

HAZARD MITIGATION PLAN HARTFORD, VT

2021-2026

Town Adopted: February 1, 2021
FEMA Approved:

ACKNOWLEDGEMENTS

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Funding Support

This plan and its development was funded by a Federal Emergency Management Agency Hazard Mitigation Planning Grant administered by Vermont Emergency Management.

CERTIFICATE OF PLAN ADOPTION

Town of Hartford Selectboard

Formal Resolution Adopting the 2021-2026 Hartford Hazard Mitigation Plan

WHEREAS, the Town of Hartford has worked with local officials, residents and regional partners to identify hazards, analyze past and potential future losses due to natural and manmade-caused disasters, to identify strategies for mitigating future losses, and to prepare an updated hazard mitigation plan for the town; and

WHEREAS, duly-noticed public meetings were held by the Hartford Selectboard on 5/19/2020 and 6/9/2020 to present and receive public comment on the draft 2021-26 Hartford Hazard Mitigation Plan; and

WHEREAS, the respective officials identified in the mitigation action of the plan are hereby directed to pursue implementation of the recommended actions assigned to them; and

WHEREAS, the draft 2021-26 Hartford Hazard Mitigation Plan was submitted to the Vermont Emergency Management and the Federal Emergency Management Agency for review on June 18, 2020 and, as revised to incorporate FEMA recommendations on September 3, 2020;

WHEREAS, FEMA approved the updated 2021-26 Hartford Hazard Mitigation Plan on October 5, 2020, pending adoption by the Hartford Selectboard;

NOW, THEREFORE BE IT RESOLVED that the Hartford Selectboard hereby adopts this 2021-26 Hartford Hazard Mitigation Plan for municipal use and implementation.

Dated this 10 day of October, 2020.



Chair, Hartford Selectboard



FEMA

April 14, 2021

Stephanie A. Smith, State Hazard Mitigation Officer
Vermont Emergency Management
45 State Drive
Waterbury, Vermont 05671-1300

Dear Ms. Smith:

As outlined in the FEMA-State Agreement for FEMA-DR-4474, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. Our Agency has been notified that your office completed its review of the Hartford Hazard Mitigation Plan and approved it effective **March 19, 2021** through **March 18, 2026** in accordance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, the National Flood Insurance Act of 1968, as amended, and Title 44 Code of Federal Regulations (CFR) Part 201.

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

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

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

Sincerely,

Paul F. Ford
Acting Regional Administrator
DHS, FEMA Region I

PFF:ms

cc: Ben Rose, Recovery and Mitigation Section Chief, VEM

HARTFORD HAZARD MITIGATION PLAN

2021-2026

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I. INTRODUCTION

Hazard mitigation planning helps a community identify and prioritize actions it can take to reduce or eliminate risks to people and property from natural and manmade hazards. The Federal Emergency Management Agency (FEMA) further describes hazard mitigation planning as a process that state and local governments should use to identify community risks and vulnerabilities associated with known hazards, to better plan for, withstand and recover from disaster events (www.fema.gov/plan/mitplanning).

THE FOUR PHASES OF EMERGENCY MANAGEMENT

Mitigation planning is only one of four phases of emergency management. Preparedness, response, and recovery are the other pieces of the cycle. At any one time, a community may be in more than one phase of emergency management. It is important to distinguish between these four phases, especially between mitigation and preparedness. Mitigation is often confused with preparedness, and vice versa. Below are descriptions of each of the four phases of emergency management:

- **Mitigation:** preventing future emergencies or minimizing their effects
 - Includes any activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies.

- Buying flood and fire insurance for your home is a mitigation activity.
- Mitigation activities take place before and after emergencies.
- **Preparedness:** preparing to handle an emergency
 - Includes plans or preparations made to save lives and to help response and rescue operations.
 - Training and proper equipment are preparation



- Evacuation plans and stocking food and water are both examples of preparedness.
- Preparedness activities take place before an emergency occurs.
- **Response:** responding safely to an emergency
 - Includes actions taken to save lives and prevent further property damage in an emergency situation. Response is putting your preparedness plans into action.
 - Rescuing people from flooding or putting out a fire are both response activities.
 - Response activities take place during an emergency.
- **Recovery:** recovering from an emergency
 - Includes actions taken to return to a normal, preferably incorporating mitigation actions to create an even safer situation following an emergency.
 - Recovery includes getting financial assistance to help pay for the repairs.
 - Rebuilding damaged roads or providing loans to businesses are both recovery activities.
 - Recovery activities take place after an emergency.

Hartford, and to develop strategies to reduce long-term risks. Hazards cannot be eliminated, but it is possible to determine those hazards that are most likely to occur, where they may be most severe and cause the most damage, and what can be done to reduce their impacts on the community. Benefits of hazard mitigation planning include:

- increased public awareness of natural and manmade hazards and community vulnerabilities,
- improved understanding of potential risks and possible risk reduction measures associated with existing and future development,
- strengthened partnerships and lines of communication among diverse interests, including opportunities to leverage and share resources,
- increased community and voter support for specific actions the town may propose to reduce future losses,
- a reduction in physical, financial, and emotional losses caused by natural and manmade disasters,
- increased community resilience to withstand and more quickly recover from disasters, and
- community eligibility for federal hazard mitigation grants and aid prior to and following federally declared disasters, and for additional state matching funds for associated repairs and improvements.

PURPOSE OF MITIGATION PLANNING

The purpose of this hazard mitigation plan is to identify and plan for both natural and manmade hazards facing the Town of



OVERVIEW

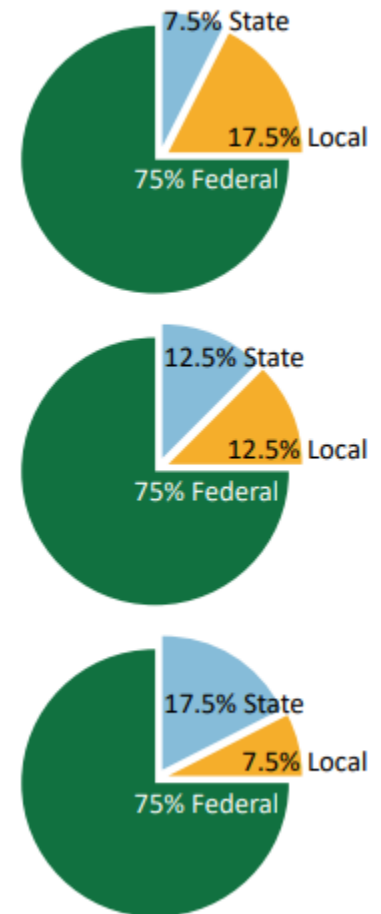
The previous Hartford Hazard Mitigation Plan (HMP) was adopted by the town on June 24, 2014, and subsequently approved by the Federal Emergency Management Agency (FEMA) on July 24, 2014. HMPs are only effective for five years and must then be updated and adopted by the town and approved by FEMA again.

The 2014 HMP was one of the first Vermont plans to incorporate a much more comprehensive approach in the scope and citizen participation in the development of an HMP. Vermont's and FEMA's new mitigation framework both focus on strengthening community "resilience" – to not only understand and reduce risks of future events, but to also empower communities to recover more quickly and effectively when disasters occur. The 2014 HMP also followed Tropical Storm Irene in August 2011, the largest, most damaging, and costly flood since 1927 – by some estimates a 130-year flood – to hit Vermont and Hartford.

Many properties in White River Junction, Hartford Village and Quechee were inundated in the 2011 flood; buildings in West Hartford, the West Hartford and Quechee bridges, and town infrastructure suffered serious damage; and much of the floodplain, including local parks and farm fields, was covered with several inches of silt. It took the Town nearly five years to

repair the majority of the public infrastructure damaged by Tropical Storm Irene, and most property owners, businesses, and residents to recover. And for some the recovery never occurred. Local lessons learned from Irene helped inform this planning process.

In October 2014, the state enacted new Emergency Relief and Assistance Fund (ERAF) rules that provide additional state matching funds for federal disaster relief under FEMA's Public Assistance Program (FEMA typically requires a 25% match). To qualify, municipalities must have taken four actions: adopt updated road standards, participate in the National Flood Insurance Program (NFIP) by adopting flood hazard area regulations, annually adopt a local emergency management plan, and have a local Hazard Mitigation Plan approved by FEMA. Under ERAF, there is a financial incentive that allows the town to lessen their financial burden during federally declared disasters. By having taken these four basic actions, the state will contribute half (12.5%) of the 25% match on federal disasters.



A fifth incentive that not many communities in Vermont take advantage of is to adopt either a River Corridor bylaw or participate in the Community Rating System (CRS). River Corridor bylaws regulate lands mapped by the State of Vermont that are usually beyond the FEMA-mapped flood zone, with the concern being erosion that can undermine structures. CRS is a complicated administrative process with a simple premise – that taking additional flood prevention steps will lessen flood damages. Communities in the CRS enjoy lower flood insurance rates.

Having either of the fifth actions will lower the financial burden under the ERAF rule to only a 7.5% match for the town. At the time of this writing, the town is financially responsible for 17.5% on the dollar in federally declared disasters due to the expiration of the local hazard mitigation plan. Every percent saved in a million-dollar disaster is \$10,000.

Separately, in 2014, state planning law (24 V.S.A. Chapter 117) required that all updated municipal comprehensive plans must include a “flood resilience” element, addressing both flooding and fluvial erosion hazards. This requirement was met with the adoption of Hartford’s Town Plan on June 4, 2019. The new Hartford Town Plan flood resilience section references and incorporates material from the 2014 adopted and FEMA-approved hazard mitigation plan.

In 2013, Hartford agreed to participate under a FEMA grant, as an example of a larger, professionally-staffed community with strong technical resources, to help test and hone public

outreach tools, and to help develop mitigation strategies appropriate to communities that have adopted comprehensive and strategic plans, and a range of land use regulations and ordinances.

II. PLANNING PROCESS

PUBLIC PROCESS



The process followed in developing the 2014 plan was as important as the plan itself, by actively seeking public input to identify hazards and community vulnerabilities, and local

actions to be taken to reduce and mitigate known hazards. The four parts of the planning process included:

- **Public Involvement** – to receive and consider community input from diverse stakeholders.
- **Risk Assessment** – to estimate the potential frequency and magnitude of hazard events, and to identify and plan for the most probable hazards and their potential impacts on both the built environment and the local community.
- **Mitigation Strategies** – to develop goals, objectives and strategies aimed at mitigating future disaster losses, that are cost-effective, technically feasible, and environmentally sound – and timed to allow for strategic investment of scarce resources.
- **Implementation and Monitoring** – to identify, assign and schedule priority implementation tasks, and to monitor their progress over time.

This current Hazard Mitigation Plan represents an update of the 2014 standalone, single jurisdiction HMP, and builds upon a well vetted roadmap that went far beyond the five-year approval period of the plan.

This plan reflects local priorities for hazard mitigation, as determined from the community planning process, and best available federal, state, and local information. Action items are included to monitor the success or effectiveness of implementation and results, and to inform the next update of the plan.



West Hartford Public Meeting

The goals, strategies and actions laid out in the 2014 HMP continue to be relevant today. Bringing the plan to life has become a core task of the Town's citizen Community Resilience Organization initiated and appointed by the Hartford Selectboard in 2014. These include:

- community involvement in hazard mitigation planning,
- better incorporate social and economic considerations,
- identify and address manmade as well as natural hazards, and
- better integrate local comprehensive and hazard mitigation planning.

Given the continued relevance of the 2014 HMP in the 2021 update, it is important to review the process and outcomes of the 2014 public process, and what has taken place over the past

five years that builds upon the 2014 HMP. For the 2014 HMP, there were several different types of public input meetings and methods throughout the Town to gather public input. These focused on the planning process, collecting stories on the history of hazards in the community, technical information on local hazards, and identifying priority hazards and possible mitigation strategies.

With the diversity of the community, five village centers, and rural, suburban, and urban parts of town, having a multifaceted approach to gathering input was important. This enabled the town to have a comprehensive approach that could serve as a base for the new HMP structure guided by the new FEMA rules for hazard mitigation planning.

SUMMARY OF 2014 PUBLIC PROCESS

Two sets of public meetings were held to gather public input into the 2014 update of the HMP: an initial set to explain the planning process being launched and collect stories on the history of hazards in the community, and a second set to provide more technical information on local hazards, and identify priority hazards and possible mitigation strategies.

The first group of meetings was held above the Upper Valley Food Co-op in White River Junction, at the Quechee Library in Quechee Village, and in the West Hartford Village Store. The second set was held in the Hartford Municipal Building in downtown White River Junction and at the West Hartford Village Store. In each case the meetings were noticed in the

Valley News, on the town website and via posters in public locations. Email notice was also provided to town clerks and other contacts from surrounding towns who had expressed interest, as well as the Two Rivers-Ottawaquechee Regional Commission, of which the town is a member. Commission staff have assisted the town with its past and present hazard mitigation planning efforts.

A broader effort to increase attendance and participation was also made through connections with various organizations serving the larger community, including:

- The United Valley Interfaith Project
- Upper Valley housing nonprofits, including the Upper Valley Haven, the Upper Valley Housing Coalition and Cover,
- Transition Town Hartford and the East Central Vermont Sustainability Coalition,
- Vital Communities the Hartford Chamber of Commerce,
- the Hartford Schools Superintendent, and
- the Two Rivers-Ottawaquechee Regional Commission and the Upper Valley Lake Sunapee Regional Planning Commission,

A total of twenty-one people (not counting staff and facilitators) attended the first set of three meetings. The best attended meeting was the West Hartford meeting, with a dozen people crowded into the West Hartford Village Store's new post office section. The results of the second set of public meetings addressing priority hazards, perceived community vulnerabilities, and recommended mitigation strategies, are highlighted elsewhere in this plan (Appendix D).

Following the public meetings there were multiple Planning Commission meetings, which also included members of the Conservation Commission, to digest public feedback and to identify and discuss possible mitigation strategies. Final meetings to approve the plan, including the recommended implementation program, were held with the Selectboard and Town Manager during their regularly scheduled meetings.

2019-2021 PUBLIC PROCESS

The 2014 HMP public process was so immersive with the public by holding various in-person meetings throughout the town, that staff wanted to build on that process by taking a slightly different approach with the 2021 HMP update. As the HMP expired in 2019, the town created a Flood Resilience element and incorporated it into the new 2019 Hartford Town Plan. Thorough discussions with the Planning Commission and Selectboard were held on what it means to be flood resilient. Many of these elements were already present in the 2014 HMP, but these discussions certainly influenced the 2021 HMP and reaffirmed town goals.

In 2020, formal work on the new HMP began. The Town of Hartford hired an outside consultant, Rebecca Sanborne-Stone, to conduct a scenario exercise game (Extreme Event Game) for the public. This meeting was held on January 27, 2020 at the Bugbee Senior Center in White River Junction. As people arrived, they were assigned roles within a specific sector of the community, such as first responder, public works director, community organizer, business owner, etc. People also were




**Hartford Hazard Mitigation Plan
Kick-Off Meeting**



We need your help!
Join Hartford Town Officials, Resilient
Hartford and TRORC as we update the
Town's Local Hazard Mitigation Plan!



When: Wednesday, March 11 at 6:00 PM
Where: Hartford High School Cafeteria
37 Hebard Ave, White River Junction, VT 05001
Light refreshments will be provided



**LOCAL HAZARD
MITIGATION
PLANNING**



Can't come in person?
Take our survey
instead!
<https://forms.gle/SbYCxUn4FgUhMmH6A>



TRORC
Two Rivers-Orlough-Quechee
Regional Commission

given an opportunity to choose a limited number of resources to use in a disaster. As the flood disaster played out, people realized the shortcomings of some of their resource choices.

The exercise also revealed opportunities and gaps in our abilities as a community to anticipate and respond jointly in a disaster event. One strong take-away was reaffirming the need to build strong neighborhood networks that can kick-in when our normal paths of communication are lost.

The Town of Hartford also hired the Two Rivers-Ottauquechee Regional Commission (TRORC) to work with town staff on the update and to conduct public meetings and outreach after this initial Extreme Event Game in January. A 2021 HMP planning team was created to include members of the Parks & Recreation Department, Planning & Development Department, the Hartford Planning Commission, and the Resilient Hartford organization. These individuals serve as the main consultation group for the HMP update process. Prior to another public meeting, TRORC staff, Resilient Hartford, and town planning staff worked together on a community survey to garner feedback beyond public meetings. This survey was created in paper form and on Google Forms and was open to the public to fill out for three weeks. The survey was disseminated through social media, posters displayed throughout town to include the Town Offices, libraries, and other public places, and sent out on the Hartford Listserv. In total, forty-four responses were submitted. The results of this survey are spread throughout this HMP, but you can view the full results in Appendix D.

On March 11, 2020, a public meeting was held at the Hartford High School cafeteria. Notices for this meeting were published in *The Valley News*, on the Hartford listserv, social media sites,

the TRORC and Town of Hartford Websites, and posters displayed throughout town. In addition to paid staff and consultants, four members of the public attended this public meeting. The low turnout for this public meeting was likely due to the fact that COVID-19 was just beginning to spread in the United States.



Figure 1: Hartford High School Meeting

TRORC began the meeting by explaining what an HMP is and how they are useful for communities. The second part of the meeting was a hazard ranking. The participating members of the public were asked to identify natural or man-made hazards that came to mind that could potentially affect Hartford in the future, or hazards that have already occurred in town. Once a

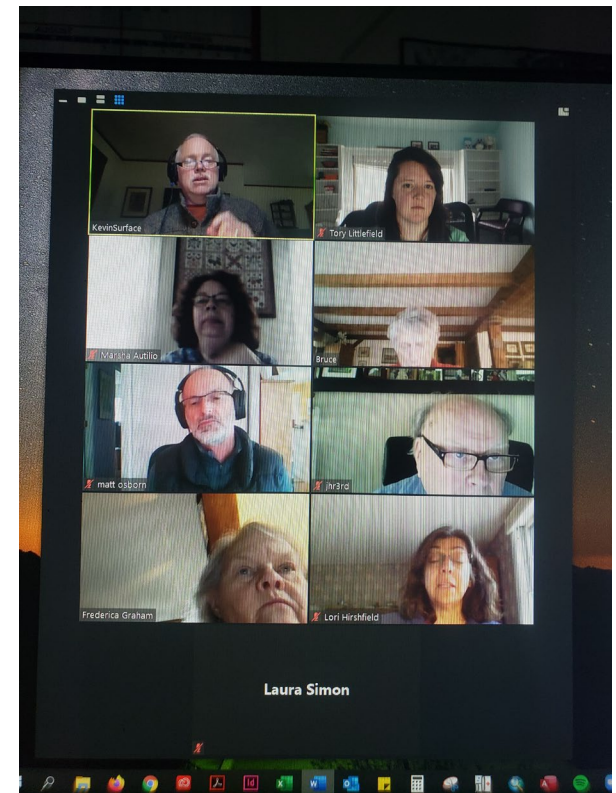
comprehensive list was developed, the public spent time ranking these hazards on a scale from Low to High based on a combination of the likely severity of damage from that hazard, the frequency that Hartford might experience it, and whether Hartford, or a subset of Hartford, was particularly vulnerable to the impacts from it. Low indicated that the particular hazard was a low overall risk to the town in the near future, and High being that the hazard was a high risk to Hartford. This hazard ranking has guided the ‘meat’ of which hazards the HMP should focus on to lower risk in the future, whether they are natural or man-made.

During this update process, much of the country was ordered to self-isolate or quarantine due to COVID-19. The Town of Hartford recognized the importance of the mitigation plan and wanted to continue working on it.

Since it was unlikely that in-person meetings would be conducted for several months, town staff and TRORC turned to electronic means to conduct public meetings and receive feedback on the plan.

On April 29, 2020, a virtual meeting was held with nine individuals that included Hartford staff, Resilient Hartford, and members of the public to go over potential mitigation actions the town can take up over the next five years. The meeting began with an overview of what a hazard mitigation plan is for anyone new to the process, as well as a thorough explanation of mitigation actions and how they can be implemented

throughout the life of the plan. The last half of this meeting was spent going through the mitigation actions from the 2014 HMP and crossing off actions that were either completed or no longer relevant for the town to pursue. Major additions to the 2021 HMP is the inclusion of pandemic mitigation actions, and some general actions related to lower rated hazards that may affect the town.



On May 19, 2020, TRORC and Hartford town staff gave a presentation to the Hartford Selectboard at their regular meeting. TRORC informed the Selectboard of all of the meetings and outreach efforts that have been taking place for this updated HMP, as well as an overview of new hazards and mitigation actions that were added to the plan. The Selectboard had several questions for TRORC on how top hazards were selected and if there was room to place mitigation actions for lesser hazards

that ranked lower on the ranking chart. Several other comments and suggestions were made by the Selectboard, which TRORC incorporated into this plan.

On June 18, 2020, the draft HMP was sent to neighboring communities for comment. The communities were Norwich, Sharon, Pomfret, Woodstock and Hartland, Vermont, as well as Lebanon, New Hampshire. The draft HMP was sent via email to the Town Manager or Selectboard Chair of each of these communities with instructions to email any comments on the draft to the Hartford Town Manager. No comments were received on the draft HMP.

DATA AND INFORMATION

Much of the information for this plan was provided by the Hartford Department of Planning and Development Services (DPDS) and taken from the 2019 Hartford Town Plan and other available federal, state, and local datasets and studies. These included the 2018 Vermont State Hazard Mitigation Plan, federal census and hazards event information, and historical accounts.

The information gathered via public process was augmented by interviews with key personnel, including public works staff and emergency service providers (see footnoted information). Technical expertise and plan maps were provided by the Two Rivers-Ottawquechee Regional Commission.

PLAN MAINTENANCE

This Plan will be updated and evaluated annually, by discussing its effectiveness and making note to incorporate any necessary revisions in the update process. This will be done by staff in coordination with Resilient Hartford (the Hartford Resilience Committee) every April. At this annual meeting, the Committee will monitor the implementation of hazard mitigation strategies outlined in this Plan, by noting those that have been completed, are in the process of completion, or any issues initiating the activity. This meeting will constitute an opportunity for the public and other town officials to hear about the town's progress implementing mitigation strategies and provide input on future activities and Plan revisions. Any comments from local officials and the public will be incorporated when relevant.

Updates and evaluation of this Plan by Hartford town staff and Resilient Hartford along with the Selectboard and the local Emergency Coordinator/Director will also occur within three months following the lifting of a federal disaster declaration directly impacting the Town of Hartford.

At least one year before the Plan expires, the update process will begin through the annual review process. If funding were to become available for the next update process, the Town of Hartford will consider if a consultant is needed to assist with the update. The update will include the involvement of Town staff from all departments, participation from Resilient Hartford, the Planning Commission, Conservation Commission, Energy Commission, and general citizen participation.

The process of evaluating and updating the plan will include continued public participation through public notices posted on the municipal website, Hartford List Serv, notice within the Town Hall, Bugbee Senior Center and town libraries, postings on the town Facebook page, notices on the Hartford Parks and Recreation Department Constant Contact weekly postings and notice in The Valley News and the TRORC newsletter/website, inviting the public to the scheduled Selectboard (or specially scheduled) meetings. The public will be given many opportunities to comment throughout the review and update process.

Updates may include changes in community mitigation strategies; recommendations for new or revised town bylaws, zoning and planning strategies; progress on the implementation of initiatives and projects; effectiveness of implemented projects or initiatives; and evaluation of challenges and opportunities including overall effectiveness of plan goals and actions in reducing vulnerabilities. If new actions are identified in the interim period, the plan can be amended without formal re-adoption during regularly scheduled Selectboard meetings.

INTEGRATION INTO TOWN DECISION-MAKING

The current Hartford Town Plan, Capital Improvements Program and Emergency Management Plan, as well as related municipal strategic plans and studies, helped inform development of this plan. Similarly, once adopted and

approved, this plan will then be incorporated in the next iterations of these related town plans and programs. The implementation program in this HMP includes recommended strategies to update town infrastructure standards, flood hazard regulations, and related development review standards under the town's zoning and subdivision bylaws. Hartford's professional staff will continue to work collaboratively with town boards, commissions, volunteers, and regional and state officials to implement this plan.

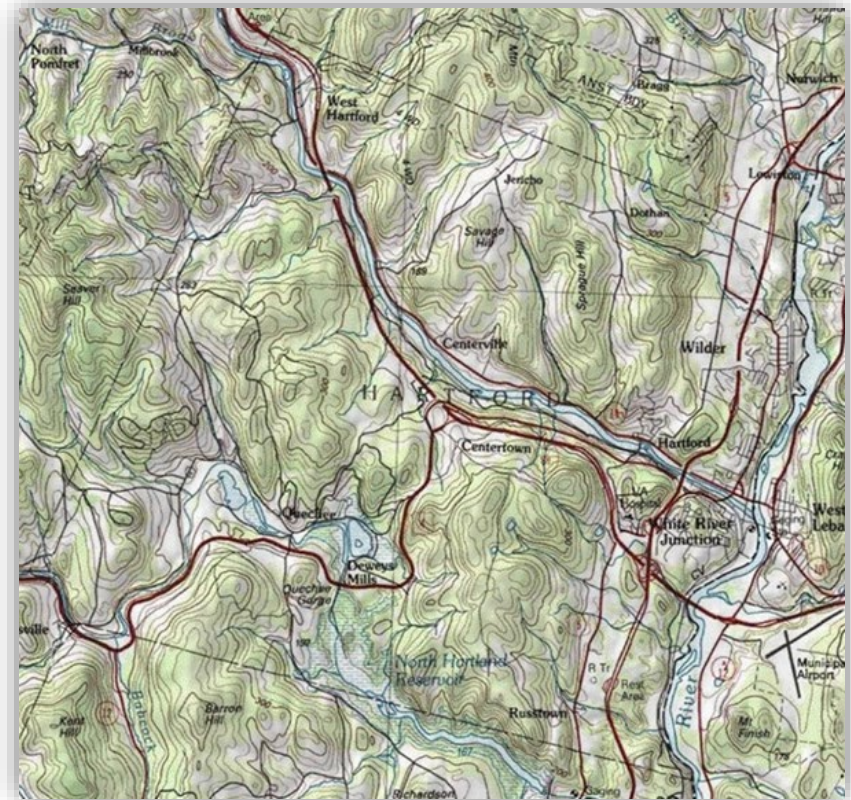
III. COMMUNITY PROFILE

SETTING

The Town of Hartford, consisting of approximately 29,438 acres or 46 square miles, is located along the Connecticut, Ottauquechee, and White Rivers in Windsor County Vermont. Hartford is functionally part of the larger Upper Valley Region, which spans the Connecticut in Vermont and New Hampshire. Neighboring Vermont towns include Woodstock, Sharon, Norwich, Hartland and Pomfret. The New Hampshire towns of Hanover, Lebanon and Plainfield lie directly across the river.

The White River bisects the town and joins the Connecticut River in White River Junction, the town's largest village. The historic villages of West Hartford and Hartford are also located on the White River. The Ottauquechee River meanders in and out of the southern part of town, through Quechee Village. The village of Wilder sits above the Wilder Dam on the Connecticut River. Elevations in town range from about 340 feet above sea level along the Connecticut River at the Hartland boundary to the town's highest hills, peaking at 1,575 feet along the Pomfret boundary.

The Town of Hartford includes five unincorporated villages (all listed on the National Register of Historic Places) a mix of more recent residential and commercial development, rural farmland along its major river valleys and hillsides, and more sparsely settled forested uplands.



White River Junction, the town's historic downtown, rail center and warehouse district, has long served as a major transportation hub in the region – initially for river travel, followed by rail and most recently the state's interstate highway system, where Interstates 89 and 91 meets. White River Junction developed as the first major railroad center north of Boston – as reflected in its late 18th and early 19th century urban architecture. Today, it serves as the center of the town's

commercial, civic, and cultural life. The Hartford Town Hall is also located downtown.

White River Junction's central business district has been undergoing a renaissance of new investment and development, supported in part by the 2009 *White River Junction Revitalization Plan* and the state-approved White River Junction Tax Increment Financing (TIF) District. Downtown redevelopment has included new construction and adaptive reuse of several historic buildings –including former freight houses and an elegant old post office – to house new businesses restaurants, state government offices, a professional theater (Northern Stage), an event venue (Freighthouse). the Center for Cartoon Studies, and over 150 units of new housing.

Another key commercial area – the Sykes Mountain Avenue/ Route 5 Commercial Area – includes a concentration of commercial development on US 5 in the vicinity of the interchange junction of Interstates 89 and 91. This area includes several car dealerships, hotels/motels, restaurants, banks, bus station, and other retail and office uses, all within view of the Veterans Hospital complex. This area is also within the boundary of the state-designated Hartford Growth Center. Major employers include the Veterans Administration (VA) Hospital, the US Postal Service and state government.

The Hartford Town Hall is located in the mapped floodplain but had substantial work done to improve its flood resilience in a major upgrade in 2014/2015. Sections of White River Junction along the banks of the White and Connecticut Rivers flooded

Like many other Vermont towns, Hartford has a mixture of densely settled villages surrounded by open countryside. Hartford has always served as a major gateway to the State, first via the Connecticut and White Rivers, then the railroads, and most recently the interstate highways...

Much of Hartford's land use planning and decision-making revolves around the appropriate use of our manmade and natural resources. Manmade resources include public water and wastewater systems, the road network, parking lots, public and private buildings, farms, and recreational facilities. Hartford's natural resources include forests, agricultural lands, surface and ground water, scenic views, clean air, wildlife, minerals, and soils. They present both opportunities for and constraints on development...

2019 Hartford Town Plan

during Irene, but much of the central square and buildings along North and South Main Streets were untouched by the storm. Flash flooding in 2013 and 2017 had more of an impact, filling the basements of several downtown businesses with stormwater.

Quechee Village, listed on the National Register as a historic mill village, is also the site of the famous Quechee Gorge – a narrow canyon one mile long and 165 feet deep that is crossed by US 4.

Quechee is also home to the Quechee Lakes planned resort community, first established in the late 1960s. This development has attracted higher income second home investment and, in turn, higher-end retail, lodging and

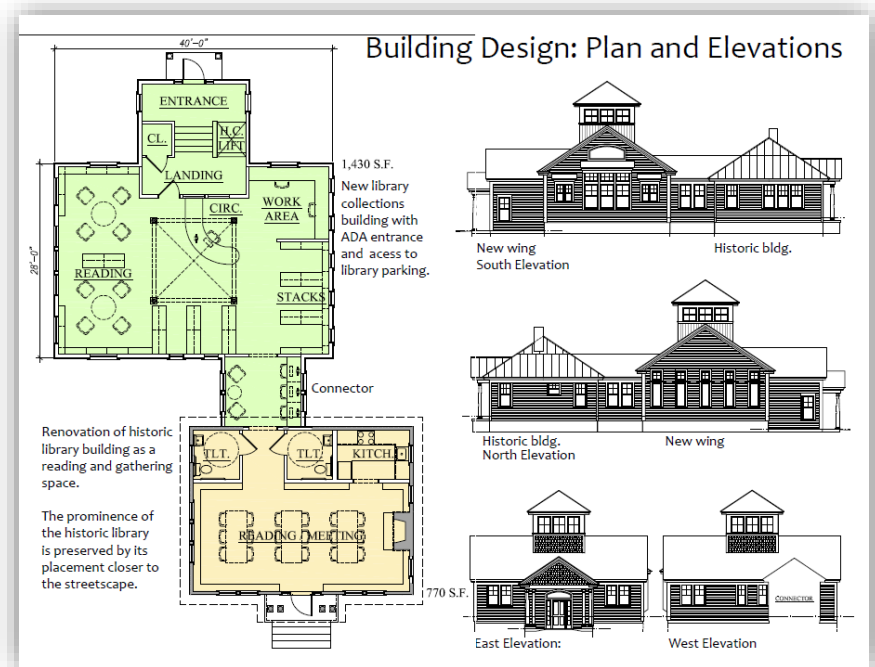
restaurant establishments – including the Simon Pearce restaurant, glass blowing, and pottery facility located in the old Quechee Mill. The village includes a library, a public elementary school, two private elementary schools and a private high school.

Quechee Gorge State Park, a state campground and recreation area, is located above the Quechee Gorge, off US 4. The land for the park, purchased by the US Army Corps of Engineers as part of a larger flood control plan (which included the construction of the North Hartland Dam), was subsequently leased to the state. Most structures in Quechee are not in the mapped flood hazard area, but the Quechee Covered Bridge suffered extensive damage from Tropical Storm Irene, resulting in its closure for more than a year. The main sewer line serving Quechee Village, running under the riverbed, was also damaged. The lower portion of Quechee Main Street flooded, resulting in severe damage to a real estate business, a section of Simon Pearce, and two properties on Waterman Hill Road. The Bridge was reconstructed to mitigate the impact of future floods. The real estate property next to the bridge was part of the FEMA buyout program, and now is a pocket park. The Waterman Hill properties also were bought through the FEMA program, and the slope is now stabilized. Other historic sites, including the Theron Boyd House site (not the building) affected by erosive flooding were repaired.

Wilder Village and Hartford Village both include a mix of low- and moderate-income housing and commercial and industrial uses. Hartford Village, located along VT 14, includes a

convenience store/gas station, private school, post office, library and two churches. During the Irene flood, several residences and businesses were flooded. Wilder, with its own I-91 interchange, has attracted new condominium and office park development. It also has an elementary school and post office. Wilder Village was spared from damage during the Irene flood.

West Hartford, surrounded by farm fields and forests and crossed by the Appalachian Trail, is the most rural and remote of Hartford's five villages. The village is located in the northwestern section of town on the Sharon/Pomfret border,



sandwiched between VT 14, the rail line, and the White River. The village is still home to several historic buildings, including a church, library, and the former West Hartford Village Store.

Almost half of West Hartford was wiped out by the 1927 flood. The village was hit hard again during Tropical Storm Irene. Several homes and civic buildings, including the library, Post Office, and general store, were flooded by high water that also damaged the bridge over the White River. Deep silt deposits across VT 14 temporarily isolated the community from the rest of the town. The West Hartford Congregational Church, which did not flood, served as the local hub for Irene relief efforts.

The West Hartford Village Store reopened in April, 2012 after extensive repair work and resumed its importance as a village gathering place but has since closed. Most homes were rebuilt, and a few replaced. but two of the most damaged were included in the FEMA buyout program and one through another funding source for buyout, all three were demolished, as well as two commercial buildings adjacent to the library. Reconstruction of the West Hartford Library included elevating the existing building above flood levels, floodproofing and landscaping, and converting the adjacent buyout sites into a park and parking lot.

GROWTH TRENDS

The Town of Hartford experienced steady growth and development throughout much of the 20th century and the first six years of the 21st century. However, following the recession

	2000	2010	Change
Population	10,367	9,952	-963 (-4.0%)
Households	4,509	4,446	-63 (-1.4%)
Housing Units	5,493	5,816	323 (5.9%)
Source: US Census			

of 2008, local growth slowed significantly, mirroring regional and state trends. Growth rates began to rebound in 2013 and the Town has experienced moderate residential growth since then.

Over the past five updates to the Hartford Town Plan (2003, 2007, 2012, 2014 and 2019), a strong theme has been to protect natural resources and encourage development in in-town locations where there is the infrastructure in place to accommodate it and is generally more suitable for development than rural areas. Implementation of these plans has resulted in the following bylaw amendments:

- In 2007, the Town adopted an amendment to the Zoning Regulations “Protection of Surface Waters” which restricts development within 100’ of the Town’s three rivers (White, Connecticut and Ottauquechee) and within 30’ of lakes, ponds, and perennial streams.
- In 2007, the Town adopted updated Flood Hazard Area Regulations that followed the State of Vermont’s model ordinance. New or substantially improved

development must be located at least one foot above base flood elevation.

- In 2008, zoning changes resulted in increases in density for in-town locations and reduction in density in rural locations. Hartford also adopted several overlay districts including a rural land overlay that established more stringent natural resource standards for development.
- In 2016, Hartford updated the Subdivision Regulations for the first time in 29 years. The new standards require much more detailed information and protection of natural resources including much more stringent standards on stormwater management and erosion control and limitations on development on steep slopes.

Combined, these bylaw amendments have led to more careful review and scrutiny regarding the impacts of development on natural resources and resulted in reduced vulnerability from hazards. This is further exhibited by residential and non-residential development in Hartford from 2006-2018. Between 2006 and 2012, 71% of new residential development occurred in in-town areas served by Town water and/or sewer. Between 2013 and 2018, 87% of residential development occurred in in-town areas served by Town water and/or sewer. As for non-residential development, between 2006 and 2012, 72% occurred in in-town areas served by Town water and/or sewer. Between 2013-2018, 88% of non-residential development occurred in in-town areas served by Town water and/or sewer.

Population. According to the most recent US Census counts, Hartford's 2010 population numbered 9,952, indicating that the year-round population declined by 4% between 2000 and 2010. As a result, Hartford dropped from the 8th to the 9th most populated municipality in the state. It remains the largest community in the county, making up nearly 18% of Windsor County's total population. The town has an overall population density of 221 persons per square mile – much higher than that for the county (58 persons per square mile), but most of the town's year-round population is concentrated in White River Junction and its other villages. The highest local population loss (-11%) occurred in White River Junction, while Wilder grew at 3.3%.

Hartford's population is also aging, again following regional and state trends. The median age of town residents in 2010 was 43.3 – up from 40 in 2000. Most age groups in Hartford decreased between 2000 and 2010, with the exception of 20-24-year old's and those 55 years and older. The town's seniors (65+ years) numbered 965 in 2010, making up 17% of the local population, and 16% of the county's senior population.

This segment of the population is expected to grow in share in coming years, requiring more services – including medical and emergency services. The state has projected that by 2020, the

county's senior population could more than double.¹ While Hartford's total resident population is projected to reach no more than 10,300 by 2020, by then its senior population could make up more than 20% of the total – and more than 50% of local property taxpayers.

The town's seasonal population is harder to estimate, but given that there were 1,030 vacation homes identified in the 2010 US Census – most of those in Quechee Lakes – the town's total effective resident population, for planning purposes, could increase by more than 2,000 persons, assuming full occupancy at two persons per unit.

Hartford's more vulnerable populations are harder to identify but generally include the town's elderly residents – especially those living on their own – those with special medical and communication needs, and those with limited resources to respond to and recover from disaster events. In more recent years, the Town also has had an increasing homeless population. Their vulnerability in severe weather, especially in winter, and during the COVID -19 pandemic have been a specific concern of the town. For purposes of emergency response planning, identifying vulnerable groups and individuals is generally done in association with local service providers and utilities.

The US Census no longer tracks special needs populations. At the local level, the Census Bureau instead provides 5-year

American Community Survey (ACS) estimates. Given sampling over a 5-year period and relatively high margins of error, these estimates are generally suspect, and no longer track poverty rates and disability status. The most recent ACS estimates (2013-2018) available for Hartford suggest that:

- 15.4% of the town's working population did not work in the past 12 months,
- 4.7% speaks a language other than English at home, and
- 1.4% speaks English less than very well.

Households. The number of households in Hartford also decreased in the 2000s, with a decline in population. Of the 4,446 households counted in the 2010 US Census:

- 59% (2,618) were family households – though only 25% (1,090) were families with children,
- 9% (381) were single parent households, and
- 27% (1,205) included someone 65 years or older.

The average size of local households also has continued to shrink, reflecting in part the town's aging population and a relative increase in the number of one- and two-person households. The average household size for year-round units in 2010 was 2.22 persons. As reported in 2010:

¹ Vermont Population Projections, 2010-2030 (August 2013), VT Agency of Commerce and Community Affairs; Scenario A (higher in-migration scenario).

- 33% (1,459) of local households were one-person households,
- 38% (553) of those living alone were senior citizens,
- 66% (2,953) of households were homeowners, and
- 34% (1,493) were renters.

In 2010, Hartford also had 77 residents in “group quarters” – including 57 nursing home residents and 20 in other non-institutionalized, group living arrangements.

The loss of a home, even temporarily due to a disaster, is difficult for anyone, but can be especially hard for homeowners who have large mortgages or don’t have adequate insurance coverage – including flood insurance – and for displaced households that don’t have the financial resources to secure other housing. ACS estimates (2013-2018) suggest that:

- 63.6% of local homeowners carry a mortgage –they do not own their home outright,
- 32% of local households are very low-income households, with incomes less than 50% of the estimated county median of \$62,317,
- 10.7% of households receive food stamp/SNAP benefits, and 11% of those households receive cash public assistance,
- housing costs exceed 30% of household income for 32.4% of homeowners and 52% of renters, and
- 7.3% of local households do not have a vehicle.

Housing. The town’s housing stock reportedly increased by 323 units (6%) between 2000 and 2010 – despite a depressed housing market during the “Great Recession” that began in 2008. This increase was due largely to second home construction, which accounted for 62% of new units. In 2010, vacation units, mostly second homes and condos located in Quechee Lakes, made up 19% of the town’s total housing.

Following the recession, the pace of local housing development slowed. The town issued permits for 735 units from 2000 through 2008 (averaging 82 units per year) – including permits for several multifamily housing developments. Between 2009 and 2012 permits were issued for an additional 26 units (averaging 6.5/year) – all for single family dwellings (US Census Bureau Annual Building Permit Estimates). Between 2013-2018, housing permits increased to 50 units per year with multifamily housing making up 81% of the new housing.

Hartford’s housing stock in 2010 made up 18% of the county total. ASC estimates (2013-2018) also suggest that:

Table 3.2. Hartford Affordable Rental Housing Properties

Property	Est.	Address	Units	Elderly/ Disabled
Anna Pluhar House	1993	1673 Maple Street	3	0
Brookview Apts	1986	Bugbee Street	34	0
Colodny Building	1992	92 South Main Street	8	8
Graystone Village	1979	Dewitt Drive	34	34
Hillcrest Manor	1996	265 VA Cutoff Road	9	0
Quechee Pines	1996	Hathaway Road	9	0
Quechee Sunrise	2003	Dawn Drive, Twilight Ct	22	0
School Street Housing	1995	52 Christian Street	8	0
Village Apts	1997	151 Gates Street	14	14
The Briars	1999	647 Bugbee Street	24	0
Northwoods I	2003	95 Templeton Avenue	18	0
Northwoods II	2004	95 Templeton Avenue	13	0
Overlook Housing	2003	Overlook Dr, South Main	13	0
Prospect Street	[NA]	19 Prospect Street	3	0
Windsor Hollow	1994	45 Hollow Drive	27	27
Hollow Drive Housing	2003	60, 151 Hollow Drive	18	0
Stony Creek	2006	2680 Hartford Avenue	18	0
TPHT	2016	388 South Main Street	4	0
TPHT	2019	459 South Main Street	5	0
Bridge & Main	2018	27 North Main Street	17	0
Wentworth	2019	117 Wentworth Way	30	0
Total			331	83

Source: VHFA, HousingData.org (2020).

Table 3.3. Hartford Mobile Home Parks

Park	Est.	Lots	Leased	Homes	Vacant
Chambers MH Village	1960	84	62	54	12
Merrimac MHP	1968	47	47	44	0
Olcott Falls MHP	---	40	40	40	0
Tall Timbers MH Community	1977	105	105	105	0
Total		276	254	246	12

Source: VDHCD, 2019 Vermont Mobile Home Registry.

Table 3.4. Upper Valley Haven Shelter

	2018	2019
Families Services	25	24
Adults Served	164	78
People in the Families (adults and children in Family Shelter)	89	78
Total People	253	156

- 55.3% of Hartford’s housing units are detached single-family homes, and another 5.9% are mobile homes,
- Multi-family units (3+ units per building) make up 29.2% of local housing; and
- 56.9% of the town’s housing stock is more than 50 years old (built prior to 1970).

Mobile homes provide much needed affordable housing but are also generally more at risk of damage from flooding and high winds. According to local tax list information, as of 2019 there were 407 mobile homes in Hartford, including 305 in mobile home parks, and 102 on separate lots. There are five mobile home parks in town, including one – Olcott Falls– owned by the Vermont State Housing Authority. None are located in mapped floodplains or high wind areas. Two parks are connected to municipal water and sewer systems; the other three are served by private systems that are subject to state oversight.

Hartford no longer maintains a local housing authority – the Vermont State Housing Authority now manages the Section 8 program serving 43 local households. There are also five nonprofit housing organizations active in Hartford: Twin Pines Housing Trust, Windham-Windsor Housing Trust, Upper Valley Habitat for Humanity, COVER Home Repair, and the Upper Valley Housing Coalition.

Affordable housing in Hartford includes:

- 21 affordable rental properties that provide 331 income-restricted units, including 83 units specifically for the elderly and/or persons with disabilities, and
- Four hotel/motel lodging facilities and one rooming house that offer a total of 91 rooms for long-term rent.

Hartford also hosts one of Vermont’s eleven emergency shelters for the homeless. The Upper Valley Haven maintains two facilities in town – the Byrne Shelter for families and the Hixon House for adults. These facilities serve a regional need, generally within a 60-mile radius of White River Junction. There also a growing number of homeless camps in town which represent a vulnerable population impacted during severe weather events and most recently COVID-19. In the past year, the Town established a Homelessness Committee comprised of town residents, social service organizations, including the Haven, and town staff who already are working with this vulnerable population. The committee submitted a report with recommendations for short- and long-term options to address the housing and social service needs.

Other residential facilities in town include an assisted living facility, Valley Terrace, with 61 units and maximum occupancy of 71 residents, and an 80-unit assisted living and memory care facility, The Village at White River Junction, with 80 units and maximum occupancy of 89 residents.

Local Economy. Hartford, in part because of its location at the junction of major transportation routes, is a regional

employment center for the Upper Valley, along with Lebanon and Hanover. The town has continued to experience some economic growth since 2000 – including the addition of 31 employers and 380 new jobs between 2000 and 2010. As of 2010, there were 466 establishments in Hartford, accounting for 6,158 jobs, as reported to the state for unemployment insurance (covered employment). This does not include most self-employed individuals, farmers, and farmworkers.

According to 2018 ACS data estimates, 5,111 civilians over the age of 16 were employed in Hartford. Of these, 10.4% worked in local, state, or federal government. The majority of Hartford residents that have a job work at a private company (56.2%). Educational services, and health care and social assistance industries are the largest group at 35.6% of workers. The Veterans Administration Hospital and the US Postal Service's regional distribution facility in White River Junction are two of the area's largest employers within town, and the nearby Dartmouth College and Dartmouth Hitchcock Medical Center are economic mainstays. Hartford has a smaller share of manufacturing and service sector jobs than the county or state but, as a major transportation hub, has a higher concentration of transportation, communications, and utility jobs.

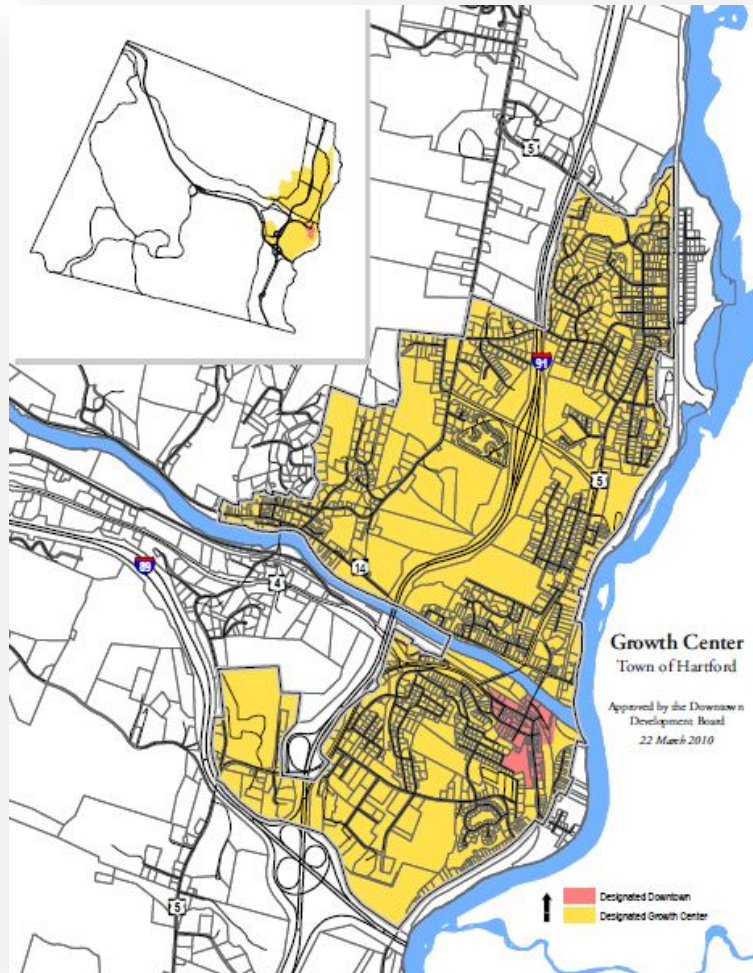
The Town works closely with the Green Mountain Economic Development Corporation and regional office of the Small Business Development Center located in Downtown White River Junction. Other partners include the Hartford Development Corporation, Hartford Downtown Business Association,

HARTFORD'S TEN LARGEST EMPLOYERS

<u>Employer</u>	<u>Employees</u>
VA Medical Facility & Regional Offices	1405
Hartford School District	407
King Arthur Flour	340
Quechee Lakes Land Owners Association	158
U.S. Postal Service	153
Mascoma Savings Bank Corporate Office	128
Hartford Town Offices	106
Simon Pearce	97
Toyota	95
Concepts NREC	66
Source: Hartford Department of Planning and Development Services. November 2019	

Hartford Area Chamber of Commerce, Vital Communities, and Two Rivers-Ottawquechee Regional Commission.

Quechee Lakes, within Quechee Village, is one of the largest planned four-season resort communities in New England, consisting of more than 5,200 acres of commonly owned land and buildings, 1,255 residential and rental properties, a ski area, two 18-hole golf courses and a clubhouse, lake, and other resort amenities. Slightly more than half of the planned development has been built to date.



In 2018, Hartford businesses generated \$45 million in room, meal, and alcohol taxes (23% of the county total) and \$386.7 million in sales tax receipts (31% of the county total), including \$78.4 million in retail taxes (VT Dept. of Taxes, Annual Report).

Hartford's Designated Growth Center

The Hartford Growth Center was approved by the Vermont Downtown Board under the state's growth centers designation program on March 22, 2010. The designated growth center includes White River Junction, also a state-designated downtown, the historic villages of Wilder to the north and Hartford Village to the west, and the Sykes Mountain Avenue Area. This 2,005-acre area comprises approximately 7% of the town's total land area, centered on the most heavily developed portion of town. The Hartford Growth Center has been planned to accommodate approximately 60% of the town's new housing development, and a large majority of its new commercial development over the next 20 years.

While growth center boundaries were drawn to exclude most natural resource areas, the growth center does include mapped floodplains, surface waters and wetlands along the Connecticut and White Rivers. The proposed boundaries were approved by the state based on the strength of regulatory mitigation strategies proposed by the town, including flood hazard area regulations that limit and regulate new development within mapped floodplain areas.

Based on its growth center designation, Hartford also applied and received approval from the state for a smaller, 114-acre Tax Increment Financing (TIF) District centered in downtown White River Junction. This area includes 129 parcels and represents \$42.5 million in listed property value.

Over the past six years, there have been many new large and small businesses and restaurants in new and substantially renovated buildings in downtown White River Junction and Sykes Mountain Avenue areas. This economic development is the building out of the Town's Growth Center Plan, Downtown Revitalization Plan, and the Tax increment Financing District Plan, in areas that provide water, wastewater and telecommunications infrastructure, and access to public transportation.

IV. COMMUNITY ASSETS

Hartford's community assets, which are substantial for a Vermont town, are listed in Appendix B, noted on the accompanying maps, and described in more detail as follows.

LOCAL GOVERNMENT

Hartford has a town manager form of government, as set forth in its charter. The appointed Town Manager answers to an elected, volunteer, seven-member Selectboard. The town also has an appointed Town Clerk. In FY19, Hartford employed 183

people in town government in full-time, part-time, and temporary positions. In addition to a health officer, the town has the following nine fully staffed departments, all headed by directors

- Administration
- Planning and Development
- Public Works (includes Recycling/Solid Waste)
- IT
- Police (includes Emergency Communication Center)
- Fire/EMS
- Parks and Recreation
- Finance
- Assessors
- Town Clerk

The town has an adopted emergency management ordinance that governs local emergency response and civil defense operations.

The town has several volunteer boards, commissions and committees appointed by the Selectboard. Most are advisory to the Selectboard, except for the Planning Commission and Zoning Board of Adjustment, which are quasi-judicial boards that are also governed by state statute. These boards and commissions, with the support of the Department of Planning and Development Services, are responsible for town planning, and developing and administering the town's Zoning and

Subdivision Regulations, including its adopted Flood Hazard Regulations.

In addition to the staff noted above, the Selectboard, Planning Commission and Resilient Hartford are the local entities most responsible for hazard mitigation planning. Hartford also participates in regional emergency response and hazard mitigation planning through its membership on the Two Rivers-Ottawaquechee Regional Commission (TRORC) and the District #12 Local Emergency Planning Committee (LEPC).

The meetings of local boards, commissions and committees are publicly noticed and subject to Vermont's open meeting laws. Many are also covered by the local community cable station. Hartford actively maintains a town website, (www.hartford-vt.org) to inform local residents about town events, initiatives, policies and programs. There is also a town listserv that continues to expand. Both the website and listserv were used extensively during Irene recovery.

Municipal government is financed largely through property taxes. Hartford's tax base, as reported to the state in 2019, includes 5,494 properties valued at \$1.39 billion (\$1.44 billion, as adjusted by the state to reflect fair market value). Residential properties make up roughly 66% of all listed properties, and 60% of total listed property values (2019 VT Dept. Taxes). The town, as noted earlier, also has an approved TIF District to finance infrastructure improvements and redevelopment projects planned for Downtown White River Junction.

FACILITIES AND SERVICES

Municipal Buildings. Municipal buildings identified as critical facilities include the Hartford Town Hall, the Public Safety Building, and the Department of Public Works Facility.

The Hartford Town Hall is the center of local government, housing town offices, municipal records, conference, and meeting space. The three-story building is a historic former school building located on a 3.4-acre site in downtown White River Junction. Built in 1884, it is post and beam construction with exterior brick-bearing walls. The Town Hall is in the mapped 100-year floodplain. Town voters in 2013 approved funding to substantially rehabilitate the structure, to include floodproofing to improve its flood resiliency, and the installation of a generator. The building renovation was completed in 2015.

The Hartford Emergency Services Building, located on a 2.2-acre site located adjacent to the VA Hospital, houses Hartford's police, emergency response and fire services –including offices, operations, training, storage, and meeting rooms, five engine bays, and an emergency communications center. The building, constructed in 1978, is a one- and two-story cement building with brick veneer. The building is equipped with a generator. A second unstaffed fire station, Hartford Station 2, is located on Willard Road in Quechee.

The Department of Public Works Facility located on Airport Road in White River Junction (out of the floodplain) includes

offices and the town garage and houses the town's highway and public works equipment. It is also equipped with a generator.

Public Safety. Public safety services include police, fire, and emergency response. Hartford police provide a full range of law enforcement services to the community. Hartford emergency services includes both career and paid on-call staff who provide fire protection, emergency medical services, technical rescue services, and hazardous materials protection to Hartford and surrounding communities. In 2019, the department responded to 2,311 calls, locally and under mutual aid agreements, and also operates as a mobile support unit for Vermont Emergency Management. The department's dispatch center provides emergency dispatching services for five surrounding towns. The Town Manager serves as the town's designated emergency management director.

Zachary Borst, a Regional Outreach Specialist at Vermont Emergency Management, noted that "Hartford has one of the strongest departments in the state – trained to a higher level than usual. They manage the Southern Vermont Urban Search and Rescue Team, housing equipment and team leaders. This is a significant asset for the town, having a huge toolbox and trained responders right there." The department also fields a deacon unit for hazardous materials spills and Swiftwater rescue.

In addition to emergency response services, the department issues burn permits and construction (fire safety) permits for public buildings, and reviews development applications before the planning commission and zoning board.

Schools.² There are 13 educational institutions located in Hartford, all considered "critical facilities" by the town for purposes of emergency response and hazard mitigation planning (see full listing under Appendix B). These include the following six public schools in the Hartford School District:

- Dothan Brook School, Wilder
- White River School, White River Junction
- Ottauquechee School, Quechee
- Hartford High School, White River Junction
- Hartford Memorial Middle School, White River Junction
- Hartford Area Career Technology Center, White River Junction.

The Hartford School District is one of the town's largest employers, staffed by more than 400 employees who serve around 1,900 students.

The Hartford High School anchors a complex in White River Junction that also includes the middle school, the technology center, and the Wendell A. Barwood Arena, housing the town's ice rink.

² Information supplied by Tom DeBalsi, Hartford Schools Superintendent on May 18, 2020

Located on a high plateau between downtown White River Junction and Wilder Village, the Hartford High School is also the designated local and regional emergency shelter. The backup generator at the high school is intended primarily for its use as an emergency shelter. In the event of an extended power outage, the generator can operate continuously for up to two days, supplying enough power to heat a portion of the building and operate one kitchen. During Tropical Storm Irene, the high school gym was open for a month to shelter people displaced by the storm, while school was in session. Just a few people stayed beyond the first 48 hours after the storm.

All school buildings meet current fire and safety codes. The Ottauquechee School lost power during Irene, due to damage to utility lines crossing the river under the Quechee Bridge. All schools are equipped with emergency lighting for use in building evacuation. Schools also have police-grade two-way radios, operated from a base at the high school, which can be used to communicate with other schools in the event of an emergency.

A safety team has been formed for each school building, and a notification process has been set up for parents via website and a computerized phone messaging service that reaches everyone within a 10-minute period. This system is used mainly for snow days and works well. It may be expanded at some point to also include e-mail and text notifications

Each school has an evacuation plan, to evacuate students by bus within 30 minutes. Schools are required by the state to test these plans six times per year, and to conduct lock-down drills five times a year. Each school also has a designated evacuation site in the event of a school emergency, including an outdoor staging area to gather and collect students. School teams are discussing how to also respond to external incidents that may impact the school – for example a chemical spill on the rail line in the vicinity of the White River School – and whether current evacuation plans and staging areas are adequate to address these types of incidents.

The School Superintendent is working with school staff on updating safety and evacuation plans for each school to include a more uniform set of emergency response procedures and commands. He also meets quarterly with the town's emergency management staff to build cooperation, strengthen communication, and better coordinate local and regional emergency response planning.

Transportation. Hartford is a regional crossroads. Strategically located at the junction of the Connecticut and White Rivers, the town was first a center for river traffic. It later became an important rail center, and today is located at the junction of I-89 and I-91. US Route 4, part of the National Highway System and a key east-west connector, crosses town as do Vermont Route 14, and US 5 which runs north-south.

Hartford also has more miles of road than any other municipality in the state. The state manages 45 miles of state

and federal highway; the town is responsible for another 129 miles of town highway. The town's Public Works Department maintains an ongoing road management system that includes regular highway inventory updates and a 10-year capital improvement program that identifies roads for routine maintenance and reconstruction.

The road system includes 1,038 culverts, 29 short-span bridges and 4 long-span bridges – several of which were damaged and repaired after Tropical Storm Irene. The State of New Hampshire owns the bridges crossing the Connecticut River that connect Hartford and Lebanon. Many other major bridges in town are state and federal responsibilities– including the railroad bridge across the White River in White River Junction, which was repaired by the state following Irene. The West Hartford Bridge, constructed in 2006 by the town with state assistance, was designed to withstand a 100-year flood, but also suffered damage during Irene.³ The Quechee Covered Bridge was badly damaged during Irene and completely rebuilt, finally reopening in December 2012. The town completed reconstruction of the Bridge Street railroad bridge and underpass in White River Junction through a federal highway grant.

In 2012 Hartford conducted a comprehensive engineering review of all its bridges, leading to the adoption of a 20-year

repair schedule – and separate reserve fund under the town's capital improvement program – to fund scheduled improvements over time.

White River Junction, located halfway between Montreal and Boston, remains a major interchange for several rail lines, including the New England Central Railway and the Northern Vermont Railroad. On average, two AMTRAK passenger trains and two to four freight trains pass through town each day. Freight cars are also stored temporarily in local rail yards. The AMTRAK station on Railroad Row includes parking and an enclosed waiting area.

Flood waters from Irene also severely impacted the NECR line, inflicting major damage between Montpelier and White River Junction. The storm completely washed away about 2,000 feet of roadbed and left rail and ties suspended in mid-air. Two bridges over the White River were also heavily damaged, including the one in White River Junction. Tracks were quickly repaired and reopened by mid-September 2011. The rail bridge on the Wells River Line reopened in January 2012.

Federally-funded track upgrades to improve AMTRAK service allowed for an increase in train speeds effective in 2013 – up to 59 mph north of White River Junction, and up to 79 mph south of the junction. The 2019 Hartford Town Plan speaks to the need to improve the safety of at-grade rail crossings, and to

³ Interview with Allyn Ricker, Hartford Highway Superintendent, March 19, 2013.

address illegal paths and trails crossing the tracks, but also notes the expense involved. The town installed a secondary emergency access through the rail yard to ensure that the Nutt Lane neighborhood will not be cut off by a stopped or derailed train blocking access to South Main Street.

There are no airports in Hartford, however parts of town are within the landing and take-off area of the Lebanon, New Hampshire Municipal Airport across the river, which hosts a small commuter airline and private aircraft.

Advance Transit, the regional public transportation provider, is based in the Wilder section of town. It links Hartford to Norwich and the New Hampshire towns of Hanover, Lebanon, Enfield, and Canaan. Passengers ride for free. Links are also provided to other transit networks that extend travel to Randolph, Springfield and St. Johnsbury, Vermont. The Bugbee Senior Center in Hartford provides rides for residents over age 60 by appointment. Other providers also bring passengers to Hartford—e.g., to the VA Hospital – from other counties.

Water and Sewer. The town's municipal water system – supplied by two wells and treatment facilities – one located in Wilder and the other in Quechee near Lake Pineo – serves more than 2,000 connections in White River Junction, Wilder, Hartford Village and Quechee. The system also includes two

large storage tanks – one in Wilder and one near the VA Hospital. The Wilder well is located above the floodplain; the Quechee facility, however, is at or above the 100-year flood level. Protected by a berm, it did not flood during Tropical Storm Irene, but came close. The berm was improved following Irene to better withstand future flooding.

White River Junction, Hartford Village and Wilder Village and areas in between are also served by the town's sewer system. Quechee Village has a separate sewer service, limited to the village core, including Main Street, US 4 west of Quechee Gorge, and several nearby residential developments. The two wastewater treatment plants serving these systems are located in White River Junction and Quechee. The White River Junction plant is below the confluence of the White and Connecticut Rivers, and is located within the mapped flood hazard area, but it did not flood during Irene as the Connecticut River was not heavily impacted. The Quechee sewer plant is located well-above the 100-year flood elevation. It also did not flood,⁴ but the river crossing for the force main serving Quechee Village sustained heavy erosion damage from changes in the stream channel, which undermined critical infrastructure. This was subsequently repaired with funding and technical assistance from the Natural Resource Conservation Service (NRCS), with special care taken to restore stream flow and aquatic habitat to pre-flood conditions.

⁴ Interview with John Choate, Hartford Utilities Superintendent, March 27, 2013.

Pump stations, necessarily located in low-lying areas, are especially susceptible to flooding. Irene flooding damaged three pump stations in the town – two in Hartford Village and one in White River Junction. Following the flood, the pump stations were rebuilt with town insurance money. The town received a hazard mitigation grant to elevate each of the three stations to one foot above Irene flood levels and completed the work.

In the case of power outages, most of the town's water and wastewater facilities are equipped with emergency generators, and the Public Works Department also has a portable generator. There is also an emergency backup plan for each facility, as required by the state. The Town of Hartford participates in Vermont WARN – the state's Water/Wastewater Agency Response Network. This 145-town mutual aid network provides loans of major equipment to towns impacted by a disaster.⁵

Electrical Service. There are two substations (Wilder, White River Junction) and two transmission lines (Taftsville to Wilder and Wilder to White River Junction) that serve the Hartford area. The two utilities previously serving Hartford – Central Vermont Public Service and Green Mountain Power – merged in 2012 under Green Mountain Power. The merger is providing more resources for system capacity, reliability improvements, and response in outage situations. Several utility upgrades in the area that were completed since 2014 include:

The West Hartford Community: Lessons Learned

In the aftermath of Irene, the Village of West Hartford, which suffered significant damage, was temporarily cutoff from the rest of the community by large deposits of river silt. Once the road was re-opened, with the help of a local farmer, town government and community service groups organized a central location in the village to provide food, volunteers, equipment, and encouragement. Within days, the West Hartford Church, a deteriorating building not in active use – and one of the few buildings not flooded – became the village hub. The experience with the flood also highlighted where there may be gaps in communication and services –including communication between local services and town government, and how these might be better addressed in the future. Some of these opportunities include taking advantage of existing networks.

- Relocated the transmission line from US 5 to North Hartland and the tie-in from the White River feed to the Quechee substation, via Clay Hill Road to US 5.
- Rebuilt the 46kV transmission line running from the Wilder hydroelectric facility to Taftsville.
- Rebuilt the White River substation which was nearing capacity. The new substation carries additional load and provides backup for the Wilder and potentially the Quechee substations.

⁵ Ibid

Temporary power outages are a fairly common occurrence, particularly during winter months. Lines are generally well maintained and quickly repaired by the utilities, in coordination with the town for line work within town rights-of-way, and the state work along state highways. As noted, many municipal facilities, including the high school, are equipped with backup generators, but there is still concern regarding the impacts that extended power outages could have on public buildings and facilities, local hospitals and businesses, and especially homebound residents with medical equipment.

COMMUNITY RESOURCES

Local Community. A sense of community – of knowing neighbors and those who might be vulnerable in an emergency – is an important part of building community resilience. Because of Hartford’s size, diversity and settlement pattern, many local residents identify more with their neighborhood or village than the town as a collective whole. A current town initiative --“Five villages, three rivers, one town” is intended to strengthen town-wide community identity.

Hartford’s villages have especially strong social networks and ties. Quechee Village has grown in recent years in part to serve the resort community established there. West Hartford’s strong sense of community reflects the bonding that occurred during and following Tropical Storm Irene, when village residents felt isolated from the rest of the community. In larger places like White River Junction, in newer housing developments, and in

more rural locations people tend to identify with their local neighborhood, others living in their building or along their road. Since 2015, Resilient Hartford, a town appointed community resilience organization, was formed as part of a pilot program to help make Hartford a more resilient community. The group has focused on resilience educational activities, building community, and developing partnerships with other organizations. Since 2016, Resilient Hartford has hosted 47 workshops, including two Resilience Week events and in 2019, the first annual Hartford Potato Festival, encouraging backyard gardening for greater food security.

For many residents, Hartford’s “third places” – local gathering spots – also serve as important sources of community information and support. For example, the Upper Valley Food Co-op in downtown White River Junction is much more than a local grocery store – sponsoring community classes, events, and activities, and providing meeting space for local groups and gatherings. The Quechee Club serves a similar function as a community gathering place in Quechee Village. Hartford’s libraries, schools and recreation programs also provide space and activities that bring people together, as do regional events like the Flavors of the Valley. The development of Northern Stage’s new state-of-the-art theater has brought extensive programming for all ages. The Upper Valley Aquatic Center sponsored Olympic level competitions as well as year-round swimming and fitness center opportunities for the community.

There are fourteen churches in Hartford, several of which served important roles during the recovery from Tropical Storm

Irene. The United Valley Interfaith Project – a consortium of faith-based organizations covering the Upper Valley area of New Hampshire and Vermont – provided both staff and volunteers to assist in the recovery effort. Hartford also has a number of active community organizations – including a local Transition Town group which has goals to strengthen local community resilience.

Another outgrowth of Irene was the creation of “Upper Valley Strong,” comprised of area public and nonprofit service agencies, organizations and churches that came together in the immediate aftermath of the event. This group was subsequently recognized by the state and FEMA as the area’s Long Term Recovery Committee (www.uvstrong.org) to strengthen, expand, mobilize and coordinate disaster recovery efforts.

Many participating groups, such as The Haven, Southeastern Vermont Community Action (SEVCA), Cover Home Repair, Upper Valley Housing Coalition and state social service offices are based in or near Hartford. As a result, town residents and property owners were especially well served by regional response efforts and resources following Irene. Upper Valley Strong mobilized teams of people to go door-to-door to identify those in need and direct resources their way. As donations were received, such as beautiful rugs donated by The Company Store, they were stored for pick up in Wilder and made readily available to Hartford residents.

Upper Valley Strong continues to exist today and is putting in place a structure to allow for immediate mobilization when a

hazard hits the region. This became especially helpful to quickly mobilize and expand affiliations with the onset of the COVID-19 Pandemic. The committee:

- gathers and shares information,
- assesses individual and community needs,
- obtains and disburses financial and other resources,
- conducts triage and disaster case management,
- expedites local access to services,
- facilitates interim and permanent housing solutions, and
- collaborates to resolve the full spectrum of disaster-caused recovery needs.

Another organization to form in Hartford to help build community is the Hartford Community Coalition. Established in 2014 in response to the tragic loss of three young people to suicide in one summer, members of the greater Hartford community stepped forward and created a grassroots organization. The main mission of the Coalition is a simple but powerful intention to create the time and space needed to facilitate community-wide conversations and action. The Coalition has evolved into a network of partnerships with organizations already present in the community to help community members seeking to create solutions. The Coalition hosts the annual Hartford Block Party which includes dozens of Hartford organizations and draws 700-800 people.

Medical Facilities and Services. Local medical establishments include a number of doctors’ offices, and the Good Neighbor Health Clinic – a walk-in medical and dental clinic for low

income residents located in the former Gates Library in White River Junction.

The **Veterans Administration Medical Center** (VA Hospital)⁶ in White River Junction serves 73,000 Vermont and New Hampshire veterans, and is one of Hartford's largest employers, with 1400 full-time employees. Excluding doctors, 90% of the center's employees are veterans. There are an estimated 600 people onsite during the day, including staff, a contingent of federal police, patients, and other caregivers.

The VA Medical Center includes a 74-bed acute care facility that provides a full range of medical and psychiatric care, including a resident substance abuse treatment program. The center is also classified as a federal "Level II" facility, with four fully equipped operating suites. The center is affiliated with several other medical and academic institutions, including the Geisel School of Medicine (formerly the Dartmouth Medical School) and the University of Vermont College of Medicine.

The medical center campus is located on a 64-acre hillside overlooking I-89, well above the floodplain. It includes a hospital building, a 47,000 square foot research building, an ambulatory care building and administrative and clinical support buildings. There are six generators on-site, including one to run emergency facilities and five in individual buildings.

The generators are on a looped system so that if one or two malfunctions, they will still provide needed emergency power. There is enough fuel stored on site to last one month. It's estimated that the center can accommodate 500 people easily, with food water and beds, for 96 hours (as required for this type of federal facility). Cots are also available for staff use.

The center also has the ability to evacuate if needed but is required to prepare for and maintain uninterrupted service during a disaster. Under a federally declared disaster it also has the ability to care for others if requested. The center is currently designated by the state as a way station or hub for the evacuation of area nursing homes – to serve as a staging center

⁶ Much of the information about the VA Medical Center (VAMC) is based on an interview with Tony Ercole, VAMC Emergency Management Coordinator, March 18, 2013.

and provide care until residents can be assigned and moved to other facilities.

Available communications systems include three satellite phones, an amateur radio tower (part of the standby Vermont Radio Amateur Civil Emergency Service), and radio equipment provided to the Hartford Fire Department under an active and ongoing relationship with the department.


The center regularly practices emergency response, following “joint commission” standards related to Medicare and Medicaid. Exercises are conducted twice yearly – one of which includes a full evacuation. The center also has conducted an anthrax release exercise with the US Postal Distribution Center in White River Junction. This included setting up a decontamination site at the hospital – using the Hartford Fire Department’s decontamination unit – for those in need of decontamination and medical attention.

Parks and Recreation. In addition to the state park at Quechee Gorge, the Town of Hartford maintains seventeen public municipal parks and recreation facilities, as listed in Appendix B and shown on the accompanying map. This includes several riverside parks that were heavily damaged by Tropical Storm Irene and required restoration, including:

- Erwin Clifford Park, West Hartford
- Quechee Green Park, Quechee
- Watson Memorial Park, Hartford Village
- George Ratcliffe Park, White River Junction


POST TROPICAL STORM IRENE

PARK PROJECT RECOVERY




Clifford Park

- Erosion Control Along White River
- Restore athletic field and open green spaces
- Restore baseball/softball field
- Repair tennis court and basketball court
- Install new playground equipment
- Resurface Parking Lot
- Install new parking fence
- Establish new picnic areas (grills and tables)
- Plant new trees/shrubs along riparian buffer zones
- Establish new trails




Remains
Closed During
Restoration




Quechee Green Park

- Restore walking paths
- Restore athletic field and open green spaces
- Restore Playground/Fitness Ground Resurfacing
- Repair irrigation system (Two Faucets)
- Restore Community garden areas
- Gazebo (Move/Rebuild)

**Summer Concert Series will be held every Thursday evening at 6:30 pm as planned*




Open
on a Limited
Basis




Watson Park

- Rebuild dog park
- Resurface parking Lot
- Resurface walking paths
- Restore athletic field
- Restore playground surfacing




Remains
Closed During
Restoration




Ratcliffe Park

- Resurface parking Lot
- Resurface walking trail path
- Establish new riparian buffer zones
- Restore Community garden areas




Open
on a Limited
Basis



Lyman Park

- Restoration of open green spaces (plant new grass)
- Plant new trees/shrubs along riparian buffer zones

**Summer Concert Series will be held every Wednesday evening at 6:30 pm as planned*



Open
on a Limited
Basis

March 2012

- Lyman Park, White River Junction
- Maxfield Sports Fields, White River Junction

Two parks – Kilowatt Park South in Wilder and the Hurricane Forest Wildlife Refuge at the Wright Reservoir– are located at dam sites but weren’t impacted by the flood. In 2015, Wright’s Reservoir was drained pending a decision by the community on whether to reconstruct the dam or not.

Flood recovery related to hazard mitigation resulted in the acquisition of additional town park land through the federal buyout program – including land adjoining the West Hartford Library and land next to the Quechee Covered Bridge. Under FEMA’s Hazard Mitigation Assistance Program, the federal government covers 75% of the cost buying severely damaged or destroyed properties identified by the town and state for acquisition. Individuals cannot apply for direct assistance, but the town can apply on their behalf. Property acquisition through the program is one of the most permanent forms of hazard mitigation – it forever removes people and property from harm’s way. Once a property is acquired it must be cleared, and retained as open land, for public use. It cannot be sold privately or redeveloped.

Cultural Facilities and Resources. Hartford is fortunate to have a variety of cultural facilities and resources that contribute to the town’s historic identity and character, its unique sense of place, its economic development, and the cultural life of local residents.

Hartford is one of seventeen Certified Local Governments (CLGs) in the state eligible to receive state funding for historic preservation and has a very active Historic Preservation Commission. National Register listings to date – due in larger part to local efforts – include more than 500 structures, many of which are contributing structures in the following listed historic districts:

- White River Junction Historic District (1980)
- Quechee Mill Historic District (1997)
- Hartford Village Historic District (1998)
- Wilder Village Historic District (1999)
- Jericho Rural Historic District, Jericho (2001)
- Taftsville Historic District (2001)
- White River Junction Historic District Expansion (2002)
- Christian Street Historic District, Wilder (2003)
- West Hartford Village District (2004)
- Terraces Historic District (2013)
- Advent Camp Meeting Grounds (2017)
- White River Junction Historic District Expansion (2019)

Some buildings within three of these districts – White River Junction, Quechee Mill, and West Hartford – are located in the mapped 100-year flood zone. There are also thirteen historic cemeteries scattered throughout the town, dating back to the 18th century.

Historically, Hartford has relied on village libraries to serve its residents. Each of the five villages once had their own library. That changed in 2001 when the Gates Memorial Library in

White River Junction closed and became a medical clinic. Of the remaining four libraries, the West Hartford Library is the only town-owned facility with an elected Board of Trustees. The Quechee Library, Hartford Library, and the Wilder Club and Library are operated by private nonprofit organizations with their own separate board of directors, but each library receives some town funding. As noted earlier, the West Hartford Library was heavily damaged by Irene flooding but was rehabilitated, including elevation and flood-proofing.

White River Junction – home of the historic Hotel Coolidge, the Main Street Museum, the New England Transportation Museum, the Briggs Opera House, Northern Stage and the Center for Cartoon Studies– has re-established itself as a regional cultural center, in part through the adaptive reuse of historic structures in the downtown. These venues contribute to the vitality of the downtown, serve as local gathering places, and provide a variety of cultural opportunities for local residents and the greater Upper Valley.



V. RISK & VULNERABILITY ASSESSMENT

A risk assessment evaluates the potential for damage, loss, or other impacts from anticipated hazards. A vulnerability assessment tries to predict the damage or loss to community assets that may result from a hazard event. These assessments, which may take many forms, are used to rank, and prioritize anticipated risks – to inform local decision-making and to develop associated mitigation measures.

Available state, county and local information was used to identify natural and manmade hazards to be considered in local hazard mitigation planning. This information, along with community concerns and insights based on recent events and local emergency planning, was then used to identify and rank local hazards, as summarized in Appendix C, and as referenced in related risk assessments (by hazard type) that were used in developing associated mitigation strategies.

HAZARDS IDENTIFICATION

State Hazards Ranking. Vermont Emergency Management has identified and ranked both natural and “technological” or manmade hazards for purposes of state hazard mitigation planning, as included in the November 2018 *State of Vermont State Hazard Mitigation Plan* (VHMP). The state list was used to develop an initial list of hazards for

consideration in updating the town’s hazard mitigation plan, with a focus on those higher frequency hazards identified for regional and local consideration. The state plan identifies major risks by “specific jurisdiction” – defined for this purpose as regional planning commission areas. State Hazards List (Ranked).

State Hazards List (Ranked)

Inundation Flooding and Fluvial
Erosion
Snowstorm & Ice Storm
Wind
Extreme Cold
Extreme Heat
Drought
Landslides
Wildfire
Earthquake
Invasive Species
Infectious Disease
Hail

Source: VHMP (2018)

Inundation Flooding and fluvial erosion are identified as high-risk hazards specific to the Two-Rivers Ottauquechee Region – especially given that Windsor County has the highest number of reported flood-related events and FEMA disaster declarations in the state. Flooding and fluvial erosion is listed as the number one hazard in the VHMP. Winter storms, technological hazards and hazardous materials spills pose moderate risks. Given that this region has not

experienced significant development within the past 10 years, the state has determined that the overall level of risk from flooding and winter storms remains unchanged. Hartford is not

Table 5.1. Federal Disaster Declarations: Windsor County (1969-2020)

Disaster Number	Date	Incident Type	Description
277	8/30/1969	Flood	SEVERE STORMS, FLOODING
397	7/6/1973	Flood	SEVERE STORMS, FLOODING, LANDSLIDES
518	8/5/1976	Flood	SEVERE STORMS, HIGH WINDS, FLOODING
938	3/18/1992	Flood	HEAVY RAINS, ICE JAMS, FLOODING
1101	2/13/1996	Flood	ICE JAMS, FLOODING
1201	1/15/1998	Severe Storm(s)	SEVERE ICE STORMS, RAIN, HIGH WINDS, FLOODING
1228	6/30/1998	Severe Storm(s)	SEVERE STORMS, FLOODING
1307	11/10/1999	Severe Storm(s)	TROPICAL STORM FLOYD
1336	7/27/2000	Severe Storm(s)	SEVERE STORMS, FLOODING
1488	9/12/2003	Severe Storm(s)	SEVERE STORMS, FLOODING
1698	5/4/2007	Severe Storm(s)	SEVERE STORMS, FLOODING
1715	8/3/2007	Severe Storm(s)	SEVERE STORMS, FLOODING
1790	9/12/2008	Severe Storm(s)	SEVERE STORMS, FLOODING
4022	9/1/2011	Hurricane	TROPICAL STORM IRENE
4140	8/2/2013	Flood	SEVERE STORMS AND FLOODING
4207	2/3/2015	Severe Storm(s)	SEVERE WINTER STORM
4330	8/16/2017	Flood	SEVERE STORMS, FLOODING
4445	6/14/2019	Flood	SEVERE STORMS, FLOODING
4532	4/8/2020	Pandemic	PANDEMIC

Source: FEMA.

identified as a high risk “SFHA Community” in the state’s vulnerability assessment.

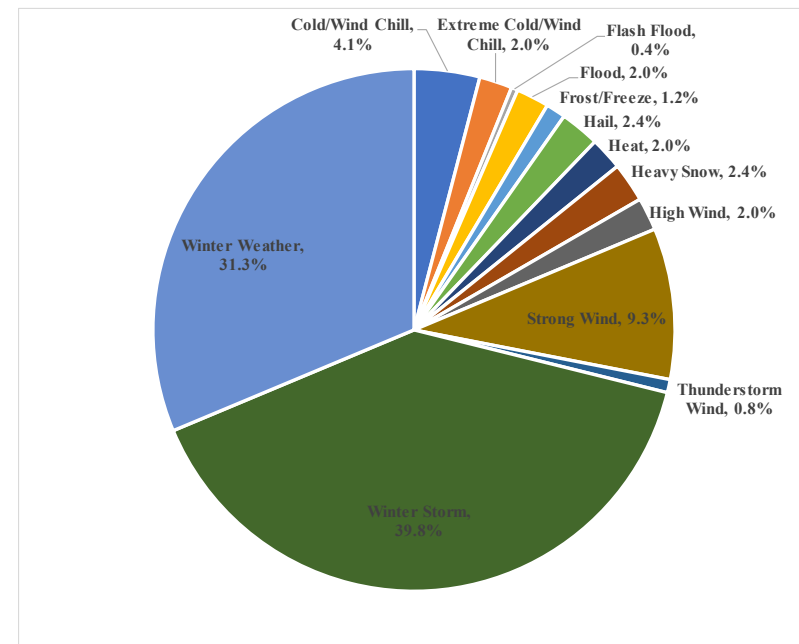
Climate change is not identified in the state plan as a hazard per se, but the plan does acknowledge that Vermont’s warming climate is expected to exacerbate existing hazards – including the frequency and severity of weather-related hazards (e.g., flooding, fluvial erosion, landslides, ice jams), and to contribute to emerging hazards, including waterborne and infectious diseases.

County-Level Data. Most federal information regarding past hazard events is available only at the county level. As such, information specific to Windsor County was used to identify and evaluate the type, frequency, and relative impact of past events within the larger Hartford region, which could therefore be expected to affect the community in the future.

According to FEMA, there were nineteen federally-declared major disasters for Windsor County between 1969 and 2020 – averaging about one every three years – though not all impacted Hartford directly. As indicated in Table 5.1, the majority of declared disasters was due to flooding or other types of severe storms. Most recently, and one that has never before been declared for, was the pandemic COVID-19 (or coronavirus). At the time that this Plan was being written, it is still unknown the total impacts that COVID-19 had on Hartford, the state, and the country.

The **National Oceanic and Atmospheric Administration**

(NOAA) compiles storm events data, dating from 1950 to present. For the purposes of this HMP, storm events from 2000 and onward were analyzed. These cover “regional” weather events for the larger Windsor County area (National Weather Service Forecast Zone) for periods of cold/wind chill, extreme cold/ wind chill, flash flood, flood, frost/freeze, hail, heat, heavy snow, high wind, strong wind, thunderstorm wind, winter storm, and winter weather. Over this 20-year reporting period, 246 reported regional storm events (averaging around 12 per year) were catalogued – including nine events specific to Hartford. In some cases, several events are reported for the same storm system. Database entries also include more general



estimates of related property and crop damage – totaling \$5 million over this twenty-year period.

As expected, the majority of recorded regional events relate to winter storms and winter weather, while the majority of more localized events are associated with severe thunderstorms (to include wind, heavy rain, and hail). In addition to flooding and flash flooding, storm-related hazards include high winds, with estimated gusts ranging from 35 to 50 knots (40 to 60 miles per hour) and hail up to 1.75 inches. Hazards related to cold temperatures – including unseasonal frosts, and periods of extreme cold during winter months – are more common than heat spells; however, five heat-related events have been reported since 2006, including dry spells in 2011 and 2012 that resulted in some crop damage. The heat wave on 2011 resulted in one death in Windsor County.

These analyses confirm that, with regard to frequency, winter weather and severe storm events are responsible for most hazardous conditions at the town and county level; however, flooding – including flash flooding and fluvial (stream bank) erosion – by far results in the most damage to property and crops, even when damages from Irene are not included.

Locally Identified Hazards. A local history of hazard events was compiled from community forums, town documents and interviews with town and state officials. For identified hazards, local knowledge generally confirms and augments state and county-level information.

Given the impacts of Tropical Storm Irene on Hartford and Vermont, there is understandably a strong focus at both the local and state level on mitigating hazards associated with flooding. The town has also long recognized and prepared for the fact that the community faces a broad range of potential natural and man-made hazards.

Identified hazards were ranked according to geographic extent, probability (based on past frequency), and level of impact using a version of the state’s ranking criteria adapted for local use (Appendix C). Hazards were also ranked for local mitigation planning purposes by those attending public meetings and filling out the community survey (Appendix D).

- The top natural hazards that respondents have experienced while living in Hartford include severe summer and winter weather, flooding, high winds, and erosion.
- The top man-made (technical) hazards that respondents have experienced while living in Hartford include structural fires and school safety incidents.
- When asked what hazards may impact respondents in the next five years, common responses included pandemic, severe weather (including heavy rain), and hazardous materials incidents.

The results indicate that, though many of the hazards identified by the state could potentially affect Hartford, with regard to

losses to property and major impacts to human health and safety the five top hazards facing the community are:

- **Flooding and fluvial erosion (includes flash flooding from thunderstorms, hurricanes/tropical storms, ice jams, and dam failure),**
- **Severe winter storms,**
- **Pandemic**
- **Hazardous materials, and**
- **Structural fires.**

Except for a pandemic, these are consistent with hazards identified for mitigation in the previous Hartford HMP.

Drought, hail, landslide, lightning, and severe thunderstorm and winds were classed as moderate natural hazards. There are no mitigation actions proposed for drought, hail, or lightning. The flooding effects of severe thunderstorms are covered under floods, and the wind effects under severe wind. Landslide hazards, identified in the previous HMP as “probable and damaging” are also considered for mitigation in Section 6 below; but, because past damage has been highly localized and partially addressed (Pomfret Road, Jericho Road/Country Lane), and the full extent of local risk remains undocumented, landslide risks were ranked as moderate. This is also true for high wind events, which do occur, but are highly localized and have resulted in minimal damage.

Of less concern as natural hazards are natural brushfire (as these are rare), earthquake (very rare), extreme temperatures

(heat may become more of an issue in the future), invasive species (minor damage, although this will be watched as tree pests such as emerald ash borer may arrive), and tornado (unlikely). Natural hazards such as volcanoes and tsunamis are simply not applicable.

The hazards of highest concern, and related risks and community vulnerabilities, are described in more detail as follows.

FLOODING AND FLUVIAL EROSION

Flooding. Flooding can happen at any time of the year, but historically has resulted from ice jams and snowmelt runoff in the spring, and severe storms in late summer and fall. The most widespread and damaging floods – including the November 1927 flood and Tropical Storm Irene in August 2011 – have all been associated with hurricanes or tropical storms tracking up the northeast coast. In each case, heavy rainfall, on top of already saturated soil conditions, resulted in very large volumes of runoff over a short period of time.

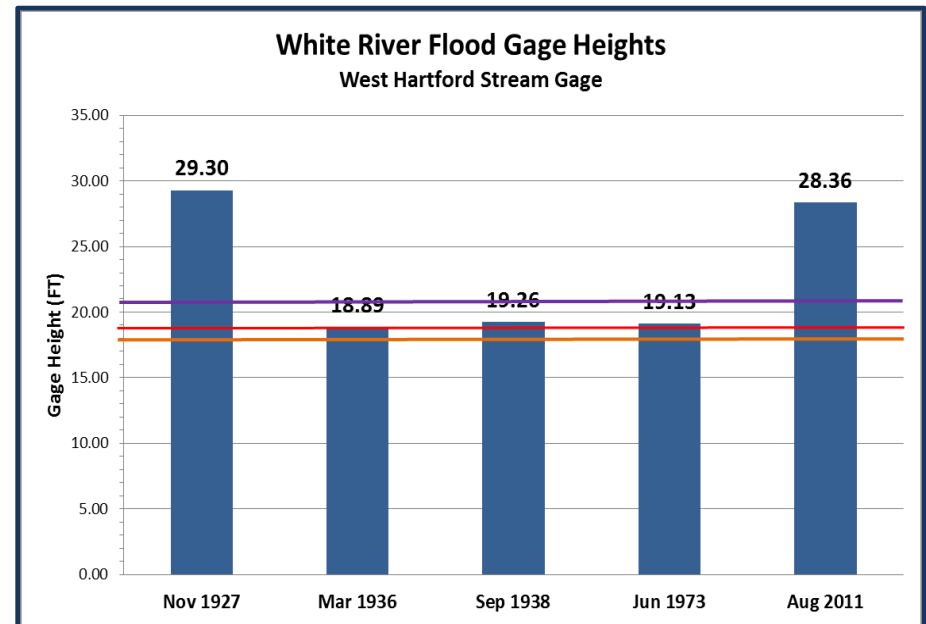
The magnitude and impact of flooding from Tropical Storm Irene in 2011 rivaled and potentially exceeded that of the 1927 flood. The White River, which flows into the Connecticut River at White River Junction, has a total drainage area of 712 square miles (1,840 sq. km.). During Irene, the river basin received, on average, more than six inches of rain, resulting in a peak discharge of 90,100 cubic feet per second, as measured at the West Hartford gauge station before it stopped transmitting data. The river at West Hartford crested at 28.36 feet – more than 10 feet above flood stage.

Local damage from Irene was extensive, FEMA aid accounted for \$5,680,017. Municipal properties and infrastructure damaged from flooding and bank erosion included five local parks, municipal water and sewer systems, and local roads, bridges, and culverts. Roads washed out in more than sixty locations; and the West Hartford and Quechee bridges both suffered extensive damage. Emergency and temporary infrastructure repairs completed through January.

2012 totaled \$1,534,000. The cost of remaining repairs at that time was estimated at more than \$4 million. Many homes and businesses – including the West Hartford library, post office and village store – also flooded. Private property losses were also then estimated at more than \$4 million.⁷ Most permanent repair work is now complete – though as noted earlier, the town is continuing to pursue property buyouts under the federal

⁷ John D. Knott, Jr., Pleasant Mountain LLC, Project Manager and Disaster Relief Consultant, Town of Hartford, VT (2012 Report).

hazard mitigation grant program. Extent data for fluvial erosion events is not available.



- Major Flood Stage (21 ft)
- Moderate Flood Stage (19 ft)
- Flood Stage (18 ft)

Sources: USGS; NOAA, National Weather Service

Flood Impacts:

28 Feet – Extremely dangerous. The White River will cover the entire valley in some areas resulting in widespread, devastating damage. Homes and businesses near the river will be inundated; some may be swept off their foundations. Portions of Routes 14 and 107 will be covered and may be damaged or destroyed.

18 Feet – Route 14 west of West Hartford will be flooded: widespread field flooding in the White River valley.

Ice Jams. Spring flooding due to ice jams, though not nearly as devastating, is a much more frequent occurrence – and sometimes also very destructive. According to historical accounts, spring floods on the White River have been an annual occurrence. The “Great Flood of 1867” caused by an ice jam on the White River, combined with February rain and runoff, destroyed the bridge and many homes and businesses in West Hartford, and resulted in one death.⁸

Since then, 52 accounts of ice jams in Hartford have been compiled in the ice jam database maintained by the US Army’s Cold Regions Research and Engineering Laboratory (CRREL), based in Hanover, NH



(<https://icejam.sec.usace.army.mil/ords/f?p=101:7:.....>) – the majority (63%) occurring on the White River between West Hartford and White River Junction.

Ice jams along the White River frequently result in minor flooding, temporary road closures and bank erosion. They cause more damage during periods of high water. The most destructive jams reported since 1867 have occurred at the confluence of the White and Connecticut Rivers – including jams that took out the Bridge Street Bridge on US 5 across the White River in 1964, and again in 1990. The bridge was replaced in 1992 with cells to monitor ice loading. The 1990 jam also

⁸ William Howard Tucker, *History of Hartford, Vermont, July 4, 1761-April 4, 1889*, The Free Press Association, 1889; pp. 25, 26.

temporarily closed the Hartford Village bridge. Ice and flash flooding in 1964 blocked off both entrances to White River Junction from Route 14, and damaged several houses and businesses, resulting in \$1.2 million in damages to roads and bridges, and \$1.9 million in damages to private property.

Ice jams on the Connecticut River are much less frequent (17%), based on available reports, but tend to form in the vicinity of White River Junction at the confluence of the White River, in the vicinity of the I-89 bridge. When jams do occur, flash flooding is a real concern. A 1970 jam on the Connecticut flooded several commercial buildings and raised backwater at the Wilder Dam.

Ice jams on the Ottauquechee (19%) occasionally result in flooding behind the Quechee Club House. A 1972 jam destroyed the golf course bridge; a 1992 jam flooded and damaged portions of the Lakeland Golf Course, delaying its opening for the season. There is also a history of ice jams on Main Street, east of the intersection with Old Quechee Road.

Over the years the town has taken measures to reduce the impacts of ice jams and flash flooding in areas particularly prone to flooding – including Quechee Main Street and Route 14, and the River Road near the Taftsville Bridge. Work completed in 2007 and after Irene to build up the River Road has reduced the amount of flooding in this area.⁹

Dam Failure. There are eleven dams in Hartford listed in state's dam inventory, including four water supply dams owned by the town (one now

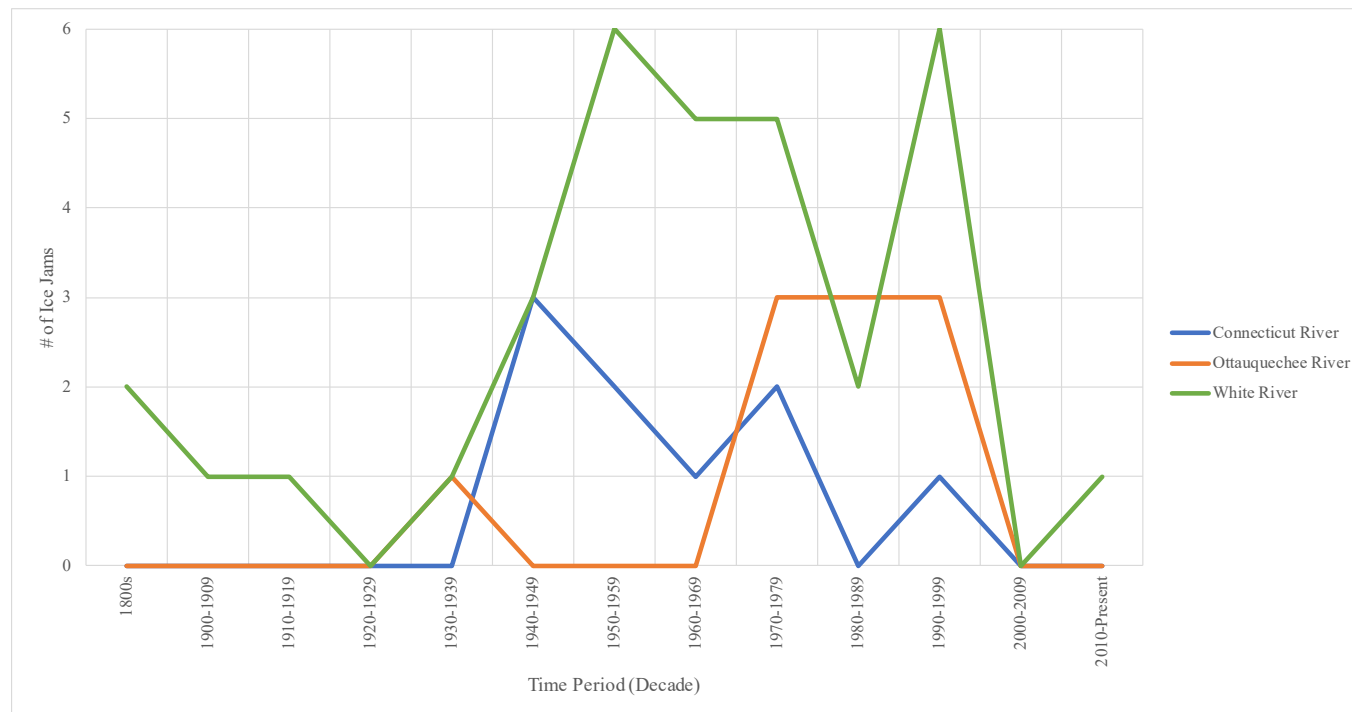


Figure 2: Number of Ice Jams in Hartford

HARTFORD DAMS					
DAM NAME	STREAM	OWNER	DAM STATUS	PURPOSES	DAM HAZARD CLASS
Hurricane Lower Reservoir	Kilburn Brook-TR	Town of Hartford	Breached (Partial)	Water Supply, Other	Low Hazard Potential
Hurricane Upper Reservoir	Kilburn Brook-TR	Town of Hartford	Breached (Partial)	Water Supply, Other	Low Hazard Potential
Wright Reservoir	Connecticut River-TR	Town of Hartford	In Service	Water Supply, Other	Significant Hazard Potential
Deweys Mills	Ottawaquechee River	US Army Corps of Engineers - NAE	In Service	Hydroelectric	Low Hazard Potential
Quechee Mills	Ottawaquechee River	Simon Pearce (U.S.) Inc	In Service	Other	Low Hazard Potential
Lake Pinneo	Ottawaquechee River-TR	Quechee Lakes Landowners	In Service	Recreation	Low Hazard Potential
Podunk Brook	White River-TR	Null	Null	Null	Null
Simonds Reservoir	Kilburn Brook-TR	Town of Hartford	Abandoned	Other	Low Hazard Potential
Hartford Woolen Co.	White River	Null	Breached	Null	Null
Wilder	Connecticut River	TransCanada Hydro Northeast, Inc.	Null	Null	Null
Deweys Pond	Ottawaquechee River	US Army Corps of Engineers - NAE	In Service	Recreation, Other	Low Hazard Potential

Source: Vermont Dam Inventory, VT Dept. of Environmental Conservation.

abandoned and two breached), two hydroelectric dams (including the Wilder Dam on the Connecticut), and two dams owned by the US Army Corps of Engineers, constructed in part for flood control. Only one of the dams listed – the Wright Reservoir Dam owned by the town – is rated as having a significant hazard potential. This is based on the potential extent of downstream impacts in the event of a failure, and not the current condition of the dam. A significant hazard is one that will likely result in little loss of life, but appreciable potential economic loss (e.g., to commercial structures). Due to the designation, the reservoir was drained in 2015 and is pending a decision by the Town whether to breach the dam or reconstruct it. Since the reservoir has been emptied, only a very exceptional rain event would both fill it and breach the dam.

The Wright Reservoir served as a municipal water supply. It borders the 142-acre Hurricane Forest Wildlife Refuge and has served as an important town recreational resource. The earthen reservoir dam, constructed in 1930 on a tributary of the Connecticut River, is 330 feet long and 36 feet high. The impounded reservoir has a surface area of around three acres.

An inundation map has not been located but, in the event of a dam failure, the surge of water could impact the Wright Reservoir Road, I-89 and commercial properties along US 5 located below the dam. The town contracted with an engineering firm to complete a design for full rehabilitation of the Wright Reservoir Dam.

Fluvial Erosion. Fluvial erosion – erosion caused by rivers and streams – ranges from gradual streambank erosion to catastrophic changes in the location and dimensions of a river

channel during a major flood event. The majority of damage caused by flooding in Vermont – and locally – is due to fluvial erosion associated with flash flooding – especially outside of FEMA-mapped floodplains, which indicate only potential inundation areas based on calculated flood heights.

Fluvial erosion is also a major cause of landslides in Vermont. Following Irene, two “cliff hanger” properties in Quechee damaged by fluvial erosion– both on Waterman Hill Road – were bought out at a total cost of \$473,998 (VHMP, p.4-91). River channel erosion in Quechee also undermined municipal infrastructure under the riverbed, requiring major stream channel repair work following Irene.



Given the known hazards and costs associated with fluvial erosion, the state is in the process of mapping river corridors that are highly susceptible to fluvial erosion. The state is strongly recommending that municipalities adopt fluvial erosion hazard area (river corridor) bylaws, in addition to flood hazard bylaws, to further limit development and minimize associated risks within known hazard areas.

White River Tactical Basin Plan (Vermont Agency of Natural Resources, December 2018)

The White River Basin encompasses 710 square miles in Vermont. The watershed includes five Vermont counties and significant portions of 20 individual towns including Hartford. The White River mainstem is approximately 56 miles long and is the longest free flowing large river in Vermont and the longest undammed tributary to the Connecticut River. The White River has five major tributaries. The watershed covers the Lower White River through Hartford where the White River joins the Connecticut River in White River Junction. The White River Tactical Basin Plan (TBP) provides an assessment of watershed health and defines on-going and future strategies to address high-priority surface water stressors and opportunities for protecting high quality waters. According to the TBP, “because most of the river valleys throughout the basin are narrow, much development and agriculture are located along the rivers where soil is rich and deep, and the topography is flat. Unfortunately, this land use pattern also leads to surface water pollution from stormwater runoff and inherently higher flood damage risks

from encroachment into the river corridors and floodplains.” The TBP includes state recommendations and actions to protect, maintain and improve water quality and habitat by managing activities. Key actions specific to Hartford include:

- Continue to monitor swimming areas along the mainstem of the White River to protect public health.
- Complete road erosion inventory. (Completed in 2019)
- Implement high priority projects identified in road erosion inventories.
- Develop a stormwater master plan.
- Provide outreach and education for development of stormwater bylaws.
- Incorporate high priority floodplain encroachments for removal and other floodplain protection and restoration measures into long-term Hazard Mitigation Plans and Stormwater Master Plans.
- Continue work to assess, prioritize, design, and implement high-priority culvert replacement projects.
- Identify wetlands impacted during and after flooding events.
- Review new natural resource mapping and make recommendations for improving wetland mapping in target towns.
- Continue support for the White River Water Trail.
- Designate the White River mainstem as an Outstanding Resource Water.

- Continue outreach and education to prevent new introductions of invasive species introduction (including the rusty crayfish) into the White River mainstem.
- Monitor and assess water quality for Jericho Brook and Podunk Brook.

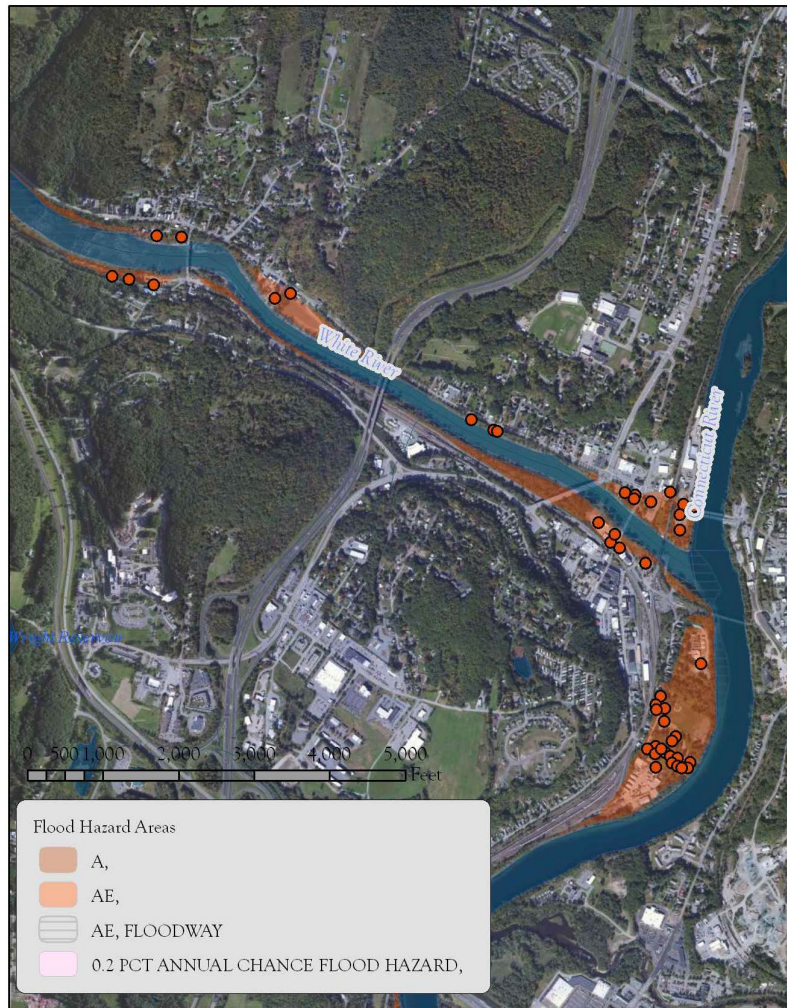
Flood Risk Assessment. The initial risk assessment included in the 2008 Hartford Annex of the Regional PDM plan identified 47 residences and 17 commercial businesses within the mapped 100-year floodplain which were vulnerable to potential flooding, having a total estimated value of \$20,778,167.¹⁰ At the time, this represented 1% of the town’s total grand list.

The assessment was updated in 2013 by Hartford town staff using maps provided by the regional commission that showed structures located within Special Flood Hazard Areas (SFHAs) identified on current Flood Insurance Rate Maps (FIRMs). The results are presented in Table 5.3. The maps on the next page identify structures within the SFHAs.

¹⁰ A similar but less detailed analysis from Ned Swanberg, Vermont Flood Hazard Mapping Coordinator (June 2013), identified 69

structures and 70 “families” in the mapped Special Flood Hazard Area – including four in the mapped floodway.

Hartford, Vermont Flood Hazards - White River Junction



Hartford, Vermont Flood Hazards - Quechee



Hartford, Vermont Flood Hazards - West Hartford



Overall, there was very little identified risk in 2014. A total of 75 properties (principal structures) were identified within the mapped floodplain (1% chance of flooding) – representing 1.6% of all principal structures in town. Less than 1% of the town's residential properties are located in the mapped floodplain – however nearly 5% of the town's commercial properties – and 50% of industrial properties – are vulnerable to flooding. Five public buildings – including the Hartford Town Hall in White River Junction, and the West Hartford Library in West Hartford – are located in the mapped floodplain. Other community assets and areas of local concern identified in the floodplain include:

- Quechee Water Supply Well
- White River Junction Sewage Treatment Plant
- Buildings in the White River Junction, Quechee Mill and West Hartford Historic Districts
- Municipal Parks (6)

- New England Central Rail Yard, White River Junction
- Highways – including US 4, US 5, and VT 14.

Hazard Area (SFHA), of these there are 28 policies for structures within the mapped flood hazard area (40%) – for a total insured value of \$14,532,500. Current flood insurance policies for older

Table 5.3. Hartford Flood Hazard Risk Assessment Summary

Type of Structure	Number (excluding outbuildings)			Listed Value (including outbuildings)		
	Total (#)	SFHA (#)	SFHA (% Total)	Total (\$)	SFHA (\$)	SFHA (% Total)
Residential	3,253	28	0.9%	\$622,888,500	\$3,418,400	0.6%
MH (no land)	308	0	0.0%	\$10,090,400	\$0	0.0%
MH (w/land)	103	4	3.9%	\$5,139,100	\$180,200	3.5%
Commercial	537	25	4.7%	\$221,778,100	\$3,639,500	1.6%
Industrial	14	7	50.0%	\$4,564,800	\$2,028,000	44.4%
Exempt (Public, Nonprofit)	119	5	4.2%	\$85,743,900	\$4,333,600	5.1%
Condominiums	256	6	2.3%	\$183,967,500	\$5,034,300	2.7%
Total	4,590	75	1.6%	\$1,134,172,300	\$18,634,000	1.6%

The total listed value of properties at risk of flooding, including outbuildings, exceeds \$18.6 million. As noted for the previous assessment, this does not reflect structures that could be damaged from flash flooding and fluvial erosion that are more likely to occur outside of mapped flood hazard areas.

According to information supplied by the Flood Ready Vermont, as of April 2020, there are 70 buildings in the Special Flood

(pre-FIRM) structures in Hartford run around \$1,400 for \$139,000 of insured value, while the cost of policies for newer structures is roughly twice that amount. Since 1978, only one substantial damage claim was filed in Hartford – there have been no repetitive loss claims.¹¹ Many structures have had uninsured losses, though, and several were destroyed in Irene.

Local insurance rates increased significantly under the federal Flood Insurance Reform Act of 2012 (Biggert-Waters Act), which affected its affordability for homes and businesses. This legislation called on the FEMA Program to raise insurance rates under the National Flood Insurance Program to reflect true flood risk and to make the program more financially stable.

¹¹ Ned Swanberg, Flood Hazard Mapping Coordinator, Vermont Watershed Management Division, June 25, 2013.

Table 5.4: Top Five Flood Events in Windsor County

Date	Classification	Estimated Damage	Description
7/1/2017	Flash Flood	\$3,200,000	3-4 inches of heavy rainfall over saturated soils.
7/11/2007	Flash Flood	\$750,000	3 inches fell in two hours, some areas saw over 6 inches
7/28/2014	Flash Flood	\$600,000	2-3 inches in an hour.
7/16/2000	Flash Flood	\$500,000	Heavy rainfall and thunderstorms
4/15/2019	Flash Flood	\$500,000	0.5-1.5 of rain over rapidly melting snow.

Past Flooding Events. According to the NOAA storm data since 2000 for Windsor County, there were 23 major flood and rain events. Tropical Storm Irene on August 28, 2011 was the most damaging flood event for the entire State of Vermont. In addition to TS Irene, there are several more notable flood events to have affected Windsor County. Table 5.4 indicates the top five

flood events (other than TS Irene) to have affected the greater region.

Community Vulnerabilities. Community forums held in association with updating the plan in 2014 highlighted both perceived community vulnerabilities and lessons learned following Tropical Storm Irene. Of particular note:

- Some neighborhoods, and West Hartford in particular, were cut off and isolated from the rest of the town – one West Hartford household took in and fed 17 people for several days. Others slept in their cars. This suggests the need for additional communication and warning systems, evacuation options, and temporary shelters in outer villages and those areas accessed via bridges. Emergency planning should consider multiple access and evacuation routes and collection points, in coordination with other trail groups, such as VAST.
- Municipal staff that manage and coordinate emergency response do not live in town and may be unable to get to town if roads and bridges are cut off during a major disaster.
- The town's senior population – particularly those living alone – are especially vulnerable during a major disaster (this issue has also arisen in the pandemic). It's not clear whether seniors and others with critical medical needs are registered with local authorities. Access to senior housing in White River Junction could also be cut off, making

evacuation –e.g., to the Senior Center or the VA Hospital – difficult.

- Debris collected at the West Hartford Bridge, apparently contributing to flooding in the village – though relatively new - local residents are concerned that the bridge is undersized for its location. However, this bridge will not be replaced for several decades. Many road and driveway culverts are also undersized, which contributed to flooding, road, and driveway washouts. Local road standards and stormwater management systems have been updated and improved.
- Temporary housing or shelters are also needed for animals, including farm livestock and people’s pets. The high school shelter doesn’t have adequate space for pets, particularly when school is in session, and allergies are a concern. The suggestion was made to provide a separate trailer with cages for pets on the school property, so that pets can be sheltered near their owners.
- Provisions are needed for hikers coming off the Appalachian Trail through West Hartford during a major disaster.
- More public education and information, improved administrative structures, and better notice and communications systems are needed to plan for, respond to and recover from a major disaster.

A number of local businesses were also affected by Irene – highlighting the need to target outreach, planning and resources to the local business community to better plan for, respond to and recover from future disasters (this has also been made clear in the current pandemic). The Small Business Development Center located in Hartford has prepared a “Disaster Resilient Business Checklist” and handbook for use by local businesses, which include recommendations to obtain flood insurance and to store backup files offsite.

With Irene well behind the town, it is still prevalent in the minds of residents. Recent community meetings for the 2021 update of the HMP plan still stated that Irene weighed heavily on future mitigation efforts that the town can undertake. A community survey was sent out (full results in Appendix D) in March 2020 to obtain feedback from residents on what hazards have affected them, and what mitigation efforts the town should take on. Culvert and road upgrades (83.7%) and improving natural stormwater management (79.1%) were among the highest rated mitigation efforts the town should take on.

SEVERE WINTER STORMS

Description. Winter storms are a common occurrence locally and throughout the region, given Vermont’s northern climate. Average winter temperatures fall well below freezing – and often below 0° F in January and February. The lowest temperature of record for the town was -34°F, reached in January 2000. The town, on average, receives around 66 inches of snow per year, which is fairly evenly distributed throughout

the winter months. The maximum snowfall on record was 30 inches. Severe winter storms – characterized by heavier than normal snow, sleet, or freezing rain, extensive icing and snow drifts, strong winds and extreme cold – occur less frequently, and can cause considerably more damage.

Extent/Previous Occurrences. Based on reported events, Windsor County averages around 8 to 10 winter storms per year that may result in some damage (NOAA, SHELDUS). There has been only one winter storm in recent history, however, that resulted in a major disaster declaration – the Ice Storm of 1998 – which affected much of Vermont, including higher elevation areas in Hartford (Jericho area).

Winter weather often results in temporary road closures, school and business delays, and brief power outages. Given the frequency of winter storms, the town and local residents are generally well prepared and equipped to deal with normal winter weather conditions. Severe winter storms, however, affect the entire region as well as the local community, and may result in:

- Extensive damage to above-ground power and utility lines, and extended power outages (as in 1998),
- Road, airport, and rail shutdowns, making general travel, transport, and emergency vehicle access difficult,
- Business and school closures and government shutdowns, limiting access to goods and services,
- Structural failure from excessive snow loading – especially affecting barns and other large structures,

- Injuries and fatalities – from poor driving conditions (accidents), extreme cold (frostbite, hypothermia), and overexertion (back injuries, heart attacks).

NOAA storm data breaks out damaging storm events by type. Since 2000, the majority of storms to hit Windsor County were related to heavy snow and extreme cold. This data is broken out in the following for Windsor County over 245 incidents:

- Cold/Wind Chill – 4.1%
- Extreme Cold/Wind Chill – 2%
- Frost/Freeze – 1.2%
- Heavy Snow – 2.4%
- Winter Storm – 39.8%
- Winter Weather – 31.3%

A winter storm that took place on February 23, 2010 caused over a million dollar in damages in Windsor County alone. This winter storm was classified as a blizzard and dropped 12 to 24 inches of snow across New England, New York, and Pennsylvania. The heaviness of the snow resulted in several roof collapses. The following table shows the top ten damaging winter storms in Windsor County. Of particular note is the winter of 2000-2001 where there were four major snow events to hit Windsor County.

Table 5.5: Top Ten Winter Storms in Windsor County

Date	Classification	Estimated Damage	Accumulation
2/23/2010	Winter Storm	\$1,000,000	12-24 inches
2/14/2007	Heavy Snow	\$250,000	20 inches
12/11/2008	Winter Storm	\$250,000	1-3 inches and freezing rain
12/9/2015	Winter Storm	\$250,000	unknown
11/26/2018	Winter Storm	\$250,000	3 inches and freezing rain
3/5/2001	Winter Storm	\$100,000	15 inches
2/5/2001	Winter Storm	\$75,000	12 inches
3/22/2001	Winter Storm	\$50,000	6-10 inches
3/30/2001	Winter Storm	\$50,000	6-10 inches
11/26/2014	Winter Storm	\$50,000	12 inches

Risk and Vulnerability Assessment. No information specific to Hartford is available for a detailed analysis of risk, but winter storms at the county level result in roughly \$38,000 in damages per storm event, or \$264,000 per year, averaged over a 50-year reporting period (SHELDUS). Green Mountain Power has identified wind and wet snow/ice events as increasing and causing more frequent power outages.

Winter road maintenance costs also make up a significant portion of the local highway budget. Facilities and infrastructure especially at risk from severe winter storms

include the town's highways and bridges, and overhead utility and transmission lines. Local residents especially at risk include:

- the local homeless population,
- senior residents – and especially those living alone,
- households who rely solely on electric heat,
- low income households in need of fuel assistance,
- residents with critical medical needs, including medical support equipment, and
- residents living in remote locations, making access difficult.

PANDEMICS

Description. While not an entirely new hazard for Hartford, recent events related to COVID-19 (the illness caused by a novel coronavirus) has made pandemics of particular concern for the town and the state. The scale and complexity of COVID-19 has not been seen in this country since the 1918 Spanish Flu. With a major pandemic, the hazard to Hartford is its effect on individuals, vulnerable populations, the medical system, and the economy. While this hazard is the number one issue facing the town right now, the current evolving situation makes it impossible at this time to fully understand and capture in this HMP the short and long-term impacts on the Town.

On March 25, 2020, Governor Scott enacted a 'Stay Home, Stay Safe' order that essentially closed all but essential businesses, required companies to work from home if they can, and to

reduce trips outside the home to limit human-to-human contact. On April 10, 2020, this order was extended to last until May 15, 2020, and as of the writing of this plan restrictions on travel and businesses are being lessened as case activity remains very low and medical capacity is much more than needed at the moment.

There are current untold economic impacts to this order for the town and the state, including a massive spike in unemployment and severe drops in tax revenue. It is not clear how long these impacts will continue, but most forecast for there to be economic and revenue shortfalls at least until 2021. As of the writing of this plan, the health impacts have not been as severe as anticipated, likely due to the orders for isolation, but there have been over 1,000 cases in the state and 55 deaths.

COVID-19 has made it clear that in major pandemics that affect most of the population, the current medical system is largely inadequate to handle a surge of caseloads and hospitalizations. Vulnerable populations, such as nursing homes and prisons, have been particularly hard hit due to close living quarters. In Hartford, there are two assisted living facilities and elderly housing that are at high risk for death due to COVID-19. While not completely overwhelmed at the time of this writing, the VA Medical Center has expressed that they would be maxed out if a majority of patients who are eligible for care contract the disease.

Risk and Vulnerability Assessment. Since this situation is currently ongoing, there are no specific lists or dollar amounts

that explain the impact COVID-19 is having on the town, or on the region/state.

Populations that are currently high risk for pandemics include:

- nursing homes
- elderly housing
- school populations
- individuals 60 and over, and
- individuals with pre-existing health conditions

HAZARDOUS MATERIALS INCIDENTS/SPILLS

Description. Hartford – and White River Junction in particular – is located at the junction of major highway and rail corridors serving the region. Significant loads of material, including hazardous materials, are transported through town on a daily basis. Interstates 89 and 91, Routes 4, 5 and 14, two rail lines and the rail yard in White River Junction handle most commercial traffic. The release of hazardous materials in association with a traffic or rail accident is a major concern locally.

There have been train derailments in Hartford– including the largest train accident in Vermont’s history, occurring in February 1887, when an express passenger train headed to Montreal jumped the tracks and plunged into the White River resulting in thirty-one deaths.

A more recent derailment, in August 2008, involved six New England Central cars. There were no reported spills or injuries, but the accident closed the tracks for more than six hours, and Amtrak passengers had to be bussed to their destinations.

The Federal Transportation Agency does not require manifests for unfixed facilities (i.e. trains). Hartford’s Fire Chief has acknowledged that they don’t know what’s traveling through town or stored in the rail yard, which makes it difficult to plan in advance – but noted that the most common material is likely propane, supplying Irving Fuels – large shipments reportedly come through about every three days. In an emergency, the fire department relies on the placards attached to rail cars or trucks, and available shipping manifests, to identify materials being transported.

From 2017-2019, TRORC conducted a state-wide hazardous materials commodity flow study. This study worked to track and identify what types of hazardous materials are traveling on Vermont’s roads, railways, and airways. Individual Hartford information can be found at <https://www.trorc.org/programs/emergency/vt-commodity->



Placard code translations can be found at: <http://environmentalchemistry.com/yogi/hazmat/erg/>
Photo: Fort Bend County LEPC

[flow-study/](#). Generally, the majority of hazardous materials that travel on Hartford’s roads and railways are fossil fuels, such as propane, gasoline, and diesel fuel.

Additionally, spills can happen at a facility that uses hazardous chemicals. As of 2019 Hartford is home to forty Tier II facilities. Tier II facilities are fixed facilities that house a certain amount of hazardous materials, these thresholds are determined by the EPA and the State of Vermont. Tier II facilities can include gas stations, solid waste facilities, DPW garages, and water/wastewater treatment plants. These facilities can be a risk to area residents if a fire were to occur. Annually, these

facilities are required to report their hazardous materials quantities to the state, local fire department, and to LEPC#12.

Risk and Vulnerability Assessment. As reported in the 2008 Hartford Annex and 2014 HMP, within 1,000 feet of the railroad tracks, Routes 4 and 5, and Interstates 89 and 91 there are 2,442 residences and 357 commercial and industrial buildings, including three critical facilities:

- VA Medical Center
- Three schools
- Hartford Police/Fire Station

Staff at the White River School in particular expressed concern about potential hazardous material spills, given how close the rail line is to the school. The Hartford Superintendent of Schools agreed that a community exercise around a chemical spill should be conducted.

At community meetings, New England Central was given high marks for running a good operation – it was also noted that rails, crossings, and signals have recently been improved. That said, there was concern that rail lines continued to stage tankers in White River Junction near populated buildings and the school. The Upper Valley Food Co-op, an important community gathering place, is also located near sided rail cars, some of which may be hauling propane and other hazardous materials.

VA Hospital staff also expressed concern regarding accidental chemical releases, given their proximity to the intersection of

two interstate highways and the rail line. For past training exercises, they have relied on use of the Hartford Fire Department's decontamination unit.



Wildfire West Hartford, 2010

Photo: Hartford FD

FIRE HAZARDS

Description. The Hartford Fire Department regularly responds to both structural and brush fires; of the two, structural fires are more of a concern given the potential loss, damage, injury, and fatalities that that may result.



Hartford Round House Fire, 2008

Photo: Hartford FD

Historically (from 2010 through 2019), a total of 79 brush fires were reported, averaging 9 each year. Main causes reported were typically human caused in the spring when people are cleaning their yards and as a result of downed powerlines. Loss from brush fires have historically been low. Small brush fires occur on a regular basis – including the 2010 fire in West Hartford shown below – but result in little if any real damage.

Risk and Vulnerability Assessment. Over the years, structural fires have destroyed many of Hartford’s historic buildings, including two hotels located at the present site of the Hotel Coolidge. Several of the town’s first industrial and railroad buildings in White River Junction also were lost in a large fire in 1860. In 2017, a major fire destroyed several buildings in the Harrison Avenue Industrial Park.

Given the concentration of population, higher density residential development and large wooden structures in Hartford’s historic villages, the Hartford Fire Department performed a risk analysis and identified major structural fire risks by geographic area in its emergency operations plan. Buildings posing a special fire risk identified by the department include:

White River Junction/Hartford Village/Wilder

- Hotel Coolidge
- Hartford Village Church
- Harrison Avenue Complex
- Gates-Briggs Building
- Consolidated Communications Building
- Hartford High School
- VA Medical Center
- St. Anthony’s Church
- Hotel Vermonter
- Brookside Nursing Home

Route 14

- CBQ Auto
- Gray Auto Sales

Quechee

- Simon Pearce
- Condominiums
- Quechee Inn at Marshland Farm
- Quechee Church
- Quechee Club (including base lodge)
- Quechee Fells Barn

Route 5 South

- Pinecrest Motel
- Young's (propane, gasoline, fuel distribution center)
- Landfill – construction and demolition disposal area

In addition to these top hazards, the Hartford Selectboard wanted discussion in this Plan pertaining to other hazards and their effect on the town.

TOPICS OF INTEREST

Resilience

Resilience is the ability to withstand a hazard, and bounce back, preferably to a state that is less likely to suffer as much from that same hazard in the future. Mitigation actions are integral to resilience, as they lessen the likelihood of the hazard having as serious a consequence in the future. These are mainly structural measures, such as upsizing culverts. Other forms of resilience include creating better community communication and cohesion so that the social and economic effects of a disaster do not widen divisions but rather are met with a stronger community response. Hartford has a standing committee dedicated to this aspect of emergency management and increased internal and external communication and coordination so that as disasters arise there is less likelihood of friction and more of working together to solve problems.

Cost-Benefit

Mitigation actions are tested through a rough cost-benefit examination, or a more formal one. Cost-benefit analyses look at

the costs of the fix and compare it to the cost of the damage. To get some FEMA mitigation funds, a project has to have more current value than its cost. The idea is that fixes that are cheaper to do than suffer repeated repairs are cost beneficial. Some projects just make common sense, but others require having some knowledge of damage frequency and the cost of repairs, versus a more robust mitigation action and its costs and savings over time. Typically, frequent small damages create a better return on mitigation than rare expensive ones, largely due to the concept of 'net-present value' which attempts to reduce all the distance future savings to a current value to weigh against mitigation costs now. Hazards that are unlikely have those future benefits discounted heavily. This is a reason that keeping track of even minor, but repeated damage is important.

Formal cost-benefits have other flaws in that they do not consider the social and personal costs of damage, as well as possible secondary costs. A culvert that washes out may be looked at as a minor cost, but if that washout isolated a senior or created an impediment to emergency response those costs are not quantified. A flood that damages a house is counted in terms of cost, but the loss of a feeling of safety or family photos is not counted. For these reasons, it is important to track hard costs, but to also factor in community values when looking at mitigation actions.

Terrorism/Civil Hazards

Terrorism is not simply some threatened or actual attack; it is one that is meant to use violence for political purposes or social

change. Civil hazards are less intentional and include riots and other unrest that may not be organized and generally just include criminal mischief.

Economic Disruption/Shortages

Natural hazards can create conditions that lead to this hazard, such as a massive blizzard that makes it hard to bring in food and fuel, but this hazard can also have human causes from simply a stock market crash or a failure in a supply chain. The most pressing issue of this hazard would be loss of local income or critical supplies. So, either people do not have money for food and other necessities, or the necessities are just not available. The main area that this would be of concern is lack of food. As we have seen with the recent pandemic, the virus is not causing a food shortage directly, but rather massive unemployment has created lack of access to food as incomes are slashed, as well as to staffing food production facilities. The same result can happen from other causes, and so local systems that both grow and process food are good ways to weather such disruptions. This cannot simply be done in one town, but Hartford and other nearby towns do have working farms and small food companies. Hartford also has good organizational partners to identify those in need and distribute food.

Cybersecurity

Cyberthreats are illicit use of computer hardware and software to create havoc, extort money, or to achieve political ends as a form of terrorism. Any computer that is connected to outside networks, via the internet or through storage devices is at risk

from cyberattack. Of particular concern for Hartford are attacks on critical automated systems that run operations, such as waste treatment or water supply, where these operations could be shut down or altered in dangerous ways. Other forms of attack could be seeking money, from as simple as a hack to scam the town to pay funds, to more sophisticated attacks that would gain access to bank accounts, and finally ransomware attacks that lock up access to town data until a ransom is paid. Cyberattacks can also seek to steal critical data, but the town is not a repository of much data that would be of value. Other attacks might just hack the town website or intrude into virtual meetings for sport.

In an area that is continuously evolving, Hartford is constantly taking steps to deter cyberthreats through virus protection on its computers, training for staff on safe internet etiquette and employing best practices. Some of the techniques include end user training, regular network scans, establishing secure remote connections, creating a password policy, and installing anti-virus defenses. Hartford has a full-time dedicated staff person town-wide, and trained staff in the Police and Fire Departments. Additional expertise is contracted out when needed.

School Emergencies

Schools are highly valued places as they are major community investments, have large social value, and where our children are. Schools can be impacted by a variety of emergencies that range from minor common ones, such as chemical accidents,

fight, or weather events to larger ones such as structural failure or school shootings. Though the public has a high concern about serious school incidents, they are generally rare. However, due to their potential impact, their lack of likelihood is offset some.

VI. MITIGATION PROGRAM

Mitigation can be at the town level or the individual level. In the resident survey, respondents let the planning team know what mitigation actions they have undertaken at their homes, and also reason why they have not taken mitigation actions.

- Some of the top actions that residents have undertaken include purchasing homeowners/renter's insurance, removing dead/dying trees or vegetation, and installing alternative power, heat, and/or water supplies.
- The top reason that mitigation actions were not undertaken was cost (55%).

GOALS AND POLICIES

The 2008 Hartford Annex to the Two Rivers-Ottawaquechee Regional Pre-Disaster Mitigation (PDM) Plan was a simple eight-page plan that referenced several regional goals that are still relevant to this current HMP:

- Reduce the loss of life and injury resulting from all hazards.

- Lessen financial losses and property damage incurred by municipalities, businesses, and private citizens due to disasters.
- The impacts of hazards should be first avoided, then reduced where they cannot be reasonably avoided. For flooding and riverine erosion, this can best be achieved by precluding development from hazard areas, and where development exists through property buyouts or flood protection sympathetic to the natural and human resources of the area.
- The connections between land use, development siting, drainage systems, building standards, and road design and maintenance and the effects of disasters on the Region should be recognized and incorporated into policy so that there is no adverse impact (increased hazard) from development.
- Mitigation actions should be part of larger, systematic efforts at disaster reduction based on the highest threats. Flooding should be addressed on a watershed scale. Structural fire and technological hazards should be lessened through statewide safety education and code compliance.

Table 6.1 describes the implementation status of the 2008 plan and the 2014 plan. Current hazard mitigation priorities for Hartford remain very similar, although details on needs and priorities were sharpened by the severe erosive flooding impacts experienced during Tropical Storm Irene and the community planning process that led to the 2014 Hazard

Mitigation Plan. The list of current recommended implementation strategies under “Flooding and Erosion” in Table 6.2 for this plan grew substantially due to that learning process. Landslides, included as a priority in 2008, were removed from the top priority list in the 2014 plan due to work having been completed to address the earlier concern.

Over the last several years, the TRORC regional plan also has been updated to include language to support local mitigation. Through a post-Irene filter, it provides a framework for a strong regional effort to reduce impacts from future disaster events, primarily through sound land use and proper transportation infrastructure.

The 2019 Hartford Town Plan also contains a number of statements, objectives and strategies that support local hazard mitigation planning and implementation, including:

Avoiding development of steep slopes

- Continuing shoreline protection regulations in order to protect riparian areas.
- Better protecting town wetlands.
- Designing drainage systems and regulating development to lessen runoff into road drainage and existing town surface waters.

Finally, the state of Vermont recently established additional state planning goals (under 24 V.S.A. § 4302) to encourage planning for flood resilience:

- New development in identified flood hazard, fluvial erosion, and river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.
- The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.
- Flood emergency preparedness and response planning should be encouraged.

Amendments to state planning statutes since the previous HMP was adopted require the inclusion of a new flood resiliency element in updated town plans after July 2014. This requirement may be met by FEMA-approved hazard mitigation plans that meet these requirements, which may be incorporated by reference in the town plan.

It should also be noted that a decade of public outreach and education was necessary for the town to enact a thirty-foot setback and buffer requirement on streams and ponds, and a 100-foot setback and buffer along riverbanks, in its land use regulations, as applied to new development. The Irene experience raised much broader public awareness by clearly demonstrating the stormwater storage role of floodplains – including town recreational lands – and the need for vegetated buffers. Treed riparian areas in town parks that were damaged in Irene have since been re-planted and will be maintained.

EXISTING PROGRAMS

The Town of Hartford participates in the National Flood Insurance Program. Flood Insurance Rate Maps were first developed on July 2, 1979 and updated February 17, 1989 and again on September 28, 2007. The Town first adopted flood hazard area regulations on June 8, 1979. The bylaw was updated on September 18, 2007. In 2006, Hartford adopted a zoning bylaw amendment, "Protection of Surface Waters." The zoning bylaw established measures to protect riparian areas and instituted a setback for excavations and the placement of structures within 100' of rivers and within 30' of other surface waters.



**Hartford Town Hall
(in 100-Year Floodplain)**

The Town of Hartford also has Zoning Regulations, Subdivision Regulations, a Transportation Ordinance, an Emergency Management Ordinance, a Hazardous Materials Ordinance and Department of Public Works Specifications. The Hartford Fire Department's Fire Prevention Division, under contract with Vermont Division of Fire Safety, issues construction permits for most public buildings under state-adopted fire codes.

Following the Irene Flood, Hartford participated in the Hazard Mitigation Grant Program to buyout properties badly damaged by Tropical Storm Irene. A total of eight properties

were acquired and one through another funding source. Hartford also received hazard mitigation funds to elevate wastewater pump stations out of the 100-year flood zone. This work was completed in 2013.

The Town of Hartford Department of Planning and Development Services has been responsible for coordinating the update of the Town's Hazard Mitigation Plan. The impact of Irene and the resulting town actions resulted in a much more comprehensive mitigation plan and recommended strategies and actions in the 2014 Plan which continue to be relevant today.

TABLE 6.1 STATUS: 2014 HMP IMPLEMENTATION PROGRAM

2014 MITIGATION ACTION	2021 IMPLEMENTATION STATUS
ALL HAZARDS/EMP Develop and implement a multi-hazard public awareness program. Monitor, review and prepare annual updates to maintain active Town Hazard Mitigation Program.	In 2015, Resilient Hartford (RH), a community resilience org. was formed. RH disseminates info about hazards including VEM Family Emergency Preparedness, VT Alert & 211. RH has hosted dozens of workshops & worked closely with Hartford Fire Dept. VEM & other organizations. Resilient Hartford publishes an annual update in the Hartford Town Report.
Consult with partners such as the Two Rivers-Ottawaquechee Regional Commission, White River Partnership, neighboring towns, and state officials.	Town & Resilient Hartford are working closely with TRORC on the current H.M. Plan update. Also working with VEM, U.V. Strong, CRO Vermont, Bugbee Senior Center and Antioch University New England.
Integrate hazard mitigation into local decision-making.	The Town has integrated the H.M. Plan into the Town Plan (2014) & added a Flood Resilience chapter into the Town Plan (2019). Also included in Subdivision Regulations (2016).
Analyze and identify options to mitigate issues regarding extended interruptions in food supply, power, fuel, transportation, and communications networks.	Resilient Hartford (RH) has sponsored many workshops on these topics through the 2016 and 2017 Hartford Resilience Week events and through many workshops held in 2018 and 2019.
FLOODING AND EROSION Elevate West Hartford Library as part of the repair and reconstruction of the building following the 2011 Irene Flood.	This was completed in the library renovations.
Continue the Hazard Mitigation Grant Buyout program for properties substantially damaged during the 2011 Irene Flood.	Completed, a total of 8 properties were acquired through the HMG Program.
Reduce exposure and risk within known flood hazard areas through changes in the Town Plan and establishment of policies and recommendations, especially for critical facilities and infrastructure, and as required by new State law.	In 2019, the Natural Resources Chapter of the Town Plan was updated to encourage the protection of these natural resources. In addition, a Flood Resilience Chapter was added to the Town Plan. The Town also has implemented a Laserfiche storage of town records and elevated town pump stations.

<p><u>HAZMAT</u></p> <p>Conduct an emergency response exercise every two years with the Railroad companies, VTrans, and fuel dealers.</p>	<p>Staff participated in a Rail Safety Program in 2018-2019, no exercise scheduled.</p>
<p><u>SEVERE WIND</u></p> <p>As subdivision and site development review applications come before the Planning Commission, evaluate the feasibility of undergrounding utilities.</p> <p><u>SEVERE WINTER WEATHER</u></p> <p>Continue to insulate public buildings and facilities to provide shelter during extreme weather events.</p> <p>Determine if sufficient interest and resources exist to organize community-based outreach, assistance, and shelters for vulnerable residents during extended freezing temperatures and power outages.</p> <p>Identify options and resources needed to develop a public awareness program regarding severe winter storms in coordination with Mitigation Action A.1.1.</p> <p><u>FIRE HAZARDS</u></p> <p>Provide educational materials and outreach to residents regarding benefits of residential fire sprinklers.</p>	<p>Subdivision Regulations update (2016) requires underground utilities.</p>
	<p>Renovations were completed to the Town Hall, a schedule was developed to implement energy audit recommendations for Public Works Building, renovations were completed for the middle school, and audits were completed of the Public Safety Building and Bugbee Senior Center in November, 2015.</p>
	<p>Currently only utilizing with the LEMP.</p>
	<p>Checklist exists as the LEMP is filed annually.</p>
	<p>The program exists, but outreach has not increased.</p>

Mitigate impact of flooding in riverbanks, wetlands, riparian buffers, farm, forest and other open land through better management and protection of sensitive natural resources in and around these areas.	In 2019, the Natural Resources Chapter of the Town Plan was updated to encourage the protection of these natural resources. In addition, a Flood Resilience Chapter was added to the Town Plan.
Update stormwater management, sediment, and erosion control regulations to comprehensively address fluvial and other erosion, steep slopes, and stream buffers.	In 2016, the Hartford Subdivision Regulations were updated to address these issues.
Regularly inspect town bridges and culverts to determine if adequate funds are in the Town budget for maintenance and upgrades to meet required standards.	The Town regularly inspects bridges and culverts and has budgeted funds for maintenance and upgrades.
Analyze what is required to organize and promote activities to increase local flood risk awareness. Identify options/strategies and consider implementation.	Resilient Hartford & Hartford Conservation Commission have hosted events and provided educational materials to the public on flood risk.
Analyze what is required to develop a program to promote retrofitting of historic properties within flood hazard areas and determine if the Town should proceed.	Since the Irene Flood, the Town has retrofitted two historic properties (Town Hall & W. Hartford Library) within the flood hazard area.
Investigate developing a town-wide program to collect, map and address accurate fluvial geomorphic data for the river corridors.	The State of Vermont has completed.
Identify interest and available resources to establish an annual "Clean our culverts" day during a "Hazards Awareness Week", or fold into Green Up Day, to encourage residents to maintain their culverts.	RH considered this for the 2018 Community Day activities but decided to postpone until it could be coordinated with DPW.
Investigate adopting a "zero discharge policy" for stormwater in subdivision and site design.	Completed in the update of the Subdivision Regulations in 2016.

PLAN MITIGATION IMPLEMENTATION STRATEGIES

A compendium of possible mitigation measures was provided for feedback during public meetings in the 2014 HMP. During these meetings, the Planning and Development Department staff developed a scoring system that related potential hazards to be addressed, and the town's administrative, technical, and fiscal resources.

Priority 1 – Actionable items to be initiated or maintained during the next five years that have a large area-wide benefit for little cost, address urgent post-Irene need for individuals or key community infrastructure, and/or anticipate availability of funding and resources.

Priority 2 – Items needing further analysis during the next five years to determine the best course of action based on cost versus probable benefit. Action may begin based on analyses.

Priority 3 – Items important to the town for consideration in the future but will not be acted on in the next five years.

Using this approach, Planning and Development Department staff and Resilient Hartford members identified the top implementation strategies and actions to be taken within the next five years. The Selectboard then reviewed the priorities, taking into consideration the costs and benefits of various strategies, and technical feasibilities. They settled on what the Town could commit to over the next five years, given current and anticipated department workloads and budget.

The resulting breakout of mitigation tasks by category for the Town's 2021-2026 implementation program – including those items in Priority 3 which are not likely to be addressed in the next five years but should remain on the list to continue active consideration. These are displayed in Table 6.2.

Table 6.2 allocates responsibilities, program funding resources/costs and time period by Mitigation Action. The majority of the Mitigation Actions are further broken out into major steps (a, b, c.), with benchmark dates by when each step will be completed. The few Action items without steps were determined to be one major task. The "When (Timeline)" column provides the calendar year by which the task will be completed and takes into consideration the workflow demands of the Mitigation Plan and other Town responsibilities unrelated to the Mitigation Plan.

The "Funding Resources" column addresses the funding source and estimated cost of implementing (which was part of the town's analysis in prioritizing tasks for the next five years), represented by Low (under \$5,000), Medium (\$5,000 - \$10,000) and High (over \$10,000). The Hartford Department of Planning and Development Services will have primary responsibility for overseeing, monitoring, and providing updates on the Town's HMP/mitigation program, and will involve other Town Departments and outside organizations as noted in the Table.

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
A. All Hazards				
<i>Priority 1 - Actionable items to be initiated or maintained during the next five years</i>				
A.1.1 Develop and implement a multi-hazard public awareness program by compiling “hazard vulnerability checklists” for local residents and businesses, and information on preparing home emergency kits. Post on the town’s website, in annual reports and at town libraries.	Planning & Development Department and Public Safety Department	Done, revamp in 2021-2022	Town Budget - Cost Low	Coordinate with Small Business Development, Distribution via Town website, Newsletter, Town Reports, libraries, Senior Center, churches, schools, Public Access TV
A.1.2 Monitor, review and prepare annual reports on actions to maintain active Town Hazard Mitigation Program	Planning & Development Department	Annual status reports (12 months)	Town Budget - Cost Low	Selectboard, Town Manager and Town Department

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
A.1.3 Consult with partners such as the Two Rivers-Ottawaquechee Regional Commission, White River Partnership, neighboring towns, and state officials to identify any changes in hazard data/revise risk assessment, most at-risk critical facilities, and potential mitigation techniques.	Planning & Development Department	2020-2021	Town Budget - Cost Low	Other Town Departments, Planning Commission and Resilient Committee
A.1.4 Integrate hazard mitigation into local decision-making, Town Plan, and when adopting Town policies and land use regulations.	Planning & Development Department and Planning Commission	2022-2023	In Annual Work Program - Cost Low	Incorporate recommendations into town plan, bylaw and policy updates when revising
<i>PRIORITY 2- Items needing further analysis during the next five years to determine the best course of action.</i>				

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
<p>A.2.1 Analyze and identify options to mitigate issues regarding extended interruptions in food supply, power, fuel, transportation, and communications networks;</p> <p>a. Determine what issues are within local control; and what are regional conversations.</p> <p>b. Investigate public and non-public partner involvement.</p>	<p>Planning & Development Department, Emergency Management Director</p>	<p>a. 2021-2022</p> <p>b. 2022-2023</p>	<p>In Annual Work Program of both Departments</p> <p>Cost a. Medium</p> <p>b. Low</p>	<p>Via broad public process & Two Rivers-Ottauquechee Regional Commission</p>
<p>A.2.2 Evaluate the financial impact of establishing a local reserve fund within the Capital Improvements Program for future mitigation projects and identify matching funds for grants.</p>	<p>Planning & Development Department, Public Works</p>	<p>2021-2022</p>	<p>Planning & Development and Public Works Staff</p> <p>Cost Low</p>	<p>Town Manager, Selectboard, Public Works & Planning Commission</p>
B. Flooding and Erosion				

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
<i>Priority 1 - Actionable items to be initiated or maintained during the next five years</i>				
<p>B.1.1 Continue the Hazard Mitigation Grant Buyout program for properties substantially damaged during the 2011 Irene Flood.</p> <p>a. Apply for funds to purchase other properties. If obtained complete purchase, site restoration.</p>	Planning & Development Department	2021-2025	<p>HMGP & CDBG Funds</p> <p>Cost High</p>	Town Manager & Selectboard
B.1.2 Mitigate damage from future flood and erosion damage through changes in the Hartford Flood Hazard Area Regulations:	Planning & Development Department	a. 2021-2022	Agency of Natural Resources Rivers Management and Two Rivers-Ottawaquechee Regional Commission	Planning Commission, Selectboard

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
a. Complete draft revision to clarify existing requirements for all development in known flood hazard areas, such as tying down propane tanks in flood hazard areas, and elevation.				
<p>B.1.3 Reduce exposure and risk within known flood hazard areas through changes in the Town Plan and establishment of policies and recommendations, especially for critical facilities and infrastructure, and as required by new State law.</p> <p>a. Finalize policies and recommendations and begin implementation.</p>	Planning & Development Department	2022-2023	<p>Annual Work Program</p> <p>Cost:</p> <p>a. Medium</p>	Public Works, Planning Commission, Town Manager & Selectboard

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
<p>B.1.6 Mitigate impact of flooding in riverbanks, wetlands, riparian buffers, farm, forest and other open land through better management and protection of sensitive natural resources in and around these areas.</p> <p>a. Assemble working group and identify sensitive areas and opportunities for protection.</p> <p>b. Develop draft policies and recommendations.</p> <p>c. Finalize policies/recommendations and initiate implementation.</p>	Conservation Commission with Planning & Development Department	<p>a. 2022-2024 (9-12 months)</p> <p>b. 2023-2024 (9-12 months)</p> <p>c. 2024-2025 (9-12 months)</p>	<p>Annual Work Program</p> <p>Cost:</p> <p>a. Low</p> <p>b. Medium</p> <p>c. Medium</p>	White River Partnership, Vermont River Conservancy, Upper Valley Land Trust, and other partners

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
B.1.7 Regularly inspect town bridges and culverts to determine if adequate funds are in the Town budget for maintenance and upgrades to meet required standards.	Public Works Department	Annually (6-9 months)	Annual Work Program Cost Low	Selectboard
<p>B.1.8 Inventory and track repetitive loss properties, including repair costs, photographs, and high-water level.</p> <p>a. Update FEMA database started with Tropical Storm Irene, with most current information for public and private properties.</p> <p>b. Solicit information from property owners to document damage from other flood events.</p>	Planning & Development, Parks & Recreation, Public Works Dept.	<p>a. 2021-2022 (9-12 months)</p> <p>b. following events (9-12 months)</p>	<p>Annual Work Program</p> <p>Cost:</p> <p>a. Medium</p> <p>b. Low</p>	Vermont Emergency Management, USACOE, private owners
<i>PRIORITY 2- Items needing further analysis during the next five years to determine the best course of action.</i>				

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
B.2.1 Review criteria and responsibilities for participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS) and determine if appropriate for the Town.	Planning & Development Department	2021-2022	Annual Work Program/Cost Low	Town Manager, Selectboard, TRORC, VLCT and other CRS communities
B.2.2 Investigate the benefits and needed resources to develop and implement stormwater and erosion control management plans for public buildings.	Department of Public Works & Planning & Development Department	2022-2023	Annual Work Program Cost Medium	Selectboard and School Board
B.2.3 Investigate developing a town-wide program to collect, map and address accurate fluvial geomorphic data for the river corridors.	Planning & Development Department	2022-2024	Annual Work Program Cost High	Vermont Agency of Natural Resources, White River Partnership and Two Rivers-Ottawaquechee Regional Commission

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
B.2.4 Identify interest and available resources to establish an annual “Clean our culverts” day during a “Hazards Awareness Week”, or fold into Green Up Day, to encourage residents to maintain their culverts.	Department of Public Works & Planning & Development Department	2021-2022	Annual Work Program Cost Low	Hartford Resilience Committee
C. Hazardous Materials Transportation Accidents (Chemicals)				
<i>Priority 1 - Actionable items to be initiated or maintained during the next five years</i>				
C.1.1 Conduct an emergency response exercise with the Railroad companies, VTrans and fuel dealers	Public Safety Department	2022-2023	Annual Work Program, VTrans, VT DEC and VEM Cost Low	VTrans, Rail Companies
<i>PRIORITY 2- Items needing further analysis during the next five years to determine the best course of action.</i>				

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
C.2.1 Identify options and needed resources to disseminate public information on how the Town will respond, where or how residents can obtain information, and what residents should do in such an emergency	Public Safety Department	2021-2022 (9-12 months)	Annual Work Program Cost Low	Upper Valley Strong, Community Leaders
D. Severe Wind				
<i>Priority 1 - Actionable items to be initiated or maintained during the next five years</i>				
D.1.1 As subdivision and site development review applications come before the Planning Commission, evaluate the feasibility of undergrounding utilities.	Planning & Dev. Dept. & Planning Commission	Regularly reviewed during application submittal process	Annual Work Program Cost Low	Utility Companies, Two Rivers-Ottawa Regional Commission
D.1.2 Work with utility companies to identify options to harden lines/upgrade utility poles.	Planning & Development Department,	a. 2021-2022	Annual Work Program	Department of Public Works, GMP

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
<p>a. Assemble group of utility representatives & town agencies.</p> <p>b. Identify options/recommendations for improving grid resilience.</p> <p>c. Begin implementation of recommendations.</p>	Planning Commission	<p>(2-3 months)</p> <p>b. 2022-2023</p> <p>(9-12 months)</p> <p>c. 2023-2024 (6-12 months)</p>	<p>Cost:</p> <p>a. Low</p> <p>b. Medium</p> <p>c. Medium</p>	
<p>D.1.3 Develop a public awareness campaign to encourage protecting and securing residential properties from severe wind events in coordination with Mitigation Action A.1.1.</p> <p>a. Develop vulnerability checklist and distribution of information.</p>	Public Safety Department	<p>a. 2021-2023</p> <p>(6-12 months)</p>	<p>Town Budget</p> <p>Cost:</p>	<p>Distribution via Town website, Newsletter, Town Reports, libraries, Senior Center, churches, schools, Public Access TV</p>

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
b. Identify other information needed regarding emergency preparedness and emergency services and develop implementation schedule.		b. 2022-2023 (6-12 months)	a. Low b. Low	
E. Severe Winter Weather				
<i>Priority 1 - Actionable items to be initiated or maintained during the next five years</i>				
E.1.1 Continue to insulate public buildings and facilities to provide shelter during extreme weather events. a. Complete energy audit of other town buildings and create implementation schedule.	Energy Commission	2021-2023	Town Budget Cost Medium	Town Manager, Selectboard, Efficiency Vermont, Energy Coordinator
<i>PRIORITY 2- Items needing further analysis during the next five years to determine the best course of action.</i>				
E.2.1		a. 2022-2023	Work Program	

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
a. Determine the need to conduct a snow load capacity analysis for public buildings given changing weather patterns.	Public Safety Department	(9-12 months)	Cost	Selectboard, VT Dept of Labor and Industry
b. Determine the Town’s role in a community warning process for buildings with flat roofs.		b. 2022-2023	a. Low	
		(3-6 months)	b. Low	
F. Fire Hazards				
Priority 1 - Actionable items to be initiated or maintained during the next five years				
F.1.1 Provide educational materials and outreach to residents regarding benefits of residential fire sprinklers.	Public Safety Department	a. 2021-2022	Town Budget	Distribution via Town website, Newsletter, Town Reports, libraries, Senior Center, churches, schools, Public Access TV
a. Design outreach program		(3-6 months)	Cost:	
b. Implement		b. 2022-2025 (3-5 years)	a. Low b. Medium	
G. Pandemic				

Table 6.2 Hartford Hazard Mitigation Program: 2021-2026

Mitigation Action	Who (Leadership)	By When (Timeframe)	How (Funding, Resources & Cost)	Implementation (via Existing Programs, Organizations)
<i>Priority 1 - Actionable items to be initiated or maintained during the next five years</i>				
G.1.1 Create a town working group to identify food and shelter needs.	UV Strong, Public Safety Department, Upper Valley Haven	2021-2022 (3-6 months)	Town Budget Cost: Low	
G.1.2 Create a stockpile of PPE for town employees.	Public Safety Department	2021-2022	Town Budget Cost: Medium	Strategically purchase PPE for Hartford town employees to mitigate against potential shortages in future pandemic surges.
G.1.3 Protect public health by mitigation actions.	Health Officer, Public Safety Department, Selectboard	Ongoing	Town Budget Cost: Unknown	Work with VT Department of Health and VEM to take needed actions to reduce disease transmission and increase case tracking.

The following Priority 3 items are important to the Town for consideration in the future, but will not be acted on in the next five years:

All Hazards

1. Fund a dedicated staff position for hazard mitigation and risk assessment at the town or regional level that can provide services to the Town.

Fire Hazards

1. Identify areas of town with poor water access and install and maintain dry hydrants in strategic locations around town.

Extreme Heat

1. Identify cooling shelters and create a public information campaign to use when temperature thresholds are met.

Landslides

1. Assess known slide areas for movement and stabilize potential landslides/possible residential buyouts on Jericho Road, Country Lane, and Pomfret Road.

APPENDICES

- A. Hartford Capability Assessment Worksheet
- B. Community Assets Worksheet
- C. Hazards Rating Worksheet
- D. Summary of Public Survey
- E. Maps
- F. Glossary of Acronyms

Appendix A. Hartford Capability Assessment				
	Yes/No	Notes [Names, adoption dates, description, etc.]	Resources : Staffing & Funding	Ability to Expand/Improve on
Plans				
	Yes	Adopted in 1959 and updated in 1965, 1974, 1980, 1987, 1993, 1998, 2003, 2007, 2012, 2014 & 2019. Update required every 8 years.	Planning staff with other town dept. & Planning Commission. In Planning budget.	Will be updated sooner than 8 years to address important issues facing Hartford.
	Yes	Current Year Updated annually; six-year updated in 2020. Reflective of Municipal Plan.	Planning Dept. & other town departments. First year included in annual budgets.	
	Yes	Adopted in 2008, updated in 2014 & 2021	Planning staff & staff & another town departments & Resilient Hartford. Funded in Planning Dept. budget & grants.	Integrate <i>Resilient Hartford's</i> annual review of accomplishments with annual education program.
	Yes	Updated 2020	Fire Dept. lead staff and budget with all other departments part of the Emergency Management Team.	Continue annual mock EOC trainings across town departments, region, and state.
	No			
Regulations				
	Yes	Adopted in 1962 and amended in 1975, 1978,	Planning staff & other town departments,	Zoning Regulations periodically updated

Appendix A. Hartford Capability Assessment				
	Yes/No	Notes [Names, adoption dates, description, etc.]	Resources : Staffing & Funding	Ability to Expand/Improve on
Subdivision Regulations Flood Hazard Area Regulations Fluvial Erosion Hazard Area Regulations Emergency Management Ordinance Stormwater Management Regulations		1981, 1982, 1984, 1988, 1989, 1994, 1995, 1997, 1998, 2001, 2002, 2004, 2005, 2006, 2007, 2008, 2014 & 2016.	Planning Commission & Conservation Commission. In Planning Dept. budget.	to address issues important to the community. The Town expects to make changes in the next 2 years.
	Yes	Adopted in 1970 and amended in 1972, 1975, 1984, 1987, and 2016.	Planning staff & DPW, Planning Commission & Conservation Commission. In Planning Dept. budget.	Periodically reviewed for needed changes.
	Yes	Adopted in 1979 and amended 2007	Planning staff & DPW, Planning Commission & Conservation Commission. In Planning Dept. budget.	Plans are underway to update the FHAR in the next two years to be more effective limiting development in the floodplain.
	No			
	Yes	Updated in 2009	Fire Dept. staff & budget.	Review and revise as needed.
	Yes	Standards in Zoning Regulations & Subdivision Regulations	Planning staff & DPW, Planning Commission & Conservation Commission. In Planning Dept. budget.	The Town is considering a separate Stormwater Management Bylaw.

Appendix A. Hartford Capability Assessment				
	Yes/No	Notes [Names, adoption dates, description, etc.]	Resources : Staffing & Funding	Ability to Expand/Improve on
Highway Ordinance/Standards	Yes	Adopted 1990 and updated in 2012	DPW staff & budget with Planning Dept. assistance.	Review and revise as needed.
Fire Permits	Yes	Permit Process in place	Fire Dept. staff & budget.	Review and revise as needed.
Public Works Ordinance/Standards	Yes	Adopted 2012	DPW staff & budget with Planning Dept. assistance.	Review and revise as needed.
Building Code	No	Town administers State Fire Code for public buildings.	Fire Dept staff and budget	
Programs				
Open Space/Conservation Fund	Yes	Established in 1993 to provide funding for the conservation of land with important natural resources.	Planning Dept. staff with Conservation Commission input & Selectboard approval. Planning budget & grants	Continue pursuing opportunities on public and private lands.
Right-of-way maintenance	Yes	Ongoing	DPW staff & budget	
Administration				
	Yes/No	Notes [Names, adoption dates, description, etc.]		
Fire Department	Yes	Full service dept with paid staff	Fire Dept. & budget.	On-going review
Rescue Services	Yes	Full service dept with paid staff	Fire Dept. & budget.	On-going review
Policing Services	Yes	Full service dept with paid staff	Police Dept. & budget.	On-going review

Appendix A. Hartford Capability Assessment				
	Yes/No	Notes [Names, adoption dates, description, etc.]	Resources : Staffing & Funding	Ability to Expand/Improve on
Emergency Management Services	Yes	Part of the Town's Emergency Management Team	Fire Dept. & budget.	On-going review
Mutual Aid Agreements	Yes	Member agreement with 35 towns	Fire & Police Department & budgets.	On-going review
Planning Commission	Yes	1950s	Planning Staff & budget.	On-going review
Zoning/Development Review Board	Yes	Since 1962	Planning Staff & budget.	On-going review
Mitigation Planning Committee	Yes	2015, Resilient Hartford, a Community Resilience Organization	Planning Staff & budget.	On-going review
Staff				
Emergency Manager	Yes	Town Manager	Coordination with Fire Chief & other department heads.	
Floodplain Administrator (FPA)	Yes	1979, Zoning Administrator	Planning staff & budget.	
Zoning/Code Administrator	Yes	1962	Planning staff & budget.	
Community Planner	Yes	1980s	Planning staff & budget.	
GIS Services	Yes	Early 1990s	Planning budget & Regional Planning Comm.	
Road Foreman/Commissioner	Yes	Assistant Public Works Director	DPW staff & budget.	

Appendix A. Hartford Capability Assessment				
	Yes/No	Notes [Names, adoption dates, description, etc.]	Resources : Staffing & Funding	Ability to Expand/Improve on
Health Officer	Yes		Health Officer budget.	
Fire Officer	Yes		Fire Dept. & budget.	
Public Works Director	Yes		DPW budget.	
Other				
Technical Resources				
E-911	Yes	Region PSAP Center	Fire & Police Departments & budget.	
Warning Systems	Yes	Code Red Mass Notification System	Fire & Police Departments & budget.	
Data, Information	Yes	Town Information Technology staff	Town Departments & budgets.	
Grant Writing	Yes		Planning Dept. staff & budget.	
Hazard Analyses	No		EMD	
Financial Resources				
Property Tax	Yes	Due twice a year	Finance Department	
Reserve Funds	Yes	Included in the annual town budget and CIP		

Appendix B. Hartford Community Assets Worksheet

	Facility	Location	Description/Notes
Critical Facilities			
Public Safety	Hartford Emergency Services Building	812 VA Cutoff Road, White River Junction	
Town Office	Hartford Town Hall	171 Bridge Street, White River Junction	Located within the 100-year flood zone
Town Garage	DPW Facility	173 Airport Road, White River Junction	
Schools	Dothan Brook School	2300 Christian Street, Wilder	
	White River School	102 Pine Street, White River Junction	
	Ottauquechee School	304 Dody Lane, Quechee	
	Hartford High School	37 Highland Avenue, White River Junction	
	Hartford Memorial Middle School	245 Highland Avenue, White River Junction	
	Hartford Area Career Technology Center	1 Gifford Road, White River Junction	
	Regional Alternatives Program	160 Norwich Avenue, Wilder	
	Upper Valley Waldorf School	80 Bluff Road, Quechee	
	Mid-Vermont Christian School	399 West Gilson Avenue, Quechee	
	Mid-Vermont Christian High School	39 West Gilson Avenue, Quechee	
	Potter's House School	1615 Maple Street, Hartford Village	
	Community College of Vermont	145 Billings Farm Road, Wilder	
	Center for Cartoon Studies	92 South Main Street, White River Junction	
	VA Medical Center (Hospital)	163 North Hartland Road, White River Junction	
Medical Facilities			

Appendix B. Hartford Community Assets Worksheet

	Facility	Location	Description/Notes
Water Supply/ Fire	Good Neighbor Health Clinic	70 North Main Street, White River Junction	
	Upper Valley Haven (Homeless Shelter)	713 Hartford Avenue, White River Junction	
	Wilder Well	200 Cranberry Lane, Wilder	
	Quechee Well	367 Lakeland Drive, Quechee	Located within the 100-year flood zone
Wastewater	White River Junction Sewage Treatment Plant	319 Latham Works Lane, White River Junction	Located within the 100-year flood zone
	Quechee Sewage Treatment Plant	142 Izzo Place, Quechee	
Dams	Wilder Dam	351 Wilder Dam Road, Wilder	
	Wright Reservoir Dam	Wright Reservoir Road, White River Junction	
Substations		288 Gillette Street, Wilder	
		2393 Hartford Avenue, Wilder	
		2430 Hartford Avenue, Wilder	
Transmission Lines		Lantern Lane, White River Junction	
		Taftsville to Wilder	
		Wilder to Norwich	
Waste Disposal	Hartford Transfer Station/Recycling Center	2590 North Hartland Road, White River Junction	
	Advance Transit	120 Billings Farm Rd, Wilder	
Transportation	White River Jct Train Station (incl. AMTRAK)	102 Railroad Row	
	Greyhound Bus Station	44 Sykes Avenue	
	VTrans District Operations Office	221 Beswick Drive	

Appendix B. Hartford Community Assets Worksheet

	Facility	Location	Description/Notes
Cultural Facilities			
Historic Districts/ Sites	White River Junction Historic District	Downtown White River Junction	Some buildings in the 100-year flood zone
	Quechee Historic Mill District	Quechee Village	Some buildings in the 100-year flood zone
	Hartford Village Historic District	Hartford Village	
	Wilder Village Historic District	Wilder Village	
	Christian Street Rural Historic District	Wilder	
Historic Districts/ Sites	West Hartford Village Historic District	West Hartford Village	Some buildings in the 100-year flood zone
	Jericho Rural Historic District	Jericho	
	Terraces Historic District	White River Junction	
	Advent Camp Meeting Grounds Historic District	White River Junction	
	Theron Boyd Homestead Historic Site	11 Hillside Road, Quechee	
Libraries	Hartford Town Library	5133 Route 14, West Hartford Village	Located within the 100-year flood zone
	Quechee Library	1957 Quechee Main Street, Quechee	
	Hartford Village Library	1587 Maple Street, Hartford Village	
	Wilder Club and Library	78 Norwich Avenue, Wilder Village	
Parks and	George Ratcliffe Park	75 Latham Works Lane, White River Junction	Located within the 100-year flood zone

Appendix B. Hartford Community Assets Worksheet

	Facility	Location	Description/Notes
Recreational Facilities	Watson Memorial Park	1120 Maple Street, Hartford Village	Located within the 100-year flood zone
	Lyman Point Park	167 Maple Street, White River Junction	Located within the 100-year flood zone
	Dewey's Landing	Quechee Main Street, Quechee	Located within the 100-year flood zone
	Quechee Green Park	70 Village Green Circle, Quechee	Located within the 100-year flood zone
	Erwin Clifford Park	100 Recreation Drive, West Hartford	Located within the 100-year flood zone
	Kilowatt Park North	321 Gillette Street, Wilder	
	Kilowatt Park South	61 Passumpsic Avenue, Wilder	Site of the Wilder Dam
	Frost Park	130 South Street, Wilder Village	
	Meetinghouse Common	520 Center of Town Road, Hartford	
	Maxfield Athletic Fields	120 Lesle Drive, White River Junction	
Parks and Recreational Facilities	Hurricane Forest Wildlife Refuge	270 Wright Reservoir Road, White River Junction	Site of the Wright Reservoir Dam
	Fred Briggs Park	6 South Main Street, White River Junction	
	Veterans Memorial Park	12 Railroad Row, White River Junction	
	Sherman Manning Pool	43 Highland Avenue, White River Junction	
	Wendell Barwood Arena	45 Highland Avenue, White River Junction	
	Maanawaka Conservation Area	2333 Hartford Avenue, Wilder	
	Hartford Town Forest	Reservoir Road, Hartford	
	David Chang Conservation Area	Route 4, Quechee	

Appendix B. Hartford Community Assets Worksheet

	Facility	Location	Description/Notes
Churches	St. Paul's Episcopal Church	749 Hartford Avenue, White River Junction	
	St. Anthony's Catholic Church	41 Church St. White River Junction	
	Valley Bible Church	851 Fairview Terrace, White River Junction	
	United Methodist Church of White River Junction	106 Gates Street, White River Junction	
	Advent Christian Church	150 Advent Lane, White River Junction	
	Greater Hartford United Church of Christ	1721 Maple St. Hartford Village	
	Praise Chapel	1615 Maple Street, Hartford Village	
	Church of Christ	4330 Woodstock Road, Quechee	
	The Quechee Church	1905 Quechee Main Street, Quechee	
	Alodium Church	1450 Route 14, West Hartford	
	Revival Connections	1613 Route 14, West Hartford	
	West Hartford United Church of Christ	5275 Route 14, West Hartford	
	Riverbank Church	259 Holiday Drive, White River Junction	
Cemeteries	Hartford Cemetery	Maple Street, White River Junction	
	South End Cemetery	469 South Main Street, White River Junction	
	Mount Olivet Cemetery	1149 Hartford Avenue, White River Junction	
	Russtown Cemetery	North Hartland Road, White River Junction	
	Christian Street Cemetery	Christian Street, Wilder	
	Center of Town Cemetery	Center of Town	
	Quechee Cemetery	Old Quechee Road, Quechee	
Cemeteries	Simond Cemetery	Old Town Farm Road, Quechee	
	West Hartford Cemetery	Route 14, West Hartford	
	Tucker Cemetery	Route 14, West Hartford	
	Delano Savage Cemetery	Route 14, West Hartford	

Appendix B. Hartford Community Assets Worksheet

	Facility	Location	Description/Notes
Senior Housing	Graystone Apartments	471 Dewitt Drive, White River Junction	
	Village Apartments	151 Gates Street, White River Junction	
	Windsor Hollow Apartments	45 Hollow Drive, Wilder	
	Colodny Apartments	92 South Main Street, White River Junction	
	Valley Terrace Assisted Living	2820 Christian Street, Wilder	
	The Village at White River Junction Assisted Living and Memory Care	Currier Street, White River Junction	
	Chambers Mobile Home Park	Walsh Avenue, White River Junction	
Mobile Home Parks	Merrimac Mobile Home Park	Old River Road, Hartford	
	Olcott Falls Mobile Home Park	Walnut Street, Wilder	
	Tall Timbers Mobile Home Park	Tall Timbers Drive, Quechee	
	Woodside Manor Mobile Home Park	Blake Drive, White River Junction	

Appendix C. Hartford Hazards Rating Worksheet									
Hazard	Rating			Scoring				Community Priority	Information Sources
	Geographic Extent	Probability	Impact	Geographic Extent	Probability	Impact	Total		
NATURAL HAZARDS									
Flooding	Regional	Likely	Major	1	3	4	8	High	FEMA, NOAA, SHELDUS, VANR
Fluvial Erosion	Local	Highly Likely	Moderate	2	4	3	9	High	VANR
Flash Flooding	Local	Highly Likely	Moderate	2	4	3	9	High	NOAA, FEMA, VANR
Ice Jam	Local	Likely	Moderate	2	3	3	8	High	NOAA, USACE CRREL
Hurricane/Tropical Storm	Regional	Likely	Major	1	3	4	8	High	NOAA, SHELDUS, FEMA
Severe Winter Storm	Regional	Highly Likely	Moderate	1	4	3	8	High	NOAA, SHELDUS
Severe Wind	Regional	Highly Likely	Moderate	1	4	3	8	High	VEM, NOAA, FEMA
Drought	Regional	Occasionally	Minor	2	2	2	6	Medium	NOAA, USDA
Hail	Local	Likely	Negligible	2	3	1	6	Medium	NOAA, SHELDUS
Landslide/Rockslide	Local	Likely	Minor	2	3	2	7	Medium	VANR, VEM, VTRANS
Lightning	Local	Highly Likely	Negligible	2	4	1	7	Medium	NOAA, SHELDUS
Pandemic	Regional	Unlikely	Major	2	1	4	7	Medium	VEM, FEMA
Severe Thunderstorm	Regional	Highly Likely	Minor	1	4	2	7	Medium	NOAA, SHELDUS
Brush Fire (natural)	Local	Likely	Negligible	2	4	1	5	Low	Fire Department
Earthquake	Regional	Unlikely	Minor	1	1	2	4	Low	USGS, VANR
Extreme Temperature	Regional	Likely	Negligible	1	3	1	5	Low	NOAA, SHELDUS
Invasive Species	Regional	Likely	Negligible	1	3	1	5	Low	VANR, VEM
Tornado	Local	Unlikely	Minor	2	1	2	5	Low	NOAA, SHELDUS
TECHNICAL HAZARDS									
Drug Epidemic	Regional	Highly Likely	Major	1	4	4	9	High	VANR, VTrans
Structural Fire	Local	Highly Likely	Minor	2	4	2	8	High	Fire Department
Transportation (Spills)	Local	Likely	Moderate	2	3	3	8	High	VEM
Brush Fire (human-caused)	Local	Highly Likely	Negligible	2	4	1	6	Medium	Fire Department

Appendix C. Hartford Hazards Rating Worksheet

Hazard	Rating			Scoring				Community Priority	Information Sources
	Geographic Extent	Probability	Impact	Geographic Extent	Probability	Impact	Total		
Dam Failure	Local	Unlikely	Moderate	2	1	3	6	Medium	VANR, USACE
Hazardous Materials Storage	Local	Likely	Minor	2	3	2	7	Medium	VANR, VEM
Economic Disruption/Shortages	Regional	Occasionally	Moderate	1	2	3	6	Medium	
School Emergencies	Local	Unlikely	Major	2	1	4	7	Medium	
Terrorism/Civil	Regional	Unlikely	Moderate	1	1	3	5	Low	VEM

Hazard Ratings: Scoring*		
Geographic Extent (Extent of area likely to be affected)		
Regional	1	Regional coordination, planning required
Local	2	Local/community planning, response (rated higher for purposes of local mitigation planning)
Probability:		
Unlikely	1	<1% per year (less than one occurrence in one hundred years)
Occasionally	2	1-10% per year (one to ten occurrences in one hundred years)
Likely	3	10-90% per year (10 to 90 occurrences in one hundred years)
Highly Likely	4	90-100% per year (annual occurrence)
Impact:		
Negligible	1	Isolated occurrences of minor property damage, minor disruption of critical facilities and infrastructure, potential for minor injuries
Minor	2	Isolated occurrences of moderate to severe property damage, brief disruption of critical facilities and infrastructure, potential for injuries
Moderate	3	Severe property damage on a neighborhood scale, temporary shutdown of critical facilities, potential for injuries and/or fatalities
Major	4	Severe property damage on a regional scale, shutdown of critical facilities, potential for multiple injuries and/or fatalities
Community Priority:		
High	Total score 8-9 points	
Medium	Total score 6-7 points	
Low	Total score 4-5 points	

Appendix D: Summary of Public Survey

1. How long have you lived in or owned a business or property in Hartford?	2. What is your age?	3. If you live in Hartford, do you own or rent the home you live in?	4. Is your home or business property located in a designated floodplain?	5. (Skip if you answered no to #4) If yes, do you have flood insurance?	6. (Skip if you answered yes to #5) If no, what is the primary reason you do not have flood insurance?	7. Which of the following natural hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	8. Which of the following man-made hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	9. What are the top three hazards that you feel will impact you in the next five years?	10. What actions have you taken to reduce risk for your house / apartment / property / business for potential disasters? (Select all that apply)	11. If you have not taken action to reduce risk, what are the barriers?	12. What cost-effective measures should the town take to lessen damage from disasters (natural and man-made)? (select all that apply)
More than five years	71 and older	Own	No			Flood;High Wind;Severe Weather â€" Winter (ice storm, snow storm, blizzard)		Carona virus, drought, invasive species	Purchased homeowners / renterâ€™s insurance policies;Floodproofing (elevated furnace, water heaters, electric panels);Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location	Cost	Culvert and road upgrades;Improve natural stormwater management
More than five years	18-30	Not applicable	No			Flood;Erosion;Geologic Hazards (landslide, sinkhole);Severe Weather â€" Winter (ice storm, snow storm, blizzard);Invasive species (Emerald Ash Borer, Wooly Adelgid, etc.)	School safety incident	Major changes to the climate, ie warmer temperatures, hotter summers or possibly colder winters. Flooding, landslides and other natural disaster occurrence increasing.	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	71 and older	Own	No			Erosion;Severe Weather â€" Winter (ice storm, snow storm, blizzard)		coronavirus extreme heat erosion due to intense rainfall	Purchased homeowners / renterâ€™s insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	I don't know			Severe Weather â€" Summer (thunderstorm, hail, lightning);Invasive species (Emerald Ash Borer, Wooly Adelgid, etc.)		severe weather, extreme temperatures	Alternative power, heat and/or water supply;weatherized house to reduce need for heating		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Rent	No			Drought;Extreme temperatures: cold or hot;Flood;Erosion;High Wind;Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard)		Grid down from storms or other reason, forest fires, train derailment/truck accident involving hazardous materials	None of the above	Am not the owner of the property (apartment)	Remove structures in areas known to have frequent flooding;Improve natural stormwater management
More than five years	41-50	Own	No			Drought;Extreme temperatures: cold or hot;Flood;Erosion;High Wind;Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard);Wildfire / Brushfire;Invasive species (Emerald Ash Borer, Wooly Adelgid, etc.)	Structural fire;School safety incident	Weather, climate (as mentioned above)	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Alternative power, heat and/or water supply		Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	No			Extreme temperatures: cold or hot;Erosion;High Wind;Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard)		extreme weather event, transportation incident involving hazardous materials, extended power failure	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location	cost and finding a company who would do the work	Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)

1. How long have you lived in or owned a business or property in Hartford?	2. What is your age?	3. If you live in Hartford, do you own or rent the home you live in?	4. Is your home or business property located in a designated floodplain?	5. (Skip if you answered no to #4) If yes, do you have flood insurance?	6. (Skip if you answered yes to #5) If no, what is the primary reason you do not have flood insurance?	7. Which of the following natural hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	8. Which of the following man-made hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	9. What are the top three hazards that you feel will impact you in the next five years?	10. What actions have you taken to reduce risk for your house / apartment / property / business for potential disasters? (Select all that apply)	11. If you have not taken action to reduce risk, what are the barriers?	12. What cost-effective measures should the town take to lessen damage from disasters (natural and man-made)? (select all that apply)
More than five years	61-70	Own	Yes	No	My house is above the flood level per survey and FEMA	Extreme temperatures: cold or hot;Flood;Geologic Hazards (landslide, sinkhole);Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	Structural fire;Train derailment		Purchased homeowners / renterâ€™s insurance policies	Cost	Culvert and road upgrades;Improve natural stormwater management
More than five years	71 and older	Own	No			Flood;Erosion		Disease/epidemic, Power or fuel outage, flooding	Purchased homeowners / renterâ€™s insurance policies;Floodproofing (elevated furnace, water heaters, electric panels);Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply;stockpiled some disaster related supplies		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.);improve town hazard mitigation plan
More than five years	61-70	Own	No			Extreme temperatures: cold or hot;Flood;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard);Fear of pandemic	School safety incident	Breakdown of food system, extreme heat	Alternative power, heat and/or water supply	I donâ€™t really have alternate power just solar panels to avoid fossil fuels which cause climate crisis	Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.);Help communities form neighborhood groups to support each other
More than five years	71 and older	Own	No			Drought;Extreme temperatures: cold or hot;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)		extreme heat, ice storm, high winds	Removed dead / dying trees or vegetation;Alternative power, heat and/or water supply	locating product	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	51-60	Rent	No			Extreme temperatures: cold or hot;Flood;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	Structural fire	Coronavirus, Flooding, High Temperatures	Purchased homeowners / renterâ€™s insurance policies;Purchased a cap for a pipe which is subject to back flow during heavy rains. Also, weatherstripping of doorways.	Both work & home are rental properties. Most expenses would be incurred by the property owner.	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	No			Extreme temperatures: cold or hot;Flood;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)		Flood - High Winds- Pandemic	Purchased homeowners / renterâ€™s insurance policies	Cost	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	71 and older	Own	No			Drought;Extreme temperatures: cold or hot;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning)		I'm not seeing any hazards that will impact me or my family.	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location	There are no barriers.	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	41-50	Own	No			Flood;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	School safety incident	Extreme weather events due to climate change	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Alternative power, heat and/or water supply	Cost	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)

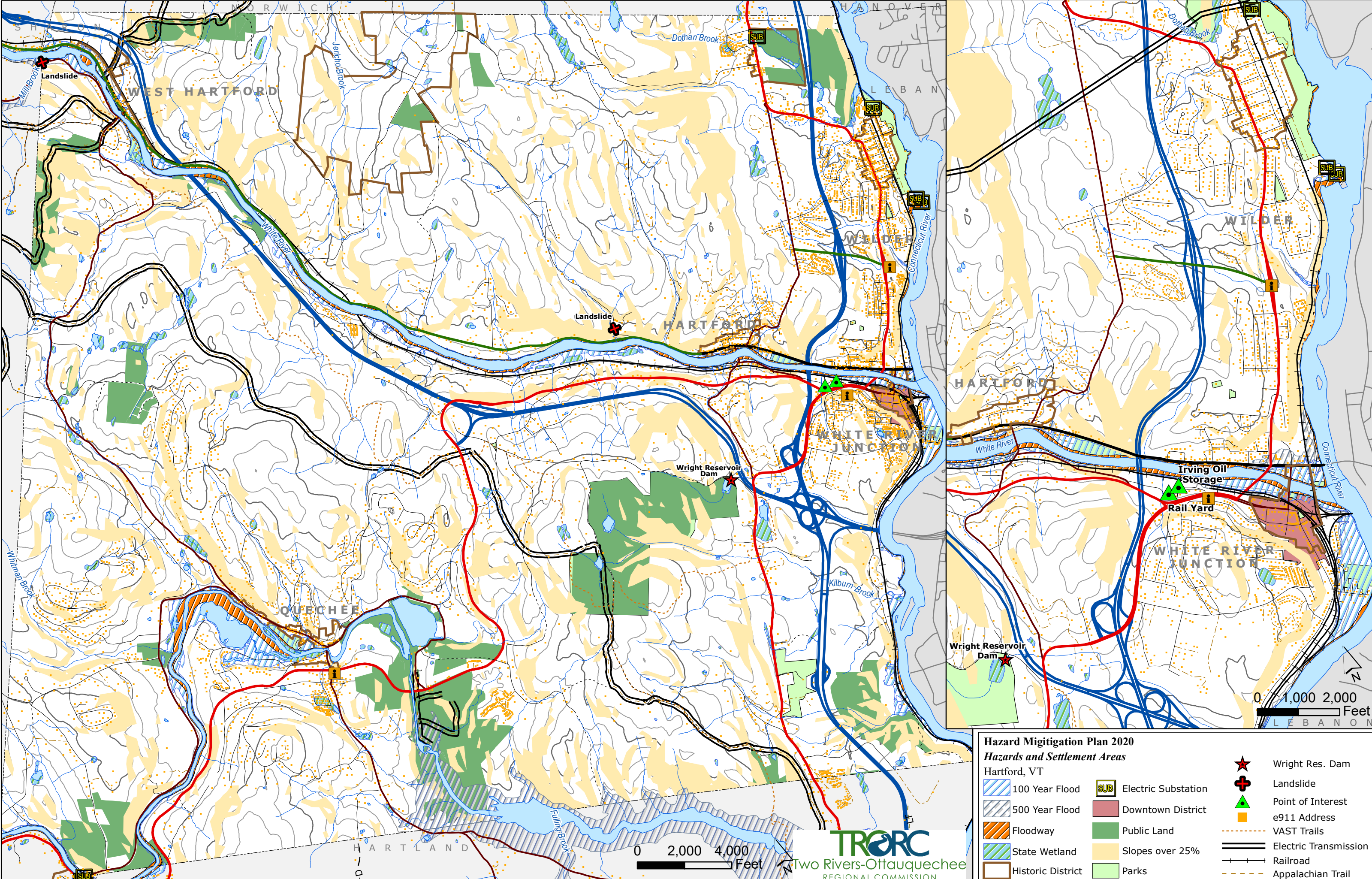
1. How long have you lived in or owned a business or property in Hartford?	2. What is your age?	3. If you live in Hartford, do you own or rent the home you live in?	4. Is your home or business property located in a designated floodplain?	5. (Skip if you answered no to #4) If yes, do you have flood insurance?	6. (Skip if you answered yes to #5) If no, what is the primary reason you do not have flood insurance?	7. Which of the following natural hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	8. Which of the following man-made hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	9. What are the top three hazards that you feel will impact you in the next five years?	10. What actions have you taken to reduce risk for your house / apartment / property / business for potential disasters? (Select all that apply)	11. If you have not taken action to reduce risk, what are the barriers?	12. What cost-effective measures should the town take to lessen damage from disasters (natural and man-made)? (select all that apply)
More than five years	61-70	Own	No						Purchased homeowners / renters' insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply;updated town water intake into the house		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.);Use permeable pavement to reduce flooding. Fewer roads & parking lots
More than five years	51-60	Rent	No			Extreme temperatures: cold or hot;Flood;High Wind;Severe Weather " Winter (ice storm, snow storm, blizzard);Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)	Hazardous materials incident;Structural fire;School safety incident	Disease, Weather, Trump	Purchased homeowners / renters' insurance policies		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
Less than a year	31-40	Rent	No		I live on top of a hill.			Lime disease, pandemic flu, global warming	Purchased homeowners / renters' insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location		invest in public transportation that is accessible to all. Build sidewalks so that all town center areas are walkable.
More than five years	71 and older	Own	No			Flood	Structural fire;School safety incident	disease evil politics	Purchased homeowners / renters' insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location		Culvert and road upgrades
Less than a year	51-60	Own	No	No		Erosion;Severe Weather " Winter (ice storm, snow storm, blizzard)		erosion/ flood plain issues, virus, severe weather	Purchased homeowners / renters' insurance policies;Floodproofing (elevated furnace, water heaters, electric panels);Installed retrofits such as high impact windows or doors, fire resistant siding, roofing or winter screens, storm shelters, etc.;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply		Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	41-50	Own	No			Flood;Severe Weather " Summer (thunderstorm, hail, lightning);Severe Weather " Winter (ice storm, snow storm, blizzard);Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)	Structural fire;School safety incident	Covid 19 flood	Removed dead / dying trees or vegetation;Alternative power, heat and/or water supply		Culvert and road upgrades;Improve natural stormwater management
More than five years	61-70	Own	No			Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)		Severe weather	Purchased homeowners / renters' insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply		Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.);Allow rivers access to recreate floodplains

1. How long have you lived in or owned a business or property in Hartford?	2. What is your age?	3. If you live in Hartford, do you own or rent the home you live in?	4. Is your home or business property located in a designated floodplain?	5. (Skip if you answered no to #4) If yes, do you have flood insurance?	6. (Skip if you answered yes to #5) If no, what is the primary reason you do not have flood insurance?	7. Which of the following natural hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	8. Which of the following man-made hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	9. What are the top three hazards that you feel will impact you in the next five years?	10. What actions have you taken to reduce risk for your house / apartment / property / business for potential disasters? (Select all that apply)	11. If you have not taken action to reduce risk, what are the barriers?	12. What cost-effective measures should the town take to lessen damage from disasters (natural and man-made)? (select all that apply)
More than five years	51-60	Own	No			Extreme temperatures: cold or hot;Flood;High Wind;Geologic Hazards (landslide, sinkhole);Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard)		1. All kinds of effects from climate change, everything from flooding to Lyme disease from the influx of ticks. 2. Pandemics will probably be more common. 3. Being cut off from supply lines due to an economic crash.	Purchased homeowners / renterâ€™s insurance policies;Alternative power, heat and/or water supply;Leveled off property so water doesnâ€™t collect in one place.		Culvert and road upgrades;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	71 and older	Own	I don't know	No	Never thought I needed it.	Flood;Erosion;High Wind;Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard)		Stream flooding.	None of the above	Town needs to work on culverts.	Culvert and road upgrades;Improve natural stormwater management
More than five years	41-50	Own	No			Flood;Geologic Hazards (landslide, sinkhole);Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard);Wildfire / Brushfire		Extreme weather due to climate change	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location	Cost	Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	I don't know	No	I paid cash for my condo and failed to ask if it is in a flood plain.	Extreme temperatures: cold or hot;Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard)		Climate change, economic downturn and not sure	Purchased homeowners / renterâ€™s insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location	Cost	Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	51-60	Not applicable	Yes	No	Too expensive			Who knows!	Purchased homeowners / renterâ€™s insurance policies	Cost	Improve natural stormwater management
More than five years	71 and older	Own	No			Flood;Erosion;Severe Weather â€" Winter (ice storm, snow storm, blizzard);rain > ice > snow > rain > more ice		flooding wind insects harmful to humans	Purchased homeowners / renterâ€™s insurance policies;Purchased Flood Insurance;Installed retrofits such as high impact windows or doors, fire resistant siding, roofing or winter screens, storm shelters, etc.;Removed dead / dying trees or vegetation;cut down some trees mitigation of flooding/erosion of our property spending a lot of \$\$\$ keeping the area watered		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.);a lot of our flooding is from H2O on the road flowing into our driveway & road
One to five years	41-50	Own	No			Drought;Severe Weather â€" Summer (thunderstorm, hail, lightning);Severe Weather â€" Winter (ice storm, snow storm, blizzard)	School safety incident	Pandemic Flu. Snow damage. Wind damage.	Purchased homeowners / renterâ€™s insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location	Cost	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)

1. How long have you lived in or owned a business or property in Hartford?	2. What is your age?	3. If you live in Hartford, do you own or rent the home you live in?	4. Is your home or business property located in a designated floodplain?	5. (Skip if you answered no to #4) If yes, do you have flood insurance?	6. (Skip if you answered yes to #5) If no, what is the primary reason you do not have flood insurance?	7. Which of the following natural hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	8. Which of the following man-made hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	9. What are the top three hazards that you feel will impact you in the next five years?	10. What actions have you taken to reduce risk for your house / apartment / property / business for potential disasters? (Select all that apply)	11. If you have not taken action to reduce risk, what are the barriers?	12. What cost-effective measures should the town take to lessen damage from disasters (natural and man-made)? (select all that apply)
More than five years	61-70	Own	No			Drought;Flood;Erosion;High Wind;Geologic Hazards (landslide, sinkhole);Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	Structural fire		Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location	seem to be prepared	Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.);prune trees near power lines
More than five years	51-60	Own	No			High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)		extreme weather causing power outages	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation		Culvert and road upgrades;still in favor of cleaning river beds so water stays in the river banks
One to five years	31-40	Own	No			Flood;Severe Weather â€” Winter (ice storm, snow storm, blizzard)		Covid-19, extreme weather, flooding along the river	Obtained and placed fire extinguisher(s) in an easily accessible location	Cost	Culvert and road upgrades
More than five years	31-40	Own	No			Drought;Extreme temperatures: cold or hot;Flood;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	Structural fire;School safety incident	Extreme/severe weather, floods, drought	Purchased homeowners / renterâ€™s insurance policies;Floodproofing (elevated furnace, water heaters, electric panels);Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply	Cost	Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
One to five years	41-50	Own	No			High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard);Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)			Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Alternative power, heat and/or water supply		Culvert and road upgrades;Improve natural stormwater management
More than five years	41-50	Own	No		not in flood plain	Flood;Erosion;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	Structural fire	hurricane, flooding, damage from ice/blizzards	Purchased homeowners / renterâ€™s insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location;have fire and water proof safes for money and valuables		Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	No			Flood;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)	Structural fire	CoVid 19, weather, weather	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation		Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	71 and older	Own	No	Yes		Flood;Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)			Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location		Culvert and road upgrades
One to five years	61-70	Own	No			Drought;Extreme temperatures: cold or hot;Flood;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)		Heavy rain with drainage issues	Purchased homeowners / renterâ€™s insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location		Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)

1. How long have you lived in or owned a business or property in Hartford?	2. What is your age?	3. If you live in Hartford, do you own or rent the home you live in?	4. Is your home or business property located in a designated floodplain?	5. (Skip if you answered no to #4) If yes, do you have flood insurance?	6. (Skip if you answered yes to #5) If no, what is the primary reason you do not have flood insurance?	7. Which of the following natural hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	8. Which of the following man-made hazards have you or someone you know experienced while living or doing business in Hartford? (select all that apply)	9. What are the top three hazards that you feel will impact you in the next five years?	10. What actions have you taken to reduce risk for your house / apartment / property / business for potential disasters? (Select all that apply)	11. If you have not taken action to reduce risk, what are the barriers?	12. What cost-effective measures should the town take to lessen damage from disasters (natural and man-made)? (select all that apply)
More than five years	61-70	Own	No		Too expensive	Drought;Flood;Erosion;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)		Extreme weather, epidemics, water shortages	Purchased homeowners / renterâ€™s insurance policies;Floodproofing (elevated furnace, water heaters, electric panels);Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location		Culvert and road upgrades;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	No			Severe Weather â€” Summer (thunderstorm, hail, lightning)		None	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation	Cost	
More than five years	61-70	Own	No			Extreme temperatures: cold or hot;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)		High summer temperatures	Obtained and placed fire extinguisher(s) in an easily accessible location		Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	61-70	Own	No			Drought;Extreme temperatures: cold or hot;Flood;Erosion;High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard);Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)	Hazardous materials incident	Erratic weather incidents resulting in damage to natural environment and personal property. Dealing with hazardous waste & other waste- recycling options, etc needing updating to meet environmental needs of the future. Keeping water sources clean & plentiful- global warming leading to more drought that affects local farmers as well as individual residents.	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply	Weâ€™re working on it... doing things over time as we can afford it!	Culvert and road upgrades;Remove structures in areas known to have frequent flooding;Improve natural stormwater management;Protect vegetation adjacent to surface waters (rivers, streams, ponds, etc.)
More than five years	71 and older	Own	No			High Wind;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard)			Purchased homeowners / renterâ€™s insurance policies;Obtained and placed fire extinguisher(s) in an easily accessible location		Culvert and road upgrades;Improve natural stormwater management
More than five years	61-70	Own	No			Drought;Flood;Erosion;Severe Weather â€” Summer (thunderstorm, hail, lightning);Severe Weather â€” Winter (ice storm, snow storm, blizzard);Invasive species (Emerald Ash Borer, Woolly Adelgid, etc.)		Ice Storm; SARS-Cov-2 virus; Tornado	Purchased homeowners / renterâ€™s insurance policies;Removed dead / dying trees or vegetation;Obtained and placed fire extinguisher(s) in an easily accessible location;Alternative power, heat and/or water supply		Culvert and road upgrades

Appendix F: Maps



Hazard Mitigation Plan 2020
Hazards and Settlement Areas
Hartford, VT

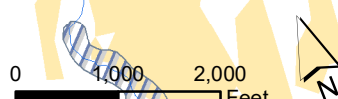
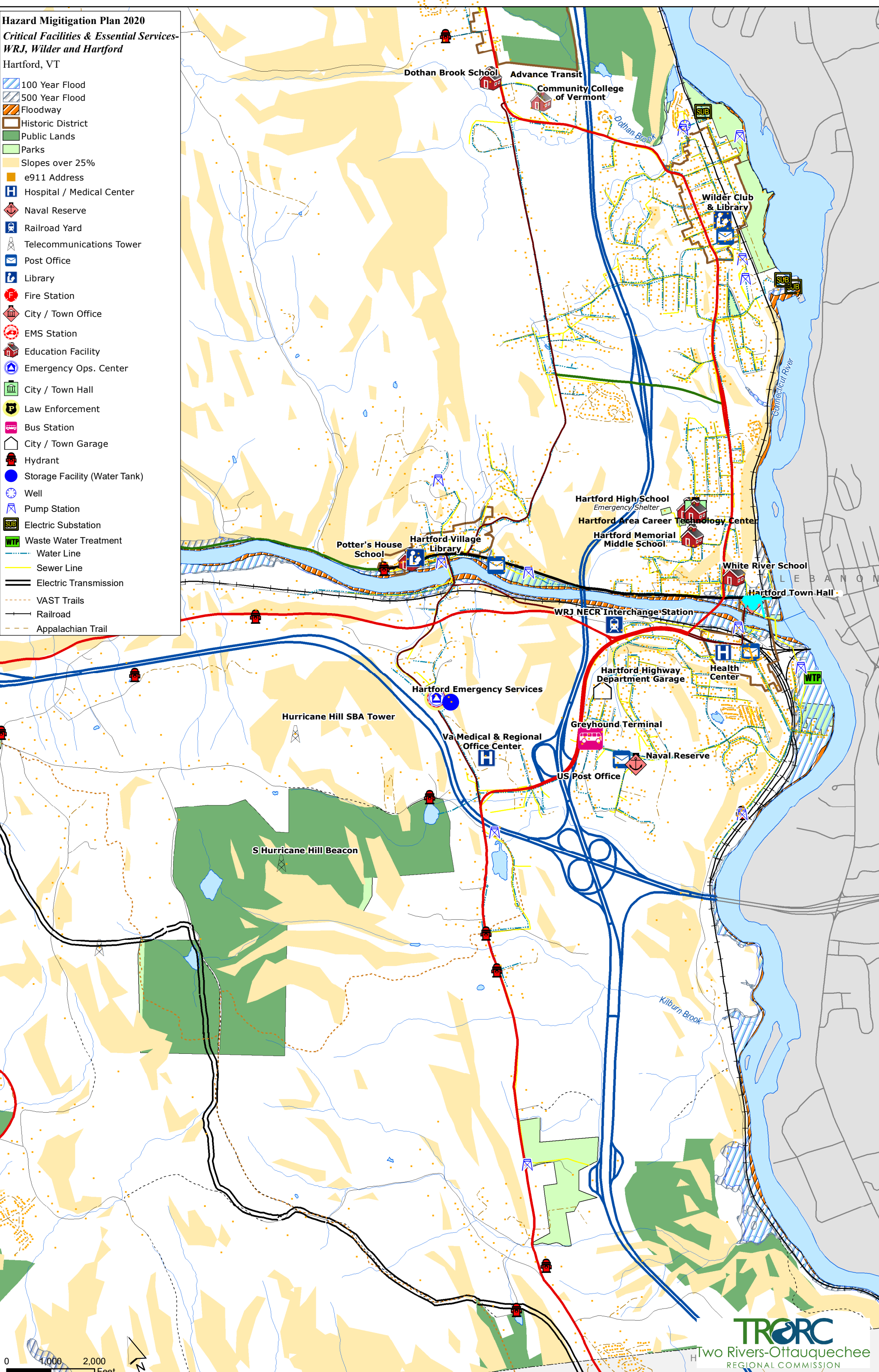
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	500 Year Flood
	Floodway
	State Wetland
	Historic District
	Electric Substation
	Downtown District
	Public Land
	Slopes over 25%
	Parks

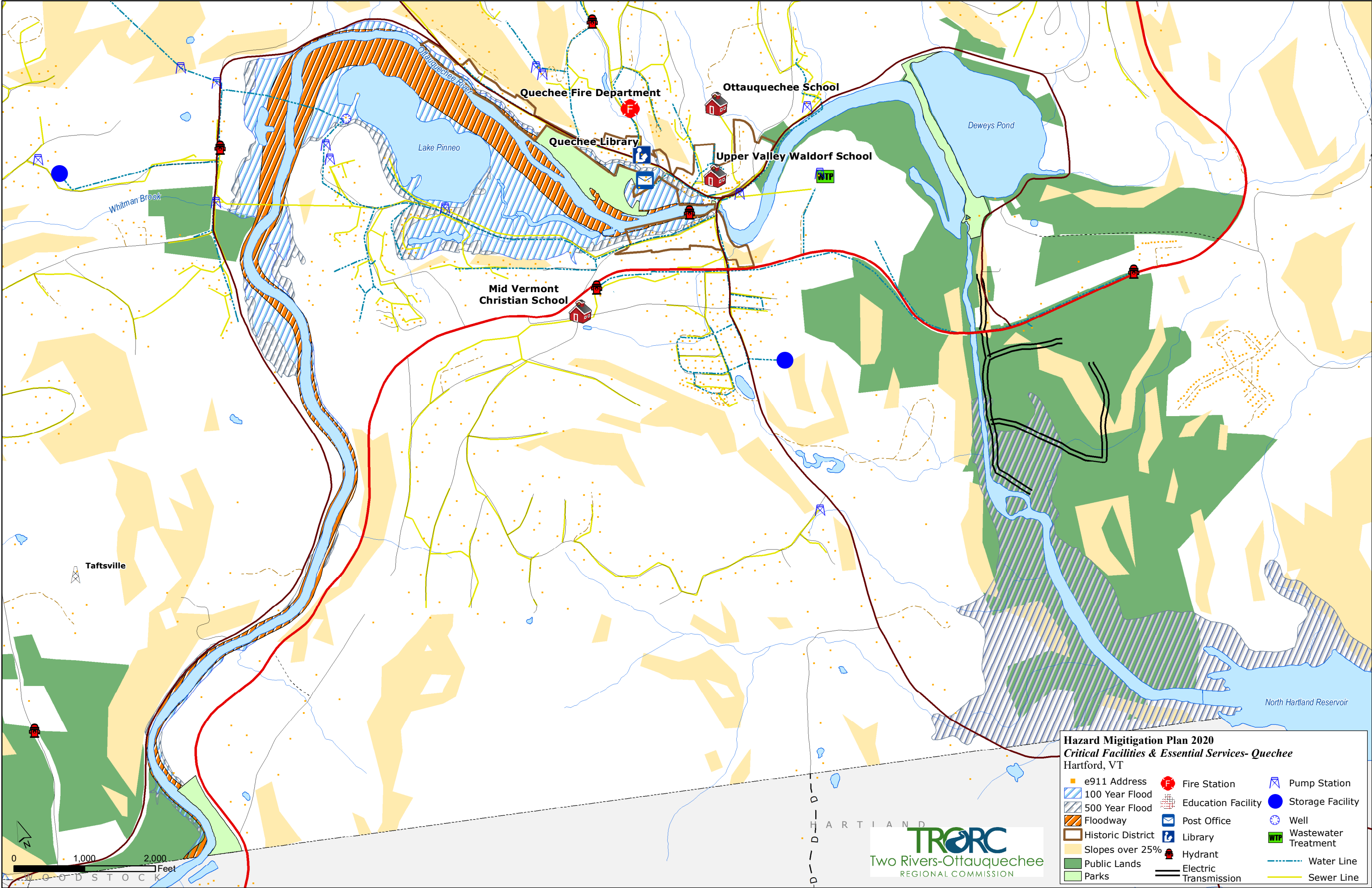
	Wright Res. Dam
	Landslide
	Point of Interest
	e911 Address
	VAST Trails
	Electric Transmission
	Railroad
	Appalachian Trail

Hazard Mitigation Plan 2020
Critical Facilities & Essential Services-
WRJ, Wilder and Hartford

Hartford, VT

- 100 Year Flood
- 500 Year Flood
- Floodway
- Historic District
- Public Lands
- Parks
- Slopes over 25%
- e911 Address
- Hospital / Medical Center
- Naval Reserve
- Railroad Yard
- Telecommunications Tower
- Post Office
- Library
- Fire Station
- City / Town Office
- EMS Station
- Education Facility
- Emergency Ops. Center
- City / Town Hall
- Law Enforcement
- Bus Station
- City / Town Garage
- Hydrant
- Storage Facility (Water Tank)
- Well
- Pump Station
- Electric Substation
- Waste Water Treatment
- Water Line
- Sewer Line
- Electric Transmission
- VAST Trails
- Railroad
- Appalachian Trail





Hazard Mitigation Plan 2020
Critical Facilities & Essential Services- Quechee
Hartford, VT

e911 Address

100 Year Flood

500 Year Flood

Floodway

Historic District

Slopes over 25%

Public Lands

Parks

Fire Station

Education Facility

Post Office

Library

Hydrant

Electric Transmission

Pump Station

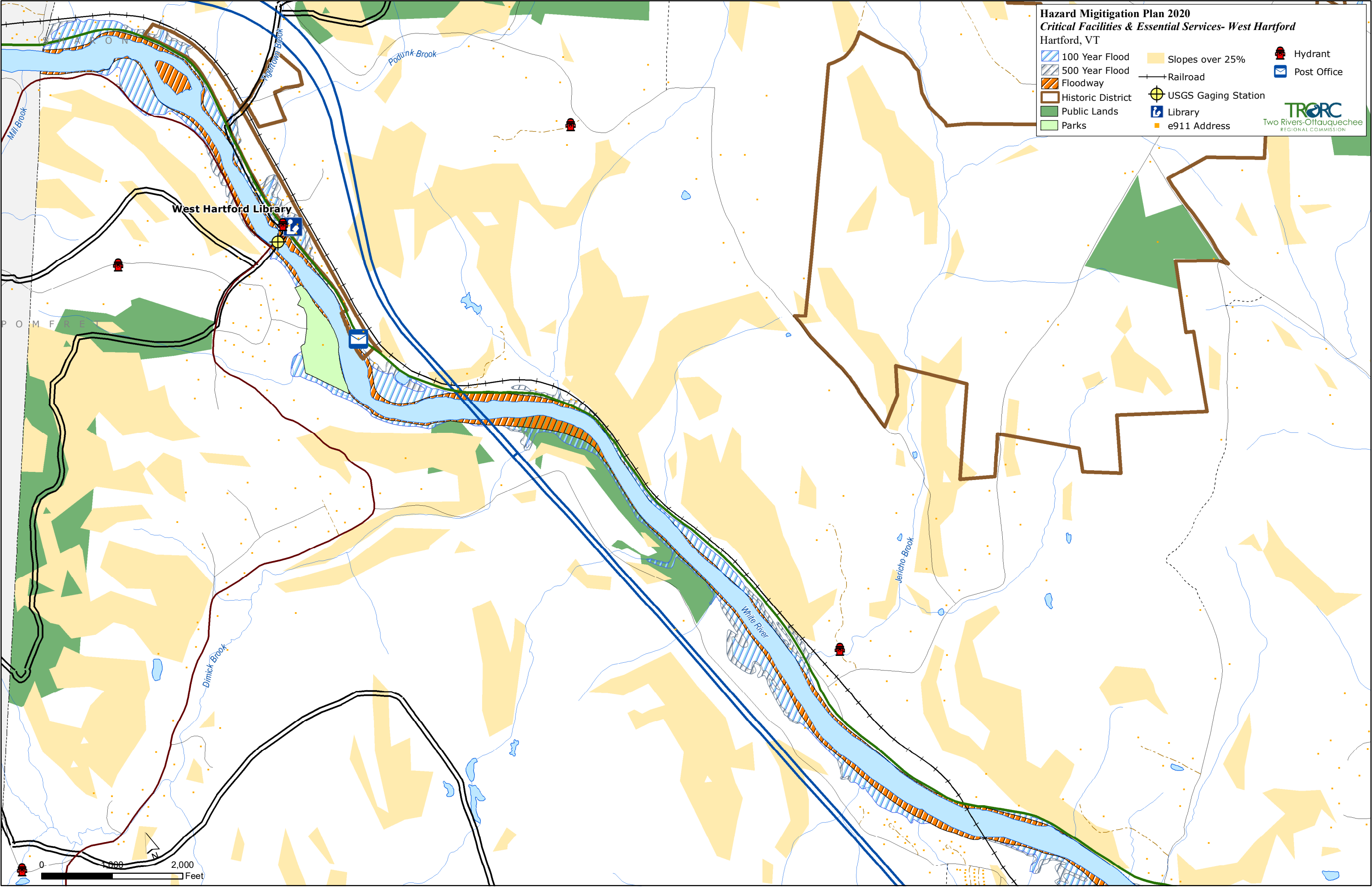
Storage Facility

Well

Wastewater Treatment

Water Line

Sewer Line



Hazard Migitigation Plan 2020
Critical Facilities & Essential Services- West Hartford
Hartford, VT

- | | | |
|-------------------|---------------------|---|
| 100 Year Flood | Slopes over 25% | Hydrant |
| 500 Year Flood | Railroad | Post Office |
| Floodway | USGS Gaging Station | TRC
Two Rivers-Ortauquechee
REGIONAL COMMISSION |
| Historic District | Library | |
| Public Lands | e911 Address | |
| Parks | | |

West Hartford Library

Dimick Brook

Podunk Brook

Jericho Brook

White River

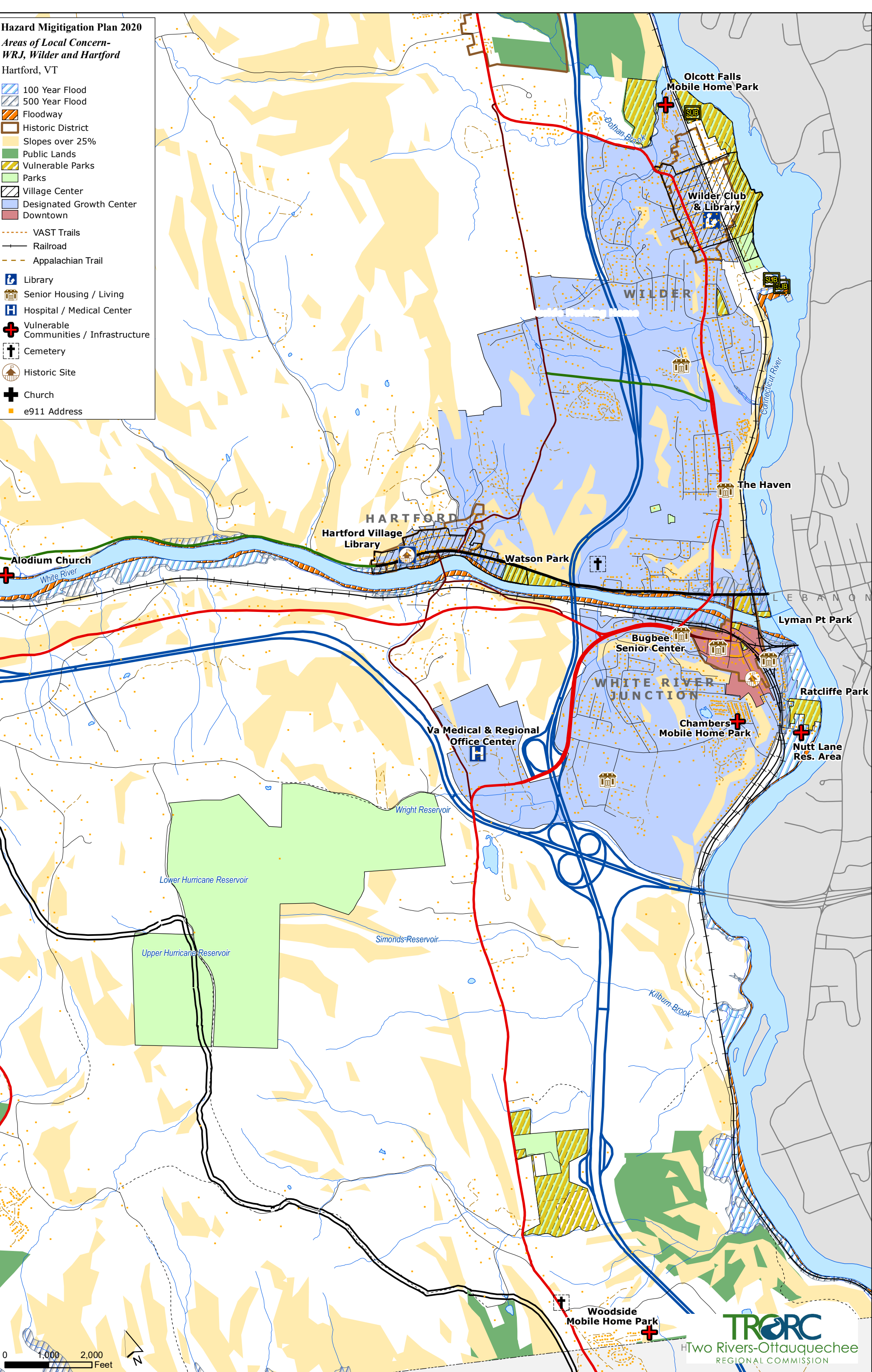
0 1,000 2,000 Feet

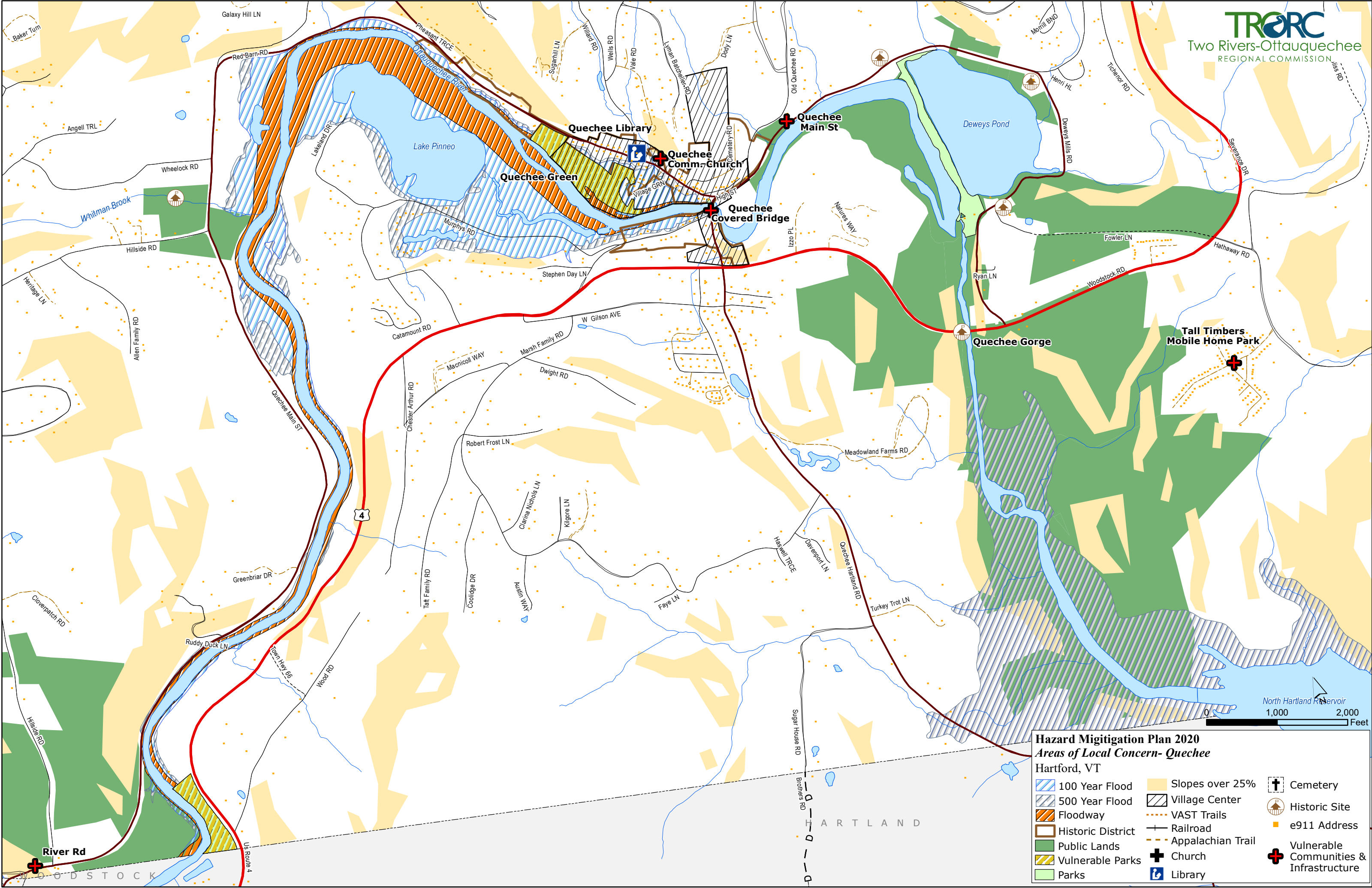
Hazard Mitigation Plan 2020

**Areas of Local Concern-
WRJ, Wilder and Hartford**

Hartford, VT

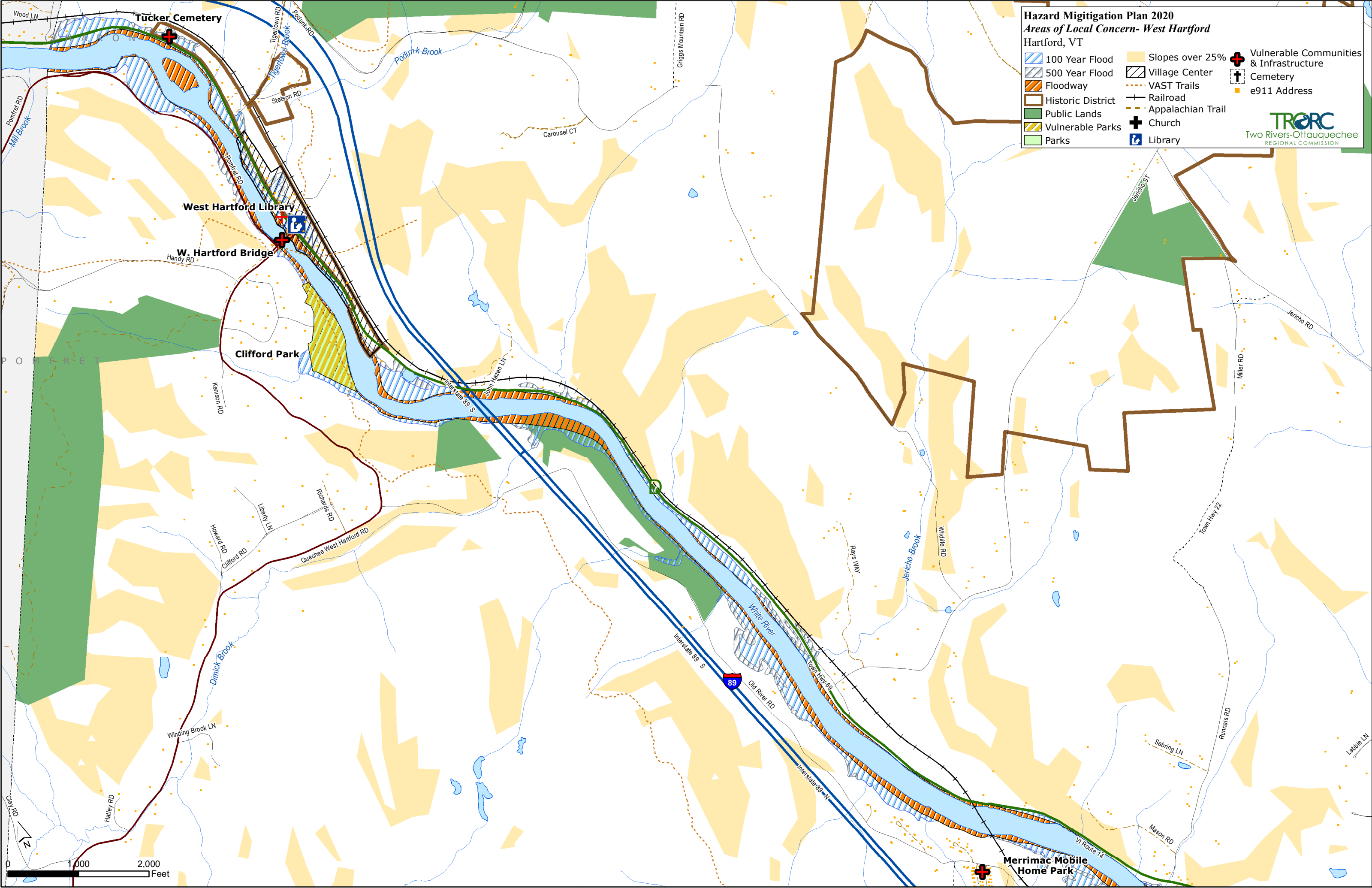
- 100 Year Flood
- 500 Year Flood
- Floodway
- Historic District
- Slopes over 25%
- Public Lands
- Vulnerable Parks
- Parks
- Village Center
- Designated Growth Center
- Downtown
- VAST Trails
- Railroad
- Appalachian Trail
- Library
- Senior Housing / Living
- Hospital / Medical Center
- Vulnerable Communities / Infrastructure
- Cemetery
- Historic Site
- Church
- e911 Address





Hazard Mitigation Plan 2020
Areas of Local Concern- Quechee
Hartford, VT

100 Year Flood	Slopes over 25%	Cemetery
500 Year Flood	Village Center	Historic Site
Floodway	VAST Trails	e911 Address
Historic District	Railroad	Vulnerable Communities & Infrastructure
Public Lands	Appalachian Trail	Church
Vulnerable Parks	Library	
Parks		



Hazard Mitigation Plan 2020
Areas of Local Concern- West Hartford
Hartford, VT

- | | | |
|-------------------|-------------------|---|
| 100 Year Flood | Slopes over 25% | Vulnerable Communities & Infrastructure |
| 500 Year Flood | Village Center | Cemetery |
| Floodway | VAST Trails | e911 Address |
| Historic District | Appalachian Trail | |
| Public Lands | Church | |
| Vulnerable Parks | Library | |
| Parks | | |



Appendix E: Glossary of Acronyms

CRREL:	Cold Regions Research and Engineering Laboratory
CERT:	Community Emergency Response Team
CIP:	Capital Improvement Program
CRS:	Community Rating System
DPW:	Department of Public Works
EMD:	Emergency Management Director
FEMA:	Federal Emergency Management Agency
GMP:	Green Mountain Power
HM:	Hazard Mitigation
HMGP:	Hazard Mitigation Grant Program
HUD:	U.S. Department of Housing and Urban Development
LEPC:	Local Emergency Planning Committee
NOA:	National Oceanic Administration
PDM:	Pre-Disaster Mitigation
SHELDUS:	Spatial Hazard Events and Losses Database for the United States
SFHA:	Special Flood Hazard Area
TRORC:	Two Rivers-Ottawaquechee Regional Commission
USACE:	U.S. Army Corps of Engineers
USDA:	United States Department of Agriculture
USOA:	Uniform System of Accounts
USGS:	United States Geological Survey
VA or VAMC:	Veterans Administration Medical Center
VANR:	Vermont Agency of Natural Resources
VAST:	Vermont Association of Snow Travelers
VT DEC:	Vermont Department of Environmental Conservation Vermont
VEM:	Emergency Management
VHMP:	Vermont Hazard Mitigation Plan
VLCT:	Vermont League of Cities & Towns
VTrans:	Vermont Agency of Transportation
VRC:	Vermont River Conservancy
WRP:	White River Partnership