares and receives its yearly operating budgets and warrant articles.

SUGGESTED MAIN ANNUAL HMC IMPLEMENTATION TASKS

The rolling list of the Hazard Mitigation Committee’s recommended annual main tasks to update and implement the Plan sections shall include:

1. Document New Hazard Events that Occurred in Town.

- ➔ Redo Hazard Identification and Risk Assessment (CHAPTER 4 HIRA Table in Plan, HIRA file) ratings for natural hazards.
- ➔ Add new events to Local and Area History of Disaster and Hazard Events (CHAPTER 4 Local History Table in Plan).
- ➔ Submit photos of events to add to the APPENDIX Photographic History file.

2. Coordinate Annual Completion of Priority Mitigation Actions by Assigning to Departments.

- ➔ APPENDIX B Mitigation Action Progress Report file.

3. Ensure Departments Acquire Funding for Actions & Document the Status of Priority Actions.

- ➔ APPENDIX B Mitigation Action/Project Status Tracking file.

4. Evaluate Effectiveness of the Plan Each Year.

- ➔ APPENDIX B Plan Evaluation Worksheet file.

5. Request Semi-Annual Progress Reports from Departments & Update Status File.

- ➔ APPENDIX B Mitigation Action/Project Status Tracking file.



**6. Update Mitigation Action Plan, Reprioritize Actions for Current Year, Update Supporting Plan Sections.**

- ➔ Update Mitigation Action Plan (**CHAPTER 8** Tables in Plan), place **Completed** or **Deleted** Actions into respective **CHAPTER 7** Prior Action Status Tables in Plan.
- ➔ Enhanced STAPLEE Prioritization (**CHAPTER 8** Figure in Plan, STAPLEE file).
- ➔ Update other sections as needed/if time permits including:
  - **CHAPTER 5** Critical and Community Facilities (narrative in Plan, Tables in file, and **APPENDIX A**),
  - **CHAPTER 5** Problem Statements narrative in Plan,
  - **CHAPTER 5** Culverts to Upgrade Table in Plan,
  - **CHAPTER 6** Capability Assessment Tables in Plan,
  - and more.
- ➔ Make note of everything added/changed in the **2024 Plan** for so we will track the adjustments and copy them over into the new **2029 Plan** update! The latest approved format and content will be different than the **2024 Plan**.
- ➔ Remember to invite the Stakeholders and public to all meetings, take minutes as needed, and keep PDF copies of publicity. Add to **APPENDIX C MEETING INFORMATION**.

**7. Send Interim Files to CNHRPC & Repeat.**

- ➔ Email copies of Agendas, meeting publicity, meeting minutes, Action Prioritization, Action Evaluation, other revised Plan files, and the revised Hazard Mitigation Plan itself to CNHRPC staff salexander@cnhrpc.org for archival and preparation for the next 5-year Plan update in **2028-2029**.

**Figure 9.A** is a graphic display of the repeating annual interim activities of the Hazard Mitigation Committee to update and implement the **Hazard Mitigation Plan 2024** actions and while preparing for the **2029 Plan Update**.

Figure 9.A  
Annual Interim Plan Implementation, 2024-2029



**ANNUAL INTERIM IMPLEMENTATION FILES 2024-2029**

To get the permanent Hazard Mitigation Committee started on its activities during the Interim Update Meetings, **APPENDIX B Evaluation and Implementation Worksheets** are provided. These example working documents include administrative and organizational Word and Excel format files, draft Agendas, a Mitigation Acton Progress Report, a file to track the progress of Actions to completion, and a file to evaluate the effectiveness of the Plan (a way to make notes for future improvement). These documents are only a starting point for Towns to help guide implementation during the interim years of Plan approval (2024) through Plan lapse (2029). Contact [CNHRPC](http://CNHRPC) at 603-226-6020 or at [salexander@cnhrpc.org](mailto:salexander@cnhrpc.org) for information about implementation assistance.

Committee Organization and Publicity Documents

- Select Board: Motion & [Permanent] Hazard Mitigation Committee Membership
- Interim Meeting Publicity- Template Press Release and Public Notice Meeting Poster

Meetings & Working with the Mitigation Actions

- Example Agenda for Interim Meeting 1 with recommended task list
- Example Agenda for Interim Meeting 2 with recommended task list
- Mitigation Action Status Tracking Sheet
- Mitigation Action Progress Report for Departments (optional)
- Annual Hazard Mitigation Plan Evaluation Worksheet

The next 5-year full Plan update will evaluate the Actions in the same manner, add new Actions, and will fulfill a complete update of the **Hazard Mitigation Plan** according to future’s Plan guidelines and standards.

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## Implementing the Plan through Existing Programs

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In addition to work by the Hazard Mitigation Committee and Town Departments, several other mechanisms exist which will ensure that the **Hopkinton Hazard Mitigation Plan Update 2024** 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 2017 PLAN

As a successful, growing community, the Town of Hopkinton has a comprehensive network of plans, processes, champions, regulations, and budgets to ensure its local objectives, projects and budgets are fulfilled. The **Hopkinton Hazard Mitigation Plan 2024** is a tool for community betterment which works most effectively when partnering with existing planning mechanisms. Since the original **2007 Plan**, the overall integration and importance of the **Hopkinton Hazard Mitigation Plan** into existing Town planning mechanisms continues to grow.

Although the **2017 Plan** was not adopted into Planning Board's latest **Master Plan 2022**, a better opportunity exists now for incorporation of the **2024 Plan**. The **Capital Improvements Program 2023-2028** has been recently updated and its projects influence new funding for Capital Reserve Funds and likely has helped to upgrade culverts in the **Mitigation Action Plan**. The **Zoning Ordinance** was revised annually since **2017** and continues to encourage natural systems protection (see **6 CAPABILITY ASSESSMENT**). The **Subdivision and Site Plan Review Regulations** have been reviewed and updated and will be again before **2028**. These regulations indirectly support hazard mitigation planning principles (such as excavation regulations, fire and emergency access, driveway standards, drainage, landscaping, erosion, etc.). Annual budgets for Emergency Management have been very small but may be able to increase to consider the **Hazard Mitigation Plan** findings. By necessity of the overall tax dollars available as determined by voters, the Town budget limits funding for larger hazard mitigation projects such as box culvert upgrades or infrastructure inventories. The individual Town departmental budgets supported hazard mitigation planning where feasible or supported by voters, such as Capital Reserve Funds for Bridge Repair, Highway, Infrastructure improvements, Town Building Upgrades, Dry Hydrants, etc. Drainage upgrades, culvert upgrades and asset inventory and management are priorities of the Public Works Department and are important mitigation projects in Hopkinton.

Moving forward, Town Boards and Departments have room for further improvement of the **Hazard Mitigation Plan's** incorporation into existing planning mechanisms. For several of these planning programs, a summary of the **Process to Incorporate Actions** as noted below offers ways for the **2024 Plan** to be utilized. See also **6 CAPABILITY ASSESSMENT**.

MASTER PLAN

A new Master Plan was developed by the Planning Board, with hopes of continual update of chapters in forthcoming years. The current 2022 Hopkinton Master Plan was adopted by the Planning Board in May 2022 and is considered a "living" document as one or two chapters are reviewed and updated annually.. The 2022 Hopkinton Master Plan contains a Vision Chapter, Housing, Economic Base, Transportation, Existing and Future Land Use, Natural Resources, Community Facilities, and Implementation Chapters. The Hazard Mitigation Plan 2024 will be adopted as an Appendix or a Chapter to the 2022 Master Plan by the vote of the Planning Board. 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 Hopkinton.

To support mitigation efforts, the Planning Board shall consider adopting the Hazard Mitigation Plan 2024 as a separate Chapter or Appendix to its Master Plan in accordance with RSA 674:2.II(e).

The Hazard Mitigation Plan shall be presented to the Planning Board by the Town Administrator and Emergency Management Director after FEMA's Formal Approval. The Plan can be considered for adoption after a duly noticed public hearing, just as any typical Chapter of a Master Plan. In addition, Actions and concerns from the Plan can be integrated into the Master Plan.

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 the Board's 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

Hopkinton's last adopted Capital Improvements Program (CIP) is 2023-2028 as adopted in 2023. The goal is to ensure the CIP is reviewed and updated each year by the CIP Committee. 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 shall be identified where appropriate as addressing projects in the **Hazard Mitigation Plan Update**. The CIP in Hopkinton is directed by the Select Board.

Process to Incorporate Actions

The Hazard Mitigation Committee (HMC)’s representative to Select Board will oversee the process to begin working with the CIP Committee to incorporate the various Hazard Mitigation Plan projects into the updated CIP. As the CIP is amended, the representative from the Hazard Mitigation Committee shall be appointed to sit on the CIP Committee or the HMC shall submit a CIP Project Application to ensure the mitigation projects are addressed as part of the CIP update process. A new Capital Reserve Fund for Hazard Mitigation Projects will be considered.

TOWN MEETING

In Hopkinton, 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 **2024 Plan Update** and where the funding of specific capital projects simultaneously responds to these mitigation projects.

Process to Incorporate Actions

The Hazard Mitigation Committee (HMC)’s Town Department members will work with the Town Administrator, Budget Advisory Committee and Select Board 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 Advisory Committee and Select Board 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 workload to accommodate the Actions can put a strain on their ability to serve the public during performance of their normal job duties. When possible, Hopkinton Departments and staff will be able to prioritize their tasks to work on **Hazard Mitigation Plan Update 2024** Actions. The in-kind staff work performed is assumed under the Operating Budget for that particular

Department. The Emergency Management Department would benefit from a higher annual budget if this were brought to Town Meeting.

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 Hopkinton improvement projects to specific projects and objectives of the **Hazard Mitigation Plan Update 2024**, the Departments can utilize their resources more effectively.

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## Continued Public Involvement

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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 shall again be utilized to assist with the public involvement process.

Those representatives who chose not to participate in the **2024** Hazard Mitigation Committee plan update process will not be directly identified for privacy considerations, but their organizations will be listed so they can again be contacted for the **5**-year update.

For each interim meeting in the annual update process and for the **5**-year update process procedures that will be utilized for public involvement include:

- Provide personal invitations to Town volunteer Board and Committee Chairs, Budget Advisory Committee members, and Town Department heads, Contocook Village Water Precinct, and local utility representatives.
- Provide personal invitations to abutting community emergency management directors of neighboring Towns.
- Provide personal invitations to the major businesses, agencies, neighborhoods, non-profits, and other entities invited to participate in the **2024 Plan**: Unitil, Eversource, Capital Area Public Health Network, Colonial Village Pharmacy and Supermarket, Hopkinton Dial-A-Ride, Meadows of Hopkinton Mobile Home Park and Deer Meadow Mobile Home Park, US Army Corps of Engineers, Hopkinton State Fair, Consolidated Communications TDS Telecomm, NH Department of Transportation District #5, Hopkinton School District, Concord Monitor.
- Seek new public involvement representation from the following businesses, agencies, neighborhoods, non-profits, and other entities: Historical Society, Contocook Chamber of Commerce, Contocook Farmer's Market, Kearsarge Area Chamber of Commerce, Duston Country Club, Family Tree Health Care, Gould Hill Farm, Beech Hill Farm & Ice Cream Barn, Hopkinton Village Store, TDS Bank, Hopkinton Food Pantry, Slusser Center, Kimball Lake Property Support Committee, and Hopkinton Rotary Club through personal invitation.
- Post public meeting notice flyers and press releases on the Town's website at [www.hopkinton-nh.gov](http://www.hopkinton-nh.gov) on the Town's online calendar on the same site, and place agendas and meeting materials on a Hazard Mitigation Committee webpage.
- Post meeting notices in the Hopkinton Town Hall, outside on the Town Bulletin Board, at the Library, at the local schools, and at local business(es);
- Submit media releases to the Concord Monitor (a paid, regional daily newspaper serving nearly half of all New Hampshire communities mostly southern New Hampshire) and other free,



regional weekly newspapers serving Central region NH communities (online newspapers and newsletters have unpredictable longevity).

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 NH Homeland Security and Emergency Management Field Representative for Hopkinton will be invited. The Town will provide the Central NH Regional Planning Commission with Agendas, minutes and other materials for archiving, to be used when the **5-year** update again becomes necessary (email to [salexander@cnhrpc.org](mailto:salexander@cnhrpc.org)). Any State, regional or federal interest in Hopkinton shall be considered for direct invitation for MITIGATION, which is a transparent process. EMERGENCY OPERATIONS planning shall have a more selective working group.

A new section of the Town website dedicated to Hazard Mitigation Committee activities and the **2024 Plan** shall be kept updated with meeting notices and materials used by the Hazard Mitigation Committee. This online location would be an optimal place to post the final **2024 Plan** and its *Maps* and *Appendices* and to continue adding materials for annual Plan updates. Additional pages shall be added for resources, information, and links to other websites for the public. Several Action Plan items which will be undertaken relate to public education and involvement and the Town website would be an exemplary method of getting the word out.

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## 10 APPENDICES

The following **APPENDICES A-F** are included under a separate electronic or paper document to maintain the relative brevity of this **Hazard Mitigation Plan Update**.

### Listing of Hopkinton Hazard Mitigation Plan Update 2024 Appendices

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Some of these documents shall be updated annually as part of the interim Action implementation and Plan evaluation process\*. The remaining **APPENDICES** could be amended with 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 **2029**.

- 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 \***
- F Hazard Mitigation and Severe Weather Community Survey Results \***

These Appendices shall be reviewed and updated minimally each year\*. It is also highly recommended to update **4 HAZARD RISK ASSESSMENT Table 4.5 Local and Area Hazard Event and Disaster History** to maintain a record of the disasters, hazards, and impacts to Hopkinton. See **9 ANNUAL EVALUATION AND IMPLEMENTATION** and **Figure 9.A** for details.

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## 11 MAPS

Four (4) detailed Maps were fully updated during the development of the **Hopkinton Hazard Mitigation Plan Update 2024**. 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 2024 Maps





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**Map 1 Potential Hazards** illustrates potential hazard event locations in Hopkinton 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 new Preliminary 2023 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 Hopkinton in the past, including areas of Preliminary SFHA, flooding/washout, snowmelt, dam breach, fire/wildfire, wind damage, ice damage, and more.

**Map 3 Critical and Community Facilities** includes the infrastructure included in **Map 1 Potential Hazards** 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** and includes the **Map 1 Potential Hazards** and any realistic **Map 2 Past Hazards** locations where hazard events can occur again in Hopkinton.

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