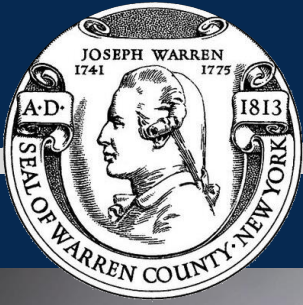


# HAZARD MITIGATION PLAN

Warren County, New York



VOLUME I



2023



Prepared By:  
Tetra Tech, Inc.  
6 Century Drive, Suite 300  
Parsippany, NJ 07054





## TABLE OF CONTENTS

### VOLUME I

<b>SECTION 1. INTRODUCTION.....</b>	<b>1-1</b>
1.1 BACKGROUND.....	1-1
1.2 The Plan Update – What is Different?.....	1-1
<b>SECTION 2.PLAN ADOPTION.....</b>	<b>2-1</b>
.....	
<b>SECTION 3.PLANNING PROCESS.....</b>	<b>3-1</b>
3.1 Introduction.....	3-1
3.2 Organization of the Planning Process.....	3-2
3.3 Stakeholder Outreach and Involvement.....	3-7
3.4 Incorporation of Existing Plans, Studies, Reports and Technical Information.....	3-14
3.5 Integration with Existing Planning Mechanisms and Programs.....	3-17
3.6 Continued Public Involvement.....	3-17
<b>SECTION 4 COUNTY PROFILE.....</b>	<b>4-1</b>
4-1 General Information.....	4-1
4.2 Major Past Hazard Events.....	4-1
4.3 Physical Setting.....	4-3
4.4 Population And Demographics.....	4-8
4.5 Land Use And Population Trends.....	4-22
4.6 Critical Facilities.....	4-31
<b>SECTION 5. RISK ASSESSMENT .....</b>	<b>5-1</b>
5.1 Methodology and Tools.....	5.1-1
5.2 Identification of Hazards of Concern.....	5.2-1
5.3 Hazard Ranking .....	5.3-1
5.4 Hazard Profiles.....	5.4-1
<b>SECTION 6. MITIGATION STRATEGIES.....</b>	<b>6-1</b>
6.1 Background and Past Mitigation Accomplishments.....	6-1
6.2 General Mitigation Planning Approach.....	6-5
6.3 Review and Update of Mitigation Goals and Objectives.....	6-66
6.4 Capability Assessment.....	6-8
6.5 Mitigation Strategy Development and Update.....	6-39
<b>SECTION 7. PLAN MAINTENANCE PROCEDURES .....</b>	<b>7-1</b>
7.1 Monitoring, Evaluating and Updating the Plan.....	7-2
7.2 Implementation of Mitigation Plan through Existing Programs.....	7-9
7.3 Continued Public Involvement .....	7-10
<b>Acronyms and Abbreviations .....</b>	<b>AC-1</b>





<b>References .....</b>	<b>R-1</b>
-------------------------	------------

## **Appendices**

Appendix A	Plan Adoption
Appendix B	Participation Matrix
Appendix C	Meeting Documentation
Appendix D	Public and Stakeholder Outreach
Appendix E	Supplementary Data
Appendix F	Critical Facilities
Appendix G	Plan Review Tools
Appendix H	NYSDHSES Guidance
Appendix I	Dam Failure
Appendix J	Public Comment

## **VOLUME II**

<b>SECTION 8. PLANNING PARTNERSHIP .....</b>	<b>8-1</b>
8.1 Background .....	8-1
<b>SECTION 9. JURISDICTIONAL ANNEXES .....</b>	<b>9-1</b>





# SECTION 1. INTRODUCTION

## 1.1 BACKGROUND

Communities, residents, and businesses have been faced with continually increasing costs associated with both natural and man-made hazards. Hazard mitigation is the first step in reducing risk and is the most effective way to reduce costs associated with hazards. Warren County and all of the jurisdictions (13) located therein, participated in the development of the 2023 Warren County Multi-Jurisdictional Hazard Mitigation Plan (HMP, also referred herein as the “Hazard Mitigation Plan” or the “plan”) update, which is a multi-hazard mitigation plan. The HMP includes countywide analysis and assessment of hazards, risk, and capabilities. The plan has been prepared following the requirements of the federal Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 amends the Stafford Act and is designed to improve planning for, response to, and recovery from, disasters by requiring state and local entities to implement pre-disaster mitigation planning and develop HMPs. The Federal Emergency Management Agency (FEMA) has issued guidelines for the development of multi-jurisdictional hazard mitigation plans, and the New York State Division of Homeland Security and Emergency Services (DHSES) also supports plan development for jurisdictions in New York State.

### Hazard Mitigation

is defined as any sustained action taken to reduce or eliminate the long-term risk and effects that can result from specific hazards.

FEMA defines a Hazard Mitigation Plan (HMP) as the documentation of a state or local government evaluation of natural hazards and the strategies to mitigate such hazards.

Warren County has been included in 19 FEMA (major and emergency) declarations since 1954.

Specifically, DMA 2000 requires that states, with support from local governmental agencies, update hazard mitigation plans on a five-year basis to prepare for and reduce the potential impacts of natural hazards. DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. This enhanced planning will better enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

### 1.1.1 DMA 2000 Origins -The Robert T. Stafford Disaster Relief and Emergency Assistance Act

In the early 1990s, a new federal policy regarding disasters began to evolve. Rather than simply reacting whenever disasters strike communities, the federal government began encouraging communities to first assess their vulnerability to various disasters and proceed to take actions to





reduce or eliminate potential risks. The logic is simply that a disaster-resistant community can rebound from a natural disaster with less loss of property or human injury, at much lower cost and more quickly. Moreover, other costs associated with disasters, such as the time lost from productive activity by business and industries, are minimized.

DMA 2000 provides an opportunity for states, tribes, and local governments to take a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions (Section 409) and replacing them with a new set of requirements (Section 322). This section sets forth the requirements that communities evaluate natural hazards within their respective jurisdictions and develop an appropriate plan of action to mitigate those hazards, while emphasizing the need for state, tribal and local governments to closely coordinate mitigation planning and implementation efforts.

The amended Stafford Act requires that each local jurisdiction identify potential natural hazards to the health, safety and well-being of its residents and identify and prioritize actions that can be taken by the community to mitigate those hazards—before disaster strikes. For communities to remain eligible for hazard mitigation assistance from the federal government, they must first prepare, and then maintain and update an HMP (this plan).

Responsibility for fulfilling the requirements of Section 322 of the Stafford Act and administering the FEMA Hazard Mitigation Program has been delegated to the State of New York, specifically to NYS DHSES. FEMA also provides support through guidance, resources, and plan reviews.

### 1.1.2 Benefits of Mitigation Planning

Effective mitigation planning will help prepare citizens and government agencies to better prepare for and respond when disasters occur. Also, mitigation planning allows Warren County as a whole, including the participating Warren County cities, towns, and villages, to remain eligible for mitigation grant funding for mitigation projects that will reduce the impact of future disaster events. The long-term benefits of mitigation planning, and implementation include:

- An increased understanding of hazards faced by Warren County communities
- A more sustainable and disaster-resistant community
- Financial savings through partnerships that support planning and mitigation efforts
- Focused use of limited resources on hazards that have the biggest impact on the community
- Reduced long-term impacts and damages to human health and structures



Source: FEMA 2018; Mitigation Saves Fact Sheet





- Reduced costs associated with response and recovery efforts, including repairs

### 1.1.3 Organizations Involved in the Mitigation Planning Effort

Warren County and the participating jurisdictions have prepared this hazard mitigation plan with full coordination and participation of county and local government, relevant organizations, and groups, as well as state and federal agencies and the general public. Coordination helps to ensure that stakeholders have established communication channels and relationships necessary to support mitigation planning and mitigation actions included in Section 6 and in the jurisdictional annexes in Section 9. Warren County and its 13 municipal governments participated in the planning process as indicated in Table 1-1 below.

**Table 1-1. Participating Jurisdictions in Warren County**

Participating Jurisdictions		
Warren County	Horicon (T)	Queensbury (T)
Bolton (T)	Johnsburg (T)	Stony Creek (T)
Chester (T)	Lake George (T)	Thurman (T)
Glens Falls (C)	Lake George (V)	Warrensburg (T)
Hague (T)	Lake Luzerne (T)	

### Multiple Agency Support for Hazard Mitigation

Primary responsibility for the development and implementation of mitigation strategies and policies lies with local governments. However, local governments are not alone; various partners and resources at the regional, state, and federal levels are available to assist communities in the development and implementation of mitigation strategies. Within New York State, NYS DHSES is the lead agency providing hazard mitigation planning assistance to local jurisdictions. In addition, FEMA provides grants, tools, guidance, and training to support mitigation planning.

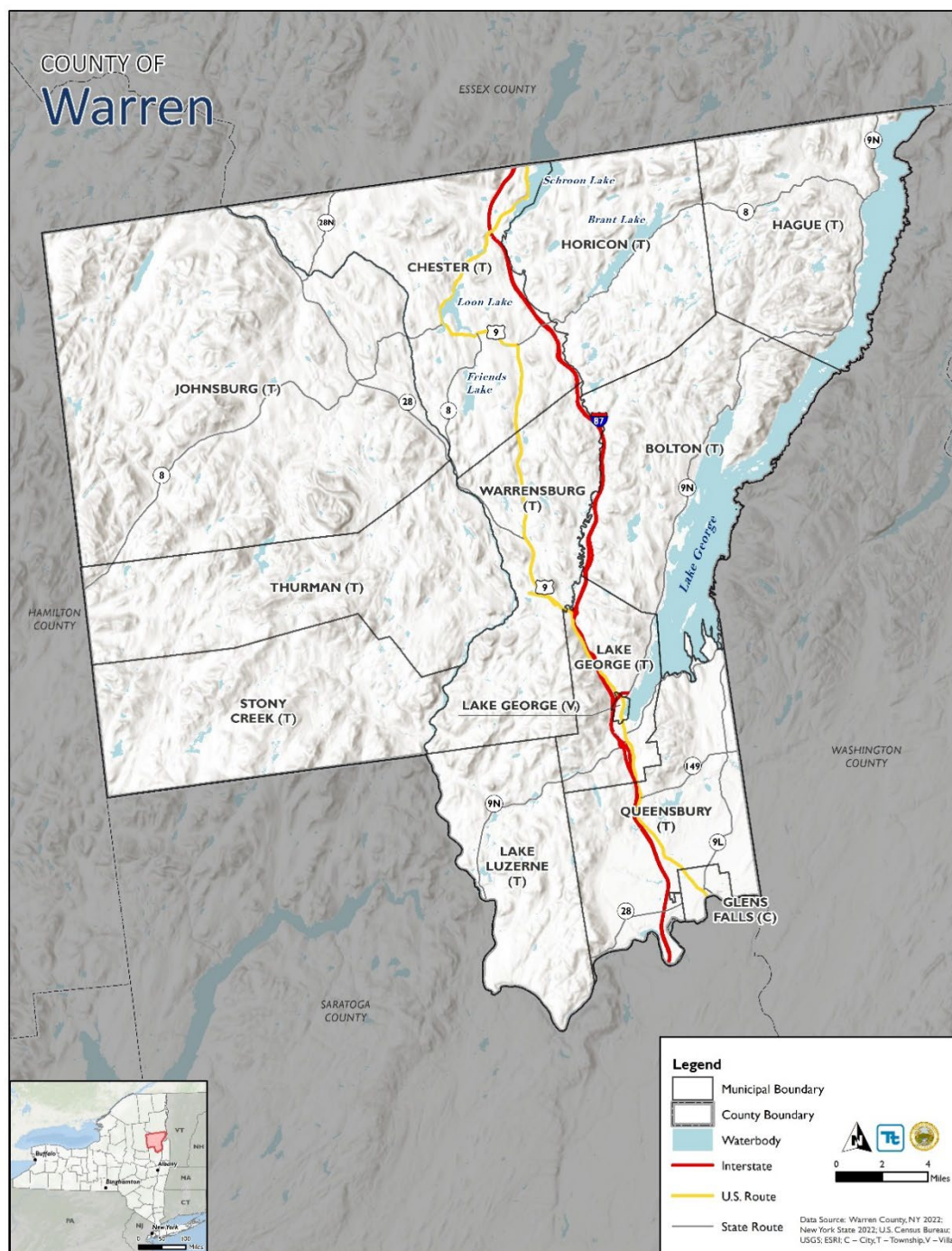
Additional input and support for this planning effort was obtained from a range of agencies and through public involvement (as discussed in Section 3). The Warren County Department of Emergency Services managed the project with the support of the Warren County Soil & Water Conservation District and oversight provided by a Steering Committee consisting of representatives from the Warren County Department of Emergency Services, the Warren County Soil & Water District and a broad range of agencies and stakeholders including four municipalities (the City of Glens Falls; Village and Town of Lake George; Town of Queensbury), Warren County Office of the Administrator, County GIS, County Planning, Adirondack/Glens Falls Transportation Council, and Glens Falls Hospital to provide both county and local perspectives to guide the planning process. The Steering Committee engaged additional, diverse stakeholders through outreach and surveys.





The 13 participating municipalities provided significant input into the preparation of the plan, in particular the preparation of the annexes included in Section 9 for each municipality. Details regarding the roles and responsibilities of the various committees and other participants are further discussed in Section 3.

**Figure 1-1. Warren County, New York Mitigation Plan Area**







This hazard mitigation plan was prepared in accordance with the following regulations and guidance:

- FEMA *Local Mitigation Planning Handbook*, March 2013.
- FEMA *Integrating Hazard Mitigation into Local Planning*, March 1, 2013.
- FEMA *Plan Integration: Linking Local Planning Efforts*, July 2015.
- *Local Mitigation Plan Policy Guide*, FP 206–21–0002, effective April 19, 2023.
- DMA 2000 (Public Law 106–390, October 30, 2000).
- 44 Code of Federal Regulations (CFR) Parts 201 and 206 (including: Feb. 26, 2002, Oct. 1, 2002, Oct. 28, 2003, and Sept. 13, 2004 Interim Final Rules).
- FEMA *How-To Guide for Using HAZUS-MH for Risk Assessment* FEMA Document No. 433, February 2004.
- FEMA *Mitigation Planning How-to Series* (FEMA 386–1 through 4, 2002), available at: <http://www.fema.gov/fima/planhowto.shtm>.
- FEMA *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*, January 2013.
- NYS DHSES *Hazard Mitigation Planning Standard*, 2023.

Table 1–2 summarizes the requirements outlined in the DMA 2000 Interim Final Rule and where each of these requirements is addressed in this hazard mitigation plan.

**Table 1-2. FEMA Local Mitigation Plan Review Crosswalk**

Plan Criteria	Primary Location in Plan
<b>Prerequisites</b>	
Adoption by the Local Governing Body: §201.6(c)(5)	Section 2.0; Appendix A
<b>Planning Process</b>	
Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)	Section 3.0
Documentation of opportunity for involvement of neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies, and other private and non-profit interests (44 CFR §201.6(b)(2))	Section 3.0
<b>Risk Assessment</b>	
Identifying Hazards: §201.6(c)(2)(i)	Sections 5.2
Profiling Hazards: §201.6(c)(2)(i)	Section 5.4
Assessing Vulnerability: Overview: §201.6(c)(2)(ii)	Section 5.4
Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A)	Section 4.0 Section 5.4
Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)	Section 5.4
Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)	Section 4.0; Section 9 Annexes
<b>Mitigation Strategy</b>	
Existing authorities, policies, programs, and resources and ability to expand on and improve these existing policies and programs (44 CFR §201.6(c)(3))	Section 6; Section 9 Annexes
Participation in the NFIP and continued compliance with NFIP requirements, as appropriate (44 CFR §201.6(c)(3)(ii))	





Plan Criteria	Primary Location in Plan
Local Hazard Mitigation Goals: §201.6(c)(3)(i)	Section 6.0 Section 9 Annexes
Comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure (44 CFR §201.6(c)(3)(ii))	Section 6.0; Section 9 Annexes
Multi-Jurisdictional Mitigation Actions: : §201.6(c)(3)(iii)	Section 6.0; Section 9 Annexes
<b>Plan Maintenance Process</b>	
Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)	Section 7.0
Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)	Section 7.0; Section 9 Annexes
Continued Public Involvement: §201.6(c)(4)(iii)	Section 7.0
<b>Plan Update</b>	
Revised to reflect changes in development? (44 CFR § 201.6(d)(3))	Section 4; Annexes
Revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))	Section 6; Annexes

## Organization

The Warren County Hazard Mitigation Plan has been organized into a two-volume plan to facilitate use of this plan as a resource for each participant. The plan provides a detailed review and analysis of hazards of concern, resources, and relevant statistical information for Warren County and participating municipalities.

Volume I is intended for use as a resource for on-going mitigation analysis. It includes a description of the county and local municipalities as well as information on mitigation planning and how the risk assessment and capability analysis was performed. Volume II consists of an annex dedicated to each participating jurisdiction. Each annex summarizes the jurisdiction's legal, regulatory, and fiscal capabilities; evaluates vulnerabilities to natural hazards; describes the status of past mitigation actions; and provides specific mitigation strategies. The annexes are intended to provide an expedient resource for each jurisdiction for implementation of mitigation projects and maximizing future grant opportunities.

## Hazard Mitigation Plan Mission Statement, Goals, and Objectives

### Mission Statement

In order to provide a guiding principle to describe the overall duty and purpose of the planning process and in accordance with FEMA guidance (386-1), the Warren County Hazard Mitigation Plan Steering Committee chose to develop a Mission Statement for this plan. The intent of this statement is to focus the range of goals and objectives identified to support the over-arching purpose of the plan.





As a result of the committee deliberations, the 2023 Warren County Hazard Mitigation Mission Statement is as follows:

*The mission of the Warren County Hazard Mitigation Plan is to create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, and the public to eliminate or reduce risks and adverse impacts from natural hazards.*

### Goals and Objectives

According to CFR 201.6(c)(3)(i): “The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.” The mitigation goals have been developed based on the risk assessment results, discussions, research, and input from amongst the committee, existing authorities, polices, programs, resources, stakeholders, and the public.

The Warren County Hazard Mitigation Plan planning process included a review and update of the prior mitigation goals and the addition of all new objectives as a basis for the planning process and to guide the selection of appropriate mitigation actions addressing all hazards of concern. The goal development process considered the mitigation goals expressed in the New York State HMP, as well as other relevant county and local planning documents, as discussed in Section 6 (Mitigation Strategy).

While mitigation priorities have not significantly changed, the steering committee made minor updates in the goals and objectives to align with County priorities more closely.

#### 2023 Warren County Hazard Mitigation Plan Goals

**Goal 1:** Protect Life and Property.

**Goal 2:** Increase Public Awareness

**Goal 3:** Provide for Emergency Services

**Goal 4:** Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related state, regional, county, and local plans, and programs.

**Goal 5:** Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.

**Goal 6:** Address Long-Term Vulnerabilities from High Hazard Dams





## Hazards of Concern

Warren County and participating jurisdictions reviewed the natural hazards that caused measurable impacts based on events, losses, and information available since the development of the 2017 Warren County HMP. Warren County and participating jurisdictions evaluated the risk and vulnerability due to each of the hazards of concern on the assets of each participating jurisdiction. Although the resulting hazard risk rankings varied for each jurisdiction, the summary risk rankings corresponded with that of Warren County and are indicated in each jurisdictional annex. The hazard risk ranks were used to focus and prioritize individual jurisdictional mitigation strategies.

## Plan Integration into Other Planning Mechanisms

Effective mitigation is achieved when hazard awareness and risk management approaches and strategies become an integral part of public activities and decision-making. Within the county there are many existing plans and programs that support hazard risk management, and thus it is critical that this hazard mitigation plan integrate, complement, and reference those plans and programs to the extent practical in order to be a comprehensive resource for hazard mitigation.

The “Capability Assessment” section of Chapter 6 (Mitigation Strategy) provides a summary and description of the existing plans, programs, and regulatory mechanisms at all levels of government (Federal, State, County and local) that support hazard mitigation within the county. Within each jurisdictional annex in Chapter 9, the County and each participating jurisdiction have identified how they have integrated hazard risk management into their existing planning, regulatory and operational/administrative framework (“integration capabilities”), and how they intend to continue to promote this integration (“integration actions”). A further summary of these continued efforts to develop and promote a comprehensive and holistic approach to hazard risk management and mitigation is presented in Section 7.

### 1.1.4 Implementation of Prior and Existing Local Hazard Mitigation Plans

The status of the mitigation projects identified in prior or existing local HMPS are provided in Section 6 (Mitigation Strategy) and Section 9 (Jurisdictional Annexes) of the plan. Numerous projects and programs have been implemented that have reduced hazard vulnerability to assets in the planning area. Those projects not completed have been reevaluated, modified as necessary and incorporated into this plan. The County and municipal annexes describe these mitigation activities in more detail, and plan maintenance procedures (Section 7) have been developed to encourage thorough integration with local decisions and processes and regular review of implementation progress.

#### Warren County HMP Hazards of Concern

Disease Outbreak/Pandemic

Earthquake

Extreme Temperatures

Flood (riverine, dam failure,  
flash, ice jam, beaver dam)

Dam Failure

Infestation/Invasive Species

Severe Storm (thunderstorm,  
hail, wind, tornado)

Severe Winter Weather

Wildfire





### 1.1.5 Implementation of the Planning Process

To support the planning process in developing this plan, Warren County and the participating jurisdictions have accomplished the following:

- Developed a Steering Committee and countywide planning partnership with municipalities and stakeholders,
- Reviewed the 2017 “Warren County Hazard Mitigation Plan”,
- Identified/reviewed hazards that are of greatest concern to the community (hazards of concern) to be included in the update,
- Profiled these hazards,
- Estimated the inventory at risk and potential losses associated with these hazards,
- Developed appropriate hazard mitigation goals,
- Reviewed mitigation strategies identified in prior and existing local HMPS to indicate progress,
- Developed new mitigation actions to address reduction of vulnerability of hazards of concern,
- Involved a wide range of stakeholders and the public in the plan update process,
- Developed mitigation plan maintenance procedures to be executed after obtaining approval of the plan from NYS DHSES and FEMA.

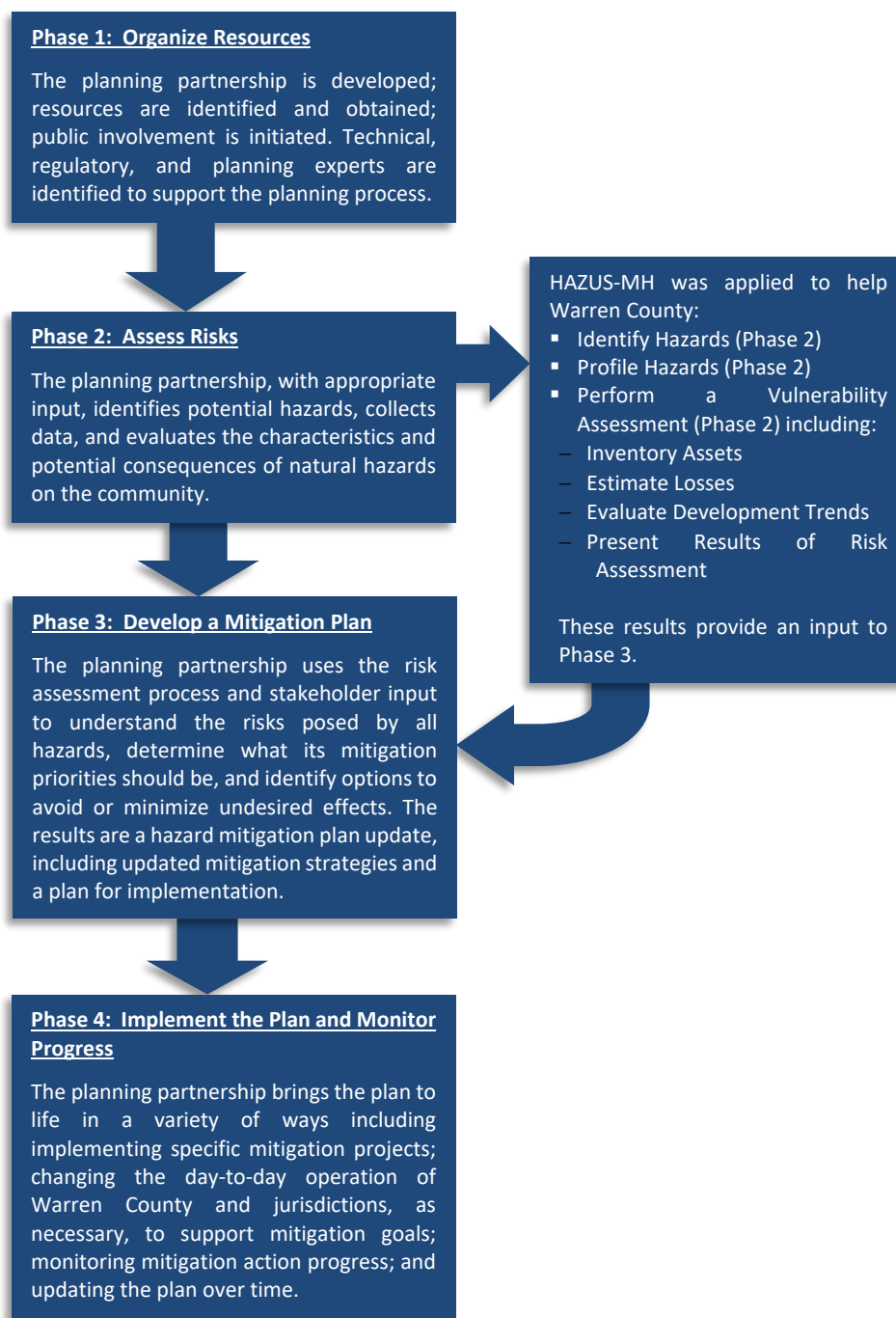
As required by DMA 2000, Warren County and participating jurisdictions have informed the public and provided opportunities for public comment and input. In addition, numerous agencies and stakeholders have participated as core or support members, providing input and expertise throughout the planning process.

This Hazard Mitigation Plan documents the process and outcomes of Warren County and the jurisdictions’ efforts. Additional information on the plan update process is included in Section 3, Planning Process. Documentation that the prerequisites for plan approval have been met is included in Section 2, Plan Adoption.

### 1.1.6 Organization of This Mitigation Plan

The planning effort followed the four-phase planning process recommended by FEMA and summarized in Figure 1-2.



**Figure 1-2. Warren County Hazard Mitigation Planning Process**





This plan was organized in accordance with FEMA and NYS DHSES guidance, organized into two volumes: Volume I includes all information that applies to the entire planning area (Warren County); and Volume II includes specific information for the County as a jurisdiction as well as each participating jurisdiction.

More specifically, Volume I of this plan includes the following sections:

**Section 1:** Introduction: Overview of participants and planning process.

**Section 2:** Plan Adoption: Information regarding the adoption of the plan by Warren County and each participating jurisdiction.

**Section 3:** Planning Process: A description of the plan methodology and development process, committee and stakeholder roles and activities, and how the plan will be incorporated into existing programs.

**Section 4:** County Profile: An overview of Warren County, including: (1) general information and physical conditions, (2) economy, (3) land use patterns and trends, (4) population and demographics, (5) general building stock inventory and (6) critical facilities.

**Section 5:** Risk Assessment: Documentation of the hazard identification and hazard risk ranking process, hazard profiles, and findings of the vulnerability assessment (estimates of the impact of hazard events on life, safety, and health; general building stock; critical facilities and the economy). Description of the status of local data and planned steps to improve local data to support mitigation planning.

**Section 6:** Mitigation Strategies: Information regarding the mitigation goals and objectives identified by the Steering Committee in response to priority hazards of concern, and the process by which County and local mitigation strategies have been developed or updated.

**Section 7:** Plan Maintenance Procedures: A system to continue to monitor, evaluate, maintain, and update the plan.

Volume II of this plan includes the following sections:

**Section 8:** Planning Partnership: Description of the planning partnership and jurisdictional annexes.

**Section 9:** Jurisdictional Annexes: A jurisdiction-specific annex for Warren County and each participating jurisdiction containing their hazards of concern, hazard risk ranking, capability assessments, mitigation actions, action prioritization specific only to Warren County or that jurisdiction, progress on prior mitigation activities (as applicable), and a discussion of prior local hazard mitigation plan integration into local planning processes..





Appendices include:

**Appendix A:** Sample Resolution of Plan Adoption: Documentation that supports the plan approval signatures included in Section 2 of this plan.

**Appendix B:** Meeting Documentation: Agendas, attendance sheets, minutes, and other documentation (as available and applicable) of planning meetings convened during the development of the plan.

**Appendix C:** Public and Stakeholder Outreach Documentation: Documentation of the public and stakeholder outreach effort including webpages, informational materials, public and stakeholder meetings and presentations, surveys, and other methods used to receive and incorporate public and stakeholder comment and input to the plan update process.

**Appendix D:** Participation Matrix

**Appendix E:** Action Worksheet Template and Instructions

**Appendix F:** Plan Maintenance Tools: Examples of plan review templates available to support annual plan review and example FEMA Guidance Worksheets (FEMA 386-4).

**Appendix G:** Critical Facility Inventory

**Appendix H:** County Profile and Risk Assessment Supplementary Data: Details regarding past hazard events since those documented in the 2017 plan.

**Appendix J:** NYS DHSES Planning Standards: Includes planning standards and guidelines for hazard mitigation planning.

## 1.2 THE PLAN UPDATE – WHAT IS DIFFERENT?

FEMA approved Warren County's previous HMP in 2017 and all participating jurisdictions adopted the plan the same year. The 2023 update builds on the 2017 plan and specifically includes the following changes or enhancements. This plan differed from its predecessor for a variety of reasons:

1. This plan was prepared in accordance with the 2023 FEMA Hazard Mitigation and NYS DHSES guidance which provided a framework for a more concise and focused mitigation plan.
2. Updated data and tools provided for a more detailed and accurate risk assessment. Building footprint data was now available to provide a more accurate flood vulnerability assessment. The risk assessment was prepared to better support future grant applications by providing risk and vulnerability information that would directly support the measurement of "cost-effectiveness" required under FEMA mitigation grant programs.
3. The plan identified implementable actions rather than strategies, with enough information to serve as the basis for policy and funding decisions and represent measurable impacts on





resiliency and mitigation progress. Strategies provide direction, but actions are fundable under grant programs.

**Table 1-3. Plan Changes Crosswalk**

44 CFR Requirement	2017 Plan	2023 Updated Plan
<p><i>Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:</i></p> <ol style="list-style-type: none"> <li><i>(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;</i></li> <li><i>(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-profit interests to be involved in the planning process; and</i></li> <li><i>(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.</i></li> </ol>	<p>The 2017 plan followed an outreach strategy utilizing multiple media developed and approved by the Steering Committee. This strategy involved the following:</p> <ul style="list-style-type: none"> <li>• Public participation on an oversight Steering Committee.</li> <li>• Establishment of a plan informational website.</li> <li>• Press releases.</li> <li>• Use of a public information survey.</li> </ul> <p>Stakeholders were identified and coordinated with throughout the process. A comprehensive review of relevant plans and programs was performed by the planning team.</p>	<p>Building upon the success of the 2017 plan, the 2023 planning effort deployed the same public engagement methodology. The plan included the following enhancements:</p> <ul style="list-style-type: none"> <li>• Using social media.</li> <li>• Web-deployed survey.</li> <li>• Informational brochure.</li> <li>• After plan adoption, a Storymap will provide enhanced online accessibility for the public.</li> <li>• Public website specific to the HMP planning process.</li> </ul> <p>As with the 2017 plan, the 2023 planning process identified key stakeholders and coordinated with them throughout the process. A comprehensive review of relevant plans and programs was performed by the planning team.</p>
<p><i>§201.6(c)(2): The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.</i></p>	<p>The 2017 plan included a comprehensive risk assessment of hazards of concern. Risk was defined as (probability x impact), where impact is the impact on people, property, and economy of the planning area. All planning partners ranked risk as it pertains to their jurisdiction. The potential impacts of climate change are discussed for each hazard.</p>	<p>A similar methodology, using new, updated data, was employed for the 2023 plan update. The 2023 risk ranking included the addition of two additional factors to provide a relative risk ranking of the hazards. These included climate change sensitivity and adaptive capacity.</p>
<p><i>§201.6(c)(2)(i): [The risk assessment] shall include a] description of the ... location and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.</i></p>	<p>The 2017 plan presented a risk assessment of each hazard of concern. Each section included the following:</p> <ul style="list-style-type: none"> <li>• Hazard profile, including maps of extent and location, previous occurrences, and probability of future events.</li> <li>• Climate change impacts on future probability.</li> <li>• Impact and vulnerability on life, health, safety, general building</li> </ul>	<p>The same format, using new and updated data, was used for the 2023 plan update. Each section of the risk assessment includes the following:</p> <ul style="list-style-type: none"> <li>• Hazard profile, including maps of extent and location, previous occurrences, and probability of future events.</li> <li>• Climate change impacts on future probability using the best available data for New York State.</li> </ul>





44 CFR Requirement	2017 Plan	2023 Updated Plan
	<p>stock, critical facilities, and economy.</p> <ul style="list-style-type: none"> <li>Impact on people, property, critical facilities, and environment.</li> <li>Future growth and development.</li> <li>Additional data and next steps.</li> <li>Overall vulnerability assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Vulnerability assessment includes impact on life, safety, and health, general building stock, critical facilities, and the economy, as well as future changes that could impact vulnerability.</li> <li>The vulnerability assessment also includes changes in vulnerability since the 2017 plan.</li> <li>Identified issues have been documented in each hazard profile.</li> </ul>
<p>§201.6(c)(2)(ii): [The risk assessment] shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i). This description shall include an overall summary of each hazard and its impact on the community.</p>	<p>Vulnerability was assessed for all hazards of concern. The HAZUS-MH computer model was used for the severe storm, earthquake, and flood hazards. These were Level 2 analyses using county data. Site-specific data on county-identified critical facilities were entered into the HAZUS-MH model. HAZUS-MH outputs were generated for other hazards by applying an estimated damage function to an asset inventory extracted from HAZUS-MH-MH.</p>	<p>The same methodology was deployed for the 2023 plan update, using new and updated data.</p>
<p>§201.6(c)(2)(ii): [The risk assessment] must also address National Flood Insurance Program insured structures that have been repetitively damaged floods.</p>	<p>A summary of NFIP insured properties including an analysis of repetitive loss property locations was included in the plan.</p>	<p>New and updated aggregate data is included in the 2023 plan. Due to privacy restrictions, locations of repetitive loss property locations have not been mapped..</p>
<p>Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure and critical facilities located in the identified hazard area.</p>	<p>A complete inventory of the numbers and types of buildings exposed was generated for each hazard of concern. The Steering Committee defined "critical facilities" for the planning area, and these were inventoried by exposure. Each hazard profile provides a discussion on future development trends.</p>	<p>The same methodology was deployed for the 2023 plan update using new and updated data and enhanced with the identification of lifeline facilities.</p>
<p>Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) and a description of the methodology used to prepare the estimate.</p>	<p>Loss estimates were generated for all hazards of concern. These were generated by HAZUS-MH for the severe storm, earthquake, and flood hazards. For the other hazards, loss estimates were generated by applying a regionally relevant damage function to the exposed inventory. In all cases, a damage function was applied to an asset</p>	<p>The same methodology was deployed for the 2023 plan update using new and updated data.</p>





44 CFR Requirement	2017 Plan	2023 Updated Plan
	inventory. The asset inventory was the same for all hazards and was generated in HAZUS-MH.	
<i>Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.</i>	There is an overview of anticipated development in the County profile. Each annex includes a listing of development since 2010 as well as projected development in the next 5 years.	The same methodology was deployed for the 2023 plan update using new and updated data.
<i>§201.6(c)(3): [The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.]</i>	The 2017 plan contained a mission statement, goals, objectives, and actions. The mission statement, goals and objectives were regional and covered all planning partners. Each planning partner identified actions that could be implemented within their capabilities. The actions were jurisdiction-specific and strove to meet multiple objectives. All objectives met multiple goals and stand alone as components of the plan. Each planning partner completed an assessment of its planning, regulatory, technical, and financial capabilities.	The 2023 plan includes an updated mission statement goals and objectives. The Steering Committee reviewed and updated the mission statement, goals, and objectives for the plan. Each planning partner used the progress reporting from the plan maintenance and evaluated the status of actions identified in the 2017 plan. Actions that were completed or no longer considered to be feasible were removed. The balance of the actions was carried over to the 2023 plan, and in some cases, new actions were added to the action plan.
<i>Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.</i>	The Steering Committee identified goals, and objectives targeted specifically for this hazard mitigation plan. These planning components supported the actions identified in the plan.	The same methodology for setting goals, objectives, and actions was applied to the 2023 plan update. The Steering Committee reviewed and updated the mission statement, goals, and objectives for the plan to include a focus on increased resiliency. This resulted in the finalization of six goals and 21 objectives to frame the plan.
<i>Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.</i>	Concerted efforts were made to assure that municipalities develop updated mitigation strategies that included activities and initiatives covering the range of mitigation action types described in recent FEMA planning guidance (FEMA "Local Mitigation Planning Handbook" March 2013). Members of the Planning Committee and contract consultants worked directly with each jurisdiction (phone, email, local support meetings) to assist with the development and update of their	A focused process was used to provide step-wise review of a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard. Each partner was mentored by the contracted planner and the County to review and enhance carry-over actions from the 2017 plan to provide a better foundation for funding and implementation. In addition, projects in all mitigation categories (Plans and Regulations, Structure and Infrastructure





44 CFR Requirement	2017 Plan	2023 Updated Plan
	annex and include mitigation strategies, focusing on identifying well-defined, implementable projects with a careful consideration of benefits (risk reduction, losses avoided), costs, and possible funding sources (including mitigation grant programs).	Projects, Natural Systems Protection, and Education and Awareness actions were reviewed and considered when addressing problem statements identified by the partners or via public and stakeholder feedback. <i>Additional data regarding problem areas are included in annex mapping to support identification of effective mitigation actions.</i>
<i>Requirement: §201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program, and continued compliance with the program's requirements, as appropriate.</i>	All municipal planning partners that participate in the NFIP identified an action stating their commitment to maintain compliance and good standing under the program.	Ongoing participation in the NFIP for municipalities is included in ongoing capabilities.
<i>Requirement: §201.6(c)(3)(iii): [The mitigation strategy shall describe] how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.</i>	Each recommended action was prioritized using a methodology based on the STAPLEE criteria for the 2017 plan.	The same methodology based on the STAPLEE criteria but using new and updated data was used for the 2023 plan update.
<i>Requirement §201.6(c)(4)(i): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.</i>	The 2017 plan details steps for monitoring, evaluating, and updating the mitigation plan set forth in 44 CFR § 201.6.	The 2023 plan details a plan maintenance strategy enhancing that of the initial plan by use of a web-based proprietary progress reporting tool.
<i>Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.</i>	The 2017 plan details recommendations for incorporating the plan into other planning mechanisms.	The 2023 plan details recommendations for incorporating the plan into other planning mechanisms such as the following: <ul style="list-style-type: none"> <li>• Comprehensive Plan.</li> <li>• Emergency Response Plan.</li> <li>• Capital Improvement Programs.</li> <li>• Municipal Code.</li> </ul>
<i>Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.</i>	The 2017 plan details a strategy for continuing public involvement.	The 2017 plan maintenance strategy was carried over to the 2023 plan. In addition, the County will use a proprietary online tool to support the annual progress reporting of mitigation actions.
<i>Requirement §201.6(c)(5): [The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body</i>	The County and 13 planning partners participated in the 2017 planning process.	The 2023 plan achieves DMA compliance for the County and 13 planning partners. A list of partners who met the planning criteria for





44 CFR Requirement	2017 Plan	2023 Updated Plan
<i>of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).</i>		DMA compliance are included in Section 8 (Planning Partnership) of this plan. Resolutions for each partner adopting the plan will be in Appendix A of this volume.





## SECTION 2. PLAN ADOPTION

### 2.2 OVERVIEW

This section contains information regarding adoption of the 2023 Warren County Multi-Jurisdictional Hazard Mitigation Plan by Warren County and each of its participating jurisdictions.

### 2.1 PLAN ADOPTION BY LOCAL GOVERNING BODIES

Adoption by the local governing bodies demonstrates the commitment of Warren County and each participating jurisdiction to fulfill the mitigation goals [and objectives] and mitigation strategies outlined in the Plan. Adoption legitimizes the Plan and authorizes responsible agencies to execute their responsibilities.

The County and all participating jurisdictions will proceed with formal adoption proceedings when FEMA provides conditional approval of this plan. Following adoption or formal action on the plan, the jurisdiction must submit a copy of the resolution or other legal instrument showing formal adoption (acceptance) of the plan to NYS DHSES. This will then be submitted to FEMA for review and documentation. The jurisdictions understand that FEMA will transmit acknowledgement of verification of formal plan adoption and the official approval of the plan to the Warren County mitigation plan coordinator.

A sample resolution is included as Appendix A, Resolution of Plan Adoption. Subsequent to plan adoption, the resolutions of jurisdictions adopting the plan will also be included in Appendix A.

In addition to being required by DMA 2000, adoption of the plan is necessary because:

It lends authority to the plan to serve as a guiding document for all local and state government officials;

It gives legal status to the plan in the event it is challenged in court;

It certifies the program and grant administrators that the plan's recommendations have been properly considered and approved by the governing authority and jurisdictions' citizens; and

It helps to ensure the continuity of mitigation programs and policies over time because elected officials, staff, and other community decision-makers can refer to the official document when making decisions about the community's future.

Source: FEMA. 2003. "How to Series"-Bringing the Plan to Life (FEMA 386-4).





## SECTION 3. PLANNING PROCESS

### 3.1 INTRODUCTION

This section includes a description of the planning process used to update the Warren County Hazard Mitigation Plan also referred herein as the “Hazard Mitigation Plan” or the “plan”), including how it was prepared, who was involved in the process, and how the public was involved.

To ensure that the plan both met the requirements of the DMA 2000, as well as to support the long-term goal of having all jurisdictions in the County covered under a comprehensive and cohesive county-wide DMA 2000 plan, an approach to the planning process and plan documentation was developed to achieve the following:

- The plan will be multi-jurisdictional, with the intention of including all municipalities in the county. Warren County invited all jurisdictions in the county to join with them in the planning process. All of the 13 local municipal governments in the County participated in the 2023 plan update process as indicated in Table 3-1 below.

**Table 3-1. Participating Warren County Jurisdictions**

Participating Jurisdictions		
Warren County	Hague (T)	Lake Luzerne (T)
	Horicon (T)	Queensbury (T)
Bolton (T)	Johnsburg (T)	Stony Creek (T)
Chester (T)	Lake George (T)	Thurman (T)
Glens Falls (C)	Lake George (V)	Warrensburg (T)

- The plan considers all-natural hazards facing the area, thereby satisfying the natural hazards mitigation planning requirements specified in DMA 2000.
- The plan was developed following the process outlined by DMA 2000, FEMA regulations, and prevailing FEMA and NYS DHSES guidance. Following this process ensures that all the requirements are met and support the Plan review.
- The Warren County HMP update was written using the best available information obtained from a wide variety of sources. Throughout the HMP update process, a concerted effort was made to gather information from municipal and regional agencies and staff as well as stakeholders, federal and state agencies, and the residents of the county. The HMP Steering Committee solicited information from local agencies and individuals with specific knowledge of certain natural hazards and past historical events. In addition, the committees took into consideration planning and zoning codes, ordinances, and recent land use planning decisions. The hazard mitigation





strategies identified in this HMP have been developed through an extensive planning process involving local, county and regional agencies, residents, and stakeholders.

This section of the plan describes the mitigation planning process, including (1) Organization of Planning Process; (2) Planning Activities; (3) Stakeholder Outreach and Involvement; (4) Public Outreach and Involvement; (4) Integration of Existing Data, Plans, and Information; (5) Integration with Existing Planning Mechanisms and Programs; and (6) Continued Public Outreach.

## 3.2 ORGANIZATION OF PLANNING PROCESS

This section of the plan identifies how the planning process was organized with the many planning partners involved and outlines the major activities that were conducted in the development of this HMP.

### 3.2.1 Organization of Planning Partnership

Warren County applied for and was awarded a multi-jurisdictional planning grant under the HMPG Grant Program (EMN-2020-BR-063-0019), which has supported the development of this HMP.

Project management and grant administration has been the responsibility of the Warren County Department of Emergency Services – Office of Emergency Management with support from the Warren County Soil & Water Conservation District. A contract planning consultant (Tetra Tech) was tasked with:

- Assisting with the organization of a Steering Committee and municipal planning partnership;
- Assisting with the development and implementation of a public and stakeholder outreach program;
- Data collection;
- Facilitation and attendance at meetings (Steering Committee, municipal, stakeholder, public and other);
- Review and update of the hazards of concern, and hazard profiling and risk assessment;
- Assistance with the review and update of mitigation planning goals and objectives;
- Assistance with the review of past mitigation strategies progress;
- Assistance with the screening of mitigation actions and the identification of appropriate actions;
- Assistance with the prioritization of mitigation actions; and
- Authoring of the draft and final plan documents.

In April 2022, the County notified all municipalities within the County of the pending planning process and invited them to formally participate. Jurisdictions were asked to formally notify the county of their intent to participate (via a Letter of Intent) and to identify planning points of contact to facilitate municipal participation and represent the interests of their respective communities.





To facilitate plan development, Warren County developed a Steering Committee to provide guidance and direction to the HMP update effort, and to ensure the resulting document will be embraced both politically and by the constituency within the planning area. All municipalities participating in the plan update authorized the Steering Committee to perform certain activities on their behalf, via the Letter of Intent to participate (FEMA mitigation planning “combination model”). Specifically, the Steering Committee was charged with:

- Providing guidance and oversight of the planning process on behalf of the general planning partnership;
- Attending and participating in Steering Committee meetings;
- Assisting with the development and completion of certain planning elements, including:
  - Reviewing and updating the hazards of concern,
  - Developing a public and stakeholder outreach program,
  - Assuring that the data and information used in the plan update process is the best available,
  - Reviewing and updating the hazard mitigation goals,
  - Identification and screening of appropriate mitigation strategies and activities;
- Reviewing and commenting on plan documents prior to submission to NYS DHSES and FEMA.

The Steering Committee provided guidance and leadership, oversight of the planning process, and acted as the point of contact for all participating jurisdictions and the various interest groups in the planning area.

All municipalities in the County were invited to participate in the planning process, and received a copy of the Planning Partner Expectations, outlining the responsibilities of the participants and the agreement of the partners to authorize the Steering Committee to represent the jurisdiction in the completion of certain planning elements as noted above. Within this plan, the greater universe of County and local departments, agencies and jurisdictions that formally participated in the planning process are referred to as the “planning partnership”, while the municipal government participants are referred to as the “municipal planning partnership”.

The municipal planning partnership was charged with the following:

- Represent their jurisdiction throughout the planning process;
- Assure participation of all department and functions within their community that have a stake in mitigation (e.g., planning, engineering, code enforcement, police and emergency services, public works, etc.);
- Assist in gathering information for inclusion in the plan update, including the use of previously developed reports and data;
- Support and promote the public involvement process;
- Report on progress of mitigation actions identified in prior or existing HMPs, as applicable;
- Identify, develop, and prioritize appropriate mitigation initiatives;





- Report on progress of integration of prior or existing HMPs into other planning processes and municipal operations;
- Develop and author a jurisdictional annex for their jurisdiction;
- Review, amend, and approve all sections of the plan update; and
- Adopt, implement and maintain the plan update.

Table 3-2 shows the current members of the planning partnership as of the time of publication of this plan update.

**Table 3-2. Warren County Hazard Mitigation Planning Partnership Members**

Organization	Name	Title	Steering Committee Representative	POC	Alternate POC
Warren County	Ann Marie Mason	Director, Emergency Services	x	x	-
Warren County	Tammie DeLorenzo	Assistant to the County Administrator	x	x	-
Warren County	Ashley Rivers	Emergency Services Coordinator	x	x	-
Warren County	Sara Frankenfeld	GIS Coordinator	x	x	-
Warren County	Ethan Gaddy	WC Planner/Climate Smart	x	x	-
Warren County	Kevin Hajos	Superintendent, Department of Public Works	x	x	-
Finch Paper	Sandy LeBarron	Director of Environmental Health and Safety	x	x	-
Warren County Soil & Water Conservation District	Jim Lieberum, CPESC	District Manager/County Hazard Mitigation Coordinator	x	x	-
Town of Queensbury	Laura Moore	Planner, Town of Queensbury	x	x	-
Adirondack/Glens Falls Transportation Council	Aaron Frankenfeld	Staff Director, Adirondack/Glens Falls Transportation Council	x	x	-
Bolton, Town	Joshua Westfall, AICP	Planner		x	
	Richard Roman	Code Enforcement			x
Chester, Town	Craig Leggett	Supervisor		x	
	Larry Turcotte	Councilman			x
	Jeremy Little	Zoning Administrator			
	Jessica Leerkes	Town Engineer			
Glens Falls, City	Justin Reckner	Code Enforcement Officer		x	
	William Norton	Superintendent, Water & Sewer			x
	Kris Vanderzee	Code Enforcement Officer			





Organization	Name	Title	Steering Committee Representative	POC	Alternate POC
Hague, Town	Edna A. Frasier	Town Supervisor		x	
	Matthew Coffin	Deputy Highway Superintendent			x
	Matthew Magee	Zoning Administrator			
Horicon, Town	Michael N. Geraci	Supervisor		x	
	Darian Granger	Highway Superintendent			x
	Matthew Magee	Zoning Administrator			
Johnsburg, Town	Danae Tucker	Bookkeeper		x	
	Fred Comstock	Highway Superintendent			x
	Ernie Dunkley				
	Mike Dunkley	Deputy Highway Superintendent			
Lake George, Town	Dan Barusch	Planning and Zoning	x	x	
	Rob Lanfear	Highway Department			x
	Dan Barusch	Planning and Zoning		x	
Lake George, Village	Ray Perry	Mayor			x
	Keith Lanfear	Superintendent of Public Works			
	John Helms	DPW Foreman			
Lake Luzerne, Town	Eugene J. Merlino	Town Supervisor		x	
	Ronnie Deuel	Highway Superintendent			x
	Karen Putney	Zoning Officer			
Queensbury, Town	Laura Moore	Land Use Planner			
	John Strough	Town Supervisor		x	
	Craig Brown	Director of Planning and Zoning			x
	Dave Duell	Highway Superintendent			
	John O'Brien	Director of Building and Codes			
Stony Creek, Town	Frank E. Thomas	Supervisor		x	
	Ed Lowell, Jr.	Councilman			x
Thurman, Town	Deb Runyon	Supervisor		x	
	Patrick Wood	Highway Superintendent			x
	Thurman Town Board	Town Board			
Warrensburg, Town	James S. Hull	Code Enforcement Officer		x	
Warrensburg, Town	Kevin B. Geraghty	Town Supervisor			x

Notes: POC = Point of Contact; WC = Warren County

It is noted that the jurisdictional Letter of Intent to Participate identifies the above "Planning Partner Expectations" as serving to identify those activities comprising overall participation by jurisdictions throughout the planning process. The various jurisdictions in Warren County have differing levels of capabilities and resources available to apply to the plan update process, and further, have differing exposure and vulnerability to the natural hazard risks being considered in this plan. It was Warren County's intent to encourage participation by all-inclusive jurisdictions, and to accommodate their specific needs and limitations while still meeting the intents and purpose of plan update participation. Such accommodations have included the establishment of a Steering Committee, engaging a contract consultant to assume certain elements of the plan update process on behalf of





the jurisdictions, and the provision of additional and alternative mechanisms to meet the purposes and intent of mitigation planning.

Ultimately, jurisdictional participation is evidenced by a completed annex of the HMP wherein jurisdictions have individually identified their planning points of contact, evaluated their risk to the hazards of concern, identified their capabilities to effect mitigation in their community, and identified and prioritized an appropriate suite of mitigation initiatives, actions, and projects to mitigate their hazard risk; and eventually, by the adoption of the updated plan via resolution. Refer to Section 9 of this HMP.

Appendix B identifies those individuals who represented the municipalities during this planning effort and indicates how they contributed to the planning process.

All municipalities in the county actively participate in the National Flood Insurance Program and have a designated NFIP Floodplain Administrator (FPA). All FPAs have been informed of the planning process, reviewed the plan documents, and provided direct input to the plan update. Local FPAs are identified in the “Administrative and Technical” portion of the local Capability Assessments presented within the jurisdictional annexes in Section 9, as well as in Appendix B.

### 3.2.2 Planning Activities

Members of the planning partnership (individually and as a whole), as well as key stakeholders, convened and/or communicated on an as-needed basis to share information and participate in workshops to identify hazards; assess risks; review existing inventories of and identify new critical facilities; assist in updating and developing new mitigation goals and strategies; and provide continuity through the process to ensure that natural hazards vulnerability information and appropriate mitigation strategies were incorporated. All members of the planning partnership had the opportunity to review the draft plan and supported interaction with other stakeholders, and assisted with public involvement efforts.

A summary of planning partnership activities, including meetings held during the development of the plan, is included in Table 3-3. This summary table identifies only the formal meetings and milestone events held during the plan update process and does not reflect the larger universe of planning activities conducted by individuals and groups throughout the planning process. In addition to these meetings, there was a great deal of communication between planning partnership members and the consultant through individual local meetings, phone and email.

After completion of the plan, implementation and ongoing maintenance will become a function of the planning partnership as described in Section 7. The planning partnership is responsible for reviewing the draft plan and soliciting public comment as part of an annual review and as part of the five-year mitigation plan updates.

Table 3-3 presents a summary of planning activities and general project planning efforts conducted during the plan development process. It also identifies which DMA 2000 requirements the activities





satisfy. Documentation of meetings (agendas, sign-in sheets, minutes, etc.) may be found in Appendix C.

**Table 3-3. Summary of Mitigation Planning Activities / Efforts**

Date	DMA 2000 Requirement	Description of Activity	Participants
-	1b, 2	County approves resolution to apply for FEMA mitigation planning grant	-
-	1b, 2	County conducts procurement process for contract planning support	-
9/16/2022	2	Project Start Up Meeting: Discuss proposed planning process and scope of work including documenting participation, schedule, and public and stakeholder outreach and involvement.	See Appendix C
	2	All municipalities invited to participate in the planning process.	-
	2, 3c	GIS data collection meeting	See Appendix C
Bi-weekly	-	B-weekly project status meeting to discuss action items in support of the expedited planning process	Ann Marie Mason, Jim Lieberum, Ashley Rivers
	1c, 2	Interested jurisdictions submit Letters of Intent to Participate in this planning process, acknowledging municipal participation requirements and identifying planning point(s) of contact.	See Appendix C
10/27/2022	1b, 2, 3a, 3b, 3c, 4a, 5c	Steering Committee Meeting #1: Review project schedule; review municipal participation, discuss municipal Kick Off meeting and local data collection; review and discuss sources and availability of county and regional data; discuss public and stakeholder outreach efforts.	See Appendix C
11/2/2022	1b, 2, 3a, 3b, 3c, 4a	Municipal Kick-Off Planning Partnership #1 Meeting: Complete overview of planning process, plan participant expectations, review of hazards and hazards of concern identification, discussion of data needs and data collection process explaining all provided worksheets (hard copy and on resource CD), discussion of public and stakeholder outreach efforts	County and municipal representatives and stakeholders. See Appendix C
11/16/2022		Municipal Homework Support Meeting: The purpose of the meeting was to provide an overview of information needed to update the local information for the Warren County Hazard Mitigation Plan (HMP) update.	County and municipal representatives See Appendix C
	2	Media Release	Public and Stakeholders
	2	Public project website developed: <a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>	Core Planning Team, Contract Planner
	2	Online Public Hazard Preparedness and Mitigation survey developed	Core Planning Team, Contract Planner





Date	DMA 2000 Requirement	Description of Activity	Participants
	2	Online Stakeholder Hazard Mitigation surveys developed	Core Planning Team, Contract Planner
12/14/2023		Steering Committee Meeting #2 Goals and Objectives Meeting: Purpose to confirm Hazards of Concern, Update Mission Statement, Goals and Objectives, and facilitate a SWOO.	See Appendix C
2/10/2023	1a, 3a, 3b, 3c, 3d	Steering Committee Meeting #3 Risk Assessment Meeting:	See Appendix C
2/15/2023	1a, 3a, 3b, 3c, 3d	Planning Partnership Meeting #2 Risk Assessment Meeting:	See Appendix C
3/8/2023		Steering Committee Meeting #4: Purpose to provide a brief progress report and address pending action items.	
3/15/2023	1a, 2, 4a, 4b, 4c	Mitigation Strategy Workshop	See Appendix D
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input- Bolton (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input- – Chester (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input-- Glens Falls (C)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input- – Hague (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input- – Horicon (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Johnsbury (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Lake George (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Lake George (V)	See Appendix D
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Lake Luzerne (T)	See Appendix C





Date	DMA 2000 Requirement	Description of Activity	Participants
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Queensbury (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Stony Creek (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Stony Creek (T)	See Appendix C
Via email and telecon – March/May, 2023	1b, 2, 3a-c, 3e	Local annex input – Warrensburg (T)	See Appendix D
6/2/2023	1b, 2, 3a-c, 3e	County Annex Meeting	AnnMarie Mason, Jim Lieberum, Tammy DeLorenzo, Ashley Rivers
6/7/2023	All requirements	Steering Committee Meeting	Steering Committee; Contract Planner See Appendix D
6/7/2023	All requirements	Steering Committee Meeting– Plan Maintenance, Draft Plan Review	Steering Committee; Contract Planner See Appendix D
	2	Draft Plan posted to public project website	Public and Stakeholders
	1b, 2	Public and stakeholder comments to Draft Plan received and incorporated in to Final Plan.	Public and Stakeholders
	All requirements	Final plan submitted to NYS DHSES and FEMA Region II	NYS DHSES, FEMA Region II
Upon plan approval by FEMA	1a	Plan adoption by resolution by the governing bodies of all participating municipalities	All plan participants

Note: TBD = to be determined.

Each number in column 2 identifies specific DMA 2000 requirements, as follows:

1a – Prerequisite – Adoption by the Local Governing Body

1b – Public Participation

2 – Planning Process – Documentation of the Planning Process

3a – Risk Assessment – Identifying Hazards

3b – Risk Assessment – Profiling Hazard Events

3c – Risk Assessment – Assessing Vulnerability: Identifying Assets

3d – Risk Assessment – Assessing Vulnerability: Estimating Potential Losses

3e – Risk Assessment – Assessing Vulnerability: Analyzing Development Trends

4a – Mitigation Strategy – Local Hazard Mitigation Goals





*4b – Mitigation Strategy – Identification and Analysis of Mitigation Measures*

*4c – Mitigation Strategy – Implementation of Mitigation Measures*

*5a – Plan Maintenance Procedures – Monitoring, Evaluating, and Updating the Plan*

*5b – Plan Maintenance Procedures – Implementation through Existing Programs*

*5c – Plan Maintenance Procedures – Continued Public Involvement*

## 3.3 STAKEHOLDER OUTREACH AND INVOLVEMENT

This section details the outreach to, and involvement of, the many agencies, departments, organizations, non-profits, districts, authorities, and other entities that have a stake in managing hazard risk and mitigation, commonly referred to as stakeholders.

Diligent efforts were made to assure broad regional, county, and local representation in this planning process. To that end, a comprehensive list of stakeholders was developed with the support of the Steering and Planning committees. Stakeholder outreach was performed early and throughout the planning process. In addition to “mass media” notification efforts, identified stakeholders were invited to attend the kick-off meeting, while key stakeholders were requested to participate on the Steering and/or Planning committees. Information and input provided by these stakeholders has been included throughout this plan where appropriate, as identified in the references.

The following is a list of the various stakeholders that were invited to participate in the development of this plan, along with a summary of how these stakeholders participated and contributed to the plan. This summary listing cannot represent the sum total of stakeholders that were aware of and/or contributed to this plan since formal and informal outreach efforts were utilized throughout the process by the many planning partners involved in the overall effort. Complete documentation of such broad-based and often locally-focused efforts is impossible. Instead, this summary is intended to demonstrate the scope and breadth of the stakeholder outreach efforts made during the planning process.

### Federal Agencies

**FEMA Region II:** Provided updated planning guidance; provided summary and detailed NFIP data for planning area; attended meetings; conducted a Mitigation Strategy Workshop; conducted plan review.

**U.S. Army Corps of Engineers (NY Division):** Relevant NY Division projects and activities summarized in plan.

**National Weather Service (NWS):** Source of data and information,.

**National Oceanic and Atmospheric Agency (NOAA) – Coastal Resources Center:** Source of data and information.

### State Agencies

**New York State Department of Homeland Security and Emergency Services (NYS DHSES: Headquarters and Region II):** Administered planning grant and facilitated FEMA review; provided





updated planning guidance; attended meetings; attended workshops (e.g., hazard mitigation planning, updating mitigation strategies), provided review of Draft and Final Plan.

**New York State Department of Environmental Conservation (NYSDEC):** Provided data and information.

### County and Regional Agencies, Commissions and Non-Profits

**Warren County Soil and Water Conservation District (WC SWCD):** Secured and administered FEMA planning grant, managed project, arranged and attended meetings, served on Steering Committee, provided data and information, facilitated, and supported public and stakeholder outreach, identified ongoing and potential mitigation projects and initiatives, reviewed draft and final plan sections.

**Warren County Office of Emergency Services (WCOES):** Supported WC SWCD with project management, served on Steering Committee, arranged and attended meetings, provided data and information, facilitated and supported public and stakeholder outreach, identified ongoing and potential mitigation projects and initiatives, reviewed draft and final plan sections.

**Warren County Department of Planning and Community Development (WCDPCD):** Served on Steering Committee, provided critical data and information, conducted GIS vulnerability assessment analysis and provided GIS mapping, reviewed progress on original mitigation strategy, identified new projects/initiatives, reviewed and provided input on draft and final plan sections.

**Warren County Board of Supervisors:** Project presented to the Board; various Board members provided direct input to the project, including potential mitigation projects and initiatives.

**Warren County Department of Public Works (WCDPW):** Provided data and information, reviewed progress on original mitigation strategy, identified new projects/initiatives, reviewed and provided input on draft and final plan sections.

**Warren County Department of Parks, Recreation and Railroad (part of WCDPW):** Surveyed for data on infestation events in the County

**Warren County Department of Information Technology:** Provided data and information; reviewed and provided input on specific hazard profiles; identified possible mitigation actions.

**Warren County Sheriff's Office:** Provided data and information; reviewed and provided input on specific hazard profiles.

**Warren County Health Services:** Provided data and information; reviewed and provided input on specific hazard profiles; identified possible mitigation actions.

**Warren County Emergency Preparedness and Response Committee:** Provided data and information; reviewed and provided input on specific hazard profiles; identified mitigation actions





## Regional and Local Stakeholders

Please see Appendix B (Participation Matrix) for further details regarding regional and local stakeholder agencies. The stakeholders listed below were directly contacted by Warren County Soil and Water Conservation District / Warren County Office of Emergency Services to take a stakeholder survey which included the identification of specific mitigation actions/projects. Results of the surveys can be found in Appendix D (Public and Stakeholder Outreach). Stakeholders included a wide range of organizations and agencies including those who serve socially vulnerable and underrepresented populations.

**Academia (School districts and other academic institutions):** Municipalities directly involved school district representatives in the planning process, as identified in Appendix B. All school districts, higher education and many technical/vocational institutions were provided the stakeholder survey and invited to provide input, while some have identified specific mitigation actions/projects included in the County or local mitigation strategies. The following have provided direct input to the planning process:

- Lake George School District– Completed Survey
- Glens Falls City School District– Completed Survey
- Center for Disability Services , Prospect School– Completed Survey

**Law Enforcement:** Many municipalities directly involved police and other law enforcement representatives in the planning process, as identified Appendix B. Further, through the Warren County OES, all police departments and law enforcement agencies in the County were notified of the Stakeholder survey and invited to provide input, while some have identified specific mitigation actions/projects included in the County or local mitigation strategies. The following have provided direct input to the planning process:

- Warren County Sheriff's Office– Completed survey
- Glens Falls Police Department – Completed survey (multiple responses)

**Hospitals and Health-Care Agencies/Facilities:** The following hospitals and health-care facilities in the county were provided the stakeholder survey and invited to provide input, while some have identified specific mitigation actions/projects included in the County or local mitigation strategies. The following have provided input to the planning process:

- Warren County Health Services
- NYS Department of Health Glens Falls District Office
- Southern Adirondack Independent Living
- Glens Falls Hospital





**Business and Commercial Interests (including Camps):** Businesses and commercial interests in the county were provided the stakeholder survey and invited to provide input. The following have provided input to the planning process:

- Lake George Regional Chamber of Commerce & CVB– Completed survey
- Greater Glens Falls Transit– Completed survey

**Private Non-Profit Organizations:** The following private non-profit organizations have provided input to the planning process:

- Silver Bay, YMCA

**Other:**

- Warren/Hamilton Counties Office for Aging
- Warren County Parks Recreation & Railroad

## Transportation

Adirondack / Glens Falls Transportation Council: Steering Committee member. Provided vulnerability information and supported update of mitigation strategy.

## Public Works:

The following have provided input to the planning process via the stakeholder survey:

- Glens Falls Common Council– Completed survey

## Vulnerable Populations:

The below listed agencies that work with and represent the vulnerable populations in Warren County were contacted to provide input to the planning process, to review the plan, and to utilize the plan as an ongoing resource.

Agency/Entity	Vulnerable Populations Served
Lake George School District	Youth
Glens Falls City School District	Youth
Center for Disability Services	Youth
Warren County Health Services	Elderly, Disabled, Low-Income, Non-English Speaking
NYS Department of Health Glens Falls District Office	Elderly, Disabled, Low-Income, Non-English Speaking
Southern Adirondack Independent Living	Elderly, Low Income





Glens Falls Hospital	Elderly, Disabled, Low-Income, Non-English Speaking
Adirondack / Glens Falls Transportation Council	Non-Car owners
Warren/Hamilton Counties Office for Aging	Elderly, Disabled, Low-Income, Non-English Speaking
Silver Bay, YMCA	Youth, Elderly, Disabled, Low-Income, Non-English Speaking

### Adjacent Jurisdictions:

The County has made an effort to keep surrounding jurisdictions apprised of the project, and allowed the opportunity to provide input to this planning process via a survey and a request to review the draft plan. Specifically, the following adjoining county and state representatives were contacted in September 2022 to inform them about the availability of the project website, draft plan documents and surveys, and invited to provide input to the planning process:

- Essex County (NY)
  - Emergency Services
- Hamilton County (NY)
  - Department of Emergency Management
- Saratoga County (NY)
  - Sheriff's Office of Emergency Management
- Washington County (NY)
  - Department of Public Safety

Input from neighboring counties which responded to the survey is summarized in the section below.





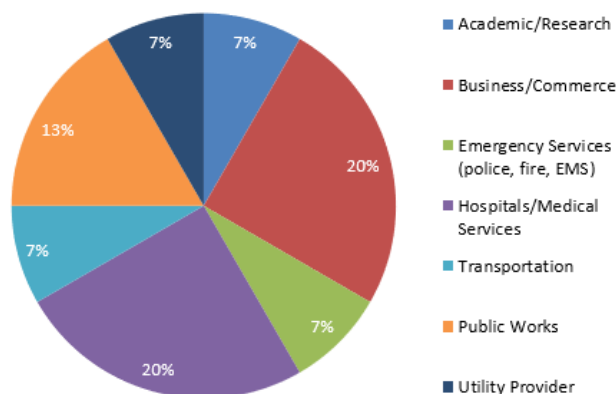
### 3.3.1 Stakeholder and Neighboring County Survey Summaries

3.3.2 The following provides a summary of the results and feedback received by stakeholders who completed the survey. Feedback was reviewed by the Steering Committee and integrated where appropriate in the plan.

#### Stakeholder Survey

The stakeholder survey was designed to help identify general needs for hazard mitigation and resiliency within Warren County from the perspective of stakeholders, as well as to identify specific projects that may be included in the mitigation plan. It was distributed to identified stakeholders, including the various county and municipal departments and agencies in the County. On January 5, 2023, an email was transmitted to 132 county-identified stakeholders to gather information on hazard risks and to identify mitigation actions to increase resilience across the county. As of July 31, 2023, 15 stakeholders completed the survey, with 20% of respondents associated with the Business and Commerce sector and 20% of respondents associated with the Hospital and Medical Services sector as shown in Figure 3-1. Figure 3-2 details the service areas for the survey respondents, with 67 percent of the respondents from Warren County followed by 27% of respondents from the City of Glens Falls. Eight other communities also provided survey feedback.

**Figure 3-1. Stakeholder Types**



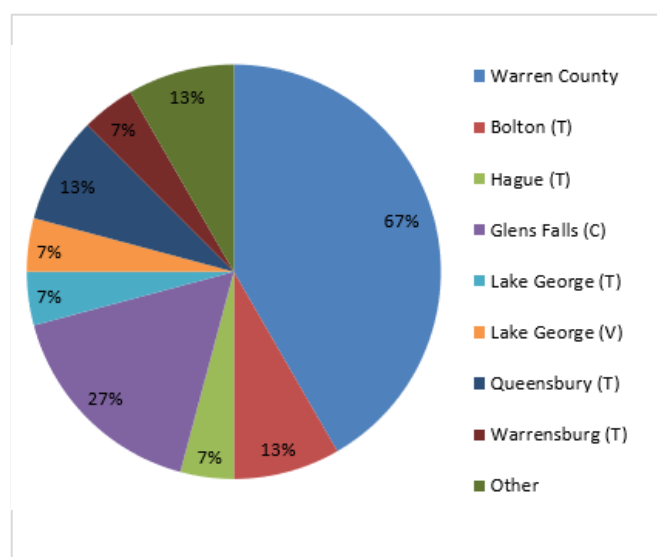
The Stakeholder Survey was broken down into 3 sections: Hazard and Damage Identification, Community Preparedness, and Project Identification, each detailed below. Survey results were shared with the Steering Committee and Planning Partnerships in scheduled meetings for consideration in the development of mitigation strategies.

#### Hazard and Damage Identification

39 percent of survey respondents indicated that buildings, facilities, or structures related to their organization have been impacted by a natural hazard.

In addition to providing feedback as to whether or not their facilities were damaged, stakeholders provided input as to which areas are believed to be the most vulnerable to natural hazards. The respondents identified the following hazards and impacts:

**Figure 3-2. Stakeholder Service Areas**







- Electric Substations and gas regulating stations. As we've all seen in the news with the recent vandalism with electric utility equipment, it is high on the priority list for our security teams.
- Salt mitigation to protect the lake. We currently use sand on the backside of our building/parking area and salt/sand mixture on the front. No other hazards as of this writing.
- Reliance on pre-identified municipal buildings and locations that are owned and maintained by City/Town municipalities for many of our activities.
- Our hub is the County Municipal Center. Vulnerabilities include fire, severe weather impacting the facility, loss of internet and utilities caused by weather or man-made factors
- Road hazards – downed trees, winter driving conditions
- Industry along the river and watershed
- Issues with downed trees blocking the bikeway.
- Ice jams and flooding impact the Fish Hatchery every spring.
- Severe storms
- Lake George has concerns with power outages, fallen trees, water supply concerns, and stormwater causing damage to roadways.
- The northern areas of the county near bodies of water are vulnerable to significant snow storms, wind storms, and rainfall.
- The administrative offices on Quade Street, West Notre Dame, and Shippey Avenue regularly have standing stormwater.

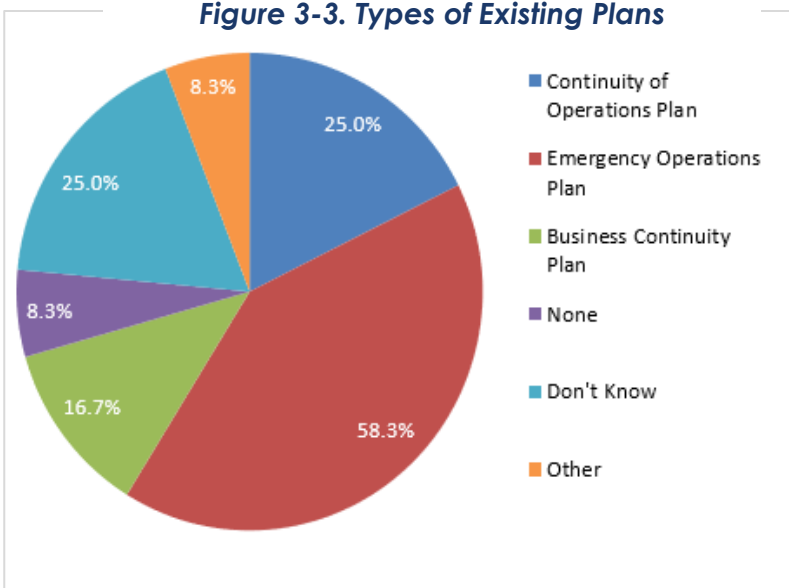
39% of respondents that believe their facilities are equipped to withstand natural disasters, while 8% of respondents do not believe that their facilities are equipped to withstand natural disasters. The remaining 53% stated that their facilities may be properly equipped, or they do not know.

## Planning

Regarding continuity of operations, respondents were polled to identify which types of preparedness and continuity plans covered their facilities. The majority, 58.3% of respondents indicated that their organization has developed an emergency operations plan, while only 25% are covered by a continuity of operations plan and/or a business continuity plan as shown in Figure 3-4.

On respondent questions whether NYS Department of Health is making the impacts of climate change a priority in public health emergency preparedness planning and indicated a desire to

**Figure 3-3. Types of Existing Plans**







understand what steps are being taken to identify populations within Warren County to identify populations with access and functional needs so planning considerations can be made and gaps filled as funding becomes available.

### Project Identification

Respondents identified the following projects or programs that could reduce their organization's vulnerability to damages, including operation of service:

- Tree Trimming program – each of our circuits are trimmed on 5-year cycles, that means every 5 years "Main St in Queensbury" will be inspected for danger trees and trimmed by one of our tree contractors.
- **"Computapole"** program – This is a program that has us inspect and get eyes on every piece of National Grid electric infrastructure throughout our territory. We identify potential hazards like rotting poles, broken or unbonded guy wires, blown lightening arrestors, or broken cross arms. Once they are reported, the issues are then sent to the field workers for repairs. This is also done in 5-year cycles for each of our circuits.
- We have a similar program for our gas distribution system regarding our Leak Prone Pipe program where we are replacing old cast iron mains and services with plastic. We have a gas corrosion team that inspects our pipelines to make sure they are still in spec.
- We were able to take advantage of the second round of PPP funding because of our 501c6 corporate status that helped us through the pandemic financially. Other strategies in the past have been to cut programs and not people to stay financially stable as an organization.
- Upgrading work from home opportunities if the facility is unusable, ensuring a suitable secondary location is available for staff that have to be in the office, providing funding to ensure IT and other equipment necessary to maintain operations is provided.
- Sewage treatment plant power project
- We have an emergency plan in place for fire, natural disasters and manmade disasters and we conduct drills.
- Frequent inspections of facilities and regular maintenance
- Improved stormwater management, additional power generators,

The respondents identified the below-listed projects recently implemented that were recently implemented to reduce vulnerability to hazard events:

- We are reworking our strategic plan and have begun a five-year financial look-back and a five-year forecast CAGR – (compound annual growth rate).
- None at a County level. Public Health initiatives to mitigate the impacts of a disaster have been undertaken as a requirement of the NYSDOH Office of Health Emergency Preparedness annual core deliverables which must be completed to receive funding from NYSDOH for the Warren County Public Health Emergency Preparedness program.
- SAIL has an internal emergency preparedness plan that we will exercise in the event of an emergency.
- Installation of an emergency back-up generator





- Storm water and sewage decoupling projects
- Frequent inspections of facilities and regular maintenance
- Installed manmade wetland to help manage stormwater and installed a limited number of generators to offset power losses.
- The Warren County Continuity of Operations Plan was implemented.

## Neighboring County Survey

The neighboring county survey was sent to the surrounding counties of Warren due to their proximity to the county and because the effects of hazard events that impact Warren County would be similar to that of their neighbors. Saratoga County submitted 2 responses to the survey.

### Emergency Operations and Continuity of Operations Planning

Saratoga County provided responses to the survey and provided the following information. They indicated that Warren County is involved in its community's comprehensive emergency operations planning, such as by participating on a planning team, or providing resources during an emergency. Specifically, they noted that Warren County was instrumental in helping Saratoga County develop many of its plans and that Warren County is a partner that could be asked for assistance in a variety of disasters.

Regarding emergency operations and disaster response, Saratoga County indicated that emergency Managers work together to respond to incidents and may work together to mitigate against incidents along shared vulnerabilities.

Regarding evacuations, the county noted that they collaborate with Warren County on establishing evacuation routes and alternate evacuation routes. The counties consult one another before making evacuation decisions that would impact one another (recommending evacuation routes into neighboring jurisdictions).

Regarding sheltering, the county noted that they consult one another before making sheltering decisions that would impact one another (recommending shelters in neighboring communities), and share spaces suitable for temporary housing including locations suitable to place temporary housing units to house residents displaced by a disaster.

### Risk and Vulnerability

Respondents identified the following projects as requiring cross-collaboration between county boundaries:

- Flooding along the Hudson – which serves as the boundary between a good portion our counties. Additionally, various incidents along the Northway. Also, large scale incidents (eg brush fire) along our rural border.





- The hazard mitigation plan, intercommunity communication often by the highway department leadership.
- Risks due to dams on common border.

### Shared Hazards of Concern

Respondents provided comments about their answer to cross-collaboration projects and indicated that Warren County and Saratoga County share information regarding mitigation shared during the planning and implementation phases of the projects.

### 3.3.3 Public Outreach

In order to facilitate better coordination and communication between the Planning Committee and citizens and to involve the public in the planning process, it was determined that draft documents will be made available to the public through a variety of venues including printed and online format. Warren County engaged several agencies which provide support to a wide range of vulnerable populations including youth, elderly, low income, and socially vulnerable populations. In this manner the County deemed the public outreach to vulnerable populations effective as agencies that work with and represent the vulnerable populations in Warren County were contacted to provide input to the planning process, to review the plan, and to utilize the plan as an ongoing resource. This overall public outreach effort is intended to increase the likelihood of hazard mitigation becoming one of the standard considerations in the evolution and growth of Warren County.

The Steering and Planning committees have made the following efforts toward public participation in the development and review of the Plan:

- The public was informed of the hazard mitigation planning effort commencement at the kick-off meeting and through press releases, news articles, and public service announcements released throughout the planning process. Copies of these announcements may be found in Appendix C.
- The Warren County Office of Public Information distributed a media release to local news sources on December 9, 2022.
- An article was published in the Post Star on December 13, 2022.
- To inform the public and county agencies of the ongoing plan update effort, updates regarding the mitigation planning process have been made at county-wide meetings including those of the Local Emergency Preparedness Working Group.
- A public website is being maintained as another way to facilitate communication between the Steering Committee, planning partnership, public and stakeholders (<https://www.warrencountynewyorkhmp.com>). The public website contains a project overview, County and local contact information, access to the citizens survey and various stakeholder surveys, and sections of the HMP for public review and comment.





- All participating municipalities have been encouraged to distribute press releases on the project, including links to the project webpage and citizen and stakeholder surveys. Municipalities posting information and supporting online outreach include:
  - To be advised.
- The Warren County Office of Public Information included a request for public input in the weekly Warren County Update (via email).





Figure 3-5. Warren County HMP News Article (December 12, 2023)



- In order to facilitate coordination and communication between the Planning Committee and citizens and involve the public in the planning process, the Plan Update will be available to the public through a variety of venues.
- An on-line natural hazards preparedness citizen survey was developed to gauge household preparedness that may impact Warren County and to assess the level of knowledge of tools and techniques to assist in reducing risk and loss of those hazards. The questionnaire asks quantifiable questions about citizen perception of risk, knowledge of mitigation, and support of community programs. The questionnaire also asks several demographic questions to help analyze trends.
- The survey questionnaire was posted on the County website on <https://www.warrencountynewyorkhmp.com> on December 9, 20, 22, 2022 and January 7, 12, and March 9, 2023 was available through June 6, 2023 for public input. All participating municipalities were requested to advertise the availability of the survey via local homepage links, and other available public announcement methods (e.g. Facebook, Twitter, email blasts, etc.). The audience reach for Facebook, alone, was over 960 subscribers. Over 80 responses





were collected. A summary of survey results is provided later in this Section with full results provided in Appendix C of this plan.

- Specific stakeholder surveys were distributed to Academia, Fire Departments, EMS, Hospitals and Healthcare Organizations, Business and Commercial interests, Utilities and Law Enforcement stakeholders as detailed in the Stakeholder outreach subsection of this chapter. summary of survey results is provided later in this Section and full results provided in Appendix C of this plan.
- The Draft Plan was posted to the public website as of August 1, 2023, for public review and comment. All public comments were directed to the Warren County Planning Department for collection and review by the Steering Committee. All public comments received were forwarded to the appropriate jurisdiction and/or agency and incorporated into the final plan as appropriate.
- Once submitted to NYS DHSES/FEMA, the Final Plan will be available for public review and comment in the same manner and format as the Draft Plan, as well as in hard-copy format at the following as identified in Section 7, "Plan Maintenance".

**Figure 3-6. Warren County HMP Webpage and Local On-Line Outreach**

WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE	
<a href="#">Home</a> <a href="#">About</a> <a href="#">What Is Mitigation</a> <a href="#">Meetings</a> <a href="#">Calendar</a> <a href="#">Explore the Plan</a> <a href="#">Additional Information</a>	
<h2>Explore the Plan</h2>	
<h3>2023 Warren County Hazard Mitigation Plan Update</h3>	
Sections of the 2023 Warren County HMP update will be posted as available.	
<h3>Municipal Annexes</h3>	
• 9.02_Town of Bolton	<a href="#">Download</a>
• 9.03_Town of Chester	<a href="#">Download</a>
• 9.04_City of Glens Falls	<a href="#">Download</a>
• 9.05_Town of Hague	<a href="#">Download</a>
• 9.06_Town of Horicon	<a href="#">Download</a>
• 9.07_Town of Johnsburg	<a href="#">Download</a>
• 9.08_Town of Lake George	<a href="#">Download</a>
• 9.09_Village of Lake George	<a href="#">Download</a>
• 9.10_Town of Lake Luzerne	<a href="#">Download</a>





Figure 3-7. Warren County Newsletter – July 15, 2023

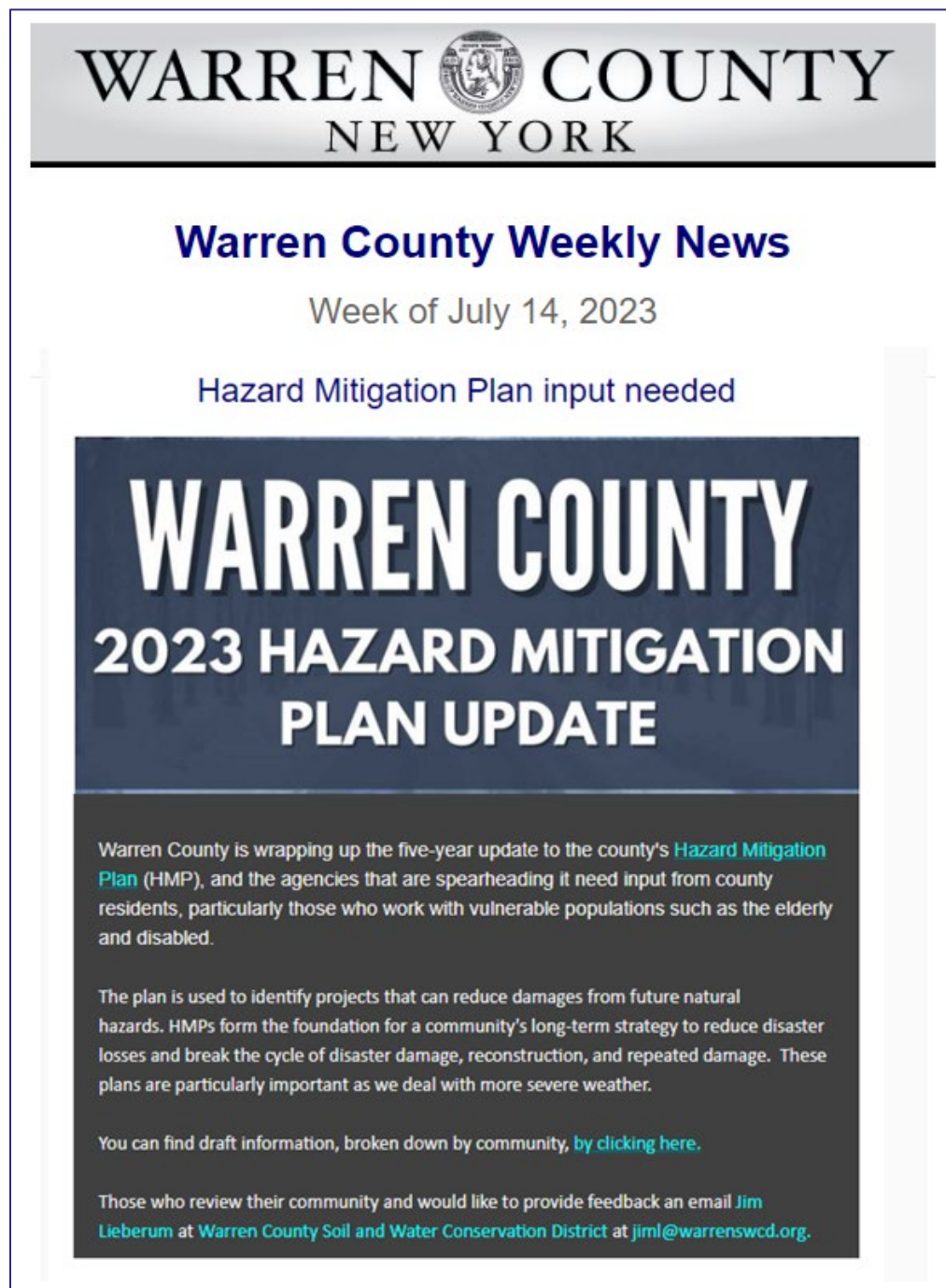






Figure 3-8. Warren County Social Media Posts

**HELP US COMPLETE OUR HAZARD MITIGATION PLAN**

Warren County is looking for public input as it updates its Multi-Jurisdictional Hazard Mitigation Plan, a document that details the potential hazards, such as storm-related conditions, that could affect Warren County's residents and visitors.

This updated plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Updating the plan allows the county and participatin... See more



3

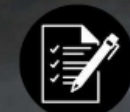


Warren County, New York · Follow

March 9 · 🌐

HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note this plan was completed as of June 2023 and the survey is no longer active.

Warren County Office of Emergency Services and Warren County Soil and Water Conservation District are looking for public input as they update Warren County's Multi-Jurisdictional Hazard Mitigation Plan, a document that details the potential hazards, such as storm-related conditions, that could affect Warren County's residents and visitors. Th... See more

**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE WE NEED YOUR HELP!**

Plan &amp; Prepare



Mitigate

Find out more on our website -  
<https://www.warrencountynewyorkhmp.com/>

5 shares

Comment

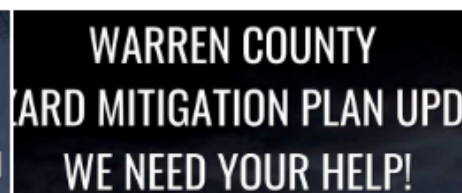
Share



Warren County, New York · Follow

December 9, 2022 · 🌐

Warren County and its partners are updating the county's "Hazard Mitigation Plan" and are looking for public input as part of the process. You can learn more about this plan, and how you can weigh in, here: <http://warrencountyny.gov/.../warren-county-seeks-public...>



Like

Comment

Share



Write a comment...







## Citizen Survey Summary

Those that live and work in Warren County were given the opportunity to be involved in the planning process. One opportunity was the citizen survey. As stated above, the survey was developed to assess the level of knowledge of tools and techniques to assist in reducing risk and loss of those hazards. It asked quantifiable questions about citizen perception of risk, knowledge of mitigation, and support of community programs. The County advertised the survey on their website and social media accounts. As of June 6, 2023, the survey received 81 responses.

*Most residents receive information concerning natural hazards through TV news (70.9%) or the internet (68.4%). 49% of respondents indicated that they receive hazard information from the county website.*

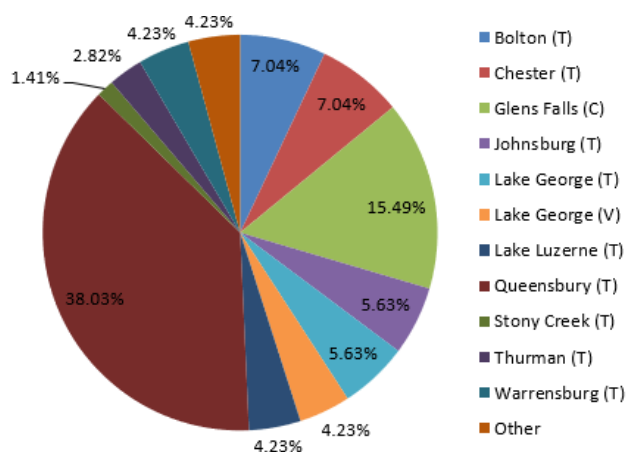
Demographically, survey respondents were from 11 municipalities within Warren County, as seen in Figure 3-8, with 51.4% having lived in the county for 20 years or more, and the vast majority (85.9%) in their own home. The most common (44.3%) age of respondents was over the age of 61. The majority (70.9%) of residents receive information concerning a natural hazard through television news. A similar number (68.4%) receive information through the internet, and

only (13.9%) receive information through Town/Village email.

Survey respondents identified the following as the top 5 most frequently occurring natural hazard events within Warren County in the past 10 years, as shown in Figure 3-3. Furthermore, respondents identified the highest hazards of concern (20% or more respondents reporting very concerned) as noted below.

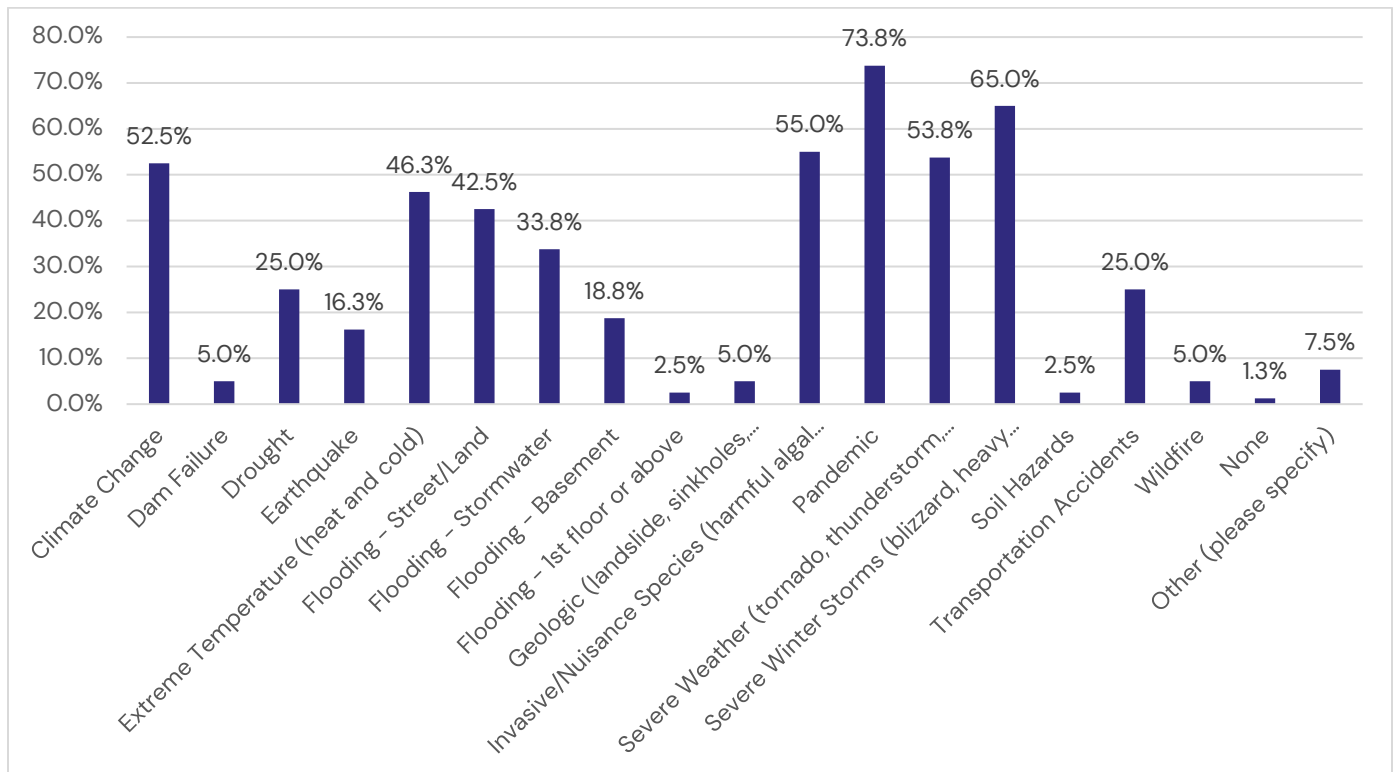
- Climate Change – (24%)
- Severe Storms – wind, lightning, hail (32.1%)
- Extreme temperature – heat and cold (23.7%)
- Flooding – urban flooding / stormwater issues (20.0%)
- Severe winter storms – blizzard, heavy snow, ice (28.2%)

**Figure 3-8. Survey Respondent Municipalities**



*The highest hazards of concern (20% or more respondents reporting very concerned) include: Climate Change, Extreme Temperatures, Stormwater Flooding, Severe Weather, and Severe Winter Storms.*



**Figure 3-9. Most frequently experienced natural hazard events in Warren County**

Respondents identified the following concerns regarding natural hazards:

- Inadequate shelters in case of emergencies.
- Removal of tree limbs that hang over NYS Route 9L.
- Receipt of real time alerts from Warren County similarly to FEMA.
- Requirement for each municipal government should be required to participate in this process to assess their community for potential hazards and develop a mitigation plan.
- Warren County needs to address and fix the drainage issues.
- Address climate change and algae blooms.
- Implement more projects that focus on climate change and taking care of our environment, such as adopt a highway and stream clean up days.
- Annual preparedness training at senior centers, at schools and in locations that citizens are encouraged to attend. create a citizen team to work with Emergency Management for Warren County.
- Improve accessibility for disabled people and Disaster Planning to include input from disabled people with various disabilities, including respiratory.
- Adjustment of on-site work and schedules requirements at county office buildings during severe winter storms to accommodate employees travel long distances to get to Warren County Municipal Center and should not have to use personal time in case of extreme weather.
- Review of runoff areas due to increase of extreme weather (heavy downpours and sudden storms).





Regarding investment in projects to reduce the impact of natural hazards, the three priority project categories are the following:

- Improve the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.) (74.6%)
- Retrofit infrastructure, such as elevating roadways and improving drainage systems (65.7%)
- Replace inadequate or vulnerable bridges (55.2%)

Refer to Appendix D (Public and Stakeholder Outreach) for the full list of survey questions and responses.

### 3.4 INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The Warren County plan strives to use the best available technical information, plans, studies, and reports throughout the planning process to support hazard profiling; risk and vulnerability assessment; review and evaluation of mitigation capabilities; and the identification, development and prioritization of County and local mitigation strategies.

The asset and inventory data used for the risk and vulnerability assessments is presented in the County Profile (Section 4). Details of the source of this data, along with technical information on how the data was used to develop the risk and vulnerability assessment, is presented in the Hazard Profiling and Risk Assessment Section (Section 5), specifically within Section 5.3 (Data and Methodology), as well as throughout the hazard profiles in Section 5.4. Further, the source of technical data and information used may be found within the References section.

Plans, reports, and other technical information were identified and accessed online or provided directly by the County, participating jurisdictions and numerous stakeholders involved in the planning effort, as well as through independent research by the planning consultant. The County and participating jurisdictions were tasked with updating the inventory of their Planning and Regulatory capabilities (see Capability Assessment section of each jurisdictional annex in Section 9) and providing relevant planning and regulatory documents as applicable. Relevant documents, including plans, reports, and ordinances were reviewed to identify:

- Existing municipal capabilities;
- Needs and opportunities to develop or enhance capabilities, which may be identified within the County or local mitigation strategies;
- Mitigation-related goals or objectives, considered in the review and update of the overall Goals and Objectives (see Section 6);
- Proposed, in-progress, or potential mitigation projects, actions, and initiatives to be incorporated into the updated County and local mitigation strategies.





The following local regulations, codes, ordinances and plans were reviewed during this process in an effort to develop mitigation planning goals and objectives and mitigation strategies that are consistent across local and regional planning and regulatory mechanisms; and thus develop complementary and mutually supportive strategies, including:

- Comprehensive/Master Plans
- Building Codes
- Zoning and Subdivision Ordinances
- NFIP Flood Damage Prevention Ordinances
- Site Plan Requirements
- Local Waterfront Revitalization Plans
- Stormwater Management Plans
- Emergency Management and Response Plans
- Land Use and Open Space Plans
- Capital Plans
- Climate Smart Community Program
- Community Rating System
- New York State Standard Multi-Hazard Mitigation Plan, 2019

During the course of this planning process, a concerted effort was made to review all relevant plans contributing to the capability of the county and each municipality to integrate effective mitigation efforts into the daily activities of the county and municipalities. Documentation of this extensive review is reflected in the capability assessment table in each of the municipal annexes wherein the plan types, names, and dates are indicated in the table as well as a summary of how the plan supports mitigation and resilience. The A partial listing of the plans, reports and technical documents reviewed in the preparation of this plan (inclusive of those which provided the basis for capabilities in the previous plan) is included in Table 3-4. Additional plans providing source information are found in the annexes as noted above as well as the References section of this plan.

**Table 3-4. Record Review (Municipalities) - Record of the review of existing programs, policies, and technical documents for participating jurisdictions**

Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Lake Watershed Management Plan Addendum	August 2019	Regional
Lake Champlain Watershed Roadside Erosion Assessment and Inventory Update	2012	Regional





Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Upper Hudson River Watershed Management Plan	March 2020	Regional
Friends Lake Watershed Assessment	October 2017	Regional
Lake Champlain Nonpoint Source Pollution Sub-Watershed Assessment and Management Plan	March 2018	Regional
Lake George HAB Plan 2022 Update	August 2022	Regional
Adopted Budget	2022	Warren County
Uniform Fire & Building Code	2007	Warren County
Comprehensive Emergency Management Plan	2022	Warren County
Climate Smart Report	Bronze Certified 5/28/2022	Warren County
MS4 Annual Report	2018	Warren County
Hazardous Materials Response Plan	21-Oct	Warren County
Hazardous Weather Annex	21-May	Warren County
Mass Care Plan Annex	2020	Warren County
CDBG 2021 Annual Report and COMP Plan	2021	Warren County
Warren County Soil & Water Conservation Districts 2021 Annual Report	2021	Warren County
Comprehensive Plan	<i>Currently under development</i>	Warren County
Excessive Heat Plan	2022	Warren County





Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Upper Hudson River Watershed Management Plan	20-Mar	Warren County
LC Nonpoint Source Pollution Watershed Assessment and Management Plan	18-Mar	Warren County
Warren County - Dam Risk into Local HMG Plans	2021	Warren County
Building Code	-	Town of Bolton
Flood Prevention	-	Town of Bolton
2023 Budget	2023	Town of Bolton
Waterfront Review Law	2018	Town of Bolton
Water Dept Rules and Regulations	2010	Town of Bolton
Comprehensive Plan 2003	2003	Town of Bolton
Zoning, Subdivision of Land. Stormwater Regulations	-	Town of Bolton
Lake Champlain Watershed Roadside Erosion Assessment	2012	Bolton (T), Hague (T), Lake George (T), Queensbury (T)
Lake George HAB Plan 2022 Update	August 2022	Lake George (T), Bolton (T)
Budget 2022	2022	Town of Chester
Community Forest Master Plan	-	Town of Chester
Flood Damage Prevention	-	Town of Chester
Floodplain Development Permit	-	Town of Chester
Loon Lake Watershed Report 2021	2021	Town of Chester
Master Plan	2002	Town of Chester
Pedestrian Improvement Plan	June 2021	Town of Chester
Shoreline Cutting Restrictions	-	Town of Chester





Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Shoreline Regulations	2005	Town of Chester
Subdivision Regulations	2012	Town of Chester
Zoning Law	2019	Town of Chester
Schroon Lake Watershed Management Plan Addendum	2019	Town of Chester
Friends Lake Watershed Assessment	17-Oct	Town of Chester
Loon Lake Watershed Report	21-Nov	Town of Chester
2020-2024 CDBG Con Plan & Action Plan	2020	City of Glens Falls
Building Code Admin	-	City of Glens Falls
Climate Smart Report	2021	City of Glens Falls
Flood Damage Prevention	-	City of Glens Falls
Sewer and Water Regulations	-	City of Glens Falls
Site Alteration Regulations	-	City of Glens Falls
Subdivision of Land	-	City of Glens Falls
Trees Regulations	-	City of Glens Falls
Zoning	-	City of Glens Falls
Building Construction	-	Town of Hague
Drainage Ditches	1990	Town of Hague
Flood Damage Prevention	1996	Town of Hague
Subdivision of Land	1977	Town of Hague
Zoning	1977	Town of Hague
2023 Budget	2023	Town of Hague
2010 Comprehensive Plan	2010	Town of Hague
Environmental Assessment Form	2012	Town of Horicon
First Wilderness Plan 2019	2019	Town of Horicon





Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Subdivision Regulations	1989	Town of Horicon
Zoning Law 2016	2016	Town of Horicon
2021 Water Quality Report	2021	Town of Johnsburg
Comprehensive Plan	2005	Town of Johnsburg
North Creek Sewer District Report	-	Town of Johnsburg
Water District Regulations	2010	Town of Johnsburg
Zoning Law	2007	Town of Johnsburg
2005 Lake George Recreation Study Plan	2005	Town of Lake George
2009 LG Watershed Stream Assessment Plan	2006	Town of Lake George
2013 A GFTC Transportation Plan	2013	Town of Lake George
2013 LG Aquatic Invasive Species Plan	2013	Town of Lake George
2015 Fate of the Lake Plan	2015	Town of Lake George
2015 Stormwater Plan	2015	Town of Lake George
2018 LG Economic Development Plan	2018	Town of Lake George
2020 MS4 Report	2020	Town of Lake George
Climate Smart Report - Web Site	-	Town of Lake George
Comprehensive Plan Appendices	2016	Town of Lake George
Comprehensive Plan	2016	Town of Lake George
Environmental & Historic Preservation	1972	Town of Lake George
Fire Prevention & Building Construction	1984	Town of Lake George
Flood Damage Prevention	1996	Town of Lake George
Solid Waste Regulations	1990	Town of Lake George
Subdivision of Land	1978	Town of Lake George





Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Water Regulations	1988	Town of Lake George
Water District Improvements Report	-	Town of Lake George
Zoning	2018	Town of Lake George
Building Construction	2018	Village of Lake George
Climate Smart Report	-	Village of Lake George
Development Moratorium	2010	Village of Lake George
Fire Prevention	1977	Village of Lake George
Flood Damage Prevention	1996	Village of Lake George
MS4 Annual Report	2022	Village of Lake George
Property Maintenance	2009	Village of Lake George
Sewers	1973	Village of Lake George
Storm Sewer System	2016	Village of Lake George
Stormwater Management Plan	2014	Village of Lake George
Streets and Sidewalks	2011	Village of Lake George
Tree Regulations	2021	Village of Lake George
Water Regulations	1992	Village of Lake George
Water Report	-	Village of Lake George
Zoning	2005	Village of Lake George
Adopted Budget	2022	Town of Queensbury
Building Requirements	-	Town of Queensbury
Capital Projects	2022	Town of Queensbury
Climate Smart Report	-	Town of Queensbury
Comprehensive Plan	2007	Town of Queensbury
Flood Damage Prevention	1996	Town of Queensbury
Freshwater Wetlands	1976	Town of Queensbury
Local Law Water, Sewer	1970	Town of Queensbury
MS4 Annual Report	2022	Town of Queensbury
Queensbury Sewer Consolidation	2021	Town of Queensbury
Stormwater Management Plan	2012	Town of Queensbury





Existing plan, program or technical documents	Date of Document	Jurisdictional Applicability
Subdivision of Land	2010	Town of Queensbury
Water Regulations	1970	Town of Queensbury
Zoning - Subdivision Review	1992	Town of Queensbury
Zoning	2009	Town of Queensbury
2023 Budget	2023	Town of Stony Creek
2022 Budget	2022	Town of Thurman
Subdivision Regulations	-	Town of Thurman
Comprehensive Plan	2012	Town of Warrensburg
Annual Drinking Water Quality Report	2021	Town of Warrensburg
Town Code 2014 Section 1	2014	Town of Warrensburg
Town Code 2014 Section 2	2014	Town of Warrensburg
Town Code 2014 Section 3	2014	Town of Warrensburg
Town Code 2014 Section 4	2014	Town of Warrensburg
River Street Streetscape Revitalization Plan	2015	Town of Warrensburg

Notes: T = Town, V = Village

## 3.5 INTEGRATION WITH EXISTING PLANNING MECHANISMS AND PROGRAMS

Effective mitigation is achieved when hazard awareness and risk management approaches and strategies become an integral part of public activities and decision-making. Within the county there are many existing plans and programs that support hazard risk management, and thus it is critical that this hazard mitigation plan integrate and coordinate with, and complement, those existing plans and programs.

The “Capability Assessment” section of Chapter 6 (Mitigation Strategy) provides a summary and description of the existing plans, programs and regulatory mechanisms at all levels of government (Federal, State, County and local) that support hazard mitigation within the county. Within each jurisdictional annex in Chapter 9, the County and each participating jurisdiction have identified how they have integrated hazard risk management into their existing planning, regulatory and operational/administrative framework (“integration capabilities”) and how they intend to promote this integration (“integration actions”).





A further summary of these continued efforts to develop and promote a comprehensive and holistic approach to hazard risk management and mitigation is presented in Section 7.

### 3.6 CONTINUED PUBLIC INVOLVEMENT

Warren County and participating jurisdictions are committed to the continued involvement of the public in the hazard mitigation process. This Plan update will be posted on-line (currently at <https://www.warrencountynewyorkhmp.com>), and municipalities will be encouraged to maintain links to the plan website. Further, the County will make hard copies of the Plan available for review at public locations as identified on the public plan website.

A notice regarding annual updates of the plan and the location of plan copies will be publicized annually after the Planning Committee's annual evaluation and posted on the public website (currently <https://www.warrencountynewyorkhmp.com>).

Each jurisdiction's governing body shall be responsible for receiving, tracking, and filing public comments regarding this plan.

The public will have an opportunity to comment on the plan as a part of the annual mitigation planning evaluation process and the next five-year mitigation plan update. The HMP Coordinator (Mr. Jim Lieberum, District Manager of the Warren County Soil & Water District ) is responsible for coordinating the plan evaluation portion of the meeting, soliciting feedback, collecting and reviewing the comments, and ensuring their incorporation in the 5-year plan update as appropriate; however, members of the Planning Committee will assist the HMP Coordinator. Additional meetings may also be held as deemed necessary by the Planning Committee. The purpose of these meetings would be to provide the public an opportunity to express concerns, opinions, and ideas about the plan.

Further details regarding continued public involvement are provided in Section 7.

After completion of this plan, implementation and ongoing maintenance will continue to be a function of the Planning Committee. The Planning Committee will review the plan and accept public comment as part of an annual review and as part of five-year mitigation plan updates.

A notice regarding annual updates of the plan and the location of plan copies will be publicized annually after the HMP Committee's annual evaluation and posted on the public web site.

Jim Lieberum, District Manager of the Warren County Soil & Water District has been identified as the ongoing County All-Hazard Mitigation Plan Coordinator (see Section 7), and is responsible for receiving, tracking, and filing public comments regarding this Plan Update.

Contact information:

Mailing Address: 394 Schroon River Road, Warrensburg NY 12885





Email Address: [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)  
Telephone: 518.623.3119





## SECTION 4. COUNTY PROFILE

This profile describes the general information of the County (physical setting, population and demographics, general building stock, and land use and population trends) as well as critical facilities located within Warren County. In Section 5, specific profile information is presented and analyzed to develop an understanding of the study area, including the economic, structural, and population assets at risk and the particular concerns that may be present related to hazards analyzed (for example, a high percentage of vulnerable persons in an area).

### 4.1 GENERAL INFORMATION

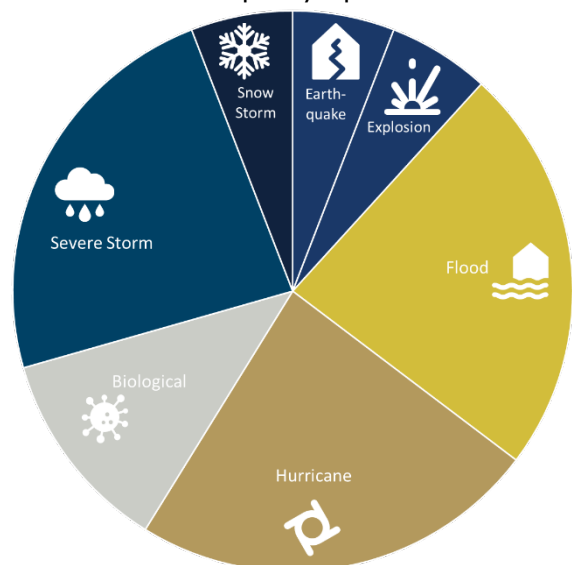
Warren County is located in the northeastern part of New York State. It is bounded on the east by Lake George and Washington County, to the west by Hamilton and Saratoga Counties, to the north by Essex and Hamilton Counties, and to the south by Saratoga County (Warren County 2016).

Warren County was formed in 1813 from Washington County. The County is included in the Glen Falls Metropolitan Statistical Area. Warren County consists of 13 municipalities, covering 932 square miles and estimated population of 65,737 (Census 2020). The County is one of the 62 counties in New York State and is comprised of one city, 11 towns, and one incorporated village. As of the 2020 Census, Warren County is the 38<sup>th</sup> most populated County in the State and ranks 25 in total land area.

The County contains 11 town governments, 1 city government, 1 village government, and the County government. State and federal government statutes and regulations control how the local governments operate. Local governments include the city of Glen Falls; the towns of Bolton, Chester, Hague, Horicon, Johnsburg, Lake George, Lake Luzerne, Queensbury, Stony Creek, Thurman, and Warrensburg; and the village of Lake George. The County and each municipality operate under the limits prescribed by various rules and laws of New York State. Each government entity has various responsibilities, funding sources, staffing levels, elected positions, and administrative capacities (Warren County 2016).

### 4.2 MAJOR PAST HAZARD EVENTS

Presidential disaster declarations are typically issued for hazard events that cause more damage than state and local governments can handle without assistance from the federal government, although no specific dollar loss threshold has been established for these declarations. A







presidential disaster declaration puts federal recovery programs into motion to help disaster victims, businesses, and public entities. Some of the programs are matched by state programs. Review of presidential disaster declarations helps establish the probability of reoccurrence for each hazard and identify targets for risk reduction. Table 4-1 lists the Federal Emergency Management Agency (FEMA) disaster declarations that included Warren County through December 2022 (records date back to 1954).

**Table 4-1. Federal Disaster Declarations in Warren County, New York (1954 to 2022)**

Disaster Number	Event Date(s)	Declaration Date	Incident Type	Title
DR-515-NY	July 21, 1976	July 21, 1976	Flood	Severe Storms & Flooding
EM-3107-NY	March 13-17, 1993	March 17, 1993	Snowstorm	Severe Blizzard
DR-1095-NY	January 19-30, 1996	January 24, 1996	Flood	Severe Storms and Flooding
DR-1296-NY	September 16-18, 1999	September 19, 1999	Hurricane	Hurricane Floyd Major Disaster Declarations
EM-3155-NY	May 22 – November 1, 2000	October 11, 2000	Other	West Nile Virus
DR-1391-NY	September 11, 2001	September 11, 2001	Fire	Fires and Explosions
DR-1415-NY	April 20, 2002	May 16, 2002	Earthquake	Earthquake
EM-3186-NY	August 14-16, 2003	August 23, 2003	Other	Power Outage
DR-1534-NY	May 13 – June 17, 2004	August 3, 2004	Severe Storm	Severe Storms and Flooding
DR-1564-NY	August 13 – September 16, 2004	October 1, 2004	Severe Storm	Severe Storms and Flooding
EM-3262-NY	August 29 – October 01, 2005	September 30, 2005	Hurricane	Hurricane Katrina Evacuation
DR-1899-NY	March 13-31, 2010	April 16, 2010	Severe Storm	Severe Storms and Flooding
DR-1993-NY	April 26 – May 8, 2011	June 10, 2011	Flood	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds
DR-4020-NY	August 26 – September 5, 2011	August 31, 2011	Hurricane	Hurricane Irene
EM-3351-NY	October 27 – November 8, 2012	October 28, 2012	Hurricane	Hurricane Sandy
DR-4129-NY	June 26 – July 10, 2013	July 12, 2013	Flood	Severe Storms and Flooding
DR-4472-NY	October 31 – November 1, 2019	December 19, 2019	Severe Storm	Severe Storms, Straight-Line Winds, and Flooding
EM-3434-NY	January 20, 2020 – May 11, 2023	March 13, 2020	Biological	Covid-19
DR-4480-NY	January 20, 2020 – May 11, 2023	March 20, 2020	Biological	Covid-19 Pandemic

Source: FEMA 2023





## 4.3 PHYSICAL SETTING

This section presents the physical setting of Warren County, including its location, topography, hydrography and hydrology, climate, and land use and land cover.

### 4.3.1 Location

Warren County is located in the mountainous Adirondack Region of New York State, with 96-percent of the County is within the Adirondack State Park. It is a popular tourist destination due to its many lakes and recreational activities. The County's largest population centers include the City of Glens Falls and the Town of Queensbury.

### 4.3.2 Topography and Geology

.. The County lies mainly within the Adirondack physiographic province, though the far southeast corner does lie within the Ridge and Valley province (CARA 2002). The two provinces are distinguished by the sharp contrast in topography and bedrock. The contrast was caused by down-faulting of the mountains to the north and erosion of the limestone in the south (USDA SCS 1989). Elevations in the mountainous areas of the County typically range from 1,200 to 2,500 feet above sea level, with the top of Gore Mountain (the highest point in the County) reaching 3,583 feet. The lowland areas typically vary by less than 100 feet in elevation (USDA SCS 1989).

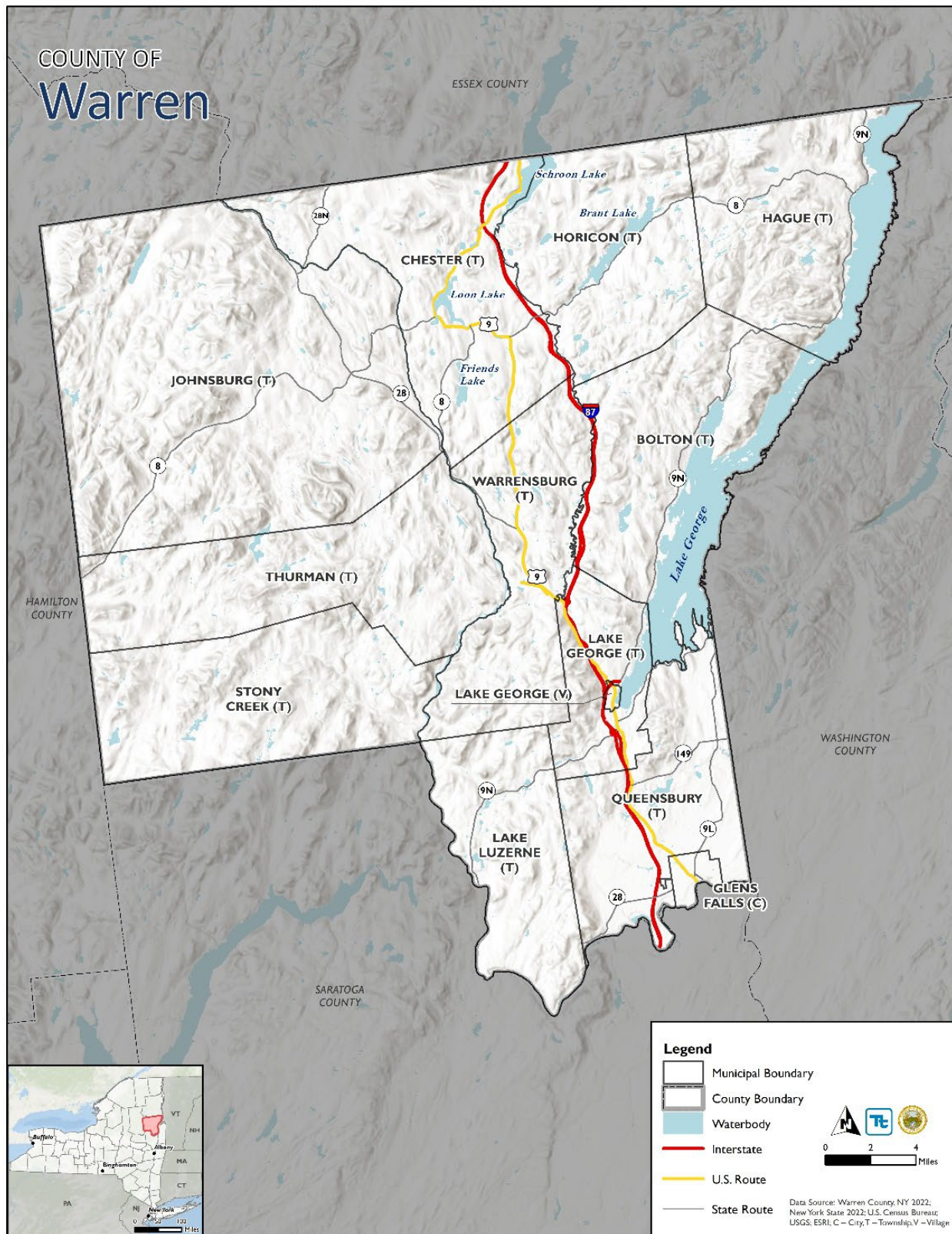
Geology in the Ridge and Valley province consists of sandstone and sedimented carbonates (e.g., limestone, dolomite), formed by an advancing sea and subsiding continental margin between the Paleozoic and Ordovician ages (USDA SCS 1989). The Adirondack province consists mostly of pre-Cambrian metamorphic rock, generally quartzofeldspathic gneiss (quartz and feldspar) overlain by marble, quartzite, and anorthosite (USDA SCS 1989).

The topography, soils, and drainage of the County have been significantly influenced by repeated periods of glaciation during the Pleistocene Epoch (USDA SCS 1989). Glaciers advanced through the valleys, gouging them and increasing the topographic relief. As the ice thickened, it covered the hills and rounded the County's peaks and ridges. The several-thousand-feet-thick ice created sag in the Earth's crust, which resulted in the land tilting to the north. This, in turn, impacted the formation of lakes and the County's drainage system.





Figure 4-1. Site Location Map of Warren County



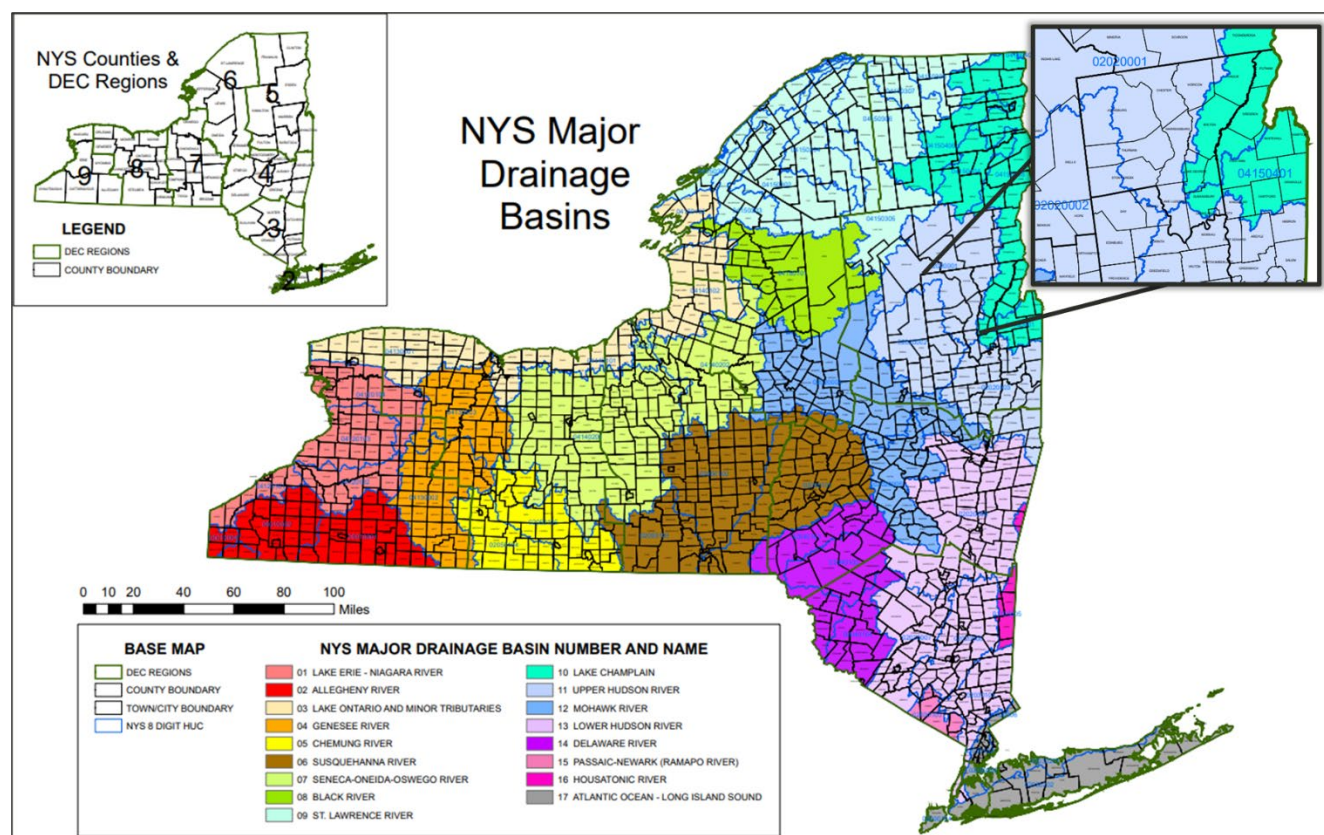




### 4.3.3 Hydrography and Hydrology

Numerous ponds, lakes, creeks, and rivers make up the waterscape of Warren County. The major waterways within the County include Lake George, Schroon Lake, Hudson River, Brant Lake, Schroon River, Loon Lake, Glen Lake, 13th Lake, Garnet Lake, Trout Lake, Harrisburg Lake, Lake Luzerne. The County border also goes around Schroon Lake in the north. Figure 4-2 shows the drainage basins and watersheds located in New York State, and Warren County's location.

**Figure 4-2. Location of Warren County in Relation to Drainage Basins in New York State**



Source: NYSDEC 2012

Note: Warren County's approximate location is shown by the red oval.

The County lies within the Upper Hudson River and Lake Champlain drainage basins as described below.

- Upper Hudson Drainage Basin makes up approximately one-third of the larger Hudson River Basin, which also includes the Mohawk River Watershed. The Upper Hudson Drainage Basin begins in the Adirondack Mountains and drains to the Troy Dam at the confluence of the Mohawk River. This watershed covers 4,620 square miles of land in New York State and contains 7,140 miles of freshwater rivers and streams. There are 229 significant freshwater lakes, ponds and reservoirs located within the Drainage Basin that include: the Great Sacandaga Lake, Indian Lake, Schroon Lake, and Saratoga Lake (NYSDEC 2015).

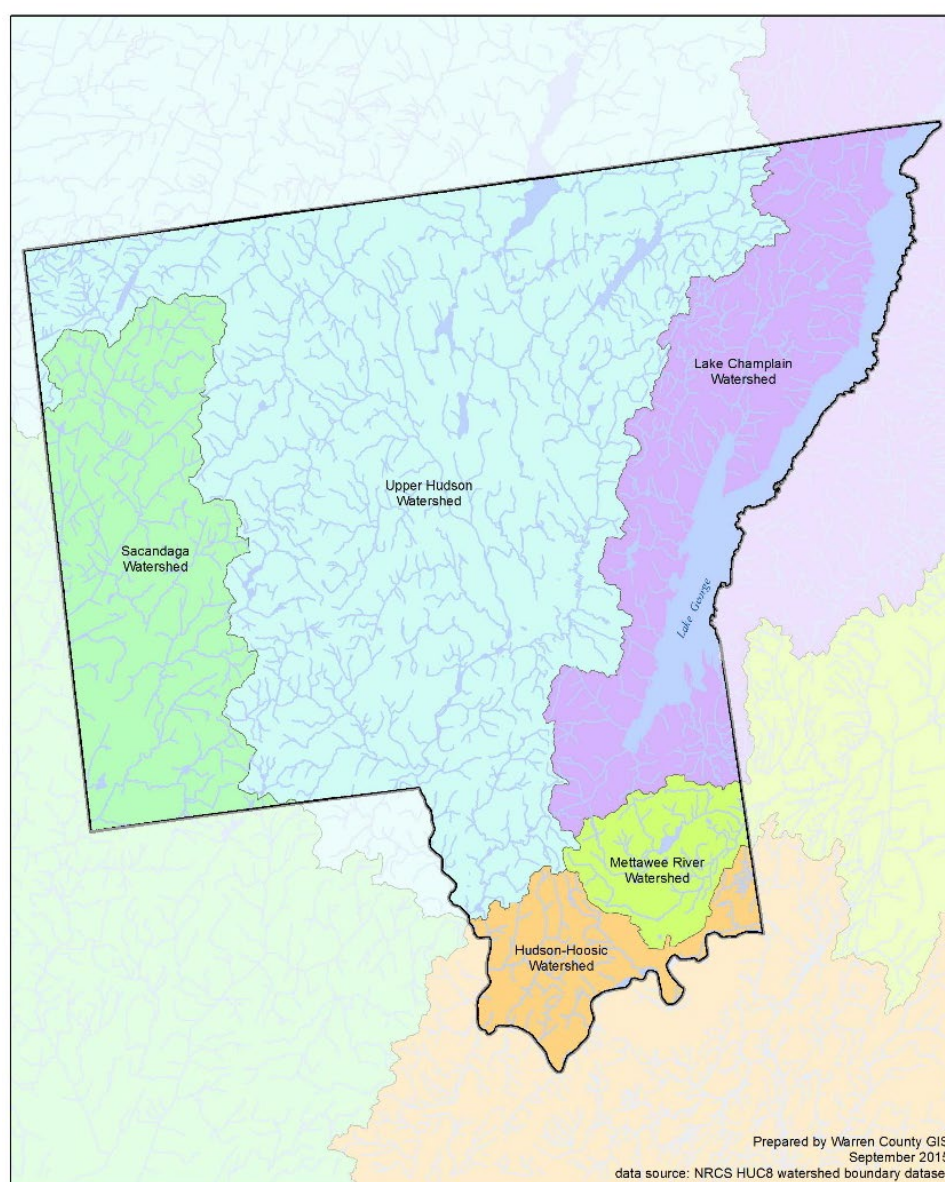




- Lake Champlain Drainage Basin drains over 8,200 square miles (3,050 square miles in New York) of land between the Adirondack Mountains in New York and the Green Mountains in Vermont. It contains nearly 4,900 miles of freshwater rivers and streams. There are 235 significant freshwater lakes, ponds, and reservoirs located within the Drainage Basin that include: Lake George, Upper Saranac Lake, Lower Saranac Lake, and Lake Placid (NYSDEC 2015).

The drainage basins are further divided into watersheds. Figure 4-3 shows the watersheds within Warren County. The Sacandaga Watershed, Upper Hudson Watershed, and Hudson-Hoosic Watershed are within the Upper Hudson Drainage Basin. The Mettawee River Watershed is within the Lake Champlain Drainage Basin.

**Figure 4-3. Watersheds in Warren County**







### 4.3.4 Climate

Warren County has a continental climate. Airflow and weather systems that affect the area are primarily of continental origin. The climate also is designated as humid because the major circulation patterns of the atmosphere carry generous quantities of moisture toward the northeastern U.S. (NRCS 2004). The climate of Warren County is one of long summers and short winters. The average annual temperature is approximately 40–48°F, with extremes varying from –35°F to 100°F. The average annual precipitation for the County is approximately 38–47 inches.

### 4.3.5 Land Use and Land Cover

According to the United States Geological Survey (USGS), the greatest share of land use/land cover in Warren County is deciduous forest, covering 78.8-percent of and in the county. The next highest land use is urban, with a little over 5-percent of the land area. Commercial and industrial land uses are found in and around the villages of the County and along Interstate 87, US-9, and State Routes 8, 9N, and 28. Industrial uses are scattered throughout the County and include the hospital, government buildings, non-profit affiliated facilities, and schools. Table 4-2 shows the distribution of land use throughout the County (USGS 2019). Figure 4-4 illustrates the land use categories in the County.

**Table 4-2. Warren County Land Use Classification Table**

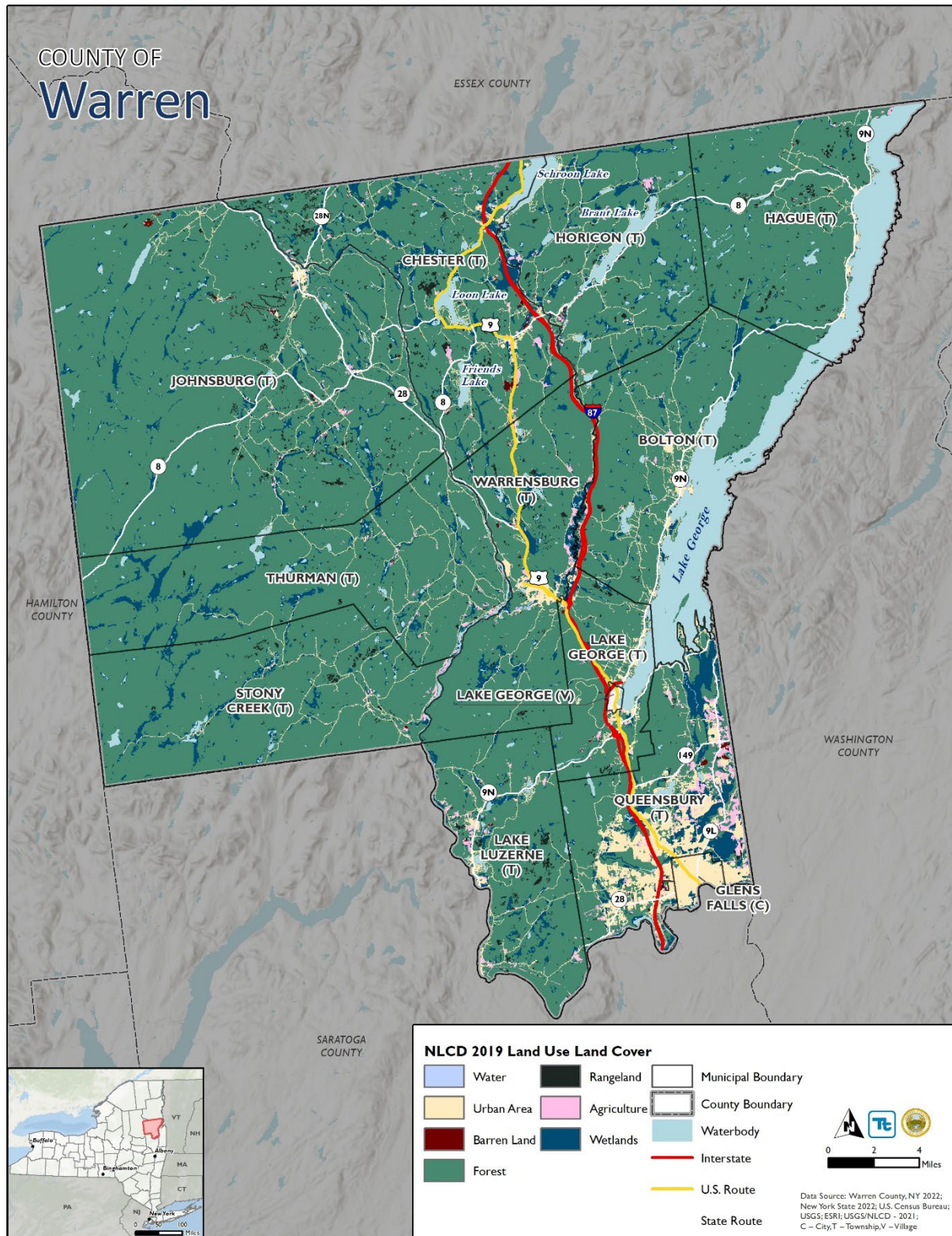
Land Use Category	2019 Data	
	Acreage	Percent of County
Agriculture	7,012	1.2%
Barren Land	908	0.2%
Forest	469,192	78.8%
Rangeland	7,031	1.2%
Urban Area	34,590	5.8%
Water	40,270	6.8%
Wetlands	36,560	6.1%

Source: USGS/NLCD 2019





Figure 4-4. Land Use Land Cover for Warren County







## 4.4 POPULATION AND DEMOGRAPHICS

An understanding of the planning area population characteristics provides context to determine the impacts of natural hazards in the County. As noted in Section 5.1 (Methodology) of this plan, modeling of the impacts of natural hazards on the population was performed using FEMA's Hazards U.S. Multi-Hazard (HAZUS-MH) in which the available population information includes the 2010 U.S. Decennial Census data, which indicates a county population of 62,259. However, more current data, according to U.S. Decennial Census Bureau in 2020 indicates a county population of approximately 65,737, which is an increase in population since 2010. Table 4-3 shows the 2020 Census Data for Warren County and also includes the American Community Survey (ACS) 5-year Population Estimates from 2021. The information presented in this table is the best available population data available during the HMP update.

Various Census Bureau products were used as sources for the population trends section. The Decennial Census is the official population count taken every 10 years. American Community Survey 5-Year Estimates are used to show annual population changes, but it is not an official population count. 5-Year Estimates are used because they are the most accurate form of American Community Survey with the largest sample size, which allows for greater accuracy at smaller geographic areas. The American Community Survey 5-Year Estimate products were used to establish annual changes in population. The numbers provided are not official census counts but are official estimates provided to communities so that they may have a greater understanding in population changes within their jurisdictions.

It is important to note that as a year-round tourist destination, the County's population fluctuates greatly as a result of many visitors, particularly during the summer months. Lake George and the Great Escape theme park are major attractions and mass gathering locations. There is a notable aging population in Warren County (Warren County Emergency Services 2022).

**Table 4-3. Warren County Population Statistics**

Jurisdiction	2020 Population				American Community Survey 5-Year Population Estimates (2021)***							
	Total	% County Total	Over 65	% Population Over 65	Under 5	% Population Under 5	Non-English Speaking	% Population Non-English Speaking	Disability	% Population with Disability	Poverty Level	% Population Below Poverty Level
Bolton (T)	2,012	3.1%	578	28.7%	57	2.8%	0	0.0%	444	22.1%	116	5.8%
Chester (T)	3,086	4.7%	748	24.2%	51	1.7%	60	1.9%	396	12.8%	219	7.1%
Glens Falls (C)	14,830	22.6%	2,135	14.4%	899	6.1%	86	0.6%	2,362	15.9%	1,697	11.4%
Hague (T)	633	1.0%	264	41.7%	24	3.8%	0	0.0%	57	9.0%	116	18.3%
Horicon (T)	1,471	2.2%	424	28.8%	33	2.2%	24	1.7%	175	11.9%	96	6.5%
Johnsburg (T)	2,143	3.3%	585	27.3%	85	4.0%	0	0.0%	396	18.5%	104	4.9%
Lake George (T)	2,494	3.8%	674	27.0%	184	7.4%	0	0.0%	199	8.0%	113	4.5%
Lake George (V)*	1,008	1.5%	216	21.4%	33	3.3%	0	0.0%	230	22.8%	33	3.3%
Lake Luzerne (T)	3,079	4.7%	807	26.2%	79	2.6%	0	0.0%	559	18.2%	203	6.6%
Queensbury (T)	29,169	44.4%	7,040	24.1%	1,134	3.9%	183	0.6%	3,956	13.6%	1,970	6.8%
Stony Creek (T)	758	1.2%	195	25.7%	26	3.4%	0	0.0%	190	25.1%	50	6.6%
Thurman (T)	1,095	1.7%	309	28.2%	32	2.9%	0	0.0%	155	14.2%	108	9.9%





Jurisdiction	2020 Population			American Community Survey 5-Year Population Estimates (2021)***								
	Total	% County Total	Over 65	% Population Over 65	Under 5	% Population Under 5	Non-English Speaking	% Population Non-English Speaking	Disability	% Population with Disability	Poverty Level	% Population Below Poverty Level
Warrensburg (T)	3,959	6.0%	779	19.7%	213	5.4%	0	0.0%	795	20.1%	326	8.2%
Warren County (Total)	65,737	100.0%	14,754	22.4%	2,850	4.3%	354	0.5%	9,914	15.1%	5,151	7.8%

\*Lake George (V) is 100% within Lake George (T). Subtracted village totals from town to assign correct town totals.

\*\*Source: U.S. Census Bureau 2020 Decennial Total Population

\*\*\*Source: U.S. Census Bureau 2021 ACS Vulnerable Population Totals

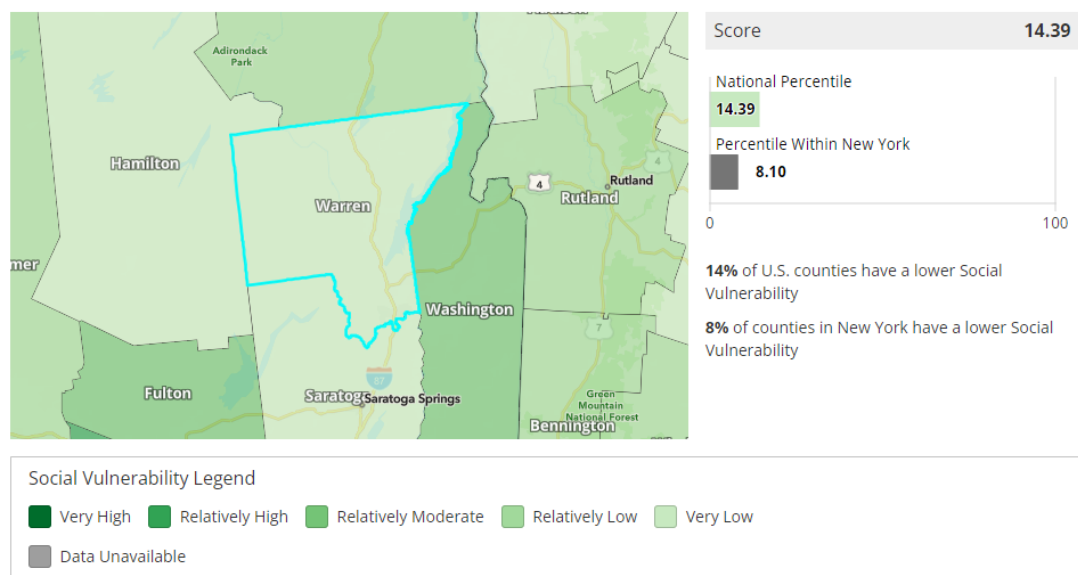
### 4.4.1 Vulnerable Populations

DMA 2000 requires that HMPs consider socially vulnerable populations. These populations can be more susceptible to hazard events based on a number of factors, including their physical and financial ability to react or respond during a hazard and the location and construction quality of their housing. The vulnerable populations identified for the purposes of this plan include (1) the elderly (persons aged 65 and over) and (2) those living in low-income households. Identifying concentrations of vulnerable populations can assist communities in targeting preparedness, response, and mitigation actions.

Populations with a higher level of vulnerability can be more seriously affected during the course of an emergency or disaster. Vulnerable populations have unique needs that need to be considered by public officials to help ensure the safety of demographics with a higher level of risk. Additionally, different types of vulnerable populations are impacted by different types of hazard events. For example, those with limited access or no access to a vehicle may be more impacted by a hazard event as they will likely have more issues evacuating if necessary.

**Figure 4-5. Warren County Social Vulnerability Index (FEMA NRI)**

Additionally, the FEMA National Risk Index (NRI) was utilized to determine risk index, social vulnerability, and community resilience scores of Warren County. The NRI indicated that Warren County







has a low social vulnerability score with a score of 14.39 out of 100, which notes that the county has a very low susceptibility to the impacts of natural hazards when compared to the rest of the U.S.

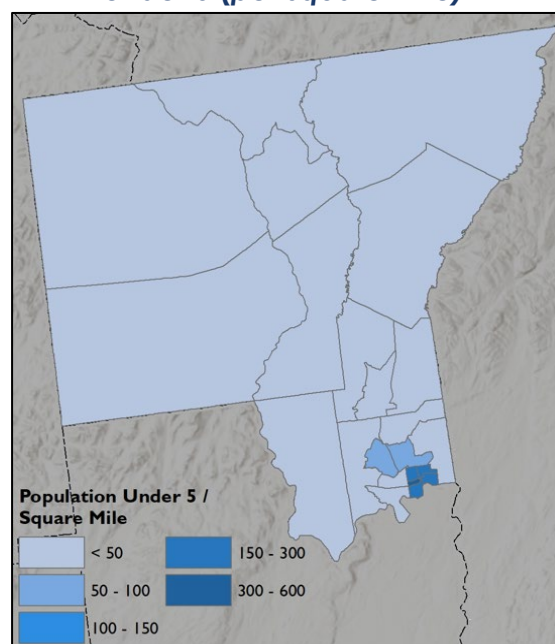
Due to the low social vulnerability, additional community outreach to vulnerable populations was not required above and beyond engaging agencies that work with and represent the residents of Warren County.

## Age

Children are considered vulnerable to hazard events because they are dependent on others to safely access resources during emergencies and may experience increased health risks from hazard exposure. The elderly are more apt to lack the physical and economic resources necessary for response to hazard events and are more likely to suffer health-related consequences. Those living on their own may have more difficulty evacuating their homes. The elderly also are more likely to live in senior care and living facilities where emergency preparedness occurs at the discretion of facility operators. According to the 2020 U.S. Census, the median age in Warren County was 47.5 years. In order to protect the older population during hazard events, the plan supports adopting more resilient and efficient building and land use standards, avoiding siting senior housing and facilities near hazard-prone areas, reducing the risk to community lifelines, and ensuring that critical facilities and services have alternate power sources.

The 2020 U.S. Census reports that 4.1% of the County's total population is under the age of 5 and 24.4% of the County's total population is over the age of 65. Figure 4-6 shows density of the Warren County population under age 5.

**Figure 4-6. Warren County Population Under 5 (per square mile)**

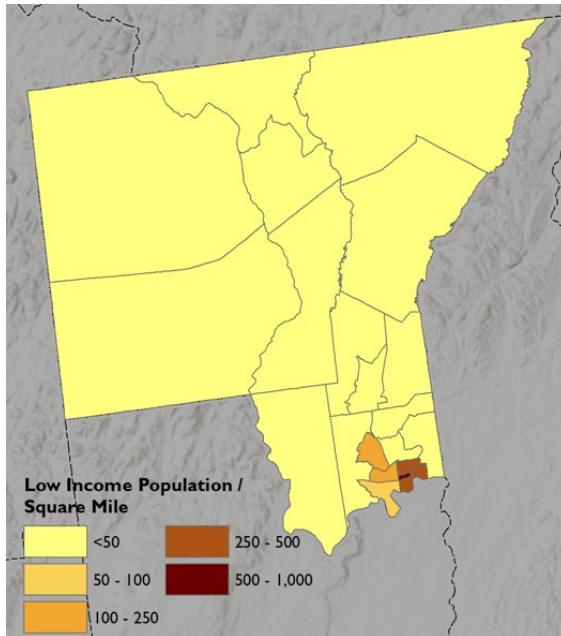






## Income

**Figure 4-7. Warren County Low-Income Population (per square mile)**



The 2020 U.S. Census median household income in Warren County was \$68,765, and the per capita income was \$41,247. The U.S. Census Bureau identifies households with two adults and two children with an annual household income below \$27,479 per year as *low income* (U.S. Census 2023). The 2020 U.S. Census indicates 10.2-percent of the population in Warren County lives below the poverty level. Figure 4-7 shows the distribution of low-income population in Warren County.

The spatial U.S. Census data for household income provided in HAZUS-MH includes two ranges (less than \$10,000 and \$10,000–\$20,000/year) that were totaled to provide the *low-income* data used in this study. This does not correspond exactly with the *poverty* thresholds established by the 2020 U.S. Census data. This difference is not believed to be

significant for the purposes of this planning effort; therefore, for the exposure and loss estimations in the risk assessment, the 2020 U.S. Census data in HAZUS-MH is reported.

While age and income have been traditional indicators of vulnerable populations, the CDC Social Vulnerability Index (SVI) is a recent tool used to identify socially vulnerable populations. The CDC defines socially vulnerable population using factors such as poverty, lack of access to transportation, and crowded housing. These factors may weaken a community's ability to prevent human suffering and financial loss in a disaster. The SVI uses U.S. Census data to determine the social vulnerability of every census tract. The SVI ranks each tract on 16 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes. Maps of the four themes are shown in the figure below. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking.

## Social Vulnerability Index (SVI)

The CDC defines socially vulnerable population using factors such as poverty, lack of access to transportation, and crowded housing. These factors may weaken a community's ability to prevent human suffering and financial loss in a disaster. The SVI uses U.S. Census data to determine the social vulnerability of every census tract. The SVI ranks each tract on 16 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes. Maps of the





four themes are shown in the figure below. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking.

**Figure 4-8. Warren County Overall Social Vulnerability Index**

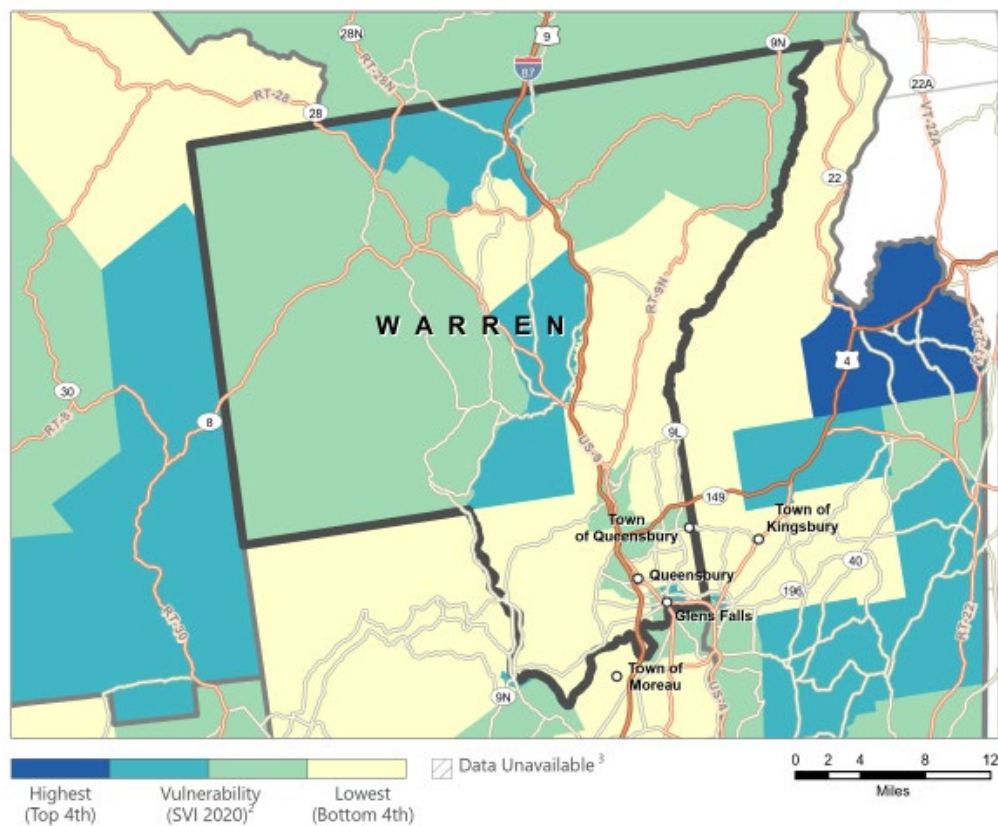
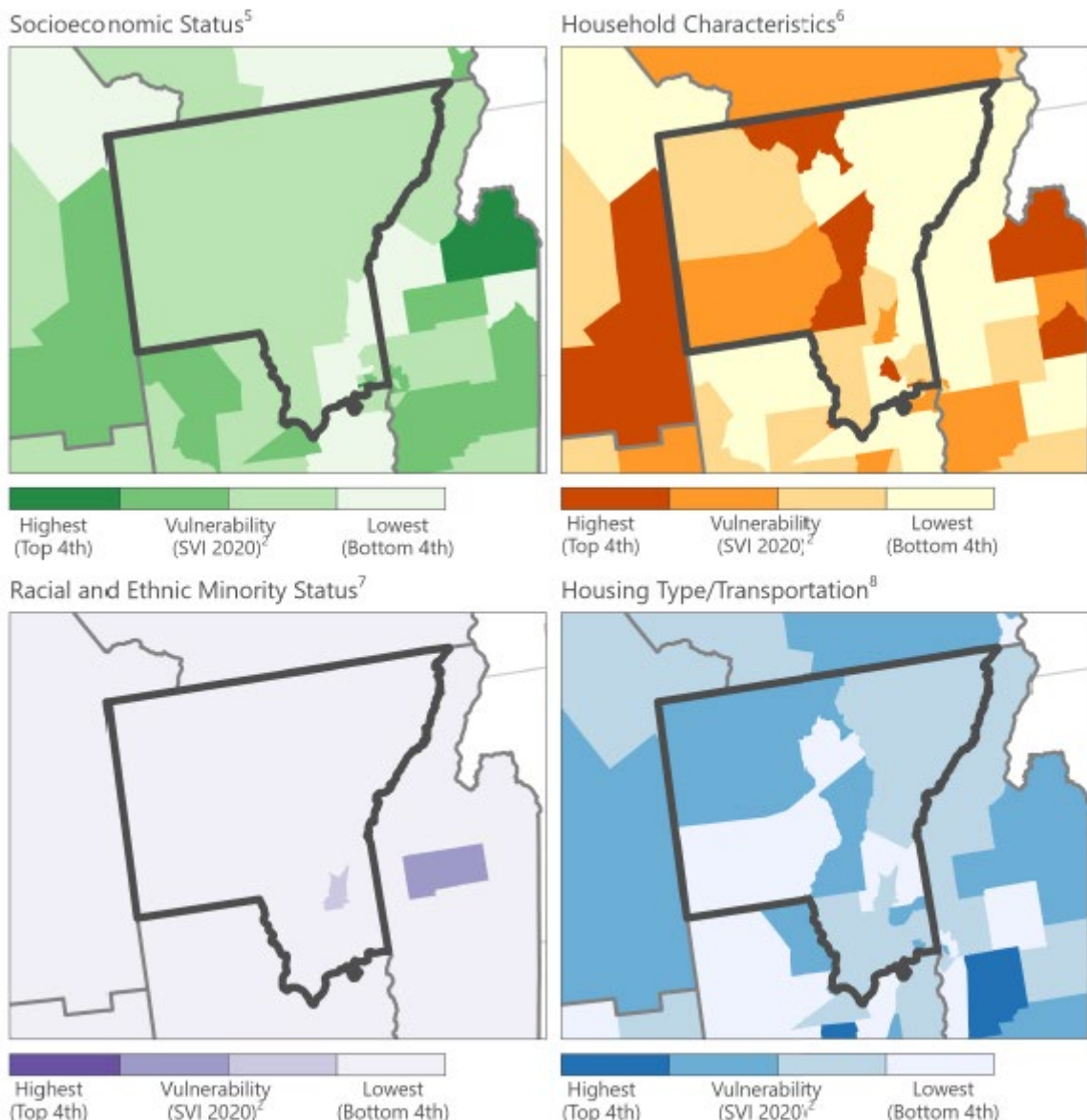






Figure 4-9. Warren County SVI Themes



**Data Sources:** <sup>2</sup>CDC/ATSDR/GRASP, U.S. Census Bureau, Esri® StreetMap™ Premium.

**Notes:** <sup>1</sup>Overall Social Vulnerability: All 16 variables. <sup>2</sup>Census tracts with 0 population. <sup>3</sup>The CDC/ATSDR SVI combines percentile rankings of US Census American Community Survey (ACS) 2016-2020 variables, for the state, at the census tract level. <sup>4</sup>Socioeconomic Status: Below 150% Poverty, Unemployed, Housing Costs Burden, No High School Diploma, No Health Insurance. <sup>5</sup>Household Characteristics: Aged 65 and Older, Aged 17 and Younger, Civilian with a Disability, Single-Parent Household, English Language Proficiency. <sup>6</sup>Race/Ethnicity: Hispanic or Latino (of any race); Black and African American, Not Hispanic or Latino; American Indian and Alaska Native, Not Hispanic or Latino; Asian, Not Hispanic or Latino; Native Hawaiian and Other Pacific Islander, Not Hispanic or Latino; Two or More Races, Not Hispanic or Latino; Other Races, Not Hispanic or Latino. <sup>7</sup>Housing Type/Transportation: Multi-Unit Structures, Mobile Homes, Crowding, No Vehicle, Group Quarters.

**Projection:** New York NAD 1983 UTM Zone 18N, CM shifted to -76.

**References:** Flanagan, B.E., et al., A Social Vulnerability Index for Disaster Management, *Journal of Homeland Security and Emergency Management*, 2011. 8(1).  
CDC/ATSDR SVI web page: <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>.

The maps indicate that majority of population in the county have social vulnerability a theme index in the lower half of the spectrum. Regarding the household characteristics theme, the highest index is seen in the center portion of the County. For the racial and ethnic minority theme the majority of the County reflects the lowest vulnerability with a small area in the southeast portion of the County indicating some vulnerability. The housing/transportation theme shows a range of





vulnerability from the highest index in the northwest and central areas of the County. This analysis can inform planning and financial policy regarding social equity in the future. . For each hazard type identified in the plan, there are different types of socially vulnerable population groups that may be more impacted. Considerations for improving outcomes for vulnerable populations will include increased outreach and public education, increased preventative measures, and strengthened local plans and policies. In order to protect low-income populations during a hazard event, the plan supports investment in underserved areas, assessing social vulnerability indicators, and considering impacts before a mitigation project to ensure that it helps at-risk populations.

## Other Vulnerability Factors

Additional vulnerability factors impact a community or group's ability to prepare, respond, or recover from a hazard event. These factors can increase vulnerability. Physical barriers, such as a lack of vehicle access or transportation options, can be a challenge. Warren County has 8.65% of households without a vehicle, a low rate per the FEMA Resilience Analysis and Planning Tool (RAPT). The percentage of households with limited English language can also be a challenge. Warren County has a very low rate of households with limited English language skills at a rate of 0.55% (RAPT). Another vulnerability factor is related to educational attainment. In Warren County, 8.49% of the population does not have a high school diploma (RAPT). Lastly, Warren County also has a low rate of the population with a disability rate of 15.26%. To protect against transportation related vulnerabilities, network drainage, transit system resilience, evacuation routes, and critical roadways should be considered and prioritized. To protect those with disabilities, accessibility must be a component of implemented resilience measures. Universal design is important to building far reaching resilience and mitigation projects.

### 4.4.2 General Building Stock

According to 2021 ACS, 39,902 housing units are located in Warren County. A household includes all the people who occupy a housing unit as their usual residence. A housing unit is a house, apartment, mobile home or trailer, a group of rooms, or a single room occupied as separate living quarters (or if vacant, intended for occupancy as separate living quarters). A majority of the units (72-percent) are one-unit detached homes. The median price of a single-family home in the County was estimated at \$214,300 based on the 2021 ACS (U.S. Census Bureau 2023).

For this update, the general building stock inventory was developed using NYSERDA 2022 building footprint data, 2022 RS Means values, and supplemented with 2021 NYS Tax assessor data. For the purposes of this plan, approximately 40,309 structures were identified by the tax data and spatial data available. These structures account for a replacement cost value of approximately \$14 billion. Approximately 91.7 percent of the total buildings in the county are residential, which make up approximately 96 percent of the total building stock value.

Table 4-4 presents building stock statistics by occupancy class for Warren County.









**Table 4-4. Building Stock Count and Replacement Cost Value (RCV) by Occupancy Class**

Jurisdiction	All Occupancies				Residential		Commercial		Industrial	
	Building Count	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)	Building Count	Total Replacement Cost Value (Structure + Contents)	Building Count	Total Replacement Cost Value (Structure + Contents)	Building Count	Total Replacement Cost Value (Structure + Contents)
Bolton (T)	2,873	\$931,617,917	\$577,428,351	\$1,509,046,268	2,708	\$1,087,858,813	97	\$149,979,016	1	\$23,811,750
Chester (T)	3,227	\$1,072,965,827	\$721,557,475	\$1,794,523,301	2,964	\$1,086,330,410	115	\$321,934,595	10	\$26,499,870
Glens Falls (C)	5,988	\$2,097,137,421	\$1,630,986,695	\$3,728,124,116	5,464	\$1,709,741,165	426	\$1,368,937,188	48	\$281,337,871
Hague (T)	1,313	\$464,337,547	\$334,872,741	\$799,210,288	1,204	\$394,038,388	56	\$286,665,366	0	\$0
Horicon (T)	2,188	\$651,548,444	\$371,057,345	\$1,022,605,789	2,096	\$829,587,388	46	\$98,386,857	4	\$13,682,171
Johnsburg (T)	2,625	\$851,272,550	\$642,583,642	\$1,493,856,193	2,338	\$684,796,167	101	\$312,016,635	32	\$78,539,281
Lake George (T)	2,494	\$1,337,335,145	\$831,627,641	\$2,168,962,785	2,311	\$1,545,696,612	152	\$500,131,324	2	\$47,623,500
Lake George (V)	609	\$468,778,342	\$301,379,173	\$770,157,514	523	\$491,573,427	69	\$212,674,183	0	\$0
Lake Luzerne (T)	2,173	\$576,673,966	\$376,993,951	\$953,667,917	2,076	\$626,182,439	65	\$185,937,703	5	\$35,709,930
Queensbury (T)	12,193	\$4,157,000,379	\$2,957,031,205	\$7,114,031,584	11,106	\$3,881,108,658	917	\$2,343,387,455	55	\$254,298,642
Stony Creek (T)	807	\$555,501,480	\$440,494,852	\$995,996,331	729	\$349,627,550	14	\$128,404,541	0	\$0
Thurman (T)	1,061	\$305,089,463	\$192,896,329	\$497,985,792	1,008	\$345,862,394	7	\$91,534,070	3	\$12,455,728
Warrensburg (T)	2,758	\$813,583,143	\$611,873,715	\$1,425,456,857	2,432	\$689,794,423	167	\$365,393,133	39	\$117,512,116
<b>Warren County (Total)</b>	<b>40,309</b>	<b>\$14,282,841,623</b>	<b>\$9,990,783,115</b>	<b>\$24,273,624,737</b>	<b>36,959</b>	<b>\$13,722,197,834</b>	<b>2,232</b>	<b>\$6,365,382,067</b>	<b>199</b>	<b>\$891,470,859</b>





Figure 4-10. Distribution of Residential Building Stock and Value Density in Warren County

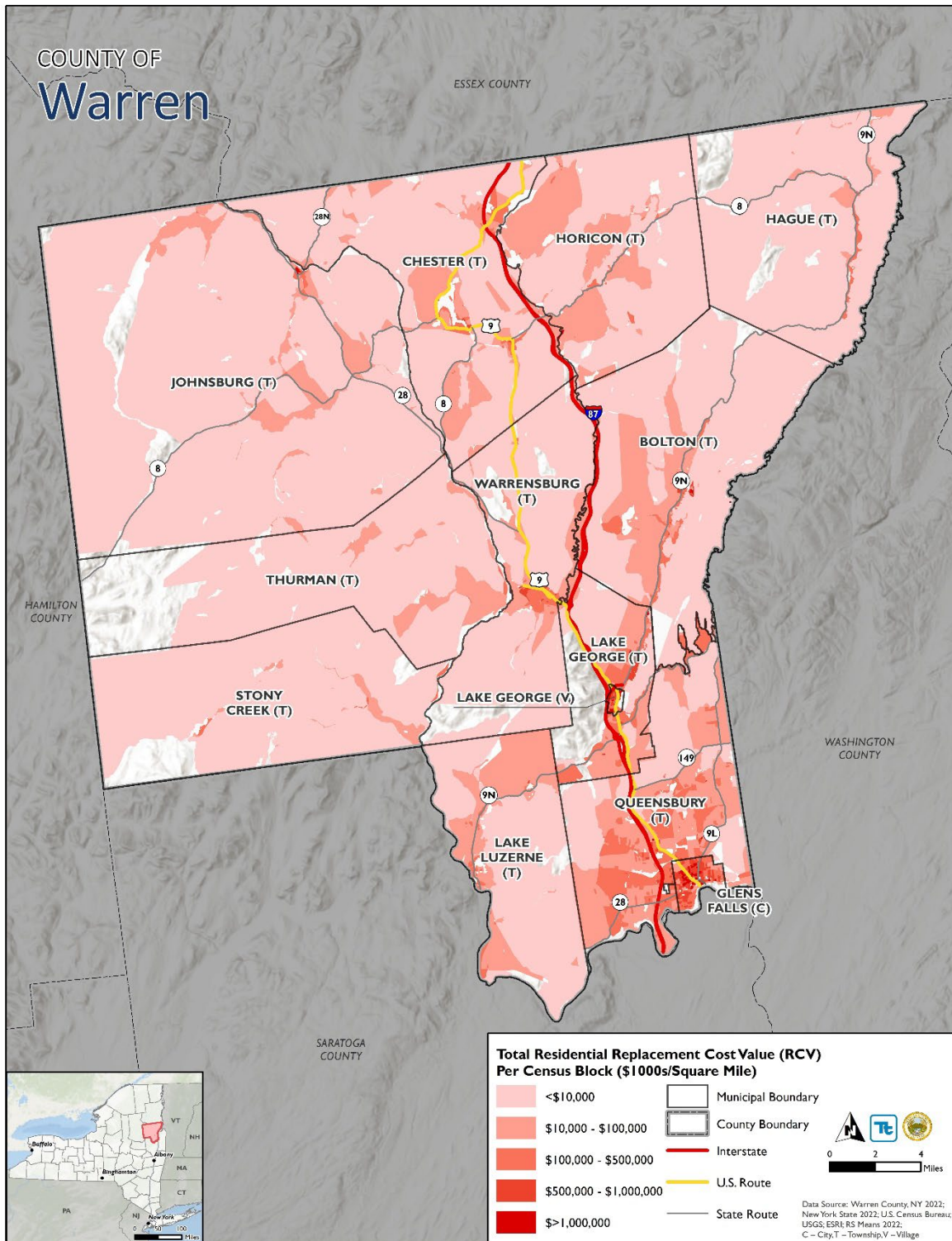






Figure 4-11. Distribution of Commercial Building Stock and Value Density in Warren County

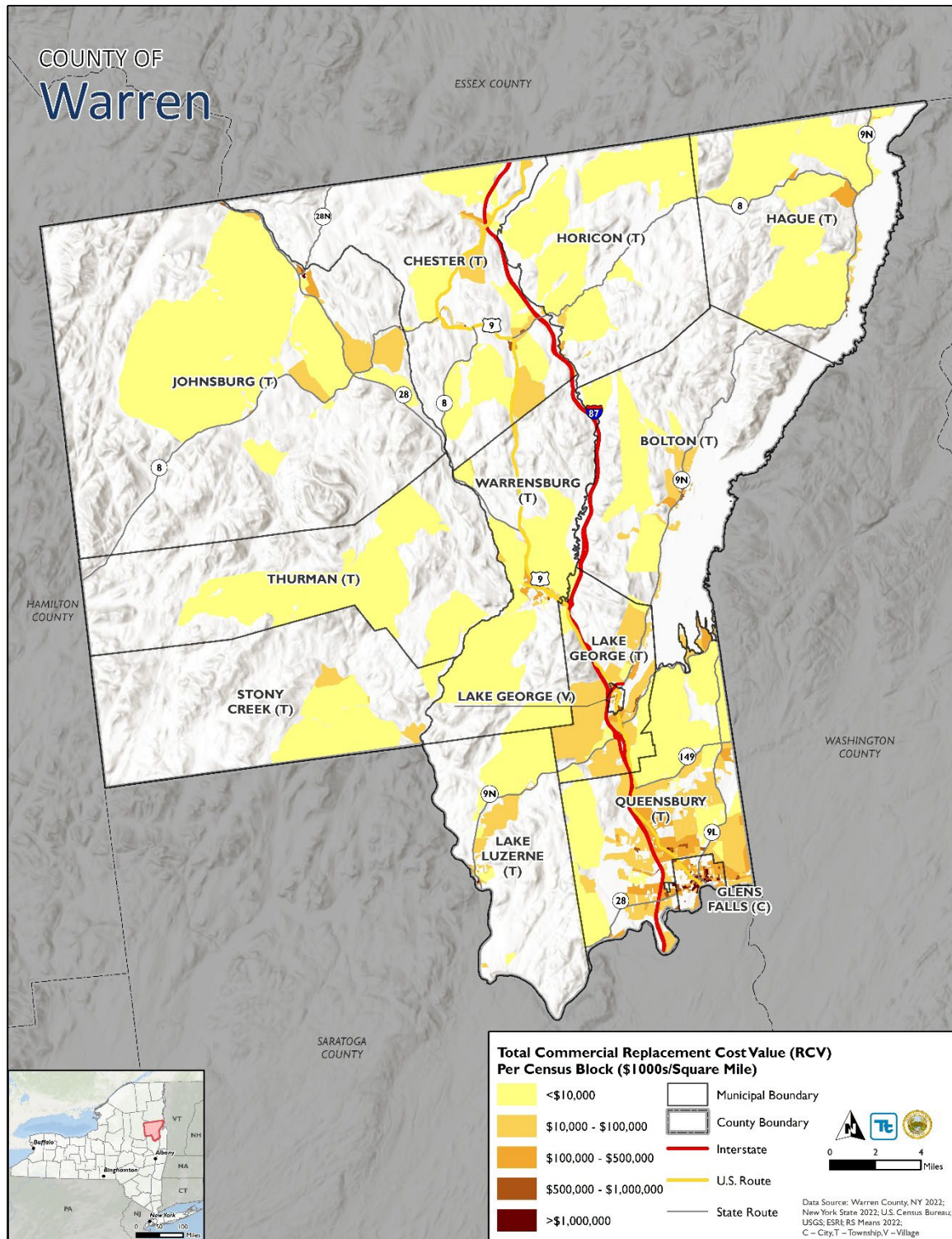
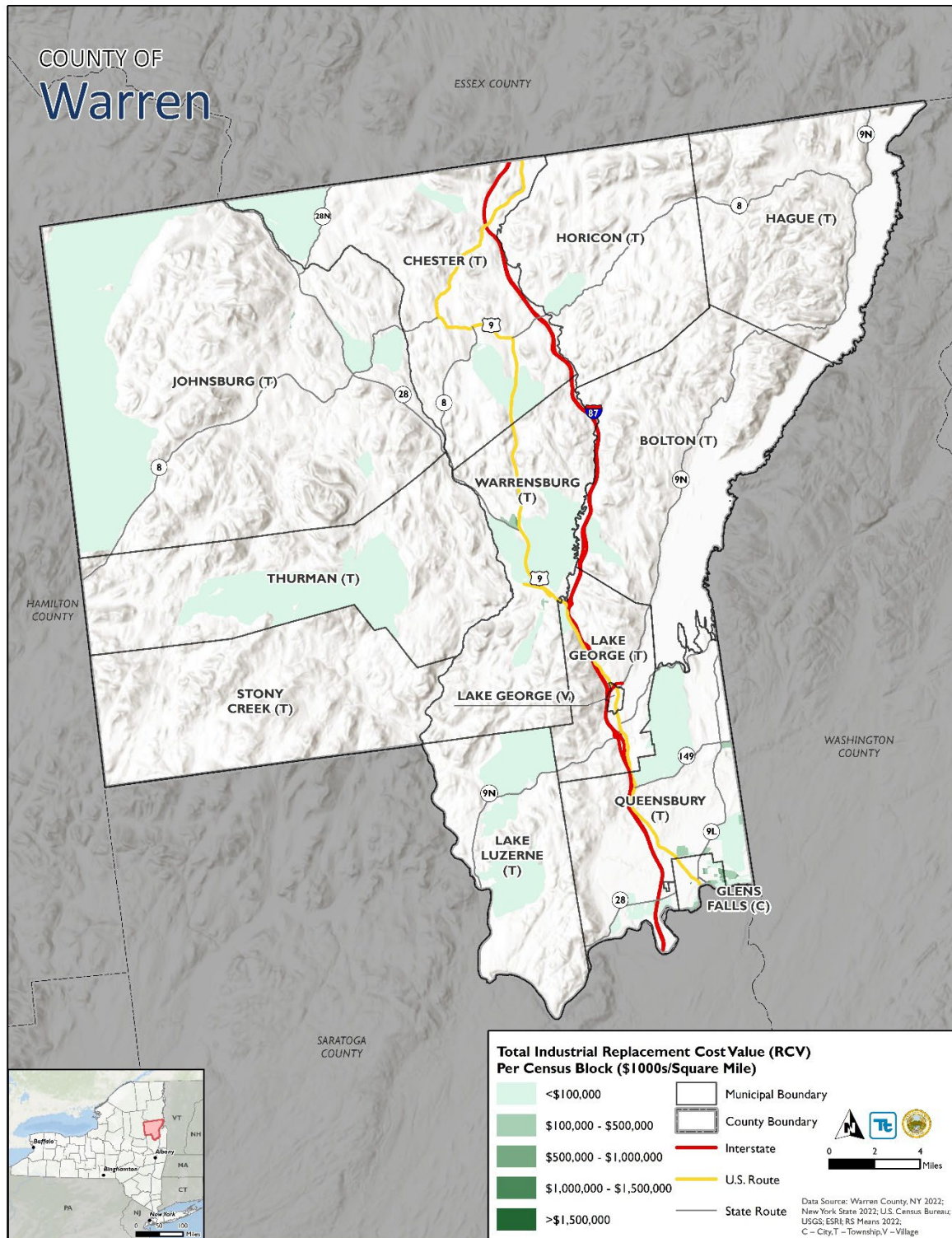






Figure 4-12. Distribution of Industrial Building Stock and Value Density in Warren County







## 4.5 LAND USE AND POPULATION TRENDS

Land use regulatory authority is vested in New York State's towns, villages, and cities. However, many development and preservation issues transcend location political boundaries. DMA 2000 requires that communities consider land use trends, which can impact the need for and prioritization of mitigation options over time. Land use trends significantly impact exposure and vulnerability to various hazards. For example, significant development in a hazard area increases the building stock and population exposed to that hazard.

This plan provides a general overview of population, land use, and types of development occurring within the study area. An understanding of these development trends can assist in planning for further development and ensuring that appropriate mitigation, planning, and preparedness measures are in place to protect human health and community infrastructure.

### 4.5.1 Land Use Trends

Warren County's population has risen in recent decades, but a decline is anticipated. The Warren County Department of Planning and Community Development is in the process of developing a County Comprehensive. This plan will become a tool used for guiding the growth, redevelopment, and overall improvement of the County.

#### Agriculture

The Warren County Agricultural Environmental Management Plan 2021-2025 notes that Warren County likely reached its peak in traditional agriculture during the mid to late 1800's and from that point, agriculture continued to decline within the county. According to the most recent USDA Census of Agriculture data, in 2012 Warren County had 112 farms but decreased to 80 farms in 2017. Farms in Warren County have average sales of \$23,949 per farm in the county. Agriculture bolsters the county's economy, helps maintain the county's rural landscape, attracts visitors, maintains community character, and contributes to the health of the county's residents. The more developed and populated southern portion of Warren County is primarily commercial and industrial businesses, leaving a majority of the farmland to be on the outskirts of the urbanized area and spread sporadically across the northern end of the County. While overall the county is seeing fewer, larger farms, there has been a growth in the number of specialty agricultural producers. Today, the primary farm types include dairy, cattle, poultry, and specialized producers such as pumpkin patches, market farms, and mushroom farms.

Since 1971, Article 25AA of the Agriculture and Markets Law (AML) outlining Agricultural Districts has supported state- and county-level efforts to preserve, protect, and encourage the development and improvement of agricultural land to produce food and other agricultural products. The Warren County Soil & Water Conservation District provides technical natural resource management and conservation assistance to residents and municipal governments of Warren County.





The 2017 Census of Agriculture notes that the number of farms has decreased by 32 percent since 2012, however the total farm acreage in the County has increased 6% during that time. Between 2012 and 2017, the average size of farms has increased 55 percent to 126 acres. In that period, the market value of products sold has decreased to \$1,916,000 in 2017.

## Economy

Warren County is located in the Capital Region and is in close proximity to all major markets in the northeast. The location provides access to many world-renowned academic and research institutions and immense recreational and tourism destinations (Regional Economic Development Councils, Capital Region). Tourism is one of the largest industries in the county, bringing in an estimated \$628 million dollars annually. Some of the tourist attractions are the Sagamore Resort, Six Flags Great Escape, Lake George Steamboat Co., Gore Mountain Skiing, the Adirondack Park, and West Mountain Skiing (Warren County Economic Development Corporation).

The 2020 U.S. Census Bureau's County Business Patterns data identified 2,186 business establishments employing approximately 30,940 people in Warren County. The accommodation and food services industry has the highest number of establishments in the county, with 399. This is followed by the retail trade industry with 377 establishments and the health care and social assistance industry with 271 establishments (U.S. Census 2020). The wide variety of products manufactured in the county includes paper products, silver refining and fabrication, medical devices, and plastic products. Other major employers include insurance companies, colleges, healthcare facilities, and retailers. The regional economy benefits from many employers such as BD Becton Dickinson, Glens Falls Hospital, Finch Paper, AngioDynamics, Sagamore Resort, Hudson Headwaters Health Network, and others (Warren County Economic Development Corporation).

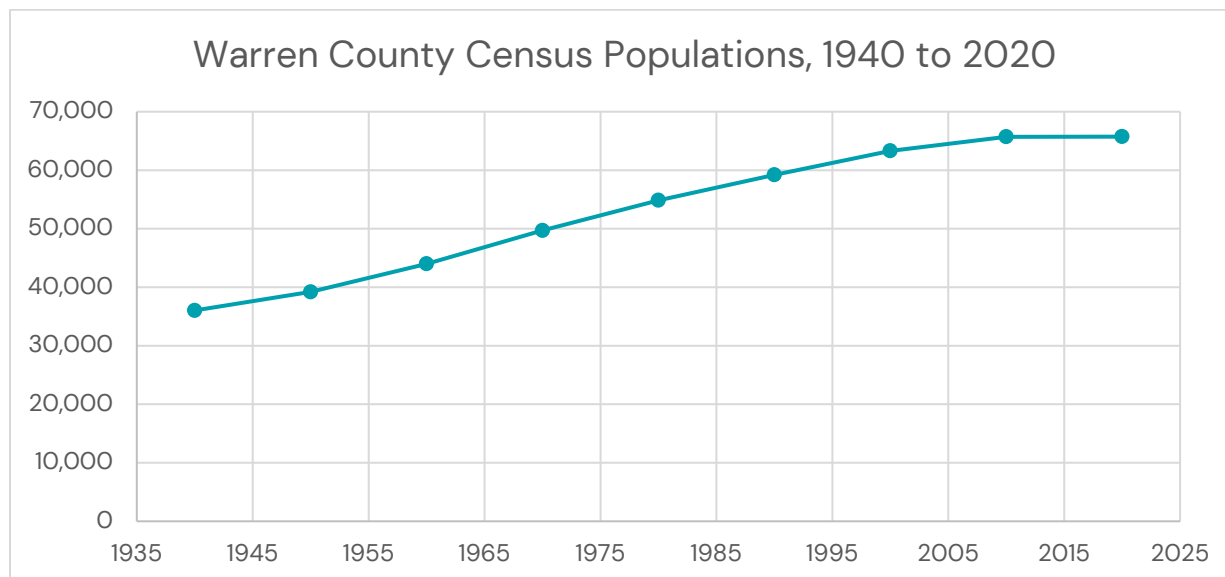
### 4.5.2 Population Trends

This section discusses population trend information used to estimate future shifts that could significantly change the character of the area. Population trends can provide a basis for making decisions on the type of mitigation approaches to be considered and the locations in which these approaches should be applied. This information can also be used to support planning decisions regarding future development in vulnerable areas.

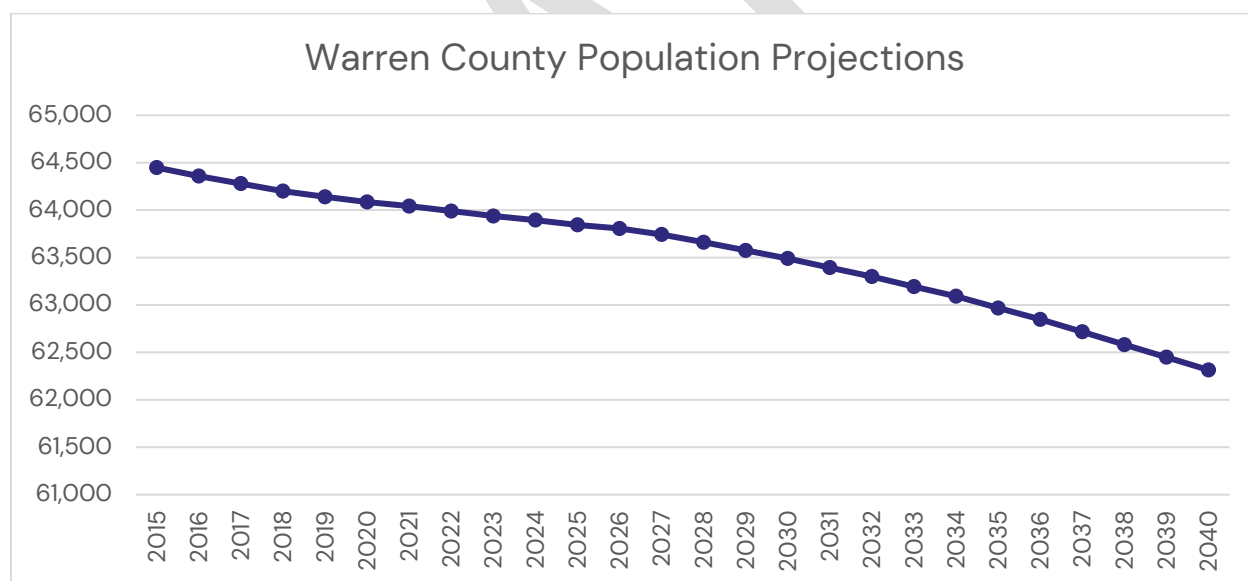
While the overall population of Warren County has increased by approximately 0.05-percent since 2010, this slight increase is not geographically uniform throughout the county, with some areas, particularly in Queensbury, having experienced growth and other areas, including many of the northern municipalities, seeing a more severe decline in population.

According to both the 2010 and the 2020 U.S. Census, Warren County experienced a 0.04 percent increase in population, from 65,707 in 2010 to 65,737 in 2020. Warren County's population has increased every decade since 1950. From 2000 to 2020, the County's population increased 3.7-percent (Figure 4-13); however, future population projections show an expected decrease in population, as shown in Figure 4-14.



**Figure 4-13. Census Populations, 1940 to 2020**

Source: Cornell Program on Applied Demographics 2023

**Figure 4-14 . Population Projections**

Source: Cornell University 2018

### 4.5.3 Future Growth and Development

A summary of development planned within Warren County is illustrated in Table 4-5 below. Details regarding development specific to each participating municipality is provided in Section 9 (Jurisdictional Annexes). Locations of development are indicated on the Hazard Area Extent and Location Maps included in Section 9 (Jurisdictional Annexes).





Table 4-6 Planned Development in Warren County, New York

Jurisdiction	Type	Details/Location	Located in a Known Hazard Area
Town of Bolton		No major development identified or anticipated.	
Town of Chester		No major development identified or anticipated.	
City of Glens Falls		No major development identified or anticipated.	
Town of Hague		No major development identified or anticipated.	
Town of Horicon		No major development identified or anticipated.	
Town of Johnsbury		No major development identified or anticipated.	
Town of Lake George	Commercial- Route 9L Laundromat	N/A – 14,000 gpd commercial maximum capacity; 264.11-1-4.2	None identified
	Residential-Lamondo 9L Rentals	7 rentals (3 bd units) – assume 21 bedrooms; 264.08-2-28, 264.08-2-29	None identified
	Residential- English Brook Village	251.10-2-31.2	None identified
	Residential- McGowan/Schermerhorn Senior Living	264.12-1-7	None identified
	Mixed Use- Gross PUD (Ramada)	99 apartments (2/3 bd units) – assume 250 bedrooms; and 5,000 SF commercial space; 264.03-2-2	None identified
	Residential- LG Community Partners (Bloody Pond)	64 apartments (2/3 bd units) – assume 160 bedrooms; 264.12-1-61, 264.12-1-62, 264.12-1-58.12	None identified
	Residential- Schermerhorn 9L project	16 apartments (2/3 bd units) – assume 40 bedrooms; 264.11-1-40	None identified
	Residential- Ellsworth Magic Forest Apartments	90 apartments (1/2/3 bd units) – assume 180 bedrooms; 264.04-1-35, 264.04-1-36, 264.04-1-37	None identified
Village of Lake George	Multi-family residential - English Brook Village	16 units / 4 structures; 511 Canada Street	Adjacent to English Brook. Final engineering review, permits pending.
Town of Lake Luzerne	Lake Luzerne Woods- residential	17 lots; Sagamore Drive	None identified
	Evergreen Estates- residential	11 lots; Call Street	None identified
	TBD, proposed subdivision- residential	8-10 lots; Hidden Valley Road	None identified
	TBD, proposed subdivision- residential	TBD; Route 9N	None identified
Town of Queensbury	Tim Barber	40,000 sq ft building; 23 Native Drive	None identified
	Tim Barber	25000 sq ft building; 32 Native Drive	None identified





Jurisdiction	Type	Details/Location	Located in a Known Hazard Area
	Schermerhorn	40 units two buildings; End of Walker Lane	None identified
	FHB	19 lots; Jenkinsville Road	None identified
	Schermerhorn	60 Units two buildings; 575 Bay Road	None identified
	Legacy/Habitat for Humanity	27 unit; Baybridge Drive	None identified
Town of Stony Creek	No major development identified or anticipated.		
Town of Thurman	No major development identified or anticipated.		
Town of Warrensburg	Commercial	3940 Main Street	None identified
	Commercial	3760 Main Street	None identified

\* Only location-specific hazard zones or vulnerabilities identified.

## 4.6 CRITICAL FACILITIES AND COMMUNITY LIFELINES

Critical facilities and infrastructure are those that are essential to the health and welfare of the population. These become especially important after any hazard event. Critical facilities are typically defined to include police and fire stations, schools, and emergency operations centers. Critical infrastructure can include the roads and bridges that provide ingress and egress and allow emergency vehicles access to those in need and the utilities that provide water, electricity, and communication services to the community. Also included are Tier II facilities (hazardous materials) and rail yards; rail lines hold or carry significant amounts of hazardous materials with a potential to impact public health and welfare in a hazard event.

Beginning in 2017, FEMA developed a new construct to increase effectiveness for disaster operations and position response to catastrophic incidents. This construct, known as “community lifelines”, represents the most fundamental services in the community that, when stabilized, enable all other aspects of society. Following a disaster event, intervention is required to stabilize community lifelines. Lifelines are divided into seven categories which include:

- Safety and Security
- Food, Water, Shelter
- Health and Medical

**Critical Facilities** are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

**Essential facilities** are a subset of critical facilities that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the county risk assessment, this category was defined to include police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.

**Lifelines** enable the continuous operation of critical business and government functions and are essential to human health and safety or economic security.





- Energy (Power and Fuel)
- Communications
- Transportation
- Hazardous Materials

To facilitate consistency with the National Response Framework, FEMA Strategic Plan, and guidance for the Building Resilient Infrastructure and Communities grant program, critical facilities in Warren County are discussed in terms of lifelines.

A comprehensive inventory of critical facilities in Warren County was developed from various sources, including Warren County and input from the Steering and Planning Committees. The inventory of critical facilities presented in this section represents the current state of this effort at the time of publication of the draft HMP and used for the risk assessment in Section 5 (Risk Assessment). The number and type of critical facilities and infrastructure identified for this plan are indicated in Table 4-7 below.

**Table 4-7. Number and Type of Critical Facilities and Lifelines in Warren County**

Jurisdiction	Total Critical Facilities Located in Jurisdiction	Total Lifelines Located in Jurisdiction
Bolton (T)	44	30
Chester (T)	57	44
Glens Falls (C)	93	62
Hague (T)	23	17
Horicon (T)	30	25
Johnsburg (T)	66	52
Lake George (T)	36	28
Lake George (V)	22	14
Lake Luzerne (T)	50	41
Queensbury (T)	202	156
Stony Creek (T)	20	18
Thurman (T)	20	16
Warrensburg (T)	74	56
<b>Warren County (Total)</b>	<b>737</b>	<b>559</b>

#### 4.6.1 Safety and Security

Safety and security community lifelines include facilities related to law enforcement/security, fire service, search and rescue, government service, and community safety facilities. For the purpose of this plan, safety and security facilities include police departments, fire departments, emergency services, and dams. This is shown in Figure 4-15.

The Warren County Office of Emergency Services is responsible for aiding communities in emergency preparedness (including emergency planning and providing training for the County's first





responders), response, recovery, and mitigation. Additionally, the Sheriff's Office operates a 24-hour Emergency Communications Center.

All of the County's municipalities are serviced by fire departments within their borders, supported by mutual aid departments throughout the County. Police enforcement and public safety is maintained by the New York State Police Department, the Warren County Sheriff's Office, and local departments.

### Police Departments

---

There are 7 local police stations located in Warren County.

### Fire Departments

---

There are 26 fire departments/stations located throughout Warren County, many of which are volunteer departments.

### Emergency Services

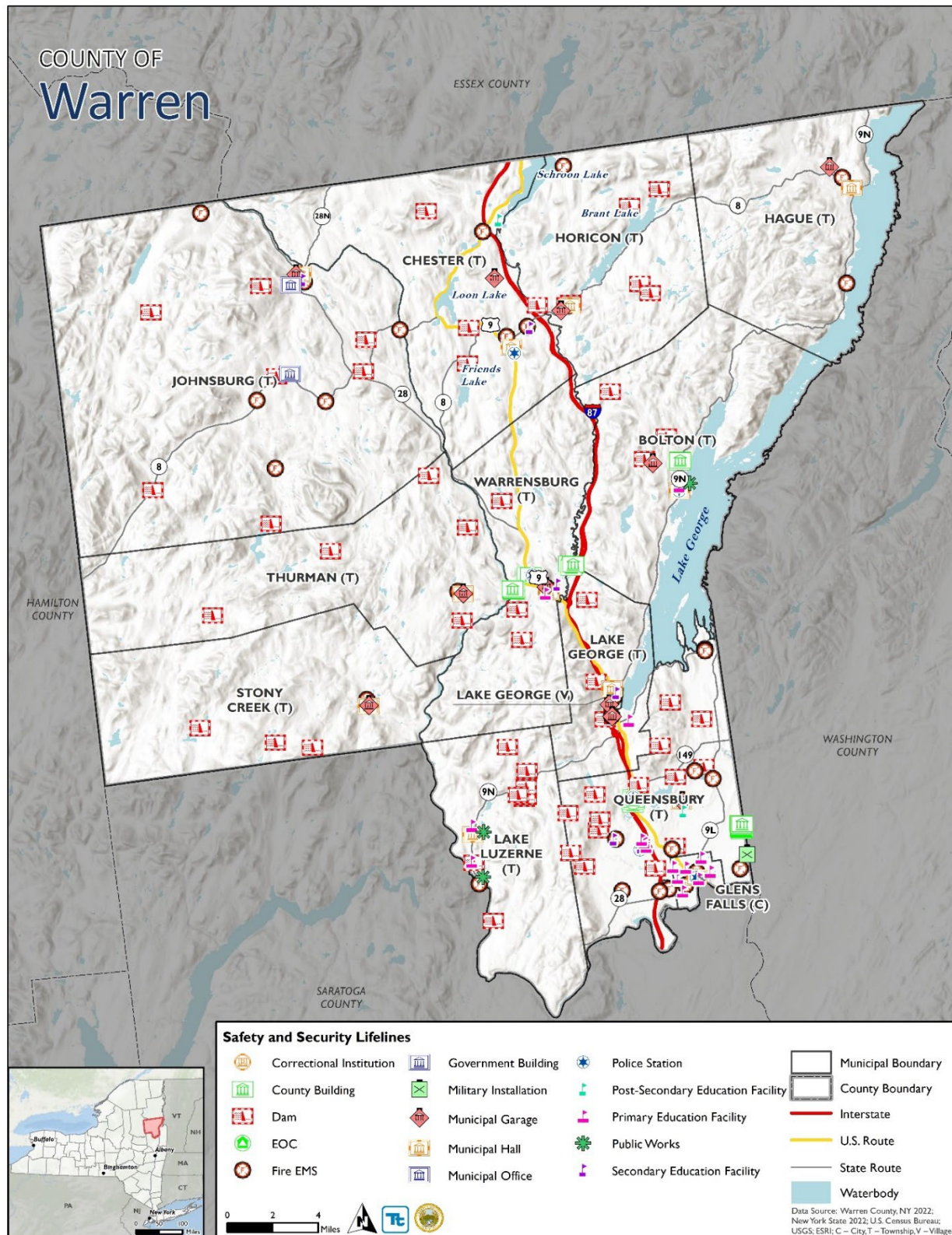
---

Warren County Office of Emergency Services is dedicated to the safety of the residents and visitors through the provision of training for volunteers, development of emergency plans that incorporate mitigation, preparedness, response and recovery for all types of major disasters that occur within Warren County. Warren County maintains an Emergency Services Mutual Aid Plan. In accordance with the New York State Department of Health, every certified ambulance or EMS provider signs, and operates in accordance with, a mutual aid plan. Each EMS provider in Warren County must adopt the County plan or write one of their own and obtain approval through both the County and State. There are seven EMS facilities located in Warren County.





Figure 4-15. Safety and Security Lifelines in Warren County







## Dams

For the purpose of this hazard mitigation plan, dams and levees are considered community lifelines. A summary of the dams in the county is presented in this section to provide an awareness of the number and types of these structures within the county.

According to the NYSDEC Division of Water Bureau and Flood Protection and Dam Safety, there are three hazard classifications of dams in New York State. The dams are classified in terms of potential for downstream damage if the dam were to fail. The hazard classifications are as follows:

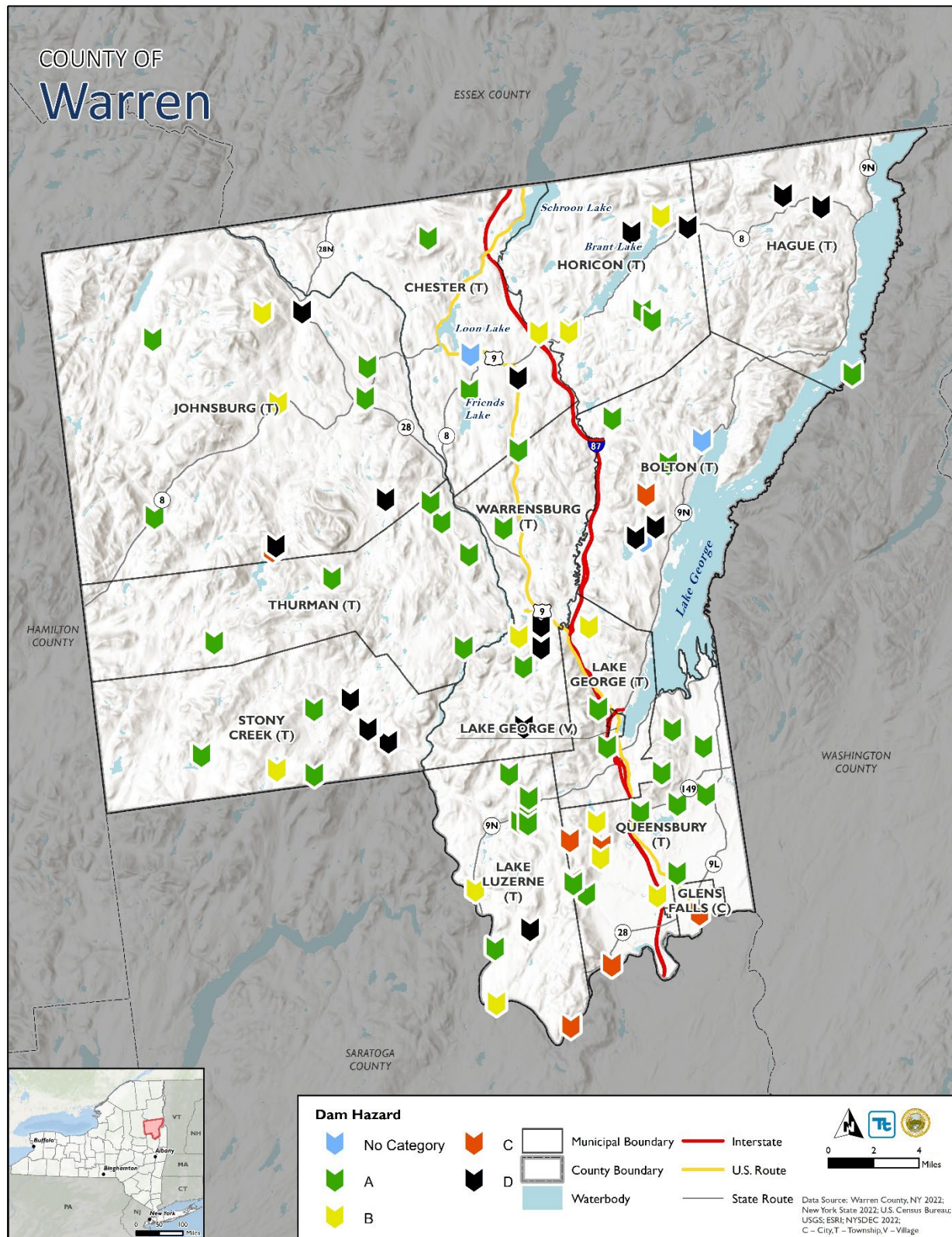
- *Low Hazard (Class A)* is a dam located in an area where failure will damage nothing more than isolated buildings, undeveloped lands, or township or county roads and/or will cause no significant economic loss or serious environmental damage. Failure or operation problems would result in no probable loss of human life. Losses are principally limited to the owner's property.
- *Intermediate Hazard (Class B)* is a dam located in an area where failure could damage isolated homes, main highways, and minor railroads; interrupt the use of relatively important public utilities; and cause significant economic loss or serious environmental damage. Failure or operation problems would result in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Class B dams often are located in predominantly rural or agricultural areas but also can be located in areas with population and significant infrastructure.
- *High Hazard (Class C)* is a dam located in an area where failure might cause loss of human life; serious damage to homes, industrial, or commercial buildings; important public utilities; main highways or railroads; and extensive economic loss. This is a downstream hazard classification for dams in which excessive economic loss (urban area including extensive community, industry, agriculture, or outstanding natural resources) would occur as a direct result of dam failure.

According to NYS DEC, there are 85 dams located in Warren County. Of the 85 dams located in Warren County, 7 are high hazard dams (Class C). These dams are located in the Town of Bolton, Town of Chester, Town of Johnsbury, and Town of Queensbury. Figure 4-16 indicates the location of dams in Warren County.





Figure 4-16. Dams Located in Warren County







## 4.6.2 Food, Water, and Shelter

Food, water, and shelter community lifelines include facilities related to food services, water supply, sheltering facilities, and agriculture. For the purpose of this plan, food, water and shelter facilities include schools, shelters, potable water, and wastewater facilities. This is shown in Figure 4-18

### Schools

---

A total of 23 primary and secondary public and private schools are located throughout the County. There are two post-secondary schools also located in Warren County. In times of need, schools can function as shelters and are an important resource to the community.

### Shelters

---

With support and cooperation of the American Red Cross and local jurisdictions, the County references an inventory of suitable shelter locations and can assist with the coordination and communication of shelter availability as necessitated by the execution of local municipal emergency operation plans. County-wide sheltering policies and procedures are documented in the Warren County Comprehensive Emergency Management Plan (CEMP) and Mass Care Annex-ESF #6. The County Animal Response Plan (CARP) identifies a list of pet-friendly hotels. Figure 4-18 displays the location of American Red Cross/cooling shelters within the County.

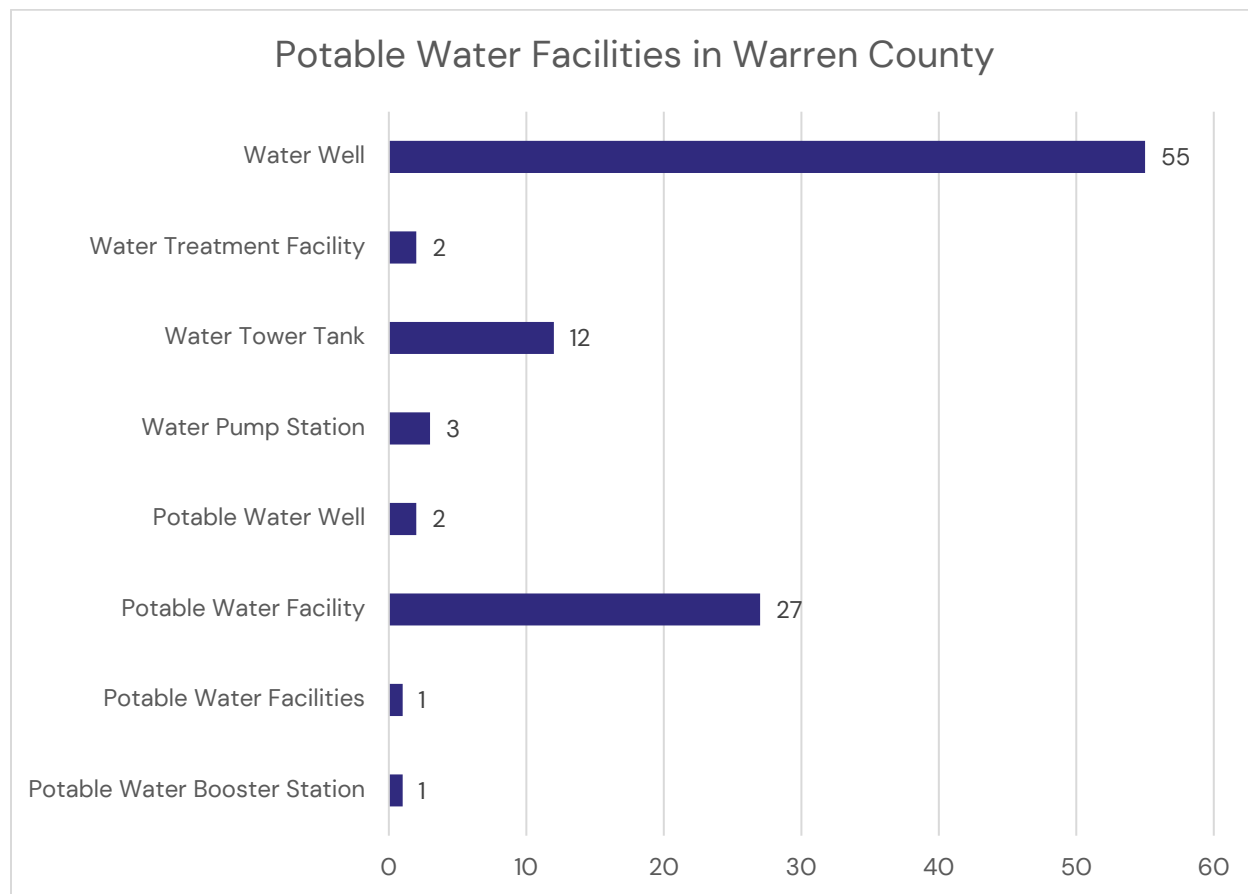
### Potable Water

---

In Warren County, water is provided from various facilities as a public service or through private supplies, such as wells. Approximately 45% of the land parcels in Warren County are located within a water district, serving approximately 63% of the County population (WCDPCD 2016).

There are 103 potable water supply infrastructure located in Warren County, located in Bolton, Chester, Glens Falls, Hague, Horicon, Johnsburg, Lake George, Lake Luzerne, Queensbury, Stony Creek, Thurman, and Warrensburg. Infrastructure includes potable water booster stations, potable water stations, potable water facilities, potable water wells, water pump stations, water tower tanks, water treatment facilities, and water wells.



**Figure 4-17. Potable Water Facilities, by Type**

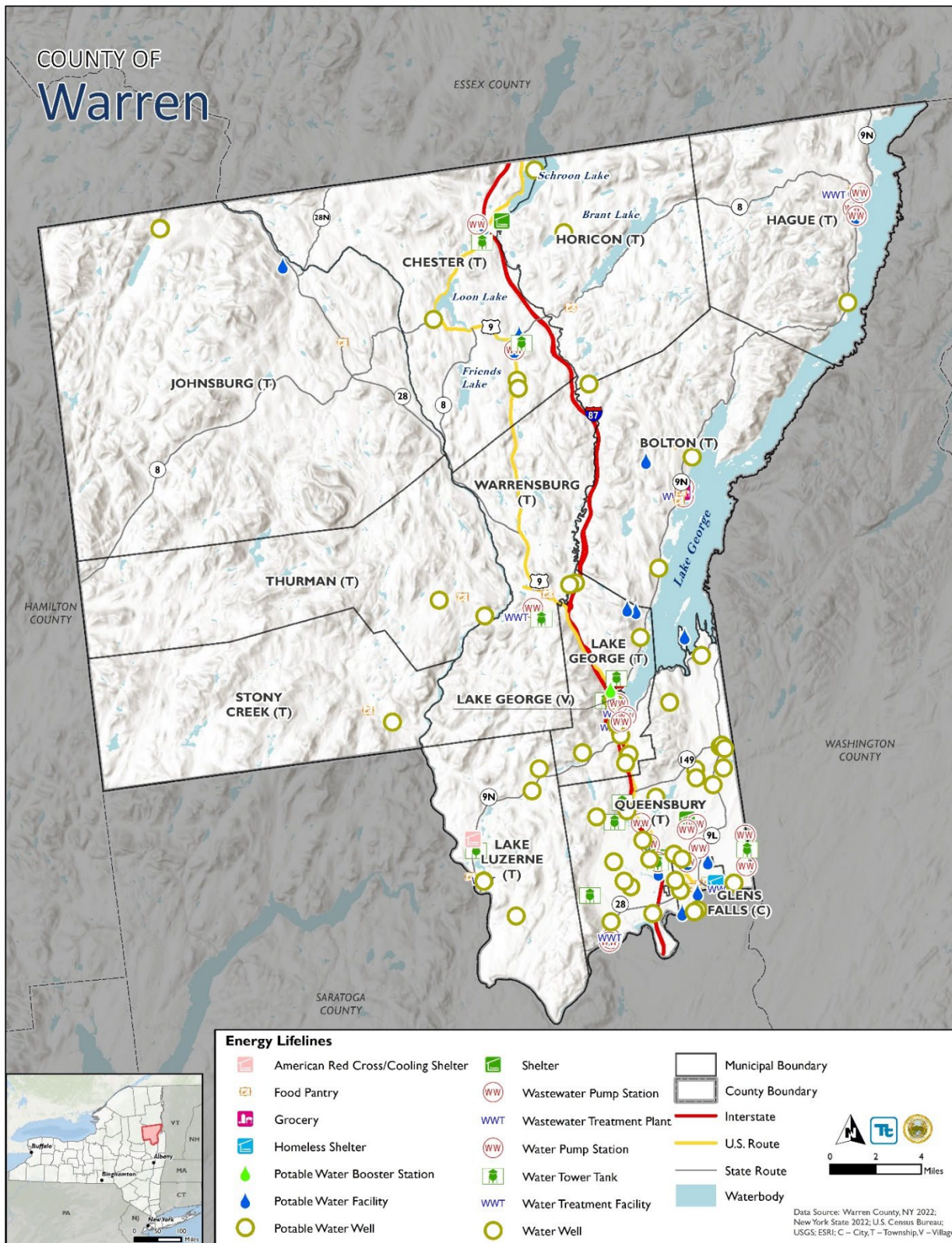
### Wastewater Facilities

Approximately 27% of the land parcels in Warren County are located within a sewer district, serving approximately 33% of the County population (WCDPCD 2016). Wastewater treatment facilities are located in Bolton, Glens Falls (includes a number of pump stations), Hague, Lake George (town) and Queensbury.





Figure 4-18. Food Water and Shelter Lifelines in Warren County







### 4.6.3 Health and Medical

Health and medical community lifelines include facilities related to medical care, patient moving, public health, fatality management, and medical supply chain. For the purpose of this plan, health and medical facilities include hospitals and medical facilities. Refer to Figure 4-19 for the location of these facilities.

#### Hospitals and Medical Facilities

---

The County has one hospital (Glen Falls Hospital) and multiple health care facilities. There are 12 healthcare facilities that provide urgent walk-in care in the County. The Glens Falls Hospital has a heli-pad to service medical emergencies.

### 4.6.4 Energy (Power and Fuel)

Energy community lifelines include facilities related to power and fuel. For the purpose of this plan, energy facilities include energy resources. Energy lifelines are indicated in Figure 4-20.

#### Energy Resources

---

Power in Warren County is transmitted and distributed by National Grid. Homes in the county are heated by many different sources, with a majority using utility gas from National Grid, or fuel oil. There are 19 electric substations in Warren County.

### 4.6.5 Communications

Communications community lifelines include facilities related to infrastructure; alerts, warnings and messages; 911 and dispatch; responder communications; and finance. For the purpose of this plan, communication facilities include telephone and wireless communication services and public alert systems. Figure 4-21 shows communication community lifelines within the County.

#### Communication Services

---

Warren County is served by a variety of communications systems, including traditional land line, fiber optic, and cellular provided by multiple companies, such as Verizon, and AT&T. There are 13 communication facilities in Warren County identified as critical facilities. Each carrier has individual plans for emergency situations during hazard events and post disaster recovery efforts. In addition to land line, fiber optic and cellular communications systems, Warren County has an extensive radio communications network that is utilized by emergency services agencies, hospitals, law enforcement, public works, transportation, and other supporting organizations.





Figure 4-19. Health and Medical Lifelines in Warren County

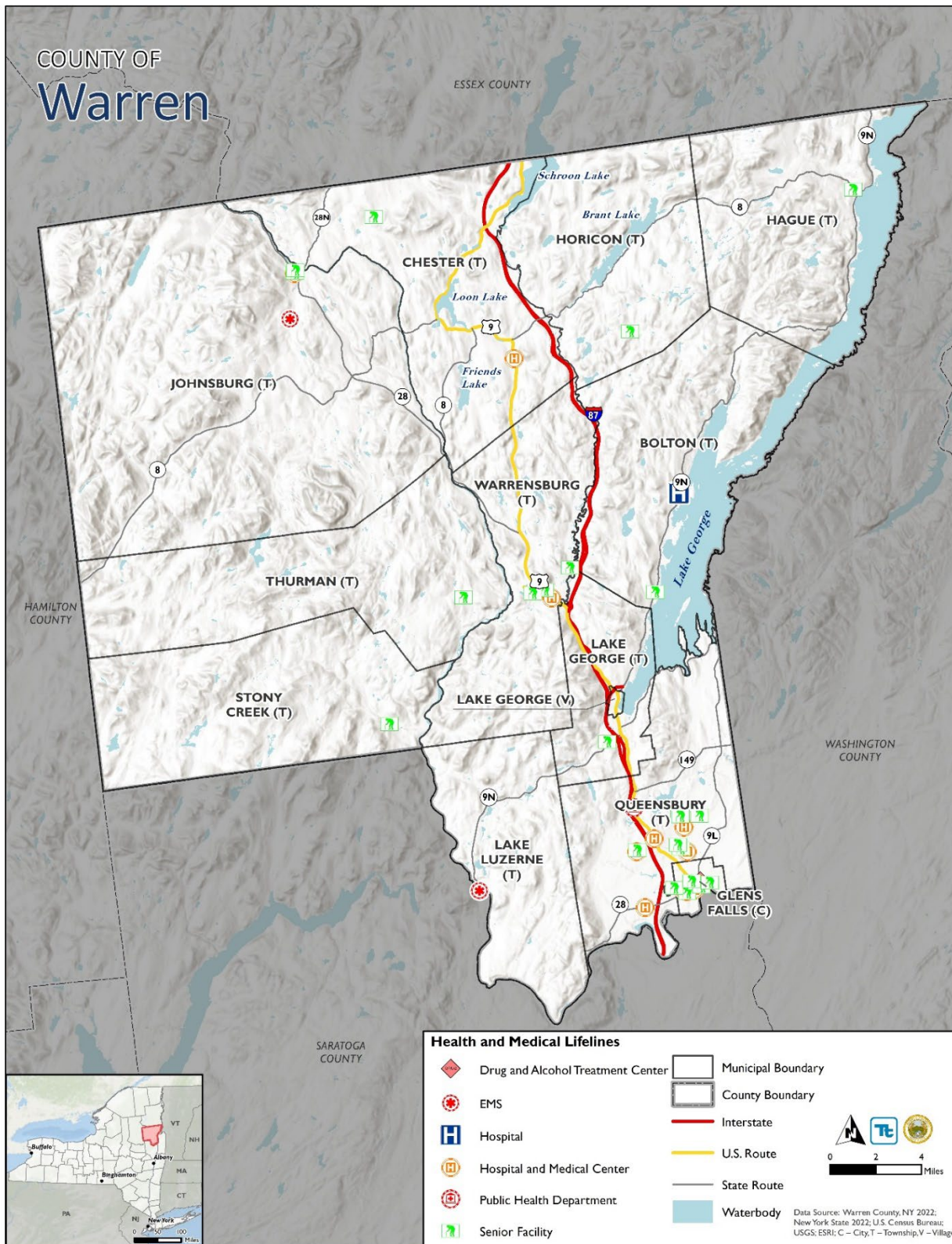






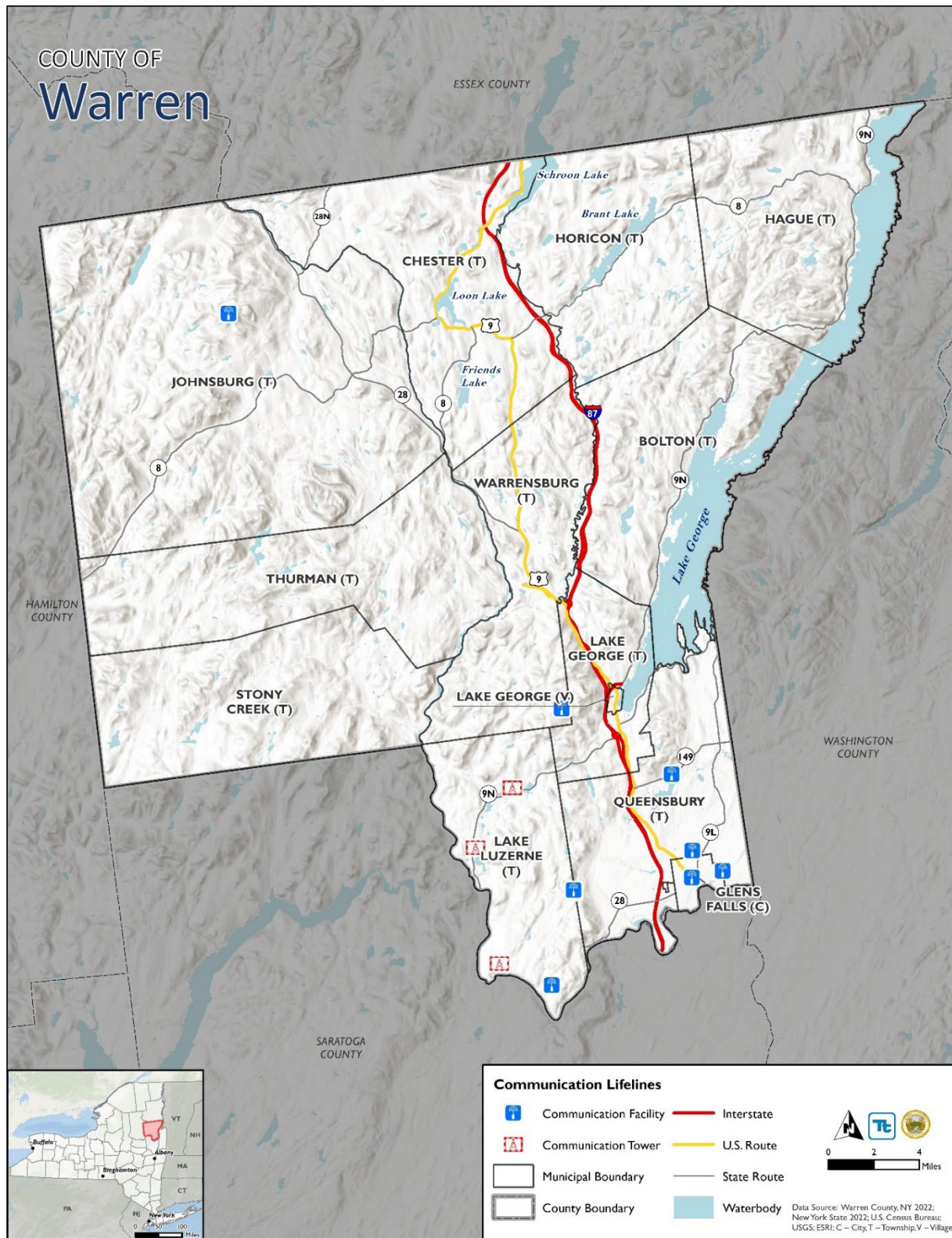
Figure 4-20. Energy Lifelines in Warren County







Figure 4-21. Communications Lifelines in Warren County







### 4.6.6 Transportation

Transportation community lifelines include facilities related to highway/roadways, mass transit, railway, aviation, and maritime. For the purpose of this plan, transportation facilities include highways, roadways, airports, heliports, bus and other transit facilities, and railroads. These facilities are shown in Figure 4-22.

#### Highway, Roadways and Associated Systems

---

One thousand, two hundred forty-six miles of road traverse Warren County. US Route 87, the Adirondack Northway, is the only interstate highway and runs north-south between the 'local' population centers of Plattsburgh (north) and Albany (south), and beyond – Montreal, Canada to the north and New York City to the south. The Northway and NYS Route 9 are "north-south" routes within the county, as are NYS Routes 28 and 9N. East-west roads serve as connecting roads to the interstate, state routes, and local population centers, and are dispersed in heavily forested and mountainous rural sections of the county. The City of Glens Falls has a network of state, and local roadways.

#### Airports and Heliports

---

The Floyd Bennet Memorial Airport (Warren County 2017) is located three miles northeast of downtown Glens Falls, off of State Route 254. There are two runways at the airport– one 5,000 feet long and the other 4,000 feet long. The airport can serve aircraft as large as a C-5A Galaxy. There is also a private, grass-runway airport known as Bennetts Airport in North Creek.

The Glens Falls Hospital has a heli-pad to service medical emergencies. The County DPW Parks and Recreation Division Fish Hatchery facility (Warrensburg) has a helicopter landing area which can support emergency management functions and is thus considered a county critical facility.

#### Bus and Other Transit Facilities

---

There are three main bus services available in Warren County. Adirondack Trailways and Greyhound Lines operate from a bus station in Glens Falls, connecting to destinations throughout New York and beyond. Greater Glens Falls Transit operates year-round, fixed route public transit services to the greater Glens Falls area. Routes span portions of Warren, Washington and Saratoga counties and include Glens Falls, Queensbury, South Glens Falls, Lake George, Hudson Falls, Kingsbury, Fort Edward and Moreau. GGFT began operation in 1984 and on an annual basis transports over 320,000 riders.

#### Railroad Facilities

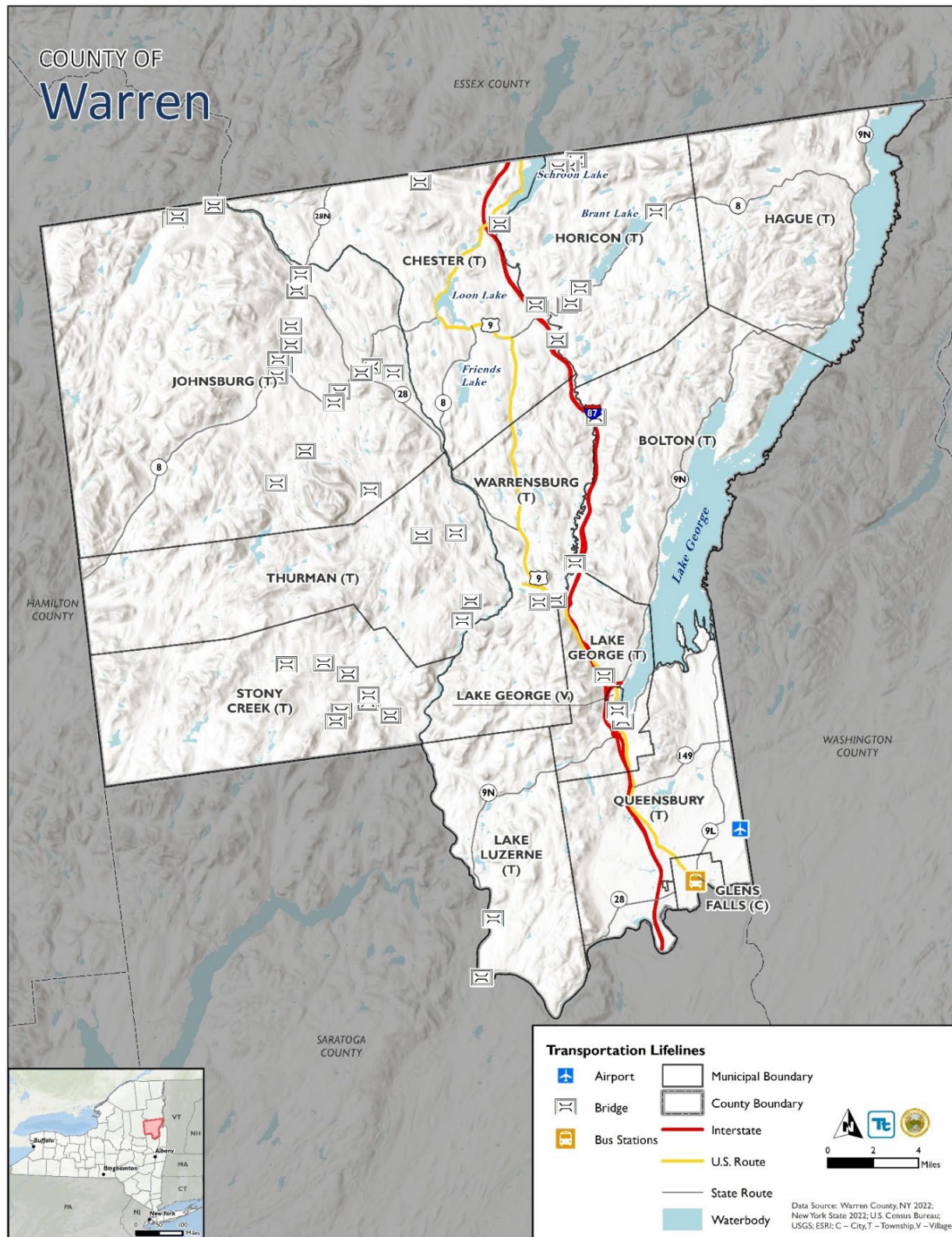
---

There are currently limited rail freight, and no passenger rail services in Warren County. The now defunct Saratoga & North Creek Railway, previously running from Saratoga Springs up the western side of the County is no longer in service and is currently only used recreationally for rail bikes. Limited freight rail is located the City of Glens Falls.





Figure 4-22. Transportation Lifelines in Warren County







### 4.6.7 Hazardous Materials

Hazardous material community lifelines include facilities related to hazardous material facilities or any type of hazardous materials, pollutants or contaminants. For the purpose of this plan, this includes facilities that contain hazardous materials.

#### HAZMAT Facilities

A Superfund site consists of land in the United States that has been contaminated by hazardous waste and identified by the U.S. Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health or the environment. These sites are placed on the National Priorities List (NPL), the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide EPA in determining which sites warrant further investigation.

According to the EPA Envirofacts, there are 552 EPA-regulated facilities in Warren County. This includes the following:

**Table 4-8. EPA-Regulated Facilities in Warren County**

Program	Description	Number of Facilities in County
ICIS-AIR	Information on air releases is contained in ICIS-AIR, a computer-based repository for information about air pollution in the United States. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce.	44
Assessment, Cleanup and Redevelopment Exchange System (ACRES)	ACRES captures grantee reported data on environmental activities and accomplishments (assessment, cleanup and redevelopment), funding, job training, and details on cooperative partners and leveraging efforts – a central objective of the Brownfields Program.	38
Biennial Report (BR)	Detailed hazardous waste information is collected on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage, and disposal facilities. This information is compiled into a Biennial Report and is useful for trend analysis.	42
Superfund Enterprise Management System (SEMS)	Superfund is a program administered by the EPA to locate, investigate, and clean up uncontrolled hazardous waste sites throughout the United States.	1
GHG	The Greenhouse Gas Reporting Program requires annual reporting of greenhouse gas (GHG) data and other relevant information from large direct emissions sources and suppliers of certain fossil fuels and industrial gases in the United States.	2
ICIS-NPDES	The Permit Compliance System (PCS) and Integrated Compliance Information System (ICIS) databases provide information on companies which have been issued permits to discharge wastewater into rivers.	132





Program	Description	Number of Facilities in County
RCRAInfo	Hazardous waste information is contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies.	376
TRI (Tier II)	The Toxics Release Inventory (TRI) tracks the management of over 650 toxic chemicals that pose a threat to human health and the environment.	44
TSCA	The Toxic Substances Control Act provides EPA with the authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.	6

Sources: U.S. EPA 2023; U.S. EPA 2023

In addition to the EPA-regulated facilities, there are numerous hazardous facilities in Warren County cataloged by the NYSDEC's Bulk Storage Program Database. The Bulk Storage Program includes three types of facilities; Petroleum Bulk Storage (PBS), and Chemical Bulk Storage (CBS) that require registration with NYSDEC for all facilities with a total storage capacity of petroleum products of the following:

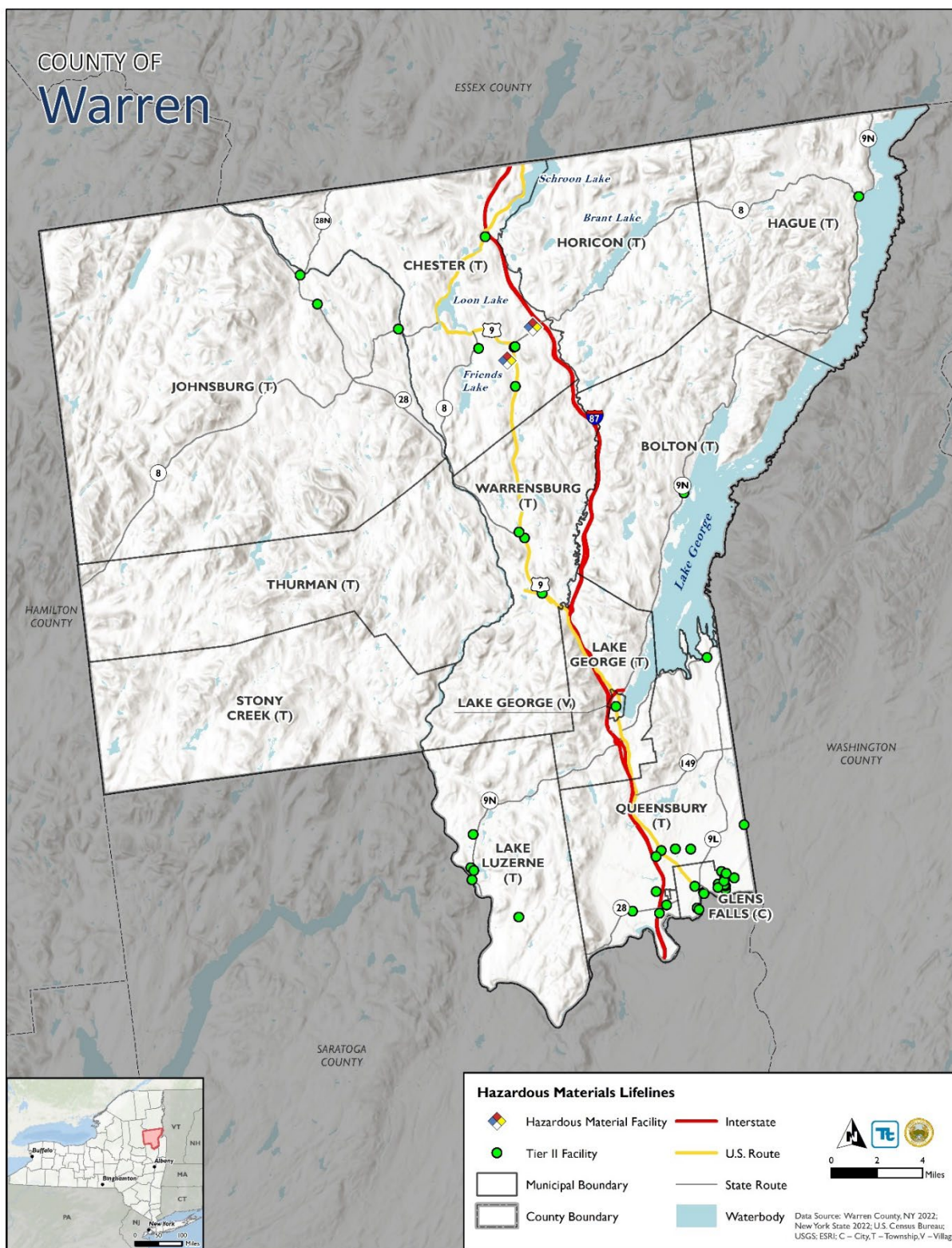
- PBS—1,100 gallons or more
- CBS underground tanks and all stationary aboveground tanks—185 gallons or more

As of May 2023, there are 417 sites listed in the NYSDEC's Bulk Storage Program Database in Warren County listed as petroleum bulk storage sites, of which 183 are active. There are 21 facilities listed as chemical bulk storage sites of which 8 are active (NYSDEC 2023).





Figure 4-23. Hazardous Materials Lifelines in Warren County







### 4.6.8 Other Facilities

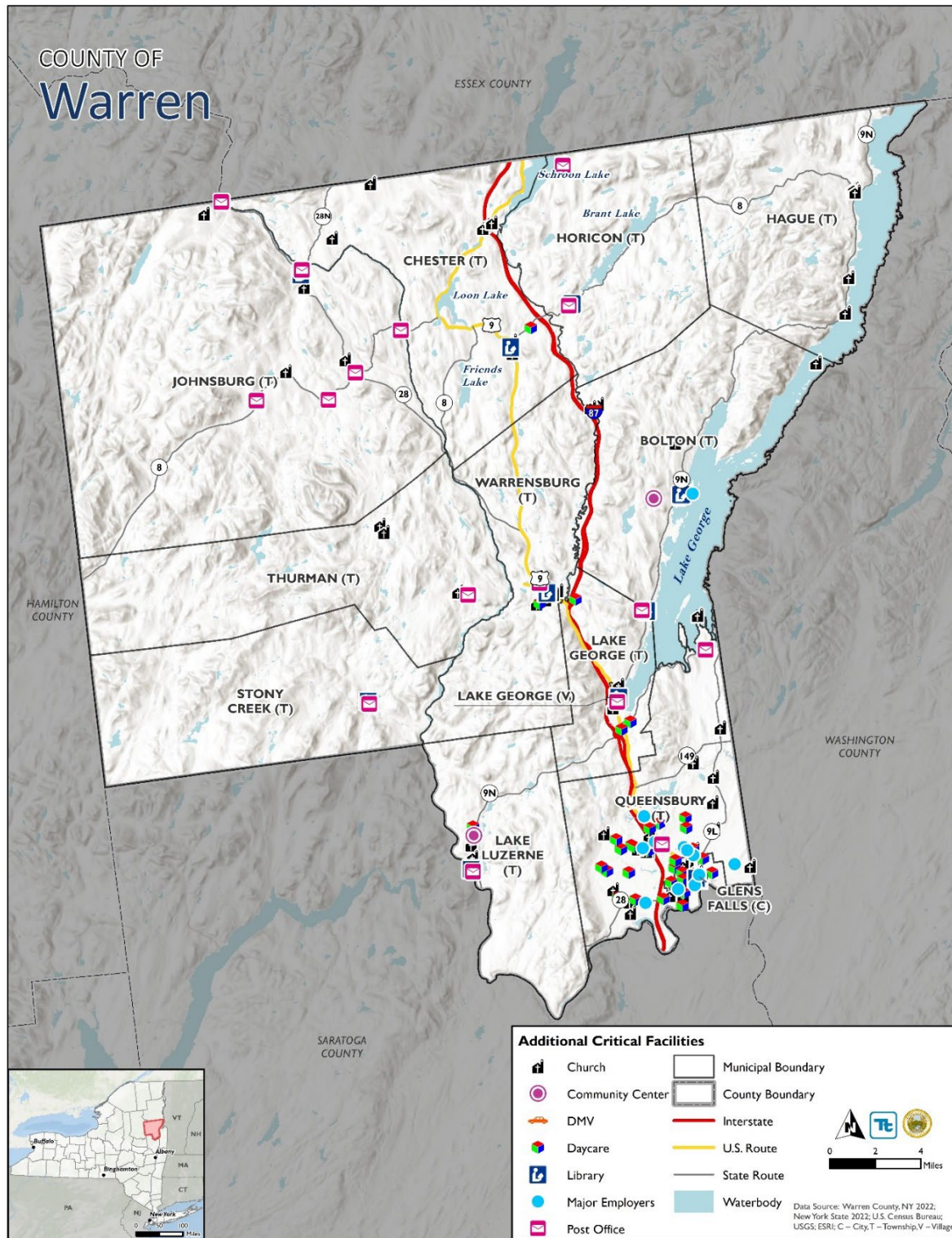
The Warren County Planning Committee identified 176 additional facilities (user-defined facilities) as critical including municipal buildings and other government facilities. These facilities were included in the risk assessment conducted for the county. Figure 4-24 shows the locations of these facilities in the county.

DRAFT





Figure 4-24. Other Critical Facilities in Warren County







## SECTION 5. RISK ASSESSMENT

### 5.1 METHODOLOGY AND TOOLS

A risk assessment is the process of measuring the potential loss of life, personal injury, and economic and property damage resulting from identified hazards. Identifying potential hazards and vulnerable assets allows planning personnel to address and reduce hazard impacts and emergency management personnel to establish early response priorities. Results of the risk assessment are used in subsequent mitigation planning processes, including determining and prioritizing mitigation actions that reduce each jurisdiction's risk to a specified hazard. Past, present, and future conditions must be evaluated to assess risk most accurately for the county and each jurisdiction. The process focuses on the following elements:

- **Hazard identification**—Use all available information to determine what types of hazards may affect a jurisdiction.
- **Profile each hazard**—Understand each hazard in terms of:
  - Extent—Severity of each hazard.
  - Location—Geographic area most affected by the hazard.
  - Previous occurrences and losses
- **Assess vulnerability** – Understand hazard impacts in terms of:
  - Exposure identification—Estimate the total number of assets in the jurisdiction that are likely to experience a hazard event if it occurs by overlaying hazard maps with the asset inventories.
  - Vulnerability identification and loss estimation—Assess the impact of hazard events on the people, property, economy, and lands of the region, including estimates of the cost of potential damage or cost that can be avoided by mitigation.
  - Future changes that may impact vulnerability—Analyze how demographic changes, projected development and climate change impacts can alter current exposure and vulnerability.

The Warren County risk assessment was updated using best available information.

- An updated building stock inventory was created using NYSERDA's 2022 building footprint data using 2022 RS Means values and supplemented with 2021 NYS Tax assessor data.
- 2017–2021 American Community Survey 5-year Population Estimates were utilized.
- A critical facility was generated and reviewed by the Planning Partnership and County jurisdictions.
- Lifelines were identified in the critical facility inventory to align with FEMA's lifeline definition.
- Hazus was used to estimate potential impacts to the flood, wind, and seismic hazards.
- Best available hazard data was used as described in this section.





The following summarizes the asset inventories, methodology and tools used to support the risk assessment process.

### 5.1.1 Asset Inventories

Warren County assets were identified to assess potential exposure and loss associated with the hazards of concern. For the HMP update, Warren County assessed exposure and vulnerability of the following types of assets: population, buildings and critical facilities/infrastructure, new development, and the environment. Some assets may be more vulnerable because of their physical characteristics or socioeconomic uses. To protect individual privacy and the security of critical facilities, information on properties assessed is presented in aggregate, without details about specific individual personal or public properties.



### Population

Total population statistics from the 2017–2021 American Community Survey (ACS) 5-year estimate were used to estimate the exposure and potential impacts to the County’s population in place of the 2010 U.S. Census block estimates. To determine population statistics for village and towns, the population of villages was subtracted from the total town population. Please note one distinct population feature for this updated HMP:

*The risk assessment included the collection and use of an expanded and enhanced asset inventory to estimate hazard exposure and vulnerability.*

1. Any results reported for the Town of Lake George are the results of the Village of Lake George subtracted from the initially reported Town of Lake George statistics.

As discussed in Section 4 (County Profile), research has shown that some populations are at greater risk from hazard events because of decreased resources or physical abilities. Vulnerable populations in Warren County included in the risk assessment are children, elderly, population below the poverty level, limited English speaking individuals, and persons non-institutionalized with a disability.

Regarding vulnerable population data, the FEMA Resilience Analysis and Planning Tool (RAPT) was utilized to evaluate certain vulnerability characteristics of communities within Warren County. Census tract data for each municipality was evaluated and reported in municipal annexes as the most appropriate data unit available in the RAPT tool.





## Buildings

The building stock inventory developed for the 2023 HMP was updated using NYSERDA 2022 building footprint data, 2022 RS Means values, and supplemented with 2021 NYS Tax assessor data. The occupancy classes available in Hazus were condensed into the following categories (residential, commercial, industrial, agricultural, religious, governmental, and educational) to facilitate the analysis and the presentation of results. Residential loss estimates address both multi-family and single-family dwellings. Replacement cost value (RCV) is the current cost of returning an asset to its pre-damaged condition, using present-day cost of labor and materials. Total replacement cost value consists of both the structural cost to replace a building and the estimate value of contents of a building. Structural and content RCV were calculated for each building utilizing RS Means 2022 values. A regional location factor for Warren County was applied based on the individual building stock's zip code location:

- 128: Residential – .93/Non-Residential – .95

## Critical Facilities and Lifelines

The County (Steering Committee and County jurisdictions) and its consultant updated the 2017 HMP critical facility inventory to include additional lifelines and user defined assets. The update involved a review for accuracy, additions, or deletions of new/moved critical assets, identification of backup power for each asset (if known) and whether the critical facility is considered a lifeline in accordance with FEMA's definition; refer to Appendix E (Supplementary data). To protect individual privacy and the security of assets, information is presented in aggregate, without details about specific individual properties or facilities.

## Environment and Land Use Area

National Hydrography data from NHD was used to assess waterbody coverage of the County. This dataset was used to calculate total acreage of land coverage within Warren County, as well as total land acreage that falls within Flood 100-yr and Flood 500-yr hazard areas.

## New Development

In addition to assessing the vulnerability of the built environment, Warren County examined recent development over the last 5 years and anticipated new development in the next 5 years. Each jurisdiction provided a list of major development that has taken place within these timeframes. New development was identified as 1) anticipated in the next five years and 2) recently developed over the last five years.

*A lifeline provides indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security (FEMA).*

Identifying these changes and integrating new development into the risk assessment provides communities information to consider when developing the mitigation strategy to reduce these vulnerabilities in the future (one tool in the Mitigation Toolbox discussed in Section 6 – Mitigation





Strategy). The new development is summarized in Section 4 (County Profile) and presented in Section 9 (Jurisdictional Annexes) as a table in each annex.

## 5.1.2 Methodology

To address the requirements of the DMA 2000 and to better understand potential vulnerability and losses associated with hazards of concern, Warren County used standardized tools, combined with local, state, and federal data and expertise to conduct the risk assessment. Three different levels of analysis were used depending upon the data available for each hazard as described below. Table 5.1-1 summarizes the type of analysis conducted by hazard of concern.

1. **Historic Occurrences and Qualitative Analysis** – This analysis includes an examination of historic impacts to understand potential impacts of future events of similar size. In addition, potential impacts and losses are discussed qualitatively using best available data and professional judgement.
2. **Exposure Assessment** – This analysis involves overlaying available spatial hazard layers, or hazards with defined extent and locations, with assets in GIS to determine which assets are located in the impact area of the hazard. The analysis highlights which assets are located in the hazard area and may incur future impacts.
3. **Loss estimation** – The FEMA Hazus modeling software was used to estimate potential losses for the following hazards: flood, earthquake, hurricane. In addition, an examination of historic impacts and an exposure assessment was conducted for these spatially-delineated hazards.

**Table 5.1-1. Summary of Risk Assessment Analyses**

Hazard	Population	General Building Stock	Critical Facilities	New Development
Disease Outbreak	Q	Q	Q	Q
Earthquake	E, H, Q	E, H, Q	E, H, Q	Q
Extreme Temperature	Q	Q	Q	Q
Flood	E, H, Q	E, H, Q	E, H, Q	Q
Hazmat Rail	E	E	E	Q
Hazmat Roads	E	E	E	Q
Dam Failure	E, Q	E, Q	E, Q	Q
Hurricane	H	H	H	Q
Infestation	Q	Q	Q	Q
Severe Storm	H, Q	H, Q	H, Q	Q
Severe Winter Storm	Q	Q	Q	Q
Wildfire	E	E	E	Q

E – Exposure analysis; H – Hazus analysis; Q – Qualitative analysis

### Hazards U.S. – Multi-Hazard (Hazus)

In 1997, FEMA developed a standardized model for estimating losses caused by earthquakes, known as Hazards U.S. or Hazus. Hazus was developed in response to the need for more effective national-





, state-, and community-level planning and the need to identify areas that face the highest risk and potential for loss. Hazus was expanded into a multi-hazard methodology, Hazus with new models for estimating potential losses from wind (hurricanes) and flood (riverine) hazards. Hazus is a GIS-based software tool that applies engineering and scientific risk calculations, which have been developed by hazard and information technology experts, to provide defensible damage and loss estimates. These methodologies are accepted by FEMA and provide a consistent framework for assessing risk across a variety of hazards. The GIS framework also supports the evaluation of hazards and assessment of inventory and loss estimates for these hazards.

Hazus uses GIS technology to produce detailed maps and analytical reports that estimate a community's direct physical damage to building stock, critical facilities, transportation systems and utility systems. To generate this information, Hazus uses default data for inventory, vulnerability, and hazards; this default data can be supplemented with local data to provide a more refined analysis. Damage reports can include induced damage (inundation, fire, threats posed by hazardous materials and debris) and direct economic and social losses (casualties, shelter requirements, and economic impact) depending on the hazard and available local data. Hazus' open data architecture can be used to manage community GIS data in a central location. The use of this software also promotes consistency of data output now and in the future and standardization of data collection and storage. More information on Hazus is available at <http://www.fema.gov/hazus>.

In general, modeled losses were estimated in the program using depth grids for the flood analysis and probabilistic analyses were performed to develop expected/estimated distribution of losses (mean return period losses) for hurricane wind and seismic hazards. The probabilistic model generates estimated damages and losses for specified return periods (e.g., 100- and 500-year). Table 5.1-2 displays the various levels of analyses that can be conducted using the Hazus software.

**Table 5.1-2. Summary of Hazus Analysis Levels**

Hazus Analysis Levels	
Level 1	Hazus provides hazard and inventory data with minimal outside data collection or mapping.
Level 2	Analysis involves augmenting the Hazus provided hazard and inventory data with more recent or detailed data for the study region, referred to as "local data"
Level 3	Analysis involves adjusting the built-in loss estimation models used for the hazard loss analyses. This Level is typical done in conjunction with the use of local data.

## Dam Failure

Assets that fall within dam inundation hazard areas within Warren County are at greatest risk of impacts from dam failure events. A quantitative assessment was conducted for the dam failure hazard for dams with available digital inundation boundaries available. The analysis aggregated the high hazard dam inundation areas for rainy day scenarios. Inventory such as Critical Facilities and





General Building Stock, as well as Population estimates that are geographically located in the aggregate high hazard dam inundation were considered exposed.

Additionally, an exposure analysis for the individual dams was conducted. This included the same inventory data: Critical Facilities, General Building Stock, as well as Population estimates. Those inventory points within the individual dam inundation hazard areas were considered exposed. Because of the sensitive nature of the dam failure inundation zones, potential losses have not been presented in the vulnerability assessment but are provided in a confidential appendix.

### Disease Outbreak

---

Disease outbreak is a new hazard of concern for the Warren County HMP. All of Warren County is exposed to disease outbreak events. A qualitative assessment was conducted. Research from the Centers for Disease Control and Prevention was utilized to qualitatively assess the most recent COVID-19 outbreak.

### Earthquake

---

Probabilistic assessment was conducted for Warren County for the 500-year and 2,500-year mean return periods (MRPs) through a Level 2 analysis in Hazus v5.1 to analyze the earthquake hazard and provide a range of loss estimates. The probabilistic method uses information from historic earthquakes and inferred faults, locations, and magnitudes, and computes the probable ground shaking levels that may be experienced during a recurrence period by Census tract.

As noted in the Hazus Earthquake User Manual, *"Although the software offers users the opportunity to prepare comprehensive loss estimates, it should be recognized that uncertainties are inherent in any estimation methodology, even with state-of-the-art techniques. Any region or city studied will have an enormous variety of buildings and facilities of different sizes, shapes, and structural systems that have been constructed over a range of years under diverse seismic design codes. There are a variety of components that contribute to transportation and utility system damage estimations. These components can have differing seismic resistance."* (FEMA 2020). However, Hazus' potential loss estimates are acceptable for the purposes of this HMP.

Ground shaking is the primary cause of earthquake damage to man-made structures and soft soils **amplify** ground shaking. One contributor to the site amplification is the velocity at which the rock or soil transmits shear waves (S-waves). The National Earthquake Hazard Reductions Program (NEHRP) has developed five soil classifications defined by their shear-wave velocity that impact the severity of an earthquake. The soil classification system ranges from A to E, where A represents hard rock that reduces ground motions from an earthquake and E represents soft soils that amplify and magnify ground shaking and increase building damage and losses. Class D and E NEHRP soils are the two classes most susceptible to amplified ground motion during an earthquake.





An exposure analysis was conducted for the County's assets (population, building stock, critical facilities, and new development) using NEHRP soil data provided by New York State and the national landslide susceptibility data where landslide susceptibility was listed as high susceptibility. The exposure analysis focused on soil types that would experience amplified ground motion during an earthquake (i.e., Class D and E). Assets with their centroid in the hazard areas were totaled to estimate the numbers and values vulnerable to these soil types.

Data from New York State was used in Hazus to replace default NEHRP soils. Groundwater was set at a depth of five (5) feet (default setting). The default assumption is a magnitude 7.0 earthquake for all return periods. Although damages are estimated at the census tract level, results were presented at the municipal level. Since there are multiple census tracts that contain more than one jurisdiction, an area analysis was used to extract the percent of each tract that falls within individual jurisdictions. The percentage was multiplied against the results calculated for each tract and summed for each jurisdiction.

Damage estimates are calculated for losses to buildings (structural and non-structural) and contents; structural losses include load carrying components of the structure, and non-structural losses include those to architectural, mechanical, and electrical components of the structure, such as nonbearing walls, veneer and finishes, HVAC systems, boilers, etc.

### Extreme Temperatures

---

All of Warren County is exposed to extreme temperature events. A qualitative assessment was conducted for the extreme temperatures hazard. Information from the National Weather Service (NWS), Centers for Disease Control and Prevention, stakeholder plans/reports, the 2019 New York State Hazard Mitigation Plan, and the Planning Partnership were used to assess the potential impacts to the County's assets.

### Flood

---

The 1- and 0.2-percent annual chance flood events were examined to evaluate the County's risk from the flood hazard. These flood events are generally those considered by planners and evaluated under federal programs such as NFIP.

The following data was used to evaluate exposure and determine potential future losses for this plan update:

- Warren County georeferenced FIRM maps from the 1980's and 1990's
- The depth grid was developed for the 2023 Warren County HMP using a combination of data from the State of New York's 1-meter Resolution Digital Elevation Model, USGS's 10-meter Resolution Digital Elevation Model, and FEMA's 2-meter Resolution Digital Elevation Model.





FEMA has not developed digital DFIRM flood data for Warren County. Warren County previously georeferenced and digitized the hardcopy FIRM maps from the 1980's and 1990's and this digital data was used to evaluate exposure for the 1- and 0.2-percent annual chance flood events, as well as determine potential future losses for the 1-percent annual chance event.

The digital georeferenced Flood data that Warren County created was used to evaluate exposure and determine potential future losses. The depth grid generated for the 2023 HMP was integrated into the Hazus riverine flood model used to estimate potential losses for the 1-percent annual chance flood event.

To estimate exposure to the 1-percent- and 0.2-percent annual chance flood events, the georeferenced digital flood boundaries were overlaid on the centroids of updated assets (population, building stock, and critical facilities) Centroids that intersected the flood boundaries were totaled to estimate the building replacement cost value and population vulnerable to the flood inundation areas. A Level 2 Hazus riverine flood analysis was performed in Hazus v5.1. Both the critical facility and building inventories were formatted to be compatible with Hazus and its Comprehensive Data Management System (CDMS). Once updated with the inventories, the Hazus riverine flood model was run to estimate potential losses in Warren County for the 1-percent annual chance flood events. A user-defined analysis was also performed for the building stock. Buildings located within the floodplain were imported as user-defined facilities to estimate potential losses to the building stock at the structural level. Hazus calculated the estimated potential losses to the population (default 2010 U.S. Census data across dasymetric blocks), potential damages to the general building stock, and potential damages to critical facility inventories based on the depth grid generated and the default Hazus damage functions in the flood model.

### **Hazardous Materials**

---

Hazardous materials data, including hazmat rail and roads were analyzed during our exposure assessment to determine what population, critical facilities and general building stock are located within a ½ buffer of the rail lines and roads. Railroads were analyzed in Glens Falls (C) and Queensbury (T) only as the additional rail lines are currently non-functioning. Pipe data was not available and therefore not analyzed during this assessment.

### **Infestation and Invasive Species**

---

A qualitative analysis was conducted for the infestation and invasive species hazard. All of Warren County is considered exposed due to the historical existence and evidence of invasive species in New York State and Warren County. Data from the United States Department of Agriculture, New York Department of Environmental Conservation, the New York State Invasive Species Program, and the Cornell Cooperative Extension of Warren County was used to develop the hazard profile and to determine risk and exposure.





## Severe Storm

A Hazus probabilistic analysis was performed in Hazus v5.1 to analyze the wind hazard losses for Warren County for the 100- and 500-year MRP events. The probabilistic Hazus hurricane model activates a database of thousands of potential storms that have tracks and intensities reflecting the full spectrum of Atlantic hurricanes observed since 1886 and identifies those with tracks associated with Warren County. Hazus contains data on historic hurricane events and wind speeds. It also includes surface roughness and vegetation (tree coverage) maps for the area. Surface roughness and vegetation data support the modeling of wind force across various types of land surfaces. A Hazus historical analysis was performed in Hazus v5.1 to analyze the historical severe storm event of 1938 for Warren County. The historical Hazus hurricane model activates a database with the historical storm track and intensities including peak gust data. Default demographic and updated building and critical facility inventories in Hazus were used for the analysis. Although damages are estimated at the census tract level, results were presented at the municipal level. Since there are multiple census tracts that contain more than one jurisdiction, a density analysis was used to extract the percent of building structures that fall within each tract and jurisdiction. The percentage was multiplied against the results calculated for each tract and summed for each jurisdiction.

## Severe Winter Storm

All of Warren County is exposed and vulnerable to the winter storm hazard. In general, structural impacts include damage to roofs and building frames, rather than building content. Current modeling tools are not available to estimate specific losses for this hazard. A percentage of the custom-building stock structural replacement cost value was utilized to estimate damages that could result from winter storm conditions (i.e., 1-percent, 5-percent, and 10-percent of total replacement cost value). Given professional knowledge and currently available information, the potential losses for this hazard are considered to be overestimated; hence, providing a conservative estimate for losses associated with winter storm events.

## Wildfire

The Wildland-Urban Interface (Interface and Intermix) obtained through the **SILVIS Laboratory, Department of Forest Ecology and Management, University of Wisconsin – Madison**, was referenced to delineate wildfire hazard areas. The University of Wisconsin – Madison wildland fire hazard areas are based on the 2010 Census and 2006 National Land Cover Dataset and the Protected Areas Database. For this risk assessment, the high-, medium-, and low-density interface areas were combined and used as the “Interface” hazard area, and the high-, medium-, and low-density intermix areas were combined and used as the “Intermix” hazard areas.

To determine what assets are exposed to wildfire, available and appropriate GIS data were overlaid with the hazard area. Assets with their centroid located in the hazard area were totaled to estimate the totals and values exposed to a wildfire event.





## Considerations for Mitigation and Next Steps

The following items are to be discussed for considerations for the next plan update to enhance the vulnerability assessment:

- All Hazards
  - Create an updated user-defined general building stock dataset with first floor elevation and more detailed Residential Occupancy Classifications.
  - Utilize updated and current demographic data.
- Flood
  - The general building stock inventory can be updated to include attributes regarding more detailed Residential Occupancy classifications and foundation type (basement, slab on grade, etc.) to enhance loss estimates.
  - Conduct a Hazus loss analysis for more frequent flood events (e.g., 10 and 50-year flood events).
  - Conduct a repetitive loss area analysis.
  - Utilize FEMA DFIRM data should it become available.
- Earthquake
  - Identify unreinforced masonry in critical facilities and privately-owned buildings (i.e., residences) by accessing local knowledge, tax assessor information, and/or pictometry/orthophotos. These buildings may not withstand earthquakes of certain magnitudes and plans to provide emergency response/recovery efforts at these properties can be developed.
- Extreme Temperatures
  - Track extreme temperature data for injuries, deaths, shelter needs, pipe freezing, agricultural losses, and other impacts to determine distributions of most at risk areas.
- Hazardous Materials
  - Utilize Pipe data to create a Hazmat Buffer if data is available, to include in exposure analysis.
- Severe Storm
  - The general building stock inventory can be updated to include attributes regarding protection against strong winds, such as hurricane straps, to enhance loss estimates.
  - Integrate evacuation route data that is currently being developed.
- Wildfire
  - General building stock inventory can be updated to include attributes such as roofing material or fire detection equipment or integrate distance to fuels as another measure of vulnerability.





### 5.1.3 Data Source Summary

Table 5.1-3 summarizes the data sources used for the risk assessment for this plan.

**Table 5.1-3. Risk Assessment Data Documentation**

Data	Source	Date	Format
Population data	U.S. Census Bureau; American Community Survey 5-Year Estimates	2020; 2021	Excel format; Digital (GIS) format
Building Inventory	NYSDA 2022 Building Footprints, NYS 2021 Tax Assessor Data, RS Means	2022; 2021; 2022	Digital (GIS) format
Wildfire Fuel Hazard	University of Wisconsin – Madison	2010	Digital (GIS) format
Critical Facilities	Warren County GIS; Warren County Planning Partners	2022;	Digital (GIS) format
Digitized FIRM maps	Warren County GIS	2022;	Digital (GIS) format
NEHRP Soil	NYS	n.d.	Digital (GIS) format
1-meter, 2-meter and 10-meter Resolution Digital Elevation Model	New York State; FEMA; USGS–NYSDEC/CUGIR	2022	Digital (GIS) format
Dam Inundation Areas	Warren County GIS	2022	Digital (GIS) Format

### Limitations

Loss estimates, exposure assessments, and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from the following:

- Approximations and simplifications necessary to conduct such a study
- Incomplete or dated inventory, demographic, or economic parameter data
- The unique nature, geographic extent, and severity of each hazard
- Mitigation measures already employed by the participating municipalities
- The amount of advance notice residents have to prepare for a specific hazard event
- Uncertainty of climate change projections

These factors can result in a range of uncertainty in loss estimates, possibly by a factor of two or more. Therefore, potential exposure and loss estimates are approximate. These results do not predict precise results and should be used to understand relative risk. Over the long term, Warren County will work to collect additional data, update and refine existing inventories, to assist in estimating potential losses. Related to dam failure analysis and inundation mapping, there were specific limitations to the exposure assessments as spatial data was not available for all of the high hazard dams. Four of the high hazard dams were assessed using previously developed inundation maps. For future improvements, spatial data for all of the high hazard dams is needed to decrease uncertainties in the exposure assessments.





Potential economic loss is based on the present value of the general building stock utilizing best available data. The County acknowledges significant impacts may occur to critical facilities and infrastructure as a result of these hazard events causing great economic loss. However, monetized damage estimates to critical facilities and infrastructure, and economic impacts were not quantified and require more detailed loss analyses. In addition, economic impacts to industry such as tourism and the real-estate market were not analyzed.





## 5.2 IDENTIFICATION OF HAZARDS OF CONCERN

Warren County reviewed a full range of hazards that could impact the area and then identified and ranked those hazards that presented the greatest concern to provide a strong foundation for mitigation actions considered in Sections 6 (Mitigation Strategy) and 9 (Jurisdictional Annexes). The hazard of concern identification process incorporated input from the county and participating jurisdictions; review of the New York State Hazard Mitigation Plan (NYS HMP 2019); review of the 2017 Warren County HMP; research and local, state, and federal information on the frequency, magnitude, and costs associated with the various hazards that have previously, or could feasibly, impact the region; and qualitative or anecdotal information regarding natural (not manmade) hazards and the perceived vulnerability of the study area's assets to them. Table 5.2-1 provides the natural hazards reviewed with respect to the history of impacts in the county to identify the hazards of concern in the county. Profiles of these hazards are included in the plan.

**Hazards of Concern** are those hazards that are considered most likely to impact a community. These are identified using available data and local knowledge.

**Natural Hazards** are those hazards that are a source of harm or difficulty created by a meteorological, environmental, or geological event.

### 5.2.1 Changes from 2017 Hazard Mitigation Plan

The 2017 Warren County Hazard Mitigation Plan identified earthquake, disease outbreak, flood, infestation, landslide, severe storm, severe winter storms and wildfire as individual natural hazards of concern. The 2017 plan also identified cyber-security and hazardous materials as non-natural hazards of concern. During the 2023 Hazard Mitigation Plan Update planning process, the Steering Committee elected to include those hazards with the exception of the landslide, hazardous materials, and cyber-security hazards and with the addition of the extreme temperature hazard. The 2023 Warren County Hazard Mitigation Plan Update includes best available data throughout the plan to present an updated understanding of Warren County's risk.

### 5.2.2 Hazard Groupings

As per the 2017 Warren County HMP, the Steering and Planning Committees maintained the grouping of hazards based on the similarity of hazard events, typical concurrence or impacts, consideration of how hazards have been grouped in Federal Emergency Management Agency (FEMA) guidance documents (*FEMA 386-2 Understanding Your Risks, Identifying Hazards and Estimating Losses; Multi-Hazard Identification and Risk Assessment – The Cornerstone of the National Mitigation Strategy; Local Mitigation Planning Handbook*), and consideration of hazard grouping in the NYS HMP.





The *Disease Outbreak* hazard profile addresses mosquito-borne, tick borne, and communicable respiratory diseases that occurred in Warren County or had a considerable impact on the county.



The *Earthquake* hazard profile includes events associated with an earthquake that may affect resident's normal activities such as surface faulting and ground shaking. The profile provides a description, extent, location, previous occurrences and losses, climate change projections, and the probability of future occurrences of the earthquake hazard.



The *Extreme Temperature* hazard profile specifically addresses periods of extreme temperature that occurred in Warren County or had a considerable impact on the county.



The *Flood* hazard includes riverine flooding, flash flooding, shallow flooding, and ice jam flooding. Inclusion of the various forms of flooding under a general *Flood* hazard is consistent with that used in FEMA's *Multi-Hazard Identification and Risk Assessment* guidance and the NYS HMP.



The *Dam Failure* profile addresses dam failure flooding. The profile includes the description, location, extent, previous occurrences and losses, probability of future occurrences, impact of climate change, and vulnerability assessment for the hazards posed by dams in Warren County.



The *Infestation and Invasive Species* hazard profile specifically addresses invasive species that affect Warren County and the surrounding region.



The *Severe Storm* hazard includes windstorms that often entail a variety of other influencing weather conditions, including thunderstorms, hail, lightning, and tornadoes. Tropical disturbances (hurricanes, tropical storms, and tropical depressions) are often identified as a type of severe storm. For this HMP update *Severe Storm* includes thunderstorms, hail, lightning, tornadoes, hurricanes, tropical storms, and Nor'Easters.



The *Severe Winter Storm* hazard includes heavy snowfall, blizzards and freezing rain/sleet. This grouping is consistent with the NYS HMP.



The *Wildfire* hazard profile specifically addresses effects of wildfire that could have a considerable impact on the county.

Technological (e.g., hazardous material incidents) and some man-made hazards (e.g., terrorism) have not been addressed in this planning process. The DMA 2000 regulations do not require consideration of such hazards, and due to limited funding, these were not chosen for inclusion in this plan by Warren County and planning participants. The county can expand the scope of this HMP to include other less frequent natural, technological, and more man-made hazards as resources permit.





**Table 5.2-1. Identification of Hazards of Concern for Warren County**

Hazard	Is this a hazard that may occur in Warren County?	If yes, does this hazard pose a significant threat to Warren County and is this included as a Hazard of Concern?	Why was this determination made?	Source(s)
Avalanche	No	No	<ul style="list-style-type: none"> <li>The NYS HMP identifies avalanche as a hazard of concern; however, the daily probability of an avalanche for the state is 0.02 percent.</li> <li>Avalanches can occur in any situation where snow, slope and weather conditions combine to create proper conditions. About 90 percent of all avalanches start on slopes of 30 to 45 degrees and about 98 percent of all avalanches occur on slopes of 25 to 50 degrees.</li> <li>New York State, in general, has a very low occurrence of avalanche events based on statistics provided by National Avalanche Center – American Avalanche Association (NAC-AAA) between 1998 and 2020.</li> <li>Avalanche was identified as a hazard in the NYS HMP and there have been occurrences in the state; however, the daily probability of an avalanche in the state is 0.02 percent. In addition, there have been no known occurrences in Warren County. The Steering Committee does not consider the hazard to be a significant concern.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>NAC-AAA</li> <li>NY HMP</li> <li>NOAA-NCEI</li> </ul>
Coastal Erosion	No	No	<ul style="list-style-type: none"> <li>The NYS HMP identifies coastal erosion as a hazard of concern for New York State. Erosion can impact all the state's coastal counties along: Lake Erie and the Niagara River, Lake Ontario and the St. Lawrence River, Atlantic Ocean and Long Island Sound, Hudson River south of the federal dam in Troy, the East River, the Harlem River, the Kill van Kull and Arthur Kill, and all connecting waterbodies, bays, harbors, shallows, and wetlands.</li> <li>As stated above, coastal erosion is limited to the state's coastal counties. Warren County is not a coastal county; therefore, the Steering Committee does not consider the hazard to be a significant concern.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering and Planning Committees</li> </ul>
Dam Failure	Yes	Yes	<ul style="list-style-type: none"> <li>The 2019 NYS HMP identifies dam failure as a hazard of concern for New York State and includes it in the Flood hazard profiles.</li> <li>According to the New York Dam Safety Inspection 68 dams are within Warren County, as shown in Section 4. Of these 68 dams, 38 are low hazard, 16 are intermediate hazard and 7 are high hazard (County, 2022).</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Warren County Emergency Services Input from Steering and Planning Committees</li> <li>NYSDEC</li> <li>NYS GIS</li> </ul>
Disease Outbreak	Yes	Yes	<ul style="list-style-type: none"> <li>The 2019 NYS HMP does not identify disease outbreak as a hazard of concern for New York State.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>NYS DEC</li> </ul>





Hazard	Is this a hazard that may occur in Warren County?	If yes, does this hazard pose a significant threat to Warren County and is this included as a Hazard of Concern?	Why was this determination made?	Source(s)
			<ul style="list-style-type: none"> <li>According to the 2020 Warren County CEPA, the pandemic hazard is ranked medium.</li> <li>The County has been impacted by the COVID-19 pandemic (DR-4480).</li> <li>The County has been impacted by various diseases (COVID-19, West Nile Virus, Lyme disease); therefore, the Steering Committee identified disease outbreak as a hazard of concern for Warren County.</li> </ul>	<ul style="list-style-type: none"> <li>Input from Steering and Planning Committees</li> </ul>
Drought	Yes	No	<ul style="list-style-type: none"> <li>The NYS HMP identifies drought as a hazard of concern for the state with a daily probability of a drought for the state is 0.38 percent.</li> <li>Warren County has been impacted by two drought events that have occurred in New York State.</li> <li>Drought conditions can cause shortages in water for human consumption, impact agricultural production, and lead to reduced local firefighting capabilities.</li> <li>New York State was included in one FEMA drought-related disaster declaration, which did not include Warren County.</li> <li>Warren County entered two droughts in 1999.</li> <li>According to the 2020 Warren County CEPA, the drought hazard is ranked low.</li> <li>Based on previous occurrences and input from the Steering Committee, drought was not identified as a hazard of concern for Warren County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>FEMA</li> <li>USDA</li> <li>Input from Steering and Planning Committees</li> <li>NOAA-NCEI</li> <li>NRCC</li> </ul>
Earthquake	Yes	Yes	<ul style="list-style-type: none"> <li>The 2019 NYS HMP identified earthquake as a hazard of concern for the state however, the daily probability of an earthquake for the state is 0 percent.</li> <li>According to the 2015 NYS HMP, between 1973 and 2012, there have been 189 earthquakes epicentered in the State. Of those 189 events, four had an epicenter in Warren County.</li> <li>There have been several earthquakes with epicenters located in close proximity to Warren County. New York State was included in one FEMA earthquake-related disaster declaration (DR-1415); Warren County was not included in this declaration.</li> <li>Based on the existence and location of faults in the County, despite the lack of significant historical impacts the Steering Committee identified earthquake as a hazard of concern for Warren County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering and Planning Committees</li> <li>USGS – Earthquake Hazards Program, Review of USGS Seismic Maps</li> </ul>
Extreme Temperature	Yes	Yes	<ul style="list-style-type: none"> <li>The NYS HMP identified extreme temperatures as a hazard of concern for New York State.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> </ul>





Hazard		Is this a hazard that may occur in Warren County?	If yes, does this hazard pose a significant threat to Warren County and is this included as a Hazard of Concern?	Why was this determination made?	Source(s)
				<ul style="list-style-type: none"><li>Warren county has experienced 4 extreme heat events (NY HMP).</li><li>Warren County has experienced 18 extreme cold events</li><li>The Steering Committee identified extreme temperature as a hazard of concern for Warren County.</li></ul>	<ul style="list-style-type: none"><li>Input from Steering and Planning Committees</li><li>NOAA-NCEI</li><li>USDA</li></ul>
Flood (riverine, ice jam, dam failure and flash)	Yes	Yes	<ul style="list-style-type: none"><li>The NYS HMP identified flooding as a hazard of concern for New York State and the daily probability of a flood for the state is 21.75 percent.</li><li>Between 2000 and 2022, Warren County was included in 2 FEMA flood-related declarations.<ul style="list-style-type: none"><li>FEMA-DR-1993(Severe Storms Tornadoes, Winds and Flooding) – April 26, 2011</li><li>FEMA-DR-4129 (Severe Storms, and Flooding) – July 2013.</li></ul></li><li>Based on the history of flooding and its impacts on Warren County and input from the Steering and Planning Committees identified flooding as a hazard of concern for the county.</li></ul>	<ul style="list-style-type: none"><li>NYS DHSES</li><li>Input from Steering and Planning Committees</li><li>FEMA</li><li>NOAA-NCEI</li><li>USACE CRREL Ice Jam Database</li></ul>	
Hailstorm	Yes	Yes	Please see Severe Winter Storm		
Hurricane	Yes	Yes	Please see Severe Storm		
Ice Jams	Yes	Yes	Please see Flood		
Ice Storm	Yes	Yes	Please see Severe Winter Storm		
Infestation	Yes	No	Please see Invasive Species		
Invasive Species	Yes	Yes	<ul style="list-style-type: none"><li>The 2019 NYS HMP does not identify invasive species as a hazard of concern for New York State.</li><li>New York State has been affected by various instances of invasive ticks and mosquitos.</li><li>There are many identified invasive species that are present in Warren County and are a threat to natural forests, therefore the Steering Committee identified infestation and invasive species as a hazard of concern.</li></ul>	<ul style="list-style-type: none"><li>NYS DEC</li><li>Input from Steering and Planning Committees</li></ul>	
Land Subsidence	Yes	No	<ul style="list-style-type: none"><li>The 2019 NYS HMP indicates New York State is vulnerable to land subsidence; however, this hazard is “extremely localized” and poses a “very low risk to population and property.”</li><li>The Steering Committee did not identify land subsidence as a hazard of concern for Warren County.</li></ul>	<ul style="list-style-type: none"><li>NYS DHSES</li><li>Input from Steering and Planning Committees</li><li>USGS</li></ul>	
Landslide	Yes	No	<ul style="list-style-type: none"><li>The 2019 NYS HMP includes landslide as a hazard of concern for New York State however, the daily probability of a landslide for the state is 0.04 percent.</li></ul>	<ul style="list-style-type: none"><li>NYS DHSES</li></ul>	





Hazard		Is this a hazard that may occur in Warren County?	If yes, does this hazard pose a significant threat to Warren County and is this included as a Hazard of Concern?	Why was this determination made?	Source(s)
				<ul style="list-style-type: none"><li>According to the 2019 NYS HMP, Warren County has experienced 0 landslide event from 1996–2017.</li><li>Between 1954 and 2020 New York State has included in one landslide-related disaster declaration.</li><li>Based on previous occurrences and input from the Steering Committee,, the landslide hazard was not identified as a hazard of concern for Warren County.</li></ul>	<ul style="list-style-type: none"><li>Input from Steering and Planning Committees</li><li>FEMA</li></ul>
Nor'Easters	Yes	Yes	Please see Severe Storm		
Severe Storm (Windstorms, thunderstorms, hurricanes / tropical storms, Nor'Easters, hail and tornados)	Yes	Yes	<ul style="list-style-type: none"><li>The NYS HMP identified severe storm as a hazard of concern for New York State; however, for the state HMP, the hazards were profiled in individual sections thunderstorms, lightning, hail, tornadoes, high winds, and hurricanes/tropical storms. For the Warren County HMP, the hazards were combined into subheadings under one profile.</li><li>Between 2016 and 2022, Warren County was included in 1 FEMA severe storm-related declarations.<ul style="list-style-type: none"><li>FEMA-DR-4472 (Severe Storms, Straight-line Winds and Flooding) – October 2019</li></ul></li><li>According to the NOAA, 5 tornado events took place in Warren County between 1950 and 2022.</li><li>Based on previous occurrences and input from the Steering Committee, severe storms are identified as a hazard of concern for Warren County.</li></ul>	<ul style="list-style-type: none"><li>NYS DHSES</li><li>FEMA</li><li>NOAA-NCEI</li><li>SPC</li><li>Input from Steering and Planning Committees</li></ul>	
Severe Winter Storm (heavy snow, blizzards, ice storms)	Yes	Yes	<ul style="list-style-type: none"><li>The NYS HMP identified severe winter storm as a hazard of concern for New York State.</li><li>FEMA included Warren County in one winter storm-related disaster declarations:<ul style="list-style-type: none"><li>FEMA-EM-3107 (Severe Blizzard) – March 1993</li></ul></li><li>Based on previous occurrences and input from the Steering Committee, severe winter storms are identified as a hazard of concern for Warren County.</li></ul>	<ul style="list-style-type: none"><li>NYS DHSES</li><li>FEMA</li><li>NOAA-NCEI</li><li>Input from Steering and Planning Committees</li></ul>	
Tornado	Yes	Yes	Please see Severe Storm		
Tsunami	No	No	<ul style="list-style-type: none"><li>Tsunami is identified as a hazard of concern in the NYS HMP; however, while rare, tsunamis impact the coastal areas of the State and have a daily probability of .13 percent of occurring.</li></ul>	<ul style="list-style-type: none"><li>NYS DHSES</li><li>Input from Steering and Planning Committees</li></ul>	





Hazard	Is this a hazard that may occur in Warren County?	If yes, does this hazard pose a significant threat to Warren County and is this included as a Hazard of Concern?	Why was this determination made?	Source(s)
			<ul style="list-style-type: none"> <li>Due to its more inland location and based on input from the Steering Committee, tsunamis are not identified as a hazard of concern for Warren County.</li> </ul>	
Volcano	No	No	<ul style="list-style-type: none"> <li>The NYS HMP did not identify volcano as a threat for New York State and, therefore, the Steering Committee does not consider volcano to be a hazard of concern for Warren County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering and Planning Committees</li> </ul>
Wildfire	Yes	Yes	<ul style="list-style-type: none"> <li>The NYS HMP identified wildfire as a hazard of concern for New York State, however the daily probability of a wildfire breakout for the state is .09 percent.</li> <li>Warren County was included in one FEMA fire declaration; however, it was a manmade terrorist attack.</li> <li>According to the 2020 Warren County CEPA, the wildfire hazard is ranked medium.</li> <li>Based on available data, the Steering Committee identified wildfire as a hazard of concern for Warren County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering and Planning Committees</li> <li>FEMA</li> </ul>
Windstorm	Yes	Yes	Please see Severe Storm	

CEPA	Warren County Emergency Preparedness Assessment (2020)
CRREL	Cold Regions Research and Engineering Laboratory
DR	Presidential Disaster Declaration Number
EM	Presidential Disaster Emergency Number
FEMA	Federal Emergency Management Agency
NCEI	National Centers for Environmental Information
NOAA	National Oceanic and Atmospheric
NRCC	Northeast Regional Climate Center
NYS DEC	New York State Department of Environmental Conservation
NYS DHSES	New York State Division of Homeland Security and Emergency Services
NYS HMP	New York State Hazard Mitigation Plan
PGA	Peak ground acceleration
SPC	Storm Prediction Center
USDA	U.S. Department of Agriculture
USGS	United States Geologic Survey





### 5.2.3 Summary of Hazards of Concern

In summary, a total of 9 natural hazards of concern were identified as significant hazards affecting the entire planning area, to be addressed at the county level in this plan (shown here in alphabetical order):

- Disease Outbreak/Pandemic
- Earthquake
- Extreme Temperatures
- Flood (riverine, dam failure, flash, ice jam, beaver dam)
- Dam Failure
- Infestation/Invasive Species
- Severe Storm (thunderstorm, hail, wind, tornado)
- Severe Winter Weather
- Wildfire

Other natural hazards of concern that might have occurred in Warren County but have a low potential to occur or result in significant impacts can be considered in future updates to this plan.





## 5.3 HAZARD RANKING

As discussed in Section 5.2 (Identification of Hazards of Concern), a comprehensive range of natural hazards that pose a significant risk to Warren County were selected and considered during development of this plan; however, each community in Warren County has differing levels of exposure and vulnerability to each of these hazards. It is important for each community participating in this plan to recognize those hazards that pose the greatest risk to their community and direct their attention and resources accordingly to most effectively and efficiently manage risk and reduce losses. The hazard ranking for the county and each participating jurisdiction can be found in their jurisdictional annexes in Volume II, Section 9 of this plan.

To this end, a hazard risk ranking process was conducted for Warren County and its municipalities using the method described below. This method includes four risk assessment categories—probability of occurrence, impact (population, property, and economy), adaptive capacity, and changing future conditions (climate change). Each were assigned a weighting factor to calculate an overall ranking value for each hazard of concern. Depending on the calculation, each hazard was assigned a high, medium, or low ranking. Details regarding each of these categories is described below.

### 5.3.1 Hazard Ranking Methodology

The methodology used to rank the hazards of concern for Warren County is described below. Estimates of risk for the county were developed using methodologies promoted by FEMA’s hazard mitigation planning guidance, generated by FEMA’s HAZUS-MH risk assessment tool, and input from Warren County and participating jurisdictions. The ranking includes a factor to evaluate capacity of the participating jurisdiction regarding ability to address the hazard through plans, policies, and mitigation strategies. For example, a community with strong codes and ordinances to discourage development in hazard areas has a high capacity to address and mitigate potential impacts due to natural hazards and this is reflected in the ranking benchmark. In addition to benchmarks addressing probability, impacts and capabilities, a factor addressing the degree of climate change impact is also included in the methodology to adjust rankings for hazards expected to be significantly impacted by climate change. Table 5.3-1 shows the four risk assessment categories’ values for each of Warren County’s hazards. Details for each category are further described below.

**Table 5.3-1. Summary of Hazard Ranking Approach**

Category	Level / Category	Degree of Risk / Benchmark Value	Numeric Value	Weighted Value
Probability of Occurrence	Unlikely	A hazard event is not likely to occur or is unlikely to occur with less than a 1% annual chance probability.	0	30%
	Rare	Between 1 and 10% annual probability of a hazard event occurring.	1	





Category		Level / Category	Degree of Risk / Benchmark Value	Numeric Value	Weighted Value
		Occasional	Between 10 and 100% annual probability of a hazard event occurring.	2	
		Frequent	100% annual probability; a hazard event may occur multiple times per year.	3	
Impact (Sum of all 3)	Population (Numeric Value x 3)	Low	14% or less of population is exposed to a hazard with potential for measurable life safety impact due to its extent and location.	1	30%
		Medium	15% to 29% of population is exposed to a hazard with potential for measurable life safety impact due to its extent and location.	2	
		High	30% or more of population is exposed to a hazard with potential for measurable life safety impact due to its extent and location.	3	
	Property (Numeric Value x 2)	Low	Property exposure is 14% or less of the total number of structures for community.	1	
		Medium	Property exposure is 15% to 29% of the total number of structures for community.	2	
		High	Property exposure is 30% or more of the total number of structures for community.	3	
	Economy (Numeric Value x 1)	Low	Loss estimate is 9% or less of the total replacement cost for community.	1	
		Medium	Loss estimate is 10% to 19% of the total replacement cost for community.	2	
		High	Loss estimate is 20% or more of the total replacement cost for community.	3	
Capability		Weak	Weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.	-1	30%
		Moderate	Plans, policies, codes/ordinances in place and meet minimum requirements; mitigation strategies identified but not implemented on a widespread scale; county/jurisdiction can recover but needs outside resources; moderate county/jurisdiction capabilities.	0	
		Strong	Plans, policies, codes/ordinances in place and exceed minimum requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high.	1	
Climate Change		Low	No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence).	1	10%
		Medium	Studies and modeling projections indicate a potential for exacerbated conditions due to climate change; confidence level is medium to high (suggestive to moderate evidence).	2	
		High	Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change; very high confidence level (strong evidence, well-documented and acceptable methods).	3	

## Probability of Occurrence

The probability of occurrence is the likelihood of a hazard event occurring in any given year. A review of historic events assists with this determination. Each hazard of concern is rated in accordance with the numerical ratings and definitions described in Table 5.3-2. The probability of occurrence is weighted 30%.



**Table 5.3-2. Probability of Occurrence Ranking Factors**

Numeric Value	Probability Category	Definition
0	Unlikely	A hazard event is not likely to occur or is unlikely to occur with less than a 1% annual chance probability.
1	Rare	Between 1 and 10% annual probability of a hazard event occurring.
2	Occasional	Between 10 and 100% annual probability of a hazard event occurring.
3	Frequent	100% annual probability; a hazard event may occur multiple times per year.

## Impact

The impact of each hazard is considered in three categories: impact on population, impact on property (general building stock including critical facilities), and impact on the economy. Based on documented historic losses and individual assessments by each participating municipality, an impact rating of high, medium, or low is assigned with a corresponding numeric value for each hazard of concern. In addition, a weighting factor is assigned to each impact category: 3 for population, 2 for property, and 1 for economy. This gives the impact on population the greatest weight in evaluating the impact of a hazard. The total of each category is assigned a weighted value of 30%. Table 5.3-3 presents the numerical rating, weighted factor, and description for each impact category.

**Table 5.3-3. Numerical Values and Definitions for Impacts on Population, Property and Economy**

Category	Weighted Value	Low Impact* (1)	Medium Impact (2)	High Impact (3)
Population	3	14% or less of population is exposed to a hazard with potential for measurable life safety impact, due to its extent and location.	15% to 29% of population is exposed to a hazard with potential for measurable life safety impact, due to its extent and location.	30% or more of population is exposed to a hazard with potential for measurable life safety impact, due to its extent and location.
Property	2	Property exposure is 14% or less of the total number of structures for community.	Property exposure is 15% to 29% of the total number of structures for community.	Property exposure is 30% or more of the total number of structures for community.
Economy	1	Loss estimate is 9% or less of the total replacement cost for community.	Loss estimate is 10% to 19% of the total replacement cost for community.	Loss estimate is 20% or more of the total replacement cost for community.

Note: A numerical value of zero is assigned if there is no impact.

\* For the purposes of this exercise, "impacted" means exposed for population and property and loss for economy.





## Additional Impacts

Along with impacts on population, property, and economy, the overall risk ranking looks at two additional impacts that impact the county's vulnerability: capability and climate change. Table 5.3-4 presents the numerical rating and description for each category.

### Capability

Capability refers to a jurisdiction's ability to protect the community from or withstand a hazard event. Mitigation measures are already in place, including codes/ordinances, plans, and procedures to withstand hazards due to design or location, deployable resources, or plans and procedures in place to respond to an event. The capability category has a weighted factor of 30%.

**Table 5.3-4. Numerical Values and Definitions for Adaptive Capability and Changing Future Conditions**

Category	Weak	Moderate	Strong
Capability	Weak/outdated/inconsistent plans, policies, codes/ ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.	Plans, policies, codes/ordinances in place and meet minimum requirements; mitigation strategies identified but not implemented on a widespread scale; county/jurisdiction can recover but needs outside resources; moderate county/ jurisdiction capabilities.	Plans, policies, codes/ordinances in place and exceed minimum requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high.

### Climate Change

Climate change refers to the impact that climate change projections have on increasing or decreasing the severity and frequency of a hazard. The climate change category has a weighted factor of 10%.

**Table 5.3-5. Numerical Values and Definitions for Changing Future Conditions**

Category	Low Impact	Medium Impact	High Impact
Climate Change	No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence).	Studies and modeling projections indicate a potential for exacerbated conditions due to climate change; confidence level is medium to high (suggestive to moderate evidence).	Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change; very high confidence level (strong evidence, well-documented and acceptable methods).





## Risk Ranking Value

Each impact was then weighted and the risk ranking for each hazard is then calculated using the following formula:

### Example Risk Ranking Equation

$$\text{Risk Ranking} = [(\text{Impact on Population} \times 3) + (\text{Impact on Property} \times 2) + (\text{Impact on Economy} \times 1) \times .30] + [\text{Capability} \times 30\%] + [\text{Climate Impact} \times 10\%] + [\text{Probability of Occurrence} \times 30\%]$$

Based on the total for each hazard, a priority ranking is assigned to each hazard of concern (high, medium, or low). The rankings were categorized as follows: Low = values less than 3.9; Medium = values between 3.9 and 4.9; High = values greater than 4.9.

## 5.3.2 Hazard Ranking Results

Using the process described above, the risk ranking for the identified hazards of concern was determined for Warren County. The hazard ranking for Warren County is detailed in the subsequent tables that present the step-wise process for the ranking. The countywide risk ranking includes the entire planning area and might not reflect the highest risk indicated for any of the participating jurisdictions. The resulting ranks of each municipality indicate the differing degrees of risk exposure and vulnerability. The results support the appropriate selection and prioritization of initiatives to reduce the highest levels of risk for each municipality. Both the county and the participating jurisdictions have applied the same methodology to develop the countywide risk and local rankings to ensure consistency in the overall ranking of risk; jurisdictions had the ability to alter rankings based on local knowledge and experience in handling each hazard.

This hazard ranking exercise serves four purposes: 1) to describe the probability of occurrence for each hazard; 2) to describe the impact each would have on the people, property, and economy; 3) evaluate the capabilities a community has with regards to natural hazards; and 4) to consider changing future conditions (i.e., climate change) in Warren County. Estimates of risk for Warren County were developed using methodologies promoted by FEMA's hazard mitigation planning guidance, generated by FEMA's HAZUS-MH risk assessment tool and input from the county and participating municipalities.





Table 5.3-6 shows the county-wide probability ranking assigned for likelihood of occurrence for each hazard.



**Table 5.3-6. Probability of Occurrence Ranking for Hazards of Concern for Warren County**

Hazard of Concern	Probability	Numeric Value
Earthquake	Rare	1
Extreme Temperature	Occasional	2
Flood	Frequent	3
Severe Storm	Frequent	3
Severe Winter Storm	Frequent	3
Wildfire	Occasional	2
Infestation	Occasional	2
Dam Failure	Rare	1
Disease Outbreak	Occasional	2

Table 5.3-7 shows the impact evaluation results for each hazard of concern, including impact on property, structures, and the economy on the county level. It is noted that several hazards that have a high impact on the local jurisdictional level can have a lower impact when analyzed countywide. Jurisdictional ranking results are presented in each local annex in Section 9 (Jurisdictional Annexes) of this plan. The weighting factor results and a total impact for each hazard also are summarized.





**Table 5.3-7. Impact Ranking for Hazards of Concern for Warren County**

Hazard of Concern	Population			Property			Economy			Total Impact Rating (Population + Property + Economy)
	Impact	Numeric Value	Multiplied by Weighing Factor (3)	Impact	Numeric Value	Multiplied by Weighing Factor (2)	Impact	Numeric Value	Multiplied by Weighing Factor (1)	
Earthquake	Medium	2	6	High	3	6	Low	1	1	13
Extreme Temperature	Medium	2	6	Low	1	2	Medium	2	2	10
Flood	Low	1	3	Low	1	2	Low	1	1	6
Severe Storm	High	3	9	High	3	6	Low	1	1	16
Severe Winter Storm	High	3	9	High	3	6	Low	1	1	16
Wildfire	High	3	9	High	3	6	High	3	3	18
Infestation	Medium	2	6	Medium	2	4	Medium	2	2	12
Dam Failure	High	3	9	High	3	6	High	3	3	18
Disease Outbreak	Medium	2	6	Low	1	2	Medium	2	2	10





Table 5.3-8 shows the additional impact rankings for the hazards of concern. This includes the overall capabilities of the county and municipalities and the consideration of changing future conditions, such as climate change.

**Table 5.3-8. Additional Impact Ranking for Hazards of Concern for Warren County**

Hazard of Concern	Capability	Numeric Value	Climate Change	Numeric Value
Earthquake	Moderate	0	Low	1
Extreme Temperature	Moderate	0	High	3
Flood	Moderate	0	High	3
Severe Storm	High	-1	High	3
Severe Winter Storm	High	-1	Medium	2
Wildfire	Moderate	0	High	3
Infestation	Moderate	0	High	3
Dam Failure	Moderate	0	High	3
Disease Outbreak	Moderate	0	Medium	2

Table 5.3-9 presents the total calculations for each hazard ranking value for the hazards of concern.

**Table 5.3-9. Total Hazard Ranking Values for the Hazards of Concern for Warren County**

Hazard of Concern	Probability x 30%	Total Impact x 30%	Capability x 30%	Climate Change x 10%	Total Risk Ranking Value
Earthquake	0.3	3.9	0	0.1	4.3
Extreme Temperature	0.6	3	0	0.3	3.9
Flood	0.9	1.8	0	0.3	3
Severe Storm	0.9	4.8	-0.3	0.3	5.7
Severe Winter Storm	0.9	4.8	-0.3	0.2	5.6
Wildfire	0.6	5.4	0	0.3	6.3
Infestation	0.6	3.6	0	0.3	4.5
Dam Failure	0.3	5.4	0	0.3	6
Disease Outbreak	0.6	3	0	0.2	3.8

Low = values less than 3.9; Medium = values between 3.9 and 4.9; High = values greater than 4.9.

Table 5.3-10 presents the jurisdictional hazard ranking for each hazard. An evaluation of the total risk ranking score determined ranking categories that were grouped into three categories, low, medium, and high. It also includes input by the municipalities. The rankings were categorized as follows: Low = values less than 3.9 ; Medium = values between 3.9 and 4.9 ; High = values greater than 4.9 .

These rankings have been used as one of the bases for identifying the jurisdictional hazard mitigation strategies included in Section 9 (Jurisdictional Annexes) of this plan. The summary rankings for the county reflect the results of the vulnerability analysis for each hazard of concern and can vary from the specific results of each jurisdiction. For example, the severe storm hazard may be ranked low in one jurisdiction, but due to the exposure and impact countywide, it is ranked as a high hazard and is addressed in the county mitigation strategy accordingly. The table below represents the initial





calculated rankings presented to each jurisdiction. Each jurisdiction was able to review the rankings and adjust as necessary. Refer to Section 9 (Jurisdictional Annexes) for the adjusted rankings.

**Table 5.3-10. Summary of Overall Ranking of Natural Hazards by Jurisdiction**

Warren County Municipality	Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation	Dam Failure	Disease Outbreak
Bolton (T)	Low	Medium	Low	High	High	Medium	Medium	High	Medium
Chester (T)	Low	Medium	Low	High	High	Low	Medium	High	Low
Glens Falls (C)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Hague (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Horicon (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Johnsburg (T)	Low	Medium	Low	High	High	Low	Medium	High	Medium
Lake George (T)	Low	Medium	Low	High	High	High	Medium	Medium	Medium
Lake George (V)	Low	Medium	Low	High	High	High	Medium	Low	Low
Lake Luzerne (T)	Medium	Medium	Low	High	High	Medium	Medium	Medium	Low
Queensbury (T)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Stony Creek (T)	Medium	Low	Low	High	High	Low	Medium	Medium	Low
Thurman (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Warrensburg (T)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Warren County	Medium	Medium	Medium*	High	High	High	Medium	High	Medium*

\*Values adjusted per Steering Committee input to reflect county-wide risk.





## 5.4 HAZARD PROFILES

### 5.4.1 Dam Failure

#### Hazard Profile

---

##### Hazard Description

A dam is an artificial barrier that has the ability to impound water, wastewater, or any liquid-borne material for the purpose of storage or control of water (FEMA 2007). Dams are man-made structures built across a stream or river that impound water and reduce the flow downstream (FEMA 2003). They are built for the purpose of power production, agriculture, water supply, recreation, and flood protection. Dam failure is any malfunction or abnormality outside of the design that adversely affects a dam's primary function of impounding water (FEMA 2007). Dams can fail for one or a combination of the following reasons:

- Overtopping caused by floods that exceed the capacity of the dam (inadequate spillway capacity due to uncontrolled release or exceedance of design);
- Prolonged periods of rainfall and flooding;
- Deliberate acts of sabotage (terrorism);
- Structural failure of materials used in dam construction;
- Movement and/or failure of the foundation supporting the dam;
- Settlement and cracking of concrete or embankment dams;
- Piping and internal erosion of soil in embankment dams;
- Inadequate or negligent operation, maintenance and upkeep;
- Failure of upstream dams on the same waterway; or
- Earthquake (liquefaction / landslides) (FEMA 2018).

A break in a dam can produce extremely dangerous flood situations because of the high velocities and large volumes of water released by such a break. Sometimes they can occur with little to no warning. Breaching of dams often occurs within hours after the first visible sign of dam failure, leaving little or no time for evacuation (FEMA 2007).

A levee is a physical barrier constructed to protect areas from rising floodwaters. Similar to dam failure, a levee breach occurs when part of a levee gives way, creating an opening through which floodwaters may pass. However, there are no recognized levees present in Warren County (USACE 2023).

##### Location and Extent

According to the NYSDEC Division of Water Bureau of Flood Protection and Dam Safety, the hazard classification of a dam is assigned according to the potential impacts of a dam failure pursuant to





New York Codes, Rules, and Regulations (NYCRR) Part 673.3 (NYS DEC 2009). Dams are classified in terms of potential for downstream damage if the dam were to fail. It is important to note the classification is based on the consequences of dam failure and not the condition, probability or risk of failure itself. These hazard classifications are identified and defined below:

- *Low Hazard (Class A)* is a dam located in an area where failure will damage nothing more than isolated buildings, undeveloped lands, or township or county roads and/or will cause no significant economic loss or serious environmental damage. Failure or mis-operation would result in no probable loss of human life. Losses are principally limited to the owner's property
- *Intermediate Hazard (Class B)* is a dam located in an area where failure may damage isolated homes, main highways, minor railroads, interrupt the use of relatively important public utilities, and/or will cause significant economic loss or serious environmental damage. Failure or mis-operation would result in no probable loss of human life, but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.
- *High Hazard (Class C)* is a dam located in an area where failure may cause loss of human life, serious damage to homes, industrial or commercial buildings, important public utilities, main highways or railroads and/or will cause extensive economic loss. This is a downstream hazard classification for dams in which excessive economic loss (urban area including extensive community, industry, agriculture, or outstanding natural resources) would occur as a direct result of dam failure.
- *Negligible or No Hazard (Class D)* is (1) a dam that has been breached or removed, or has failed or otherwise no longer materially impounds waters, or (2) a dam that was planned but never constructed. Class "D" dams are considered to be defunct dams posing negligible or no hazard. The department may retain pertinent records regarding such dams (NYS DEC 2009).

NYSDEC maintains an inventory of dam failure data. Hazard classification, location, volume, elevation, and condition information for each dam in Warren County that has a federal identification number is included in the inventory.

According to NYS DEC, there are 85 dams located in Warren County. Of the 85 dams located in Warren County, 7 are high hazard dams (Class C). These dams are located in the Town of Bolton, Town of Chester, Town of Johnsburg, and Town of Queensbury as shown in Table 5.4.1-1.

**Table 5.4.1-1. Dams in Warren County**

Dam Name	Classification	Municipality
Loon Lake Dam	High Hazard Dam	Town of Chester
Butler Storage Reservoir Dam	High Hazard Dam	Town of Queensbury
Edgecomb Pond Dam	High Hazard Dam	Town of Bolton
Feeder Dam At Glens Falls	High Hazard Dam	Town of Queensbury





## 5.4.1 Dam Failure

Dam Name	Classification	Municipality
Keenan Reservoir Dam	High Hazard Dam	Town of Queensbury
Wilkie Reservoir Dam	High Hazard Dam	Town of Queensbury
Garnet Lake Dam	High Hazard Dam	Town of Johnsbury
Crandall Brook Dam	Intermediate Hazard Dam	Town of Lake George
Brant Lake Upper Dam	Intermediate Hazard Dam	Town of Horicon
Curtis S Read Scout Reservation Dam	Intermediate Hazard Dam	Town of Horicon
Starbuckville Dam	Intermediate Hazard Dam	Town of Chester, Town of Horicon
Brant Lake Lower Dam	Intermediate Hazard Dam	Town of Horicon
Warrensburg Dam	Intermediate Hazard Dam	Town of Warrensburg
Gore Mt Reservoir Dam	Intermediate Hazard Dam	Town of Johnsbury
Lens Lake Dam	Intermediate Hazard Dam	Town of Stony Creek
Halfway Brook Reservoir Dam	Intermediate Hazard Dam	City of Glens Falls
Butler Pond Dam	Intermediate Hazard Dam	Town of Queensbury
Wilkie Intake Reservoir Dam	Intermediate Hazard Dam	Town of Queensbury
Lake Luzerne Dam	Intermediate Hazard Dam	Town of Lake Luzerne
Big Hollow Dam	Low Hazard Dam	Town of Lake George
Gage Brook Dam	Low Hazard Dam	Town of Lake George
Ed Grant Pond Dam	Low Hazard Dam	Town of Queensbury
Top O'world Upper Dam	Low Hazard Dam	Town of Queensbury
Dream Lake Dam	Low Hazard Dam	Town of Queensbury
Hidden Pond Dam	Low Hazard Dam	Town of Horicon
Alder Brook Dam	Low Hazard Dam	Town of Bolton
Salamida Pond Dam	Low Hazard Dam	Not Found
Murphy Saw Mill Dam	Low Hazard Dam	Town of Johnsbury
Antler Lake Dam	Low Hazard Dam	Town of Johnsbury
Hidden Lake Dam	Low Hazard Dam	Town of Chester
Bear Pond Dam	Low Hazard Dam	Town of Thurman
Wechgelaer Dam	Low Hazard Dam	Town of Stony Creek
Borman Dam	Low Hazard Dam	Town of Stony Creek
Friends Lake Dam	Low Hazard Dam	Town of Chester
Number Nine Brook Dam	Low Hazard Dam	Town of Thurman
Stewart Lake Dam	Low Hazard Dam	Town of Lake Luzerne
Warrensburg Auxiliary Dam	Low Hazard Dam	Town of Warrensburg
Windover Lake Dam	Low Hazard Dam	Town of Johnsbury
Barton Mines Pond Dam	Low Hazard Dam	Town of Johnsbury
Livingston Lake Dam	Low Hazard Dam	Town of Stony Creek
Harrisburg Lake Dam	Low Hazard Dam	Town of Stony Creek
Wilbur E Dow Jr Wildlife Pond Dam	Low Hazard Dam	Town of Thurman
Keenan Intake Reservoir Dam	Low Hazard Dam	Town of Queensbury
French Mountain Pond Dam	Low Hazard Dam	Town of Queensbury
Hovey Pond Dam	Low Hazard Dam	Town of Queensbury
Glen Lake Dam	Low Hazard Dam	Town of Queensbury
Bolton Conservation Club Fish Pond Dam	Low Hazard Dam	Town of Bolton
Sagamore Golf Course Dam	Low Hazard Dam	Town of Bolton
Little Pond Dam	Low Hazard Dam	Town of Thurman
Dippikill Pond Dam	Low Hazard Dam	Town of Thurman
Ferguson Dam	Low Hazard Dam	Town of Lake Luzerne
Rhodes & Johnson Dam	Low Hazard Dam	Town of Lake Luzerne
Lake Vanare Dam	Low Hazard Dam	Town of Lake Luzerne
Daggett Pond Dam	Low Hazard Dam	Town of Thurman





## 5.4.1 Dam Failure

Dam Name	Classification	Municipality
Erwin M Fullerton Pond Dam	Low Hazard Dam	Town of Thurman
Pack Forest Lake Dam	Low Hazard Dam	Town of Warrensburg
Tripp Pond Dam	Low Hazard Dam	Town of Warrensburg
Dingman Dam	Low Hazard Dam	Town of Lake Luzerne
Lake Forest Dam	Low Hazard Dam	Town of Lake Luzerne
Clendon Brook Dam	Low Hazard Dam	Town of Queensbury
Lake Allure Dam	Low Hazard Dam	Town of Lake Luzerne
Hudnut Pond Dam	Low Hazard Dam	Town of Johnsburg
Scholl Pond Dam	No Hazard Dam	Town of Horicon
Clear Brook Dam	No Hazard Dam	Town of Horicon
(205-0481)	No Hazard Dam	Town of Stony Creek
(205-0491)	No Hazard Dam	Town of Stony Creek
(205-0492)	No Hazard Dam	Town of Stony Creek
(205-0508)	No Hazard Dam	Town of Stony Creek
Swimming Pool North Creek Dam	No Hazard Dam	Town of Johnsburg
Quiet Brook Dam	No Hazard Dam	Town of Chester
Warrensburg Mill Dam	No Hazard Dam	Town of Warrensburg
Viele Pond Dam	No Hazard Dam	Town of Warrensburg
Warrensburg Lower Reservoir Dam	No Hazard Dam	Town of Warrensburg
Middle Flow Dam	No Hazard Dam	Town of Stony Creek
(222-1021)	No Hazard Dam	Town of Bolton
(222-1037)	No Hazard Dam	Town of Bolton
Shallow Pond Dam	No Hazard Dam	Town of Johnsburg
Mongue Pond Dam	No Hazard Dam	Town of Hague
Delarm Dam	No Hazard Dam	Town of Hague
Santucci Dam	No Hazard Dam	Town of Lake Luzerne
Mill Creek Dam	No Hazard Dam	Town of Johnsburg
Loon Lake Upper Dam	Hazard Classification Not Assigned	Town of Chester
Beckers Dam	Hazard Classification Not Assigned	Town of Bolton
Wing Pond Dam	Hazard Classification Not Assigned	Town of Bolton
STONES POND DAM	Hazard Classification Not Assigned	Town of Lake Luzerne

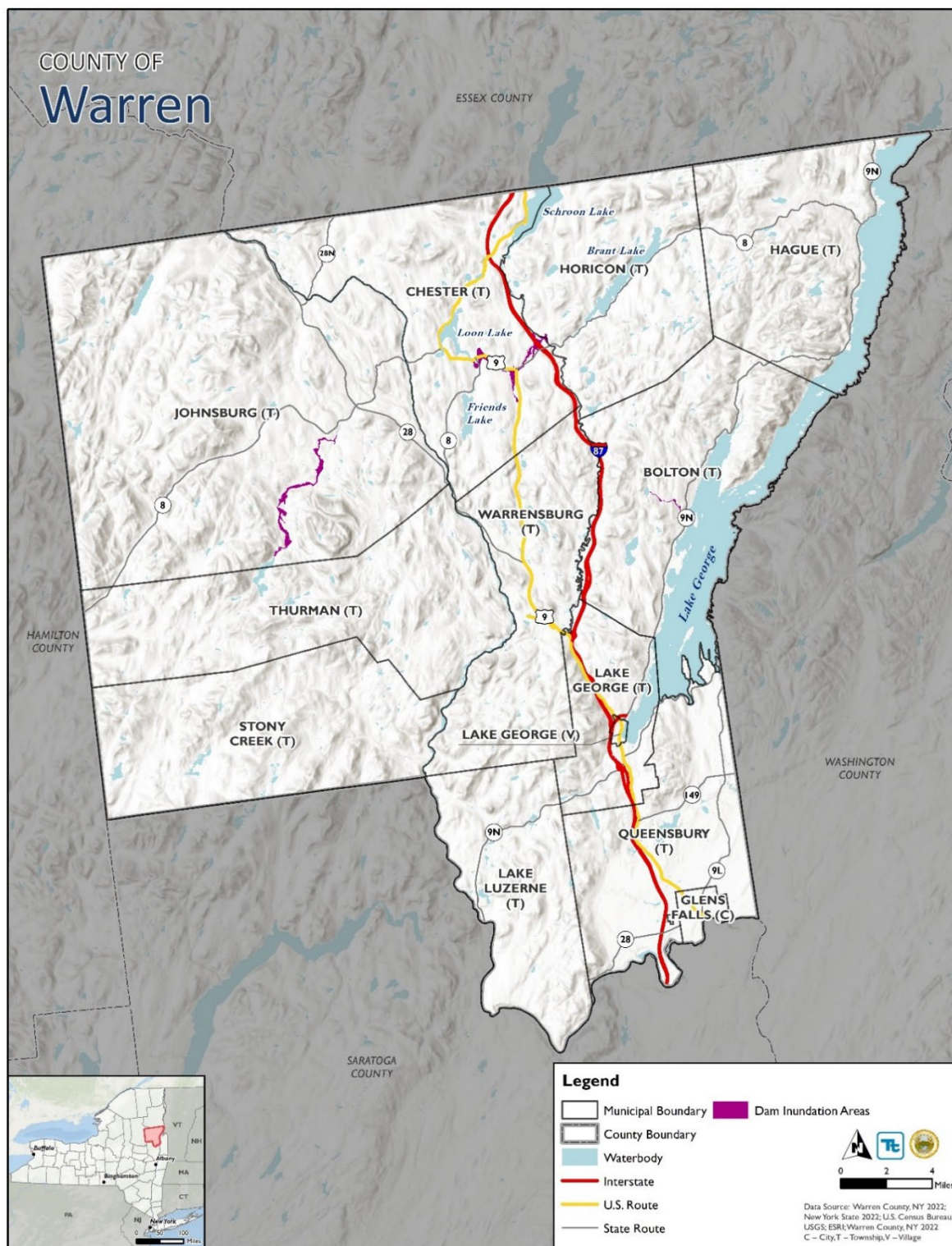
Source: NYS DEC 2022

The Indian Lake, Chestertown, Bolton, Inlet, Chazy Lake, Garnet Lake, Ticonderoga, and Peck Lake areas all contain dams that are in need of repair and could result in impacts to life and property upon dam failure. These dams of concern consist of ten high and immediate hazard dams that are located within the Adirondack Park area (New York State Dam Inventory). Dam failure inundation area mapping is available for Loon Lake Dam, Edgecomb Pond Dam, and Garnet Lake Dam. Table 5.4.1-1 shows the dam failure inundation areas for these dams.





Figure 5-1. High Hazard Dam Inundation Areas in Warren County



Notes: The dam inundation area for this assessment only includes dam failure inundation areas for Loon Lake Dam, Edgecomb Pond Dam, and Garnet Lake Dam.





## Previous Occurrences

### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was not included in any disaster (DR) or emergency (EM) declarations for dam failure-related events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2023). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

### *USDA Declarations*

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was not included in any dam failure-related agricultural disaster declarations.

### *Previous Events*

For this 2023 HMP update, known dam failure events that impacted Warren County between 2017 and 2023 are discussed below. For events prior to 2017, refer to Appendix E (Supplementary Data).

## Probability of Future Occurrences

Dam failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides, and excessive rainfall and snowmelt. As noted, dam failures typically occur in New Jersey as a result of heavy rains or other precipitation. There is a “residual risk” associated with dams. Residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of any type of dam failure is low in today’s dam safety regulatory and oversight environment (New Jersey State HMP 2019).

No dam failure events have been recorded in Warren County. Based on historical occurrences, the probability of a dam or levee failure event occurring is considered rare (between 1 and 10% annual probability of occurrence.). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

### *Climate Change Projections*

The climate of Warren County is already changing and will continue to change in the future. Climate change is beginning to affect both people and resources of the State and County and the impacts of climate change will continue. Impacts related to increasing temperatures are already being felt in the County. ClimAID: the Integrated Assessment for Effective Climate Change in New York State (ClimAID) was undertaken to provide decision-makers with information on the State’s vulnerability





to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge.

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Warren County is part of Region 7 (Figure 5-2), Adirondack Mountains. Some of the issues in this region, affected by climate change, include loss of high elevation plants, animals, and ecosystem types; decline in winter recreation; decline in milk production, etc. (NYSERDA 2014).

**Figure 5-2. Climate Regions of New York State**



Source: NYSERDA 2014

Temperatures in New York State are warming, with an average rate of warming over the past century of 0.25° F per decade. Average annual temperatures are projected to increase across New York State by 2° F to 3.4° F by the 2020s, 4.1° F to 6.8° F by the 2050s, and 5.3° F to 10.1° F by the 2080s. By the end of the century, the greatest warming is projected to be in the northern section of the State.





Regional precipitation across New York State is projected to increase by approximately one to eight percent by the 2020s, three to 12-percent by the 2050s, and four to 15-percent by the 2080s. By the end of the century, the greatest increases in precipitation are projected to be in the northern areas of the State.

In Region 7, it is estimated that temperatures will increase by 3.7°F to 7.4°F by the 2050s and 4.2°F to 11.8°F by the 2080s (baseline of 39.9°F). Precipitation totals will increase between 2 and 15-percent by the 2050s and 3 to 17-percent by the 2080s (baseline of 40.8 inches) (NYSERDA 2014).

Climate change affects flooding more than other hazards because the frequency of extreme precipitation events in the Northeast has increased in recent years. Severe storms projected in the 1950s to occur only once in 100 years are now expected to occur once every 60 years. Other climate change influences include the following:

- Spring breakup, snowmelt, and winter rains
  - Warmer spring temperatures that lead to earlier and more rapid snow melt; more late-winter precipitation likely to fall as rain, rather than as snow
- Cyclonic disturbances
  - Increasing frequency of severe cyclonic events, which may permit more northward tracking of hurricanes
- Localized summer outburst events
  - Increase formation of conditions conducive to summer outbursts and flash flooding
- Human uses and development of land
  - Development leads to increased amounts of impervious surfaces such as roads, parking lots, and buildings and can increase rainwater runoff. Development in floodplains or wetlands can potentially result in an increased floodplain level (New York State 2019).

Assumptions about a river's flow behavior, expressed as hydrographs are influences for dam design. Changes in weather patterns can significantly affect the hydrograph used for the design of a dam. If the hydrograph changes, the dam conceivably could lose some or all of its designed margin of safety, also known as freeboard. Loss of designed margin of safety increases possibility that floodwaters would overtop the dam or create unintended loads, which could lead to a dam failure.

## Vulnerability Assessment

To understand risk, a community must evaluate assets exposed to and vulnerable to the identified hazard. The dam failure hazard is of significance to Warren County because 85 dams are present across Warren County, 7 of which are classified as high hazard by NYS DEC. Dam failure events are frequently associated with other natural hazard events such as earthquakes, landslides, or severe weather, which limits their predictability and compounds the hazard.





To assess Warren County's risk to dam failure, a quantitative assessment was conducted using available dam failure inundation area mapping for the following high hazard dams:

- Loon Lake Dam
- Edgecomb Pond Dam
- Garnet Lake Dam

Dam failure inundation mapping was not available for the following high hazard dams in Warren County:

- Butler Storage Reservoir Dam
- Feeder Dam At Glens Falls
- Keenan Reservoir Dam
- Wilkie Reservoir Dam

As not all high hazard dams in Warren County had data available to support this vulnerability assessment, this assessment underrepresents the risks associated with dam failure in Warren County.

### Impact on life, Health, and Safety

The impact of dam and levee failure on life, health, and safety is dependent on several factors such as the class of dam/levee, the area that the dam/levee is protecting, the location of the dam/levee, and the proximity of structures, infrastructure, and critical facilities to the dam or levee structure. The level of impact that a failure would have can be predicted based upon the hazard potential classification as rated by the United States Army Corps of Engineers (USACE n.d.). Table 5.4.1-2 outlines the recommended hazard classifications.

**Table 5.4.1-2. United States Army Corps of Engineers Hazard Potential Classification**

Hazard Category(a)	Direct Loss of Life (b)	Lifeline Losses (c)	Property Losses (d)	Environmental Losses (e)
Low	None (rural location, no permanent structures for human habitation)	No disruption of services (cosmetic or rapidly repairable damage)	Private agricultural lands, equipment, and isolated buildings	Minimal incremental damage
Significant	Rural location, only transient or day-use facilities	Disruption of essential facilities and access	Major public and private facilities	Major mitigation required
High	Certain (one or more) extensive residential, commercial, or industrial development	Disruption of essential facilities and access	Extensive public and private facilities	Extensive mitigation cost or impossible to mitigate

a. Categories are assigned to overall projects, not individual structures at a project.  
b. Loss-of-life potential is based on inundation mapping of area downstream of the project. Analyses of loss-of-life potential should take into account the population at risk, time of flood wave travel, and warning time.





- c. Lifeline losses include indirect threats to life caused by the interruption of lifeline services from project failure or operational disruption; for example, loss of critical medical facilities or access to them.
- d. Property losses include damage to project facilities and downstream property and indirect impact from loss of project services, such as impact from loss of a dam and navigation pool, or impact from loss of water or power supply.
- e. Environmental impact downstream caused by the incremental flood wave produced by the project failure, beyond what would normally be expected for the magnitude flood event under which the failure occurs.

Source: USACE n.d.

The entire population residing within a dam failure inundation zone is considered exposed and vulnerable to an event. Table 5.4.1-3 displays the population located in the high hazard dam inundation area. In total, 216 people are located in the high hazard dam inundation area in the towns of Bolton, Chester, and Johnsburg.

**Table 5.4.1-3. Population Located in the High Hazard Dam Inundation Area in Warren County**

Jurisdiction	Total Population (Census Bureau 2020 Decennial)	Estimated Population Located in High Hazard Dam Inundation Area	
		Number of People	Percent of Total
Bolton (T)	2,012	22	1.1%
Chester (T)	3,086	163	5.3%
Glens Falls (C)	14,830	0	0.0%
Hague (T)	633	0	0.0%
Horicon (T)	1,471	0	0.0%
Johnsburg (T)	2,143	30	1.4%
Lake George (T)	2,494	0	0.0%
Lake George (V)	1,008	0	0.0%
Lake Luzerne (T)	3,079	0	0.0%
Queensbury (T)	29,169	0	0.0%
Stony Creek (T)	758	0	0.0%
Thurman (T)	1,095	0	0.0%
Warrensburg (T)	3,959	0	0.0%
Warren County (Total)	65,737	216	0.3%

Source: U.S. Census Bureau 2020; Warren County, NY 2022

Notes: High Hazard Dam Inundation Areas were analyzed on Rainy day scenarios

The dam inundation area for this assessment only includes dam failure inundation areas for Loon Lake Dam, Edgecomb Pond Dam, and Garnet Lake Dam.

The potential for loss of life is affected by the capacity and number of evacuation routes available to populations living within these areas. Those most at risk include the economically disadvantaged and the population over the age of 65. These populations are more at risk during a dam failure event because economically disadvantaged populations are likely to evaluate their risk and make the decision to evacuate based upon the net economic impact to their family, while elderly populations are likely to seek or need medical attention. The availability of medical attention may be limited due





to isolation during a flood event and other difficulties in evacuating. There is often limited warning time for a dam failure event. Populations without adequate warning of the event are highly vulnerable.

Dam failure can cause persons to become displaced if flooding of structures occurs. Dam failure may mimic flood events, depending on the size of the dam reservoir and breach. Understanding potential outcomes of flooding for each dam in Warren County would require intensive hydraulic modeling.

### Impact on General Building Stock

Buildings located downstream of a dam are at risk to damages should there be a failure. Properties located closest to the dam inundation area have the greatest potential to experience the largest, most destructive surge of water. The overall impact of flooding damages caused by dam failure will vary depending on the depth of flooding and velocity of the surge.

Dam failure can cause severe downstream flooding and may transport large volumes of sediment and debris, depending on the magnitude of the event. Widespread damage to buildings and infrastructure affected by an event would result in large costs to repair these locations. In addition to physical damage costs, businesses can be closed while flood waters retreat, and utilities are returned to a functioning state.

Table 5.4.1-4 presents the number of buildings located in the high hazard dam inundation area in Warren County. In total, 254 buildings are located in the high hazard dam inundation area.

**Table 5.4.1-4. Buildings Located in the High Hazard Dam Inundation Area in Warren County**

Jurisdiction	Total Number of Buildings	Number of Buildings Located in High Hazard Dam Inundation Area	
		Number of Buildings	Percent of Total
Bolton (T)	2,873	32	1.1%
Chester (T)	3,227	189	5.9%
Glens Falls (C)	5,988	0	0.0%
Hague (T)	1,313	0	0.0%
Horicon (T)	2,188	0	0.0%
Johnsburg (T)	2,625	33	1.3%
Lake George (T)	2,494	0	0.0%
Lake George (V)	609	0	0.0%
Lake Luzerne (T)	2,173	0	0.0%
Queensbury (T)	12,193	0	0.0%
Stony Creek (T)	807	0	0.0%
Thurman (T)	1,061	0	0.0%
Warrensburg (T)	2,758	0	0.0%
<b>Warren County (Total)</b>	<b>40,309</b>	<b>254</b>	<b>0.6%</b>





Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSDA, Microsoft; RS Means 2022

Notes: High Hazard Dam Inundation Areas were analyzed on Rainy day scenarios

The dam inundation area for this assessment only includes dam failure inundation areas for Loon Lake Dam, Edgecomb Pond Dam, and Garnet Lake Dam.

### Impact on Critical Facilities and Community Lifelines

Dam failures may also impact critical facilities and infrastructure located in the downstream inundation zone. Consequentially, dam failure can cut evacuation routes, limit emergency access, and/or create isolation issues. Dam failure can cause severe downstream flooding and may transport large volumes of sediment and debris, depending on the magnitude of the event. Further, utilities such as overhead power lines, cable and phone lines could also be vulnerable. Loss of these utilities could create additional isolation issues for the inundation areas.

Table 5.4.1-5 displays the number of community lifeline facilities located in the high hazard dam inundation area in Warren County. In total, nine lifelines are located in the high hazard dam inundation area.

**Table 5.4.1-5. Lifelines Located in the High Hazard Dam Inundation Area in Warren County**

FEMA Lifeline Category	Number of Lifelines	Number of Lifelines Located in High Hazard Dam Inundation Area
Communications	16	0
Energy	20	0
Food, Water, Shelter	163	2
Hazardous Materials	46	1
Health and Medical	43	0
Safety and Security	211	2
Transportation	60	4
<b>Warren County (Total)</b>	<b>559</b>	<b>9</b>

Source: Warren County, NY 2022

Notes: High Hazard Dam Inundation Areas were analyzed on Rainy day scenarios

The dam inundation area for this assessment only includes dam failure inundation areas for Loon Lake Dam, Edgecomb Pond Dam, and Garnet Lake Dam.

### Impact on the Economy

Severe flooding that follows an event like a dam failure can cause extensive structural damage and withhold essential services. The cost to recover from flood damages after a surge will vary depending on the hazard risk of each dam.

Severe flooding that follows an event like a dam failure can cause extensive damage to public utilities and disruptions to delivery of services. Loss of power and communications may occur and drinking





water and wastewater treatment facilities can become temporarily out of operation. Debris from surrounding buildings can accumulate should the dam mimic major flood events, such as the 1-percent annual chance flood event that is discussed in Section 5.4.5 (Flood).

Table 5.4.1-6 displays the replacement cost of buildings located in the high hazard dam inundation area. 0.5-percent of Warren County's total replacement cost value is located in the high hazard dam inundation area.

**Table 5.4.1-6. Replacement Cost of Buildings Located in the High Hazard Dam Inundation Area in Warren County**

Jurisdiction	Total Replacement Cost Value (RCV)	Total Replacement Cost of Buildings Located in High Hazard Dam Inundation Area	Percent of Total
Bolton (T)	\$1,509,046,268	\$7,425,773	0.5%
Chester (T)	\$1,794,523,301	\$115,512,000	6.4%
Glens Falls (C)	\$3,728,124,116	\$0	0.0%
Hague (T)	\$799,210,288	\$0	0.0%
Horicon (T)	\$1,022,605,789	\$0	0.0%
Johnsburg (T)	\$1,493,856,193	\$6,897,627	0.5%
Lake George (T)	\$2,168,962,785	\$0	0.0%
Lake George (V)	\$770,157,514	\$0	0.0%
Lake Luzerne (T)	\$953,667,917	\$0	0.0%
Queensbury (T)	\$7,114,031,584	\$0	0.0%
Stony Creek (T)	\$995,996,331	\$0	0.0%
Thurman (T)	\$497,985,792	\$0	0.0%
Warrensburg (T)	\$1,425,456,857	\$0	0.0%
<b>Warren County (Total)</b>	<b>\$24,273,624,737</b>	<b>\$129,835,400</b>	<b>0.5%</b>

Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSEDA, Microsoft; RS Means 2022

Notes: High Hazard Dam Inundation Areas were analyzed on Rainy day scenarios

The dam inundation area for this assessment only includes dam failure inundation areas for Loon Lake Dam, Edgecomb Pond Dam, and Garnet Lake Dam.

## Impact on the Environment

The environmental impacts of a dam failure can include significant water-quality and debris-disposal issues or severe erosion that can impact local ecosystems. Flood waters can back up sanitary sewer systems and inundate wastewater treatment plants, causing raw sewage to contaminate residential and commercial buildings and the flooded waterway. The contents of unsecured containers of oil, fertilizers, pesticides, and other chemicals may get added to flood waters. Hazardous materials may be released and distributed widely across the floodplain. Water supply and wastewater treatment facilities could be offline for weeks. After the flood waters subside,





contaminated and flood-damaged building materials and contents must be properly disposed of. Contaminated sediment must be removed from buildings, yards, and properties.

### **Future Changes That May Impact Vulnerability**

Understanding future changes that impact vulnerability in the County can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The County considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

#### *Projected Development*

As discussed and illustrated in Section 4 (County Profile), areas targeted for future growth and development have been identified across the County.

Any areas of growth could be potentially impacted by a dam failure event if the structures are located within the flood protection area and mitigation measures are not considered. Therefore, it is the intention of the County and all participating municipalities to discourage development in vulnerable areas or to encourage higher regulatory standards at the local level.

#### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). Even though the population has not significantly increased overall, changes in population density within county communities should be evaluated to determine if high population densities can create issues for local residents during an evacuation.

#### *Climate Change*

As discussed above, most studies project that the State of New York will see an increase in average annual precipitation. An increase in annual precipitation amounts in the region, primarily in the form of heavy rainfalls, will have the potential to increase the potential for dam failure events. Increases in precipitation may stress the dam wall. Further, existing dams may not be able to retain and manage increases in water flow from more frequent, heavy rainfall events. Heavy rainfalls may result in more frequent overtopping of these dams and flooding of the County's assets in adjacent inundation areas. However, the probable maximum flood used to design each dam may be able to accommodate changes in climate.





### Change of Vulnerability Since the 2017 HMP

Overall, the County's vulnerability has not significantly changed since the 2017 HMP and the County will continue to be exposed and vulnerable to dam failure events, especially those located within or near downstream inundation zones.

DRAFT





## 5.4.2 Disease Outbreak

### Hazard Profile

---

#### Hazard Description

An outbreak or an epidemic exists when there are more cases of a particular disease than expected in a given area, or among a specific group of people, over a particular period of time. An aggregation of cases in a given area over a particular period, regardless of the number of the number of cases, is called a cluster. In an outbreak or epidemic, it is presumed that the cases are related to one another or that they have a common cause (CDC 2016). There are other diseases that impact Warren County which includes foodborne illness, vaccine-preventable disease, and vector-borne diseases (tick-borne and mosquito-borne). However, for the disease outbreak profile, the County identified pandemic influenza, COVID-19, the Zika virus, and the Ebola virus as the main diseases that may lead to a pandemic outbreak.

#### *Pandemic Influenza*

The risk of a global influenza pandemic has increased over the last several years. This disease is capable of claiming thousands of lives and adversely affecting critical infrastructure and key resources. An influenza pandemic has the ability to reduce the health, safety, and welfare of the essential services workforce; immobilize core infrastructure; and induce fiscal instability.

Pandemic influenza, or influenza A, is different from seasonal influenza (or "the flu") because outbreaks of seasonal flu are caused by viruses that are already among people. Pandemic influenza is caused by an influenza virus that is new to people and is likely to affect many more people than seasonal influenza, as the human population will have little to no pre-existing immunity to the new influenza virus (WHO 2010). In addition, seasonal flu occurs every year, usually during the winter season, while the timing of an influenza pandemic is difficult to predict. Pandemic influenza is likely to affect more people than the seasonal flu, including young adults. A severe pandemic could change daily life for a time, including limitations on travel and public gatherings (CDC 2019).

At the national level, the CDC's Influenza Division has a long history of supporting the World Health Organization (WHO) and its global network of National Influenza Centers (NIC). With limited resources, most international assistance provided in the early years was through hands-on laboratory training of in country staff, the annual provision of WHO reagent kits (produced and distributed by CDC), and technical consultations for vaccine strain selections. The Influenza Division also conducts epidemiologic research including vaccine studies and serologic assays and provided international outbreak investigation assistance (CDC 2020).





## COVID-19

Coronavirus disease (COVID-19) is an infectious disease first identified in 2019. The virus rapidly spread into a global pandemic by spring of 2020. People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2–14 days after exposure to the virus. Anyone can have mild to severe symptoms. Possible symptoms include fever or chills, cough, shortness of breath or difficulty breathing, sore throat, loss of taste or smell, muscle and body aches, among others (CDC 2022).

COVID-19 spreads when an infected person breathes out droplets and very small particles that contain the virus. These droplets and particles can be breathed in by other people or land on their eyes, noses, or mouth. In some circumstances, they may contaminate surfaces they touch. Vaccination, past infection, or timely access to testing and treatment can help protect you from getting very sick if you get COVID-19. However, some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions (CDC 2022).

In an effort to maintain the slow spread of the virus, the federal government and States have urged the public to continue avoid touching of the face, properly wash hands often, wear face masks, and use various social distancing measures.

## Zika

Zika is a flavivirus related to dengue, West Nile, yellow fever and Japanese encephalitis. It was first isolated in 1947 from a Rhesus monkey in the Zika region of Uganda and in 1968 from a human in Nigeria. Since that time, serologic evidence of human infections has been reported in several countries in tropical Africa and parts of Southeast Asia (Hayes 2009). In addition, Zika virus has been implicated as the cause of three mosquito-borne disease outbreaks outside of Africa and Asia, including Micronesia in 2007, French Polynesia in 2013 (WHO 2018). There last cases of local Zika transmission in continental United States were in 2016–2017 in Florida and Texas (CDC 2022).

Many people infected with Zika virus won't have symptoms or will only have mild symptoms. The most common symptoms of Zika are fever, rash, headache, joint pain, conjunctivitis, and muscle pain (WHO 2018). Zika is usually mild with symptoms lasting for several days to a week. People usually don't get sick enough to go to the hospital, and they very rarely die of Zika. For this reason, many people might not realize they have been infected. Symptoms of Zika are similar to other viruses spread through mosquito bites, like dengue and chikungunya. Zika virus usually remains in the blood of an infected person for about a week (CDC 2019). Zika virus can be passed from a pregnant woman to her fetus, an infection during pregnancy can cause a birth defect called microcephaly and other severe fetal brain defects (CDC 2019).





## *Ebola*

Ebola, previously known as Ebola hemorrhagic fever, is a rare and deadly disease caused by infection with one of the Ebola virus strains. Scientists think people are initially infected with Ebola virus through contact with an infected animal, such as a fruit bat or nonhuman primate. This is called a spillover event. After that, the virus spreads from person to person through direct contact (such as through broken skin or mucous membranes in the eyes, nose, or mouth) potentially affecting a large number of people.

Symptoms may appear anywhere from 2 to 21 days after contact with the virus, with an average of 8 to 10 days. The course of the illness typically progresses from “dry” symptoms initially (such as fever, aches and pains, and fatigue), and then progresses to “wet” symptoms (such as diarrhea and vomiting) as the person becomes sicker; other symptoms may include red eyes, skin rash, and hiccups (late-stage) (CDC 2022).

According to the CDC, the 2014–2016 Ebola epidemic was the largest in history affecting multiple countries in West Africa. In the United States, 11 total Ebola cases occurred, of those 11 cases, 2 individuals died and the remaining 9 recovered. CDC and partners are taking precautions to prevent the further spread of Ebola in the United States (CDC 2019).

At the time of writing, there is a current epidemic of Ebola occurring in several African countries, but it is mostly affecting Uganda. The CDC issued a Health Alert Network message on October 06, 2022 about the outbreak in central Uganda. The United States is screening all passengers on flights in from the Ugandan region (CDC 2022).

### **Location**

Warren County is vulnerable to importation and spread of infectious diseases due to its geographic location and demographic characteristics. Additionally, as the County is a year-long tourist destination, it is susceptible to the spread of diseases due to the influx of tourists from diverse locations. Disease outbreaks pose serious threats to the County and could strain the capacity of hospitals, clinics and other healthcare facilities to respond to those seeking medical attention (Warren County 2017).

### **Extent**

The exact size and extent of an infected population depends on how easily the illness is spread, the mode of transmission, and the amount of contact between infected and uninfected individuals. The transmission rates of pandemic illnesses are often higher in more densely populated areas. The transmission rate of infectious diseases will depend on the mode of transmission of a given illness (Warren County 2017).





The CDC and public health officials will use the Pandemic Severity Assessment Framework (PSAF) to determine the impact of the pandemic, or how “bad” the pandemic will be; the PSAF replaced the Pandemic Severity Index (PSI) in 2014. There are two main factors that can be used to determine the impact of a pandemic. The first is clinical severity, or how serious is the illness associated with infection. The second factor is transmissibility, or how easily the pandemic virus spreads from person-to-person. These two factors combined are used to guide decisions about which actions CDC recommends at a given time during the pandemic.

The framework is divided into two parts. The first part is the initial assessment, which happens early during a pandemic. At this time, activity may be detected in pockets or certain communities across the country so information and understanding about the pandemic virus will be limited. By studying the information that is available, CDC can produce a preliminary assessment of the potential impact of the pandemic (e.g., low to moderate transmissibility and moderate to high clinical severity). However, that assessment may change as the pandemic evolves and more information is known. The second part, or refined assessment, happens later in the pandemic when more information is available. This additional information helps to provide a more refined and accurate picture of pandemic impact, including assessments of the impact by age group.

The results of these assessments can be compared to past pandemics (or even seasonal influenza epidemics), creating a quick comparative snapshot of the potential impact of the pandemic. For example, using the PSAF, the 1918 pandemic can be characterized as one with very high transmissibility and very high clinical severity whereas the 2009 H1N1 pandemic can be characterized as one with moderate transmissibility and clinical severity for the overall population. The results help public health officials and health care professionals make timely and informed decisions, and to take appropriate actions (CDC 2016).

In 1999, the WHO Secretariat published guidance for pandemic influenza and defined the six phases of a pandemic. Updated guidance was published in 2005 to redefine these phases. This schema is designed to provide guidance to the international community and to national governments on preparedness and response for pandemic threats and pandemic disease. Compared with the 1999 phases, the new definitions place more emphasis on pre-pandemic phases when pandemic threats may exist in animals or when new influenza virus subtypes infect people but do not spread efficiently. Because recognizing that distinctions between the two inter-pandemic phases and the three pandemic alert phases may be unclear, the WHO Secretariat proposes that classifications be determined by assessing risk based on a range of scientific and epidemiological data (WHO 2009). The WHO pandemic phases are outlined in Table 5.4.X-1.

**Table 5.4.2-1. WHO Global Pandemic Phases**

Phase	Description
	Preparedness





Phase	Description
Phase 1	No viruses circulating among animals have been reported to cause infections in humans
Phase 2	An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans and is therefore considered a potential pandemic threat.
Phase 3	An animal or human-animal influenza reassortment virus has caused sporadic cases or small clusters of disease in people but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks. Limited human-to-human transmission may occur under some circumstances, for example, when there is close contact between an infected person and an unprotected caregiver. However, limited transmission under such restricted circumstances does not indicate that the virus has gained the level of transmissibility among humans necessary to cause a pandemic.
Response and Mitigation Efforts	
Phase 4	Human infection(s) are reported with a new subtype, but no human-to-human spread or at most rare instances of spread to a close contact.
Phase 5	Characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.
Phase 6	The pandemic phase is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5. Designation of this phase will indicate that a global pandemic is under way.

Sources: (WHO 2009)

Additionally, NYSDOH and the State EOC have their own activation levels in response to a pandemic event. Multiple waves of pandemic can be anticipated throughout the life cycle of an event. Refer to <https://www.health.ny.gov/diseases/communicable/influenza/pandemic/> for information regarding the various levels in New York State (Warren County 2017).

### Previous Occurrences

Each year, cases of seasonal influenza have been reported in Warren County; there have been no cases of influenza A, or the pandemic influenza. As for Ebola and Zika, there have been no reported cases in the County. COVID-19 infections have been reported in Warren County, yearly total infections can be found in Table 5.4.2-1.

**Table 5.4.2-2. COVID-19 Infection Cases in Warren County (2020 to 2022)**

Disease	2020	2021	2022
COVID-19	1,143	8,329	14,518

Sources: (Warren County 2022)

### FEMA Major Disaster and Emergency Declarations

Between 1954 and 2022, Warren County was included in 2 disaster (DR) or emergency (EM) declarations for disease outbreak events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster





declarations as determined by FEMA (FEMA 2022). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

### USDA Declarations

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was included in 0 disease outbreak-related agricultural disaster declarations.

### Previous Events

For this 2023 HMP update, known disease outbreak events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to Appendix E (Supplementary Data).

**Table 5.4.2-2. Hazard Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
01/20/2020 – 5/11/2023	Pandemic	DR-4480-NY	Yes	FEMA determined the emergency conditions in the State of New York, and consequently all its Counties, were of sufficient severity and magnitude to warrant a major disaster declaration. The declaration authorized Individual Assistance limited to the Crisis Counseling Program and assistance for emergency protective measures (Category B), including direct Federal assistance, under Public Assistance throughout the State.
01/20/2020 – continuing	Pandemic	EM-3434-NY	Yes	FEMA determined the emergency conditions in the State of New York, and consequently all its Counties, were of sufficient severity and magnitude to warrant a major disaster declaration. The declaration authorized Individual Assistance limited to the Crisis Counseling Program and assistance for emergency protective measures (Category B), including direct Federal assistance, under Public Assistance throughout the State.

Sources: (NOAA 2022), (USDA FSA 2022), (FEMA 2022) (New York State 2019) (Warren County 2017)





### Probability of Future Occurrences

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of disease outbreak events for the County. Information from NOAA-NCEI storm events database, the 2019 State of New York HMP, and the 2017 Warren County HMP were used to identify the number of disease outbreak events that occurred between 1950 and 2022. Table 5.4.2- presents the probability of future events for the disease outbreak hazard in the County.

**Table 5.4.2-3. Probability of Future Disease Outbreak Events in Warren County**

Hazard Type	Number of Occurrences Between 1950 and 2022	Percent Chance of Occurring in Any Given Year
Influenza A (H1N1)	1	1.4%
Influenza A (H2N2)	0	0%
Influenza A (H3N2)	0	0%
Influenza A (H5N1)	0	0%
COVID-19	3	4.1%
Zika	0	0%
Ebola	0	0%

Sources: (Warren County 2017) (Warren County 2022) (CDC 2022) (CDC 2018) (Standforth 2010)

Note: Disaster occurrences include federally declared disasters since the 1950 Federal Disaster Relief Act, and selected disease outbreak events since 1968. Due to limitations in data, not all disease outbreak events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is underestimated.

A total of 4 disease outbreak events have been recorded in Warren County. Based on historical occurrences, the probability of a disease outbreak event occurring is considered occasional (between 10 and 100% annual probability of occurrence ). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

### Climate Change Projections

Climate change is beginning to affect both people and resources in New York State, and these impacts are projected to continue growing. Impacts related to increasing temperatures and sea level rise are already being felt in the State. ClimAID: the Integrated Assessment for Effective Climate Change in New York State (ClimAID) was undertaken to provide decision-makers with information on the State's vulnerability to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge.

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Warren County is part of Region 7, Adirondack Mountains. Some of the issues in this region, affected by climate change, include loss of high elevation plants, animals, and ecosystem types; decline in winter recreation; decline in milk production, etc.

Temperatures in New York State are warming, with an average rate of warming over the past century of 0.25° F per decade. Average annual temperatures are projected to increase across New York State





by 2° F to 3.4° F by the 2020s, 4.1° F to 6.8° F by the 2050s, and 5.3° F to 10.1° F by the 2080s. By the end of the century, the greatest warming is projected to be in the northern section of the State.

In Region 7, it is estimated that temperatures will increase by 3.7°F to 7.4°F by the 2050s and 4.2°F to 11.8°F by the 2080s (baseline of 39.9°F). Precipitation totals will increase between 2 and 15% by the 2050s and 3 to 17% by the 2080s (baseline of 40.8 inches). While annual precipitation and temperature projections are more certain than seasonal results, much of this additional precipitation is expected to occur during the winter months, which may result in greater annual snowfall in Warren County (NYSERDA 2014).

Milder winters, warmer summers, and fewer days of frost make it easier for infectious diseases to expand into new geographic areas and infect more people. The warmer temperatures are giving mosquitoes and ticks more time to reproduce, spread diseases, and expand their habitats throughout the United States. The geographic ranges where ticks spread Lyme disease, anaplasmosis, ehrlichiosis, and spotted fever rickettsiosis have expanded, and experts predict that tickborne diseases will continue to increase and perhaps worsen. Longer, warmer summers have also given mosquitoes more time to reproduce and spread diseases. In 2012, a mild winter, early spring, and hot summer set the stage for an outbreak of West Nile virus disease in the United States, resulting in more than 5,600 illnesses and 286 deaths.

Climate change has forced some animal species into new habitats as their natural habitats disappear, and it has expanded the habitats of other animals. This movement of animals into new areas increases opportunities for contact between humans and animals and the potential spread of zoonotic diseases, as these examples show:

- Wildlife carrying the rabies virus are expanding to new geographic areas of the country.
- Arctic temperatures are rising more than twice as rapidly as the rest of the world.
- As global temperatures rise, deadly diseases that are a threat in other countries – like Ebola, Lassa, Rift Valley fever, and monkeypox – will increase along with the risk of them being imported into the United States.

Rising temperatures have allowed certain disease-causing fungi to spread into new areas that previously were too cold for them to survive. As the difference between environmental temperatures and human body temperatures narrows, new fungal diseases may emerge as fungi become more adapted to surviving in humans. Climate change also increases the risk for natural disasters and flooding, which can increase the risk for mold to grow in people's homes.

Scientists predict that climate change will have devastating effects on freshwater and marine environments. For example, we could see more frequent and more severe instances of harmful algal blooms, which are the rapid growth of algae or cyanobacteria in lakes, rivers, oceans, and bays. Harmful algal blooms can look like foam, scum, paint, or mats on the surface of water and can be





different colors. They endanger our health when we eat contaminated shellfish. They also can harm pets, livestock, wildlife, and the environment (CDC 2022).

## **Vulnerability Assessment**

---

To understand risk, a community must evaluate assets exposed to and vulnerable to the identified hazard. The following discusses Warren County's vulnerability, in a qualitative nature, to the disease outbreak hazard.

### **Impact on life, Health, and Safety**

The entire population of Warren County is vulnerable to the disease outbreak hazard. Due to a lack of quantifiable loss information, a qualitative assessment was conducted to evaluate the assets exposed to this hazard and the potential impacts associated with this hazard. Healthcare providers and first responders have an increased risk of exposure due to their frequent contact with infected populations. Areas with a higher population density also have an increased risk of exposure or transmission of disease to do the closer proximity of population to potentially infected people.

Most recently with COVID-19, the Centers for Disease Control and Prevention have indicated that persons over 65 years and older, persons living in a nursing home or long-term care facility, and persons with underlying medical conditions such as diabetes, severe obesity, serious heart conditions, etc. are at a higher risk of getting severely ill (CDC 2020). Population data from the 2015–year American Community Survey indicates that there are 14,754 persons over 65 years old in Warren County. This age group would be considered at risk for getting severely ill from the COVID-19 virus. While the statistics of this virus are subject to change during the publication of this HMP, the New York Department of Health dashboard shows that there is a higher percent of illnesses within the mentioned age group.

### **Impact on General Building Stock**

No structures are anticipated to be directly affected by disease outbreaks.

### **Impact on Critical Facilities and Community Lifelines**

No critical facilities are anticipated to be affected by disease outbreaks. Hospitals and medical facilities will likely see an increase in patients which may cause interruption of services, but it is unlikely that there will be damages to the facilities. Large rates of infection may result in an increase in the rate of hospitalization which may overwhelm hospitals and medical facilities and lead to decreased services for those seeking medical attention. The 2020–2021 coronavirus pandemic has led to overwhelmed hospitals in numerous locations across New York State, including Warren County.





### Impact on the Economy

The impact disease outbreaks have on the economy and estimated dollar losses are difficult to measure and quantify. Costs associated with the activities and programs implemented to conduct surveillance and address disease outbreaks have not been quantified in available documentation. Instead, activities and programs implemented by the County to address this hazard are described below, all of which could impact the local economy.

Within New York State the pandemic led to the closure of businesses, strained the healthcare systems, stressed nonprofits and educational institutions, and stretched public budgets (Association 2020).

Smaller-scale disease outbreaks can also cause negative economic impacts, though the extent of impact is variable. For example, an outbreak in mosquito or tick-borne diseases can impact Westchester County's local economies associated with tourism and the use of parks and waterbodies.

### Impact on the Environment

Disease outbreaks may have an impact on the environment if the outbreaks are caused by invasive species. Invasive species tend to be competitive with native species and their habitat and can be the major transmitters of disease like Zika, dengue, and yellow fever (Placer Mosquito and Vector Control District 2019). Secondary impacts from mitigating disease outbreaks could also have an impact on the environment. Pesticides used to control disease carrying insects like mosquitos have been reviewed by the EPA and the New York Department of Environmental Conservation. If these sprays are applied in large concentrations, they could potentially leach into waterways and harm nearby terrestrial species. As a result, pesticides must be registered before they can be sold, distributed, or used in the state (New York Department of Environmental Conservation 2020).

### Future Changes That May Impact Vulnerability

Understanding future changes that may impact vulnerability in the county can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The county considered the following factors that may affect hazard vulnerability:

- Potential or projected development.
- Projected changes in population.
- Other identified conditions as relevant and appropriate, including the impacts of climate change.





### *Projected Development*

As discussed in Section 4 (County Profile), areas targeted for future growth and development have been identified across the County. Any areas of growth could be potentially impacted by the disease outbreak hazard because the entire planning area is exposed and vulnerable. Additional development of structures in areas with high population density are at an increased risk. Please refer to the specific areas of development indicated in tabular form and/or on the hazard maps included in the jurisdictional annexes in Volume II, Section 9 of this plan

### *Projected Changes in Population*

According to the 2020 decennial census, the population of the County has experienced a slight increase of less than 0.1-percent since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). Changes in the density of population when households move throughout the County could influence the number of persons exposed to disease outbreaks. Higher density jurisdictions are not only at risk of greater exposure to disease outbreak, density may also reduce available basic services provided by critical facilities such as hospitals and emergency facilities for persons that are not affected by a disease. Refer to Section 4 (County Profile), which includes a discussion on population trends for the County.

### *Climate Change*

As discussed earlier in this section, the relationship between climate change and increase in infectious diseases is difficult to predict with certainty, however there may be linkages between the two. Changes in the environment may create a more livable habitat for vectors carrying disease as suggested by the Centers for Disease Control and Prevention (CDC n.d.). Localized changes in climate and human interaction may also be a factor in the spread of disease.

The relationship between climate change and infectious diseases is somewhat controversial. The notion that rising temperatures will increase the number of mosquitoes that can transmit malaria among humans (rather than just shift their range) has been the subject of debate over the past decade. Some believe that climate change may affect the spread of disease, while others are not convinced. However, many researchers point out that climate is not the only force at work in increasing the spread of infectious diseases into the future. Other factors, such as expanded rapid travel and evolution of resistance to medical treatments, are already changing the ways pathogens infect people, plants, and animals. As climate change accelerates it is likely to work synergistically with many of these factors, especially in populations increasingly subject to massive migration and malnutrition (Harmon 2010).





### **Change of Vulnerability Since the 2017 HMP**

This vulnerability assessment has been expanded on the 2017 plan to include the Coronavirus. In addition the Ebola virus and pandemic influenzas, tick-borne diseases including Lyme and West Nile Virus as well as coronavirus are included in this section. Updated data regarding the extent of these diseases is included to provide a better understanding of the potential impacts caused by the disease outbreak hazard.





### 5.4.3 Earthquake

This section provides information regarding the description, extent, location, previous occurrences and losses, climate change projections, and the probability of future occurrences of the earthquake hazard.

#### Hazard Profile

---

##### Hazard Description

An earthquake is the sudden movement of the Earth's surface caused by the release of stress accumulated within or along the edge of the Earth's tectonic plates, a volcanic eruption, or by a manmade explosion (FEMA, 2013). Most earthquakes occur at the boundaries where the Earth's tectonic plates meet (faults); however, less than 10 percent of earthquakes occur within plate interiors. New York State is in an area where plate interior-related earthquakes occur. As plates continue to move and plate boundaries change over geologic time, weakened boundary regions become part of the interiors of the plates. These zones of weakness within the continents can cause earthquakes in response to stresses that originate at the edges of the plate or in the deeper crust (Shedlock & Pakiser, 1997).

Any sudden shaking of the ground caused by seismic waves through the Earth's rocks constitutes an earthquake. Seismic waves are produced when some form of energy stored in Earth's crust is suddenly released, usually when masses of rock straining against one another suddenly fracture and "slip." Earthquakes occur most often along geologic faults, narrow zones where rock masses move in relation to one another. The major fault lines of the world are located at the fringes of the huge tectonic plates that make up Earth's crust (NYS DHSES, 2019).

Certain saturated soft soil can take on the characteristics of a fluid when shaken by an earthquake, resulting in a state called liquefaction. Amplified shaking also results in areas of "soft soils" which includes fill, loose sand, waterfront, and lakebed clays (NYS DHSES, 2019).

The location of an earthquake is commonly described by its focal depth and the geographic position of its epicenter. The focal depth of an earthquake is the depth from the Earth's surface to the region where an earthquake's energy originates (the focus or hypocenter). The epicenter of an earthquake is the point on the Earth's surface directly above the hypocenter (Shedlock & Pakiser, 1997). Earthquakes usually occur without warning and their effects can impact areas of great distance from the epicenter.

According to the U.S. Geological Society (USGS) Earthquake Hazards Program, an earthquake hazard is anything associated with an earthquake that may affect resident's normal activities (FEMA, 2001). This includes surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, tsunamis, and seiches. A description of each of these is provided below.

- **Surface faulting:** Displacement that reaches the earth's surface during slip along a fault. Commonly occurs with shallow earthquakes, those with an epicenter less than 20 kilometers.





- *Ground motion (shaking)*: The movement of the earth's surface from earthquakes or explosions. Ground motion or shaking is produced by waves that are generated by sudden slip on a fault or sudden pressure at the explosive source and travel through the earth and along its surface.
- *Landslide*: A movement of surface material down a slope.
- *Liquefaction*: A process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake shaking.
- *Tectonic Deformation*: A change in the original shape of a material due to stress and strain.
- *Tsunami*: A sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes, major submarine slides, or exploding volcanic islands.
- *Seiche*: The sloshing of a closed body of water from earthquake shaking (USGS, 2012).

### Location

As noted in the 2019 New York State Hazard Mitigation Plan (NYS HMP), the importance of the earthquake hazard in New York State is often underestimated because other natural hazards (for example, hurricanes and floods) occur more frequently and because major hurricanes and floods have occurred more recently than a major earthquake event (NYS DHSES, 2019). However, the potential for earthquakes exists across all of New York State and the entire northeastern United States. The New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) ranks New York State as having the third highest earthquake activity level east of the Mississippi River (Tantala, 2003)

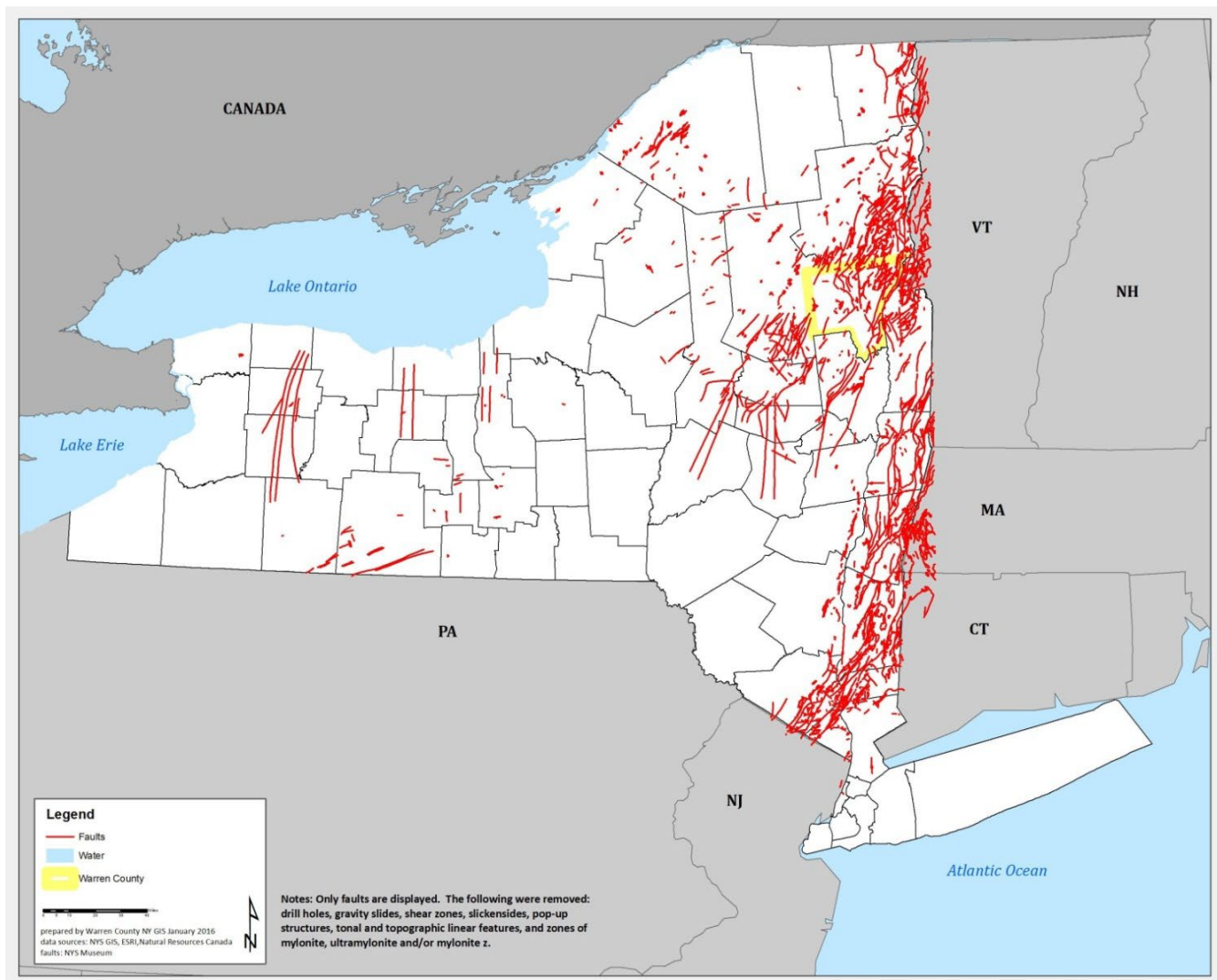
Three general regions in New York State have a higher seismic risk than other parts of the state. These regions are: (1) the north and northeast third of the state, which includes the North Country/Adirondack region and a portion of the greater Albany-Saratoga region; (2) the southeast corner, which includes the greater New York City area and western Long Island; and (3) the northwest corner, which includes Buffalo and its surrounding area. Overall, these three regions are the most seismically active areas of the state, with the north-northeast portion having the higher seismic risk, and the northwest corner of the state having the lower seismic risk (NYS DHSES, 2014).

Fractures or fracture zones along with rocks on adjacent sides have broken and moved upward, downward, or horizontally are known as faults (Volkert & Witte, 2015). Movement can take place at faults and cause an earthquake. There are numerous faults throughout New York State, and Figure 5.4.3-1 illustrates the faults relative to Warren County (New York State Museum, 2012).





Figure 5.4.3-1. Faults in New York State



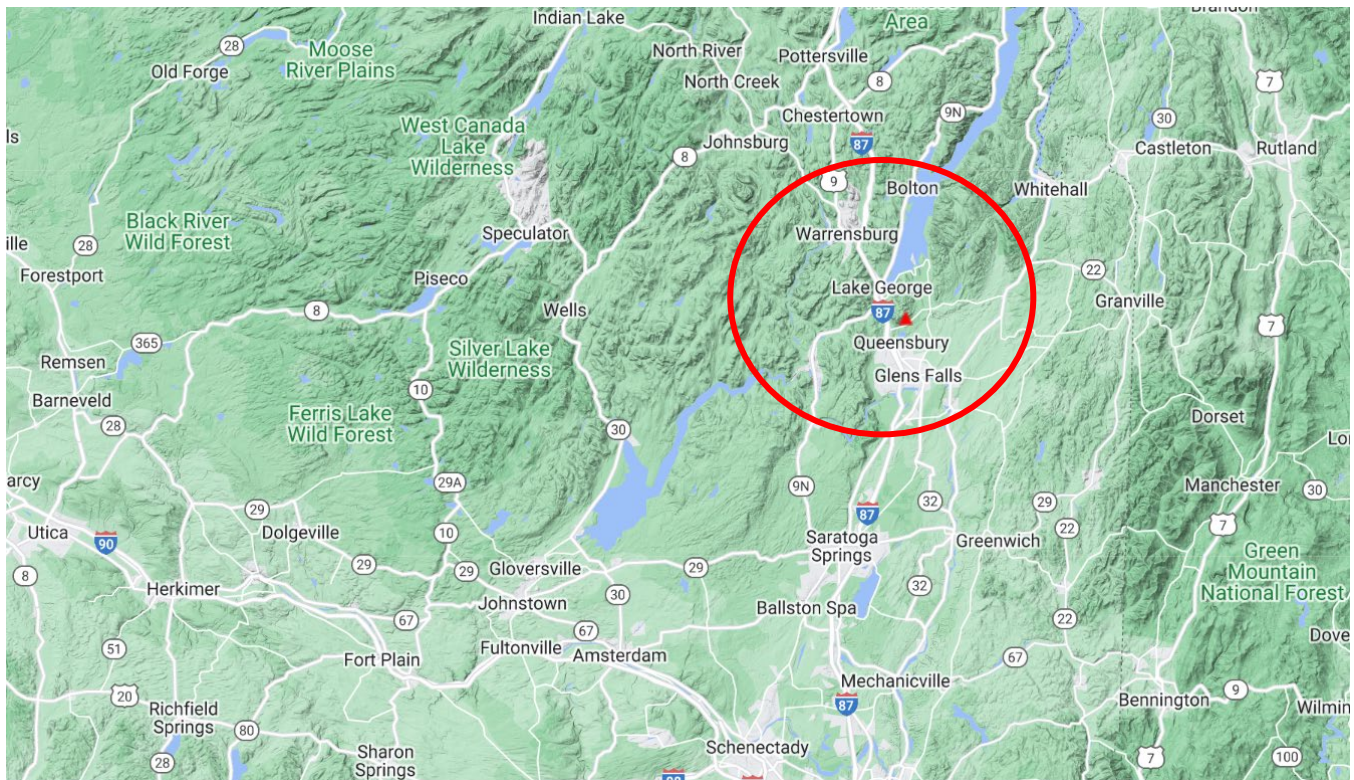
Source: Warren County, 2015. Note: Warren County is outlined in yellow





The Lamont-Doherty Cooperative Seismographic Network (LCSN) monitors earthquakes that occur primarily in the northeastern United States. The goals of the monitoring project are to compile a complete earthquake catalog for this region, to assess the earthquake hazards, and to study the causes of the earthquakes in the region. The LCSN operates 40 seismographic stations in the following seven states: Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania, and Vermont. One seismographic station is located in Warren County at the Adirondack Community College in Queensbury, NY. Figure 5.4.3-2 shows the location of this station.

**Figure 5.4.3-2. Lamont-Doherty Seismic Station Location in Warren County**



Source: FDSN, 2023

Note: The red triangle indicates the seismic station, and the red circle indicates the approximate location of Warren County.

In addition to the Lamont-Doherty Seismic Stations, the USGS operates a global network of seismic stations to monitor seismic activity. While no seismic stations are located in New York State, nearby stations are positioned in State College, Pennsylvania, and Oak Ridge, Massachusetts. Figure 5.4.3-3 shows the locations of USGS seismic stations near New York State.





Figure 5.4.3-3. USGS Seismic Stations near New York State



Source: USGS 2015

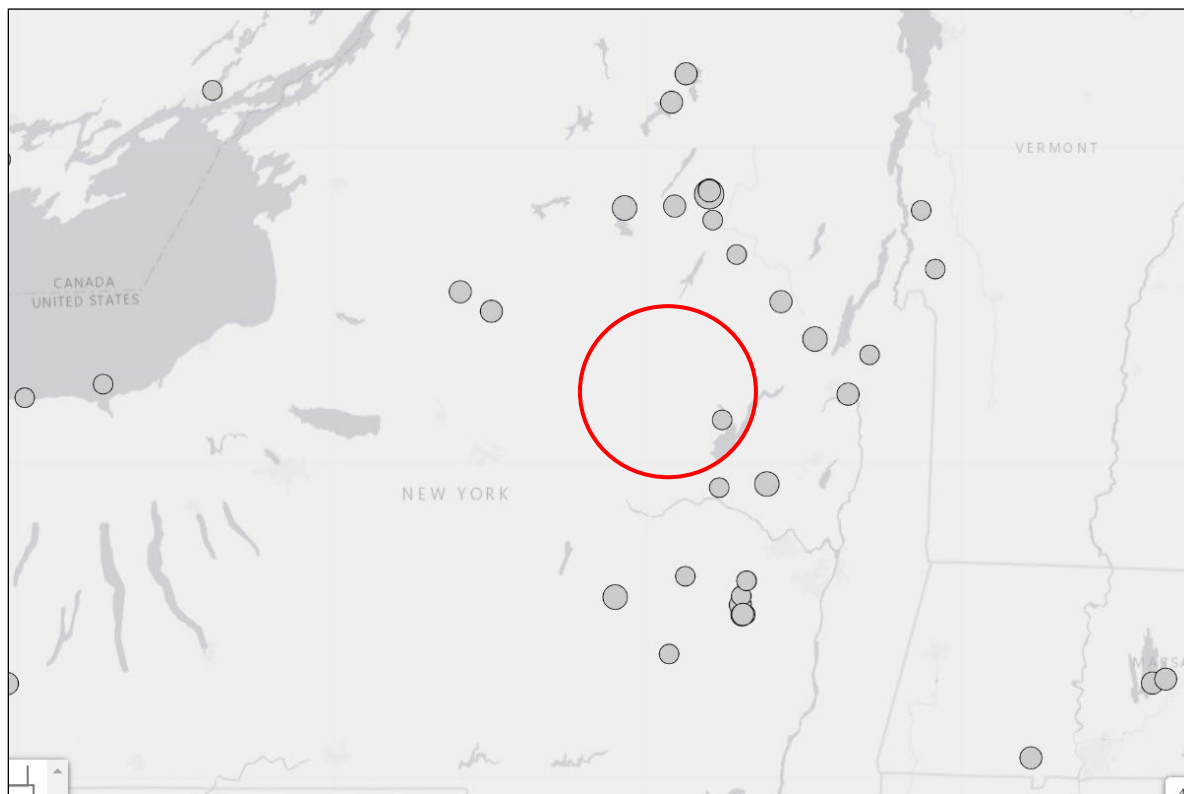
Note: The red circle indicates the approximate location of Warren County.

Figure 5.4.3-4 illustrates historic earthquake epicenters across the northeast United States and in New York State between 1914 and 2022. There have been multiple earthquakes originating outside New York's borders that have been felt within the state. These quakes have come from Quebec, Canada; and Massachusetts. According to the NYS HMP, such events are considered significant for hazard mitigation planning because they could produce damage within the state in certain situations.





**Figure 5.4.3-4. Earthquake Epicenters in the Northeast U.S., 1914 to 2022**



Source: USGS 2022

Note: The red circle indicates the approximate location of Warren County.

### Extent

An earthquake's magnitude and intensity are used to describe the severity and size of the event. intensity describes the overall felt severity of shaking during the event and magnitude describes the size at the focus of an earthquake. The earthquake's magnitude is a measure of the energy released at the source of the earthquake. Magnitude was formerly expressed by ratings on the Richter scale. It is now most commonly expressed using the moment magnitude (Mw) scale. This scale is based on the total moment release of the earthquake (the product of the distance a fault moved, and the force required to move it). The scale is as follows:

- Great Mw > 8
- Major Mw = 7.0 – 7.9
- Strong Mw = 6.0 – 6.9
- Moderate Mw = 5.0 – 5.9
- Light Mw = 4.0 – 4.9
- Minor Mw = 3.0 – 3.9
- Micro Mw = 3.0 – 3.9

The most commonly used intensity scale is the modified Mercalli intensity scale. Ratings of the scale, as well as the perceived shaking and damage potential for structures, are shown in





Table 5.4.3-1. The modified Mercalli intensity scale is generally represented visually using shake maps, which show the expected ground shaking at any given location produced by an earthquake with a specified magnitude and epicenter. An earthquake has only one magnitude and one epicenter, but it produces a range of ground shaking at sites throughout the region. This shaking depends on the distance from the earthquake, the rock and soil conditions at sites, and variations in the propagation of seismic waves from the earthquake due to complexities in the structure of the earth's crust. A USGS shake map shows the variation of ground shaking in a region immediately following significant earthquakes. Table 5.4.3-2 displays the MMI scale and its relationship to the areas peak ground acceleration.

**Table 5.4.3-1. Modified Mercalli Intensity Scale**

Mercalli Intensity	Shaking	Description
I	Not Felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing automobiles may rock slightly. Vibrations are similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing automobiles rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very Strong	Felt by all. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Felt by all. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Felt by all. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Felt by all. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: USGS 2014

**Table 5.4.3-2. Modified Mercalli Intensity (MMI) and PGA Equivalents**

Modified Mercalli Intensity	Acceleration (%g) (PGA)	Perceived Shaking	Potential Damage
I	< .17	Not Felt	None
II	.17 – 1.4	Weak	None
III	.17 – 1.4	Weak	None
IV	1.4 – 3.9	Light	None
V	3.9 – 9.2	Moderate	Very Light
VI	9.2 – 18	Strong	Light
VII	18 – 34	Very Strong	Moderate





Modified Mercalli Intensity	Acceleration (%g) (PGA)	Perceived Shaking	Potential Damage
VIII	34 – 65	Severe	Moderate to Heavy
IX	65-124	Violent	Heavy
X	>124	Extreme	Very Heavy

Source: Freeman et al. (Purdue University) 2004

Note: PGA= Peak Ground Acceleration

The ground experiences acceleration as it shakes during an earthquake. The peak ground acceleration (PGA) is a measure of how hard the earth shakes in a given geographic area. It is expressed as a percentage of the acceleration due to gravity (percent g). Horizontal and vertical PGA varies with soil or rock type. Earthquake hazard assessment involves estimating the annual probability that certain ground accelerations will be exceeded, and then summing the annual probabilities over a period of interest. Damage levels experienced in an earthquake vary with the intensity of ground shaking and with the seismic capacity of structures, as noted in Table 5.4.3-3.

PGA expresses the severity of an earthquake and is a measure of how hard the earth shakes, or accelerates, in a given geographic area. PGA is expressed as a percent acceleration force of gravity (%g). For example, 1.0%g PGA in an earthquake (an extremely strong ground motion) means that objects accelerate sideways at the same rate as if they had been dropped from the ceiling. 10%g PGA means that the ground acceleration is 10% that of gravity (NJOEM, 2013). Damage levels experienced in an earthquake vary with the intensity of ground shaking and with the seismic capacity of structures, as noted in Table 5.4.3-3.

**Table 5.4.3-3. Damage Levels Experienced in Earthquakes**

Ground Motion Percentage	Explanation of Damages
1-2%g	Motions are widely felt by people; hanging plants and lamps swing strongly, but damage levels, if any, are usually very low.
Below 10%g	Usually causes only slight damage, except in unusually vulnerable facilities.
10 – 20%g	May cause minor-to-moderate damage in well-designed buildings, with higher levels of damage in poorly designed buildings. At this level of ground shaking, only unusually poor buildings would be subject to potential collapse.
20 – 50%g	May cause significant damage in some modern buildings and very high levels of damage (including collapse) in poorly designed buildings.
≥50%g	May causes higher levels of damage in many buildings, even those designed to resist seismic forces.

Source: NJOEM 2011

Note: %g=Peak Ground Acceleration

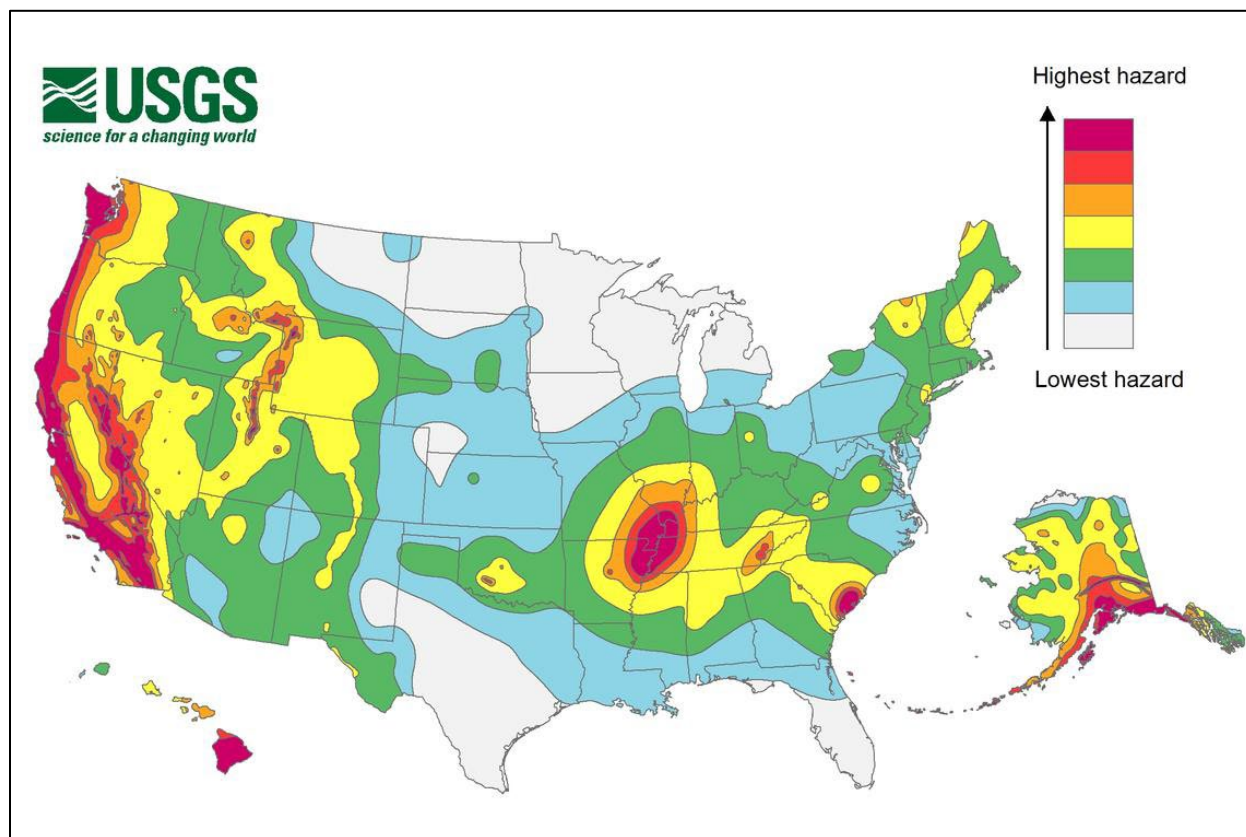
National maps of earthquake shaking hazards provide information for creating and updating seismic design requirements for building codes, insurance rate structures, earthquake loss studies, retrofit priorities, and land use planning. After thorough review of the studies, professional organizations of engineers update the seismic-risk maps and seismic design requirements contained in building codes (Brown, 2001) The USGS updated the National Seismic Hazard Maps in 2018. New seismic,





geologic, and geodetic information on earthquake rates and associated ground shaking were incorporated into these revised maps. The 2018 map represents the best available data, as determined by the USGS.

**Figure 5.4.3-5. 2018 Long-Term National Seismic Hazard Map**



Source: USGS 2018

The New York State Geological Survey conducted seismic shear-wave tests of the state's surficial geology (glacial deposits). Based on these test results, the surficial geologic materials of New York State were categorized according to the National Earthquake Hazard Reduction Program's (NEHRP) Soil Site Classifications Table 5.4.3-4. The NEHRP developed five soil classifications defined by their shear-wave velocity that impact the severity of an earthquake. The soil classification system ranges from Class A to Class E, as noted in Table 5.4.3-4, where Class A represents hard rock that reduces ground motions from an earthquake and Class E represents soft soils that amplify and magnify ground shaking and increase building damage and losses. Class E soils include water-saturated mud and artificial fill. The strongest amplification of shaking due is expected for this soil type. Seismic waves travel faster through hard rock than through softer rock and sediments. As the waves pass from harder to softer rocks, the waves slow down, and their amplitude increases. Shaking tends to be stronger at locations with softer surface layers where seismic waves move more slowly. Ground motion above an unconsolidated landfill or soft soils can be more than 10 times stronger than at neighboring locations on rock for small ground motions (FEMA, 2013).



**Table 5.4.3-4. NEHRP Soil Classifications**

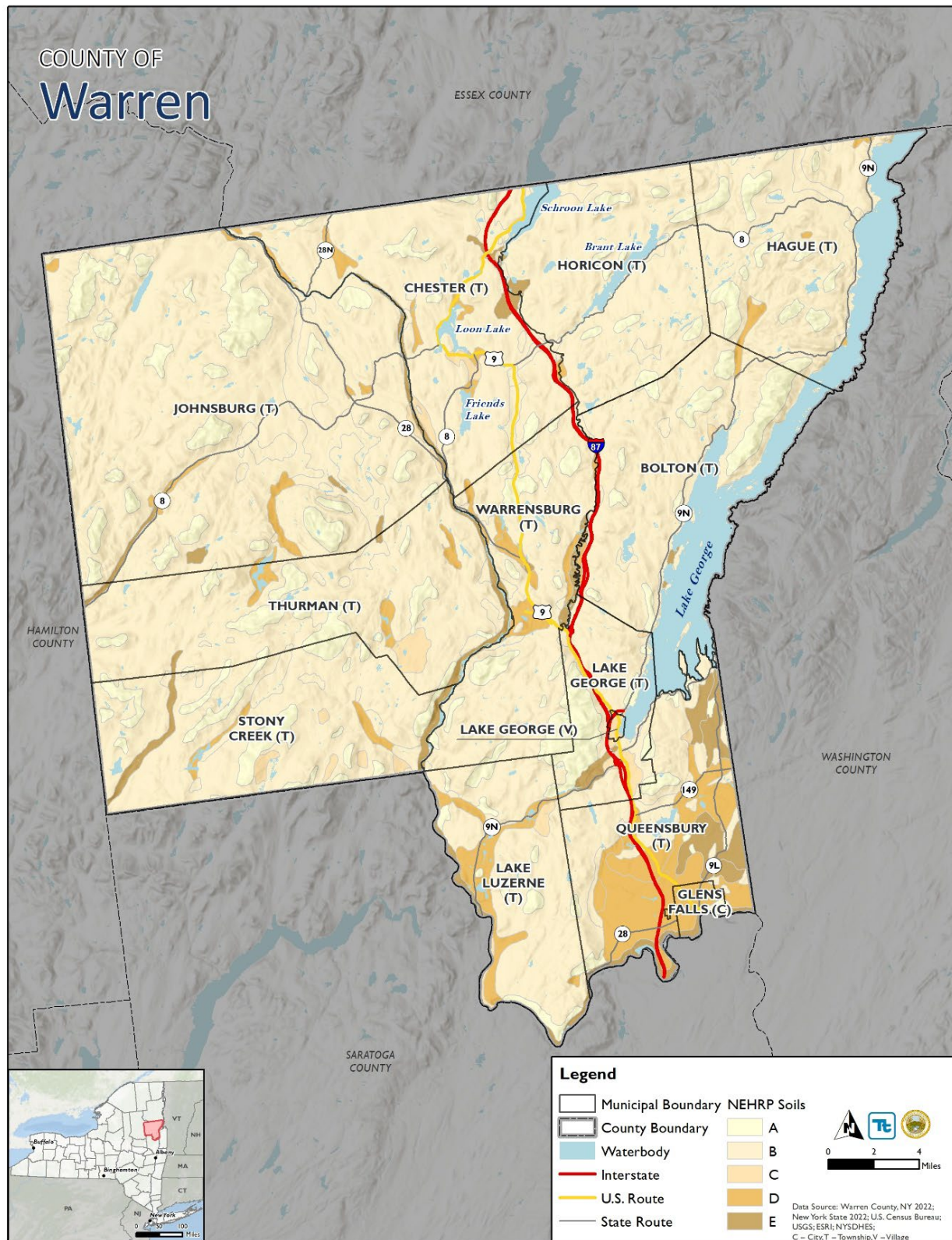
Soil Classification	Description
A	Hard rock
B	Rock
C	Very dense soil and soft rock
D	Stiff soils
E	Soft soils

Source: FEMA 2013





Figure 5.4.3-6. NEHRP Soils in Warren County







As illustrated in Figure 5.4.3-6, Warren County is primarily comprised of NEHRP Soil Classes A, B, C, D, and E with the majority of the County comprised of Soil Class A (Hard rock).

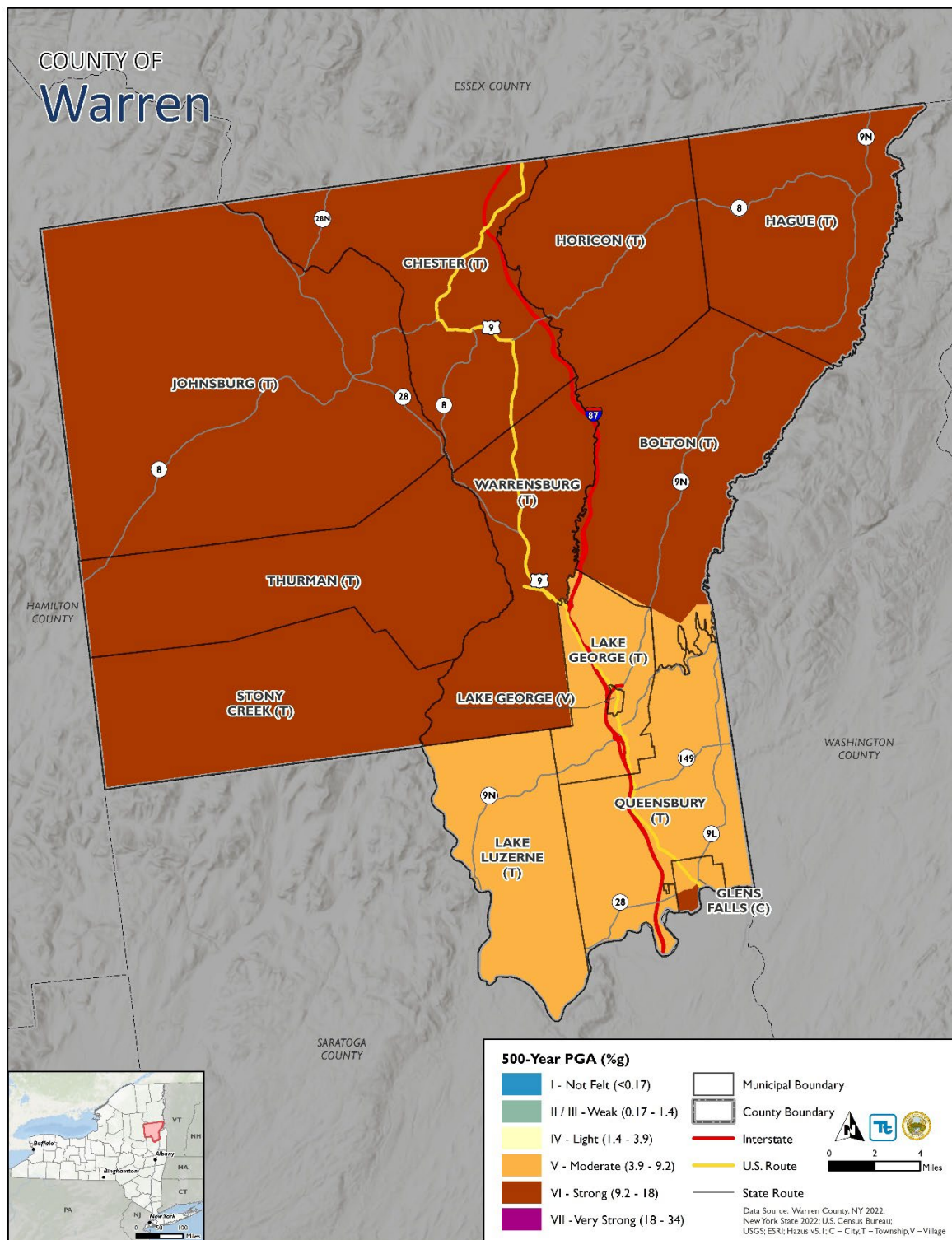
A probabilistic assessment was conducted for the 500- and 2500-year mean return periods (MRP) through a Level 2 analysis using the HAZUS-MH, Version 5.1 (HAZUS-MH) probabilistic model to analyze the earthquake hazard for Warren County. The Level 2 HAZUS analysis evaluates the statistical likelihood that a specific event will occur and what consequences will occur. A 500-year MRP event is an earthquake with a 1 percent chance that the mapped ground motion levels (PGA) will be exceeded in any given year. For a 2500-year MRP, there is a 0.2 percent chance the mapped PGA will be exceeded in any given year.

Figure 5.4.3-7 and Figure 5.4.3-8 illustrate the geographic distribution of PGA ( $g$ ) across Warren County for 500- and 2500-year MRP events at the census tract level.





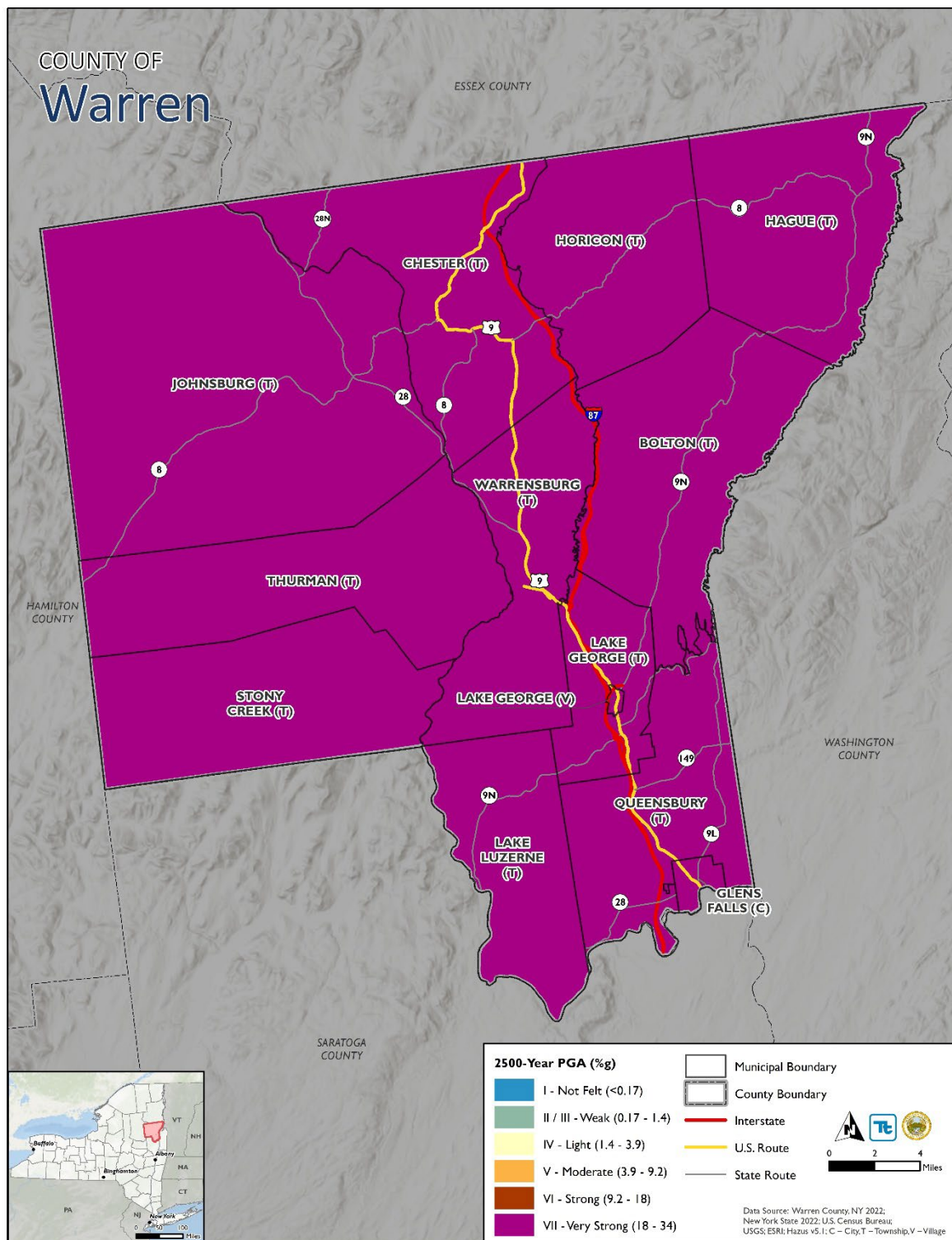
**Figure 5.4.3-7. Peak Ground Acceleration Modified Mercalli Scale for a 500-Year MRP Earthquake Event**







**Figure 5.4.3-8. Peak Ground Acceleration Modified Mercalli Scale for a 2500-Year MRP Earthquake Event**







## Previous Occurrences

### FEMA Major Disaster and Emergency Declarations

Between 1954 and 2022, Warren County was included in no disaster (DR) or emergency (EM) declarations for earthquake-related events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA, 2022). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

### USDA Declarations

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was not included in earthquake-related agricultural disaster declarations.

### Previous Events

For this 2023 HMP update, known earthquake events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to Appendix E (Supplementary Data).

**Table 5.4.3-5. Earthquake Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
March 11, 2020	Earthquake	N/A	N	A 3.1 magnitude earthquake struck South Glens Falls at approximately 6:43 AM. Effects were lightly felt in Warren County.

Sources: USGS 2022

Notes:

## Probability of Future Occurrences

The NYSDPC indicates that the earthquake hazard in New York State is often understated because other natural hazards occur more frequently (such as hurricanes, tornadoes, and flooding) and are much more visible. However, the potential for earthquakes does exist across the entire northeastern United States, including New York State and Monroe County (NYS DHSES, 2019).

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of earthquake events for the County. Information from FEMA, USGS, the 2019 State of New York HMP, and the 2017 Warren County HMP were used to identify the number of earthquake events that occurred between 1950 and 2022. Table 5.4.3-6 presents the probability of future events for the earthquake event in the County.



**Table 5.4.3-6. Probability of Future Hazard Name Events in Warren County**

Hazard Type	Number of Occurrences Between 1950 and 2022	Percent Chance of Occurring in Any Given Year
Earthquake	19	27.77

Sources: FEMA 2022, USGS 2022, NYS HMP 2019, Warren County HMP 2017,

Note: Disaster occurrences include federally declared disasters since the 1950 Federal Disaster Relief Act, and selected drought events since 1968. Due to limitations in data, not all earthquake events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is underestimated

Between 1950 and 2022, total of 19 earthquake events were recorded in Warren County, with one recorded since 2017. Based on historical occurrences, the probability of an earthquake event occurring is considered rare (between a 1% and 10% annual probability of occurrence). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

### Climate Change Projections

The impacts of global climate change on earthquake probability are unknown. Some scientists say that melting glaciers could induce tectonic activity. As ice melts and water runs off, tremendous amounts of weight are shifted on the earth's crust. As newly freed crust returns to its original, pre-glacier shape, it could cause seismic plates to slip and stimulate volcanic activity according to research into prehistoric earthquakes and volcanic activity. NASA and USGS scientists found that retreating glaciers in southern Alaska may be opening the way for future earthquakes (NASA, 2004).

Secondary impacts of earthquakes could be magnified by climate change. Soils saturated by repetitive storms could experience liquefaction during seismic activity due to the increased saturation. Dams storing increased volumes of water due to changes in the hydrograph could fail during seismic events. There are currently no models available to estimate these impacts.

### Vulnerability Assessment

A probabilistic assessment was conducted for the 100-year, 500-year, and 2,500-year Mean Return Period (MRP) events through a Level 2 analysis in Hazus v5.0 to analyze the earthquake hazard and provide a range of loss estimates. Refer to Section 5.1 (Methodology and Tools) for additional details on the methodology used to assess earthquake risk.

### Impact on life, Health, and Safety

The entire County may experience an earthquake. However, the degree of impact is dependent on many factors including the age and type of construction people live in, the soil types their homes are located on, and the intensity of the earthquake. Whether directly or indirectly impacted, residents could be faced with business closures, road closures that could isolate populations, and loss of function of critical facilities and utilities.

According to the 2020 decennial population estimates, Warren County had a population of 65,737 people. Overall, risk to public safety and loss of life from an earthquake in the County is minimal for low magnitude events. However, there is a higher risk to public safety for those inside buildings due





to structural damage or people walking below building ornamentations and chimneys that may be shaken loose and fall because of an earthquake.

Populations considered most vulnerable are those located in/near the built environment, particularly those near unreinforced masonry construction. Of these most vulnerable populations, socially vulnerable populations, including the elderly (persons over age 65) and individuals living below the poverty threshold, are most susceptible. Factors leading to this higher susceptibility include decreased mobility and financial ability to react or respond during a hazard, and the location and construction quality of their housing. According to the 2021 5-year ACS estimates, there are approximately 5,151 persons living below the poverty level and 14,754 persons over the age of 65 years in Warren County.

As noted earlier, NEHRP Soil Classes D and E can amplify ground shaking to damaging levels even during a moderate earthquake, and thus increase risk to the population. Populations within municipalities located on NEHRP Class D and E soils were estimated and are listed in Table 5.4.3-1. Approximately 43,104 residents (4.9 percent of the County's population) are located on NEHRP Class D and E soils. The Town of Queensbury has the greatest proportion of its population residing on NEHRP Class D and E soils (i.e., 83 percent).

**Table 5.4.3-7. Estimated Population Located on NEHRP Class D or Class E Soil Types**

Jurisdiction	Total Population (2020 Decennial Census)	Estimated Population Located Within the NEHRP Soils Class D and E Hazard Area	
		Number of People in the NEHRP Soils Class D and E Hazard Area	Percent of Total
Bolton (T)	2,012	98	5%
Chester (T)	3,086	408	13%
Glens Falls (C)	14,830	14,173	96%
Hague (T)	633	40	6%
Horicon (T)	1,471	18	1%
Johnsburg (T)	2,143	154	7%
Lake George (T)	2,494	66	3%
Lake George (V)	1,008	0	0%
Lake Luzerne (T)	3,079	1,677	54%
Queensbury (T)	29,169	24,205	83%
Stony Creek (T)	758	234	31%
Thurman (T)	1,095	133	12%
Warrensburg (T)	3,959	1,898	48%
Warren County (Total)	65,737	43,104	66%

Source: U.S. Census Bureau 2020





As a result of a significant earthquake event, residents may be displaced or require temporary to long-term sheltering. The number of people requiring shelter is generally less than the number displaced as some displaced persons use hotels or stay with family or friends following a disaster event. Hazus estimates that there will be zero displaced households and zero persons seeking short-term sheltering caused by the 100-year MRP event. Table summarizes the estimated number of displaced households and persons seeking short-term sheltering caused by the 500-year and 2,500-year MRP events.

**Table 5.4.3-8. Estimated Displaced Households and Number of Persons Requiring Sheltering**

Jurisdiction	500-Year Mean Return Period Earthquake Event		2500-Year Mean Return Period Earthquake Event	
	Displaced Households	Persons Seeking Short-Term Sheltering	Displaced Households	Persons Seeking Short-Term Sheltering
Bolton (T)	0.0	0.0	0.5	0.2
Chester (T)	0.1	0.0	1.9	1.1
Glens Falls (C)	0.4	0.2	8.3	4.5
Hague (T)	0.0	0.0	0.1	0.1
Horicon (T)	0.0	0.0	0.2	0.1
Johnsburg (T)	0.0	0.0	1.6	0.9
Lake George (T)	0.0	0.0	1.2	0.6
Lake George (V)	0.0	0.0	0.3	0.1
Lake Luzerne (T)	0.0	0.0	0.3	0.2
Queensbury (T)	0.3	0.1	8.9	4.4
Stony Creek (T)	0.0	0.0	0.1	0.0
Thurman (T)	0.0	0.0	0.1	0.1
Warrensburg (T)	0.0	0.0	2.0	1.1
<b>Warren County (Total)</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>25.5</b>	<b>13.4</b>

Sources: Hazus v5.1; NYSDHES

According to the 1999–2003 NYCEM Summary Report (*Earthquake Risks and Mitigation in the New York / New Jersey / Connecticut Region*), a strong correlation exists between structural building damage and number of injuries and casualties from an earthquake event. Further, the time of day also exposes different sectors of the community to the hazard. For example, Hazus considers the residential occupancy at its maximum at 2:00 a.m., where the educational, commercial, and industrial sectors are at their maximum at 2:00 p.m., with peak commute time at 5:00 p.m. Whether directly impacted or indirectly impact, the entire population will have to deal with the consequences of earthquakes to some degree. Business interruption could prevent people from working, road closures could isolate populations, and loss of functions of utilities could impact populations that





suffered no direct damage from an event itself. Overall, Hazus estimates that there are no injuries or casualties caused by the 100-year MRP event. Table 5.4.3-9 and Table 5.4.3-10 summarize the estimated number of injuries or casualties caused by the 500-year and 2,500-year MRP events.

**Table 5.4.3-9. Estimated Number of Injuries and Casualties Caused by the 500-Year MRP Earthquake Event**

Level of Severity	Time of Day – 500-year		
	2:00 AM	2:00 PM	5:00 PM
Injuries	3	6	3
Hospitalization	0	1	0
Casualties	0	0	0

Sources: Hazus v5.1; NYSDHES

**Table 5.4.3-10. Estimated Number of Injuries and Casualties Caused by the 2,500-Year MRP Earthquake Event**

Level of Severity	Time of Day – 2500 year		
	2:00 AM	2:00 PM	5:00 PM
Injuries	19	55	31
Hospitalization	2	10	5
Casualties	0	2	1

Sources: Hazus v5.1; NYSDHES

### Impact on General Building Stock

The entire County's general building stock is considered at risk and exposed to this hazard. As stated earlier, soft soils (NEHRP Soil Classes D and E) can amplify ground shaking to damaging levels even during a moderate earthquake (NYCEM 2003). Therefore, buildings located on NEHRP Classes D and E soils are at increased risk of damage from an earthquake. Table Table 5.4.3-11 summarizes the number and replacement cost value of buildings in Warren located on NEHRP Class D and E soils. Overall, approximately 48.7 percent of Warren County's buildings are built on NEHRP Class D and E soils.



**Table 5.4.3-11. Estimated Building Stock Located on NEHRP Class D or Class E Soil Types**

Estimated Number and Total Replacement Cost Value of Structures Located Within the NEHRP Soils Class D and E Hazard Area						
Jurisdiction	Total Number of Buildings	Total Replacement Cost Value (RCV)	Number of Buildings in the NEHRP Soils Class D and E Hazard Area	Percent of Total	Total Replacement Cost of Buildings in the NEHRP Soils Class D and E Hazard Area	Percent of Total
Bolton (T)	2,873	\$1,509,046,268	137	4.8%	\$48,440,347	3.2%
Chester (T)	3,227	\$1,794,523,301	428	13.3%	\$286,738,653	16.0%
Glens Falls (C)	5,988	\$3,728,124,116	5,655	94.4%	\$3,177,716,320	85.2%
Hague (T)	1,313	\$799,210,288	78	5.9%	\$25,001,334	3.1%
Horicon (T)	2,188	\$1,022,605,789	33	1.5%	\$54,007,097	5.3%
Johnsburg (T)	2,625	\$1,493,856,193	185	7.0%	\$132,907,360	8.9%
Lake George (T)	2,494	\$2,168,962,785	78	3.1%	\$101,016,765	4.7%
Lake George (V)	609	\$770,157,514	0	0.0%	\$0	0.0%
Lake Luzerne (T)	2,173	\$953,667,917	1,223	56.3%	\$636,856,332	66.8%
Queensbury (T)	12,193	\$7,114,031,584	10,112	82.9%	\$5,718,177,935	80.4%
Stony Creek (T)	807	\$995,996,331	250	31.0%	\$258,145,982	25.9%
Thurman (T)	1,061	\$497,985,792	123	11.6%	\$70,835,195	14.2%
Warrensburg (T)	2,758	\$1,425,456,857	1,344	48.7%	\$757,814,139	53.2%
<b>Warren County (Total)</b>	<b>40,309</b>	<b>\$24,273,624,737</b>	<b>19,646</b>	<b>48.7%</b>	<b>\$11,267,657,461</b>	<b>46.42%</b>

Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSDHES; RS Means 2022

There is a strong correlation between PGA and damage a building might undergo (NYCEM, 2019). The Hazus model is based on best available earthquake science and aligns with these statements. The Hazus probabilistic earthquake model was applied to analyze effects from the earthquake hazard on general building stock in Warren County.

A building's construction determines how well it can withstand the force of an earthquake. The NYCEM Hazard Mitigation Plan indicates that unreinforced masonry buildings are most at risk during an earthquake because the walls are prone to collapse outward, whereas steel and wood buildings absorb more of the earthquake's energy. Additional attributes that affect a building's capability to withstand an earthquake's force include its age, number of stories, and quality of construction. Hazus considers building construction and age of building as part of the analysis. Because a custom general building stock was used for this Hazus analysis, the building ages and building types from the inventory were incorporated into the Hazus model.





Potential building damage was evaluated by Hazus across the following damage categories: none, slight, moderate, extensive, and complete. Table provides definitions of these five categories of damage for a light wood-framed building. Definitions for other building types are included in the Hazus technical manual documentation. The results of potential damage states for buildings in Warren County categorized by general occupancy classes (i.e., residential, commercial, industrial, etc.) from Hazus are summarized in Table 5.4.3-12 for the 500-year and 2,500-year MRP events. Hazus estimates that there are zero damages to structures caused by the 100-year MRP event.

**Table 5.4.3-12. Example of Structural Damage State Definitions for a Light Wood-Framed Building**

Damage Category	Description
Slight	Small plaster or gypsum-board cracks at corners of door and window openings and wall-ceiling intersections; small cracks in masonry chimneys and masonry veneer.
Moderate	Large plaster or gypsum-board cracks at corners of door and window openings; small diagonal cracks across shear wall panels exhibited by small cracks in stucco and gypsum wall panels; large cracks in brick chimneys; toppling of tall masonry chimneys.
Extensive	Large diagonal cracks across shear wall panels or large cracks at plywood joints; permanent lateral movement of floors and roof; toppling of most brick chimneys; cracks in foundations; splitting of wood sill plates and/or slippage of structure over foundations; partial collapse of room-over-garage or other soft-story configurations.
Complete	Structure may have large permanent lateral displacement, may collapse, or be in imminent danger of collapse due to cripple wall failure or the failure of the lateral load resisting system; some structures may slip and fall off the foundations; large foundation cracks.

Building damage as a result of the 100-year, 500-year, and 2,500-year MRP earthquakes were estimated for each municipality using Hazus. Hazus estimates that zero damages will occur to buildings or contents during the 100-year MRP event. Table 5.4.3-13 and Table 5.4.3-14 summarize estimated total building and content losses caused by the 500-year and 2,500-year MRP events by jurisdiction, respectively. These tables also summarize losses for structures categorized as residential, commercial, and all other occupancy classes. Less than one-percent of the County's structures are impacted by the 500-year MRP event (i.e., approximately \$55 million in replacement cost value) and approximately two-percent of the County's structures are impacted by the 2,500-year MRP event (i.e., \$471 million in replacement cost value). Majority of the losses are estimated to occur in the City of White Plains





**Table 5.4.3-13. Estimated Building Damages (Structure and Contents) from the 500-year MRP Earthquake Event**

Jurisdiction	Total Replacement Cost Value (RCV)	Warren County 500-Year MRP				
		Estimated Total Damage	Percent of Total Building and Contents Replacement Cost Value	Estimated Residential Damage	Estimated Commercial Damage	Estimated Damages for All Other Occupancies
Bolton (T)	\$1,509,046,268	\$3,118,510	0.2%	\$2,109,007	\$386,061	\$623,442
Chester (T)	\$1,794,523,301	\$5,842,762	0.3%	\$3,240,819	\$1,180,371	\$1,421,571
Glens Falls (C)	\$3,728,124,116	\$7,060,889	0.2%	\$2,392,446	\$3,186,882	\$1,481,561
Hague (T)	\$799,210,288	\$1,722,433	0.2%	\$1,087,234	\$428,910	\$206,288
Horicon (T)	\$1,022,605,789	\$2,870,284	0.3%	\$1,811,781	\$714,741	\$343,762
Johnsburg (T)	\$1,493,856,193	\$5,030,319	0.3%	\$2,067,434	\$1,230,404	\$1,732,481
Lake George (T)	\$2,168,962,785	\$4,503,230	0.2%	\$2,863,743	\$1,255,825	\$383,662
Lake George (V)	\$770,157,514	\$1,100,011	0.1%	\$699,526	\$306,797	\$93,689
Lake Luzerne (T)	\$953,667,917	\$1,624,737	0.2%	\$955,171	\$313,945	\$355,621
Queensbury (T)	\$7,114,031,584	\$15,074,924	0.2%	\$6,796,411	\$5,863,797	\$2,414,716
Stony Creek (T)	\$995,996,331	\$1,534,578	0.2%	\$636,926	\$239,544	\$658,108
Thurman (T)	\$497,985,792	\$2,017,580	0.4%	\$837,396	\$314,940	\$865,244
Warrensburg (T)	\$1,425,456,857	\$3,390,394	0.2%	\$1,394,845	\$1,009,347	\$986,202
<b>Warren County (Total)</b>	<b>\$24,273,624,737</b>	<b>\$54,890,651</b>	<b>0.2%</b>	<b>\$26,892,740</b>	<b>\$16,431,564</b>	<b>\$11,566,347</b>

Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSEDA, Microsoft, NYSDHES; RS Means 2022

**Table 5.4.3-14. Estimated Building Damages (Structure and Contents) from the 2,500-year MRP Earthquake Event**

Jurisdiction	Total Replacement Cost Value (RCV)	Warren County 2500-Year MRP				
		Estimated Total Damage	Percent of Total Building and Contents Replacement Cost Value	Estimated Residential Damage	Estimated Commercial Damage	Estimated Damages for All Other Occupancies
Bolton (T)	\$1,509,046,268	\$27,405,975	1.8%	\$18,810,913	\$3,341,237	\$5,253,826
Chester (T)	\$1,794,523,301	\$48,648,824	2.7%	\$27,985,891	\$9,409,303	\$11,253,629
Glens Falls (C)	\$3,728,124,116	\$60,943,202	1.6%	\$20,961,873	\$28,101,446	\$11,879,883
Hague (T)	\$799,210,288	\$14,754,316	1.8%	\$9,400,249	\$3,609,748	\$1,744,320
Horicon (T)	\$1,022,605,789	\$24,586,781	2.4%	\$15,664,695	\$6,015,330	\$2,906,757
Johnsburg (T)	\$1,493,856,193	\$42,822,793	2.9%	\$18,680,896	\$10,161,703	\$13,980,193
Lake George (T)	\$2,168,962,785	\$40,233,958	1.9%	\$26,003,897	\$11,089,518	\$3,140,543





Jurisdiction	Total Replacement Cost Value (RCV)	Warren County 2500-Year MRP				
		Estimated Total Damage	Percent of Total Building and Contents Replacement Cost Value	Estimated Residential Damage	Estimated Commercial Damage	Estimated Damages for All Other Occupancies
Lake George (V)	\$770,157,514	\$9,828,184	1.3%	\$6,352,095	\$2,709,197	\$766,893
Lake Luzerne (T)	\$953,667,917	\$13,938,803	1.5%	\$8,340,441	\$2,817,292	\$2,781,071
Queensbury (T)	\$7,114,031,584	\$126,669,083	1.8%	\$56,428,297	\$50,947,684	\$19,293,101
Stony Creek (T)	\$995,996,331	\$13,476,609	1.4%	\$5,740,196	\$2,168,610	\$5,567,803
Thurman (T)	\$497,985,792	\$17,718,318	3.6%	\$7,546,900	\$2,851,171	\$7,320,247
Warrensburg (T)	\$1,425,456,857	\$29,565,314	2.1%	\$12,219,531	\$8,985,558	\$8,360,225
<b>Warren County (Total)</b>	<b>\$24,273,624,737</b>	<b>\$470,592,161</b>	<b>1.9%</b>	<b>\$234,135,875</b>	<b>\$142,207,796</b>	<b>\$94,248,490</b>

Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSEDA, Microsoft, NYSDHES; RS Means 2022

Historically, Building Officials Code Administration (BOCA) regulations in the northeast states were developed to address local concerns, including heavy snow loads and wind. Seismic requirements for design criteria are not as stringent as those of the west coast of the United States, which rely on the more seismically focused Uniform Building Code. As such, a smaller earthquake in the northeast can cause more structural damage than if it would occur in the west.

### Impact on Critical Facilities and Community Lifelines

All critical facilities and lifelines in Warren County are considered exposed to the earthquake hazard. Refer to subsection “Critical Facilities and Lifelines” in Section 4 (County Profile) of this HMP for a complete inventory of critical facilities in Warren County.

The number of critical facilities and lifelines built on NEHRP Class D and Class E soil types was assessed. Overall, there are 263 lifeline facilities located on soils prone to ground shaking during an earthquake event. Refer to Table 5.4.3-15 which summarizes the number of facilities categorized by FEMA lifeline categories located on NEHRP Class D and Class E soil types.

**Table 5.4.3-15. Estimated Number of Critical Facilities and Lifelines Located on NEHRP Class D and Class E Soil Types**

FEMA Lifeline Category	Number of Lifelines	Number of Lifelines in the NEHRP Soils Class D and E Hazard Area
Communications	16	4
Energy	20	8
Food, Water, Shelter	163	75
Hazardous Material	46	22
Health and Medical	43	27
Safety and Security	211	112
Transportation	60	15





FEMA Lifeline Category	Number of Lifelines	Number of Lifelines in the NEHRP Soils Class D and E Hazard Area
<b>Warren County (Total)</b>	<b>559</b>	<b>263</b>

Sources: Warren County, NY 2022; NYSDHES

The Hazus earthquake model was used to assign the range or average probability of each damage state category to the critical facilities in Warren County for the 500-year and 2,500-year MRP events. In addition, Hazus estimates the time to restore critical facilities to fully functional use. Results are presented as a probability of being functional at specified time increments (days after the event). For example, Hazus might estimate that a facility has 5% chance of being fully functional at Day 3, and a 95% chance of being fully functional at Day 90. The table presents the percent probability of sustaining damage, the minimum and maximum damage estimated value for that facility type.

As a result of a 500-year MRP event, Hazus estimates that 15 critical facilities will incur severe damages. However, for the 2,500-year MRP event, 273 lifeline facilities are estimated to incur severe damages. Table 5.4.3-16Table and Table 5.4.3-17 summarize the damage state probabilities for critical facilities during the 500-year and 2,500-year MRP events, respectively.

**Table 5.4.3-16. Estimated Damage and Loss of Functionality for Critical Facilities and Utilities in Warren County for the 500-Year MRP Earthquake Event**

Occupancy Class	Total Number of Buildings in Occupancy	Severity of Expected Damage	Earthquake 500-Year	
			Building Count	Percent Buildings in Occupancy Class
Residential Exposure (Single and Multi-Family Dwellings)	36,942	NONE	35,330	95.6%
		MINOR	1,383	3.7%
		MODERATE	220	0.6%
		SEVERE	10	0.0%
		DESTRUCTION	0	0.0%
Commercial Buildings	2,249	NONE	2,094	93.1%
		MINOR	118	5.3%
		MODERATE	33	1.5%
		SEVERE	3	0.1%
		DESTRUCTION	0	0.0%
Industrial Buildings	199	NONE	178	89.5%
		MINOR	14	7.2%
		MODERATE	6	2.9%
		SEVERE	1	0.4%
		DESTRUCTION	0	0.0%





Occupancy Class	Total Number of Buildings in Occupancy	Severity of Expected Damage	Earthquake 500-Year	
			Building Count	Percent Buildings in Occupancy Class
Government, Religion, Agricultural, and Education Buildings	919	NONE	859	93.5%
		MINOR	48	5.2%
		MODERATE	11	1.2%
		SEVERE	1	0.1%
		DESTRUCTION	0	0.0%

Sources: Hazus v5.1; NYSDHES

**Table 5.4.3-17. Estimated Damage and Loss of Functionality for Critical Facilities and Utilities in Warren County for the 2,500-Year MRP Earthquake Event**

Occupancy Class	Total Number of Buildings in Occupancy	Severity of Expected Damage	Earthquake 2500-Year	
			Building Count	Percent Buildings in Occupancy Class
Residential Exposure (Single and Multi-Family Dwellings)	36,942	NONE	28,740	77.8%
		MINOR	6,247	16.9%
		MODERATE	1,764	4.8%
		SEVERE	187	0.5%
		DESTRUCTION	4	0.0%
Commercial Buildings	2,249	NONE	1,403	62.4%
		MINOR	486	21.6%
		MODERATE	290	12.9%
		SEVERE	61	2.7%
		DESTRUCTION	9	0.4%
Industrial Buildings	199	NONE	118	59.1%
		MINOR	39	19.7%
		MODERATE	32	16.2%
		SEVERE	9	4.3%
		DESTRUCTION	1	0.7%
Government, Religion, Agricultural, and Education Buildings	919	NONE	600	65.3%
		MINOR	208	22.7%
		MODERATE	93	10.1%
		SEVERE	16	1.7%





Occupancy Class	Total Number of Buildings in Occupancy	Severity of Expected Damage	Earthquake 2500-Year	
			Building Count	Percent Buildings in Occupancy Class
		DESTRUCTION	2	0.3%

Sources: Hazus v5.1; NYSDHES

### Impact on the Economy

Earthquakes also have impacts on the economy, including loss of business function, damage to inventory, relocation costs, wage loss, and rental loss due to the repair/replacement of buildings. Hazus estimates building-related economic losses, including income losses (wage, rental, relocation, and capital-related losses) and capital stock losses (structural, non-structural, content, and inventory losses). Economic losses estimated by Hazus are summarized in Table 5.4.3-18.

**Table 5.4.3-18. Economic Losses for Earthquake Mean Return Period Events**

Mean Return Period (MRP)	Inventory Loss	Relocation Loss	Wages Losses	Rental Losses	Capital-Related Loss
500-year	\$397,900	\$3,067,900	\$1,648,200	\$2,175,800	\$747,100
2500-year	\$3,176,600	\$306,951,000	\$17,698,100	\$20,147,000	\$9,955,400

Sources: Hazus v5.1; NYSDHES

Although the Hazus analysis did not compute damage estimates for individual roadway segments and railroad tracks, assumedly these features would undergo damage due to ground failure, resulting in interruptions of regional transportation and of distribution of materials. Losses to the community that would result from damage to lifelines could exceed costs of repair (FEMA 2012).

Earthquake events can also significantly affect road bridges, many of which provide the only access to certain neighborhoods. Because softer soils generally follow floodplain boundaries, bridges that cross watercourses should be considered vulnerable. Another key factor in degree of vulnerability is age of facilities and infrastructure, which correlates with standards in place at times of construction.

Hazus also estimates the volume of debris that may be generated as a result of an earthquake event to enable the study region to prepare and rapidly and efficiently manage debris removal and disposal. Debris estimates are divided into two categories: (1) reinforced concrete and steel that require special equipment to break it up before it can be transported, and (2) brick, wood, and other debris that can be loaded directly onto trucks with bulldozers (FEMA, 2020).





For the 500-year and 2,500-year MRP events, Hazus estimates a total of 7,663 tons and 62,978 tons of debris will be generated county-wide, respectively. Table 5.4.3-19 summarizes the estimated debris generated as a result of these events by municipality.

**Table 5.4.3-19. Estimated Debris Generated by the 500-Year and 2,500-Year MRP Earthquake Events**

Jurisdiction	Estimated Debris Created During the 500-Year Mean Return Period Earthquake Event**		Estimated Debris Created During the 2500-Year Mean Return Period Earthquake Event**	
	Brick/Wood (tons)	Concrete/Steel (tons)	Brick/Wood (tons)	Concrete/Steel (tons)
Bolton (T)	199	44	1,400	588
Chester (T)	479	134	3,371	1,745
Glens Falls (C)	1,093	449	5,915	5,411
Hague (T)	97	51	755	662
Horicon (T)	161	84	1,259	1,104
Johnsburg (T)	316	149	2,622	2,210
Lake George (T)	270	120	1,925	1,672
Lake George (V)	66	29	470	409
Lake Luzerne (T)	217	51	1,183	492
Queensbury (T)	1,822	735	10,950	9,868
Stony Creek (T)	186	43	1,176	524
Thurman (T)	244	57	1,546	689
Warrensburg (T)	382	185	2,546	2,484
<b>Warren County (Total)</b>	<b>5,531</b>	<b>2,132</b>	<b>35,119</b>	<b>27,858</b>

Sources: Hazus v5.1; NYSDHES

### Impact on the Environment

According to USGS, earthquakes can cause damage to the surface of the Earth in various forms depending on the magnitude and distribution of the event (USGS 2020). Surface faulting is one of the major seismic components to earthquakes that can create wide ruptures in the ground. Ruptures can have a direct impact on the landscape and natural environment because they can disconnect habitats for miles isolating animal species or tearing apart plant roots.

Furthermore, ground failure as a result of soil liquefaction can have an impact on soil pores and retention of water resources (USGS 2020). The greater the seismic activity and liquefaction properties of the soil, the more likely drainage of groundwater can occur which depletes groundwater resources. In areas where there is higher pressure of groundwater retention, the pores can build up more pressure and make soil behave more like a fluid rather than a solid increasing risk of localized flooding and deposition or accumulation of silt.





### Future Changes That May Impact Vulnerability

Understanding future changes that impact vulnerability in the County can assist in planning for future development and ensure establishment of appropriate mitigation, planning, and preparedness measures. The County considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

According to the NYS Hazard Mitigation Plan, the frequency of damaging earthquakes within and adjacent to New York State has been relatively low. However geologists predict that an earthquake of magnitude 5.0 [some sources describe 5.0 as moderately destructive] or above on the Richter scale has a 2% probability of occurring in the New York area within the next 50 years.

#### *Projected Development*

As discussed and illustrated in Section 4 (County Profile), areas targeted for future growth and development have been identified across the County. Development built in areas with softer NEHRP soil classes, liquefaction, and landslide-susceptible areas may experience shifting or cracking in the foundation during earthquakes because of the loose soil characteristics of these soil classes. However, current building codes require seismic provisions that should render new construction less vulnerable to seismic impacts than older, existing construction that may have been built to lower construction standards.

Additionally, persons that move into older buildings may increase their overall vulnerability to earthquakes. As noted earlier, if moving into new construction, current building codes require seismic provisions that should render new construction less vulnerable to seismic impacts.

Refer to Section 4, and Volume II Section 9 for more information about the potential new development in Warren County.

#### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). Even though the population has not significantly increased overall, changes in population density within county communities should be evaluated to determine if high population densities can create issues for local residents during an event.





#### *Climate Change*

Because the impacts of climate change on earthquakes are not well understood, a change in the County's vulnerability as the climate continues to change is difficult to determine. However, climate change has the potential to magnify secondary impacts of earthquakes. As a result of the climate change projections discussed above, the County's assets located on areas of saturated soils and on or at the base of steep slopes, are at a higher risk of landslides/mudslides because of seismic activity.

#### *Change of Vulnerability Since the 2017 HMP*

Since the 2017 HMP was drafted, updated inventory data has become available to assess the earthquake in Warren County. This data includes the 5-Year 2021 American Community Survey population estimates, updated 2021 tax assessor parcel data, 2020 general building stock data provided by the County, 2021 RS Means for building stock replacement cost valuation, and updated critical facility data provided by the County's Planning Partners. Hazus v5.1 was also used to assess the losses in the County to the earthquake 500-year and 2500-year mean return period events. Overall, this vulnerability assessment uses a more accurate and updated asset inventory which provides more accurate estimated exposure to the earthquake hazard.





## 5.4.4 Extreme Temperatures

### Hazard Profile

---

#### Hazard Description

Extreme temperature includes both heat and cold events, which can have a significant impact to human health, commercial/agricultural businesses, and primary and secondary effects on infrastructure (such as burst pipes and power failure). What constitutes “extreme cold” or “extreme heat” can vary across different areas of the country, based on the population’s experience.

#### *Extreme Cold*

Extreme cold events occur when temperatures drop well below normal in an area. For example, near-freezing temperatures are considered “extreme cold” in regions relatively unaccustomed to winter weather. Conversely, “extreme cold” might be used to describe temperatures below 0° F in regions that are subjected to temperatures below freezing on more of a regular basis. For the purposes of this HMP, extreme cold temperatures are characterized when the ambient air temperature drops to approximately 0 degrees Fahrenheit (°F) or below (National Weather Service n.d.). Extensive exposure to extreme cold temperatures can cause frostbite or hypothermia and can become life-threatening. Extreme cold also can cause emergencies in susceptible populations, such as those without shelter, those who are stranded, or those who live in a home that is poorly insulated or without heat (such as mobile homes). Infants and the elderly are most susceptible to the effects of extreme changes in temperatures and are particularly at risk, but anyone can be affected (Center for Disease Control and Prevention [CDC] 2012).

In New York State, extreme cold days are defined to reflect the State’s regional climate variations. Extreme cold days in the State are individual days with minimum temperatures at or below 32° F or individual days with minimum temperatures at or below 0°F (NYSERDA 2014).

Several health hazards are related to extreme cold temperatures and include wind chill, frostbite, and hypothermia.

- *Wind chill* is not the actual temperature but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature.
- *Frostbite* is damage to body tissue caused by extreme cold. A wind chill of -20°F will cause frostbite in just 30 minutes. Frostbite can cause a loss of feeling and a white or pale appearance in extremities.
- *Hypothermia* is a condition brought on when the body temperature drops to less than 95°F, and it can be deadly. Warning signs of hypothermia include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion





### Extreme Heat

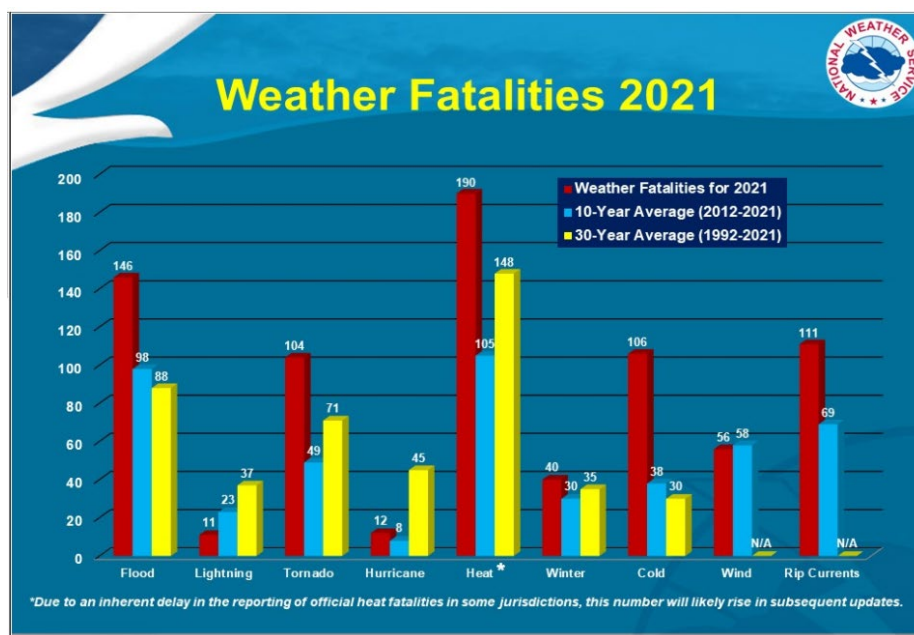
Extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for a region and that last for several weeks (Center for Disease Control and Prevention [CDC] 2012). Humid or muggy conditions occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground. A heat wave is a period of abnormally and uncomfortably hot and unusually humid weather. A heat wave will typically last two or more days (NOAA 2009).

In New York State, high temperatures and heat waves are defined in several ways to reflect the diversity of conditions experienced across the State. Extreme hot days in New York State are defined as individual days with maximum temperatures at or above 90° F or 95°F. Heat waves are defined as three consecutive days with maximum temperatures above 90° F (NYSERDA 2014).

Depending on severity, duration, and location; extreme heat events can create or provoke secondary hazards including, but not limited to, dust storms, droughts, wildfires, water shortages, and power outages. These secondary hazards could result in a broad and far-reaching set of impacts throughout a local area or an entire region. Impacts could include significant loss of life and illness; economic costs in transportation, agriculture, production, energy, and infrastructure; and losses of ecosystems, wildlife habitats, and water resources (NYS DHSES 2019).

Extreme heat is the number one weather-related cause of death in the U.S. On average, nearly 150 people die each year in the United States from excessive heat (NWS 2021). Figure 5.4.4-1 shows the number of weather fatalities based on a 10-year average and a 30-year average. Heat caused the highest average of weather-related fatalities between 2012 and 2021.

**Figure 5.4.4-1. Average Number of Weather-Related Fatalities in the U.S.**



Source: NWS 2021

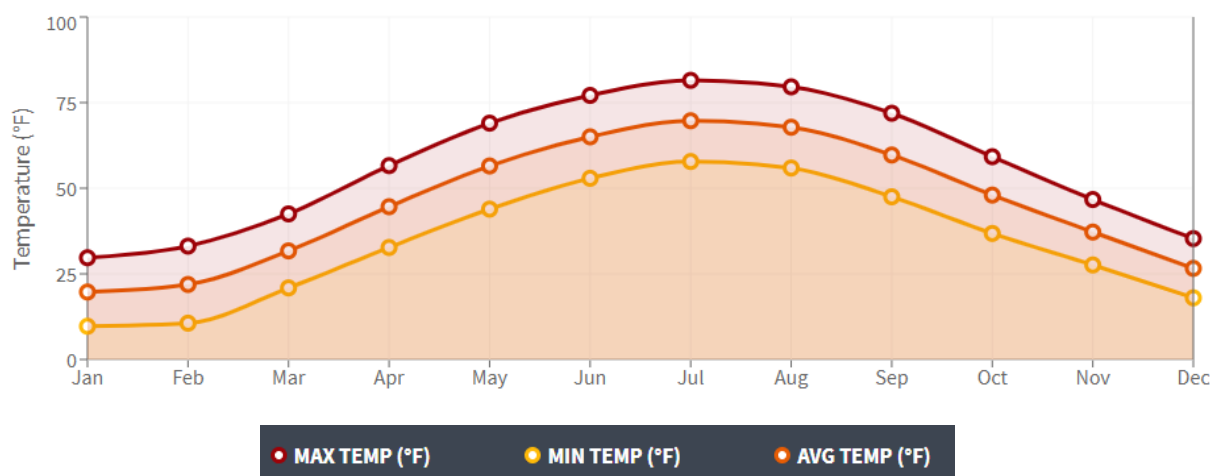




## Location

Varying land elevations, character of the landscape, and proximity to large bodies of water play a significant role in the state's temperatures. Warren County is susceptible to both extreme cold and extreme heat temperature events. Figure 5.4.4-2 shows the average low and high temperatures each month at the Glens Falls Airport station located in Warren County.

**Figure 5.4.4-2. Average Temperatures at Glens Falls Airport**



Source: NOAA NCEI 2023

Extensive periods of extreme cold temperatures are a result from movement of great high-pressure systems into and through the eastern United States. Under higher-than-normal atmospheric pressures when arctic air masses are present, extreme winter temperatures hover over New York. New York State's location in the northeast makes it highly susceptible to extreme cold that can cause impact to human life and property (NYS DHSES 2019). Extreme cold temperatures occur throughout most of the winter season and generally accompany most winter storm events throughout the state. The NYSC Office of Cornell University indicates that cold temperatures prevail over the state whenever arctic air masses, under high barometric pressure, flow southward from central Canada or from Hudson Bay (Cornell University n.d.).

Excessive heat can occur anywhere, and occurrences of excessive heat are generally widespread and will cover an entire county. However, there can be spot locations that are somewhat cooler (e.g., a shady park near a stream) or hotter (e.g., urban areas because of their built environment holds the heat) (NYS DHSES 2019). Extreme heat temperatures of varying degrees exist throughout the state for most of the summer season, except for areas with high altitudes (Cornell University n.d.).

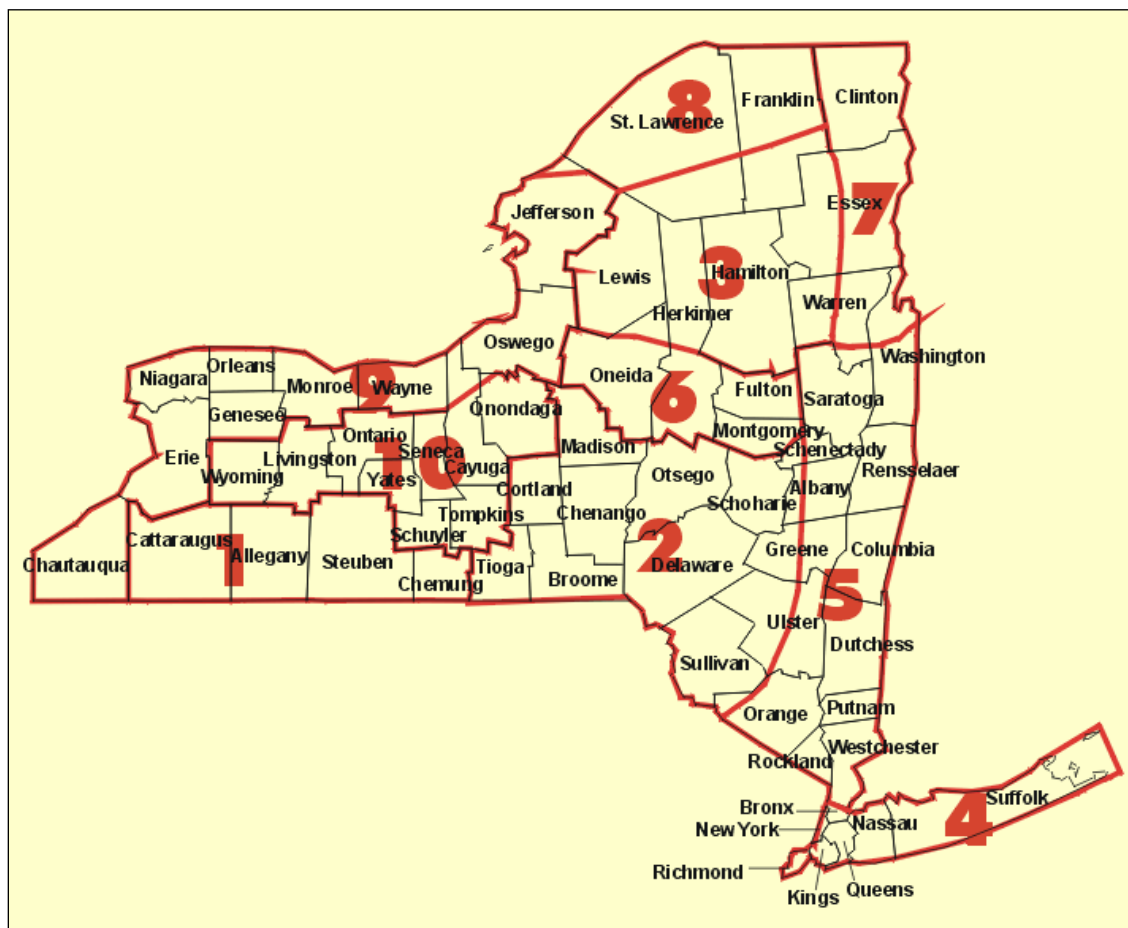
New York State is divided into 10 climate divisions: Western Plateau, Eastern Plateau (Catskill Mountains), Northern Plateau (Adirondack Mountains), Coastal, Hudson Valley, Mohawk Valley, Champlain Valley, St. Lawrence Valley, Great Lakes, and Central Lakes. According to NCDC, "Climatic divisions are regions within each state that have been determined to be reasonably climatically





homogeneous” (NOAA 2012). Warren County is located within three divisions. The western portion of the County is located in the Northern Plateau (Division 3). The eastern portion of the County is located in the Champlain Valley (Division 7). The southern portion of the County is located in the Hudson Valley (Division 5). Figure 5.4.4-3 depicts the climate divisions in New York State.

**Figure 5.4.4-3. New York State Climate Divisions**



Source: NOAA 2012

Notes: (1) Western Plateau; (2) Eastern Plateau (Catskill Mountains); (3) Northern Plateau (Adirondack Mountains); (4) Coastal; (5) Hudson Valley; (6) Mohawk Valley; (7) Champlain Valley; (8) St. Lawrence Valley; (9) Great Lakes; and (10) Central Lakes

## Extent

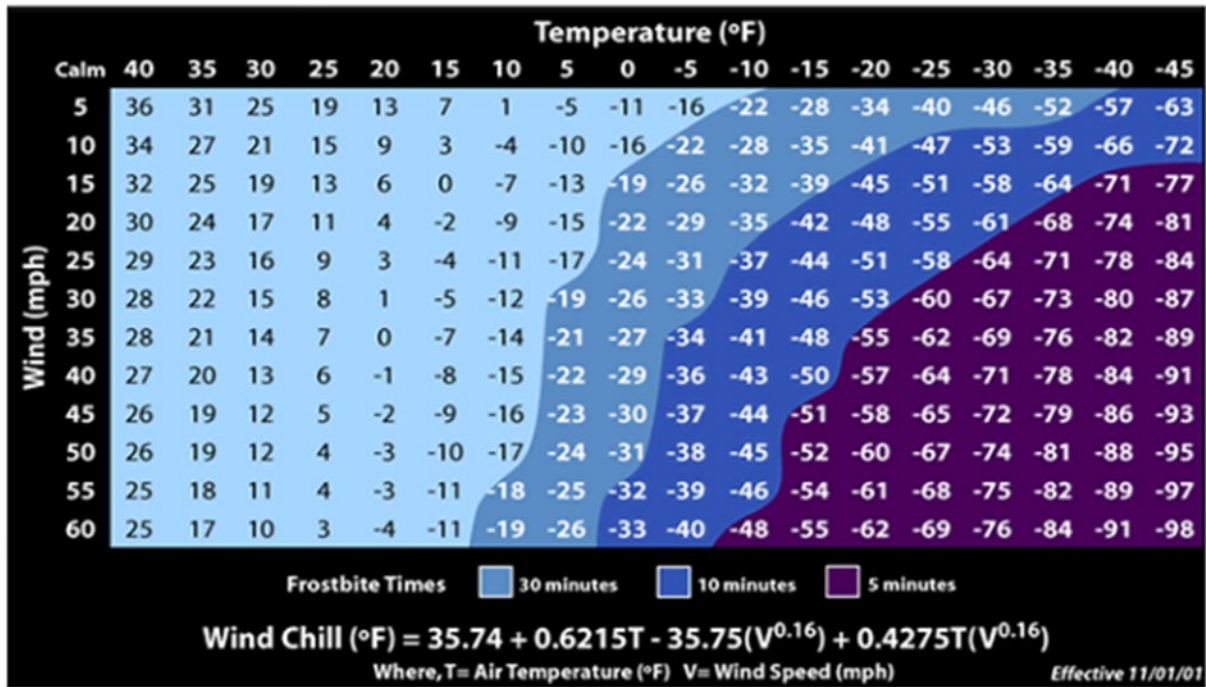
### Extreme Cold

The extent (severity or magnitude) of extreme cold temperatures is generally measured through the Wind Chill Temperature (WCT) Index. The index uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from wind chill. For details regarding the WCT, refer to: [Winter \(weather.gov\)](http://winter.weather.gov). The WCT is presented in Figure 5.4.4-4.





Figure 5.4.4-4. Wind Chill Index



Source: NWS 2001

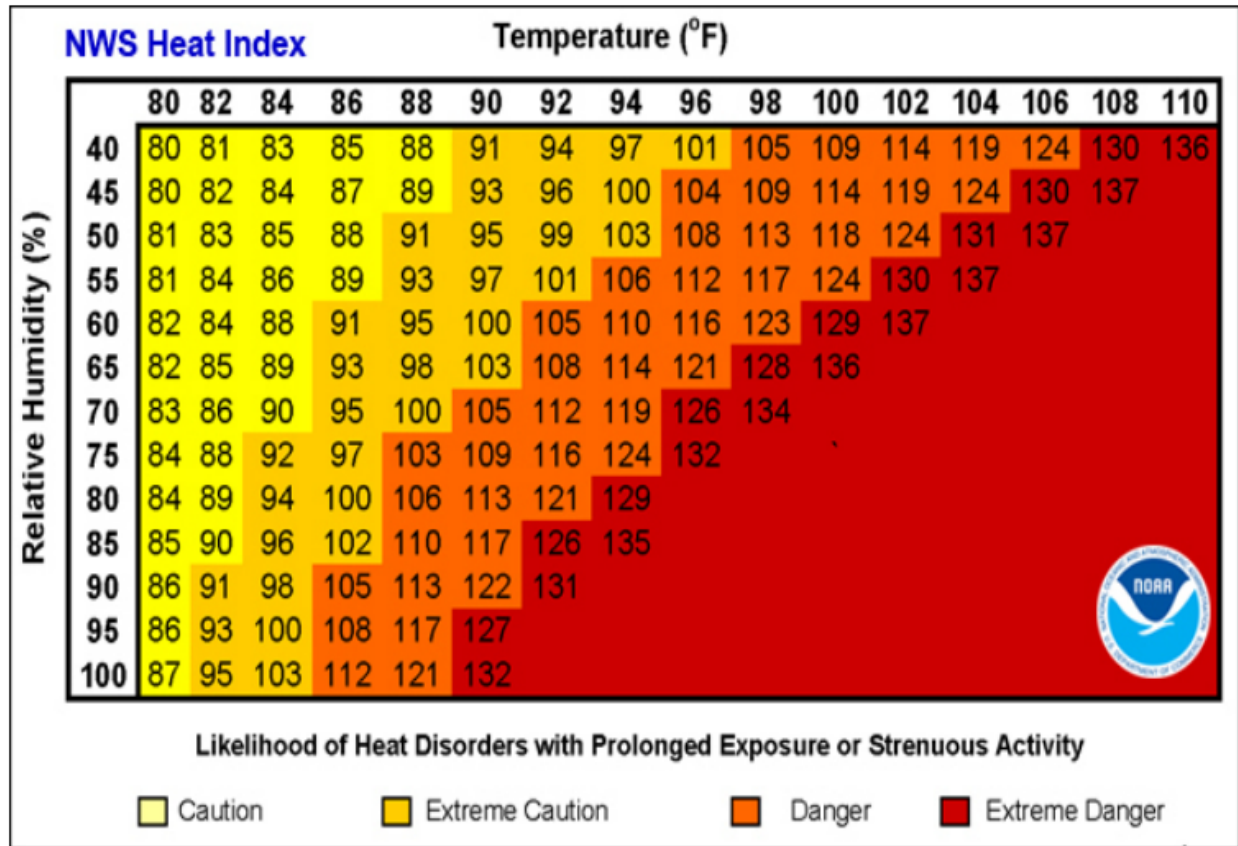
#### Extreme Heat

The extent of extreme heat temperatures is generally measured through the Heat Index, identified in Figure 5.4.4-5. Created by the NWS, the Heat Index is a chart that accurately measures apparent temperature of the air as it increases with the relative humidity. The temperature and relative humidity are needed to determine the Heat Index. Once both values have been identified, the Heat Index is the corresponding number of both values (as seen in Figure 5.4.4-5). This index provides a measure of how temperatures actually feel; however, the values are devised for shady, light wind conditions. Figure 5.4.4-5 shows the heat index value for shaded areas. Exposure to full sun can increase the index by up to 15 degrees (NYSDHSES n.d.).





Figure 5.4.4-5. NWS Heat Index Chart – Shaded Areas



Source: NWS

Table 5.4.4-1 describes the adverse effects of prolonged exposure to direct sunlight on an individual.

Table 5.4.4-1. Adverse Effects of Prolonged Exposure to Direct Sunlight

Category	Heat Index	Effects on the Body
Caution	80°F – 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F – 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F – 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

Source: NWS





The National Weather Service (NWS) provides alerts when Heat Indices approach hazardous levels. Table 5.4.4-2 explains these alerts. In the event of an extreme heat advisory, the NWS does the following:

- Includes Heat Index values and city forecasts
- Issues special weather statements including who is most at risk, safety rules for reducing risk, and the extent of the hazard and Heat Index values
- Provides assistance to state and local health officials in preparing Civil Emergency Messages in severe heat waves (NYSDHSES n.d.).

**Table 5.4.4-2. National Weather Service Alerts**

Alert	Criteria
Heat Advisory	Issued 12 hours of the onset of the following conditions: maximum daytime heat index values are to reach between 100°F to 104°F for at least 2 consecutive hours
Excessive Heat Watch	Issued when conditions are favorable for excessive heat in the next 24 to 72 hours
Excessive Heat Warning	Issued within 12 hours of the onset of the following conditions: maximum heat index temperature is expected to be 105°F or higher for at least 2 days and nighttime air temperatures will not drop below 75°F

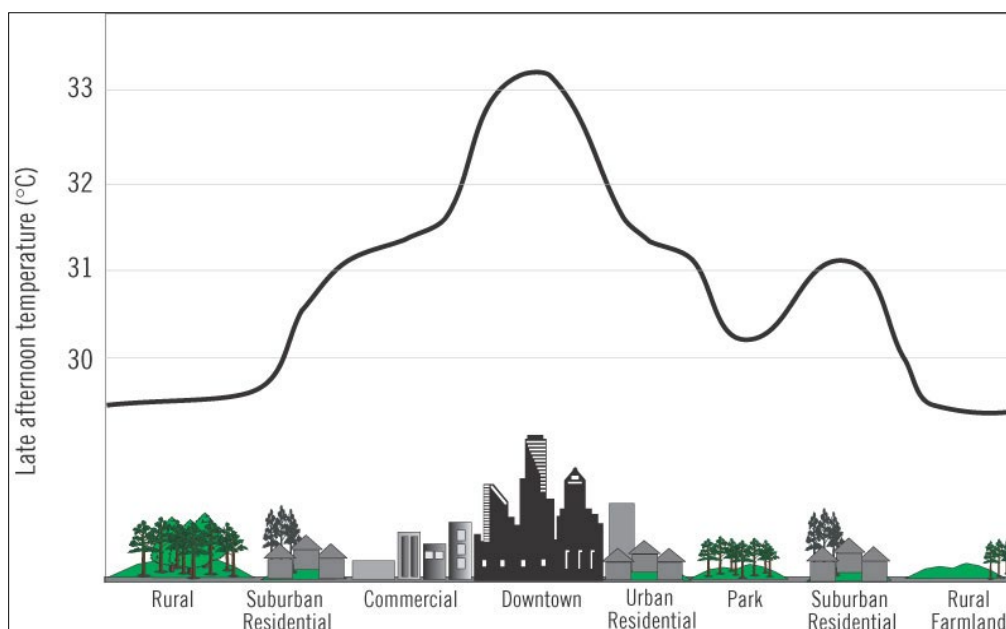
Source: NYSDHSES n.d.

Urbanized areas and urbanization create an exacerbated type of risk during an extreme heat event, compared to rural and suburban areas. As these urban areas develop and change, so does the landscape. Buildings, roads, and other infrastructure replace open land and vegetation. Surfaces that were once permeable and moist are now impermeable and dry. These changes cause urban areas to become warmer than the surrounding areas. This forms an ‘island’ of higher temperatures (EPA 2022). The centralized developed areas of the County that may be subject to urban heat island effect are focused in the southeastern areas of the County, though urban heat island can occur anywhere with extensive developed surfaces.

The term ‘heat island’ describes built-up areas that are hotter than nearby rural areas. The annual mean air temperature of a city with more than 1 million people can be between 1.8 °F and 5.4°F warmer than its surrounding areas. In the evening, the difference in air temperatures can be as high as 22°F. Heat islands occur on the surface and in the atmosphere. On a hot, sunny day, the sun can heat dry, exposed urban surfaces to temperatures 50°F to 90°F hotter than the air. Heat islands can affect communities by increasing peak energy demand during the summer; thereby escalating air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and death, and water quality degradation (EPA 2022).

Figure 5.4.4-6 below illustrates an urban heat island profile. The graphic demonstrates that heat islands are typically most intense over dense urban areas. Further, vegetation and parks within a downtown area may help reduce heat islands (U.S. EPA 2019).



**Figure 5.4.4-6. Urban Heat Island Profile**

Source: EPA 2019  
°C degrees Celsius

## Previous Occurrences

### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was not included in any disaster (DR) or emergency (EM) declarations for extreme temperature-related events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2023). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

### *USDA Declarations*

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was included in two extreme temperature-related agricultural disaster declarations.

- 2012: S3249 for frosts and freezes
- 2016: S4052 for unseasonable warmth followed by frosts and freezes

### *Previous Events*

For this 2023 HMP update, known extreme temperature events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to Appendix E (Supplementary Data).





**Table 5.4.4-3. Extreme Temperature Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
December 27, 2017	Extreme Cold/Wind Chill, Cold/Wind Chill	N/A	N/A	A frigid Arctic air mass poured into the region Wednesday, December 27th along with gusty northwesterly winds. Despite gusty winds, low temperatures fell to as low as zero to 23 degrees below zero over the high terrain of eastern New York on Wednesday night. This resulted in wind chill values as low as 35 degrees below zero late Wednesday night into early Thursday morning. Bitterly cold wind chills continued through Thursday and into Friday morning.
December 31, 2017	Cold/Wind Chill	N/A	N/A	A bitterly cold air mass in place allowed temperatures to plummet several degrees below zero on New Years Eve into New Years Day. Temperatures ranged from zero degrees to 28 degrees below zero in the high terrains of New York. These cold temperatures resulted in dangerous wind chills ranging from one below to 31 degrees below zero during the early morning hours of New Years day.
January 1-2, 2018	Extreme Cold/Wind Chill	N/A	N/A	A frigid airmass combined with northwesterly winds up to 15 miles per hour resulted in dangerously cold wind chills on the first and second days of 2018. Wind chills fell as low as 15 to 35 below zero in many locations across the region on New Year's morning.
January 5-7, 2018	Extreme Cold/Wind Chill	N/A	N/A	<p>A deep upper level trough swept across the southern US and turned northeastward offshore of the east coast from the morning of January 3 through the morning of January 4, 2018. The interaction between the cold upper trough and the relatively warmer Atlantic waters resulted in tremendous intensification of a surface low pressure system that tracked from around Miami, FL to just offshore of Cape Cod on January 3 and 4. A good deal of moisture wrapped into this system and was lifted across much of the East Coast, resulting in a broad area of moderate to heavy snowfall. A heavy band of snow impacted portions of the Taconics from the late morning through the afternoon hours of January 4, resulting in snowfall rates up to 3 per hour and total snowfall amounts mainly in the 7 to 15 inch range. To the west of the heavy snowband across the Hudson, Mohawk, and Schoharie Valleys, a widespread 3 to 7 inches of snowfall occurred. Gusty northerly winds occurred with this system as well, with gusts of 30-45 mph recorded. The winds and falling snow contributed to reduced visibility and blowing and drifting of snow. The snowfall tapered off in the evening of January 4.</p> <p>As the system pulled away, brutally cold Arctic air rushed southward into New York, resulting in an extended period of extremely cold conditions from January 5 through January 7. The coldest wind chills occurred during the mornings of January 6 and 7, when frigid air combined with westerly winds gusting to 30-40 mph resulted in</p>





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				widespread wind chills as low as 20 to 40 degrees below zero. High temperatures on January 6 were mainly in the single digits above and below zero. One confirmed fatality from hypothermia resulted from the stretch of cold weather as a 46-year old woman was found dead in front of her home in Glens Falls. Many warming shelters were opened across the state.
January 13-14, 2018	Cold/Wind Chill	N/A	N/A	Tropical moisture was lifted over a sharp cold front as it moved into eastern New York in the evening of Friday, January 12, causing rain to turn to sleet and snow and become heavy from Friday evening into Saturday morning. Despite warm temperatures in the 50s during the day, snowfall accumulated 6 to 12 inches over northern Herkimer County as temperatures fell into the 20s and 30s. Temperatures continued to plummet behind the cold front, with frigid wind chills as low as -25F by the morning of Sunday, January 14.
June 18, 2018	Heat	N/A	N/A	A hot and humid airmass was in place across the region with temperatures in the 90s and dew points in the 60s and 70s. This resulted in heat index values reaching 100 to 110 degrees during the afternoon hours in valley areas.
June 30, 2018	Heat	N/A	N/A	A hot and humid airmass invaded eastern New York beginning on June 30th. It would be the beginning of a heat wave that would last through the Independence Day holiday, and marked the first of several days of 90 degree heat. Combined with dewpoints in the mid-70s, heat indices reached around 100 degrees. The impending heat wave prompted the opening of numerous cooling centers throughout the region.
July 1-5, 2018	Excessive Heat	N/A	N/A	A hot and humid airmass brought excessively high heat indices to eastern New York from the beginning of July through the Independence Day holiday. Temperatures soared as high as 99 degrees on July 1st, the hottest day of the stretch. Combined with dewpoints in the mid-70s, heat indices reached near 110 degrees in the warmest valleys. July 5th marked the sixth consecutive day reaching a temperature of 90 degrees at Albany and Glens Falls, and a seventh consecutive day at Poughkeepsie. In addition to the hot daytime temperatures, overnight low temperatures only falling into the 70s was common, which exacerbated heat-related problems. The extensive heat prompted the opening of many cooling centers across the region.
July 16, 2018	Heat	N/A	N/A	It was hot and humid on July 16th as temperatures soared into the low to mid-90s with dewpoints in the upper 60s to low 70s in the Hudson and Mohawk Valleys. This resulted in heat indices reaching the mid to upper 90s.





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
September 3-5, 2018	Heat	N/A	N/A	A late-season heat wave impacted eastern New York during the first week of September. A persistent warm and moist airmass characterized by daytime highs in the 90s and dewpoints in the 70s resulted in heat index values reaching 95-105 degrees during the afternoon hours. Daily record high temperatures were set or tied at Albany on the 5th and 6th, and a daily record high minimum temperature was set on the 3rd. This heat wave coincided with the first week of school for many, and the heat prompted some schools to dismiss classes early and postpone or cancel sports practices.
November 22, 2018	Cold/Wind Chill	N/A	N/A	A frigid airmass arrived in the wake of an Arctic cold front on the 22nd, resulting in one of the coldest Thanksgivings on record for eastern New York. Wind chill values fell to -15 to -20 degrees Fahrenheit during the morning of the 22nd, while high temperatures only reached the single digits and teens.
January 20-22, 2019	Extreme Cold/Wind Chill	N/A	N/A	<p>The largest snowstorm to date in the 2018-19 winter occurred on January 19th and 20th across eastern New York. Low pressure formed over the lower Mississippi Valley and lifted northeast across the Tennessee Valley during the night of the 19th before moving along the Mason-Dixon line on the 20th. Snowfall totals were heaviest from the central Mohawk Valley into the southern Adirondacks and Lake George-Saratoga region where 1.5 to 2 foot totals were common. Three to six inches of snow and sleet along with some ice occurred over the Mid- Hudson Valley, while the remainder of the region saw between 6 and 18 inches.</p> <p>The snowfall resulted in the cancellation of many weekend activities along with all flights from Albany International Airport scheduled to leave the morning and afternoon of the 20th. The governor of New York banned buses and tractor trailers from nearly the entire New York State Thruway and most interstate highways during the storm. States of emergency were declared for Albany and Saratoga Counties. Also, around 200 customers lost power due to the freezing rain in Ulster and Dutchess Counties.</p> <p>Frigid temperatures followed the snow for Monday and Tuesday, January 21st-22nd, with wind chills falling to -20 to -40F across most of the region. The cold weather prompted the closing of schools and the opening of warming shelters across the region.</p>
January 30-31, 2019	Cold/Wind Chill	N/A	N/A	An arctic cold front tracked through eastern New York during the afternoon of the 30th, accompanied by a heavy snow squall. Frigid air poured in behind this front along with strong westerly winds. Wind chills the morning of the 31st fell to 15 to 35 degrees below zero. The wind chills prompted many schools to close or delay opening, and there were several reports of water main breaks due to the cold. In addition to the frigid





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				temperatures, a heavy band of lake effect snow developed off of Lake Ontario and impacted far northern portions of Herkimer County from the evening of the 30th through the late evening of the 31st. Snowfall amounts of 8 to 12 inches occurred in this band.
February 1, 2019	Cold/Wind Chill	N/A	N/A	An arctic airmass that had infiltrated the region during the last two days of January persisted into the morning of February 1st. Wind chills fell to 15 to 35 degrees below zero. The wind chills prompted many schools to close or delay opening.
July 19–20, 2019	Heat	N/A	N/A	<p>A heat wave gripped eastern New York from July 19th through the 21st. Temperatures soared into the low to mid-90s with dewpoints in the low to mid-70s. This resulted in heat index values in the 100 to 110 range in the warmest spots of the Hudson Valley. Saturday, July 20th was the hottest day for most areas. Due to the excessive heat, area cities extended hours for pools and cooling centers.</p> <p>The hot and humid airmass provided fuel for thunderstorms that formed along the Lake Ontario shoreline during the late afternoon of the 20th. Two clusters of storms moved from the Mohawk Valley through the Capital District and into the Taconics during the evening, resulting in several reports of wind damage.</p>
December 18–19, 2019	Cold/Wind Chill	N/A	N/A	In the wake of an arctic frontal boundary, dangerously cold air filtered into the region. This arctic air combined with northerly winds, resulted in wind chills ranging from 10 degrees to 25 degrees below zero. The coldest wind chills occurred in the southern Adirondacks.
July 9, 2020	Heat	N/A	N/A	A hot and humid airmass was in place over the Hudson and Mohawk Valleys on July 9th. Heat indices ranged from 90 to 100 degrees Fahrenheit over most of the area.
July 11, 2020	Heat	N/A	N/A	A hot and humid airmass resulted in heat indices around 95 degrees during the afternoon and evening of July 11th in the Hudson Valley. A severe thunderstorm developed in this airmass and moved through the Mid-Hudson Valley during the evening, resulting in a couple of wind damage reports.
July 19–20, 2020	Heat	N/A	N/A	Temperatures soared into the 90s throughout much of eastern New York on July 19th, reaching as high as the mid to upper 90s in the Hudson and Mohawk Valleys. The combination of the heat and a humid airmass brought heat indices into the 95 to 105 degree range. The heat prompted the opening of cooling centers and pools, but with reduced capacity due to the ongoing coronavirus pandemic. In addition, a line of thunderstorms moved in from the west during the evening, resulting in a few reports of wind damage in the Schoharie and Mid-Hudson Valleys. Heat indices exceeded 95





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				degrees again in some of the lower elevations of the Hudson Valley again on July 20th, but were not quite as high as the previous day.
July 27, 2020	Heat	N/A	N/A	Another hot and humid airmass impacted portions of eastern New York on July 27th and 28th. Heat indices reached 95 to 105 degrees on the 27th in the Hudson and Mohawk Valleys. In addition, a severe thunderstorm caused an isolated wind damage report during the evening. Some areas saw relief from the heat on the 28th, but heat indices exceeded 95 degrees again for portions of the Mid-Hudson Valley. At Poughkeepsie, there were 17 days where the temperature reached 90 degrees during the month of July, tying a record. With an average temperature of 77.8 degrees, July 2020 was the hottest month on record.
August 10-11, 2020	Heat	N/A	N/A	A hot and humid airmass was in place across the region. This resulted in scattered thunderstorms during the afternoon and evening of August 10th. Heat indices reached the 95 to 100 degree range across the advisory area on Monday, August 10th with heat indices of the same magnitude subdued further south during the afternoon hours of August 11th.
January 28-29, 2021	Cold/Wind Chill	N/A	N/A	A combination of an arctic airmass and gusty winds resulted in dangerously cold wind chills across much of eastern New York the night of January 28th into January 29th, 2021. Low temperatures ranged from 10 degrees below zero in the southern Adirondacks up to 10 degrees above zero in the mid-Hudson Valley. Wind chill values ranged from 28 degrees below zero in the southern Adirondacks up to 3 degrees above zero in the mid-Hudson Valley.
March 2, 2021	Cold/Wind Chill	N/A	N/A	<p>A strong cold front moved across the region on Monday, March 1 advecting in a much colder air mass along with a prolonged period of strong to locally damaging winds which continued into the early part of Tuesday, March 2. Wind gusts between 40 and 60 mph were common across the region, which led to reports of downed trees and power lines, resulting in scattered power outages. The more concentrated areas without power included around the Capital District and into Ulster County in the mid-Hudson Valley.</p> <p>As colder air moved into the region, a few snow showers and squalls passed across the region during the evening hours of March 1. At the Albany International Airport, visibility dropped to one quarter of a mile with a peak wind gust of 46 mph within a snow squall, which lasted for about 17 minutes.</p>





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				<p>Colder air continued to filter into the region during the overnight and early morning hours of March 2 with low temperatures mainly in the single digits and teens, but below zero in the typical colder spots in the higher elevations. This, combined with continued gusty winds, led to wind chill values falling to between 15 and 24 degrees below zero in some areas.</p> <p>Key Impacts: tree damage, power outages, road closures, transportation delays.</p>
June 7, 2021	Heat	N/A	N/A	An area of high pressure across the western Atlantic Ocean advected in a hot and humid air mass into the region on Monday, June 7, 2021. The combination of heat and humidity led to heat index values peaking around 95 degrees for areas mainly along the Hudson River during the afternoon hours.
June 21, 2021	Heat	N/A	N/A	A lifting warm front across the region brought a hot and humid air mass into the region, leading to maximum heat indices reaching 95 to 98 degrees across some valley locations of eastern New York. An approaching cold front from the west led to numerous showers and thunderstorms during the afternoon and evening hours. Some of these storms became severe with several reports of downed trees and power lines.
June 28-29, 2021	Heat	N/A	N/A	A hot and humid airmass developed over eastern New York on the 27th and persisted through the 30th. Heat indices of 95 to 105 degrees were common, with the highest values on the 28th and 29th. The high reached the 90s for all four days at Poughkeepsie, and three days at Albany and Glens Falls.
August 11, 2021	Heat	N/A	N/A	A dome of high pressure settled across eastern New York from Wednesday, August 11 to Friday, August 13 bringing high heat and humidity each day, mainly during the afternoon hours. Heat indices reached 95 to 104 degrees across parts of the area each of these days with areas along the Hudson River from Albany and points southward reaching 105 to 110 on Thursday, August 12. The Hudson Valley Regional Airport recorded an official heat wave with high temperatures all three days in the low to mid-90s.
August 26, 2021	Heat	N/A	N/A	A hot and humid air mass developed ahead of an approaching cold front across eastern New York on Thursday, August 26, 2021. Heat indices reached 95 to 101 degrees across most areas outside of the higher elevations during the afternoon hours. The cold front slowly dropped southward during the day on Friday, August 27, 2021, but heat indices still reached 95 to 100 degrees across portions of the mid-Hudson Valley during the afternoon prior to the frontal passage.





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
January 11, 2022	Cold/Wind Chill	N/A	N/A	The passage of an arctic cold front, arrival of arctic high pressure, gusty winds and very cold air led to wind chill values between -15 and -30 degrees Fahrenheit across portions of eastern New York during the overnight and early morning hours on Tuesday, January 11. In preparation for the arrival of cold air, a Code Blue was put in effect for the Capital Region which allowed for emergency overnight shelters to be open for anyone needing assistance.
January 14-15, 2022	Cold/Wind Chill	N/A	N/A	An Arctic high pressure system brought dangerously cold temperatures to eastern New York on January 14 and 15. Wind chills fell to -10 to -35 degrees over most areas on the morning of the 15th.
January 20-21, 2022	Cold/Wind Chill	N/A	N/A	In the wake of a strong cold front, Arctic air invaded the area. This combined with increased winds resulted in below zero wind chills across eastern New York January 20-21. Wind chills got as low as -15F to -25F.
January 29-30, 2022	Cold/Wind Chill	N/A	N/A	In the wake of a strong cold front, Arctic air invaded the area. This combined with increased winds resulted in below zero wind chills across eastern New York January 29-30. Wind chills got as low as -15F to -25F.
July 20, 2022	Heat	N/A	N/A	A prolonged period of hot and humid weather occurred across eastern New York during the second half of July. Both the Albany and Poughkeepsie climate sites had a stretch of six consecutive days with high temperatures of 90 degrees Fahrenheit or above spanning July 19 to July 24. The addition of humidity led to heat indices peaking between 95 and 103 degrees during the afternoon hours across the Hudson Valley on July 20, 21, 23 and 24. The heat prompted the opening of cooling centers throughout the region to assist those that needed relief.
August 4, 2022	Heat	N/A	N/A	A dome of high pressure brought a stretch of hot and humid weather resulting in multiple days of heat indices between 95F and 104F degrees across eastern New York between August 4-9, 2022. On August 4, record high temperatures were set at both Albany and Poughkeepsie, each reaching 99F degrees. Albany and Poughkeepsie also set a new record for the hottest 8-day start to August on record. The stretch of hot weather led to the opening of multiple cooling centers across the region.
August 6-8, 2022	Heat	N/A	N/A	A dome of high pressure brought a stretch of hot and humid weather resulting in multiple days of heat indices between 95F and 104F degrees across eastern New York between August 4-9, 2022.





#### 5.4.4 Extreme Temperatures

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				<p>On August 4, record high temperatures were set at both Albany and Poughkeepsie, each reaching 99F degrees. Albany and Poughkeepsie also set a new record for the hottest 8-day start to August on record.</p> <p>The stretch of hot weather led to the opening of multiple cooling centers in Warren County on August 8. DHSES provides bottled water giveaways.</p>

Sources: NOAA NCEI 2023, FEMA 2023

Notes: 2022 results do not include November or December 2022 due to data limitations





### Probability of Future Occurrences

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of extreme temperature events for the County. Information from NOAA-NCEI storm events database, the 2019 State of New York HMP, the 2017 Warren County HMP, and FEMA were used to identify the number of extreme temperature events that occurred between 1950 and 2022. Table 5.4.4-4 presents the probability of future events for the extreme temperature event in the County.

**Table 5.4.4-4. Probability of Future Hazard Name Events in Warren County**

Hazard Type	Number of Occurrences Between 1950 and 2022	Percent Chance of Occurring in Any Given Year (1950-2022)	Number of Occurrences Between 1996 and 2022	Percent Chance of Occurring in Any Given Year (1996-2022)
Cold/Wind Chill	39	54.17%	39	100%
Excessive Heat	4	5.56%	4	15.38%
Extreme Cold/Wind Chill	12	16.67%	12	46.15%
Heat	31	43.06%	31	100%
<b>Total</b>	<b>86</b>	<b>100%</b>	<b>86</b>	<b>100%</b>

Sources: NOAA NCEI 2023; FEMA 2023

Note: Disaster occurrences include federally declared disasters since the 1950 Federal Disaster Relief Act, and selected drought events since 1968. Due to limitations in data, not all extreme temperature events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is underestimated

A total of 86 extreme temperature events were recorded in Warren County. Based on historical occurrences, the probability of an extreme temperature event occurring is considered Occasional (between 10 and 100% annual chance of occurrence). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

### Climate Change Projections

Climate change is beginning to affect both people and resources in New York State, and these impacts are projected to continue growing. Impacts related to increasing temperatures and heavier precipitation are already being felt in the state. ClimAID: the Integrated Assessment for Effective Climate Change in New York State (ClimAID) was undertaken to provide decision makers with information on the state's vulnerability to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge (NYSERDA 2014).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change, Warren County is part of Region 7 (Indian Lake). In Region 7, it is estimated that temperatures will increase by 4.5°F to 6.4°F by the 2050s and 5.8°F to 10.1°F by the 2080s (baseline of 39.9°F). Average annual temperatures are projected to increase across New York State by 4.1° F to 6.8° F by the 2050s and 5.3° F to 10.1° F by the 2080s with an average rate of warming over the past century of 0.25° F per decade. By the end of the century, the greatest warming is projected to be in the northern section of the State.





Extreme events are also projected to increase, as illustrated in Table 5.4.4-5. Extreme Event Projections for Region 7 below (NYSERDA 2014).

**Table 5.4.4-5. Extreme Event Projections for Region 7**

Event Type (2050s)	Low Estimate (10 <sup>th</sup> Percentile)	Middle Range (25 <sup>th</sup> to 75 <sup>th</sup> Percentile)	High Estimate (90 <sup>th</sup> Percentile)
Days over 90 °F (8 days)	2	3 to 6	10
# Of Heat Waves (0.7 heat waves)	0.2	0.3 to 0.7	1
Duration of Heat Wave (4 days)	3	3 to 4	4
Days below 32 °F (133 days)	131	138 to 154	161
Days over 1" Rainfall (5 days)	7	8 to 9	10
Days over 2" Rainfall (0.6 days)	0.8	0.9 to 1	1

Source: NYSERDA 2014

## Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed or vulnerable in the hazard area identified. The entire County has been identified as exposed for the extreme temperature events. Therefore, all assets in the County (population, structures, critical facilities, and lifelines), as described in the County Profile (Section 4), are exposed and potentially vulnerable. The following text evaluates and estimates the potential impact of extreme temperatures on Warren County, including:

- Impact on Life, Health, and Safety
- Impact on General Building Stock
- Impact on Critical Facilities and Community Lifelines
- Impact on Economy
- Impact on the Environment
- Future Changes That May Impact Vulnerability
- Change of Vulnerability Since the 2017 HMP

### Impact on Life, Health, and Safety

Extreme temperature events have potential health impacts including injury and death. According to the Centers for Disease Control and Prevention, populations most at risk to extreme cold and heat events include the following: (1) the elderly, who are less able to withstand temperatures extremes because of their age, health conditions, and limited mobility to access shelters; (2) infants and children up to 4 years of age; (3) individuals who are physically ill (such as with heart disease or high blood pressure), (4) low-income persons who cannot

According to NOAA's 2001 Winter Storms The Deceptive Killers, approximately 50 percent of the deaths related to extreme cold temperatures happen to people over 60 years old, more than 75 percent of those deaths are male, and about 20 percent occur in the home (NYS DHSES 2014).





afford proper heating and cooling; and (5) members of the general public who may overexert during work or exercise during extreme heat events or experience hypothermia during extreme cold events (CDC 2006).

The entire population of Warren County is exposed to extreme temperature events. According to the 2020 U.S. Census, the County had a population of 65,737. Refer to Section 4 (County Profile) for a summary of population statistics for the County.

#### **Impact on General Building Stock**

Extreme heat generally does not affect buildings; however, losses may be associated with overheating of heating, ventilation, and air conditioning (HVAC) systems. Extreme cold temperature events can damage buildings through freezing and bursting pipes and freeze/thaw cycles. Additionally, manufactured homes (mobile homes) and antiquated or poorly constructed facilities may have inadequate capabilities to withstand extreme temperatures.

All of the building stock in the County is exposed to the extreme temperature hazard; however, direct impacts are expected to be minimal. Refer to Section 4 (County Profile), which summarizes the building inventory in Warren County.

#### **Impact on Critical Facilities and Community Lifelines**

Similar to the general building stock, all critical facilities in the County are exposed to the extreme temperature hazard; however, direct impacts are expected to be minimal. Impacts to critical facilities are the same as were described for general building stock. Additionally, it is essential that critical facilities remain operational during natural hazard events. Extreme heat events can sometimes cause short periods of utility failures, commonly referred to as “brown-outs,” created by increased usage from air conditioners, appliances, and similar equipment. Similarly, heavy snowfall and ice storms, associated with extreme cold temperature events, can interrupt power as well. Backup power is recommended for critical facilities and infrastructure.

#### **Impact on the Economy**

Extreme temperature events also have impacts on the economy, including loss of business function and damage and loss of inventory. Business owners may be faced with increased financial burdens due to unexpected repairs caused to the building (pipes bursting), higher than normal utility bills, or business interruption caused by power failure (loss of electricity and telecommunications).

The agricultural industry is most at risk in terms of economic impact and damage caused by extreme temperature events. Extreme heat events can result in drought and dry conditions and directly affect livestock and crop production.

Based on the 2017 Census of Agriculture, 80 farms were present in Warren County, encompassing 10,086 acres of total farmland. The average farm size was 126 acres. Warren County farms had a total





market value of products sold of \$1.9 million, averaging \$23,949 per farm (USDA 2017). Table 5.4.4-6 lists the acreage of agricultural land exposed to extreme temperature hazards.

**Table 5.4.4-6. Agricultural Land in Warren County in 2017**

Number of Farms	Land in Farms (acres)	Total Cropland (acres)	Total Pastureland (acres)	Acres Irrigated
80	10,086	908	706	20

Source: USDA 2017

In 2017, the top three agricultural products sold in Warren County were nursery, greenhouse, floriculture, and sod at \$1.2 million, other crops and hay at \$195,000, and vegetables, melons, potatoes, and sweet potatoes at \$53,000 (USDA 2017).

If an extreme temperature event impacted 40 percent of the agricultural products sold from Warren County farms, based on 2017 market values, this would be a loss of \$760,000. This figure does not include how the tourism industry and local jobs are impacted.

### Impact on the Environment

Extreme temperature events can have a major impact on the environment. For example, freezing and warming weather patterns create changes in natural processes. An excess amount of snowfall and earlier warming periods may affect natural processes such as flow within water resources (USGS 2020). Extreme heat events can have particularly negative impacts on aquatic systems, contributing to fish kills, aquatic plant die offs, and increased likelihood of harmful algal blooms.

### Future Changes That May Impact Vulnerability

Understanding future changes that impact vulnerability in the County can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The county considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in the population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

### Projected Development

The ability of new development to withstand extreme temperature impacts can be enhanced through land use practices and consistent enforcement of codes and regulations for new construction. New development will change the landscape where buildings, roads, and other infrastructure potentially replace open land and vegetation. Transformation of pervious surfaces (including vegetation) to impervious surfaces causes an island of higher temperatures. Specific areas of recent and new development are indicated in tabular form and/or on the hazard maps included in the jurisdictional annexes in Volume II, Section 9 (Jurisdictional Annexes) of this plan.





### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). . Increases in the population throughout Warren County could increase the County's risk to extreme temperature events. Refer to section 4 (County Profile), which includes a discussion about population trends for the County.

### *Climate Change*

As discussed above, most studies project that the State of New York will see an increase in average annual temperatures and precipitation. As the climate warms, extreme cold events might decrease in frequency, while extreme heat events might increase in frequency; the shift in temperatures could also result in hotter extreme heat events. With increased temperatures, vulnerable populations could face increased vulnerability to extreme heat and its associated illnesses, such as heatstroke and cardiovascular and kidney disease. Additionally, as temperatures rise, more buildings, facilities, and infrastructure systems may exceed their ability to cope with the heat.

### **Change of Vulnerability Since the 2017 HMP**

Overall, the entire County remains vulnerable to extreme temperatures. As existing development and infrastructure continue to age, they can be at increased risk to failed utility systems (e.g., HVAC) if they are not properly maintained. Similarly, an increase in the elderly population remaining in the County increases the vulnerable population.





## 5.4.5 Flood

### Hazard Profile

---

#### Hazard Description

A flood is an overflow of water from oceans, rivers, groundwater, or rainfall that submerges areas that are usually dry. This natural phenomenon can be exacerbated by features of the built environment.

Flood is a natural hazard that can occur during any season. Flooding typically occurs during prolonged rainfalls over several days, intense rainfalls over a short period of time, or when an ice or debris jam causes a river or stream to overflow onto the surrounding area. The most common cause of flooding is due to rain or snowmelt that accumulates faster than soils can absorb it, or rivers can carry it away. Flooding can also result from the failure of a water control structure.

Flooding events are a common occurrence in Warren County. A variety of flood types, such as riverine, stormwater and urban, and saturated ground failure can cause widespread damage throughout rural and urban areas, causing loss of life, injury, and severe water damage to residential and commercial buildings, bridge and road closures, transit service disruptions, and damage to electrical and communication networks and agriculture.

Floods are the most frequent and costly natural hazards in New York State in terms of human hardship and economic loss, particularly to communities that lie within flood prone areas or flood plains of a major water source. As defined in the NYS HMP, flooding is a general and temporary condition of partial or complete inundation on normally dry land from the following:

- Riverine overbank flooding
- Flash floods
- Alluvial fan floods
- Mudflows or debris floods
- Dam- and levee-break floods
- Local draining or high groundwater levels
- Fluctuating lake levels
- Ice-jams

For the purpose of this HMP and as deemed appropriate by the Warren County Steering Committee, riverine, flash flood, urban/stormwater, ice jam, and saturated ground failure are the main flood types of concern for the County. These types of flooding are further discussed below (New York State 2019) (Warren County 2017).

#### *Riverine*

Riverine Flooding, or fluvial flooding, is when streams and rivers exceed the capacity of their natural or constructed channels to accommodate water flow and water overflows the banks, spilling out into adjacent low-lying, dry land (FEMA 2019). This occurs when the flow of a river exceeds the bank





sides and causes damage or obstruction to a nearby floodplain. Riverine flooding can turn into a flash flood if the river is at or above its flood stage and if the soil is saturated.

### Flash

A flash flood is a rapid inundation of low-lying areas caused by heavy rain associated with severe thunderstorms, tropical systems, or melting water from ice or snow. Flash flooding also occurs far away from water bodies when a large volume of water cannot be absorbed by the soil or storm water systems and travels overland unimpeded.

### Urban/Stormwater

Local (urban) drainage systems collect groundwater from heavy rainfall in developed areas. Water that does not evaporate or become absorbed by the ground is carried by conduits to waterways such as creeks, or the ocean. These systems have two purposes: 1) to control storm water runoff during periods of heavy rainfall; and 2) to minimize disruption of activity from more frequently occurring, less significant storms. Flooding occurs when runoff exceeds system capacity, or because systems are blocked maintenance. Flooding which designed or blocked drainage flooding.

Figure 5.4.5-1. Warren County March 2022 Ice Jam



ivers,  
have

from lack of  
results from poorly  
systems is categorized as flash





### Ice Jam

An ice jam occurs when pieces of floating ice are carried with a stream's current and accumulate behind any obstruction to the stream flow. Obstructions may include river bends, mouths of tributaries, points where the river slope decreases, as well as dams and bridges. The water held back by this obstruction can cause flooding upstream, and if the obstruction suddenly breaks, flash flooding can occur as well (NESEC 2021).

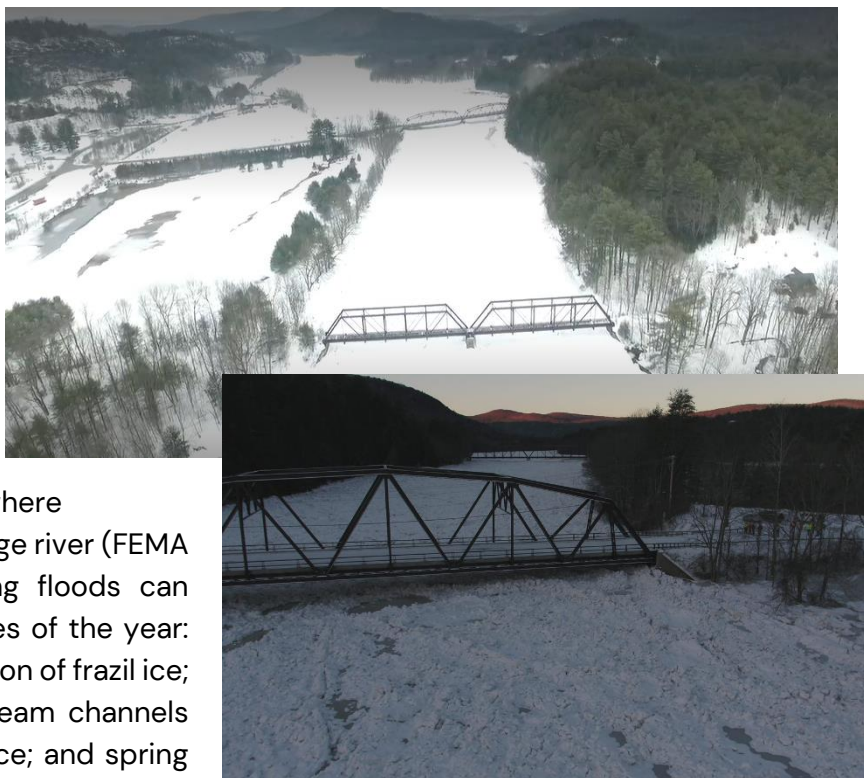
The formation of ice jams depends on the weather and physical condition of the and stream channels. Ice jams are common in locations where the channel slope changes from relatively steep to mild and where a tributary stream enters a large river (FEMA 2018). Ice jams and resulting floods can occur during at different times of the year: fall freeze-up from the formation of frazil ice; mid-winter periods when stream channels freeze solid, forming anchor ice; and spring breakup when rising water levels from snowmelt or rainfall break existing ice cover into pieces that accumulate at bridges or other types of obstructions (New York State 2019).

There are two main types of ice jams: freeze-up and breakup. Freeze-up jams occur when floating ice may slow or stop due to a change in water slope as it reaches an obstruction to movement. Breakup jams occur during periods of thaw, generally in late winter and early spring. The ice cover breakup is usually associated with a rapid increase in runoff and corresponding river discharge due to a heavy rainfall, snowmelt, or warmer temperatures (FEMA 2018).

### Saturated Ground Failure

High groundwater flooding occurs when heavy precipitation causes the water table to rise. As rainwater from high ground accumulates in low-lying areas, the water table rises to the surface, causing the ground to be completely saturated. When the water table rises through a slope, there may be a point at which the water table is above the ground level (see Figure 5.4.X-1). If this happens, the water will flow over the surface as it cannot seep into the ground – this is groundwater flooding. Basements are susceptible to high groundwater levels. Seasonally high groundwater is common in

**Figure 5.4.5-2. Warren County January 2018 Ice Jam and Flood**



river





many areas, while elsewhere high groundwater occurs only after a long period of above-average precipitation.

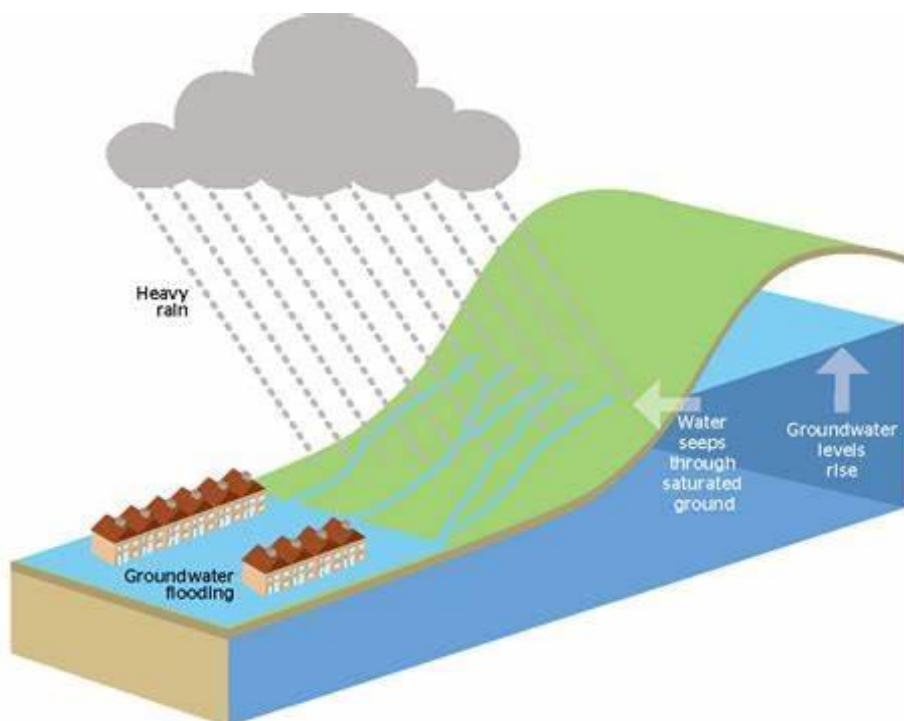


Figure 5.4.X-1: Groundwater Flooding Diagram

Source: (Flood Guidance UK 2017)

### Location

Flooding in Warren County occurs in two broad regions of the County: along the Schroon River in the Riverbank section and along the Hudson River where significant rainfall and rapid snowmelt lead to considerable flooding of roadways. Flooding in the County also occurs in areas of beaver dams. Heavy rainfall has the potential to force the destruction of beaver dams on lakes, rivers and streams which leads to cascading effects of downstream flooding of roadways.





### Floodplain

A floodplain is flat land adjacent to a river, creek, or stream that is subject to periodic inundation. The floodplain describes the area inundated by the “100-year” flood, or a flood that has a 1% chance in any given year of being equaled or exceeded. A floodplain is designated when floodwater exceeds the capacity of the main channel, or water escapes the channel through bank erosion. During inundation, silt is deposited by retreating floodwater and trapped by vegetation, building up the floodplain. Buildup is greatest near the stream, forming natural levees in areas of stable banks. Floodplain deposits, which are coarsest near the stream, may show vertical size-graded stratification (sorting). The floodplain is an integral part of a stream system and is affected by adjustments the system makes to its sediment load and variable flow. The stream system is a network that collects fresh water from the land and carries it to the ocean. As such, floodplain deposits and floodplain development affect a larger natural structure than might first be appreciated (National Geographic 2022).

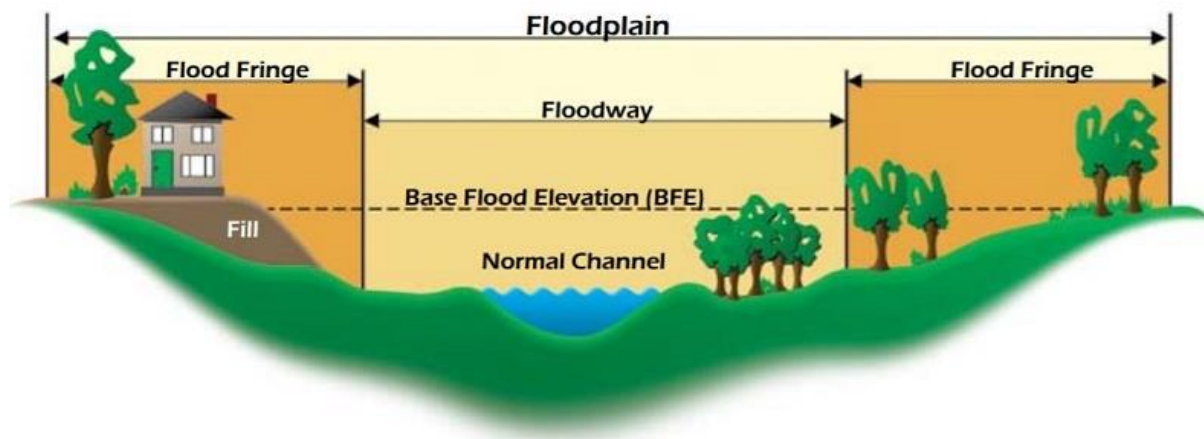


Figure 5.4.X-2: Characteristics of a Floodplain

Source: (FEMA 2022)

Floodplains serve multiple functions. They moderate flooding, maintain water quality, recharge groundwater, reduce erosion, redistribute sand and sediment, and support fish and wildlife habitat. Areas subject to flooding include the following:

- Locations that experience greater than the 1% annual chance flood, often referred to as the 100-year flood.
- Those subject to less extensive, more frequent, or repetitive flooding.
- Sites that experience shallow flooding, storm water flooding, or drainage problems that do not meet the National Flood Insurance Program (NFIP) mapping criteria.
- Twenty percent of flood insurance claims are from properties in these areas.
- Places affected by flood-related hazards such as riverine erosion.
- Locations that will flood in the future because of sea level rise and upstream

(National Geographic 2022) (FEMA 2022)



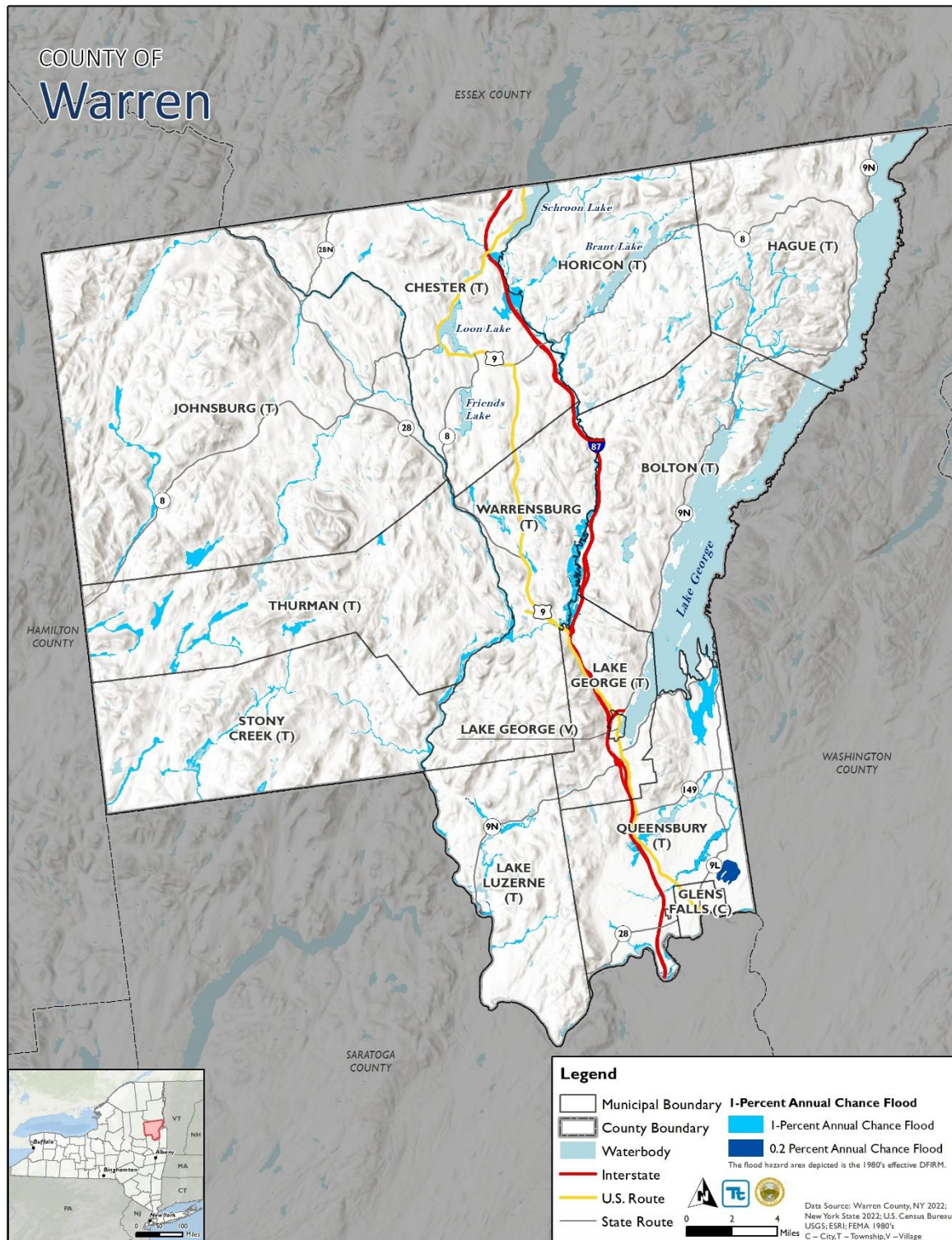


In Warren County, floodplains line the rivers and streams of the County. The boundaries of the floodplains are altered as a result of changes in land use, the amount of impervious surface, placement of obstructing structures in floodways, changes in precipitation and runoff patterns, improvements in technology for measuring topographic features, and utilization of different hydrologic modeling techniques. Figure 5.4.5-3. FEMA Flood Hazard Zones in Warren County illustrates the FEMA flood hazard zones in Warren County. According to this figure, the 1% annual chance of flood hazard zones are located along the Sacandaga River, Schroon River, Hudson River, Stony Creek, and southern Lake George (Warren County 2017).





Figure 5.4.5-3. FEMA Flood Hazard Zones in Warren County







## Extent

The strength or magnitude of a flood varies based on meteorological, environmental, and geological factors, including latitude, altitude, topography, and atmospheric conditions. Flood is also affected by seasonal variation, storm characteristics, warning time, speed of onset, and duration. Most floods are preceded by a warning period that allows emergency managers to communicate the need to prepare for the event. A flood may last from minutes to days (O'Connor, Grant and Costa 2002).

Warnings issued through official sources, such as the National Weather Service (NWS) and the Storm Prediction Center, provide the most reliable and timely preparedness information, but the exact flood location and depth depends on the amount, duration, and location of rainfall. Many floods, especially flash floods, occur outside of FEMA-designated flood zones.

In the case of riverine flood hazard, once a river reaches flood stage, the flood extent or severity categories used by the NWS include minor flooding, moderate flooding, and major flooding. Each category has a definition based on property damage and public threat:

- Minor Flooding – minimal or no property damage, but possibly some public threat or inconvenience.
- Moderate Flooding – some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations are necessary.
- Major Flooding – extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

(NOAA 2021)

The severity of a flood depends not only on the amount of water that accumulates in a period of time, but also on the land's ability to manage this water. The size of rivers and streams in an area and infiltration rates are significant factors. When it rains, soil acts as a sponge. When the land is saturated or frozen, infiltration rates decrease and any more water that accumulates must flow as runoff (Harris 2001).

The frequency and severity of flooding are measured using a discharge probability, which is the probability that a certain river discharge (flow) level will be equaled or exceeded in a given year. Flood studies use historical records to determine the probability of occurrence for the different discharge levels. The flood frequency equals 100 divided by the discharge probability. For example, the 100-year discharge has a 1% chance of being equaled or exceeded in any given year. The "annual flood" is the greatest flood event expected to occur in a typical year. These measurements reflect statistical averages only; it is possible for two or more floods with a 100-year or higher recurrence interval to occur in a short time period. The same flood can have different recurrence intervals at different points on a river.

The extent of flooding associated with a 1% annual probability of occurrence (the base flood or 100-year flood) is used by the NFIP as the standard for floodplain management and to determine the need for flood insurance, as well as the regulatory flood boundary by many agencies. Also referred to as the Special Flood Hazard Area (SFHA), this boundary is a convenient tool for assessing





vulnerability and risk in flood-prone communities. Many communities have maps that show the extent and likely depth of flooding for the base flood. Corresponding water-surface elevations describe the water elevation resulting from a given discharge level, which is one of the most important factors used in estimating flood damage. A structure located within a SFHA shown on an NFIP map has a 26% chance of suffering flood damage during the term of a 30-year mortgage.

The term “500-year flood” is the flood that has a 0.2% chance of being equaled or exceeded each year. The 500-year flood could occur more than once in a relatively short period of time. Statistically, the 0.2% (500-year) flood has a 6% chance of occurring during a 30-year period of time, the length of many mortgages. The 500-year floodplain is referred to as Zone X500 for insurance purposes on FIRMs. Base flood elevations or depths are not shown within this zone and insurance purchase is not required in this zone (FEMA 2022).

### Previous Occurrences

The National Oceanic and Atmospheric Administration’s (NOAA) National Climatic Data Center’s (NCDC) Storm Events Database documented 79 flood events occurring locally between 1950 and 2022. Between January 01, 2017 and June 30, 2022, there were 9 “flash flood” events and 15 “flood” events. The number and types of events are described in Table 5.4.X-2 (NOAA 2022).

#### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was included in 1 disaster (DR) or emergency (EM) declarations for flood-related events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2022). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

#### *USDA Declarations*

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was included in 2 flood-related agricultural disaster declarations.

#### *Previous Events*

For this 2023 HMP update, known flood events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to Appendix E (Supplementary Data).

**Table 5.4.5-1. Flood Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
07/01/2017	Flash Flood, Heavy Rain	N/A	N/A	An upper-level disturbance interacted with a very moist atmosphere on July 1, generating several rounds of thunderstorms across areas mainly along and north





Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				of I-90. These storms resulted in torrential rainfall and flash flooding in portions of Herkimer, Fulton, Warren, Washington, and Rensselaer Counties. It was the second straight day of heavy rainfall for some of these areas. Warren County estimated \$1 million in flood damage.
01/13/2018	Flood, Ice Jam	N/A	N/A	After a frigid end of December and beginning of January, an unseasonably warm airmass was pumped into New York on January 12th on southerly winds. The temperatures reached the 50s and 60s during the day. Showers also developed in the warm airmass ahead of a cold front and were heavy at times, with some locations receiving one to three inches of rainfall. The combination of warm temperatures and heavy rainfall caused river ice to dislodge and resulted in ice jams in spots. Flooding occurred due to a combination of ice jam movement and heavy rainfall. Several roads were closed or damaged.
01/28/2018	Flood, Ice Jam	N/A	N/A	Minor flooding occurred in the vicinity of a long-lived ice jam along the Hudson River between The Glen and Warrensburg. River Road near Snake Rock in the Town of Thurman was closed due to ice jam flooding. There was four inches of water flowing across the road.
02/22/2018	Flood, Ice Jam	N/A	N/A	A large ice jam remained in place on the Mohawk River for much of the month of February. The ice jam stretched up to 17 miles from Rexford to Crane Hollow throughout the month in February. The ice jam mainly remained in place into late February. Temperatures skyrocketing into the 60s and 70s on February 20-21 coupled with around 0.50-1.00 rainfall on the 19th over the Mohawk basin allowed river levels to rise and flooding occurred by the 21st within the Stockade neighborhood of Schenectady and across the river in Scotia, as well as backwater flooding of the Alplaus Kill. A substantial





Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				portion of the ice jam gave way during the early morning hours of the 22nd, leading to concern for flooding in the downstream communities, but it turned out that impacts were minimal. There were some road closures in the Rotterdam Junction and Schenectady area due to the ice jam movement and breakage. The remainder of the jam gradually broke up over the next week or so with little impact.
07/23/2018	Excess Precipitation	USDA, S4479	Yes	Excessive rains and flooding during the 2018 farming season influenced the Secretary of the USDA to declare a disaster designation for 20 New York Counties, including Allegany, Broome, Chautauqua, Cortland, Dutchess, Erie, Essex, Franklin, Herkimer, Livingston, Madison, Oneida, Ontario, Oswego, Putnam, Rensselaer, St. Lawrence, Saratoga, Schuyler, Tompkins, Ulster, Warren, Warren, Wyoming, and Yates Counties.
4/1/2019	Excess Precipitation	USDA, S4622	Yes	Severe weather, heavy flooding, and excessive rains during the 2019 farming season influenced the Secretary of the USDA to declare a disaster designation for 43 Upstate New York Counties, including Albany, Allegany, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuler, Seneca, Steuben, Sullivan, Tioga, Washington, Wyoming, and Yates Counties.
04/20/2019	Flood, Heavy Rain / Snow Melt	N/A	N/A	Heavy rain, combined with snow melt from the Adirondacks, caused the Schroon River at Riverbank to rise above flood stage for several days. River levels reached moderate flood stage on Saturday, April 20th and remained there through Thursday, April 25th. The high-water levels resulted in water making its way into





Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				numerous homes and onto several roads across northern Warren County.
06/20/2019	Flash Flood, Heavy Rain	N/A	N/A	A low-pressure system tracked across the region on Thursday, June 20th, 2019, bringing periods of heavy rainfall throughout the day. This resulted in road closures in Warren County.
10/31/2019	Severe Storms and Flooding	FEMA, 4472-DR	Yes	A strengthening low-pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York. A large swath of rainfall totaling 2-5 inches, with isolated areas as high as 7 inches, occurred over the Mohawk Valley and southern Adirondacks, resulting in reports of flash flooding. The runoff caused rapid rises on area creeks and streams, with river gauges reaching record levels along the Mohawk River at Little Falls, the West Canada Creek at Hinckley and Kast Bridge, and the Sacandaga River at Hope. Moderate flooding also occurred on the Hudson River at Fort Edward, Hadley, and North Creek; the Schroon River at Riverbank; and the Mohawk River at Delta Dam.
02/18/2022	Flood, Heavy Rain	N/A	N/A	A storm system pushed across the region during February 17-18, 2022. Warm air pushed northward into the region along with periods of rainfall before a cold front brought the return of windy and colder weather. A convective line of gusty showers also accompanied the cold frontal passage. Some locations picked up over 1 inch of rainfall which led to





Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				minor flooding. The warm and rainy weather ahead of the cold front resulted in some snow melt as well as some ice to break up on area rivers and streams. As the colder weather returned, localized ice jams formed, some of which led to flooding.
02/28/2022	Flood, Ice Jam	N/A	N/A	An ice jam developed along the Hudson River in the Town of Thurman causing water and ice to flow over Route 418 (River Street) between River Road and Hickory Hill Road. Water began to flow over the road during the evening hours on Saturday, February 19 causing the road to close. The water and ice eventually receded on Monday, February 28, allowing the road to reopen.
04/08/2022	Flood, Heavy Rain	N/A	N/A	A slow-moving frontal system produced widespread heavy rainfall and flooding across eastern New York from April 7-8, 2022. Rainfall amounts between 1.50 and 3.00 inches were common, though a few localized areas received upwards of 4.50 inches. Several incidents of flooding occurred within Warren County, including the areas of Thurman, Warrensburg, Chestertown, Weavertown, and Lake George. Road closures and possible washouts were reported within the towns of Warrensburg and Thurman. In Lake George, severe damage occurred to a driveway and parking lot of the Lakeview Terrace Hotel and Fairview Association.

Sources: (NOAA 2022), (USDA FSA 2022), (FEMA 2022) (New York State 2019) (Warren County 2017)

Notes: Warren County has been affected by several flooding events in the past 5 years (2017 to 2022). Three of these events were declared disasters, 1 declared by FEMA and 2 declared by the USDA.

### Probability of Future Occurrences

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of flood events for the County. Information from NOAA-NCEI storm events database, the 2019 State of New York HMP, and the 2017 Warren County HMP were used to identify the number of flood events that occurred between 1950 and 2022. Table 5.4.5-2 presents the probability of future events for the flood event in the County.



**Table 5.4.5-2. Probability of Future Flood Events in Warren County**

Hazard Type	Number of Occurrences Between 1950 and 2022	Percent Chance of Occurring in Any Given Year
Flash Flood	35	48.6%
Flood	44	61%

Sources: (NOAA 2022) (New York State 2019) (Warren County 2017)

Note: Disaster occurrences include federally declared disasters since the 1950 Federal Disaster Relief Act, and selected drought events since 1968. Due to limitations in data, not all flood events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is underestimated.

A total of 79 flood events were recorded in Warren County. Based on historical occurrences, the probability of a flood event occurring is considered frequent (100% annual probability; a hazard event may occur multiple times per year). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

#### *Climate Change Projections*

The climate of Warren County is already changing and will continue to change in the future. Climate change is beginning to affect both people and resources of the State and County and the impacts of climate change will continue. Impacts related to increasing temperatures are already being felt in the County. ClimAID: the Integrated Assessment for Effective Climate Change in New York State (ClimAID) was undertaken to provide decision-makers with information on the State's vulnerability to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge.





Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Warren County is part of Region 7 (see Figure 5.4.X-3), Adirondack Source: (NYSERDA 2014)

**Figure 5.4.5-4. Figure 5.4.X-4: Climate Regions of New York State**



Source: (NYSERDA 2014)

Mountains. Some of the issues in this region, affected by climate change, include loss of high elevation plants, animals, and ecosystem types; decline in winter recreation; decline in milk production, etc. (NYSERDA 2014).

Temperatures in New York State are warming, with an average rate of warming over the past century of 0.25° F per decade. Average annual temperatures are projected to increase across New York State by 2° F to 3.4° F by the 2020s, 4.1° F to 6.8° F by the 2050s, and 5.3° F to 10.1° F by the 2080s. By the end of the century, the greatest warming is projected to be in the northern section of the State.

Regional precipitation across New York State is projected to increase by approximately one to eight percent by the 2020s, three to 12-percent by the 2050s, and four to 15-percent by the 2080s. By





the end of the century, the greatest increases in precipitation are projected to be in the northern areas of the State.

In Region 7, it is estimated that temperatures will increase by 3.7°F to 7.4°F by the 2050s and 4.2°F to 11.8°F by the 2080s (baseline of 39.9°F). Precipitation totals will increase between 2 and 15% by the 2050s and 3 to 17% by the 2080s (baseline of 40.8 inches). Table 5.4.2-3 displays the projected seasonal precipitation change for the East Hudson and Mohawk River Valleys ClimAID Region (NYSERDA 2014).

Climate change affects flooding more than other hazards because the frequency of extreme precipitation events in the Northeast has increased in recent years. Severe storms projected in the 1950s to occur only once in 100 years are now expected to occur once every 60 years. Other climate change influences include the following:

- Spring breakup, snowmelt, and winter rains
  - Warmer spring temperatures that lead to earlier and more rapid snow melt; more late-winter precipitation likely to fall as rain, rather than as snow
- Cyclonic disturbances
  - Increasing frequency of severe cyclonic events, which may permit more northward tracking of hurricanes
- Localized summer outburst events
  - Increase formation of conditions conducive to summer outbursts and flash flooding
- Human uses and development of land
  - Development leads to increased amounts of impervious surfaces such as roads, parking lots, and buildings and can increase rainwater runoff. Development in floodplains or wetlands can potentially result in an increased floodplain level.

(New York State 2019)

## Vulnerability Assessment

---

To assess Warren County's risk to the flood hazard, a spatial analysis was conducted using the FEMA Risk Map products dated 1984–1996. The 1-percent annual chance flood event was further examined to estimate potential loss using the FEMA Hazus model. These results are summarized below. Refer to Section 5.1 (Methodology and Tools) for additional details on the methodology used to assess flood risk.

### Impact on life, Health, and Safety

The impact of flooding on life, health, and safety is dependent upon several factors including the severity of the event and whether or not adequate warning time is provided to residents. Exposure represents the population living in or near floodplain areas that could be impacted should a flood event occur. Additionally, exposure should not be limited to only those who reside in a defined hazard zone, but everyone who may be affected by the effects of a hazard event (e.g., people are at risk while traveling in flooded areas, or their access to emergency services is compromised during





an event). The degree of that impact will vary and is not strictly measurable. The impacts from each flood hazard of concern is described below.

#### *Riverine Flooding*

To estimate population exposure to the 1-percent- and 0.2-percent annual chance flood events, the digitized flood boundaries were used. Based on the spatial analysis, there are an estimated 1,385 residents living in the 1-percent annual chance floodplain, or 2.3-percent of the County's total population. There are an estimated 1,508 residents living in the 0.2-percent annual chance floodplain, or 2.6-percent of the County's total population.





Table 5.4.5-3 summarizes the population exposed to the flood hazard by jurisdiction.



**Table 5.4.5-3. Estimated Number of Persons in Warren County Living in the 1-percent and 0.2-percent Annual Chance Flood Event Hazard Areas**

Jurisdiction	Total Population (Census Bureau 2020 Decennial)	Estimated Population Located in the Flood Hazard Areas			
		Number of Persons Located in the 1-percent Area	Percent of Total	Number of Persons Located in the 0.2- percent Area	Percent of Total
Bolton (T)	2,012	132	6.5%	132	6.5%
Chester (T)	3,086	262	8.5%	262	8.5%
Glens Falls (C)	14,830	0	0.0%	0	0.0%
Hague (T)	633	45	7.1%	45	7.1%
Horicon (T)	1,471	77	5.2%	77	5.2%
Johnsburg (T)	2,143	49	2.3%	49	2.3%
Lake George (T)	2,494	65	2.6%	65	2.6%
Lake George (V)	1,008	2	0.2%	2	0.2%
Lake Luzerne (T)	3,079	200	6.5%	245	7.9%
Queensbury (T)	29,169	376	1.3%	402	1.4%
Stony Creek (T)	758	23	3.0%	23	3.0%
Thurman (T)	1,095	8	0.7%	8	0.7%
Warrensburg (T)	3,959	147	3.7%	199	5.0%
<b>Warren County (Total)</b>	<b>65,737</b>	<b>1,385</b>	<b>2.1%</b>	<b>1,508</b>	<b>2.3%</b>

Sources: U.S. Census Bureau 2020; Warren County, NY 2022

Note: C = City; T = Town; V = Village; % = Percent

In addition, displaced populations were estimated for the 1-percent annual chance flood event. It is important to note that the impacts to the households in the FEMA flood hazard area are assessed using the riverine flood model in Hazus. Using 2020 U.S. Census data, Hazus estimates 8,460 people may seek short-term sheltering. These statistics, by jurisdiction, are presented in Table 5.4.5-4

**Table 5.4.5-4. Estimated Population Seeking Short-Term Shelter from the 1-percent Annual Chance Flood Event**

Jurisdiction	Total Population (Census Bureau 2020 Decennial)	1-Percent Annual Chance Flood Event	
		Displaced Population	Persons Seeking Short- Term Sheltering
Bolton (T)	2,012	22	7
Chester (T)	3,086	80	25
Glens Falls (C)	14,830	0	0
Hague (T)	633	11	9
Horicon (T)	1,471	72	30
Johnsburg (T)	2,143	70	11
Lake George (T)	2,494	6	2
Lake George (V)	1,008	1	0
Lake Luzerne (T)	3,079	179	42





Jurisdiction	Total Population (Census Bureau 2020 Decennial)	1-Percent Annual Chance Flood Event	
		Displaced Population	Persons Seeking Short-Term Sheltering
Queensbury (T)	29,169	298	145
Stony Creek (T)	758	36	12
Thurman (T)	1,095	8	2
Warrensburg (T)	3,959	173	34
<b>Warren County (Total)</b>	<b>65,737</b>	<b>956</b>	<b>319</b>

Sources: Hazus v5.1, Census 2020, Warren County NY 2022

Note: C = City; T = Town; V = Village

Cascading impacts may also include exposure to pathogens such as mold. After flood events, excess moisture and standing water contribute to the growth of mold in buildings. Mold may present a health risk to building occupants, especially those with already compromised immune systems such as infants, children, the elderly and pregnant women. The degree of impact will vary and is not strictly measurable. Mold spores can grow in as short a period as 24–48 hours in wet and damaged areas of buildings that have not been properly cleaned. Very small mold spores can easily be inhaled, creating the potential for allergic reactions, asthma episodes, and other respiratory problems. Buildings should be properly cleaned and dried out to safely prevent mold growth (CDC 2020).

Molds and mildews are not the only public health risk associated with flooding. Floodwaters can be contaminated by pollutants such as sewage, human and animal feces, pesticides, fertilizers, oil, asbestos, and rusting building materials. Common public health risks associated with flood events also include:

- Unsafe food
- Contaminated drinking and washing water and poor sanitation
- Mosquitos and animals
- Carbon monoxide poisoning
- Secondary hazards associated with re-entering/cleaning flooded structures
- Mental stress and fatigue

Current loss estimation models such as Hazus are not equipped to measure public health impacts. The best level of mitigation for these impacts is to be aware that they can occur, educate the public on prevention, and be prepared to deal with these vulnerabilities in responding to flood events.

### Flash Flooding

Flash flooding events can displace populations along steep topography particularly in cases when flood waters surge into residential properties or alter the terrain into unsafe conditions requiring evacuation. There is no record of injuries reported from historical flash flood events that have occurred in Warren County.

### Stormwater and Urban Flooding

Urban and stormwater flooding impacts are generally limited to roadways with underlying culverts. In various communities, poor drainage and rainstorms lead to localized flooding on various streets





and in residential developments. This type of flooding could cause persons to become isolated or displaced from their homes.

### **Ice Jam Flooding**

According to the historical records in Warren County, there have been a number of ice jam flooding events. The impacts of these events includes road closure and detours ....

### **Dam Failure Flooding**

Dam failure will have similar impacts to flood events on persons within the County. See Section 5.4.1 for further details regarding the dam failure hazard.

### **Impact on General Building Stock**

After considering the population exposed and potentially vulnerable to the flood hazard, the built environment was evaluated. Exposure includes those buildings located in the flood hazard areas. Potential damage is the modeled loss that could occur to the exposed inventory, including structural and content replacement cost values.

### **Riverine Flooding**

Table 5.4.5-5 and Table 5.4.5-6 summarize the number of structures located in the 1-percent and 0.2-percent annual chance flood events by jurisdiction. In summary, there are 1,252 buildings located in the 1-percent annual chance flood boundary with an estimated 721 million of replacement cost value (i.e., building and content replacement costs). In total, this represents approximately 3.1-percent of the County's total general building stock inventory. In addition, there are 1,337 buildings located in the 0.2-percent annual chance flood boundary with an estimated \$783 million of building stock and contents exposed. This represents approximately 3.3-percent of the County's total general building stock inventory.

The Hazus flood model estimated potential damages to the buildings in Warren County at the structure level using the custom structure inventory developed for this HMP and the depth grid generated using the effective DFIRM data. The potential damage estimated by Hazus to the general building stock inventory associated with the 1-percent annual chance flood is approximately \$92 million or 0.3-percent of the total building stock improvement value. The Town of Queensbury has the greatest amount of estimated building loss—approximately \$26 million (i.e., 0.4-percent of the total replacement cost value). Refer to Table 5.4.5-6 for the estimated losses by jurisdiction.





**Table 5.4.5-5. Estimated General Building Stock Located in the 1- and 0.2-Percent Annual Chance Flood Event**

Estimated Number and Total Replacement Cost Value of Structures Located Within the Flood Hazard Area										
Jurisdiction	Total Number of Buildings	Total Replacement Cost Value (RCV)	Number of Buildings Located in the 1-percent Flood Area	Percent of Total	Total Replacement Cost of Buildings in the 1-percent Flood Area	Percent of Total	Number of Buildings Located in the 0.2-percent Flood Area	Percent of Total	Total Replacement Cost of Buildings in the 0.2-Percent Flood Area	Percent of Total
Bolton (T)	2,873	\$1,509,046,268	191	6.6%	\$98,407,104	6.5%	191	6.6%	\$98,407,104	6.5%
Chester (T)	3,227	\$1,794,523,301	265	8.2%	\$136,906,097	7.6%	265	8.2%	\$136,906,097	7.6%
Glens Falls (C)	5,988	\$3,728,124,116	7	0.1%	\$38,633,498	1.0%	7	0.1%	\$38,633,498	1.0%
Hague (T)	1,313	\$799,210,288	92	7.0%	\$25,727,961	3.2%	92	7.0%	\$25,727,961	3.2%
Horicon (T)	2,188	\$1,022,605,789	113	5.2%	\$73,470,929	7.2%	113	5.2%	\$73,470,929	7.2%
Johnsburg (T)	2,625	\$1,493,856,193	62	2.4%	\$57,084,016	3.8%	62	2.4%	\$57,084,016	3.8%
Lake George (T)	2,494	\$2,168,962,785	62	2.5%	\$20,674,796	1.0%	62	2.5%	\$20,674,796	1.0%
Lake George (V)	609	\$770,157,514	7	1.1%	\$9,616,327	1.2%	7	1.1%	\$9,616,327	1.2%
Lake Luzerne (T)	2,173	\$953,667,917	137	6.3%	\$33,879,914	3.6%	169	7.8%	\$71,741,229	7.5%
Queensbury (T)	12,193	\$7,114,031,584	173	1.4%	\$147,862,914	2.1%	189	1.6%	\$161,854,297	2.3%
Stony Creek (T)	807	\$995,996,331	26	3.2%	\$37,561,509	3.8%	26	3.2%	\$37,561,509	3.8%
Thurman (T)	1,061	\$497,985,792	9	0.8%	\$2,463,186	0.5%	9	0.8%	\$2,463,186	0.5%
Warrensburg (T)	2,758	\$1,425,456,857	108	3.9%	\$38,774,911	2.7%	145	5.3%	\$49,091,972	3.4%
<b>Warren County (Total)</b>	<b>40,309</b>	<b>\$24,273,624,737</b>	<b>1,252</b>	<b>3.1%</b>	<b>\$721,063,162</b>	<b>3.0%</b>	<b>1,337</b>	<b>3.3%</b>	<b>\$783,232,921</b>	<b>3.2%</b>

Source: Hardcopy FIRM Maps, 1980/1990; Warren County, NY 2022

Note: C = City; T = Town; V = Village; % = Percent





**Table 5.4.5-6. Estimated General Building Stock Potential Loss to the 1-Percent Annual Chance Flood Event**

Jurisdiction	Total Replacement Cost Value (RCV)	Estimated Loss for All Occupancies	Estimated Loss for Residential Properties	Estimated Loss for Commercial Properties	Estimated Loss for All Other Occupancies
Bolton (T)	\$1,509,046,268	\$3,552,740	\$1,606,047	\$7,470	\$1,939,224
Chester (T)	\$1,794,523,301	\$10,392,713	\$10,002,163	\$378,103	\$12,447
Glens Falls (C)	\$3,728,124,116	\$4,989,907	\$0	\$1,363,338	\$3,626,569
Hague (T)	\$799,210,288	\$3,071,058	\$698,467	\$1,657,285	\$715,306
Horicon (T)	\$1,022,605,789	\$9,413,994	\$9,393,536	\$1,210	\$19,248
Johnsburg (T)	\$1,493,856,193	\$13,268,896	\$1,531,287	\$11,737,609	\$0
Lake George (T)	\$2,168,962,785	\$1,192,120	\$1,192,120	\$0	\$0
Lake George (V)	\$770,157,514	\$1,079,756	\$50,369	\$1,029,387	\$0
Lake Luzerne (T)	\$953,667,917	\$10,571,303	\$10,062,444	\$508,860	\$0
Queensbury (T)	\$7,114,031,584	\$26,215,898	\$7,274,420	\$18,941,477	\$0
Stony Creek (T)	\$995,996,331	\$682,066	\$351,593	\$330,473	\$0
Thurman (T)	\$497,985,792	\$11,374	\$7,020	\$0	\$4,355
Warrensburg (T)	\$1,425,456,857	\$7,486,940	\$3,912,624	\$3,338,283	\$236,033
<b>Warren County (Total)</b>	<b>\$24,273,624,737</b>	<b>\$91,928,766</b>	<b>\$46,082,089</b>	<b>\$39,293,495</b>	<b>\$6,553,181</b>

Sources: Hazus v5.1, Census 2020, Warren County NY 2022, RS Means 2022

Note: C = City; T = Town; V = Village; % = Percent





### NFIP Statistics

FEMA provided a list of properties with NFIP policies, past claims, and multiple claims. According to FEMA, a repetitive loss (RL) property is a NFIP-insured structure that has had at least two paid flood losses of more than \$1,000 in any 10-year period since 1978. A severe repetitive loss (SRL) property is a NFIP-insured structure that has had four or more separate claim payments made under a standard flood insurance policy, with the amount of each claim exceeding \$5,000 and with the cumulative amount of such claims payments exceeding \$20,000; or at least two separate claims payments made under a standard flood insurance policy with the cumulative amount of such claim payments exceed the fair market value of the insured building on the day before each loss (FEMA 2018).

Table 5.4.5-7,

Table 5.4.5-8, and

Table 5.4.5-9 summarize the NFIP policies, claims, and repetitive loss statistics for Warren County. The majority of the RL and SRL properties are single-family residences. This information is current as of March, 2023.

**Table 5.4.5-7. Occupancy Class of Repetitive Loss Structures in Warren County**

Occupancy Class	Total Number of Repetitive Loss Properties	Total Number of Severe Repetitive Loss Properties	Total
			(Repetitive Loss + Severe Repetitive Loss)
Single Family	6	0	6
Business	1	1	2

Source: FEMA Region 2, 2023

Note: Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of March 2023

N/A Not available

**Table 5.4.5-8 Occupancy Class of Repetitive Loss Structures in Warren County, by Municipality**

Municipality	Repetitive Loss Properties		Severe Repetitive Loss Properties	
	Single Family	Business	Single Family	Business
Chester (T)	1	0	0	0





Municipality	Repetitive Loss Properties		Severe Repetitive Loss Properties	
	Single Family	Business	Single Family	Business
Johnsburg (T)	1	0	0	0
Lake George (T)	1	0	0	0
Lake George (V)	0	1	0	1
Lake Luzerne (T)	2	0	0	0
Queensbury (T)	1	0	0	0
Warren County (Total)	6	1	0	1

Source: FEMA Region 2, 2023

**Table 5.4.5-9. NFIP Policies, Claims, and Repetitive Loss Statistics**

Municipality	Number of Claims	Total Paid Claims	Number of NFIP Repetitive Loss Properties	Number of FMA Repetitive Loss Properties	Number of NFIP Severe Repetitive Loss Properties	Number of FMA Severe Repetitive Loss Properties
Bolton (T)	5	\$40,328	0	0	0	0
Chester (T)	14	\$90,426	1	0	0	0
Glens Falls (C)	0	0	0	0	0	0
Hague (T)	2	\$8,021	0	0	0	0
Horicon (T)	5	\$112,548	0	0	0	0
Johnsburg (T)	4	\$56,870	1	0	0	0
Lake George (T)	7	\$23,323	1	0	0	0
Lake George (V)	13	\$503,746	1	1	1	1
Lake Luzerne (T)	31	\$816,609	2	0	0	0
Queensbury (T)	13	\$46,751	1	0	0	0
Stony Creek (T)	4	\$2,355	0	0	0	0
Thurman (T)	5	\$85,530	0	0	0	0
Warrensburg (T)	8	\$11,649	0	0	0	0
Warren County (Total)*	<b>114</b>	<b>\$1,801,542</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>1</b>





Source: RL and SRL: FEMA Region 2, 2023; Claims and policies: HUDEX, 1/26 2023

\*County Total includes 1 unknown claim location and 2 claims attributed to the Town of Corinth

### Flash Flooding

Flash floods occur within a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam. Flash floods can roll boulders, tear out trees, trigger mud slides, destroy buildings and bridges, and scour out new channels. Because flash floods typically occur along rivers, coastlines, and low-lying, all structures located in and around these are susceptible to damages from flash floods. Secondary impacts of flash floods can also damage buildings and infrastructure outside the floodplain (Wyoming 2021) (NWS 2021) (Melina and Rowan 2010).

### Stormwater and Urban Flooding

The impacts to the general building stock as a result of stormwater and urban flooding is similar to the impacts of other types of flooding as described above. Stormwater flooding can damage public and private properties, destroy stormwater infrastructure, and impact roadways and utilities (NOAA 2021). Stormwater and urban flooding can occur in areas outside of the floodplain, so public and private properties not in the floodplain area also vulnerable to stormwater and urban flooding.

### Ice Jam Flooding

The water ice jams hold back can lead to riverine or flash flooding upstream from the ice jam. If the ice jam breaks, flash flooding can occur downstream (NOAA, Ice Jams & Flooding 2015). Structures located near rivers and streams are most at risk of flooding from ice jams (Consortium 2021).

### Dam Failure Flooding

The dams located in Warren County can have a varying impact on the general building stock. Communities that contain high hazard dams are more at risk for building stock destruction from flooding. The amount of flooding that these structures can experience depends on many factors including the reservoir size, and the time of day and season the breach occurs. Structures that are at a lower elevation from the reservoir will be most vulnerable to flooding from dam failure.

## Impact on Critical Facilities and Community Lifelines

It is important to determine the critical facilities and infrastructure that may be at risk to flooding, and who may be impacted should damage occur. Critical services during and after a flood event may not be available if critical facilities are directly damaged or transportation routes to access these critical facilities are impacted. Roads that are blocked or damaged can isolate residents and can prevent access throughout the planning area to many service providers needing to reach vulnerable populations or to make repairs.

Critical facility exposure to the flood hazard was examined. Table 5.3.2-22 lists the critical facilities and number of lifelines, within the 1-percent and 0.2-percent annual chance flood boundaries. Of the 511 critical facilities located in the 1-percent annual chance flood event boundary, the greatest number are food, water, or shelter facilities. Additionally, there are 599 critical facilities located in the 0.2-percent annual chance flood event boundary, 286 of which are food, water, or shelter





facilities. A majority of the critical facilities located in the 1-percent and 0.2-percent annual chance flood event boundaries are in Larchmont and Rye, shown in Table 5.3.2-23 and Table 5.3.2-24.

In cases where short-term functionality is impacted by flooding, other facilities of neighboring municipalities may need to increase support response functions during a disaster event. Mitigation planning should consider means to reduce flood impacts to critical facilities and ensure sufficient emergency and school services remain when a significant event occurs.

**Table 5.4.5-10 Critical Facilities and Lifelines Located in the 1-Percent and 0.2-Percent Annual Chance Event Floodplain**

FEMA Lifeline Category	Number of Lifelines	Number of Lifelines Located in the 1-percent Annual Chance Flood Event Hazard Area	Number of Lifelines Located in the 0.2-percent Annual Chance Flood Event Hazard Area
Communications	16	0	0
Energy	20	0	0
Food, Water, Shelter	163	11	11
Hazardous Materials	46	1	1
Health and Medical	43	2	3
Safety and Security	211	25	25
Transportation	60	33	33
<b>Warren County (Total)</b>	<b>559</b>	<b>72</b>	<b>73</b>

Source: Hardcopy FIRM Maps, 1980/1990; Warren County, NY 2022

#### 5.4.5-11. Critical Facilities and Lifeline Facilities Located in the 1-Percent Annual Chance Flood Event Hazard Area by Jurisdiction

Jurisdiction	Total Critical Facilities Located in Jurisdiction	Total Lifelines Located in Jurisdiction	Number of Critical Facilities and Lifeline Facilities Located in the 1-Percent Annual Chance Flood Event Hazard Area			
			Critical Facilities	Percent of Total Critical Facilities	Lifelines	Percent of Total Lifelines
Bolton (T)	44	30	0	0.0%	0	0.0%
Chester (T)	57	44	6	10.5%	6	13.6%
Glens Falls (C)	93	62	2	2.2%	2	3.2%
Hague (T)	23	17	2	8.7%	1	5.9%
Horicon (T)	30	25	13	43.3%	11	44.0%
Johnsburg (T)	66	52	13	19.7%	13	25.0%
Lake George (T)	36	28	2	5.6%	2	7.1%
Lake George (V)	22	14	0	0.0%	0	0.0%
Lake Luzerne (T)	50	41	5	10.0%	5	12.2%
Queensbury (T)	202	156	10	5.0%	10	6.4%
Stony Creek (T)	20	18	6	30.0%	6	33.3%





Jurisdiction	Total Critical Facilities Located in Jurisdiction	Total Lifelines Located in Jurisdiction	Number of Critical Facilities and Lifeline Facilities Located in the 1-Percent Annual Chance Flood Event Hazard Area			
			Critical Facilities	Percent of Total Critical Facilities	Lifelines	Percent of Total Lifelines
Thurman (T)	20	16	2	10.0%	2	12.5%
Warrensburg (T)	74	56	14	18.9%	14	25.0%
<b>Warren County (Total)</b>	<b>737</b>	<b>559</b>	<b>75</b>	<b>10.2%</b>	<b>72</b>	<b>12.9%</b>

Source: Warren County, NY 2022

Note: C = City; T = Town; V = Village; % = Percent

**Table 5.4.5-12 Critical Facilities and Lifeline Facilities Located in the 0.2-Percent Annual Chance Flood Event Hazard Area by Jurisdiction**

Jurisdiction	Total Critical Facilities Located in Jurisdiction	Total Lifelines Located in Jurisdiction	Number of Critical Facilities and Lifeline Facilities Located in the 0.2-Percent Annual Chance Flood Event Hazard Area			
			Critical Facilities	Percent of Total Critical Facilities	Lifelines	Percent of Total Lifelines
Bolton (T)	44	30	0	0.0%	0	0.0%
Chester (T)	57	44	6	10.5%	6	13.6%
Glens Falls (C)	93	62	2	2.2%	2	3.2%
Hague (T)	23	17	2	8.7%	1	5.9%
Horicon (T)	30	25	13	43.3%	11	44.0%
Johnsburg (T)	66	52	13	19.7%	13	25.0%
Lake George (T)	36	28	2	5.6%	2	7.1%
Lake George (V)	22	14	0	0.0%	0	0.0%
Lake Luzerne (T)	50	41	6	12.0%	6	14.6%
Queensbury (T)	202	156	10	5.0%	10	6.4%
Stony Creek (T)	20	18	6	30.0%	6	33.3%
Thurman (T)	20	16	2	10.0%	2	12.5%
Warrensburg (T)	74	56	14	18.9%	14	25.0%
<b>Warren County (Total)</b>	<b>737</b>	<b>559</b>	<b>76</b>	<b>10.3%</b>	<b>73</b>	<b>13.1%</b>

Source: Warren County, NY 2022

Note: C = City; T = Town; V = Village; % = Percent

### Flash Flooding

Information regarding the vulnerability to flash flooding is not available at this time.

### Stormwater and Urban Flooding

Information regarding the vulnerability to stormwater and urban flooding is not available at this time.





### *Ice Jam Flooding*

Similar to the impacts on general building stock, damage to critical facilities will vary for communities depending on the location of the ice jam and proximity of critical facilities to the ice jams. Major roadways can also be impacted because of inundation or debris carried by flooding, leading to road closures and disruption in services provided by or to critical facilities. Because ice jams occur in the colder months, recovery and repairs to damaged areas can take longer due to colder conditions.

### *Dam Failure Flooding*

Similar to the impacts on the general building stock, damage to critical facilities will vary for communities depending on the distribution of their dams and proximity of critical facilities to these dams and their downstream inundation area. Major roadways within Warren County may also be impacted by dam failure because of standing floodwaters or debris carried by the flooding. Roadblocks in transportation corridors can create disruption in the services provided to or by critical facilities. This puts communities in the County at greater risk if proper warning time is not provided to the community if a dam failure were to occur.

### **Impact on the Economy**

Flood events can significantly impact the local and regional economy. This includes but is not limited to general building stock damages and associated tax loss, impacts to utilities and infrastructure, business interruption, impacts on tourism, and impacts on the tax base to Warren County. In areas that are directly flooded, renovations of commercial and industrial buildings may be necessary, disrupting associated services. Refer to the 'Impact on General Building Stock' subsection earlier which discusses direct impacts to buildings in Warren County. Other economic components such as loss of facility use, functional downtime and socio-economic factors are less measurable with a high degree of certainty.

### *Riverine Flooding*

Flooding can cause extensive damage to public utilities and disruptions to delivery of services. Loss of power and communications may occur, and drinking water and wastewater treatment facilities may be temporarily out of operation.

Debris management may also be a large expense after a flood event. Hazus estimates the amount of debris generated from the 1-percent annual chance event. The model breaks down debris into three categories: (1) finishes (dry wall, insulation, etc.); (2) structural (wood, brick, etc.) and (3) foundations (concrete slab and block, rebar, etc.). The distinction is made because of the different types of equipment needed to handle the debris. Table 5.3.2-35 summarizes the debris Hazus estimates for these events. As a result of the 1-percent annual chance event, Hazus estimates approximately 214,778 tons of debris will be generated in total.



**Table 5.4.5-13 Estimated Debris Generated from the 1-percent Annual Chance Flood Event**

Jurisdiction	1-Percent Annual Chance Flood Event			
	Total (tons)	Finish (tons)	Structure (tons)	Foundation (tons)
Bolton (T)	381	126	150	106
Chester (T)	716	254	259	203
Glens Falls (C)	0	0	0	0
Hague (T)	77	32	25	20
Horicon (T)	418	186	125	107
Johnsburg (T)	603	156	246	201
Lake George (T)	17	6	6	5
Lake George (V)	32	30	2	1
Lake Luzerne (T)	784	295	267	222
Queensbury (T)	796	380	237	179
Stony Creek (T)	251	81	100	70
Thurman (T)	48	15	18	16
Warrensburg (T)	2,209	392	919	898
<b>Warren County (Total)</b>	<b>6,333</b>	<b>1,952</b>	<b>2,354</b>	<b>2,028</b>

Sources: Source: Hazus v5.1, Warren County NY 2022

Note: C = City; T = Town; V = Village

### Flash Flooding

The economic impacts of flash floods are similar to the impacts of riverine floods; however, flash floods occur with little to no warning which prevents businesses and homeowners to prepare for flooding. Impacts of a flash flood can include damaged or closed roadways, utility failures, and structural damages. Overall economic impacts include loss of business function; damaged roads, bridges, buildings, and cars; utility interruptions; and expended resources to assist with recovery efforts (Wyoming 2021) (eSchoolToday 2021).

### Stormwater and Urban Flooding

The economic impacts of stormwater and urban floods are similar to the impacts of riverine floods. In addition to damaging businesses and homes, this type of flooding can also lead to drinking water contamination, destroy septic system drainfields, impair tourism and recreational businesses, and disrupt critical infrastructure systems (Council 1999) (Environment 2021).

### Ice Jam Flooding

Flooding from ice jams can have detrimental impacts on property and infrastructure, including damages to homes, bridges, roads, and businesses. Similar to other types of flooding, ice jam flooding can close roadways and cause power outages, limiting operations of businesses in the impacted areas. A significant ice jam flood event could cause millions of dollars in damages (Das, Reed and Lindenschmidt 2018).





### *Dam Failure Flooding*

Dam failures have historically occurred in Warren County and can impact the local and regional economy. A failure of one of the 36 high hazard dams in the County could cause significant impacts. When Hurricane Floyd passed through Warren County in 1999, the Cortlandt Lake Dam failed due to the amount of rain and erosion (NPDP 2021). An event like Hurricane Floyd could lead to more failures, leaving the County or dam owners responsible for repairing damages and cleanup.

### **Impact on the Environment**

Flood extents for the 1- and 0.2-percent annual flood events will continue to evolve alongside natural occurrences such as sea level rise, climate change, and/or severity of storms. Further, residents living in and around areas of wildfire may be at increased risk of flooding in the future due to changes in the natural landscape.

### *Riverine Flooding*

Flood events will inevitably impact Warren County's natural and local environment. Severe flooding not only influences the habitat of these natural land areas, but it can also be disruptive to species that reside in these natural habitats.

### *Flash Flooding*

Like riverine flooding, flash floods impact the natural and local environment. The surrounding environment may not be able to withstand and recover from flash flood events. Flash floods can destroy wildlife habitats, pollute rivers and streams, carry sediment and silt that can impact water quality, destroy crops and farms, uproot trees, and cause erosion of streambanks and other areas (Wyoming 2021), (eSchoolToday 2021) (New York City 2019).

### *Stormwater and Urban Flooding*

Stormwater and urban flooding events can also impact the natural environment. Stormwater picks up and carries pollutants and other hazardous materials into waterways causing poor water quality, contaminated waters, and impacting fish and plants. Stormwater can also erode stream channels, increase sediment and debris in waterbodies, and destroy fish and wildlife habitats (Environment 2021).

### *Ice Jam Flooding*

Like other types of flood, the environmental impacts of ice jams can include water quality issues, destroy wildlife habitats, pollution, uproot trees and vegetation, and cause erosion along streambanks and other areas.

### *Dam Failure Flooding*

The environmental impacts of a dam failure can include significant water-quality and debris-disposal issues. Flood waters can back up sanitary sewer systems and inundate wastewater treatment plants, causing raw sewage to contaminate residential and commercial buildings and the flooded waterway. The contents of unsecured containers of oil, fertilizers, pesticides, and other chemicals get added to flood waters. Hazardous materials may be released and distributed widely across the floodplain. Water supply and wastewater treatment facilities could be offline for weeks.





After the flood waters subside, contaminated and flood-damaged building materials and contents must be properly disposed of. Contaminated sediment must be removed from buildings, yards, and properties. In addition, severe erosion is likely; such erosion can negatively impact local ecosystems.

## Cascading Impacts on Other Hazards

### *Riverine, Flash, and Stormwater/Urban Flooding*

Flood events can exacerbate the impacts of disease outbreak and landslides. After a flooding event, runoff can pick up and transport pollutants from wildlife and soils. Such organisms can then appear in water drinking facilities and transmit illnesses water-borne and vector diseases to the population (World Health Organization (WHO) 2020). Flooding can also put additional strain on dams, which may lead to dam failure. More information about these hazards of concern can be found in Section 5.4.1 (Dam Failure) and Section 5.4.2 (Disease Outbreak).

### *Ice Jam and Dam Failure Flooding*

Dam failures and ice jams can cause severe downstream flooding, depending on the magnitude of the failure. Other potential impacts are landslides and erosion. They can also cause environmental impacts if floodwaters flow through hazardous material facilities and bring those materials to other areas.

## Future Changes That May Impact Vulnerability

Understanding future changes that affect vulnerability can assist in planning for future development and ensure establishment of appropriate mitigation, planning, and preparedness measures. The County considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

### *Projected Development*

As discussed and illustrated in Section 4 (County Profile), areas targeted for future growth and development have been identified across the County. New development that has occurred in the last five years within the County, and potential future development in the next five years as identified by the County and each municipality, is included in Section 4, County Profile (Volume I) as well as the jurisdictional annexes in Section 9 (Volume II), along with an indication of proximity to known hazard zones.

### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). Changes in population density in flood hazard areas can affect the vulnerability of the population to flood impacts. Refer to Section 4 (County Profile), which includes a discussion on population trends for the County.





### *Climate Change*

As discussed above, most studies project that the State of New York will see an increase in average annual temperatures and precipitation. It is anticipated that Warren County will continue to experience direct and indirect impacts of flooding events annually that may induce secondary hazards such as infrastructure deterioration or failure, utility failures, power outages, water quality and supply concerns, and transportation delays, accidents, and inconveniences.

### **Change of Vulnerability Since the 2017 HMP**

Since the 2017 HMP was drafted, updated inventory data has become available to assess additional flood hazard areas in Warren County. This data includes the 5-Year 2017–2021 American Community Survey population estimates, updated 2021 tax assessor parcel data, 2022 general building stock data provided by the County, 2022 RS Means for building stock replacement cost valuation, and updated critical facility data provided by the County's Planning Partners. Hazus v5.1 was also used to assess the losses in the County to the overall risk from 100-year and 500-year flood risk. Overall, this vulnerability assessment uses a more accurate and updated asset inventory which provides more accurate estimated exposure to the flood hazard.





## 5.4.6 Infestation and Invasive Species

### Hazard Profile

---

#### Hazard Description

An infestation is defined as an invasion or overrun by parasites that attack plants, animals, and humans. Insect, fungi, and parasitic infestations can result in destruction of various natural habitats and cropland, impact human health, and cause disease and death among native plants, wildlife, and livestock. An infestation is the presence of pest organisms within an area or field, on the surface of a host, or in soil at numbers or quantities large enough to harm, threaten, or otherwise negatively affect native plants, animals, and humans. Pests are any organisms (insects, mammals, birds, parasite/pathogen, fungi, non-native species) that threaten other living species within an environment. Pests compete for natural resources and can transmit diseases to humans, crops, and livestock. Human populations are generally affected by insect or animal infestations that can lead to epidemics or endemics.

Invasive species are non-native species that can harm the environment, the economy, or human health. They may come from anywhere in the world, and as international trade increases, so does the rate of invasive species introductions. Invasive species threaten nearly every aspect of the world and are one of the greatest threats to New York State's biodiversity (NYSDEC n.d.). They can cause or contribute to the following:

- Habitat degradation and loss
- Loss of native fish, wildlife, and tree species
- Loss of recreational opportunities and income
- Crop damage, and diseases in humans and livestock (NYSDEC n.d.)

The Adirondack Park Invasive Plant Program (APIPP) serves as the Adirondack Partnership for Regional Invasive Species Management (PRISM), one of eight PRISMs across New York. APIPP services the northeastern section of New York State, including Warren County. APIPP's mission is to work in partnership to minimize the impact of invasive species on the Adirondack region's communities, lands, and waters. APIPP is a partnership program founded in 1998 by The Nature Conservancy, New York State Department of Environmental Conservation (NYSDEC), New York State Department of Transportation and New York State Adirondack Park Agency, and it is housed under the Adirondack Chapter of The Nature Conservancy. Funding is provided via five-year contracts from the New York State Environmental Protection Fund as administered by NYSDEC. Since APIPP's founding, the program has grown to include more than 30 partner organizations and hundreds of volunteers (APIPP 2023).





The Adirondack PRISM has identified the following invasive plant species of concern in the region:

- Autumn olive
- Bittersweet
- Bush honeysuckles
- Common buckthorn
- Common reed grass
- Cup plant
- Curly-leaf pondweed
- Eurasian watermilfoil
- European frog-bit
- Fanwort
- Garlic mustard
- Giant hogweed
- Glossy buckthorn
- Hydrilla
- Japanese angelica tree
- Japanese barberry
- Japanese stiltgrass
- Japanese tree lilac
- Mile-a-minute
- Multiflora rose
- Norway maple
- Porcelain berry
- Purple loosestrife
- Reed canary grass
- Scotch broom
- Slender false brome
- Starry stonewort
- Swallow-wort spp.
- Tree of heaven
- Variable-leaf watermilfoil
- Water chestnut
- Wineberry
- Winged burning bush
- Yellow iris (APIPP 2023)

The Adirondack PRISM has identified the following invasive animal species of concern in the region:

- Asian clam
- Asian longhorned beetle
- Beech leaf disease nematode
- Chinese mystery snail
- Emerald ash borer
- Eurasian boar
- Fishhook waterflea
- Hemlock wooly adelgid (HWA)
- Jumping worm
- Quagga mussel
- Round goby
- Rusty crayfish
- Spiny waterflea
- Spotted lanternfly
- Zebra mussel (APIPP 2023)

New York State has been impacted by various past and present infestations, including high populations of mosquitoes, which can cause West Nile Virus (WNV); deer ticks, which can cause Lyme disease; and Asian longhorned beetles and hemlock wooly adelgid, which destroy trees. Other infestations that have affected the state include Eastern Equine Encephalitis, La Crosse Encephalitis, Powassan Virus, St. Louis Encephalitis, Western Equine Encephalitis, Emerald Ash Borer, and Sirex Woodwasp. Not all of these infestations have occurred in Warren County. The infestations listed below merit attention.





### *Emerald Ash Borer*

*Emerald Ash Borer (EAB)* is an invasive beetle from Asia and kills North American ash species (*Fraxinus* sp.), all of New York's ash trees are susceptible to EAB. The first EAB infestation in New York State was discovered in Cattaraugus County 2009. As of the summer of 2022, the presence of EAB has been confirmed in all New York counties except; Essex, Hamilton, and Lewis (NYSDEC 2021). The EAB is a small and very destructive beetle. It has four stages: adult, egg, larva, and pupa. The adult beetle are roughly 3/8 to 5/8 inch long with metallic green wing covers and a coppery red or purple abdomen. They may be present from late May through early September but are most common in June and July. Signs of infection include tree canopy dieback, yellowing, and browning of leaves (NYSDEC 2021).

### *Hemlock Woolly Adelgid (HWA)*

The adelgid uses long mouth parts to extract sap and nutrients from hemlock foliage, preventing free growth and causing needles to discolor from deep green to grayish green and to drop prematurely. Loss of new shoots and needles seriously impairs tree health. Infestation is usually fatal to the tree after several years. Wind, birds, other wildlife, and movement of infested host material (wood) by humans are all factors in dispersion of the adelgid (NYSDEC 2018). Hemlock wood is commonly used in barns and on farm building projects. Groves of hemlock trees provide habitat and cover for deer, ruffed grouse, turkey, rabbit, and snowshoe hare. Loss of hemlock groves can result in loss of cool, damp, and shaded microclimate that supports terrestrial plant communities. Losses can also result in warmer stream temperatures for fish and other aquatic species, thus harming them.

### *Spotted Lanternfly*

The spotted lanternfly (*Lycorma delicatula*) is a planthopper native to China and Southeastern Asia. In the USA, spotted lanternfly is an invasive species that could be very devastating to some crops and hardwood trees. This insect *Spotted Lanternfly* Spotted lanternfly is a significant economic and lifestyle pest for residents, businesses, tourism, forestry, and agriculture. The greatest agricultural concern falls on grapes, hops, apples, blueberries, and stone fruits. Its presence has led to crop loss, exporting issues, and increased management costs (New York State Integrated Pest Management 2023).

### *Beaver*

The beaver (*Castor canadensis*) is a native species whose behavior can cause hazardous conditions. It is unmistakable due to its large body size (26–65 pounds, 25–35 inches) and broad flattened tail (9–10 inches long, 6 inches wide), not to mention the characteristically altered habitat in which it resides. Possessing the unique ability to fell trees, they use this talent to not only get food. It is also a source of construction material for their lodges and the watertight dams they build to impound the area that they intend to inhabit (NYSDEC n.d.).





### Regulations

The Invasive Species Council (Council) is a statutory body that was created in 2008 by Title 17, Section 9 of the Environmental Conservation Law (ECL). The Council was created to coordinate among multiple State entities and partners in addressing the environmental and economic threats of invasive species. The legislation defines invasive species as “a species that is (a) non-native to the ecosystem under consideration; and (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health” (NYSDEC 2022).

The Council is co-led by the Department of Agriculture and Markets (AGM) and consist of nine members: the Commissioners of DEC, AGM, Transportation, Education, and Office of Parks Recreation and Historic Preservation (OPRHP), Secretary of State, the Chairperson of New York State Thruway Authority, the Director of the New York State Canal Corporation, and the Chairperson of the Adirondack Park Agency (APA) (NYSDEC 2022).

As of 2014, New York State has adopted regulations (6 New York Codes Rules and Regulations [NYCRR] Part 575) which identifies the regulations standards for selling and offering regulated species. Any persons who purchase a regulated invasive species is required to maintain all labels, signs and notices pertaining to invasive species in the given areas (New York Codes, Rules, and Regulations 2022).

### Location and Extent

The extent and location of an infestation or invasive species depend on the preferred habitat of the species, as well as the species’ ease of movement and establishment. Each threat can impact most areas of New York State, including Warren County. Levels of threat from infestations and invasive species range from nuisance to widespread. The threat typically intensifies when the ecosystem or host species is already stressed, such as during periods of drought and increased periods of rainfall.

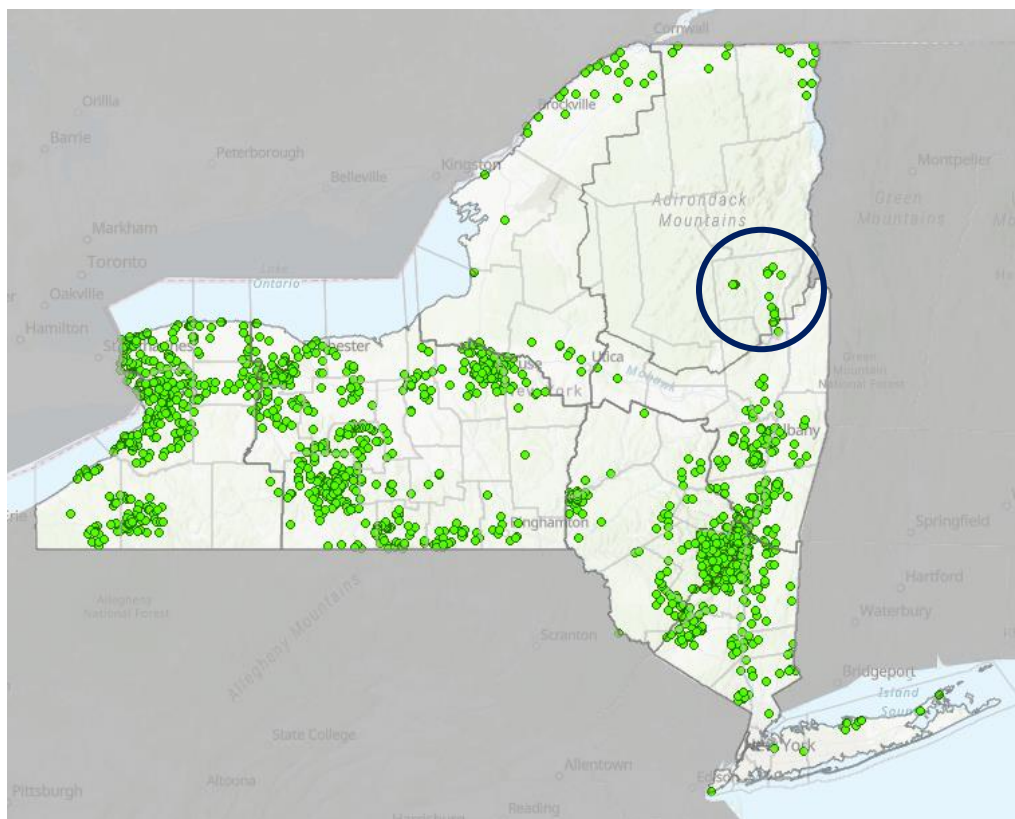
### *Emerald Ash Borer*

All of New York's native ash trees are susceptible to EAB with nearly all counties reporting the presence of EAB. Signs of infestation in the tree canopy include dieback, yellowing, and browning of leaves. Most trees die within two to four years of becoming infested. Adult EABs typically fly less than ½ mile from their emergence tree. Most long-distance movement of EAB has been directly traced to ash firewood or ash nursery stock. New York State currently has a regulation restricting the movement of firewood to protect forests from invasive pests (NYSDEC n.d.).





**Figure 5.4.6-1. Emerald Ash Borer New York Distribution Map**



Source: New York Invasive Species Network 2019

Note: The black circle indicates the approximate position of Warren County

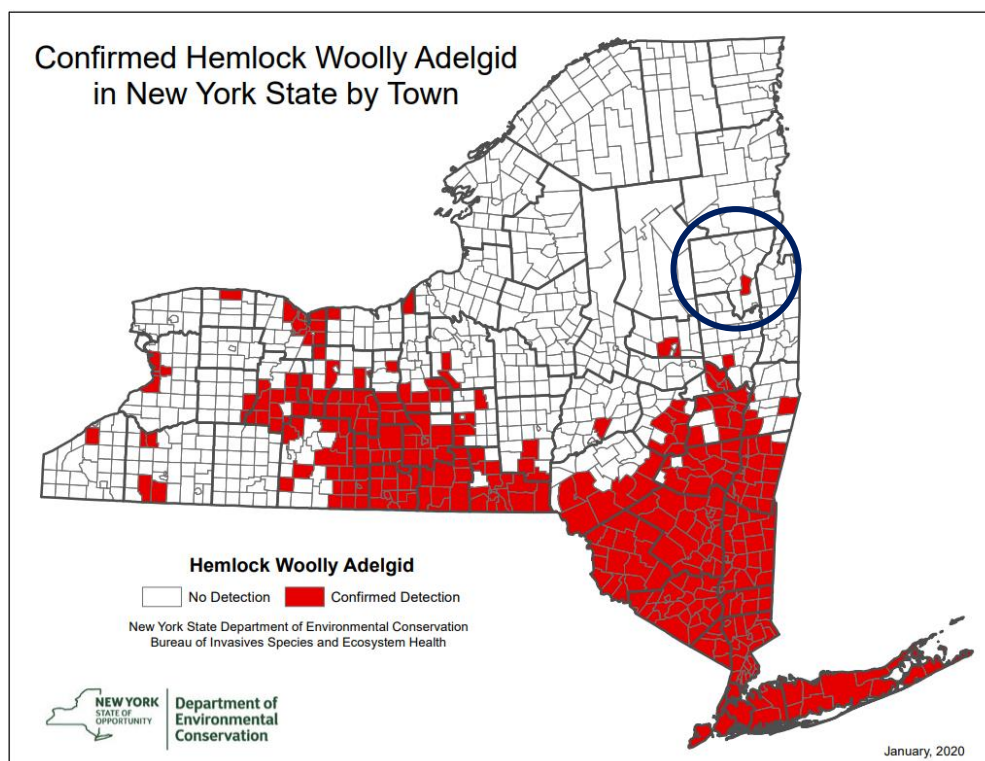
### *Hemlock Woolly Adelgid*

HWA has been in North America for twenty years and has been spreading across New York State and to higher elevations at an alarming rate (Cornell Cooperative Extension 2018). Early detection is the key to successful management, HWA are recognized by white woolly masses produced on twigs in late winter. Figure 5.4.6-2 shows the distribution of HWA in New York State and Warren County as of January 2020. The dark blue circle indicates Warren County and shows Hemlock Woolly Adelgid has been found in Warren County in Lake George.





**Figure 5.4.6-2. Confirmed Hemlock Woolly Adelgid in New York State by Town**



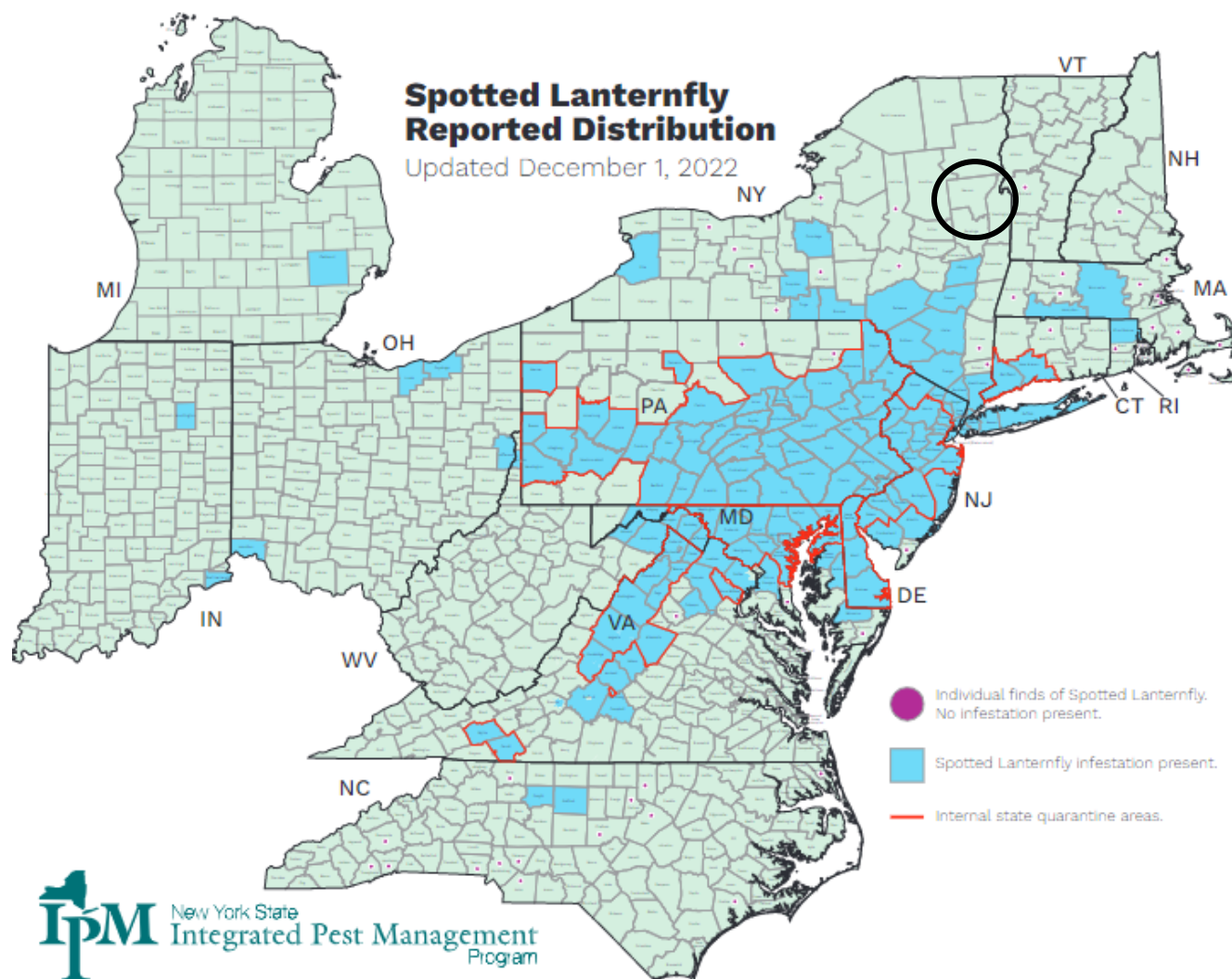
Source: NYSDEC 2020

Note: The black circle indicates the approximate position of Warren County

### Spotted Lanternfly

The spotted lanternfly was accidentally introduced into Pennsylvania and was confirmed in September 2014. Since this time, the insect has spread throughout the mid-Atlantic. As of December 2022, spotted lanternfly has not been found in Warren County but continues to move closer to the County. The spotted lanternfly can feed on more than 70 plant species including cultivated grapes, fruit trees, and hardwood trees. Key tree hosts include black walnut; red maple; and agricultural crops such as grapes, hops, apples, and peaches (New York State Integrated Pest Management 2023).



**Figure 5.4.6-3 Spotted Lanternfly Reported Distribution**

Source: New York State Integrated Pest Management 2023

Note: The black circle indicates the position of Warren County

### Beaver

Dubbed "nature's finest wetland engineer", beaver activity has both disruptive and beneficial impacts on any body of water they colonize. Their dam-building activity can cause widespread flooding of forest and agricultural lands. Nuisance complaints regarding beaver activity are widespread across New York State. Flooding not only has the potential to change the ecology of a colonized area, but it can also cause hazards to human habitation by plugging culverts and flooding roads, railroad tracks, and agricultural lands. There are also general property damage concerns. New beaver dams or failure of established dams can lead to significant flooding events (NYSDEC n.d.).





**Figure 5.4.6-4 Washout of Olmstead Road due to Beaver Dam Failure, March 2022**



Source: *The Post Star* 2022

### Previous Occurrences

#### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was not included in any disaster (DR) or emergency (EM) declarations for infestation or invasive species-related events. However, Warren County was included in a West Nile Virus outbreak in 2000. Section 5.4.2 (Disease Outbreak) includes more information on this declaration. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2022). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

#### *USDA Declarations*

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was not included in any infestation and invasive species-related agricultural disaster declarations.





### Previous Events

For this 2023 HMP update, known infestation and invasive species events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to Appendix (Supplementary Data).

**Table 5.4.6-1. Infestation and Invasive Species Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
2017	Hemlock Woolly Adelgid	N/A	N/A	Hemlock Woolly Adelgid was confirmed in Lake George by NYS DEC, the first confirmation of the insect in Warren County.
August 2020	Emerald Ash Borer	N/A	N/A	NYSDEC announced that emerald ash borer (EAB) was confirmed in Warren County, marking the first confirmed case of EAB within the Adirondack Park. The affected trees were identified by Department of Transportation personnel at the Warren County Canoe Launch on the Schroon River in the Town of Chester.
March 20, 2022	Beaver Dam Failure	N/A	N/A	Olmstedville Road also known as Route 19 in Chester was closed after a beaver dam broke and water flooded the area. The Warren County Department of Public Works and Office of Emergency Services responded to the area. Part of the road's shoulder and the nearby culvert were damaged.

Sources: FEMA 2023; NOAA NCEI 2023; The Post Star 2022

Notes:

### Probability of Future Occurrences

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of infestation and invasive species events for the County. Based on historical documentation and given the overall impact of changing climate, New York State is expected to undergo increased incidences of infestation and invasive species. Warren County and all its jurisdictions will continue under threat of infestations and invasive species that may induce secondary hazards and health threats to the County population if infestations are not prevented, controlled, or eradicated.

Based on historical occurrences, the probability of an infestation and invasive species event occurring is considered occasional between 10 and 100% annual probability of occurrence). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.





### Climate Change Projections

Climate change is beginning to affect both people and resources in New York State, and these impacts are projected to increase. The impacts related to increasing temperatures and sea level rise are already causing complications in the state. *ClimAID: The Integrated Assessment for Effective Climate Change in New York State (ClimAID)* was undertaken to provide decision-makers with information on the state's vulnerability to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge (NYSERDA 2011/2014).

Temperatures in New York State are warming, with an average rate of warming over the past century of 0.25° F per decade. Average annual temperatures are projected to increase across New York State by 2–3.4 °F by the 2020s, 4.1–6.8 °F by the 2050s, and 5.3–10.1 °F by the 2080s. By the end of the century, the greatest warming is projected to be in the northern section of the state (NYSERDA 2011/2014).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change, Warren County is part of Region 7 (Indian Lake). In Region 7, it is estimated that temperatures will increase by 4.5°F to 6.4°F by the 2050s and 5.8°F to 10.1°F by the 2080s (baseline of 39.9°F). Average annual temperatures are projected to increase across New York State by 4.1° F to 6.8° F by the 2050s and 5.3° F to 10.1° F by the 2080s with an average rate of warming over the past century of 0.25° F per decade. By the end of the century, the greatest warming is projected to be in the northern section of the State.

**Figure 5.4.6-5. Projected Seasonal Precipitation Change in Region 7, 2050s (% change)**

Winter	Spring	Summer	Fall
+5 to +15	-5 to +10	-5 to +5	-5 to +10

Source: NYSERDA 2011

Temperature and rainfall increases due to climate change are anticipated, and evidence exists that climate change may be a factor in expansion of infestation and infectious diseases in the United States. Warmer temperatures and changing rainfall patterns provide an environment where insects can remain active longer, greatly increasing the risk for animals and humans. The changes in climate can also allow tropical and subtropical insects to move from regions where diseases thrive into new places (Natural Resource Defense Council 2015).

As temperatures increase and rainfall patterns change, these insects can remain active for longer seasons and within wider areas. The ability to predict the future distribution of invasive species in response to climate change is a difficult task due to the factors that influence local and short-term invasion patterns, and because invasive species and concurrent climate and land-use changes are dynamically linked (Finch, et al. 2021). Heavier rainfall events may also result in an increased likelihood of beaver dam failures, increasing the risk of flooding events.





## Vulnerability Assessment

---

To understand risk, a community must evaluate assets exposed to and vulnerable to the identified hazard. A qualitative assessment was conducted for infestations and invasive species in Warren County.

### Impact on life, Health, and Safety

The entire population of Warren County is vulnerable to infestation and invasive species. According to the 2020 U.S. Census, Warren County had a population of 65,737. As discussed earlier, infestations can have an impact on agricultural commodities. This destruction of crop may include consumable resources that are sold to persons in the County. Warren County is home to 80 farms (USDA 2017). It is reasonable to assume that the farms in Warren County also experience losses in crops. This not only impacts the livelihood of the farmers; it also affects the community that relies on these crops for food or other commodities.

### Impact on General Building Stock

Structures are not anticipated to be directly affected by infestation or invasive species; however, EAB may cause a catastrophic loss of ash trees throughout the County, which could result in stream bank instability, erosion, and increased sedimentation, impacting ground stabilization and possibly cause foundation issues for nearby structures. Additionally, with an increased number of dead trees, there is an increased risk of trees falling on roadways, power lines, and buildings.

Some invasive plants have been shown to destabilize soil due to high densities and shallow root systems, negatively impacting nearby buildings and septic systems. Other invasive plant species have been known to clog culverts and streams, increasing flooding risk.

Flooding associated with new beaver dams or beaver dam failure can result in damages to buildings, roadways, and other infrastructure.

### Impact on Critical Facilities and Community Lifelines

Water treatment plants could be impacted by infestation and invasive species because of similar issues that the general building stock may experience. Water that becomes polluted due to increased sedimentation and erosion will require additional treatment. If the system becomes clogged with these pollutants, the ability of water treatment plants to operate may become impaired. Additionally, soil that becomes unstable due to decaying vegetation can impact critical facilities that are built on or around these soils.

### Impact on the Economy

Impacts of infestation and invasive species on the economy and estimated dollar losses are difficult to measure and quantify. Costs associated with activities and programs implemented to conduct surveillance and address infestation have not been quantified in available documentation. Crop losses from invasive species may be significant. In 2017, there were 908 acres of cropland in Warren





County with \$1.9 million in crops sold (USDA 2017). Therefore, it is reasonable to believe that Warren County farmers have experienced monetary losses from infestations.

EAB is the responsible for placing all three of New York's ash species in serious decline. The cost of removal for ash trees can be upwards of \$1 million depending on the number of trees for removal and their location.

Flood repairs from beaver dam flooding can be costly and involve replacing washed out roads and culverts.

### **Impact on the Environment**

As previously discussed, Warren County's parks, forests, landscaping, and agricultural areas are vulnerable to infestations and invasive species. Species that cause eventual destabilization of soil, such as invasive insects that destroy plants or invasive plants that outcompete native vegetation but have less effective root systems, can increase runoff into waterbodies. Soil destabilization can also increase the likelihood of mudslides in areas with a steep slope. Beavers can destroy existing habitat during dam building.

### **Future Changes That May Impact Vulnerability**

Understanding future changes that impact vulnerability in the County can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The County considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

#### *Projected Development*

Section 4 identifies areas targeted for future growth and development across the County. Any areas of growth located within Warren County could be potentially impacted by invasive species and infestation. Specific areas of recent and new development are indicated in tabular form and/or on the hazard maps included in Volume II, Section 9 (Jurisdictional Annexes) of this plan.

#### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). However, any increases in the density of population or communities or potential increased construction throughout the County could lead to increased infestation of homes and other structures. When building developments locate near wetlands, forested areas, or agricultural lands, it increases the possibility of infestation. Refer to Section 4 (County Profile), which includes a discussion on population trends for the County.





### *Climate Change*

Climate change and invasive species are two of the top four drivers of global biodiversity loss, affecting production landscapes, reducing crop yields, and the provision of ecosystem services (Masters and Norgrove 2010). Land use changes because of climate change creates an empty niche for invasive species to occur so together these drivers have a greater impact. Climate change can facilitate invasive species and infestation such as new species that become invasive entering regions due to climate change, species hierarchy in ecosystems will begin to shift, leading to new dominants that may portrahit invasive behaviors, and climate induced stress in the ecosystem will facilitate invasive ecosystems (Masters and Norgrove 2010). Alternatively, invasive species and infestations can facilitate climate stress by increasing the ecosystems susceptibility to climatic disturbance, through reducing the number of species and their functional types within an ecosystem.

### **Change of Vulnerability Since the 2017 HMP**

Overall, the County's vulnerability has not changed since the 2017 HMP, and exposure and vulnerability to infestation and invasive species will continue throughout Warren County.





## 5.4.7 Severe Storm

### Hazard Profile

---

#### Hazard Description

Severe storm events are a common occurrence in Warren County. A variety of severe storm types, such as thunderstorms, lightning, hail, tornadoes, straight-line winds, and hurricanes have damaged property and infrastructure, disrupt power, downing trees and power lines, and causing injuries and fatalities. The following section describes the different severe storm types that impact Warren County.

#### *Thunderstorms*

A thunderstorm is a local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder (NWS, National Weather Service Glossary 2021). A thunderstorm forms from a combination of moisture, rapidly rising warm air, and a force capable of lifting air, such as a warm and cold front, a sea breeze, or a mountain. Thunderstorms form from the equator to as far north as Alaska. Although thunderstorms generally affect a small area when they occur, they have the potential to become dangerous due to their ability in generating tornadoes, hailstorms, strong winds, flash flooding, and lightning. The NWS considers a thunderstorm severe only if it produces damaging wind gusts of 58 mph or higher or large hail one inch (quarter size) in diameter or larger or tornadoes (NWS, National Weather Service Glossary 2021).

#### *Lightning*

Lightning is a bright flash of electrical energy produced by a thunderstorm. The resulting clap of thunder is the result of a shock wave created by the rapid heating and cooling of the air in the lightning channel. All thunderstorms produce lightning and are very dangerous. Lightning ranks as one of the top weather killers in the United States, killing approximately 50 people and injuring hundreds each year. Lightning can occur anywhere there is a thunderstorm. Lightning can be cloud to air, cloud to cloud, and cloud to ground (New York State 2019).

#### *Hail*

Hail is a type of precipitation that is formed when drops of water freeze together in the cold upper regions of thunderstorm clouds, also referred to as hailstones. Hail can cause severe crop damage and may affect vehicles, roofs, landscaping, and other areas of the built environment. Hailstorm events can occur anywhere within New York State independently or during a tornado, lightning, or thunderstorm event.





## Tornadoes

A tornado is a violently rotating column of air that extends from a thunderstorm to the ground with an average forward speed of 30 miles per hour (mph). Tornadoes typically develop from either a severe thunderstorm or hurricane as cool air rapidly overrides a layer of warm air. Tornadoes can occur at any time of the year, with peak seasons at different times for different states (NWS, Thunderstorms, Tornadoes, Lightning...Nature's Most Violent Storms 2010).

## Straight-Line Winds

High Winds (Straight Line) are not associated with rotation, like tornado winds. Damaging winds are often called "straight-line" winds to differentiate the damage they cause from tornado damage. High winds can cause flying debris or downed trees and power lines that pose a threat to safety and property. High winds combined with dry conditions increases the probability of wildfires. These events can cause significant damage to communities and infrastructure which has caused the state millions of dollars in damage (New York State 2019).

## Hurricanes/Tropical Storm

Hurricanes are large swirling storms that produce winds of 74 mph or higher. They are a type of storm called a tropical cyclone, which forms over tropical or subtropical waters. A hurricane, or tropical cyclone, is one of the most destructive kinds of storms. High sustained winds within the storm can cause widespread structural damage to both man-made and natural structures. These

Figure 5.4.7-1. 2020 Warren County Tornado Event







winds can roll over vehicles, collapse walls and blow over trees. The prevailing winds of a hurricane push a wall of water, called a storm surge, in front of it. If the storm surge happens to coincide with high tide, it causes beach erosion and significant inland flooding.

Hurricanes deliver massive downpours of rain. A particularly large storm can dump dozens of inches of rain in just a day or two. That amount of rain can create flooding, potentially devastating large areas in the path of the hurricane. Additionally, hurricane winds often spawn tornadoes that cause more damage (New York State 2019).

### **Location**

All of Warren County is exposed to high wind, lightning, windstorms, thunderstorms, hail, tornadoes, hurricanes, and tropical storms.

#### *Thunderstorms*

Thunderstorms can occur anywhere within New York State and Warren County and damages from thunderstorms and lightning is often underestimated. (New York State 2019)

#### *Lightning*

Lightning strikes can occur anywhere within New York State and Warren County (New York State 2019).

#### *Hail*

Hailstorm events can occur anywhere within New York State and Warren County, independently or during a tornado, thunder or lightning storm event and are usually localized in scale (New York State 2019).

#### *Tornadoes*

In New York State, tornadic destruction ranges from light to catastrophic depending on wind speed, width, and the distance traveled. Wind gusts of 3 seconds can range from 45 mph (FO tornadoes) to over 250 mph (F5 tornadoes) (New York State 2019). They can occur anywhere in Warren County.

#### *Straight-Line Winds*

New York State and Warren County are located in a region highly susceptible to high wind events; this includes straight-line wind events (New York State 2019). In the National Risk Index, a Strong Wind Risk Index score and rating represent a community's relative risk for strong winds (exceeding 58 miles per hour). According to the National Risk Index, Warren County has a relatively low risk to strong winds (FEMA 2023).





### *Hurricanes/Tropical Storms*

In New York State, Hurricanes can impact New York City, Long Island, and in some cases, the Catskills, Hudson Valley, and Upstate (New York State 2019).

#### *Mean Return Period*

In evaluating the potential for hazard events of a given magnitude, a MRP is often used. The MRP provides an estimate of the magnitude of an event that may occur within any given year based on past recorded events. MRP is the average period of time, in years, between occurrences of a particular hazard event, equal to the inverse of the annual frequency of exceedance (Dinicola 2009).

Figure 5.4.7-2 through Figure 5.4.7-4 show the estimated maximum 3-second gust wind speeds that can be anticipated in the study area associated with the 100- and 500-year MRP events, and the historical 1938 storm. These peak wind speed projections were generated using FEMA's Hazus-MH v4.2 wind model. The maximum 3-second gust wind speeds for Warren County are 39-73 mph (Tropical Storm), for the 100-year MRP and 500-year MRP events and the 1938 storm. The associated impacts and losses from these MRP hurricane event model runs are discussed in the Vulnerability Assessment subsection.





Figure 5.4.7-2. Wind Speeds for the 100-Year Mean Return Period Event

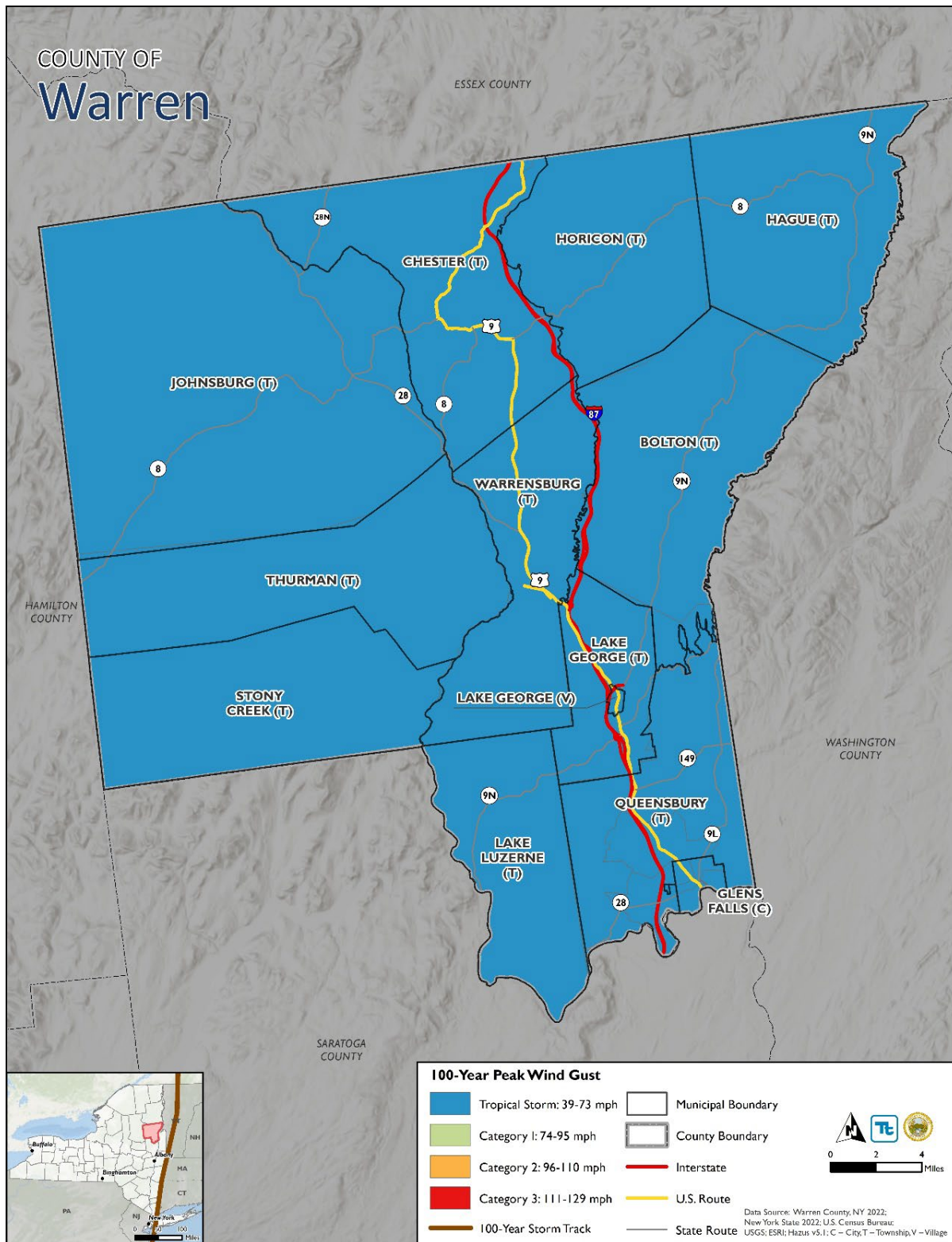






Figure 5.4.7-3. Wind Speeds for the 500-Year Mean Return Period Event

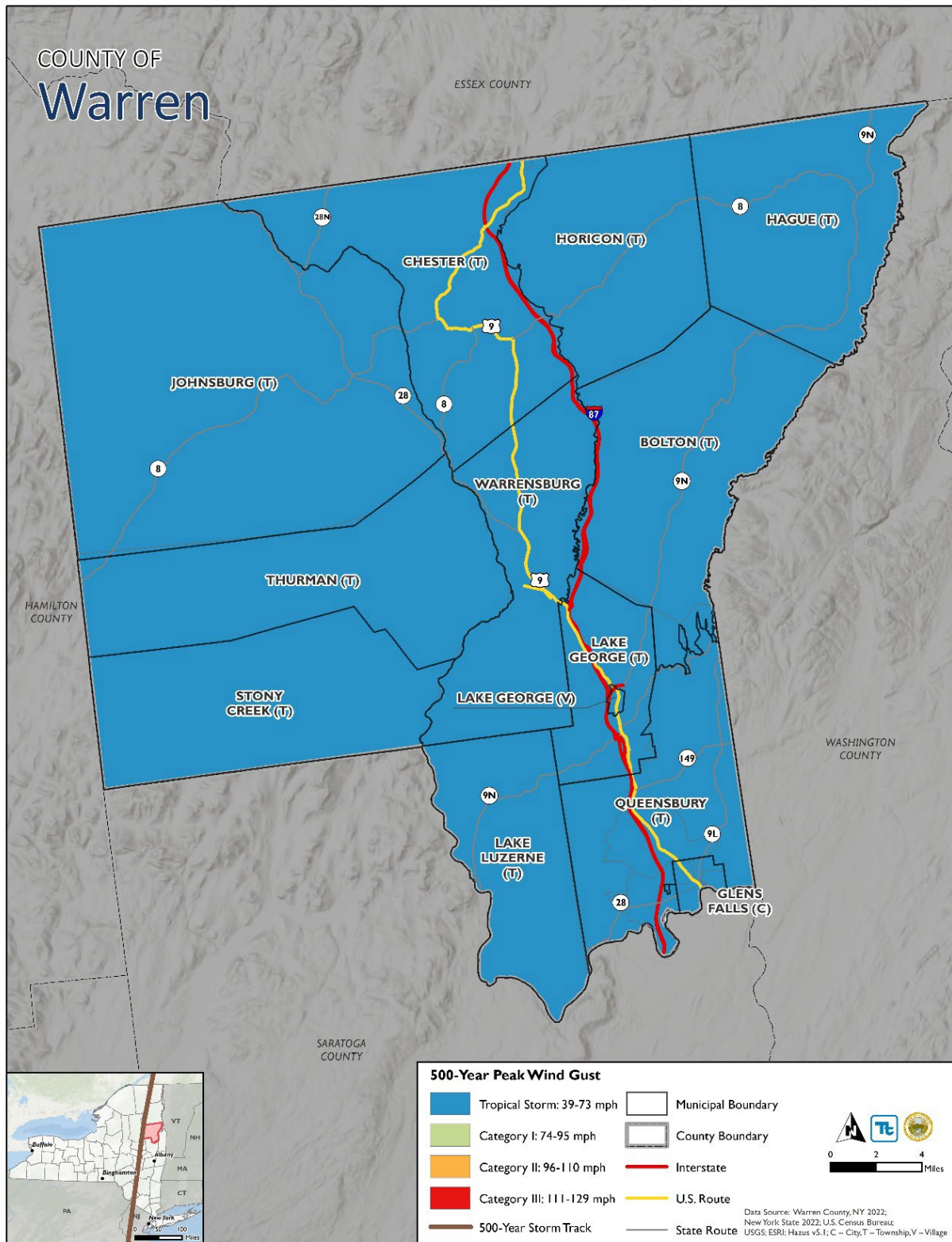
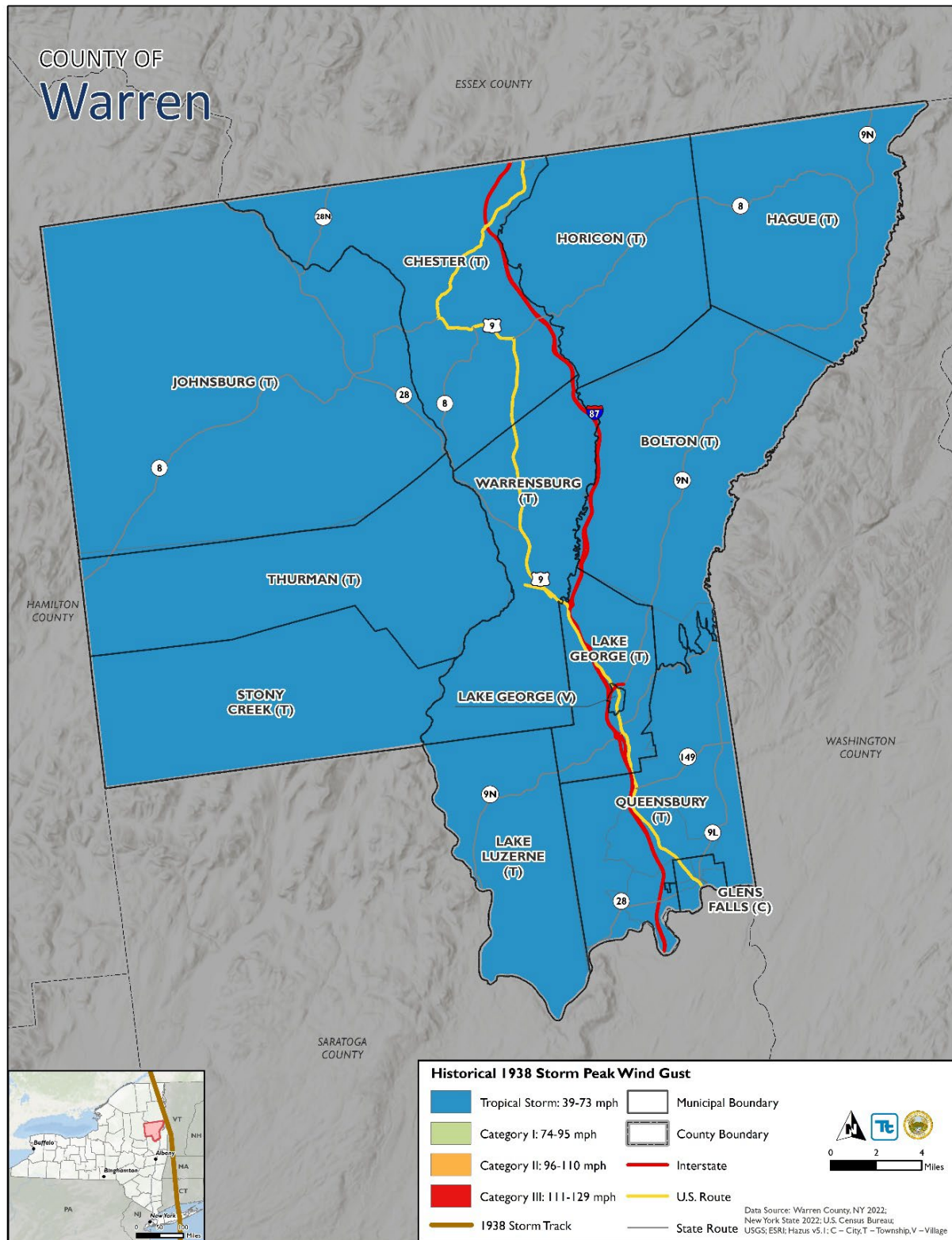






Figure 5.4.7-4. Wind Speeds for the Historical 1938 Storm







## Extent

### Thunderstorms

Thunderstorms include heavy rainfall and occasional, gusty winds, but often include hail and lightning. Damage from severe thunderstorm winds account for half of all severe storm reports in the lower 48 states and is more common than damage from tornadoes. Heavy rainfall produced by thunderstorms may result in several types of flooding including riverine, flash floods, and local drainage floods.

### Lightning

Intra-cloud lightning is the most common type of discharge, occurring between oppositely charged centers within the same cloud. From the outside of the cloud, this looks like diffuse, flickering brightening in the cloud. The flash may exit the boundary of the cloud, and a bright channel of light, like cloud-to-ground flash, can be visible for miles.

Although less common, cloud-to-ground lightning is the more dangerous and damaging type. Most charges originate near the lower-negative charge center of the cloud and deliver a negative charge to earth, but many flashes carry a positive charge to earth.

Positive flashes commonly occur when a thunderstorm is dissipating. Positive charges are more common as a percentage of total ground strikes during the winter months. Positive charge lightning is dangerous because it strikes outside of the rain core, either behind or ahead of a thunderstorm. It can strike as far as five or 10 miles from the storm in areas not considered to be a lightning threat. Positive lightning strikes are of longer duration and more easily light fires. When positive lightning strikes, it carries a high peak electrical current, resulting in greater damage.

Lightning is monitored nationwide through a network of lightning detection systems. These record an average of 25 million strikes of cloud-to-ground lightning every year.

### Hail

The National Weather Service (NWS) classifies hail by its diameter and compares it to everyday objects (i.e., size of a golf ball, tennis ball) to explain scope and severity to non-scientific audiences.

**Table 5.4.1 – Hail Size Chart**

Description	Diameter (inches)
Pea	0.25"
Penny/Dime	0.75"
Quarter	1.00"
Half Dollar	1.25"
Golf ball	1.75"
Tennis Ball	2.50"
Baseball	2.75"





Description	Diameter (inches)
Grapefruit	4.00"

Source: NWS

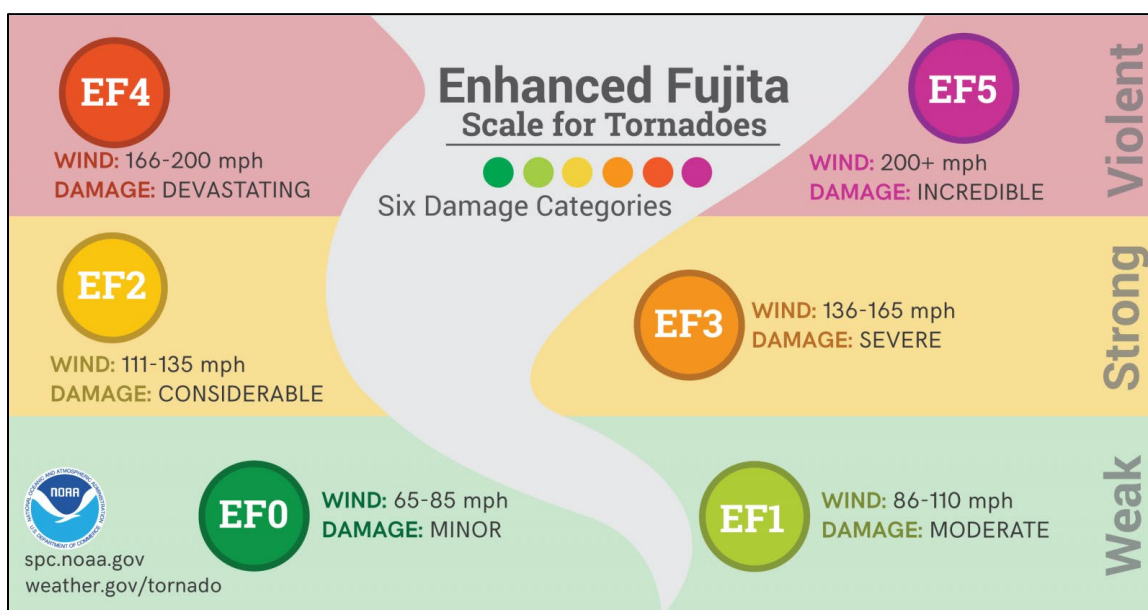
### Tornadoes

Tornadoes the world's most powerful storms. They are characterized by a funnel-shaped downward extension of a cumulonimbus cloud whirling at speeds of up to 300 miles per hour. They generally occur in the afternoon and evening, after the daily buildup of heat powers a violent "supercell" thunderstorm. A tornado can stay on the ground for an hour or longer and be a mile wide or larger. While rarely seen in the Planning Area, they have in recent years occurred more frequently in combination with several types of severe storms.

Practically speaking, it is nearly impossible to measure the actual wind speed inside a tornado because unprotected weather instruments would be destroyed. For this reason, the Fujita Scale was devised in 1971 as a system for estimating the intensity of tornadoes based on the type and severity of damage. The Fujita Scale used an "F" designator before the scale number and ranges from F0 to F5, with higher numbers indicating more severe storms.

In recent years, increased knowledge of wind forces and their effects on buildings led scientists to determine that wind speeds on the original scale were too high for categories F3 and higher. The scale was revised in 2007 as the Enhanced Fujita Tornado Intensity Scale. This is the scale now used exclusively for determining tornado ratings by comparing wind speed and actual damage. The Enhanced Fujita Scale uses an "EF" designator before the scale number.

Figure 5.4.7-5. Enhanced Fujita Scale (EF Scale)



Source: NWS 2018





### *Straight-Line Winds*

Winds are often termed straight-line winds to differentiate the damage they cause from that of a tornado. Most winds that cause damage at the ground level result from outflow generated by thunderstorm downdraft. The intensity of straight-line winds may be as intense as that of a tornado. Damaging winds are classified as those exceeding 50–60 mph. Thunderstorm wind damage is more common than tornado damage and accounts for half of all severe weather reports in the lower 48 states. Mobile home residents are especially at risk for injury and death. Even anchored mobile homes can be seriously damaged when straight-line winds gust to over 80 miles per hour (New York State 2019)

### *Hurricanes/Tropical Storm*

The Saffir–Simpson Hurricane Wind Scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time; however, it does not take into account other potential hazards such as storm surge, rainfall flooding, and tornadoes. The scale estimates potential property damage.

**Figure 5.4.7-6. Saffir-Simpson Hurricane Wind Scale**



Source: NOAA 2017

### **Previous Occurrences**

#### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was included in eight disaster (DR) or emergency (EM) declarations for severe storm-related events. Generally, these disasters cover a wide region of the





State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2023). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

### USDA Declarations

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2017 and 2022, Warren County was included in two severe storm-related agricultural disaster declarations.

### Previous Events

For this 2023 HMP update, known severe storm events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to previous Warren County HMP.

**Figure 5.4.7-7. Severe Storm Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
January 10-11, 2017	Strong Wind	N/A	N/A	Strong wind gusts of 40 to 60 miles per hour were recorded in Warren County. These strong wind gusts resulted in many downed trees, power poles, and power lines. Overall, the County had approximately \$5,000 in property damage from this event.
July-August 2018	Excessive Precipitation	USDA S4479	Yes	Excessive rainfall during this time led to a USDA declaration, which included Warren County.
April-December 2019	Excessive Rain	USDA S4622	Yes	Excessive rainfall during this time led to a USDA declaration, which included Warren County.
July 30, 2019	Thunderstorm Wind	N/A	N/A	On July 30, 2019, strong thunderstorms developed over Warren County, bringing strong winds and power outages. In Warren County, 1,900 customers were without power. One person was injured in the County when a tree fell on a trailer.
October 31 – November 1, 2019	Severe Storms, Straight-Line Winds, and Flooding	FEMA-DR-4472	Yes	<p>A series of strong storms impacted the southern Adirondacks and Mohawk Valley of New York State, bringing rain, flash flooding, and strong winds. Rainfall totals ranged from two to five inches and resulted in flash flooding. The runoff caused rapid rises on area creeks and streams, with four river gauges reaching record levels. The flooding was extensive over portions of the area, damaging numerous roads and structures and resulting in water rescues.</p> <p>A state of emergency was declared for Dutchess, Herkimer, Hamilton, Saratoga, and Warren Counties, and boil water notices were issued in Herkimer, Hamilton, and Warren Counties due to floodwater inundation of private and public water systems.</p>





Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
				In Warren County, many roads were closed, including 25 roads that washed out in Johnsbury. Wind gusts ranged from 30 miles per hour in Queensbury and 47 miles per hour in Chestertown (Town of Chester). Rainfall totals ranged from 2.8 inches in Lake Luzerne and 3.05 inches in Queensbury.
January 12, 2020	Strong Wind	N/A	N/A	Strong wind gusts of up to 54 miles per hour were reported in Warren County, downing trees and damaging buildings. Overall, the County had approximately \$15,000 in property damage from this event.
July 20, 2021	Thunderstorms and Lightning	N/A	N/A	Severe thunderstorms impacted Warren County, bringing hail, damaging winds, and lightning strikes. This caused downed trees and power lines, and damage to homes and vehicles. A lightning strike hit a house near West Glen Falls that resulted in a fire. Overall, the County had approximately \$20,000 in property damage from this event.

Sources: FEMA 2023; National Weather Service 2023; National Centers for Environmental Information 2023

### Probability of Future Occurrences

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of severe storm events for the County. Information from NOAA-NCEI storm events database, FEMA, and the 2019 State of New York HMP were used to identify the number of severe storm events that occurred between 1950 and 2022. Figure 5.4.7-8 presents the probability of future events for the severe storm event in the County.

**Figure 5.4.7-8. Probability of Future Severe Storm Events in Warren County**

Hazard Type	Number of Occurrences Between 1950 and 2022	Percent Chance of Occurring in Any Given Year
Thunderstorm	244	100%
Lightning	10	13.7%
Hail	50	68.5%
Tornado	5	6.9%
Wind	101	100%
Heavy Rain	18	24.7%
Hurricane/Tropical Storm	2	2.7%
<b>Total</b>	<b>430</b>	<b>100%</b>

Sources: FEMA 2023; National Centers for Environmental Information 2023

Note: Disaster occurrences include federally declared disasters since the 1950 Federal Disaster Relief Act, and selected severe storm events since 1968. Due to limitations in data, not all severe storm events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is underestimated.

A total of 430 severe storm events were recorded in Warren County. Based on historical occurrences, the probability of a severe storm event occurring is considered frequent (100% annual





probability; occurring multiple times per year). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

### *Climate Change Projections*

Climate change is beginning to affect both people and resources in Monroe County, and these impacts are projected to continue growing. The Integrated Assessment for Effective Climate Change in New York State (ClimAID) was undertaken to provide decision-makers with information on the state's vulnerability to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge (NYSERDA 2011).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Warren County is part of Region 5, East Hudson and Mohawk River Valleys. In Region 5, it is estimated that temperatures will increase by 3.0 °F to 5.5 °F by the 2050s and 4.0 °F to 8.0 °F by the 2080s (baseline of 50.0 °F, mid-range projection). Precipitation totals will increase between 0 and 5 percent by the 2050s and 5 to 10 percent by the 2080s (baseline of 38.0 inches, mid-range projection). Table 5.4.7-1 displays the projected seasonal precipitation change for ClimAID Region 5 (NYSERDA 2014).

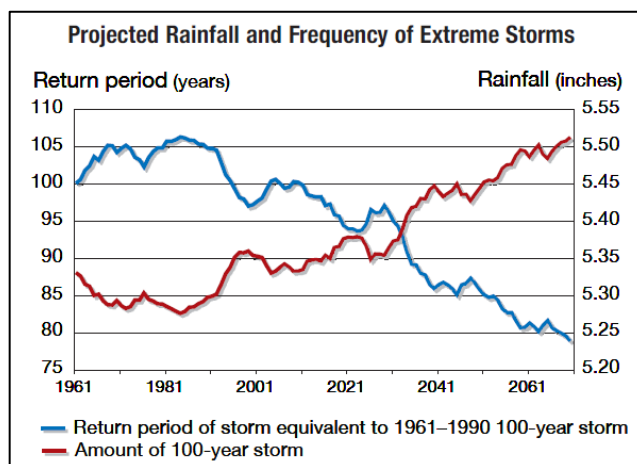
**Table 5.4.7-1. Projected Seasonal Precipitation Change in Region 5, 2050s (% change)**

Winter	Spring	Summer	Fall
+5 to +15	-5 to +10	-5 to +5	-5 to +10

Source: NYSEDA 2014

The projected increase in precipitation is expected to fall in heavy downpours and less in light rains. Downpours are very likely to increase in frequency and intensity, a change which has the potential to affect drinking water; heighten the risk of riverine flooding; flood key rail lines, roadways, and transportation hubs; and increase delays and hazards related to extreme weather events (NYSERDA 2011). Less frequent rainfall during the summer months may impact the ability of water supply systems. Increasing water temperatures in rivers and streams will affect aquatic health and reduce the capacity of streams to assimilate effluent wastewater treatment plants (NYSERDA 2011).

**Figure 5.4.7-9. Projected Rainfall and Frequency of Extreme Storms**



Source: NYSEDA 2014





Figure 5.4.7-9 displays the project rainfall and frequency of extreme storms in New York State. The amount of rainfall in a 100-year event is projected to increase, while the number of years between such storms (return period) is projected to decrease. Rainstorms will become more severe and more frequent (NYSERDA 2014).

## Vulnerability Assessment

All assets in Warren County are at risk to hurricane and tropical storm events. Potential losses associated with high-wind events were calculated for two probabilistic wind events: the 100-year and 500-year MRP events. The impacts on population, existing structures, critical facilities, lifelines, and the economy are presented below.

### Impact on life, Health, and Safety

The impact of a hurricane wind event on life, health, and safety is dependent upon several factors including the severity of the event and whether or not adequate warning time was provided to residents. All Warren County residents are at risk to the impacts caused by hurricane wind events (65,737 persons; 2020 Census).

Research has shown that some populations, while they may not have more hazard exposure, may experience exacerbated impacts and prolonged recovery if/when impacted. This is due to many factors including their physical and financial ability to react or respond during a hazard. Economically disadvantaged populations are vulnerable because they are likely to evaluate their risk and make decisions based on the major economic impact to their family and may not have funds to evacuate. The population over the age of 65 is also vulnerable and, physically, they may have more difficulty evacuating. Additionally, the elderly are considered vulnerable because they require extra time or outside assistance during evacuations and are more likely to seek or need medical attention which may not be available due to isolation during a storm event. Please refer to Section 4 (County Profile) for the statistics of these populations.

Residents may be displaced or require temporary to long-term sheltering. In addition, downed trees, damaged buildings, and debris carried by high winds can lead to injury or loss of life. Socially vulnerable populations are most susceptible, based on a number of factors including their physical and financial ability to react or respond during a hazard and the location and construction quality of their housing. Hazus estimates there will be zero displaced households and no people will require temporary shelter or be displaced or will seek short-term sheltering due to 100-year and 500-year MRP events.

### Impact on General Building Stock

Damage to buildings is dependent upon several factors, including wind speed, storm duration, and path of the storm track. Building construction also plays a major role in the extent of damage resulting from a coastal storm. Due to differences in construction, residential structures are generally





more susceptible to wind damage than commercial and industrial structures. Mobile/manufactured homes, and structures constructed of wood and masonry buildings, in general, tend to experience more damage than concrete or steel buildings.

To better understand these risks, Hazus was used to estimate the expected wind-related building damages. Specific types of wind damages are also summarized in Hazus at the following wind damage categories: no damage/very minor damage, minor damage, moderate damage, severe damage, and total destruction. Table 5.4.7-2 summarizes the definition of the damage categories. summarizes the number and type of buildings and their estimated severity of expected damage.

**Table 5.4.7-2. Description of Damage Categories**

Qualitative Damage Description	Roof Cover Failure	Window Door Failures	Roof Deck	Missile Impacts on Walls	Roof Structure Failure	Wall Structure Failure
<b>No Damage or Very Minor Damage</b> Little or no visible damage from the outside. No broken windows, or failed roof deck. Minimal loss of roof cover, with no or very limited water penetration.	≤2%	No	No	No	No	No
<b>Minor Damage</b> Maximum of one broken window, door or garage door. Moderate roof cover loss that can be covered to prevent additional water entering the building. Marks or dents on walls requiring painting or patching for repair.	>2% and ≤15%	One window, door, or garage door failure	No	<5 impacts	No	No
<b>Moderate Damage</b> Major roof cover damage, moderate window breakage. Minor roof sheathing failure. Some resulting damage to interior of building from water.	>15% and ≤50%	> one and ≤ the larger of 20% & 3	1 to 3 panels	Typically 5 to 10 impacts	No	No
<b>Severe Damage</b> Major window damage or roof sheathing loss. Major roof cover loss. Extensive damage to interior from water.	>50%	> the larger of 20% & 3 and ≤50%	>3 and ≤25%	Typically 10 to 20 impacts	No	No
<b>Destruction</b> Complete roof failure and/or, failure of wall frame. Loss of more than 50% of roof sheathing.	Typically >50%	>50%	>25%	Typically >20 impacts	Yes	Yes

Source: Hazus Hurricane Technical Manual





**Table 5.4.7-3. Expected Severity of Damages from the 100-Year and 500-Year Mean Return Period Hurricane Wind Events**

Occupancy Class	Total Number of Buildings Assessed in Occupancy	Severity of Expected Damage	100-Year Mean Return Period Hurricane		500-Year Mean Return Period Hurricane	
			Building Count	Percent of Buildings in Occupancy Class	Building Count	Percent of Buildings in Occupancy Class
Residential Exposure (Single and Multi-Family Dwellings)	36,942	NONE	36,942	100.0%	36,931	100.0%
		MINOR	0	0.0%	11	<0.1%
		MODERATE	0	0.0%	0	0.0%
		SEVERE	0	0.0%	0	0.0%
		DESTRUCTION	0	0.0%	0	0.0%
Commercial Buildings	2,249	NONE	2,247	99.9%	2,244	99.8%
		MINOR	2	0.1%	5	0.2%
		MODERATE	0	0.0%	0	0.0%
		SEVERE	0	0.0%	0	0.0%
		DESTRUCTION	0	0.0%	0	0.0%
Industrial Buildings	199	NONE	199	99.9%	198	99.6%
		MINOR	0	0.0%	1	0.4%
		MODERATE	0	0.0%	0	0.0%
		SEVERE	0	0.0%	0	0.0%
		DESTRUCTION	0	0.0%	0	0.0%
Government, Religion, Agricultural, and Education Buildings	919	NONE	919	100.0%	918	99.9%
		MINOR	0	0.0%	0	0.0%
		MODERATE	0	0.0%	0	0.0%
		SEVERE	0	0.0%	0	0.0%
		DESTRUCTION	0	0.0%	0	0.0%

Source: Hazus v5.1; Warren County GIS 2023; NYS GIS 2021;

Notes: % = Percent; < = Less Than

Table 5.4.7-4 summarizes the replacement cost value damage for all occupancies estimated for the 100-year and 500-year MRP wind-only events. Damage estimates are reported for the County's probabilistic Hazus model scenarios. The data shown indicates total losses associated with wind damage to the building only.

The total damage to buildings for all occupancy types across Warren County is estimated to be approximately \$0.1 and \$4.8 million for the 100- and 500-year MRP wind-only events, respectively. The majority of these losses are to residential buildings (refer to Table 5.4.7-5). Due to differences in building construction, residential structures are generally more susceptible to wind damage than commercial and industrial structures. The damage counts include buildings damaged at all severity levels from minor damage to destruction. Total dollar damage reflects the overall impact to buildings at an aggregate level. The Town of Queensbury is estimated to experience the greatest damage, approximately \$0.1 million in a 100-year MRP event and \$1.9 million in a 500-year MRP event.



**Table 5.4.7-4. Estimated Building Losses Caused by the 100-Year Mean Return Period Hurricane Wind Events**

Jurisdiction	Estimated Building Losses Caused by the 100-Year Mean Return Period Hurricane (All Occupancies)	Estimated Building Losses Caused by the 100-Year Mean Return Period Hurricane for Residential Structures Only	Estimated Building Losses Caused by the 100-Year Mean Return Period Hurricane for Commercial Structures Only	Estimated Building Losses Caused by the 100-Year Mean Return Period Hurricane for All Other Occupancies Structures Only
Bolton (T)	\$0	\$0	\$0	\$0
Chester (T)	\$0	\$0	\$0	\$0
Glens Falls (C)	\$19,067	\$19,067	\$0	\$0
Hague (T)	\$0	\$0	\$0	\$0
Horicon (T)	\$0	\$0	\$0	\$0
Johnsburg (T)	\$0	\$0	\$0	\$0
Lake George (T)	\$0	\$0	\$0	\$0
Lake George (V)	\$0	\$0	\$0	\$0
Lake Luzerne (T)	\$0	\$0	\$0	\$0
Queensbury (T)	\$108,123	\$108,123	\$0	\$0
Stony Creek (T)	\$0	\$0	\$0	\$0
Thurman (T)	\$0	\$0	\$0	\$0
Warrensburg (T)	\$0	\$0	\$0	\$0
<b>Warren County (Total)</b>	<b>\$127,190</b>	<b>\$127,190</b>	<b>\$0</b>	<b>\$0</b>

Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

Notes: C = City; T = Town; V = Village; % = Percent; &lt; = Less Than

**Table 5.4.7-5. Estimated Building Damages Caused by the 500-Year Mean Return Period Hurricane Wind Events**

Jurisdiction	Estimated Building Losses Caused by the 500-Year Mean Return Period Hurricane (All Occupancies)	Estimated Building Losses Caused by the 500-Year Mean Return Period Hurricane for Residential Structures Only	Estimated Building Losses Caused by the 500-Year Mean Return Period Hurricane for Commercial Structures Only	Estimated Building Losses Caused by the 500-Year Mean Return Period Hurricane for All Other Occupancies Structures Only
Bolton (T)	\$316,434	\$311,534	\$1,342	\$3,558
Chester (T)	\$269,841	\$257,551	\$4,301	\$7,989
Glens Falls (C)	\$670,277	\$605,948	\$40,005	\$24,324
Hague (T)	\$137,577	\$135,041	\$1,899	\$636
Horicon (T)	\$229,260	\$225,034	\$3,165	\$1,061
Johnsburg (T)	\$207,945	\$207,920	\$5	\$20
Lake George (T)	\$285,666	\$271,533	\$8,636	\$5,497
Lake George (V)	\$69,747	\$66,294	\$2,110	\$1,343
Lake Luzerne (T)	\$284,595	\$278,260	\$1,084	\$5,252
Queensbury (T)	\$1,886,821	\$1,796,324	\$55,068	\$35,429
Stony Creek (T)	\$87,040	\$80,219	\$1,383	\$5,438
Thurman (T)	\$114,435	\$105,468	\$1,818	\$7,150
Warrensburg (T)	\$240,333	\$221,128	\$9,838	\$9,367
<b>Warren County (Total)</b>	<b>\$4,799,971</b>	<b>\$4,562,253</b>	<b>\$130,653</b>	<b>\$107,065</b>





Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

Notes: C = City; T = Town; V = Village; % = Percent; < = Less Than

### Impact on Critical Facilities and Community Lifelines

Critical facilities may experience structural damage directly from high winds or falling tree limbs/flying debris, which can also result in the loss of power. Power loss can greatly impact households, business operations, public utilities, and emergency personnel. The elderly population may be more vulnerable if power loss results in interruption of heating and cooling services, stagnated hospital operations, and potable water supplies. Emergency personnel such as police, fire, and EMS may not be able to effectively respond and maintain the safety of its residents.

Hazus estimates the probability that critical facilities (i.e., medical facilities, fire/EMS, police, EOC, schools, and user-defined facilities such as shelters and municipal buildings) could sustain damage as a result of 100-year and 500-year MRP wind events. Additionally, Hazus estimates the loss of use for each facility in number of days. Due to the sensitive nature of the critical facility dataset, individual facility estimated loss is not provided.

Table 5.4.7-6 and Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

Table 5.4.7-7 summarize the percent probability that each facility type may experience damage as a result of the 100-year and 500-year mean return period hurricane wind events, respectively.

**Table 5.4.7-6. Estimated Impacts to Critical Facilities and Lifelines from the 100-Year Mean Return Period Hurricane Wind Event**

Facility Type	Loss of Days	100-Year Mean Return Period Hurricane Percent-Probability of Sustaining Damage			
		Minor	Moderate	Severe	Complete
Emergency Response Centers	0	0.2%	0.0%	0.0%	0.0%
Fire Stations	0	0% - 0.2%	0.0%	0.0%	0.0%
Medical Care Facilities	0	0% - <0.1%	0.0%	0.0%	0.0%
Police Stations	0	0% - 0.2%	0.0%	0.0%	0.0%
Schools	0	0% - 0.1%	0.0%	0.0%	0.0%

Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

**Table 5.4.7-7. Estimated Impacts to Critical Facilities and Lifelines from the 500-Year Mean Return Period Hurricane Wind Event**

Facility Type	Loss of Days	500-Year Mean Return Period Hurricane Percent-Probability of Sustaining Damage			
		Minor	Moderate	Severe	Complete
Emergency Response Centers	0	0.4%	0.0%	0.0%	0.0%
Fire Stations	0	0.2%	0.0%	0.0%	0.0%
Medical Care Facilities	0	0.1% - 0.2%	0.0%	0.0%	0.0%





Facility Type	Loss of Days	500-Year Mean Return Period Hurricane Percent-Probability of Sustaining Damage			
		Minor	Moderate	Severe	Complete
Police Stations	0	0.3% - 0.4%	0.0%	0.0%	0.0%
Schools	0	0.1% - 0.2%	0.0%	0.0%	0.0%

Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

At this time, Hazus does not estimate losses to transportation lifelines and utilities as part of the hurricane model. Transportation lifelines are not considered particularly vulnerable to the wind hazard; they are more vulnerable to cascading effects such as flooding, falling debris etc. Impacts to transportation lifelines affect both short-term (e.g., evacuation activities) and long-term (e.g., day-to-day commuting) transportation needs.

### Impact on the Economy

Damage to structures from flooding and wind occur immediately; however, this damage can have long-lasting impacts on the economy. When a business is closed during storm recovery, there is lost economic activity in the form of day-to-day business and wages to employees. Overall, economic impacts include the loss of business function (e.g., tourism, recreation), damage to inventory, relocation costs, wage loss and rental loss due to the repair/replacement of buildings. As evidenced by Hurricane Sandy, the State of New York, including Warren County, lost millions of dollars in wages and economic activity.

Hazus estimates the total economic loss associated with each storm scenario (direct building losses and business interruption losses). Direct building losses are the estimated costs to repair or replace the damage caused to the building. This is reported in the "Impact on General Building Stock" subsection discussed earlier. Business interruption losses are the losses associated with the inability to operate a business because of the wind damage sustained during the storm or the temporary living expenses for those displaced from their home because of the event. Refer to Table 5.4.7-8 for a summary of Hazus estimated economic losses for Warren County caused by the 100-year and the 500-year mean return period hurricane wind events.

**Table 5.4.7-8. Estimated Economic Losses for the 100-Year and 500-Year Mean Return Period Hurricane Wind Events**

Mean Return Period (MRP)	Income Loss	Relocation Loss	Building Losses	Wages Losses	Rental Losses
100-Year	\$0	\$0	\$127,190	\$0	\$0
500-Year	\$0	\$180	\$4,799,970	\$0	\$0

Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

Debris management can be costly. Hazus estimates the amount of debris that might be produced as result of the 100-year and 500-year mean return period hurricane wind events. Because the estimated debris production does not include debris generated by flooding, this is likely a





conservative estimate and could be higher if multiple impacts occur. According to the Hazus Hurricane User Manual, estimates of weight and volume of eligible tree debris consist of downed trees that would likely be collected and disposed at public expense. Refer to the User Manual for additional details regarding these estimates. Hazus does not estimate a significant amount of debris will be generated during a 100-year mean return period wind event. County-wide, it is estimated that approximately 32 tons of tree material will be generated during a 500-year event. Table 5.4.7-9 summarizes the estimated debris by municipality for the 500-year mean return period hurricane wind events, respectively, which should be considered a lower-bound analysis.

**Table 5.4.7-9. Debris Production for the 500-Year Mean Return Period Hurricane Wind Event**

Jurisdiction	Estimated Debris Created During the 500-Year Mean Return Period Hurricane Wind Event			
	Brick and Wood (Tons)	Concrete and Steel (Tons)	Tree (Tons)	Eligible Tree Volume (Cubic Yards)
Bolton (T)	0	0	2,774	1,698
Chester (T)	0	0	2,781	1,742
Glens Falls (C)	5	0	165	1,186
Hague (T)	0	0	1,817	719
Horicon (T)	0	0	3,027	1,198
Johnsburg (T)	0	0	6,622	1,573
Lake George (T)	1	0	838	964
Lake George (V)	0	0	204	235
Lake Luzerne (T)	0	0	3,459	2,360
Queensbury (T)	6	0	2,724	4,928
Stony Creek (T)	0	0	2,428	554
Thurman (T)	0	0	3,192	728
Warrensburg (T)	1	0	2,076	1,143
<b>Warren County (Total)</b>	<b>13</b>	<b>0</b>	<b>32,107</b>	<b>19,027</b>

Source: Hazus v5.1; Warren County GIS 2020; NYS GIS 2021; RS Means 2021

Notes: C = City; T = Town; V = Village

## Impact on the Environment

Extreme winds from hurricanes or tropical storms may create several tons of debris because the wind tears apart foliage and trees. Plants along waterways may be uprooted from surge causing even further instability and alterations of the shoreline. Consequentially, natural habitat that shelters the County from wind and storm surge can be destroyed, impacting future mitigation.

## Cascading Impacts on Other Hazards

The impacts of hurricane related windstorms on the environment typically take place over a larger area. Where these events occur, widespread, severe damage to plant species is likely. This includes uprooting or destruction of trees and an increased threat of wildfire in areas where dead trees are not removed. Section 5.4.3 (Flood) provides additional environmental impacts due to flooding from heavy rainfalls.





### Future Changes That May Impact Vulnerability

Understanding future changes that effect vulnerability in the County can assist in planning for future development and ensure establishment of appropriate mitigation, planning, and preparedness measures. The County considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

#### *Projected Development*

Understanding future changes that impact vulnerability in the Warren County can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. It is anticipated that any new development and new residents will be exposed to the hurricane and tropical storm hazard. However, due to increased standards and codes, new development might be less vulnerable to wind-related hazards compared to the aging building stock. The tables and hazard maps included in the jurisdictional annexes contain additional information regarding the specific areas of development that would increase County vulnerability to a wind event.

#### *Projected Changes in Population*

According to the U.S. Census (2010 and 2020), Warren County experienced a 0.04 percent increase in population, from 65,707 in 2010 to 65,737 in 2020. Warren County's population has increased every decade since 1950. From 2000 to 2020, the County's population increased 3.7-percent; however, future population projections show an expected decrease in population. Refer to Section 4 (County Profile), which includes a discussion on population trends for the County.

#### *Climate Change*

As discussed above, most studies project that the State of New York will see an increase in average annual temperatures and precipitation. An increase in temperatures may also lead to an increase in the frequency and intensity of severe storm events. More frequent and severe storms will increase the County's vulnerability to both wind-related and storm surge impacts.

The northeast region of the United States has experienced a greater increase in extreme precipitation than any other region in the U.S. between 1958 and 2010, the Northeast experienced more than 70 percent increase in the amount of precipitation falling in rain events (Global Change 2014). Refer to Section 5.4.3 (Flood) for a discussion related to the impact of climate change due to increases in rainfall. With an increased likelihood of more frequent storm events and associated strong winds and tornado events, the County's assets continue to be at risk.





### **Change of Vulnerability Since the 2017 HMP**

Since the 2017 HMP was drafted, updated inventory data has become available to assess the severe storm hazard in Warren County. This data includes the 5-Year 2017–2021 American Community Survey population estimates, updated 2021 tax assessor parcel data, 2020 general building stock data provided by the County, 2021 RS Means for building stock replacement cost valuation, and updated critical facility data provided by the County’s Planning Partners. Additionally, Hazus version 5.1 was used to assess the County’s overall risk to the 100-year and 500-year mean return period hurricane wind events. Overall, this vulnerability assessment uses a more accurate and updated asset inventory which provides more accurate estimated exposure to the severe storm hazard.





## 5.4.8 Severe Winter Storm

### Hazard Profile

---

#### Hazard Description

A winter storm is a weather event in which the main types of precipitation are snow, sleet, or freezing rain. They can be a combination of heavy snow, blowing snow, and/or dangerous wind chills. There are three basic components needed to make a winter storm. Below freezing temperatures (cold air) in the clouds and near the ground are necessary to make snow and ice. Lift, something to raise the moist air to form clouds and cause precipitation, is needed. Examples of this is warm air colliding with cold air and being forced to rise over the cold dome or air flowing up a mountainside. The last thing needed to make a winter storm is moisture to form clouds and precipitation. Air blowing across a body of water, such as a large lake or the ocean (NOAA n.d.).

Some winter storms are large enough to immobilize an entire region while others may only affect a single community. Winter storms are typically accompanied by low temperatures, high winds, freezing rain or sleet, and heavy snowfall. The aftermath of a winter storm can have an impact on a community or region for days, weeks, or even months; potentially causing cold temperatures, flooding, storm surge, closed and/or blocked roadways, downed utility lines, and power outages. In Warren County, winter storms include blizzards, snowstorms, and ice storms.

#### Blizzard

Blizzards can be classified under characteristics of snow. To be classified as a blizzard, there must be high winds and reduced visibility over an extended period. Some blizzards, called ground blizzards, have no falling snow. Instead, snow that had fallen before the blizzard is blown around or drifts in a way to create these conditions (Center for Science Education 2022).

Blizzard Classifications (WCVB 2022):

1. Sustained wind or frequent gusts to 35 mph or greater
2. Visibility reduced to 1/4 mile by falling OR blowing snow
3. Conditions 1 and 2 must last for at least three hours

#### Ice

Ice forms when freezing rain accumulates on surfaces and the ground. Freezing occurs when air warmer than the freezing mark above the ground moves over subfreezing air near the ground. When snow falls through the warmer layer it melts into rain. Then, as the rain droplets fall into the shallow layer of subfreezing air, the droplets freeze upon contact. This creates a glaze of ice.

An ice storm is a type of winter storm characterized by freezing rain. The U.S National Weather Service defines an ice storm as an event where a quarter inch of ice accumulation occurs, producing a significant and possibly damaging accumulation of ice (State 2019).





## Snow

Snow originates in clouds when temperatures are below the freezing when water vapor in the atmosphere condenses directly into ice without going through the liquid stage. Once an ice crystal has formed, it absorbs and freezes additional water vapor from the surrounding air, growing into a snow crystal or snow pellet. The severity of a winter storm depends on temperature, wind speed, type of precipitation, accumulation rate (State 2019).

Additional characteristics of Snow include:

- Blowing Snow: Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- Snow Squalls: Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- Snow Showers: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- Flurries: Light snow falling for short durations with little or no accumulation.
- Avalanche: A rapid downhill flow of a large mass of snow or ice dislodged from a mountainside.

## Location

### Blizzard

Blizzards can occur throughout the county, however, locations with higher elevations have the ability to encounter blizzard conditions more frequently than those with lower elevations.

### Ice

The Midwest and Northeast United States are prime areas for freezing rain and ice storm events. These events can occur anytime between November and April, with most events occurring during December and January. Warren County has an average of five to six days with freezing rain (Previous HMP)

### Snow

Due to the location of Warren County in the Northeastern part of the United States, the county receives significant snowfall in comparison to the rest of the Country. On average, Warren County receives 77 inches of snow per year and the US average is 28 inches of snow per year (Places n.d.).

**Figure 5.4.8-1. Warren County ice-covered Roadway, 2021**







## Extent

The magnitude or severity of a severe winter storm depends on several factors including a region's climatological susceptibility to snowstorms, snowfall amounts, snowfall rates, wind speeds, temperatures, visibility, storm duration, topography, and time of occurrence during the day (e.g., weekday versus weekend), and time of season.

## Blizzard

Three things are needed to make a large snowstorm or blizzard:

1. Cold air (below freezing) is needed to make snow. For snow to fall to the ground, the temperature must be cold both up in the clouds where snowflakes form and down at ground level. If the air near ground level is too warm, the snow will melt on its way down, changing to rain or freezing rain.
2. Moisture is needed to form clouds and precipitation. Moisture in the air is called water vapor. Air blowing across a body of water, such as a large lake or the ocean, is an excellent source of water vapor. As wind moves air over the water, some water evaporates from the surface, putting vapor into the air. This is how lake effect snowstorms and nor'easters pick up so much moisture. However, cold air is not able to hold much water vapor. In fact, very cold air does not make very much snow.
3. Moist air needs to rise over very cold air, making clouds and snow. There are two ways that moist air might rise over cold air. Winds pull cold air toward the equator from the poles and bring warmer, moist air toward the poles from the equator. When warm air and cold air are brought together, a front is formed, and snow can form. Warm air can also rise to form clouds and blizzard snows as it flows up a mountainside.

## Ice

The Sperry–Piltz Ice Accumulation Index, or SPIA Index, is a forward-looking, ice accumulation and ice damage prediction index that uses an algorithm of researched parameters that, when combined with National Weather Service forecast data, predicts the projected footprint, total ice accumulation, and resulting potential damage from approaching ice storms. It is a tool to be used for risk management and/or winter weather preparedness (SPIA Index n.d.).

The SPIA Index uses three key parameters to formulate the algorithm:

- Storm total rainfall, converted to ice accumulation
- Wind
- Temperatures during the event period

These parameters, when used in conjunction with digital forecasts from local NWS Weather Forecast Offices (WFOs), have been shown to accurately predict the duration, intensity and damage capability of ice storms.





Figure 5.4.8-2: Sperry-Piltz Index

**The Sperry-Piltz Ice Accumulation Index, or “SPIA Index” – Copyright, February, 2009**

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) *Revised-October, 2011	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
<b>0</b>	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
<b>1</b>	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	> 15	
<b>2</b>	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
<b>3</b>	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
<b>4</b>	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
<b>5</b>	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

Source: (Larson 2013)

### Snow

The RSI is an evolution of the Northeast Snowfall Impact Scale (NESIS) which NCEI (then, NCDC) began producing operationally in 2005. While NESIS was developed for storms that had a major impact in the Northeast, it includes the impact of snow on other regions as well. It can be thought of as a quasi-national index that is calibrated to Northeast snowstorms. By contrast, the RSI is a regional index; a separate index is produced for each of the six NCEI climate regions in the eastern two-thirds of the nation. The indices are calculated in a fashion like NESIS but with modifications allowing the index to be tailored to the climatology of different regions using region-specific parameters and thresholds. Unlike NESIS, which includes snowfall amounts for the entire storm (even outside the Northeast), the RSI is calculated only with snow that falls within a region’s borders. Therefore, RSI has a unique value for each region and storm. This allows the RSI to discriminate disruption between different regions for the same storm (Squires, et al. 2014).



**Table 1: RSI Ranking Categories**

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

Source: NOAA-NCDC 2011

Note: RSI = Regional Snowfall Index

## Previous Occurrences

### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was included in 1 disaster (DR) or emergency (EM) declarations for severe winter storm-related events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2022). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).

### *USDA Declarations*

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was not included in severe winter storm-related agricultural disaster declarations.

### *Previous Events*

For this 2023 HMP update, known severe winter storm events that impacted Warren County between 2017 and 2022 are discussed below. For events prior to 2017, refer to Appendix E (Supplementary Data).

**Table 5.4.8-2. Severe Winter Storm Events in Warren County (2017 to 2022)**

Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
December 12, 2017– December 13, 2017	Heavy Snow	Not Applicable	Not Applicable	Snowfall totals ranged from 7.7 to 10.2 inches.
December 24, 2017– December 25, 2017	Heavy Snow	Not Applicable	Not Applicable	Snowfall totals ranged from 7 to 8.5 inches across the area.
February 6, 2020– February 7, 2020	Winter Weather	Not Applicable	Not Applicable	One-two inches per hour were recorded totaling up to a foot of snow. Nearly 22,000 people lost power and one person was injured.





Date(s) of Event	Event Type	FEMA and/or USDA Declaration Number (if applicable)	Warren County included in Declaration?	Description
April 18, 2022–April 19, 2022	Winter Storm	Not Applicable	Not Applicable	A late nor'easter dumped 7–18 inches of snow and produced wind gusts of up to 50 mph.

### Probability of Future Occurrences

For the 2023 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of severe winter storm events for the County. Information from NOAA–NCEI storm events database, the 2019 State of New York HMP, the 2017 Warren County HMP were used to identify the number of severe winter storm events that occurred between 1950 and 2022. Table 5.4.8–3 presents the probability of future events for the severe winter storm event in the County.

**Table 5.4.8-3. Probability of Future Severe Winter Storm Events in Warren County**

Hazard Type	Number of Occurrences Between 1950 and 2022	Percent Chance of Occurring in Any Given Year
Blizzard	2	2.74
Frost/Freeze	47	64.38
Heavy Snow	50	68.49
Ice Storm	6	8.22
Winter Storm/Weather	243	332.88

Sources: NOAA NCEI 2022...

Note: Disaster occurrences include federally declared disasters since the 1950 Federal Disaster Relief Act, and selected drought events since 1968. Due to limitations in data, not all severe winter storm events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is underestimated

A total of 348 severe winter storm events were recorded in Warren County. Based on historical occurrences, the probability of a severe winter storm event occurring is considered frequent or having a 100% annual probability of occurrence or occurring multiple times per year. . Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.

### Climate Change Projections

Although the Intergovernmental Panel on Climate Change (IPCC) has found that global average surface temperature has increased and that there has been a reduction of the annual duration of lake ice cover in the Northern Hemisphere, the impacts of this change on snowfall projections for New York State are unclear (State 2019).

Although winters are becoming warmer and somewhat milder overall, extreme weather events have also been increasing, especially in the Northeastern United States. From the winter of 2008–9 until 2017–18, there were 27 major Northeast winter storms, three to four times the totals for each of the previous five decades (Schwartz 2021).





## Vulnerability Assessment

Severe winter storms are of significant concern to the County because of the frequency and magnitude of these events in the region, the direct and indirect costs associated with these events, delays caused by the storms, and impacts on the people and facilities of the region related to snow and ice removal, health problems, cascade effects such as utility failure (power outages) and traffic accidents, and stress on community resources.

### Impact on life, Health, and Safety

According to the NOAA National Severe Storms Laboratory (NSSL); every year, winter weather indirectly and deceptively kills hundreds of people in the U.S., primarily from automobile accidents, overexertion and exposure. Winter storms are often accompanied by strong winds creating blizzard conditions with blinding wind-driven snow, drifting snow and extreme cold temperatures and dangerous wind chill. They are considered deceptive killers because most deaths and other impacts or losses are indirectly related to the storm. People can die in traffic accidents on icy roads, heart attacks while shoveling snow, or of hypothermia from prolonged exposure to cold. Heavy accumulations of ice can bring down trees and power lines, disabling electric power and communications for days or weeks. Heavy snow can immobilize a region and paralyze a city, shutting down all air and rail transportation and disrupting medical and emergency services. Storms near the coast can cause coastal flooding and beach erosion as well as sink ships at sea. The economic impact of winter weather each year is huge, with costs for snow removal, damage and loss of business in the millions (NOAA n.d.).

Heavy snow can immobilize a region and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse buildings and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns (NOAA n.d.).

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces (NOAA n.d.).

For the purposes of this HMP, the entire population of Warren County (65,737 people) is exposed to severe winter storm events (U.S. Census, 2020). Snow accumulation and frozen/slippery road surfaces increase the frequency and impact of traffic accidents for the general population, resulting in personal injuries. Refer to Section 4 (County Profile) for population statistics for each participating municipality.





The elderly are considered most susceptible to this hazard due to their increased risk of injuries and death from falls and overexertion and/or hypothermia from attempts to clear snow and ice. In addition, severe winter storm events can reduce the ability of these populations to access emergency services. Residents with low incomes may not have access to housing or their housing may be less able to withstand cold temperatures (e.g., homes with poor insulation and heating supply).

#### **Impact on General Building Stock**

The entire general building stock inventory is exposed and vulnerable to the severe winter storm hazard. In general, structural impacts include damage to roofs and building frames, rather than building content. A specific area that is vulnerable to the severe winter storm hazard is the floodplain. Severe winter storms can cause flooding through blockage of streams or through snow melt. At-risk residential infrastructures are presented in the flood hazard profile. Generally, losses resulting from flooding associated with severe winter storms should be less than that associated with a 100-year flood.

#### **Impact on Critical Facilities and Community Lifelines**

Full functionality of critical facilities such as police, fire and medical facilities is essential for response during and after a severe winter storm event. These critical facility structures are largely constructed of concrete and masonry; therefore, they should only suffer minimal structural damage from severe winter storm events. Because power interruption can occur, backup power is recommended. Infrastructure at risk for this hazard includes roadways that could be damaged due to the application of salt and intermittent freezing and warming conditions that can damage roads over time. Severe snowfall requires the clearing roadways and alerting citizens to dangerous conditions; following the winter season, resources for road maintenance and repair are required.

#### **Impact on the Economy**

The cost of snow and ice removal and repair of roads from the freeze/thaw process can drain local financial resources for employee time, fuel, supplies, and materials needed. Another impact on the economy includes impacts on commuting into, or out of, the area for work or school. The loss of power and closure of roads prevents the commuter population traveling to work within and outside of the County.

#### **Impact on the Environment**

Due to the frigid temperatures that occur with winter storms, many people raise their house's temperature which uses more energy and contributes to enhancing the effects of climate change. Using salt and other snow melt practices can affect water quality in surrounding areas because of runoff into streams and rivers. Some people also leave vehicles on and running to try and warm it up before leaving to go somewhere which adds unnecessary emissions and air pollution (Beach 2022).





### Future Changes That May Impact Vulnerability

Any areas of growth could be potentially impacted by the severe winter storm hazard because the entire planning area is exposed and vulnerable. Areas targeted for potential future growth and development in the next five (5) years have been identified across the County at the municipal level. Current New York State land use and building codes incorporate standards that address and mitigate snow accumulation.

#### *Projected Development*

As discussed and illustrated in Section 4 (County Profile), areas targeted for future growth and development have been identified across the County.

Any areas of growth could potentially create issues related to transportation during a winter weather event if mitigation and emergency management measures are not considered. Therefore, it is the intention of the County to provide current information to its agencies and the public related to forecasted winter weather events.

#### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020). Even though the population has not significantly increased overall, changes in population density within county communities should be evaluated to determine if high population densities can create issues for local residents during a winter storm event.

#### *Climate Change*

According to In New York, winters have warmed three times faster than summers. Warmer winter temperatures, with fewer days below freezing, are bringing more winter precipitation to New York as rain, less snow, reduced snow cover, and earlier spring snowmelt. Less snowfall and earlier snowmelt are already having and will continue to have increasing economic impacts on New York's winter recreation industry. Reduced snow cover will increase the vulnerability of certain plants that depend on snow for insulation, and wildlife that depend on snow for protection from predators during the winter. Less snowfall in the winter can also cause drier summer soil conditions, increasing the risk of wildfires. Lake effect snow will increase snowfall amounts in the next few decades for parts of New York State, as warmer winters continue to cause less ice cover on Lake Erie, Lake Ontario, and the Finger Lakes.

Snowfall in New York is likely to decrease. Due to warming global temperatures, many regions are seeing a decrease in winter precipitation falling as snow and an increase in winter rain. The combination of less early winter snowfall and earlier snowmelt will lead to a shorter snow season. This results in fewer days with snow on the ground, decreased snow depth, and earlier snowmelt, impacting ecosystems and industries in New York that depend on snow.





The full extent of the effects of climate change are still unknown but it is expected that lake-effect snow will eventually decrease with continued global warming, as temperatures below freezing in New York become less frequent and more winter precipitation falls as rain (NY DEC 2023).

#### **Change of Vulnerability Since the 2017 HMP**

Although the Impacts of climate change including warmer temperature, lower snow pack, and earlier snowmelt may have decreased the vulnerability of New York State since 2017, the overall vulnerability of Warren County to severe winter storms has not noticeably decreased in that time period.





## 5.4.9 Wildfire

### Hazard Profile

---

#### Hazard Description

Wildfire is defined as an uncontrolled fire spreading through natural or unnatural vegetation that can threaten lives and property if not contained. Wildfires are commonly termed forest fires, brush fires, grass fires, wildland-urban interface fires, range fires, or ground fires. Wildfires do not include fires naturally or purposely ignited to manage vegetation for one or more benefits (NYS DHSES 2019). Although destructive fires do not occur annually, the State's fire history shows a cycle of outbreaks that have caused human death, property loss, forest destruction, and air pollution (NYS DHSES 2019).

#### Location

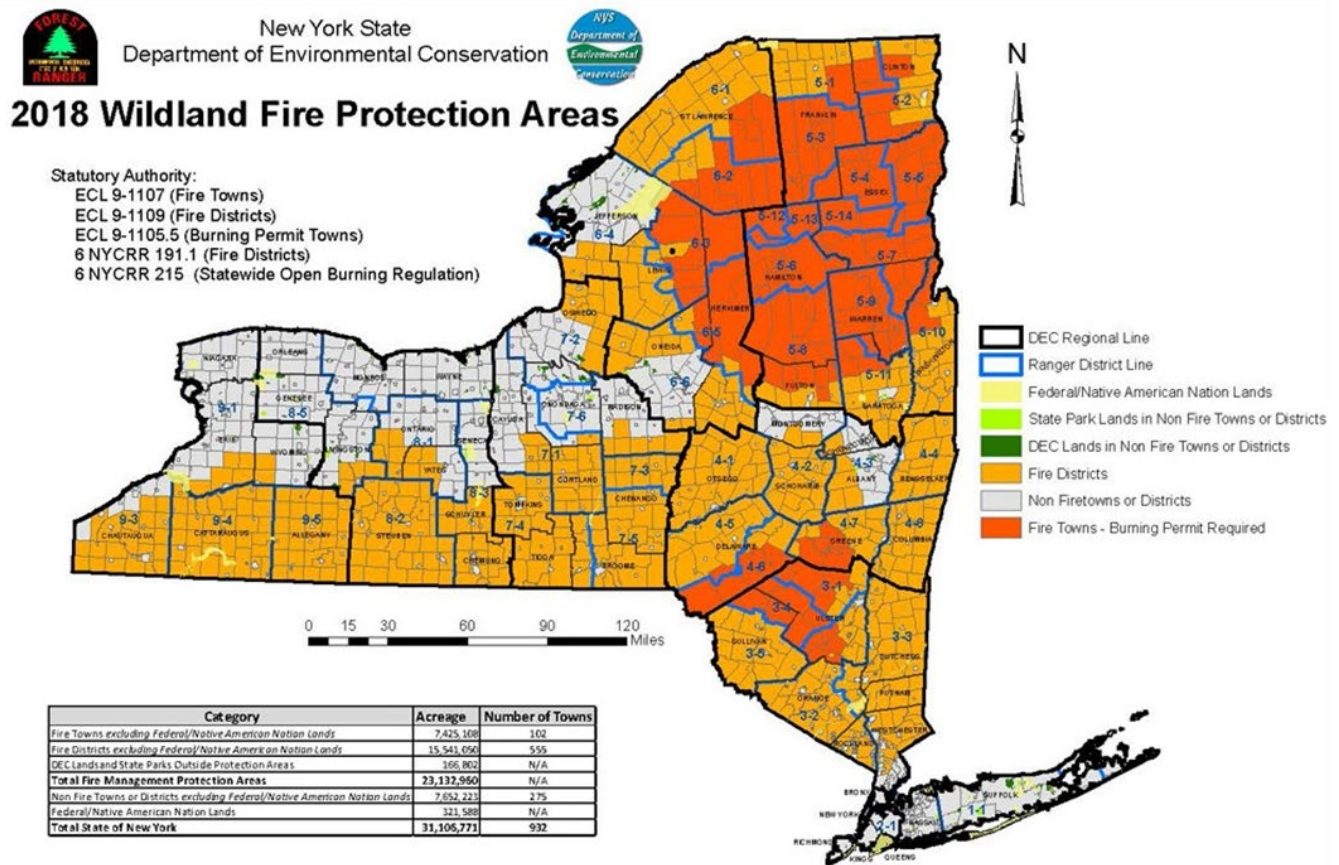
According to the U.S. Fire Administration (USFA), the fire problem in the United States varies from region to region. This variation often is a result of climate, poverty, education, demographics, and other causal factors (USFA 2022). Wildfires do occur in Warren County. Many areas in the County, particularly those that are heavily forested or contain large tracts of brush and shrubs, are prone to fires (NYSDEC 2015).

In New York State, the NYSDEC's Division of Forest Protection (Forest Ranger Division) is designated as the state's lead agency for wildfire mitigation. The Forest Ranger Division has a statutory requirement to provide a forest fire protection system for 657 of the 932 jurisdictions throughout New York State. This jurisdiction includes cities and villages and covers 23.1 million acres of land, including all state-owned land outside of the jurisdictions. The Lake Ontario Plains and New York City-Long Island areas are the general areas not under the statutory requirement. Records on wildfires in this area are collected from fire department reports to evaluate any need to expand statutory responsibilities. displays the fire protection areas in New York State. Table 5.4.9-1 indicates that, as of 2018, Warren County is part of wildfire protection area 5-9.





Figure 5.4.9-1. Wildland Fire Protection Areas



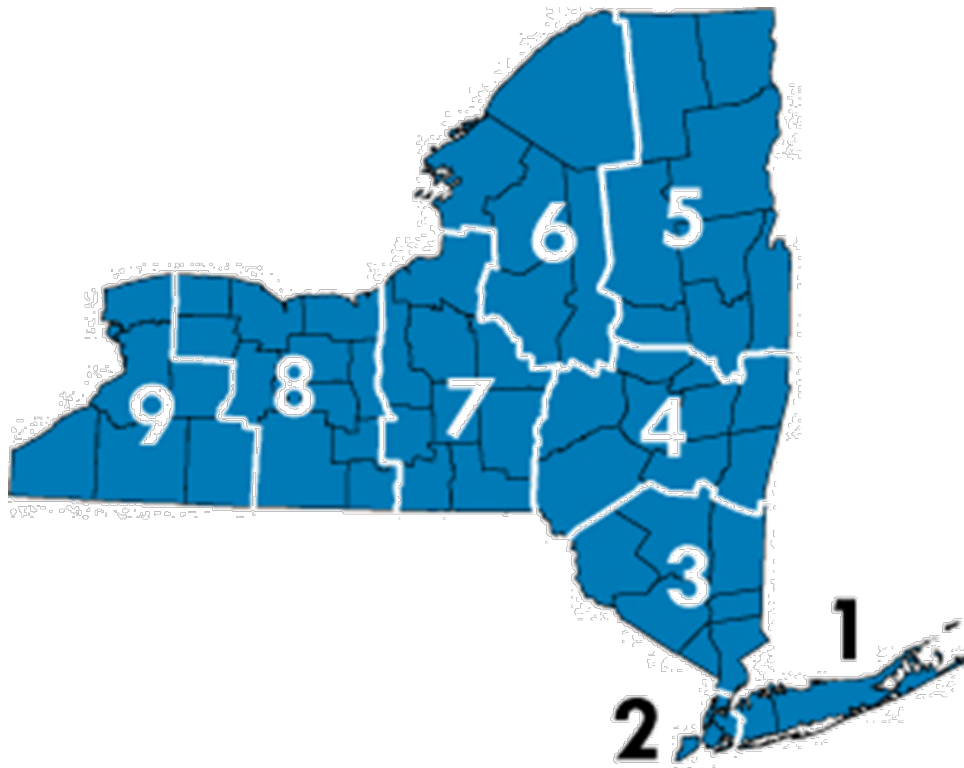
Source: NYSDEC 2018

Figure 5.4.9-2 Table 5.4.9-2 shows the Forest Ranger Divisions in New York State. Warren County is part of Forest Ranger Division 5 (NYSDEC 2022).





**Figure 5.4.9-2. Forest Ranger Division Wildfire Protection Areas**



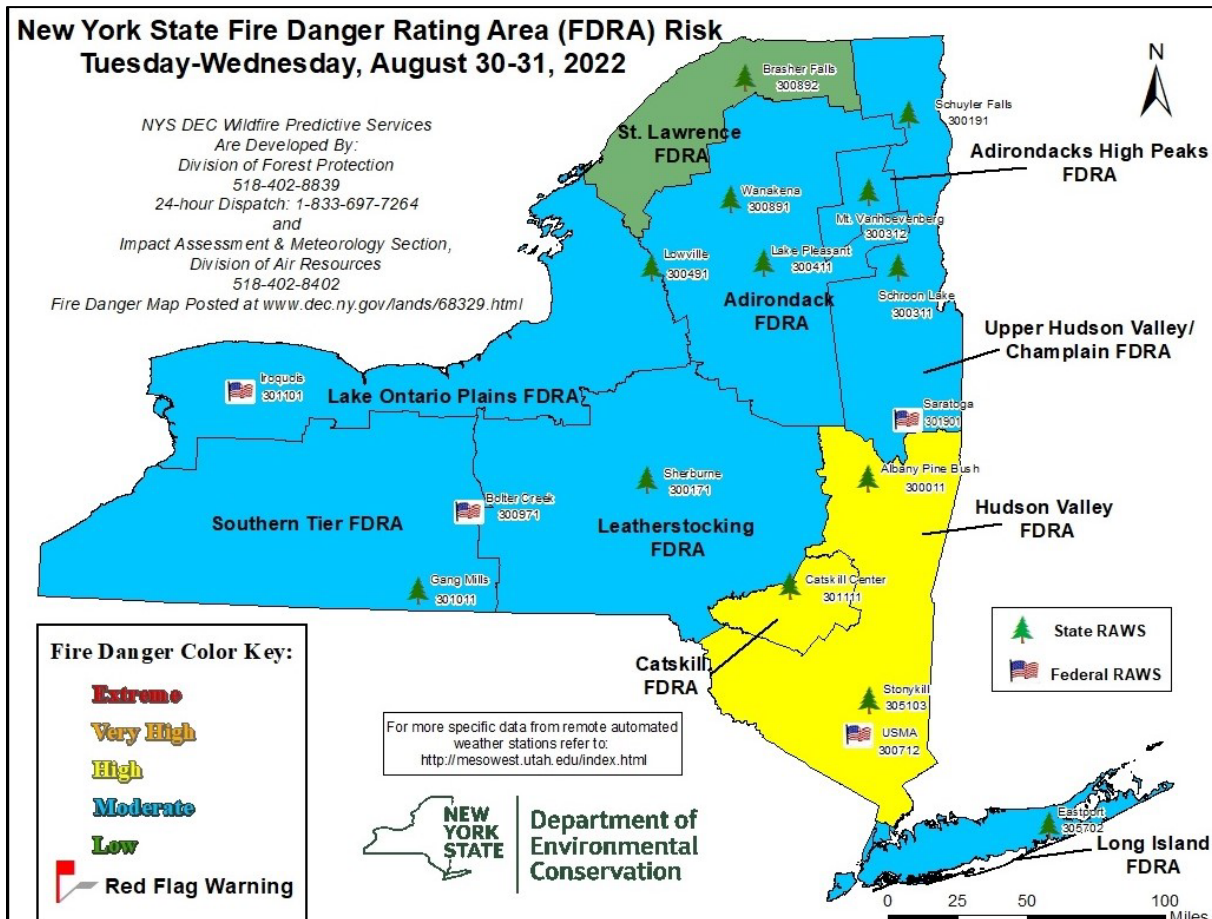
Source: NYSDEC 2022

New York State is divided into 10 Fire Danger Rating Areas (FDRAs). FDRAs are defined as areas of similar vegetation, climate, and topography in conjunction with agency regional boundaries, NWS fire weather zones, political boundaries, fire occurrence history, and other influences. Warren County is part of the Upper Hudson Valley/Champlain FDRA. The Forest Ranger Division issues daily fire danger warnings when the fire danger rating within one or more FDRAs is at “high” or above. A current fire danger rating map is updated daily on the NYSDEC website. Figure 5.4.9-3 shows an example of this map.





Figure 5.4.9-3. New York State Fire Danger Rating Areas



Source: NYSDEC 2022

### Wildland/Urban Interface (WUI) in New York State/Warren County

The wildland/urban interface (WUI) is any location where human structures and woodlands intermingle, allowing a wildland fire to reach beyond trees, brush, and other natural fuels to ignite homes and their immediate surroundings (NYSDEC n.d.). The WUI can also be subdivided into three categories: intermix, interface, and occluded/interior (Sustainable Defensible Space n.d.). The NYS HMP indicates that New York State has all three types of WUI interfaces. The Adirondack and Catskill Mountains contain large tracts of forests with the mixed, and to a lesser extent, the classic interface occurring throughout. The remainder of the state contains classic and mixed interfaces, with some major cities containing an occluded interface. Population migration from urban to suburban and rural living will continue, increasing the possibility of loss or damage to structures in the WUI, for a number of reasons. Many property owners are unaware that a threat from a wildfire exists or that their homes are not defensible from it. Water supplies at the scene in the WUI are often inadequate. Access by firefighting equipment is often blocked or hindered by driveways that are narrow, winding, dead-





ended, have tight turning radii, or have weight restrictions. Most wildland fire suppression personnel are inadequately prepared for fighting structural fires, and local fire departments are not usually fully trained or equipped for wildfire suppression. Furthermore, the mix of structures, ornamental vegetation, and wildland fuels may cause erratic fire behavior. These factors and others substantially increase risk to life, property, and economic welfare in the WUI. While many interface communities are present throughout New York State and Warren County, an official list that details the location, type of interface, and surrounding fuel makeup does not exist (NYS DHSES 2011).

A detailed WUI (interface and intermix) that also defines the wildfire hazard area was obtained through the SILVIS Laboratory, Department of Forest Ecology and Management, University of Wisconsin – Madison. The California Fire Alliance determined that areas within 1.5 miles of wildland vegetation are the approximate distance that firebrands can be carried from a wildland fire to the roof of a house. Therefore, even structures not located within the forest are at risk from wildfire. This buffer distance, along with housing density and vegetation type, were used to define the WUI illustrated in Figure 5.4.9-1 below (Radeloff 2018). Each town contains significant areas of WUI intermix areas. The Town of Queensbury has the largest percentage of coverage by the WUI intermix and also includes large areas of WUI interface.





COUNTY OF  
**Warren**

ESSEX COUNTY

Schoon Lake  
Brant Lake  
Loon Lake  
Friends Lake  
Lake George  
Lake Luzerne

CHESTER (T)  
HORICON (T)  
JOHNSBURG (T)  
THURMAN (T)  
WARRENSBURG (T)  
LAKE GEORGE (T)  
LAKE GEORGE (V)  
LAKE LUZERNE (T)  
QUEENSBURY (T)  
GLEN'S FALLS (C)  
HAGUE (T)

8  
28N  
9  
8  
9N  
87  
9  
149  
28  
9L

HAMILTON COUNTY  
WASHINGTON COUNTY  
SARATOGA COUNTY

**Legend**

- Municipal Boundary
- County Boundary
- Waterbody
- Interstate
- U.S. Route
- State Route
- WUI Interface
- WUI Intermix

0 2 4 Miles

Data Source: Warren County, NY 2022;  
New York State 2022; U.S. Census Bureau;  
USGS; ESRI; U.S. Census, USGS, USDA  
Forest Service Northern Research Station  
C = City, T = Town, V = Village





## Extent

Wildfire events can range in size and intensity. A wildfire's intensity depends significantly on both meteorological conditions and human activity.

### *Wildfire Behavior and Fire Ecology*

Fire behavior is defined as the way fuel ignites, flame develops, and fire spreads, which depend on interactions among fuel, weather, and topography. Fire behavior is one of the most important aspects of wildfires because almost all actions in response to a fire depend on how it behaves. The extent to which fire managers can understand and predict fire behavior relies on success in pre-suppression planning and actual suppression of wildfires.

Potential for wildfire and its subsequent development (growth) and severity are controlled by the three principal factors of topography, fuel, and weather, described as follows:

**Topography** – Topography can powerfully influence wildfire behavior. Movement of air over the terrain tends to direct a fire's course. A gulch or canyon can funnel air and act as a chimney, intensifying fire behavior and inducing faster spread. Saddles on ridgetops tend to offer lower resistance to passage of air and draw fires. Solar heating of drier, south-facing slopes produces upslope thermal winds that can complicate behavior. Slope is an important factor. If the percentage of uphill slope doubles, the rate the wildfire spreads will most likely double as well. Terrain can inhibit wildfires: fire travels downslope much more slowly than it does upslope, and ridgetops often mark the end of a wildfire's rapid spread (FEMA 1997).

**Fuel** – Fuels are classified by weight or volume (fuel loading) and by type. Fuel loading is used to describe the amount of vegetative material available. If this amount doubles, energy released can also double. Each fuel type is given a burn index—an estimate of amount of potential energy that may be released, effort required to ignite a fire in a given fuel and expected flame length. Different fuels have different burn qualities, and some burn more easily than others. Grass fires release relatively little energy but can sustain very high rates of spread (FEMA 1997). According to the U.S. Forest Service (USFS), a forest stand may consist of several layers of live and dead vegetation in the understory (surface fuels), midstory (ladder fuels), and overstory (crown fuels):

- Surface fuels consist of grasses, shrubs, litter, and woody material lying on the ground. Surface fires burn low vegetation, woody debris, and litter. Under the right conditions, surface fires reduce likelihood that future wildfires will grow into crown fires.
- Ladder fuels consist of live and dead small trees and shrubs; live and dead lower branches from larger trees, needles, vines, lichens, mosses; and any other combustible biomass between the top of surface fuels and bottom of overstory tree crowns.
- Crown fuels are suspended above the ground in treetops or other vegetation and consist mostly of live and dead fine material. When historically low-density forests become





overcrowded, tree crowns may merge and form a closed canopy. Tree canopies constitute the primary fuel layer in a forest crown fire (USFS 2013).

**Weather / Air Mass** – Weather is the most important factor influencing fire behavior, but it is always changing. Air mass, defined by the National Weather Service (NWS) as a body of air covering a relatively wide area and exhibiting horizontally uniform properties, can affect wildfire through climatic factors that include temperature and relative humidity, local wind speed and direction, cloud cover, precipitation amount and duration, and stability of the atmosphere at the time of the fire (NWS 2009). Extreme weather leads to extreme events, and often a subsidence of severe weather marks the end of a wildfire’s growth and the beginning of successful containment. High temperatures and low humidity can produce vigorous fire activity. Fronts and thunderstorms can produce winds that radically and suddenly change in speed and direction, causing similar changes in fire activity. The rate of spread of a fire varies directly with wind velocity. Winds may play a dominant role in directing the course of a fire. The most damaging firestorms are typically marked by high winds (FEMA 1997).

Several tools are available to estimate fire potential, extent, danger, and growth, including, but not limited to, the following:

- The Wildland Fire Assessment System (WFAS) is an internet-based information system that provides a national view of weather and fire potential, including national fires danger, weather maps, and satellite-derived “greenness” maps (USFS n.d.).
- The Fire Potential Index (FPI) is derived by combining information on daily weather and vegetation condition and can identify areas most susceptible to fire ignition (Burgan, Klaver and Klaver 2000).
- Fuel Moisture (FM) content is quantity of water in a fuel particle expressed as a percent of oven-dry weight of the fuel particle and is an expression of cumulative effects of past and present weather events, to help evaluate the effects of current or future weather on fire potential (Burgan, Klaver and Klaver 2000).
- The Keetch-Byram Drought Index (KBDI) is designed for fire potential assessment and is a number representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in deep duff and upper soil layers (USFS n.d.).
- The Haines Index, also known as the Lower Atmosphere Stability Index, is a fire weather index based on stability and moisture content of the lower atmosphere that measures potential for existing fires to become large fires (USFS n.d.).
- The Buildup Index (BUI) is a number that reflects combined cumulative effects of daily drying and precipitation in fuels with a 10-day time lag constant (North Carolina Forest Service 2009).

The Fire Danger Rating in New York is established using information from the National Fire Danger Rating System (NFDRS) and takes into account current and antecedent weather, fuel types, and both





live and dead fuel moisture. This information is provided by local station managers (USFS n.d.) in each of the ten regions of New York State. Warren County is part of the Upper Hudson Valley/Champlain FDRA. Table 5.4.9-1 lists fire danger ratings and color codes, also used by NYSDEC to update its fire danger rating maps, identified earlier in Figure 5.4.9-3.

**Table 5.4.9-1. Description of Fire Danger Ratings in New York State**

Adjective Rating Class and Color Code	Class Description
Red Flag	A short-term, temporary warning, indicating the presence of a dangerous combination of temperature, wind, relative humidity, fuel or drought conditions that can contribute to new fires or rapid spread of existing fires. A Red Flag Warning can be issued at any Fire Danger level.
Extreme (Red)	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous, except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.
Very High (orange)	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high-intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
High (yellow)	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly, and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
Moderate (blue)	Fires can start from most accidental causes but, with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
Low (green)	Fuels do not ignite readily from small firebrands, although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.

Source: NYSDEC 2022

## Previous Occurrences

### *FEMA Major Disaster and Emergency Declarations*

Between 1954 and 2022, Warren County was not included in any disaster (DR) or emergency (EM) declarations for wildfire-related events. Generally, these disasters cover a wide region of the State; therefore, they can impact many counties. However, not all counties were included in the disaster declarations as determined by FEMA (FEMA 2023). Detailed information about the declared disasters since 1954 is provided in Section 4 (County Profile).





### USDA Declarations

The Secretary of Agriculture from the U.S. Department of Agriculture (USDA) is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, Warren County was not included in any wildfire-related agricultural disaster declarations (USDA 2023).

### Previous Events

Known wildfire events that occurred in Warren County between 2008 and 2022 are noted in Table 5.4.9-2; locations of these events are depicted in Figure 5.4.9-3.

**Table 5.4.9-2. Wildfire Events in Warren County (2008 to 2020)**

	Sum of Other Structures Lost	Sum of Fatalities	Sum of Injuries	Sum of Acreage	Sum of Homes Lost	Sum of Homes Threatened	Sum of Other Structures Threatened
<b>Bolton</b>	0	0	0	15.8	0	0	1
<b>Chester</b>	0	0	0	62	0	0	0
<b>Hague</b>	0	0	0	20	0	0	0
<b>Horicon</b>	20	0	0	18.8	0	0	0
<i>Campfire</i>	0	0	0	5	0	0	0
2016	0	0	0	5	0	0	0
<i>Debris Burning</i>	20	0	0	8.4	0	0	0
2013	20	0	0	3.4	0	0	0
2016	0	0	0	1	0	0	0
2021	0	0	0	4	0	0	0
<i>Lightning</i>	0	0	0	0.3	0	0	0
2010	0	0	0	0.3	0	0	0
<i>Miscellaneous</i>	0	0	0	2.1	0	0	0
2011	0	0	0	0.1	0	0	0
2016	0	0	0	2	0	0	0
<i>Smoking</i>	0	0	0	3	0	0	0
2010	0	0	0	3	0	0	0
<b>Johnsburg</b>	0	0	0	9.6	0	10	0
<b>Lake George</b>	1	0	0	6.7	0	0	2
<b>Lake Luzerne</b>	0	0	1	106.3	0	0	0
<b>Queensbury</b>	0	0	2	210.8	0	2	4
<i>Campfire</i>	0	0	0	187.5	0	0	0





	Sum of Other Structures Lost	Sum of Fatalities	Sum of Injuries	Sum of Acreage	Sum of Homes Lost	Sum of Homes Threatened	Sum of Other Structures Threatened
2009	0	0	0	0.8	0	0	0
2010	0	0	0	0.7	0	0	0
2011	0	0	0	2.5	0	0	0
2014	0	0	0	175	0	0	0
2015	0	0	0	0.5	0	0	0
2020	0	0	0	8	0	0	0
<i>Children</i>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1.8</b>	<b>0</b>	<b>2</b>	<b>3</b>
2008	0	0	1	1.7	0	1	2
2009	0	0	1	0.1	0	1	1
<i>Debris Burning</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2.3</b>	<b>0</b>	<b>0</b>	<b>0</b>
2008	0	0	0	2	0	0	0
2017	0	0	0	0.2	0	0	0
2020	0	0	0	0.1	0	0	0
<i>Miscellaneous</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14.8</b>	<b>0</b>	<b>0</b>	<b>1</b>
2008	0	0	0	9.7	0	0	1
2009	0	0	0	0.5	0	0	0
2012	0	0	0	0.1	0	0	0
2020	0	0	0	4	0	0	0
2021	0	0	0	0.2	0	0	0
2022	0	0	0	0.3	0	0	0
<i>Power line</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
2014	0	0	0	1	0	0	0
<i>Smoking</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3.4</b>	<b>0</b>	<b>0</b>	<b>0</b>
2010	0	0	0	1	0	0	0
2012	0	0	0	2.4	0	0	0
<i>Stony Creek</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6.4</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>Thurman</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7.8</b>	<b>0</b>	<b>1</b>	<b>0</b>
<i>Campfire</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.5</b>	<b>0</b>	<b>0</b>	<b>0</b>
2020	0	0	0	0.4	0	0	0
2022	0	0	0	0.1	0	0	0
<i>Debris Burning</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2.1</b>	<b>0</b>	<b>0</b>	<b>0</b>
2013	0	0	0	2	0	0	0
2017	0	0	0	0.1	0	0	0
<i>Equipment</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
2015	0	0	0	1	0	0	0
2020	0	0	0	2	0	0	0

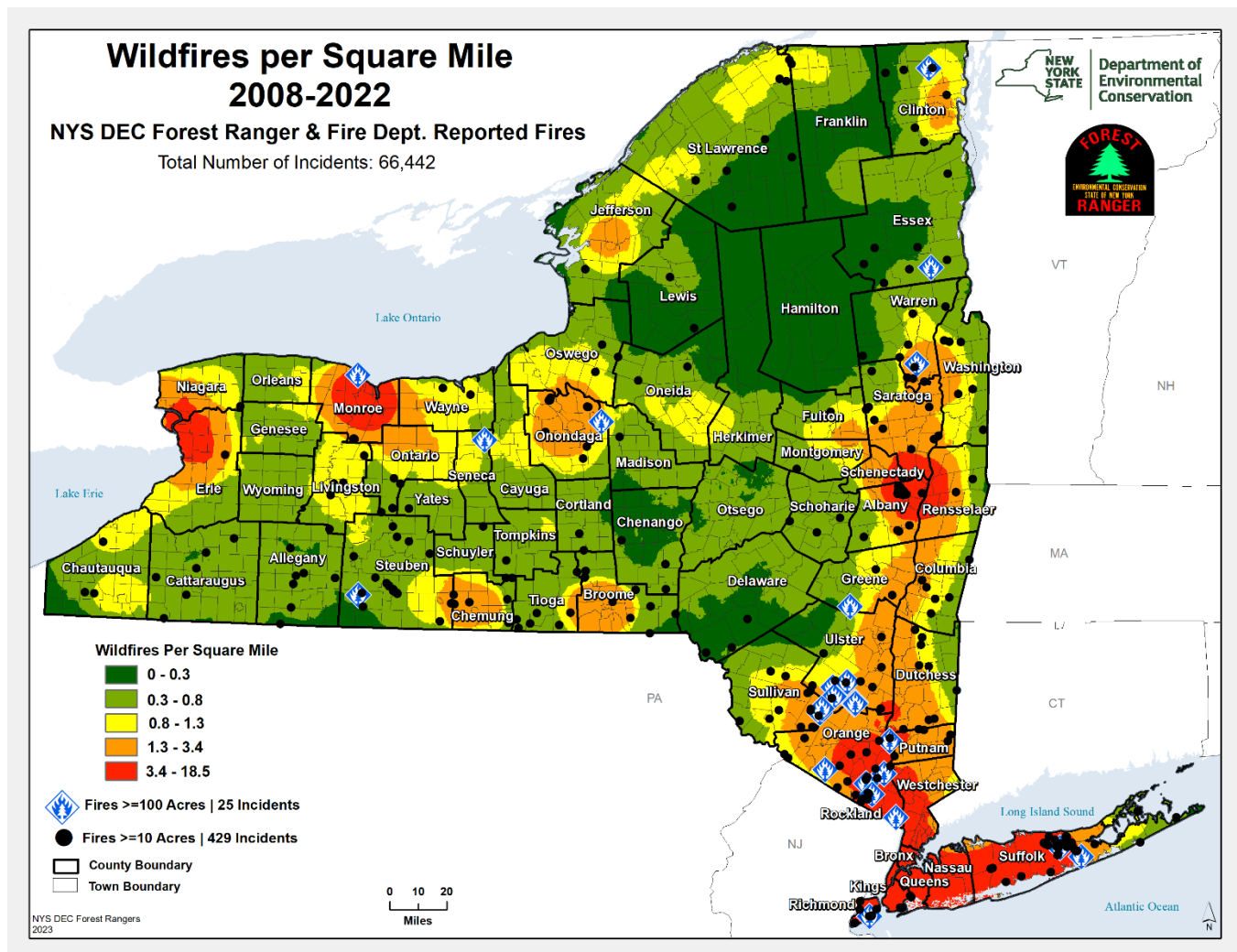




	Sum of Other Structures Lost	Sum of Fatalities	Sum of Injuries	Sum of Acreage	Sum of Homes Lost	Sum of Homes Threatened	Sum of Other Structures Threatened
<i>Miscellaneous</i>	0	0	0	1.6	0	1	0
2008	0	0	0	0.1	0	1	0
2019	0	0	0	1.5	0	0	0
<i>Power line</i>	0	0	0	0.1	0	0	0
2020	0	0	0	0.1	0	0	0
<i>Railroad</i>	0	0	0	0.5	0	0	0
2012	0	0	0	0.5	0	0	0
<b>Warrensburg</b>	0	0	0	83.1	0	1	0
<b>Grand Total</b>	21	0	3	547.3	0	14	7

Source: NYDEC (2023)

Figure 5.4.9-3. Wildfire Events (2008 – 2022)







Source: NYDEC (2023)

### Probability of Future Occurrences

According to the New York State Forest Ranger Division, wildfire occurrence data from 1993 to 2017 have shown that New York State, including Warren County, is susceptible to wildfires. Beginning in 2010, New York State enacted revised open burning regulations that ban brush burning statewide during this time period. Forest ranger data indicate that this new statewide ban resulted in 74 percent fewer wildfires caused by debris burning in upstate New York from 2010 to 2012. Forest ranger and fire department historical fire occurrence data recorded after the new burn ban regulations were enacted in 2010 will serve as a benchmark for analysis of wildfire occurrence (NYS DHSES 2014).

Fire probability depends on local weather conditions, outdoor activities (such as camping, debris burning, and construction) and the degree of public cooperation with fire prevention measures. Dry weather, such as drought, can increase the likelihood of wildfire events. Lightning can also trigger wildfire and urban fire events. Other natural disasters can increase the probability of wildfires by producing fuel in both urban and rural areas. Forest damage from hurricanes and tornadoes may block interior access roads and fire breaks, pull down overhead power lines, or damage pavement and underground utilities (NVRC 2006).

Wildfire experts point to four reasons why wildfire risks are increasing:

- Fuel, in the form of fallen leaves, branches, and plant growth, has accumulated over time on the forest floor. Now, this fuel has the potential to “feed” a wildfire.
- Increasingly hot, dry weather has occurred and will occur within the United States.
- Weather patterns across the country are changing.
- More homes are built within areas of WUI, meaning that homes are built closer to wildland areas where wildfires can occur (NYS DHSES 2011).

Annual small wildfires likely will occur throughout New York State (as the state has regularly undergone in the past). However, advanced methods of wildfire management and control and a better understanding of the fire ecosystems should reduce the number of devastating fires in the future (NYS DHSES 2011).

Based on historical occurrences, the probability of a wildfire event occurring is considered occasional (between 10 and 100 percent annual chance of occurring). Refer to Section 5.3 for additional information on the hazard ranking methodology and probability criteria.





### Climate Change Projections

Fire potential depends on climate variability, local topography, and human intervention. Climate change can affect multiple elements of the wildfire system: fire behavior, ignitions, fire management, and vegetation fuels. Hot, dry spells create the highest fire risk. With temperatures increasing in New York State, wildfire danger may intensify with warming and drying of vegetation. When climate alters fuel loads and fuel moisture, the susceptibility of the forest to wildfires changes. Climate change also may increase winds that spread fires. Faster fires are harder to contain, and thus are more likely to expand into residential neighborhoods.

Climate change is beginning to affect both people and resources in New York State, and these impacts are projected to continue growing. Impacts related to increasing temperatures and heavier precipitation are already being felt in the state. ClimAID: the Integrated Assessment for Effective Climate Change in New York State (ClimAID) was undertaken to provide decision makers with information on the state's vulnerability to climate change and to facilitate the development of adaptation strategies informed by both local experience and scientific knowledge (NYSERDA 2014).

Temperatures in New York State are warming, with an average rate of warming over the past century of 0.25 °F per decade. Average annual temperatures are projected to increase across New York State by 2 °F to 3.4 °F by the 2020s, 4.1 °F to 6.8 °F by the 2050s, and 5.3 °F to 10.1 °F by the 2080s. By the end of the century, the greatest warming is projected to be in the northern section of the State (NYSERDA 2014). The total number of hot days in New York State is expected to increase as this century progresses. The frequency and duration of heat waves, defined as three or more consecutive days with maximum temperatures at or above 90 °F, are also expected to increase. In contrast, extreme cold events, defined both as the number of days per year with minimum temperature at or below 32 °F and those at or below 0 °F, are expected to decrease as average temperatures rise (NYSERDA 2011).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Warren County is part of Region 7 (Indian Lake). In Region 7, it is estimated that temperatures will increase by 4.5°F to 6.4°F by the 2050s and 5.8°F to 10.1°F by the 2080s (baseline of 39.9°F). Average annual temperatures are projected to increase across New York State by 4.1° F to 6.8° F by the 2050s and 5.3° F to 10.1° F by the 2080s with an average rate of warming over the past century of 0.25° F per decade. By the end of the century, the greatest warming is projected to be in the northern section of the State.

Extreme events are also projected to increase, as illustrated in Table 5.4.9-4 below (NYSERDA 2014).

**Table 5.4.9-4. Extreme Event Projections for Region 7**

Event Type (2050s)	Low Estimate (10 <sup>th</sup> Percentile)	Middle Range (25 <sup>th</sup> to 75 <sup>th</sup> Percentile)	High Estimate (90 <sup>th</sup> Percentile)
Days over 90 °F (8 days)	2	3 to 6	10





# Of Heat Waves (0.7 heat waves)	0.2	0.3 to 0.7	1
Duration of Heat Wave (4 days)	3	3 to 4	4
Days below 32 °F (133 days)	131	138 to 154	161
Days over 1" Rainfall (5 days)	7	8 to 9	10
Days over 2" Rainfall (0.6 days)	0.8	0.9 to 1	1

Source: NYSERDA 2014

A gradual change in temperatures will alter the growing environment of many tree species throughout the United States and New York, reducing the growth of some trees and increasing the growth of others. Tree growth and regeneration may be affected more by extreme weather events and climatic conditions than by gradual changes in temperature or precipitation. Warmer temperatures may lead to longer dry seasons and multi-year droughts, creating triggers for wildfires, insects, and invasive species. Increased temperature and change in precipitation will also affect fuel moisture during wildfire season and the length of time wildfires can burn in a given year (USDA 2011).

Climate change may also increase the frequency of lightning strikes. A warmer atmosphere holds more moisture, which is one of the key items for triggering a lightning strike. Lightning strikes cause approximately half of the wildfires in the United States. If the frequency of lightning strikes increases, the potential for wildfires from these strikes also increases (Lee 2014). Wildfire incidents are predicted to increase throughout the United States because of climate change, causing at least a doubling of areas burned within the next century (USDA 2011).

Climate change directly and indirectly affects growth and productivity of forests: directly as a result of changes in atmospheric carbon dioxide and climate, and indirectly through complex interactions within forest ecosystems. Climate also affects the frequency and severity of many forest disturbances, such as infestations, invasive species, wildfires, and storm events. As temperatures increase, the suitability of a habitat for specific types of trees changes. There is also evidence that prolonged heat waves are likely to lead to a greater number of wildfires. Stronger winds from larger storms may lead to more fallen branches for wildfires to consume. An increase in rain and snow events primes forests for fire by supporting growth of more fuel. Drought and warmer temperatures lead to drier forest fuels (NYS DHSES 2014).

## Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed or vulnerable in the hazard area identified. The areas of the County located within the WUI have been identified as exposed for the wildfire events. The following text evaluates and estimates the potential impact of wildfire on Warren County, including:

- Impact on Life, Health, and Safety
- Impact on General Building Stock
- Impact on Critical Facilities and Community Lifelines





- Impact on Economy
- Impact on the Environment
- Future Changes That May Impact Vulnerability
- Change of Vulnerability Since the 2017 HMP

### Impact on life, Health, and Safety

Wildfires have the potential to impact human health and life of residents and responders, structures, infrastructure, and natural resources. Given the immediate response times to reported wildfires, the likelihood of injuries and casualties is minimal. Smoke and air pollution from wildfires can be a health hazard, especially for sensitive populations, including children, the elderly, and those with respiratory and cardiovascular diseases. Wildfire may also threaten the health and safety of those fighting the fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke. The most vulnerable populations include emergency responders and those within a short distance of the interface between the built environment and the wildland environment. Table 5.4.9-5 summarizes the estimated population exposed to the wildfire hazard by jurisdiction.

Based on the analysis, an estimated 29,169 residents (44.4 percent of the County population) are located in the WUI interface hazard area and 25,583 residents (35.9 percent of the County's population) are located in the WUI intermix hazard areas. Overall, the Town of Queensbury has the greatest number of individuals located in the wildfire hazard areas (i.e., 16,087 persons in the WUI interface and 11,291 in the WUI intermix).

**Table 5.4.9-5. Estimated Population within the WUI in Warren County**

Jurisdiction	Total Population (Census Bureau 2020 Decennial)	Estimated Population Located Within the Wildland-Urban Interface/Intermix (WUI) Wildfire Hazard Areas			
		Number of People in the WUI Interface Wildfire Hazard Area	Percent of Total	Number of People in the WUI Intermix Wildfire Hazard Area	Percent of Total
Bolton (T)	2,012	442	22.0%	1,269	63.1%
Chester (T)	3,086	433	14.0%	1,997	64.7%
Glens Falls (C)	14,830	7,206	48.6%	103	0.7%
Hague (T)	633	85	13.5%	439	69.4%
Horicon (T)	1,471	93	6.3%	1,235	84.0%
Johnsburg (T)	2,143	261	12.2%	1,221	57.0%
Lake George (T)	2,494	765	30.7%	1,577	63.2%
Lake George (V)	1,008	1,006	99.8%	0	0.0%
Lake Luzerne (T)	3,079	736	23.9%	1,930	62.7%
Queensbury (T)	29,169	16,087	55.2%	11,291	38.7%
Stony Creek (T)	758	6	0.8%	445	58.7%
Thurman (T)	1,095	8	0.7%	657	60.0%
Warrensburg (T)	3,959	2,041	51.6%	1,420	35.9%





Jurisdiction	Total Population (Census Bureau 2020 Decennial)	Estimated Population Located Within the Wildland-Urban Interface/Intermix (WUI) Wildfire Hazard Areas			
		Number of People in the WUI Interface Wildfire Hazard Area	Percent of Total	Number of People in the WUI Intermix Wildfire Hazard Area	Percent of Total
Warren County (Total)	65,737	29,169	44.4%	23,583	35.9%

Source: U.S. Census Bureau 2020; USGS, USDA Forest Service Northern Research Station

Notes: (C) = City, (T) = Town, (V) = Village

Of the population exposed, the most vulnerable include the economically disadvantaged and the population over age 65. Warren County contains approximately 14,754 people over the age of 65 and 5,151 people below the poverty level (2020 Decennial Census; 2021 5-year ACS). Economically disadvantaged populations are more vulnerable because they are likely to evaluate their risk and make decisions to evacuate based on net economic impacts on their families. The population over age 65 is also more vulnerable because they are more likely to seek or need medical attention that may not be available due to isolation during a wildfire event, and they may have more difficulty evacuating. Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations, including children, the elderly, and those with respiratory and cardiovascular diseases. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals), gases (carbon monoxide, carbon dioxide, and nitrogen oxides), and toxics (formaldehyde and benzene). Emissions from wildfires depend on the type of fuel, the moisture content of the fuel, the efficiency (or temperature) of combustion, and the weather. Public health impacts associated with wildfire include difficulty in breathing, odor, and reduction in visibility.

### Impact on General Building Stock

The most vulnerable structures to wildfire events are those located within the WUI areas. If a wildfire occurs at a WUI, it can also cause an urban fire and in this case has the potential for great damage to infrastructure, because of the high density of population and structures in these areas. Buildings constructed of wood or vinyl siding are generally more likely to be damaged by the fire hazard than buildings constructed of brick or concrete. The hazard areas were overlaid on the building inventory in the County to estimate the buildings exposed to the wildfire hazard. The replacement cost value of the structures with their center in the hazard area were totaled. Table 5.4.9-5 summarizes the number of buildings exposed by municipality. The limitations of this analysis are recognized, and as such the analysis is only used to provide a general estimate. Approximately 35.9 percent of the County's buildings are located in the WUI interface hazard area, and approximately 43.5 percent of the County's buildings are located in the WUI intermix hazard area.




**Table 5.4.9-6. Building Stock within the WUI in Warren County**

Jurisdiction	Total Number of Buildings	Estimated Building Stock Located Within the Wildland-Urban Interface/Intermix (WUI) Wildfire Fuel Hazard Areas			
		Number of Buildings in the WUI Interface Wildfire Hazard Area	Percent of Total	Number of Buildings in the WUI Intermix Wildfire Hazard Area	Percent of Total
Bolton (T)	2,873	663	23.1%	1,754	61.1%
Chester (T)	3,227	450	13.9%	2,031	62.9%
Glens Falls (C)	5,988	2,878	48.1%	38	0.6%
Hague (T)	1,313	184	14.0%	897	68.3%
Horicon (T)	2,188	143	6.5%	1,821	83.2%
Johnsburg (T)	2,625	351	13.4%	1,417	54.0%
Lake George (T)	2,494	778	31.2%	1,535	61.5%
Lake George (V)	609	600	98.5%	0	0.0%
Lake Luzerne (T)	2,173	543	25.0%	1,339	61.6%
Queensbury (T)	12,193	6,499	53.3%	4,641	38.1%
Stony Creek (T)	807	6	0.7%	463	57.4%
Thurman (T)	1,061	7	0.7%	620	58.4%
Warrensburg (T)	2,758	1,386	50.3%	964	35.0%
<b>Warren County (Total)</b>	<b>40,309</b>	<b>14,488</b>	<b>35.9%</b>	<b>17,520</b>	<b>43.5%</b>

Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSEDA, Microsoft; USGS, USDA Forest Service Northern Research Station; RS Means 2022

Notes: (C) = City, (T) = Town, (V) = Village

### Impact on Critical Facilities and Community Lifelines

A number of critical facilities are within the wildfire hazard area, and are also vulnerable to the threat of wildfire. Many of these facilities are locations of vulnerable populations (schools and senior facilities) and agencies that respond to wildfire events (fire and police). Table 5.4.9-7 summarizes the number of lifeline facilities within the WUI Interface and Intermix hazard areas in Warren County. Overall, 137 lifeline facilities are located in the wildland-urban interface hazard area and 199 lifeline facilities are located in the wildland-urban intermix hazard area.

**Table 5.4.9-7. Lifeline Facilities within the WUI (Intermix or Interface) in Warren County**

FEMA Lifeline Category	Number of Lifelines	Number of Lifelines Located in the Wildland-Urban Interface Wildfire Hazard Area	Number of Lifelines Located in the Wildland-Urban Intermix Wildfire Hazard Area
Communications	16	1	9
Energy	20	4	9
Food, Water, Shelter	163	41	63
Hazardous Materials	46	18	10
Health and Medical	43	18	8
Safety and Security	211	45	71
Transportation	60	10	29





FEMA Lifeline Category	Number of Lifelines	Number of Lifelines Located in the Wildland-Urban Interface Wildfire Hazard Area	Number of Lifelines Located in the Wildland-Urban Intermix Wildfire Hazard Area
Warren County (Total)	559	137	199

Source: Warren County, NY 2022; U.S. Census, USGS, USDA Forest Service Northern Research Station

## Impact on the Economy

Wildfire events can have major economic impacts on a community from the initial loss of structures and the subsequent loss of revenue from destroyed businesses and decreases in tourism. Wildfires can cost thousands of taxpayer dollars to suppress and control and can involve hundreds of operating hours on fire apparatus and thousands of volunteer man hours from the volunteer firefighters. There are also many direct and indirect costs to local businesses that provide employees with time off to volunteer to fight these fires.

Table 5.4.9-8 summarizes the estimated building stock inventory exposed by municipality. The limitations of this analysis are recognized, and as such the analysis is only used to provide a general estimate. Approximately 35.4 percent (\$8.5 billion) of the County's replacement cost value is located in the WUI interface hazard area, and approximately 36.3 percent (\$8.8 billion) of the County's replacement cost value is located in the WUI intermix hazard area.

**Table 5.4.9-8. Building Stock Replacement Cost Value within the WUI in Warren County**

Jurisdiction	Total Replacement Cost Value (RCV)	Estimated Building Stock Located Within the Wildland-Urban Interface/Intermix (WUI) Wildfire Fuel Hazard Areas			
		Total Replacement Cost of Buildings in the WUI Interface Wildfire Hazard Area	Percent of Total	Total Replacement Cost of Buildings in the WUI Intermix Wildfire Hazard Area	Percent of Total
Bolton (T)	\$1,509,046,268	\$373,808,209	24.8%	\$653,747,425	43.3%
Chester (T)	\$1,794,523,301	\$222,245,314	12.4%	\$970,228,975	54.1%
Glens Falls (C)	\$3,728,124,116	\$1,836,048,018	49.2%	\$8,616,412	0.2%
Hague (T)	\$799,210,288	\$147,340,812	18.4%	\$534,381,487	66.9%
Horicon (T)	\$1,022,605,789	\$48,706,161	4.8%	\$803,539,400	78.6%
Johnsburg (T)	\$1,493,856,193	\$291,033,361	19.5%	\$625,233,008	41.9%
Lake George (T)	\$2,168,962,785	\$716,671,406	33.0%	\$1,224,603,321	56.5%
Lake George (V)	\$770,157,514	\$725,717,682	94.2%	\$0	0.0%
Lake Luzerne (T)	\$953,667,917	\$244,119,343	25.6%	\$493,852,239	51.8%
Queensbury (T)	\$7,114,031,584	\$3,238,453,339	45.5%	\$2,374,480,041	33.4%
Stony Creek (T)	\$995,996,331	\$1,306,061	0.1%	\$474,356,966	47.6%
Thurman (T)	\$497,985,792	\$3,213,402	0.6%	\$256,760,808	51.6%
Warrensburg (T)	\$1,425,456,857	\$745,076,673	52.3%	\$398,848,006	28.0%
<b>Warren County (Total)</b>	<b>\$24,273,624,737</b>	<b>\$8,593,739,780</b>	<b>35.4%</b>	<b>\$8,818,648,087</b>	<b>36.3%</b>





Source: Hazus v5.1; Warren County, NY 2022; CIESIN, NYSERDA, Microsoft; USGS, USDA Forest Service Northern Research Station; RS Means 2022

Notes: (C) = City, (T) = Town, (V) = Village

### Impact on the Environment

Wildfire can lead to ancillary impacts such as landslides in steep ravine areas and flooding caused by the impacts of silt in local watersheds. According to the USGS, post-fire runoff polluted with debris and contaminants can be extremely harmful to ecosystem and aquatic life. Studies show that urban fires in particular are more harmful to the environment compared to forest fires (USGS 2018). Wildfires that impact developed areas can exacerbate consequences on the environment because of the increased amount of chemicals and contaminants that would be released from burning infrastructure. These chemicals, such as iron lead, and zinc, may leach into the stormwater, contaminate nearby streams, and impair aquatic life.

### Future Changes That May Impact Vulnerability

Understanding future changes that impact vulnerability in the County can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The County considered the following factors to examine potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in the population
- Other identified conditions as relevant and appropriate, including the impacts of climate change

#### *Projected Development*

Areas targeted for potential future growth and development within the next five years have been identified across Warren County at the jurisdiction level. Refer to the jurisdictional annexes in Volume II of this HMP. Any new development and new residents within the WUI are expected to be exposed to the wildfire hazard. Refer to the jurisdictional annexes in Volume II of this HMP for maps which include new development project areas and their proximity to the wildland-urban interface/intermix hazard areas.

#### *Projected Changes in Population*

Warren County has experienced a slight increase (less than 0.1-percent) in population since 2010 according to the U.S. Census Bureau (U.S. Census Bureau 2020) and is expected to experience a continued decline in the next decade. A stable or decreased population in the WUI in Warren County may not significantly change the County's risk to wildfire events. Refer to section 4 (County Profile), which includes a more thorough discussion about population trends for the County.





### *Climate Change*

According to the USDA Forest Service, climate change will likely alter the atmospheric patterns that affect fire weather. Changes in fire patterns will, in turn, impact carbon cycling, forest structure, and species composition (US EPA 2020). Climate change associated with warmer temperatures, changes in rainfall, and increased periods of drought may create an atmospheric and fuel environment that is more conducive to large, severe fires. Under a changing climate, wildfires exceeding 50,000 acres have increased over the past 30 years (USDA 2012a). Understanding the climate/fire/vegetation interactions is essential for addressing issues associated with climate change that include:

- Effects on regional circulation and other atmospheric patterns that affect fire weather
- Effects of changing fire regimes on the carbon cycle, forest structure, and species composition, and
- Complications from land use change, invasive species, and an increasing WUI.

As discussed earlier, average temperatures are anticipated to increase in New York; therefore, the suitability of habitats for specific types of trees will potentially change, altering the fire regime and resulting in more frequent fire events and changes in intensity. Prolonged and more frequent heat waves have the potential to increase the likelihood of a wildfire. The increased potential combined with stronger winds may make it harder to contain fires and thus will increase the County's vulnerability to this hazard.

### **Change of Vulnerability Since the 2017 HMP**

Overall, the entire County remains vulnerable to wildfires. While the occurrence of events has historically been low, the vulnerability of Warren County to damages from wildfires remains high due to exposure in the WUI.





## SECTION 6. WARREN COUNTY CAPABILITIES AND MITIGATION STRATEGY

### 6.1 OVERVIEW

This section presents mitigation strategies for Warren County to reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this plan. The Steering Committee reviewed the Risk Assessment to identify and develop these mitigation actions, which are presented herein.

This section includes:

1. Background and Past Mitigation Accomplishments
2. General Mitigation Planning Approach
3. Review and Update of Mitigation Goals and Objectives
4. Capability Assessment
5. Mitigation Strategy Development and Update

**Hazard mitigation** reduces the potential impacts of, and costs associated with, emergency and disaster-related events.

Mitigation actions address a range of impacts, including impacts on the population, property, the economy, and the environment.

**Mitigation actions** can include activities such as: revisions to land-use planning, training and education, and structural and nonstructural safety measures.

### 6.2 BACKGROUND AND PAST MITIGATION ACCOMPLISHMENTS

In accordance with the requirements of the Disaster Mitigation Act of 2000, detailed on Page 1-1 in Section 1 (Introduction), a discussion regarding past mitigation activities and an overview of past efforts is provided as a foundation for understanding the mitigation goals, objectives, and activities outlined in this plan update. Warren County, through previous and ongoing hazard mitigation activities, has demonstrated that it is proactive in protecting its physical assets and citizens against losses from natural hazards. Examples of previous and ongoing actions and projects include the following:

- The County facilitated the development of the original 2017 “Warren County All Hazards Mitigation Plan Update”. The current planning process represents the regulatory five-year plan update process, which includes participation of all municipal governments in the County, along with key county and regional stakeholders.
- All municipalities participate in the National Flood Insurance Program (NFIP), which requires the adoption of FEMA floodplain mapping and certain minimum construction standards for building within the floodplain.
- The County has created an app to enable real time reporting of hazard events. This app called ReadyWarrenCountyNY and has been shared on social media including on the County





Facebook and local TV news station. The app provides information regarding hazards, including the location of cooling centers in the County. It also enables the publication of alerts for towns and villages and has the ability to geo-locate users for targeted outreach and messaging as needed. It can be used to support mitigation alerts and is linked to a storm reporter app to report storm observations, hazard areas, and photos. It is anticipated that the data gathered through this app will improve mitigation grant funding applications by providing information to support strong benefit cost analyses.

- The Warren County Soil & Water District consults USGS-maintained stream gauges on the Hudson River and its tributaries at North Creek, Hadley, and Fort Edward; at the tributaries on the Boreas river, the Indian River in Indian Lake, the Sacandaga at Hope and Hadley and the Schroon at Riverbank. Streams that flow to Lake George have had stream gauges and flow data since the 70's during the National Urban Runoff Program study, and by NYSDEC (90's), Darrin Freshwater Institute (2000's) and currently by IBM and RPI (Jefferson Project) in East Brook, West Brook, English Brook, Finkle Brook, Indian Brook, Shelving Rock Brook, Hague Brook and at the outlet of Lake George.
- The County and municipalities have implemented mitigation actions to protect critical facilities and infrastructure throughout the planning area. As an example, the Highway Department maintains a multi-year, rotating program of roadway and culvert (drainage) maintenance and improvements to help mitigate stormwater damage to county roads.
- The County Department of Public Works department has a maintenance program to reduce risk. It involves brushing and tree maintenance, ditching, clearing culvert pipes of debris and replacement and if needed upsizing damaged or deteriorated culvert pipes to a 1-percent change design capacity. Based on the program, a certain number of miles of roadway are checked, determine what work is needed and then perform the work. The average is about 20–30 miles in each shop per year. Areas mitigated include:
  - West Hague Road over Hague Brook (@ Fish and Game )
  - West Hague Road over Hague Brook (@ Macoy Rd.)
  - Moon Hill Road over unnamed stream (replaced round with squash prior to federal aid project)
  - 13th Lake Road (Twin Pipes @ Barton Mines)
  - CR 11 – Horicon Ave.(Bolton) over Finkle Brook
  - Call Street over Bennie Brook
  - Bay Road over Halfway Brook (was triple culverts but DOT considered it a bridge)
  - Bay Road over Glen Lake outlet
  - Warrensburg Road over Number 9 Brook (@ Cameron Road)
- The County awarded ARPA funding to the Warren County Soil & Water Conservation District to purchase and have installed data collection devices on Glen Lake and Lake Sunnyside, the two lakes listed in both the County and Town of Queensbury MS4 programs. Parameters monitored include air temperature, relative humidity, barometric pressure, rainfall, water level,





& water temperature at 15-minute or 30-minute intervals. This data will be publicly accessible through a dashboard.

- The County awarded ARPA funding to Warren County Soil & Water Conservation District to purchase and install a weather monitoring station at the Warren County Soil & Water Conservation District office which is operational.
- Numerous studies have been conducted by Federal, State, County, and local agencies/entities to examine natural hazards affecting Warren County and have been reviewed and incorporated into this plan update as appropriate (see Section 3 and References).
- Municipalities in Warren County have adopted regulatory standards regarding land-use and zoning that provide the communities with greater capability to manage development without increasing hazard risk and vulnerability. Examples of these standards are presented in the Capability Assessment subsection later in this chapter.
- The County has been incorporating flood risk reduction through stormwater management into its infrastructure and building improvement projects.
- Since 2017, the Warren County Planning Department has submitted funding applications and overseen the implementation of critical water quality projects in the Lake George and Schroon Lake watersheds. The county efforts include the Lake George Milfoil and Aquatic Invasive Efforts wherein the Warren County Planning Department provided ongoing administration and oversight of the milfoil eradication grant program in the Lake George Basin. The department developed a custom field data collection interface and online data dashboards so that milfoil harvesters could report their progress in a more accurate and timely manner than ever before. As part of the departments LWRP grant award for milfoil eradication efforts in Lake George, GIS staff met with the Lake George Park Commission, the Fund for Lake George, and the Lake George Association to determine a method for collecting more accurate and spatially located data for the 2021 milfoil harvest. The County GIS department created a field data collection app and trained the harvesters in its use as well as a dashboard that allows agency staff to monitor field data collection real time. The County gathered historic milfoil data and collated it to create a historic milfoil data dashboard. The apps will allow agency staff and the public to view progress from year to year and to more effectively target funding for eradication efforts.
- The County is gathering milfoil data for Brant and Shroon Lakes to support documentation and mitigation efforts.
- In November of 2018, the Warren County Soil and Water Conservation District purchased sandbagger machinery and developed a Memorandum of Agreement to enable community use of the machine to reduce flood losses in areas not protected by mitigation projects or flood reduction infrastructure.
- The County has 9 generators that are ready at any time for deployment via notification to the communications center by a municipality, fire department or individual. These





generators are purchased by grant funds. The County can obtain for additional generators, as needed via a request to NY Responds.

- The County has experienced several power outages in the winter and early spring and typically works with EMS agencies and Fire Departments to open warming shelters, the warming shelters are listed on our website, social media, National Grid's website and local news stations. To date, the community has not needed to use warming shelter. National Grid maintains a list of critical customers, who they reach out to during a prolonged outage. Our Sheriff's dept will be called upon if NG is not able to contact one of these customers.
- The Warren County Public Health Department regularly participates in many educational events at schools, the mall, and at SUNY Adirondack.

### 6.3 GENERAL MITIGATION PLANNING APPROACH

The overall approach used to update the County and local hazard mitigation strategies are based on FEMA and NYS regulations and guidance regarding local mitigation plan development, including the following:

- DMA 2000 regulations, specifically 44 CFR 201.6 (local mitigation planning).
- FEMA *Local Mitigation Planning Handbook*, March 2013.
- FEMA *Local Mitigation Plan Review Guide*, October 1, 2011.
- FEMA *Integrating Hazard Mitigation into Local Planning*, March 1, 2013.
- FEMA *Plan Integration: Linking Local Planning Efforts*, July 2015.
- FEMA *Mitigation Planning How-To Guide #3, Identifying Mitigation Actions, and Implementing Strategies* (FEMA 386-3), DATE.
- FEMA *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*, January 2013.
- NYS DHSES *New York State Hazard Mitigation Planning Standards*, 2022.
- NYS DHSES *New York State Hazard Mitigation Planning Standards Guide*, 2022.

The mitigation strategy update approach includes the following steps that are further detailed in later subsections:

- 6.3 Review and update mitigation goals and objectives.
- 6.4 Identify mitigation capabilities and evaluate their capacity and effectiveness to mitigate and manage hazard risk.
- 6.5 Prepare an implementation strategy, including:
  - Identify progress on previous county and local mitigation strategies.
  - Develop updated county and local mitigation strategies.
  - Prioritize projects and initiatives in the updated mitigation strategy.





## 6.4 REVIEW AND UPDATE OF MITIGATION GOALS AND OBJECTIVES

This section documents the County's efforts to develop hazard mitigation goals and objectives that are established to reduce or avoid long-term vulnerabilities to the identified hazards.

### 6.4.1 Mission Statement

The Warren County Hazard Mitigation Plan Steering Committee reviewed the plan Mission Statement to ensure that the guiding principle to describe the overall duty and purpose of the planning process and in accordance with FEMA guidance (386-1), The intent of this statement is to focus the range of goals and objectives identified to support the over-arching purpose of the plan.

As a result of the committee deliberations, the 2023 Warren County Hazard Mitigation updated the Mission Statement to include address equity concerns and to narrow the focus of the planning process to address impacts from natural and human-caused hazard. The mission statement is provided below.

***To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, socially vulnerable populations, and the public to eliminate or reduce risks and adverse impacts from natural hazards.***

### 6.4.2 Goals and Objectives

According to CFR 201.6(c)(3)(i): "The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards." The mitigation goals have been developed based on the risk assessment results, discussions, research, and input from amongst the committee, existing authorities, polices, programs, resources, stakeholders, and the public.

For the purposes of this plan, goals and objectives are defined as follows:

**Goals** are general guidelines that explain what is to be achieved. They are usually broad, long-term, policy-type statements and represent global visions. Goals help define the benefits that the plan is trying to achieve. The success of the plan, once implemented, should be measured by the degree to which its goals have been met (that is, by the actual benefits in terms of hazard mitigation).

**Objectives** are short-term aims, which when combined form a strategy or course of action to meet a goal. Unlike goals, objectives are a stand-alone measurement of the

FEMA defines **Goals** as general guidelines that explain what should be achieved. Goals are usually broad, long-term, policy statements, and represent a global vision.

FEMA defines **Objectives** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.

FEMA defines **Mitigation Actions** as specific actions that help to achieve the mitigation goals and objectives.





effectiveness of a mitigation action, rather than as a subset for a goal. The objectives also are used to help establish priorities.

The goals and associated objectives for Warren County and municipalities included in the plan were developed based in part on a review of the hazard mitigation goals and objectives established in the 2019 NYS HMP, the 2017 Warren County HMP, as well as the current or expired municipal hazard mitigation plans within the county. Further, these goals were selected to be compatible with the needs and goals expressed in other available County and local community planning documents. Achievement of these goals helps to define the effectiveness of a mitigation strategy.

Table 6-1 presents the updated hazard mitigation planning goals and objectives established for this plan update. Bold font indicates additions or edits to the previous goals and objectives.

**Table 6-1. Warren County Hazard Mitigation Plan Goals and Objectives**

Goal	Objective
Goal 1: Protect Life and Property	1.1: Introduce mitigation <b>and adaptation</b> activities that will make homes, businesses and critical facilities and infrastructure more hazard resistant <b>and to increase resilience</b> .
	1.2: In areas vulnerable to hazards, encourage businesses and homeowners to take preventive actions when possible <b>and in an equitable manner</b> .
	1.3: Periodically review existing building codes, safety procedures, municipal and county ordinances to update recent standards for building protection.
	1.4: Immediately enforce existing building codes, <b>zoning ordinances, and floodplain development review and permitting</b> within the jurisdictions.
	1.5: Encourage owners of home and businesses and renters to purchase appropriate insurance coverage for potential damages from hazards.
Goal 2: Increase Public Awareness	2.1: Continue developing and integrating education and outreach programs in an effort to enhance public awareness of the hazards, and <b>availability of</b> information on specific activities for individuals in anticipation of a hazard event .
	2.2: Provide information on current government programs and funding resources to assist with mitigation <b>and resilience</b> .
	2.3: Strengthen communication and cooperation between public agencies, citizens, non-profit groups, and businesses to implement mitigation activities effectively.
Goal 3: Provide for Emergency Services	3.1: Coordinate hazard mitigation activities with existing local emergency plans.
	3.2: Identify and plan for acquiring any specific emergency services and equipment needed to improve response capabilities for specific hazards.
	3.3: Review emergency traffic routes, making changes as needed, and educating the public as to the routes <b>including use of mass notification systems and real-time storm and problem area reporting</b> .





Goal	Objective
Goal 4:  Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related state, regional, county and local plans and programs.	4.1: Promote land use planning to encourage resilient and sustainable efforts throughout statewide and regional programs that address zoning, building codes, capital improvement programs, open space preservation, nature-based solutions, and storm water management regulations. <b>Encourage integration of mitigation via review and update of local planning documents to be consistent with and relevant to the Hazard Mitigation Plan.</b>
	4.2: Continue to participate in state, regional and local programs and efforts that focus on practices that support or enhance resiliency.
	4.3: Improve hazard data through participation in studies, research, and mapping to enhance information related to the impacts of hazards and related risks, vulnerability, and losses.
Goal 5:  Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.	5.1: Encourage the use of green and natural infrastructure, <b>low impact development, and</b> nature-based solutions.
	5.2: Provide technical assistance to communities and stakeholders in the application and implementation of mitigation projects that preserve or restore natural systems.
	5.3: Maintain and encourage ongoing relationships between state agencies and partners to play an active and vital role in preservation and restoration of vulnerable natural systems.
	5.4: Promote climate change adaption strategies that protect against long-term effects on the environment <b>and incorporate into a county-wide climate action plan.</b>
Goal 6:  Address Long-Term Vulnerabilities from High Hazard Dams	6.1: <b>Ensure dam infrastructure is maintained</b>
	6.2: <b>Ensure Emergency Action Plans are developed and updated</b>
	6.3: <b>Support the identification and access to funding to repair/replace dams</b>

## 6.5 CAPABILITY ASSESSMENT

According to FEMA's *Mitigation Planning How-To Guide #3*, a capability assessment is an inventory of a community's missions, programs, and policies and an analysis of its capacity to carry them out. This assessment is an integral part of the planning process. The assessment process enables identification, review, and analysis of current local and state programs, policies, regulations, funding, and practices that could either facilitate or hinder mitigation (FEMA 2013).

During the original planning process, the County and participating municipalities identified and assessed their capabilities in the areas of existing programs, policies, and technical documents. By completing this assessment, each jurisdiction learned how or whether they would be able to implement certain mitigation actions by determining the following:

- Limitations that may exist on undertaking actions;





- The range of local and/or state administrative, programmatic, regulatory, financial, and technical resources available to assist in implementing their mitigation actions;
- Action is currently outside the scope of capabilities;
- Types of mitigation actions that may be technically, legally (regulatory) administratively, politically, or fiscally challenging or infeasible;
- Opportunities to enhance local capabilities to support long term mitigation and risk reduction.

During the plan update process, all participating jurisdictions were tasked with developing or updating their capability assessment, paying particular attention to evaluating the effectiveness of these capabilities in supporting hazard mitigation, and identifying opportunities to enhance local capabilities.

County and municipal capabilities in the Planning and Regulatory, Administrative and Technical, and Fiscal arenas can be found in the Capability Assessment section of each jurisdictional annex in Section 9 (Jurisdictional Annexes). Within each annex, participating jurisdictions identified integration of hazard risk management into their existing planning, regulatory, and operational/administrative framework (“integration capabilities”) and intended integration promotion (*integration actions*). A further summary of these continued efforts to develop and promote a comprehensive and holistic approach to hazard risk management and mitigation is presented in Section 7 (Plan Maintenance).

A summary of the various federal, state, county, and local planning, and regulatory, administrative, and technical, and fiscal programs available to promote and support mitigation and risk reduction in Warren County are presented below.

### 6.5.1 Planning and Regulatory Capabilities - County and Local

#### Municipal Land Use Planning and Regulatory Authority

The County and municipalities have various land use planning mechanisms that can be leveraged to mitigate flooding and support natural hazard risk reduction. Specific County and local planning and regulatory capabilities are identified in their jurisdictional annexes in Section 9.

The Warren County Department of Planning and Community Development (WCDPCD) does not have any, or implement any, County-level land use plans. The County Planning Department does fulfil the General Municipal Law 239 review for Sections 239-l and 239-m of the law. The County does not review subdivisions as identified under Section 239-n of the law. With the exception of Thurman and Stony Creek, all municipalities within the County have some form of local land use regulations.





### Adirondack Park Agency

---

The Adirondack Park (“Park”) was created in 1892 by the State of New York amid concerns for the water and timber resources of the region. The boundary of the Park encompasses approximately 6 million acres, 44.6 percent of which belongs to all the people of New York State as constitutionally protected “forever wild” forest preserve. The private lands within the 101 towns and villages include residential neighborhoods, commercial centers, farms, working forests, and camps comprise 49.4 percent, and the remaining 6 percent is water bodies.

The Adirondack Park Agency (APA) is a New York State government agency, consisting of 54 staff and an eleven-member board. In 1971 the APA was created by the State Legislature to develop long-range public and private land use plans for the largest park in the continental United States. The Agency prepared the State Land Master Plan, which was signed into law in 1972, followed by the Adirondack Park Land Use and Development Plan (“APLUDP”) in 1973. The Agency strives to conserve the Park’s natural resources and ensure that development is well-planned through administration of the Adirondack Park Agency Act (which includes the APLUDP), the New York State Freshwater Wetlands Act, and the New York State Wild, Scenic and Recreational Rivers System Act.

Town of Bolton, Town of Lake George, Lake George Village, Town of Hague, Town of Horicon, Town of Johnsbury, and the Town of Queensbury are communities in Warren County with Agency approved local land use programs. Within the Park, certain activities require a permit from the Agency under the Adirondack Park Agency Act; the Wild, Scenic and Recreational Rivers System Act; and the Freshwater Wetlands Act. For each of these laws, the permitting review criteria involves an analysis of potential impacts from the proposed activity on the natural, scenic, aesthetic, ecological, wildlife, historic, recreational, open space, and other resources of the Park, in addition to other standards. (Adirondack Park Agency unknown)

### National Flood Insurance Program (NFIP)

---

The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968 (FEMA’s 2002 National Flood Insurance Program (NFIP): Program Description). The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages.

There are three components to the NFIP: flood insurance, floodplain management and flood hazard mapping. Communities participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary. Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their





contents caused by floods. Flood damage in the U.S. is reduced by nearly \$1 billion each year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built-in compliance (FEMA, 2008).

All of municipalities in Warren County actively participate in the NFIP. As of January 2023, there were 173 NFIP policyholders in Warren County<sup>1</sup>. There have been 74 claims made to date, totaling approximately \$1.8 million for damages to structures and contents. There are 7 NFIP Repetitive Loss (RL) properties, properties in the County<sup>2</sup>. Further details on the flood vulnerability within the County may be found in the flood hazard profile (Section 5.4.3).

Municipal participation in and compliance with the NFIP is supported at the federal level by FEMA Region II and the Insurance Services Organization (ISO), at the state-level by the New York State Department of Environmental Conservation (NYSDEC) and New York State Office of Emergency Management (NYS DHSES). Additional information on the NFIP program and its implementation throughout the county may be found in the flood hazard profile (Section 5).

The state and municipalities within it may adopt higher regulatory standards when implementing the provisions of the NFIP. Specifically identified are the following:

**Freeboard:** By law, NYS requires Base Flood Elevation plus 2 feet (BFE+2) for all single- and two-family residential construction, and BFE+1 for all other types of construction. Communities may go beyond this requirement, providing for additional freeboard or requiring BFE+2 for all types of construction. Warren municipalities have supported property owners meeting and exceeding freeboard requirements through the site plan review and zoning board of approvals process; for instance, allowing overall structure heights to be determined from BFE+2 rather than grade within NFIP floodplains per NYS Uniform Code.

**Cumulative Substantial Improvements/Damages:** The NFIP allows improvements valued at up to 50% of the building's pre-improvement value to be permitted without meeting the flood protection requirements. Over the years, a community may issue a succession of permits for different repairs or improvement to the same structures. This can greatly increase the overall flood damage potential for structures within a community. The community may wish to deem "substantial improvement" cumulatively so that once a threshold of improvement within a certain length of time is reached, the structure is considered to be substantially improved and must meet flood protection requirements.

---

<sup>1</sup> As per HUDEX data extracted on 1/26/2023

<sup>2</sup> Per FEMA, 5/2023





### NFIP Community Rating System (CRS)

---

As an additional component of the NFIP, the Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance (FEMA, 2012). Municipalities and the county as a whole could expect significant cost savings on premiums if enrolled in the CRS program.

Currently no communities in Warren County participate in the CRS program.

While communities within Warren County are aware of the benefits of participating in the CRS, the burden of administrating the program to obtain significant saving for NFIP insured property owners is a barrier to participation. To support improved floodplain management, the Warren County Soil & Water Conservation District (SWCD) will strive to provide continuing education to communicate the benefits of participation. As an alternative to participation in the program the SWCD will strive to develop a manual of best practices as an ongoing resource for local floodplain administrators to enable the implementation of practices to reduce flood impacts across the County.

Flood events comprise 90% of the damages to declared disasters in the United States (Insurance Information Institute, n.d.). Due to differing floodplain extents within their boundaries, communities in Warren County have varying degrees of vulnerability to flood events. Strong floodplain management can reduce or eliminate the impacts of flooding, which causes health, safety and economic impacts to residents, businesses, and visitors in the County.

However, CRS participation may not be appropriate for all communities, so each must evaluate the cost of staff time for administration versus the benefits of joining the program. Participation in the CRS is based on documented, programmatic activities, and therefore requires significant staff support to join and sustain required administration and activities. Participating communities must complete a full verification every five years thereafter. If a community cannot demonstrate that it continues to implement credited program activities and mandatory requirements, then it will no longer be eligible for NFIP premium discounts. Based on review of communities participating across the country and depending on the level of participation/class of a community, it is estimated that it requires approximately five hours a week to operate a community CRS program. This level of effort is inclusive of responding to resident inquiries, outreach, maintenance of records and data, and annual and cycle reporting.

The intent of this document would be to provide a primer to Warren County communities that are interested in reducing the risk of flood and associated physical and economic impacts of flooding.





### Local Waterfront Revitalization Program

---

The Waterfront Revitalization of Coastal Areas and Inland Waterways Act offers local governments the opportunity to participate in the State's Coastal Management Program (CMP) on a voluntary basis by preparing and adopting a Local Waterfront Revitalization Program (LWRP), providing more detailed implementation of the State's CMP through use of such existing broad powers as zoning and site plan review. The Town of Bolton is the one community within Warren County with a municipal LWRP. The towns of Lake Luzerne, Stony Creek, Thurman, Warrensburg, Johnsburg, Chester and Horicon have developed the First Wilderness multijurisdictional LWRP.

When an LWRP is approved by the New York State Secretary of State, State agency actions are required to be consistent with the approved LWRP to the maximum extent practicable. When the federal government concurs with the incorporation of an LWRP into the CMP, federal agency actions must be consistent with the approved addition to the CMP. Title 19 of NYCRR Part 600, 601, 602, and 603 provide the rules and regulations that implement each of the provisions of the Waterfront Revitalization of Coastal Areas and Inland Waterways Act including but not limited to the required content of an LWRP, the processes of review and approval of an LWRP, and LWRP amendments.

The Local Waterfront Revitalization Program (LWRP) serves as the Office of Planning and Development's primary program for working in partnership with waterfront communities across the State to address local and regional (coastal or inland) waterway issues, improve water quality and natural areas, guide development to areas with adequate infrastructure and services away from sensitive resources, promote public waterfront access, and provide for redevelopment of underutilized waterfronts.

A Local Waterfront Revitalization Program consists of a planning document prepared by a community, and the program established to implement the plan. An LWRP may be comprehensive and address all issues that affect a community's entire waterfront, or it may address the most critical issues facing a significant portion of its waterfront.

An LWRP follows a step-by-step process by which a community can advance community planning from a vision to implementation, which is described in the Making the Most of Your Waterfront Guidebook developed by the Department of State. Additionally, the Opportunities Waiting to Happen Guidebook, developed by the Department of State, provides help to assist all New Yorkers to redevelop abandoned buildings as part of the overall vision for their community.

In addition to landward development, water uses are subject to an ever-increasing array of use conflicts. These include conflicts between passive and active types of recreation, between commercial and recreational uses, and between all uses and the natural resources of a harbor. Increases in recreational boating, changes in waterfront uses, coastal hazards what to do with dredged materials, competition for space, climate change, and multiple regulating authorities, all





make effective harbor management complex. These conflicts and a lack of clear authority to solve them have resulted in degraded natural and cultural characteristics of many harbors, and their ability to support a range of appropriate uses. As part of an LWRP, a harbor management plan can be used to analyze and resolve these conflicts and issues.

An approved LWRP reflects community consensus and provides a clear direction for appropriate future development. It establishes a long-term partnership among local government, community-based organizations, and the State. Also, funding to advance preparation, refinement, or implementation of Local Waterfront Revitalization Programs is available under Title 11 of the New York State Environmental Protection Fund Local Waterfront Revitalization Program (EPF LWRP) among other sources.

In addition, State permitting, funding, and direct actions must be consistent, to the maximum extent practicable, with an approved LWRP. Within the federally defined coastal area, federal agency activities are also required to be consistent with an approved LWRP. This “consistency” provision is a strong tool that helps ensure all government levels work in unison to build a stronger economy and a healthier environment.

### **Warren County Comprehensive Emergency Management Plan**

This Plan results from the recognition on the part of Warren County government and New York State officials that a comprehensive plan is needed to enhance this County's ability to manage the range of emergency/disaster situations to which we are exposed. It was prepared by County officials working as a team in a planning process recommended by the New York State Office of Emergency Management (NYSOEM). This Plan constitutes an integral part of a statewide emergency management program and contributes to its effectiveness. Authority to undertake this effort is provided by both Article 2-B of State Executive Law and the New York State Defense Emergency Act.

The development process of this Plan included an analysis of potential hazards that could affect the County and an assessment of the capabilities existing in the County to manage potential hazards.

Preparing for and responding to disasters is an ongoing and complex undertaking. Through implementation of Risk Reduction measures before a disaster or emergency occurs; Preparedness efforts to include planning, training and exercises; timely and effective Response during an actual occurrence; and provision of both short- and long-term Recovery assistance after the occurrence of a disaster, lives can be saved, and property damage minimized. This process is called Comprehensive Emergency Management to emphasize the interrelationship of activities, functions, and expertise necessary to deal with emergencies.

This comprehensive plan is organized according to the recognized methodology of emergency management. It is organized according to the necessary “all hazard” response functions needed to





respond to any disaster. Accordingly, this plan addresses the four basic principles which include: mitigation, preparedness, response, and recovery operations.

The 2023 Comprehensive Emergency Management Plan addresses multiple hazards of concern as well as hazard mitigation planning. It includes integration recommendations with hazard mitigation plan through existing programs and supported by the Warren County Soil and Water Conservation District.

### 6.5.2 Planning and Regulatory Capabilities – State and Federal

#### New York State Floodplain Management

---

There are two departments that have statutory authorities and programs that affect floodplain management at the local jurisdiction level in New York State: the New York State Department of Environmental Conservation (NYSDEC) and the Department of State's Division of Code Enforcement and Administration (DCEA).

In 1992, the New York State Legislature amended an existing law, finding that "it is in the interests of the people of this state to provide for participation" in the NFIP (New York Laws, Environmental Conservation, Article 36). Although the Legislature recognized that "land use regulation is principally a matter of local concern" and that local governments "have the principal responsibility for enacting appropriate land use regulations," the law requires all local governments with land use restrictions over SFHAs to comply with all NFIP requirements. The law clearly advises local governments that failure to qualify for the NFIP may result in sanctions under Federal law and specifies that the State "will cooperate with the federal government in the enforcement of these sanctions."

The 1992 law that provides for local government participation in the NFIP also requires state agencies to "take affirmative action to minimize flood hazards and losses in connection with state-owned and state-financed buildings, roads and other facilities, the disposition of state land and properties, the administration of state and state-assisted planning programs, and the preparation and administration of state building, sanitary and other pertinent codes." In particular, the commissioner of the NYSDEC is to assist state agencies in several respects, including reviewing potential flood hazards at proposed construction sites.

The NYSDEC is charged with conserving, improving, and protecting the state's natural resources and environment, and preventing, abating, and controlling water, land, and air pollution. Programs that have bearing on floodplain management are managed by the Bureau of Flood Protection and Dam Safety, which cooperates with federal, state, regional, and local partners to protect lives and property from floods, coastal erosion, and dam failures. These objectives are accomplished through floodplain management and both structural and nonstructural means.





The Coastal Management Section works to reduce coastal erosion and storm damage to protect lives, natural resources, and properties through structural and nonstructural means. The Dam Safety Section is responsible for “reviewing repairs and modifications to dams and assuring [sic] that dam owners operate and maintain dams in a safe condition through inspections, technical reviews, enforcement, and emergency planning.” The Flood Control Projects Section is responsible for reducing flood risk to life and property through construction, operation, and maintenance of flood control facilities.

The Floodplain Management Section is responsible for reducing flood risk to life and property through management of activities, such as development in flood hazard areas, and for reviewing and developing revised flood maps. The Section serves as the NFIP State Coordinating Agency and in this capacity is the liaison between FEMA and New York communities that elect to participate in the NFIP. The Section provides a wide range of technical assistance.

### 6.5.3 Administrative and Technical Capabilities - County and Local

#### Warren County Soil & Water Conservation District (WC SWCD)

The District's mission is to implement projects and programs to improve and protect the lakes, streams, and other natural resources of Warren County. The SWCD was created in 1956 to develop and carry out a program of soil, water and related natural resource conservation by providing technical assistance and programs to residents, landowners and units of government. Environmental planners and other WCDP staff provide support to the seven-member citizen Board of Directors. The SWCD has developed a program with a distinct urban/suburban conservation orientation and considers a wide range of soil and water resources conservation concerns.

Mitigation related services provided include:

- Technical assistance and site reviews for private and public properties that may include assistance with, but not limited to – erosion and sediment control, habitat improvement, stormwater, forestry, drainage, regulatory permits.
- Water/stormwater management though general assistance and grant programs
- Stream crossing assistance for proper permit requirements
- Agricultural assessments
- Soil survey interpretation and WebSoil survey assistance
- Pond site investigations
- Educational information and outreach on conservation and water quality
- Provide low-cost seedlings for the conservation purposes
- Organize and host the Warren County Envirothon
- The District instructs on the NYSDEC 4 Hour Contractor’s Training for Erosion and Sediment Control





- The District instructs on the NYS Post-Flood Stream Intervention program
- The SWCD Manager is the current Hazard Mitigation Coordinator and MS4 Stormwater Management officer for Warren County.

The District assists both public and private landowners with identifying and addressing Hazard Mitigation issues through their conservation assistance programs and Hazard Mitigation Coordinator. The District has directly assisted communities with hazard mitigation through grants to reduce soil migration, stream corridor improvements and stormwater runoff reduction. In addition the District has assisted communities through the initial application of Letters of Intent for FEMA grant programs.

The District does not have a specific budget item for hazard mitigation projects. Projects that fall under the hazard mitigation umbrella have been funded from current natural resource grants that have been awarded to the SWCD and which are justifiable expenses from the grant requirements.

### **Warren County Office of Emergency Services (WC OES)**

---

The Warren County OES manages and administrates a program of quality training for Fire and EMS agencies in accordance with State and Federal guidelines, manages an advanced life support system, maintains a stockpile of emergency supplies and equipment as may be required and oversees a variety of special response teams – who are prepared and equipped to respond to any situation of event.

The OES subcontracts with the Glens Fall Fire Department for hazardous material spill response.

Specific emergency management activities includes, but is not limited to:

- Emergency Planning – The OES plans for all large-scale emergencies within the County, such as snowstorms, floods, hurricanes, tornadoes, hazardous material incidents, and public health emergencies.
- Emergency Operations Center Activation – OES is responsible for activation and operation of the County Emergency Operations Center for long-term, large-scale emergencies to manage the emergency through coordination, communication and sharing of resources, all through the National Incident Management System.
- Presidential Disaster Declaration – The OES gathers documentation for submission to federal and state governments for monetary disaster relief.
- Weather Alerts for Schools and Public Officials – The OES relays severe weather alerts to The Queensbury school campus and notifies various county agencies, local governments and private organizations during other watches and warnings. Warren County is recognized as a NOAA StormReady County in 2022.





- Radio Amateur Civil Emergency Services (RACES) – The OES has a robust group of RACES volunteers that regularly meet, train and exercise.
- Dam Safety – The OES works with local dam owners to ensure dam safety and ensures the availability of copies of the Emergency Action Plans for all high hazard dams in Warren County.

### **Warren County Department of Planning and Community Development (WCDPCD)**

---

The WCDPCD provides the following services:

#### General Planning:

- Providing 239-m planning board reviews as required by general municipal law.
- Providing technical services to local planning and zoning boards for matters related to community master plans, zoning ordinances and related land use regulations.
- Design and implementation of planning and economic development initiatives involving multiple county communities.
- Providing planning review and technical support for the Adirondack/Glens Falls Transportation Advisory Council and Policy Committee.

#### Community Development:

- Proposal development and funding requests for federal and state programs relating to housing, community facilities, and economic development projects and programs.
- Administration and management of programs that improve or develop public facilities within local communities.
- Special project planning and development as identified by the Warren County Board of Supervisors
- Project Coordination for the First Wilderness Heritage Corridor.
- Development and management of a county-wide "Main Street Program" consistent with the program objectives initiated by the National Trust for Historic Preservation.

#### Geographic Information Systems:

- Administration of the County's spatial data and "circuit rider" assistance to local communities that utilize geospatial technology.
- Management of the County's online mapping system
- E-911 Coordination, providing physical addresses and maintaining road information for emergency dispatch.
- Assistance to County Department managers with utilizing digital files and for project specific applications.





Warren County GIS is comprised of two full-time and one part-time staff, responsible for maintaining the County's GIS data sets and online GIS presence, including the Community Map, Imagemate Online, the Recreation Mapper and several other widely used applications. In addition, GIS staff has responsibility for assigning e-911 addresses and updating and maintaining the address point, road centerline, and district boundary data used in the County's e-911 Call Center, as well as in other applications. GIS staff also collate and provide demographic data on request in support of numerous projects and agencies.

Routine GIS maintenance of basemap data and applications accounts for approximately a quarter to a third of staff GIS time, with the remaining time spent in support of Planning Department projects and projects for other departments and agencies. Over the course of 2021, Warren County GIS provided assistance to Board of Elections, Building Code Enforcement, the County Administrator's office, DPW, Parks and Recreation, Emergency Services, Public Health, the Historian, Soil and Water, the Sheriff's Office, Tourism, and the Treasurer's office, as well as the towns and the City of Glens Falls. In addition, Warren County GIS has contracts to provide technical support and mapping assistance to the Adirondack/Glens Falls Transportation Council, the Lake Champlain/Lake George Regional Planning Board, and the Lake George Park Commission. Providing analysis, custom mapping, and data development services.

### **Warren County Department of Public Works (WCDPW)**

---

WCDPW responsibilities include overseeing all County highway and bridge construction, maintenance of all road machinery and snow removal as well as managing the following seven divisions: Floyd Bennett Memorial Airport, Sewer Administration, Parks & Recreation, Recycling, Highway & Traffic, Engineering, and Buildings and Grounds. The Department works closely with the town highway superintendents.

### **Warren County Health Services**

---

The Goals of the Warren County Public Health are:

- Prevent epidemics and the spread of disease
- Protect against environmental hazards
- Prevent injuries
- Promote and encourage healthy behaviors
- Respond to disasters and assist communities in recovery
- Assure the quality and accessibility of Health Services





## **Warren County Fire Prevention and Building Codes Enforcement Department**

The Warren County Fire Prevention and Building Codes Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code in Warren County (except in the Town of Queensbury and City of Glens Falls).

Duties and responsibilities include:

- Issuance of Building Permits (including manufactured homes)
- Issuance of Solid Fuel Burning Device Permits (woodstoves, fireplaces and pellet stoves)
- Issuance of Demolition Permits
- Conducting Plan Reviews for Code Compliance
- Conducting construction inspections
- Issuing Certificates of Occupancy, Completion, Compliance and Operating Permits
- Conducting Fire Safety Inspections
- Inspection of structures following fire or explosion
- Responding to fire safety and life safety complaints

While local floodplain management is the responsibility of local governments, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code for communities in the county with the exception of the Town of Queensbury and City of Glens Falls. Upon receipt of a signed zoning compliance certificate, as applicable, the county performs the code review. For the Town of Thurman, FIRM review is performed in the absence of zoning regulations.

## **Adirondack Glens Falls Transportation Council**

The Adirondack Glens Falls Transportation Council consists of two principal working groups, the Planning Committee, and the Policy Committee. The Policy Committee members include the Chairs of the Board of Supervisors of Saratoga, Warren and Washington Counties, the Mayors of the City of Glens Falls and the Villages of South Glens Falls, Fort Edward, Lake George and Hudson Falls, Supervisors of the Towns of Moreau, Queensbury, Lake George, Fort Edward and Kingsbury, the Chair of the Lake Champlain / Lake George Regional Planning Board, and representatives of the New York State Department of Transportation and the New York State Thruway Authority. Additionally, one rural area Town Supervisor from each of Warren and Washington Counties is appointed to the committee. The Federal Highway Administration and Federal Transit Administration serve as advisory members. This Policy Committee is responsible for reviewing and approving all planning activities undertaken by A/GFTC and its staff, as well as the MPO Core Documents,





Adirondack Glens Falls Transportation Council can work with interested municipalities to identify and quantify transportation infrastructure, including bridges and culverts, that may be vulnerable to severe weather events related to climate change, and develop strategies to assist municipalities in pursuing related improvements. It can also provide access to transportation planning and engineering consultants for eligible municipal transportation projects and proposals at no cash expense to the municipality. Under this program, contracts with consultants (retained and reimbursed by A/GFTC) cannot exceed \$20,000. This program has been used to fund a wide variety of types of projects, from intersection safety evaluations to concepts for pedestrian infrastructure. If you would like more information on this program, contact us at [info@agftc.org](mailto:info@agftc.org).

### **6.5.4 Administrative and Technical Capabilities - State and Federal**

#### **New York State Division of Homeland Security and Emergency Services (NYS DHSES)**

---

For more than 50 years, NYS DHSES (formerly New York State Office of Emergency Management – NYS DHSES) and its predecessor agencies have been responsible for coordinating the activities of all State agencies to protect New York's communities, the State's economic well-being, and the environment from natural and man-made disasters and emergencies. NYS DHSES routinely assists local governments, voluntary organizations, and private industry through a variety of emergency management programs including hazard identification, loss prevention, planning, training, operational response to emergencies, technical support, and disaster recovery assistance.

NYS DHSES administers the FEMA mitigation grant programs in the state and supports local mitigation planning in addition to developing and routinely updating the State Hazard Mitigation Plan. NYS DHSES prepared the current State Hazard Mitigation Plan working with input from other State agencies, authorities, and organizations. It was approved by FEMA in 2019 and it keeps New York eligible for recovery assistance in all Public Assistance Categories A through G, and Hazard Mitigation assistance in each of the Unified Hazard Mitigation Assistance Program's five grant programs. The 2019 New York State HMP was used as guidance in completing the Warren County HMP Update.

#### **New York State Department of Environmental Conservation (NYSDEC) – Division of Water - Bureau of Flood Protection and Dam Safety**

---

Within the NYSDEC – Division of Water, the Bureau of Flood Protection and Dam Safety cooperates with federal, state, regional, and local partners to protect lives and property from floods, coastal erosion and dam failures through floodplain management and both structural and non-structural means; and provides support for information technology needs in the Division. The Bureau consists of the following Sections:

- Coastal Management: Works to reduce coastal erosion and storm damage to protect lives, natural resources, and properties through structural and non-structural means.





- **Dam Safety:** Is responsible for reviewing repairs and modifications to dams and assuring that dam owners operate and maintain dams in a safe condition through inspections, technical reviews, enforcement, and emergency planning.
- **Flood Control Projects:** Is responsible for reducing flood risk to life and property through construction, operation, and maintenance of flood control facilities.
- **Floodplain Management:** Is responsible for reducing flood risk to life and property through proper management of activities including, development in flood hazard areas and review and development of revised flood maps.

[Grant funding](#) is available to assist eligible dam owners with infrastructure repair costs. Funding is provided through the Federal Emergency Management Agency's (FEMA) High Hazard Potential Dam grant program. DEC accepts applications for grants to assist with technical, planning, design, and other pre-construction activities associated with the rehabilitation of eligible dams classified as High Hazard dams.

### **Department of State's Division of Building Codes and Standards**

---

#### **Technical Bulletins for the 2020 Codes of New York State**

The Division of Building Codes and Standards (DBSC) publishes 14 technical bulletins including two recent bulletins with guidance related to flood hazard areas: Electrical Systems and Equipment in Flood-damaged Structures and Accessory Structures. One archived bulletin from October 31, 2017, Flood Venting in Foundations and Enclosures Below Design Flood Elevation, provides clarification on the requirements for flood vents in foundations and enclosures located below the design flood elevation and in flood hazard areas.

#### **Forms and Publications**

The Department of State Division of Building Standards and Codes (DBSC) in conjunction with the Division of Homeland Security & Emergency Services – Office of Fire Prevention and Control (OFPC) has implemented a joint outreach program that is intended to guide and educate code users. The program will provide concise, easily digestible information on:

- New topics that code users must be aware of;
- Frequently overlooked or misunderstood code requirements; and
- Concerns relating to the administration and enforcement of the Uniform Code and Energy Code.

The DBSC and OFPC hope the program will continue to foster professional growth and support the efforts of the code enforcement community and provide helpful guidance to all code users.





The Code Outreach Program publications are expected to be distributed at the beginning of every month. If you have ideas for future topics to be addressed by the Code Outreach Program, email [Cop.Codes@dos.ny.gov](mailto:Cop.Codes@dos.ny.gov).

The DBSC posts several model reporting forms and related publications on its web page. The Building Permit Application requests the applicant to indicate whether the site is or is not in a floodplain and advises checking with town clerks or NYSDEC. The General Residential Code Plan Review form includes a reminder to “add 2’ freeboard.” Sample Flood Hazard Area Review Forms, including plan review checklists and inspection checklists for Zone A and Zone V, are based on the forms in Reducing Flood Losses through the International Code Series published by International Code Council and FEMA (2008).

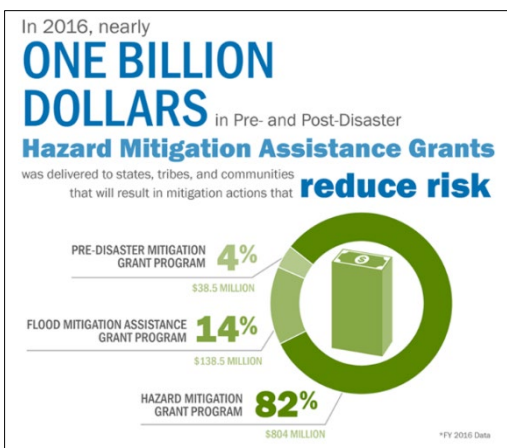
### 6.5.5 Fiscal Capabilities – County and Local

#### Municipal Fiscal Capabilities

Warren County municipalities are able to fund mitigation projects through existing local budgets, local appropriations (including referendums and bonding), and through a variety of federal and state loan and grant programs. Many municipalities noted throughout the planning process that they are faced with increasing fiscal constraints, including decreasing revenues, budget constraints and tax caps. In an effort to overcome these fiscal challenges, municipalities have continued to leverage the sharing of resources and combining available funding with grants and other sources and note that plans and inter-municipal cooperation are beneficial in obtaining grants.

#### Fiscal Capabilities – State and Federal

##### Federal Hazard Mitigation Funding Opportunities



Source: FEMA, 2018

The *NYS Capabilities* section of the 2019 New York State Hazard Mitigation Plan features a section on mitigation-related funding administered by state agencies that eligible jurisdictions can use to find mitigation actions. A list of funding opportunities can be accessed here:

<https://mitigateny.availabs.org/strategies/funding>

As noted on the FEMA hazard mitigation assistance website (<https://www.fema.gov/hazard-mitigation-assistance>), FEMA administers five programs that provide funding for eligible mitigation planning and projects that reduces disaster losses and protect life and property from future disaster damages. The programs are the Hazard Mitigation Grant Program (HMGP), and the HMGP





Post Fire Grant, the Flood Mitigation Assistance (FMA) Program, the Pre-Disaster Mitigation (PDM) Program, and the new Building Resilient Infrastructure & Communities (BRIC) Program.

HMGP assists in implementing long-term hazard mitigation planning and projects following a Presidential major disaster declaration. PDM provides funds for hazard mitigation planning and projects on an annual basis. FMA provides funds for planning and projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP) on an annual basis. BRIC supports jurisdictions in hazard mitigation projects, reducing the risks they face from disasters and natural hazards. The BRIC program will replace the existing Pre-Disaster Mitigation (PDM) program. The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency (FEMA 2020).

HMGP funding is generally 15% of the total amount of Federal assistance provided to a State, Territory, or federally-recognized tribe following a major disaster declaration. PDM and FMA funding depends on the amount congress appropriates each year for those programs. BRIC is funded by a 6% (\$500 million) set-aside from federal post-disaster grant funding.

Individual homeowners and business owners may not apply directly to FEMA. Eligible local governments may apply on their behalf (FEMA 2020).

Table 6-2 provides an overview of program funding eligibility and cost share.

**Table 6-2. FEMA HMA Grant Cost Share Requirements**

Programs	Cost Share (Percent of Federal / Non-Federal Share)
HMGP	75 / 25
FMA – insured properties and planning grants	75 / 25
FMA – repetitive loss property <sup>(2)</sup>	90 / 10
FMA – severe repetitive loss property <sup>(2)</sup>	100 / 0
BRIC <sup>(3)</sup>	75 / 25
BRIC – subrecipient is small and impoverished community <sup>(3)</sup>	90 / 10

Source: FEMA HMA Guidance 2015; Regulations.gov; FEMA 2020

(1) Sub applicants should consult their State Hazard Mitigation Officer (SHMO) for the amount of percentage of HMGP subrecipient management cost funding their State has determined to be passed through subrecipients.

(2) To be eligible for an increased federal cost share, a FEMA-approved state or tribal (standard or enhanced) mitigation plan that addressed repetitive loss properties must be in effect at the time of award, and the property is being submitted for consideration must be a repetitive loss property.

(3) The proposed BRIC program is in the public comment period as of May 2020 and is expected to have an open grant period and be finalized by the Fall of 2020.





## Federal Hazard Mitigation Funding Opportunities

Federal mitigation grant funding is available to all communities with a current HMP (this plan); however most of these grants require a “local share” in the range of 10–25 percent of the total grant amount. Details about grant programs and further descriptions of these opportunities can be found at: <https://www.fema.gov/hazard-mitigation-assistance>. The FEMA mitigation grant programs are described below.

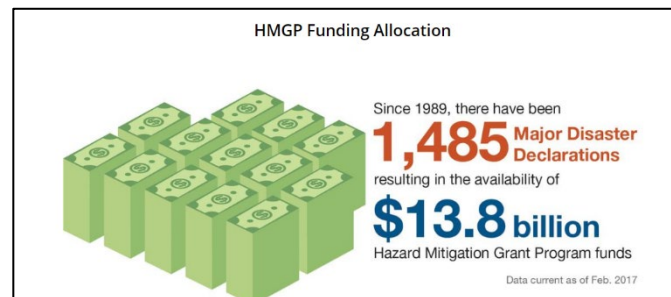
### Hazard Mitigation Grant Program (HMGP)

The HMGP is a post-disaster mitigation program. FEMA makes these grants available to states by after each federal disaster declaration. The HMGP can provide up to 75 percent funding for hazard mitigation measures and can be used to fund cost-effective projects that will protect public or private property or that will reduce the likely damage from future disasters in an area covered by a federal disaster declaration. Examples of

projects include acquisition and demolition of structures in hazard prone areas, flood-proofing, or elevation to reduce future damage, minor structural improvements, and development of state or local standards. Projects must fit into an overall mitigation strategy for the area identified as part of a local planning effort. All applicants must have a FEMA-approved HMP (this plan).

Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf. Applications are submitted to NYS DHSES, placed in rank order for available funding, and submitted to FEMA for final approval. Eligible projects not selected for funding are placed in an inactive status and could be considered as additional HMGP funding becomes available. Additional information regarding the HMGP is available on the FEMA website: <https://www.fema.gov/hazard-mitigation-grant-program>.

Figure 6-1. FEMA HMGP Funding Allocation



Source: FEMA 2018





**Figure 6-2. FEMA HMGP Applicant/Sub applicant Process**



Source: FEMA 2018

### **Flood Mitigation Assistance (FMA) Program**

The FMA program combines the previous Repetitive Flood Claims and Severe Repetitive Loss Grants into one grant program. The FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA is funded annually; no federal disaster declaration is required. Only NFIP insured homes and businesses are eligible for mitigation in this program. Funding for FMA is very limited and, as with the HMGP, individuals cannot apply directly for the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is at least 75 percent. For the non-federal share, at most 25 percent of the total eligible costs must be provided by a non-federal source; of this 25 percent, no more than half can be provided as in-kind contributions from third parties. At minimum, a FEMA-approved local flood mitigation plan is required before a project can be approved. The FMA funds are distributed from FEMA to the state. The NYS DHSES serves as the grantee and program administrator for the FMA program.

The FMA program is detailed on the FEMA website: <https://www.fema.gov/flood-mitigation-assistance-grant-program>

### **Building Resilient Infrastructure and Communities (BRIC) Program**

Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.

The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency.





For additional information regarding the BRIC program, please refer to:

<https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>.

### **Rehabilitation of High Hazard Potential Dams (HHPD) Program**

The Rehabilitation of High Hazard Potential Dams (HHPD) grant program provides technical, planning, design, and construction assistance for eligible rehabilitation activities that reduce dam risk and increase community preparedness.

The HHPD Grant Program will provide assistance for technical, planning, design, and construction activities toward:

- Repair
- Removal
- Structural/nonstructural rehabilitation of eligible high hazard potential dams

For additional information regarding the HHPD program, please refer to:

<https://www.fema.gov/emergency-managers/risk-management/dam-safety/grants/resources>.

### **Extraordinary Circumstances**

For FMA project subawards, the FEMA Region might apply extraordinary circumstances when justification is provided and with concurrence from FEMA Headquarters (Risk Reduction and Risk Analysis Divisions) prior to granting an exception. If this exception is granted, a local mitigation plan must be approved by FEMA within 12 months of the award of the project subaward to that community.

For HMGP, BRIC, and FMA, extraordinary circumstances exist when a determination is made by the applicant and FEMA that the proposed project is consistent with the priorities and strategies identified in the State (Standard or Enhanced) Mitigation Plan and that the jurisdiction meets at least one of the criteria below. If the jurisdiction does not meet at least one of these criteria, the region must coordinate with FEMA Headquarters (Risk Reduction and Risk Analysis Divisions) for HMGP; however, for BRIC and FMA the region must coordinate and seek concurrence prior to granting an exception. The criteria are as follows:

- The jurisdiction meets the small, impoverished community criteria (see Part VIII, B.2 of HMA Unified Guidance).
- The jurisdiction has been determined to have had insufficient capacity due to lack of available funding, staffing, or other necessary expertise to satisfy the mitigation planning requirement prior to the current disaster or application deadline.
- The jurisdiction has been determined to have been at low risk from hazards because of low frequency of occurrence or minimal damage from previous occurrences as a result of sparse development.





- The jurisdiction experienced significant disruption from a declared disaster or another event that impacts its ability to complete the mitigation planning process prior to award or final approval of a project award.
- The jurisdiction does not have a mitigation plan for reasons beyond the control of the state, federally-recognized tribe, or local community, such as Disaster Relief Fund restrictions that delay FEMA from granting a subaward prior to the expiration of the local or tribal mitigation plan.

For HMGP, BRIC, and FMA, the applicant must provide written justification that identifies the specific criteria or circumstance listed above, explains why there is no longer an impediment to satisfying the mitigation planning requirement, and identifies the specific actions or circumstances that eliminated the deficiency.

When an HMGP project funding is awarded under extraordinary circumstances, the recipient shall acknowledge in writing to the Regional Administrator that a plan will be completed within 12 months of the subaward. The recipient must provide a work plan for completing the local or tribal mitigation plan, including milestones and a timetable, to ensure that the jurisdiction will complete the plan in the required time. This requirement shall be incorporated into the award (both the planning and project subaward agreements if a planning subaward is also awarded).

### **Federal and State Disaster and Recovery Assistance Programs**

Following a disaster, various types of assistance could be made available by local, state, and federal governments. The types and levels of disaster assistance depend on the severity of the damage and the declarations that result from the disaster event. The following sections detail the general types of assistance that might be provided should the President of the United States declare the event a major disaster.

#### **Individual Assistance (IA)**

Individual Assistance (IA) provides help for homeowners, renters, businesses, and some non-profit entities after disasters occur. This program is largely funded by the U.S. Small Business Administration. For homeowners and renters, those who suffered uninsured or underinsured losses could be eligible for a Home Disaster Loan to repair or replace damaged real estate or personal property. Renters are eligible for loans to cover personal property losses. Individuals are allowed to borrow up to \$200,000 to repair or replace real estate, \$40,000 to cover losses to personal property, and an additional 20 percent for mitigation. For businesses, loans could be made to repair or replace disaster damages to property owned by the business, including real estate, machinery and equipment, inventory, and supplies. Businesses of any size are eligible. Non-profit organizations, such as charities, churches, and private universities are eligible. An Economic Injury Disaster Loan provides necessary working capital until normal operations resume after a physical disaster but are





restricted by law to small businesses only. IA is detailed on the FEMA website: <https://www.fema.gov/individual-disaster-assistance>.

### **Public Assistance (PA)**

Public Assistance (PA) provides cost reimbursement aid to local governments (state, county, local, municipal authorities, and school districts) and certain non-profit agencies that were involved in disaster response and recovery programs or that suffered loss or damage to facilities or property used to deliver government-like services. This program is largely funded by FEMA with both local and state matching contributions required. PA is detailed on the FEMA website: <https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>.

### **Small-Business Administration (SBA) Loans**

SBA provides low-interest disaster loans to homeowners, renters, business of all sizes, and most private nonprofit organizations. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.

Homeowners could apply for up to \$200,000 to replace or repair their primary residence. Renters and homeowners could borrow up to \$40,000 to replace or repair personal property—such as clothing, furniture, cars, and appliances that were damaged or destroyed in a disaster. Physical disaster loans of up to \$2 million are available to qualified businesses or most private nonprofit organizations. Additional information regarding SBA loans is available on the SBA website: <https://www.sba.gov/managing-business/running-business/emergency-preparedness/disaster-assistance>.

### **Social Services Block Grant Program (SSBG)**

To address the needs of critical health and human service providers and the populations they serve, the State of New York will receive a total of \$235.4 million in federal Superstorm Sandy SSBG funding. The state will distribute \$200,034,600 through a public and transparent solicitation for proposals and allocate \$35.4 million in State Priority Projects, using the SSBG funding. Sandy SSBG resources are dedicated to covering necessary expenses resulting from Superstorm Sandy, including social, health, and mental health services for individuals, and for repair, renovation, and rebuilding of health care facilities, mental hygiene facilities, child care facilities, and other social services facilities. Additional information regarding the SSBG program is available on the website: <https://www.acf.hhs.gov/ocs/programs/ssbg>.





### Department of Homeland Security Grant Program (HSGP)

The HSGP plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient nation. The FY 2020 HSGP supports efforts to build and sustain core capabilities across the Prevention, Protection, Mitigation, Response, and Recovery mission areas. This includes two priorities: building and sustaining law enforcement terrorism prevention capabilities and maturation and enhancement of state and major urban area fusion centers (HSGP 2020). HSGP is comprised of three interconnected grant programs including the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and the Operation Stonegarden (OPSG). Together, these grant programs fund a range of preparedness activities, including planning, organization, equipment purchase, training, exercises, and management and administration. Additional information regarding HSGP is available on the website: <https://www.fema.gov/homeland-security-grant-program>.

### Community Development Block Grants (CDBG)

CDBG are federal funds intended to provide low and moderate-income households with viable communities, including decent housing, a suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, and planning and administration. Public improvements could include flood and drainage improvements. In limited instances and during the times of “urgent need” (e.g., post disaster) as defined by the CDBG National Objectives, CDBG funding could be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event. Additional information regarding CDBG is available on the website: <https://www.hudexchange.info/programs/cdbg-entitlement/>. In 2018, the Community Development Block Grant Mitigation Program was created to fund resilience projects in qualifying areas struck by disaster in 2015–2017.

### U.S. Economic Development Administration

The U.S. Economic Development Administration (USEDA) is an agency of the U.S. Department of Commerce that supports regional economic development in communities around the country. It provides funding to support comprehensive planning and makes strategic investments that foster employment creation and attract private investment in economically distressed areas of the United States. Through its Public Works Program, USED A invests in key public infrastructure, such as traditional public works projects, including water and sewer systems improvements, expansion of port and harbor facilities, brownfields, multitenant manufacturing and other facilities, business and industrial parks, business incubator facilities, redevelopment technology-based facilities,





telecommunications facilities, and development facilities. Through its Economic Adjustment Program, USEDA administers its Revolving Loan Fund Program, which supplies small businesses and entrepreneurs with the gap financing needed to start or expand their business in areas that have experienced or are under threat of serious structural damage to the underlying economic base. Additional information is available on the USEDA website: <https://www.eda.gov/>.

### **Federal Highway Administration - Emergency Relief**

The Federal Highway Administration Emergency Relief is a grant program that can be used for repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of a disaster. NYS is serving as the liaison between local municipalities and FHWA. The program is appropriated \$100 million annually. For information regarding the FHWA Emergency Relief Program, please refer to: <https://www.fhwa.dot.gov/programadmin/erelief.cfm>

### **Federal Transit Administration - Emergency Relief**

The Federal Transit Authority Emergency Relief is a grant program that funds capital projects to protect, repair, reconstruct, or replace equipment and facilities of public transportation systems. Administered by the Federal Transit Authority at the U.S. Department of Transportation and directly allocated to MTA and Port Authority, this transportation-specific fund was created as an alternative to FEMA PA. Currently, a total of \$5.2 Billion has been allocated to NYS-related entities related to Hurricane Sandy. IN the wake of the COVID-19 outbreak in 2020, the program provided emergency-related capital and operating expenses to transit providers. Additional information regarding the FTA Emergency Relief Program is available on the website: <https://www.transit.dot.gov/funding/grant-programs/emergency-relief-program/emergency-relief-program>.

## **State Hazard Mitigation Funding Opportunities**

---

### **Empire State Development**

Empire State Development offers a wide range of financing, grants, and incentives to promote business and employment growth and real estate development throughout the state. Several programs address infrastructure construction associated with project development, acquisition, and demolition associated with project development and brownfield remediation and redevelopment. Additional information regarding Empire State Development is available on the website: <https://esd.ny.gov/>.

### **New York State Department of Transportation (NYSDOT)**

#### *Damaged Roads and Signals*

High winds, storm tidal surge and flooding caused significant damage to NYSDOT facilities, roads and local transportation infrastructure in the Hudson Valley, Long Island and New York City. Repair and replacement will be necessary for these facilities and infrastructure. In some cases, municipalities





will be direct applicants; therefore, not all FEMA-eligible costs are included for damaged infrastructure.

### *Scour Critical/Floodprone Bridge Program*

The Scour Critical/Flood Prone Bridge Program is an initiative developed to harden New York State's at-risk bridges to withstand extreme weather events. In the past three years, the state has suffered 9 presidentially declared disasters due to extreme weather, many involving severe flooding (NYSDOT 2014).

For this initiative, 105 scour critical/flood prone bridges throughout New York State were identified as most at-risk from repeated flooding and are located in the Capital District, Long Island, Mid-Hudson, Mohawk Valley, North Country, Finger Lakes, Central/Western and Southern Tier regions. The locations encompass 78 communities within 30 counties across the State (NYSDOT 2014). Additional information of the list of bridges is available on the website: [https://www.dot.ny.gov/main/business-center/cbow/repository/CBOW\\_list\\_2014.pdf](https://www.dot.ny.gov/main/business-center/cbow/repository/CBOW_list_2014.pdf).

All the bridges included in this program were built to the codes and standards of their time and remain safe and open for everyday traffic; however, due to a variety of natural severe weather events and the increasing frequency of major storms and floods, they are vulnerable to scour, and flooding caused by the intensity and velocity of water from extreme natural events. Bridge scour erodes and carries away foundation materials, such as sand and rocks from around and beneath bridge abutments, piers, foundations, and embankments (NYSDOT 2014).

This program encompasses a variety of bridge improvement work, including upgrading concrete bridge abutments and/or piers by adding steel or concrete pile foundations, increasing the size of waterway openings to meet 100-year flood projections, and reducing or eliminating the number of bridge piers in the water to prevent debris and ice jams that can flood surrounding areas. Completion of the program will ensure continual access to critical facilities and essential personnel during emergency events. Adverse impacts to travel throughout the state will be greatly reduced during severe weather events, as well (NYSDOT 2014).

This program aims to increase the state's resiliency and mitigate the risks of loss and damage associated with future disasters. The total cost of the program, including all 105 bridges across the state, is \$518 million. It will be paid for with a mix of funding from FEMA and the U.S. Department of Housing and Urban Development. No state funding will be required (NYSDOT 2014).

### *Emergency Watershed Protection Program*

The purpose of the Emergency Watershed Protection Program (EWP) was established by Congress to respond to emergencies created by natural disasters. The EWP Program is designed to help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, drought, windstorms, and other natural occurrences. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) administers the EWP Program, EWP-





Recovery, and EWP–Floodplain Easement. Additional information regarding the EWP is detailed below and available on the website:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/>.

### *EWP - Recovery*

The EWP Program is a recovery effort program aimed at relieving imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences. Public and private landowners are eligible for assistance but must be represented by a project sponsor that must be a legal subdivision of the state, such as a city, county, township, or conservation district, and Native American Tribes or Tribal governments. NRCS will pay up to 75 percent of the construction cost of emergency measures. The remaining 25 percent must come from local sources and can be in the form of cash or in-kind services.

EWP work is not limited to any one set of measures. It is designed for installation of recovery measures to safeguard lives and property as a result of a natural disaster. NRCS completes a Damage Survey Report, which provides a case-by-case investigation of the work necessary to repair or protect a site.

Watershed impairments that the EWP Program addresses are debris-clogged stream channels, undermined and unstable streambanks, jeopardized water control structures and public infrastructures, wind-borne debris removal, and damaged upland sites stripped of protective vegetation by fire or drought.

### *EWP - Floodplain Easement (FPE)*

Privately-owned lands or lands owned by local and state governments might be eligible for participation in EWP–FPE. To be eligible, lands must meet one of the following criteria:

- Lands that have been damaged by flooding at least once within the previous calendar year or have been subject to flood damage at least twice within the previous 10 years.
- Other lands within the floodplain are eligible, provided the lands would contribute to the restoration of the flood storage and flow, provide for control of erosion, or that would improve the practical management of the floodplain easement.
- Lands that would be inundated or adversely impacted as a result of a dam breach.

EWP–FPE easements are restored to the extent practicable to the natural environment and can include both structural and nonstructural practices to restore the flood storage and flow, erosion control, and improve the practical management of the easement.

Structures, including buildings, within the floodplain easement must be demolished and removed or relocated outside the 100-year floodplain or dam breach inundation area.





### New York State Department of Environmental Conservation Climate Smart Communities (CSC) Program

The CSC program is jointly sponsored by the following six New York State agencies: DEC; Energy Research and Development Authority; Public Service Commission; Department of State; NYSDOT; and the Department of Health. The program encourages municipalities to minimize the risks of climate change and reduce long-term costs through actions which reduce greenhouse gas emissions and adapt to a changing climate. The program offers free technical support on energy and climate and guidance tailored to New York State communities. As of April 2020, more than 303 communities, representing 8.7 million New Yorkers in every region of the state, have committed to acting on climate through New York State's Climate Smart Communities program.

Benefits of participating in the program include saving taxpayer dollars, improving operations and infrastructure, increasing energy independence and security, demonstrating leadership, and positioning for economic growth. Registered Climate Smart Communities receive notification of state and federal assistance that they can leverage to help adopt low-carbon technologies and of programs and support for efficiency improvements and energy conservation. Further, those communities receive an advantage in accessing some state assistance programs, can call on the help of other local governments that already have adopted climate smart practices and policies, and receive statewide recognition for their climate-smart accomplishments. Key elements of the Climate Smart Communities program are described below.

Additional information regarding the CSC program is available on the website: <http://www.dec.ny.gov/energy/50845.html>.

#### *Climate Smart Communities Pledge*

Any city, town, village, or county in New York can join the program by adopting the Climate Smart Communities Pledge. To become a registered Climate Smart Community, the municipality's governing body must adopt a resolution that includes all ten elements of the pledge and inform DEC of the passage of the resolution. The required ten elements of the pledge are as follows:

- Pledge to be a Climate Smart Community.
- Set goals, inventory emissions, plan for climate action.
- Decrease community energy use.
- Increase community use of renewable energy.
- Realize benefits of recycling and other climate-smart solid waste management practices.
- Reduce greenhouse gas emissions through use of climate-smart land-use tools.
- Enhance community resilience and prepare for the effects of climate change.
- Support development of a green innovation economy.
- Inform and inspire the public.
- Commit to an evolving process of climate action.





### Climate Smart Communities Certification (CSC) Program

The CSC program enables high-performing registered communities to achieve recognition for their leadership. Designed around the existing ten pledge elements, the certification program recognizes communities achieving any on over 130 total possible actions through a rating system leading to four levels of award: Certified, Bronze, Silver, and Gold. Recertification of completed actions is required every five years. Details of the program and the specific documentation required for each action are described in the CSC Certification Manual at [http://www.dec.ny.gov/docs/administration\\_pdf/certman.pdf](http://www.dec.ny.gov/docs/administration_pdf/certman.pdf). At the time of this plan update, no communities in the County have achieved certification.

### Climate Smart Communities Grant Program

In April 2016, DEC announced an expansion of the Environmental Protection Fund to support communities ready to reduce greenhouse gas emissions and prepare for the effects of climate change. Climate Smart Community Implementation grants support mitigation and adaptation projects and range from \$100,000 to \$2 million. Competitive grants ranging from \$25,000 to \$100,000 will provide support for local governments to become certified Climate Smart Communities. All counties, cities, towns, and villages of the State of New York are eligible to receive funding. The CSC grant program will provide 50/50 matching grants for eligible projects in the following categories.

Funding is available for **implementation projects** that advance a variety of climate adaptation and mitigation actions, including the following:

- Construction of natural resiliency measures.
- Relocation or retrofit of climate-vulnerable facilities.
- Conservation or restoration of riparian areas and tidal marsh migration areas.
- Reduction of flood risk.
- Clean transportation.
- Reduction or recycling of food waste.

Funding is available for **certification projects** that advance several specific actions aligned with Climate Smart Communities Certification requirements, including the following:

- Right-sizing of government fleets.
- Developing natural resource inventories.
- Conducting vulnerability assessments.
- Developing climate adaptation strategies.
- Updating hazard mitigation plans to address changing conditions and reduce climate vulnerability.





In scoring grant applications, increasing points are awarded to communities who have already taken the CSC pledge and to those that have achieved certification status. All grant recipients must take the Climate Smart Communities Pledge within the term of their grant contract. For climate mitigation projects, grant recipients must provide a report of estimates of emissions reduction. Certification actions must adhere to the requirements and standards described in the Climate Smart Communities Certification Manual that is available on the website:

<http://www.dec.ny.gov/energy/96511.html>. For implementation projects involving property (construction, improvements, restoration, rehabilitation), grant recipients that do not have ownership of the property must obtain a climate change mitigation easement.

The Climate Smart Communities Toolkit was developed to educate New York communities on recommended practices that will help to reduce greenhouse gas emissions and adapt to the effects of climate change, specifically in the areas of land-use, transportation policy, green buildings, infrastructure investment, green infrastructure, housing policy, adaptation, and resilience. The Climate Smart Communities Guide to Local Action contains overviews of possible community actions, how-to's and case studies to help communities implement the CSC pledge. The Climate Smart Communities Land Use Toolkit allows New York communities to find recommended practices that will help to reduce greenhouse gas emissions in the areas of land use, transportation policy, green building, infrastructure investment, green infrastructure, and housing policy.

### **New York State Department of Environmental Conservation (NYSDEC)**

#### **Water Quality Improvement Project (WQIP) Program**

The WQIP program is a competitive, reimbursement grant program that funds projects that directly address documented water quality impairments. The competitive, statewide grant program is open to local governments and not-for-profit corporations. Grant recipients can receive up to 75 percent of the project costs for high priority wastewater treatment improvement, non-agricultural nonpoint source abatement and control, land acquisition for source water protection, aquatic habitat restoration, and municipal separate storm sewer system projects; up to 50 percent for salt storage projects; and up to 40 percent for general wastewater infrastructure improvement projects. Additional information regarding this program are available on the website: <https://www.dec.ny.gov/pubs/4774.html>. Eligible activities for the WQIP Program include the following:

- Wastewater treatment improvement.
- Non-agricultural nonpoint source abatement and control.
- Land acquisition for source water protection.
- Salt storage.
- Aquatic habitat restoration.
- MS4s.





### **New York State DEC/ Environmental Facilities Corporation (EFC) Wastewater Infrastructure Engineering Planning Grant (EPG)**

The DEC, in conjunction with the New York State EFC, offers grants to municipalities to help pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality projects.

The Wastewater Infrastructure EPG assists municipalities with the engineering and planning costs of CWSRF-eligible water quality projects. Eligible municipalities have a median household income (MHI) of \$65,000 or less in the Regional Economic Development Council (REDC) regions of Capital District, Southern Tier, North Country, Mohawk Valley, Central NY, Finger Lakes, or Western NY OR an MHI of \$85,000 or less in REDC regions of Long Island, New York City, or Mid-Hudson. Grants with a 20 percent required local match could finance activities, including engineering and consultant fees for engineering and planning services for the production of an engineering report.

The goal of the EPG program is to advance water quality projects to construction, so successful applicants can use the engineering report funded by the grant to seek financing through the CWSRF program, WQIP program, or other funding entities to further pursue the identified solution. Details regarding this program can be found on the website: <https://www.dec.ny.gov/pubs/81196.html>. Funding priorities go to projects that have one of the following qualities:

- Required by an executed Order on Consent.
- Required by a draft or final State Pollutant Discharge Elimination System (SPDES) permit.
- Upgrading or replacing an existing wastewater system.
- Constructing a wastewater treatment and/or collection system for an area with failing onsite septic systems.
- Identified in a Total Maximum Daily Load (TMDL) Implementation Plan.

### **New York State Department of Transportation**

---

#### **BRIDGE NY**

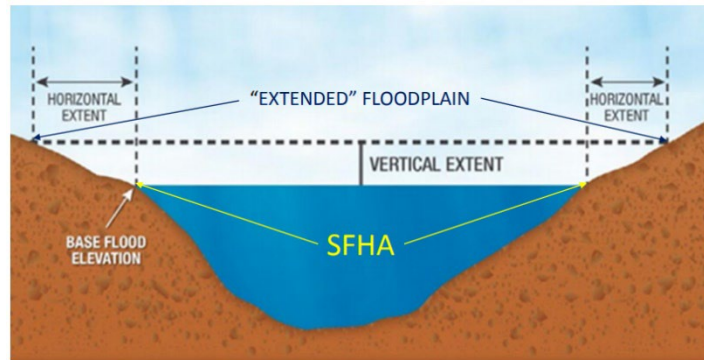
The BRIDGE NY program, administered by the NYSDOT, is open to all municipal owners of bridges and culverts. Projects are awarded through a competitive process and support all phases of project development. Projects selected for funding under the BRIDGE NY Initiative are evaluated based on the resiliency of the structure, including such factors as hydraulic vulnerability and structural resiliency; the significance and importance of the bridge, including traffic volumes, detour considerations, number and types of businesses served, and impacts on commerce; and the current bridge and culvert structural conditions. Information regarding the program can be found on the website: <https://www.dot.ny.gov/BRIDGENY>.





## Community Risk and Resiliency Act (CRRA)

On September 22, 2014, Governor Andrew Cuomo signed bill A06558/S06617-B, the CRRA. The purpose of the bill is to ensure that certain state monies, facility-siting regulations, and permits include consideration of the effects of climate and extreme-weather events. According to NYSDEC (2018), CRRA's major provisions include the following:



risk  
five

- Official Sea-level Rise Projections—CRRA requires the DEC to adopt science-based sea-level rise projections into regulation.
- Consideration of Sea-Level Rise, Storm Surge and Flooding—CRRA requires applicants for permits or funding in a number of specified programs to demonstrate that future physical climate risk due to sea-level rise, storm surge, and flooding have been considered and that DEC considered incorporating these factors into certain facility-siting regulations.
- Smart Growth Public Infrastructure Policy Act Criteria—CRRA adds mitigation of risk due to sea-level rise, storm surge, and flooding to the list of smart-growth criteria to be considered by state public-infrastructure agencies.
- Guidance on Natural Resiliency Measures—CRRA requires DEC, in consultation with the Department of State, to develop guidance on the use of natural resources and natural processes to enhance community resiliency.
- Model Local Laws Concerning Climate Risk—CRRA requires the Department of State, in cooperation with DEC, to develop model local laws that include consideration of future risk due to sea-level rise, storm surge, and flooding. These model local laws must be based on available data predicting the likelihood of extreme-weather events, including hazard-risk analysis.

CRRA requires NYSDEC, in consultation with the Department of State, to prepare guidance on implementation of the statute. To meet its obligation to develop guidance for the implementation of CRRA, DEC is proposing a new document, State Flood Risk Management Guidance (SFRMG). The SFRMG is intended to inform state agencies as they develop program-specific guidance to require that applicants demonstrate consideration of sea-level rise, storm surge, and flooding, as permitted by program-authorizing statutes and operating regulations. The SFRMG incorporates possible future conditions, including the greater risks of coastal flooding presented by sea-level rise and enhanced storm surge and of inland flooding expected to result from increasingly frequent extreme-precipitation events (NYSDEC 2018). Additional details on the CRRA are provided on the website: <https://www.dec.ny.gov/energy/102559.html>.





### Homeownership Repair and Rebuilding Fund

The Homeownership Repair and Rebuilding Fund provides grants of up to an additional \$10,000 to eligible homeowners who have already qualified for FEMA housing assistance's maximum grant (\$31,900) and will not receive other assistance from private insurance or government agencies that would duplicate the grant's funding. The HRRF includes \$100 million dedicated to help homeowners affected by Sandy and was provided directly from the State of New York.

### 6.5.6 Potential Mitigation Funding Sources

While it is important to recognize the mitigation strategies for each jurisdiction to help achieve the mitigation goals and objectives of the (HMP, it is also important to provide sources for funding to implement these strategies. The table below provides a list of programs, descriptions, and links for those seeking funding sources. Please note that this table is not intended to be a comprehensive list, but rather a starting point to help identify potential sources of funding for the identified mitigation strategies.





## Section 6. Warren County Capabilities and Mitigation Strategy

**Table 6-2. Mitigation Funding Sources**

Program	Description	Lead Agency	Website
<b>Federal</b>			
Hazard Mitigation Assistance (HMA)	Grants to provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages – includes FMA, HMGP, PDM	FEMA	<a href="https://www.fema.gov/hazard-mitigation-assistance">https://www.fema.gov/hazard-mitigation-assistance</a>
Flood Mitigation Assistance (FMA)	Program Grants to States and communities for pre-disaster mitigation planning and projects to help reduce or eliminate the long-term risk of flood damage to structures insurable under the National Flood Insurance Program	FEMA	<a href="https://www.fema.gov/flood-mitigation-assistance-grant-program">https://www.fema.gov/flood-mitigation-assistance-grant-program</a>
Hazard Mitigation Grant Program (HMGP)	Grants to States and communities for planning and projects providing long-term hazard mitigation measures following a major disaster declaration	FEMA	<a href="https://www.fema.gov/hazard-mitigation-grant-program">https://www.fema.gov/hazard-mitigation-grant-program</a>
Building Resilient Infrastructure and Communities (BRIC)	Replacement program for PDM that will invest in local mitigation projects and promote capacity-building	FEMA	<a href="https://www.fema.gov/bric">https://www.fema.gov/bric</a>
Public Assistance: Hazard Mitigation Funding Under Section 406	Hazard mitigation discretionary funding available under Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act following a Presidentially declared disaster	FEMA	<a href="https://www.fema.gov/news-release/2017/05/03/4309/fema-hazard-mitigation-grants-404-and-406">https://www.fema.gov/news-release/2017/05/03/4309/fema-hazard-mitigation-grants-404-and-406</a>
Assistance to Firefighters Grant Program	The primary goal of the Assistance to Firefighters Grants (AFG) is to enhance the safety of the public and firefighters with respect to fire-related hazards by providing direct financial assistance to eligible fire departments, nonaffiliated Emergency Medical Services organizations, and State Fire Training Academies. This funding is for critically needed resources to equip and train emergency personnel to recognized standards, enhance operations efficiencies, foster interoperability, and support community resilience.	FEMA	<a href="https://www.fema.gov/welcome-assistance-firefighters-grant-program">https://www.fema.gov/welcome-assistance-firefighters-grant-program</a>
Disaster Housing Program	Emergency assistance for housing, including minor repair of home to establish livable conditions, mortgage, and rental assistance	HUD	<a href="https://www.hud.gov/program_offices/public_indian_housing/publications/dhap">https://www.hud.gov/program_offices/public_indian_housing/publications/dhap</a>
HOME Investment Partnerships Program	Grants to local and state government and consortia for permanent and transitional housing, (including financial support for property acquisition and rehabilitation for low-income persons)	HUD	<a href="https://www.hud.gov/program_offices/comm_planning/affordablehousing/programs/home/">https://www.hud.gov/program_offices/comm_planning/affordablehousing/programs/home/</a>
HUD Disaster Recovery Assistance	Grants to fund gaps in available recovery assistance after disasters (including mitigation)	HUD	<a href="https://www.hud.gov/info/disasterresources">https://www.hud.gov/info/disasterresources</a>
Section 108 Loan Guarantee	Enables states and local governments participating in the Community Development Block Grant (CDBG) program to obtain federally guaranteed loans for disaster-distressed areas	HUD	<a href="https://www.hudexchange.info/programs/section-108/">https://www.hudexchange.info/programs/section-108/</a>
Smart Growth Implementation	The SGIA program focuses on complex or cutting-edge issues, such as stormwater management, code revision, transit-oriented	EPA	<a href="https://www.epa.gov/smartgrowth">https://www.epa.gov/smartgrowth</a>





## Section 6. Warren County Capabilities and Mitigation Strategy

Program	Description	Lead Agency	Website
Assistance (SGIA) program	development, affordable housing, infill development, corridor planning, green building, and climate change. Applicants can submit proposals under 4 categories: community resilience to disasters, job creation, the role of manufactured homes in sustainable neighborhood design or medical and social service facilities siting.		
Partners for Fish and Wildlife	Financial and technical assistance to private landowners interested in pursuing restoration projects affecting wetlands and riparian habitats	U.S. Fish and Wildlife Service	<a href="https://www.fws.gov/partners/">https://www.fws.gov/partners/</a>
FHWA Emergency Relief Program	Fund for the repair or reconstruction of Federal-aid highways that have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause	U.S. Department of Transportation (DOT)	<a href="https://www.fhwa.dot.gov/programadmin/erelief.cfm">https://www.fhwa.dot.gov/programadmin/erelief.cfm</a>
Better Utilizing Investments to Leverage Development (BUILD)	Investing in critical road, rail, transit, and port projects across the nation	U.S. DOT	<a href="https://www.transportation.gov/BUILDgrants/about">https://www.transportation.gov/BUILDgrants/about</a>
Community Facilities Direct Loan & Grant Program	This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial, or business undertakings.	USDA	<a href="https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program">https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program</a>
Emergency Loan Program	USDA's Farm Service Agency (FSA) provides emergency loans to help producers recover from production and physical losses due to drought, flooding, other natural disasters, or quarantine	USDA	<a href="https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/emergency-farm-loans/index">https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/emergency-farm-loans/index</a>
Emergency Watershed Protection (EWP) program	Provide assistance to relieve imminent hazards to life and property caused by floods, fires, drought, windstorms, and other natural occurrences	NRCS	<a href="https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/">https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/</a>
Financial Assistance	Financial assistance to help plan and implement conservation practices that address natural resource concerns or opportunities to help save energy, improve soil, water, plant, air, animal and related resources on agricultural lands and non-industrial private forest land	NRCS	<a href="https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/">https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/</a>
Emergency Management Performance Grants (EMPG) Program	Assist local, tribal, territorial, and state governments in enhancing and sustaining all-hazards emergency management capabilities	U.S. DHS	<a href="https://www.fema.gov/emergency-management-performance-grant-program">https://www.fema.gov/emergency-management-performance-grant-program</a>
Land & Water Conservation Fund	Matching grants to states and local governments for the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies)	National Park Service	<a href="https://www.nps.gov/subjects/lwcf/index.htm">https://www.nps.gov/subjects/lwcf/index.htm</a>





## Section 6. Warren County Capabilities and Mitigation Strategy

Program	Description	Lead Agency	Website
<b>State</b>			
Local Government Records Management Improvement Fund (LGRMIF) Disaster Recovery Grants	Grants for disaster recovery projects related to damage caused by a sudden, unexpected event involving fire, water, man-made or natural phenomena where a timely response is necessary to prevent the irretrievable loss of vital or archival records, or to ensure reasonable, timely access to vital records	New York State Archives / New York State Education Department	<a href="http://www.archives.nysed.gov/grants/grants_lgrmif.shtml">http://www.archives.nysed.gov/grants/grants_lgrmif.shtml</a>
The New York State Emergency Services Revolving Loan	Repair of firefighting apparatus, ambulances, or rescue vehicles; Renovation, rehabilitation, or repair of facilities that house firefighting equipment, ambulances, rescue vehicles, and related equipment	NYS DHSES	<a href="http://www.dhses.ny.gov/ofpc/services/loan/">http://www.dhses.ny.gov/ofpc/services/loan/</a>
Environmental Protection Fund (EPF)	Matching grants for the acquisition, planning, development, and improvement of parks, historic properties	New York State Parks, Recreation & Historic Preservation (NYSOPRHP)	<a href="https://www.dec.ny.gov/about/92815.html">https://www.dec.ny.gov/about/92815.html</a>
Recreational Trails (RTP)	Program Matching grants for the acquisition, development, rehabilitation and maintenance of trails and trail-related projects	NYSOPRHP	<a href="https://parks.ny.gov/grants/recreational-trails/default.aspx">https://parks.ny.gov/grants/recreational-trails/default.aspx</a>
Environmental Protection & Improvement Grants	Competitive grants for environmental protection and improvement; available for municipalities, community organizations, not-for-profit organizations, and others	New York State Department of Environmental Conservation	<a href="https://www.dec.ny.gov/about/92815.html">https://www.dec.ny.gov/about/92815.html</a>
Volunteer Fire Assistance Grants	The grant is a 50/50 matching funds program. Its purpose is to make funds available to rural fire companies for the purchase of wildland firefighting equipment such as portable backpack pumps, Nomex protective clothing, hand tools, hard hats, hose, portable radios, and dry hydrants.	NYSDEC	<a href="https://www.dec.ny.gov/regulations/2364.html">https://www.dec.ny.gov/regulations/2364.html</a>
Clean Water Act Section 604(b) Water Quality Planning Grants	Provide funding to implement regional comprehensive water quality management planning activities as described in Section 604(b) of the federal Clean Water Act. 604(b) funds are to be used for water quality management planning activities, including tasks to determine the nature, extent and causes of point and nonpoint source water pollution problems, and to develop plans to resolve these problems.	NYSDEC	<a href="https://www.dec.ny.gov/lands/53122.html">https://www.dec.ny.gov/lands/53122.html</a>
Water Quality Improvement Project (WQIP) Program	The Water Quality Improvement Project (WQIP) program is a competitive, reimbursement grant program that funds projects that directly address documented water quality impairments. Applications are typically available each spring through the Consolidated Funding Application.	NYSDEC	<a href="https://www.dec.ny.gov/pubs/4774.html">https://www.dec.ny.gov/pubs/4774.html</a>
New York State DEC/EFC Wastewater	The New York State Department of Environmental Conservation (DEC), in conjunction with the New York State Environmental Facilities Corporation (EFC), will offer grants to municipalities to help	NYSDEC	<a href="https://www.dec.ny.gov/pubs/81196.html">https://www.dec.ny.gov/pubs/81196.html</a>





## Section 6. Warren County Capabilities and Mitigation Strategy

Program	Description	Lead Agency	Website
Infrastructure Engineering Planning Grant (EPG)	pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality projects. The ultimate goal of the EPG program is to advance water quality projects to construction, so successful applicants can use the engineering report funded by the grant to seek financing through the CWSRF program, Water Quality Improvement Project program, or other funding entities to further pursue the identified solution.		
Climate Smart Communities Grant Program	The CSC Grant program was established in 2016 to provide 50/50 matching grants to cities, towns, villages, and counties (or boroughs of New York City) of the State of New York for eligible climate adaptation and mitigation projects.	NYSDEC	<a href="https://www.dec.ny.gov/energy/109181.html">https://www.dec.ny.gov/energy/109181.html</a>
BRIDGE NY	The State is making funding available for local governments to rehabilitate and replace bridges and culverts statewide.	NYS DOT	<a href="https://www.dot.ny.gov/BRIDGENY">https://www.dot.ny.gov/BRIDGENY</a>





## 6.6 MITIGATION STRATEGY DEVELOPMENT AND UPDATE

### 6.6.1 Update of Municipal Mitigation Strategies

To evaluate progress on local mitigation actions, each jurisdiction with actions in previous DMA2000 or related plans, was provided with a Mitigation Action Plan Review Worksheet. Each worksheet was pre-populated with those actions identified for their jurisdiction in the prior plan. For each action, municipalities were asked to indicate the status of each action (“No Progress/Unknown”, “In Progress/Not Yet Complete”, “Continuous”, “Completed”, “Discontinued”) and provide review comments on each. Municipalities were requested to quantify the extent of progress and provide reasons for the level of progress or why actions were discontinued. Each jurisdictional annex provides a table identifying their prior mitigation strategy, the status of those actions and initiatives, and their disposition within their updated strategy.

Local mitigation actions identified as “Complete”, and those actions identified as “Discontinued”, have been removed from the updated strategies. Those local actions that municipalities identified as “No Progress/Unknown”, “In Progress/Not Yet Complete” as well as certain actions/initiatives identified as “Continuous”, have been carried forward in their local updated mitigation strategies. Municipalities were asked to provide further details on these projects to help better define the projects, identify benefits and costs, and improve implementation.

Certain continuous or ongoing strategies represent programs that are, or since prior and existing local hazard mitigation plans have become, fully integrated into the normal operational and administrative framework of the community. Such programs and initiatives have been identified within the Capabilities section of each annex and removed from the updated mitigation strategy.

At the Kick-Off and subsequent planning meetings, all participating municipalities were provided support in identifying mitigation activities completed, ongoing and potential/proposed. As new additional potential mitigation actions, projects or initiatives became evident during the plan update process, including as part of the risk assessment update and as identified through the public and stakeholder outreach process (see Section 3), communities were made aware of these either through direct communication (local meetings, email, phone) or via their draft municipal annexes.

To help support the selection of an appropriate, risk-based mitigation strategy, each annex provides a summary of hazard vulnerabilities identified during the plan update process, either directly by municipal representatives, through review of available county and local plans and reports, and through the hazard profiling and vulnerability assessment process.

Members of the Planning Committee and contract consultants worked directly with each jurisdiction (phone, email, local support meetings) to assist with the development and update of their annex and include mitigation strategies, focusing on identifying well-defined, implementable projects with a





careful consideration of benefits (risk reduction, losses avoided), costs, and possible funding sources (including mitigation grant programs).

Concerted efforts were made to assure that municipalities develop updated mitigation strategies that included activities and initiatives covering the range of mitigation action types described in recent FEMA planning guidance (FEMA “Local Mitigation Planning Handbook” March 2013), specifically:

- Local Plans and Regulations – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project– These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as the National Flood Insurance Program and Community Rating System, StormReady (NOAA) and Firewise (NFPA) Communities.

In consideration of federal and state mitigation guidance, the Planning Committee recognized that municipalities would benefit from the inclusion of certain mitigation initiatives. These include initiatives to address vulnerable public and private properties, including RL and SRL properties; initiatives to support continued and enhanced participation in the NFIP; improved public education and awareness programs; and initiatives to support countywide and regional efforts to build greater local mitigation capabilities. Municipalities have included such initiatives as appropriate, typically amended with specific details to best meet the needs and interests of their community and promote implementation.

In October 2021, a mitigation strategy workshop was conducted by Tetra Tech staff with commentary provided FEMA Region II and NYSDHSES representatives for all participating jurisdictions to support the identification, evaluation, and prioritization of local mitigation strategies, as well as how to present and document this process within the plan. Based on FEMA’s guidance and recommendations provided at this workshop and otherwise, the following significant modifications to the mitigation strategy identification and update process and documentation was made:





- An overarching effort has been made to better focus local mitigation strategies to clearly defined, readily actionable projects and initiatives that meet the definition or characteristics of mitigation. Broadly defined mitigation objectives have been eliminated from the updated strategy unless accompanied by discrete actions, projects, or initiatives.
- Certain continuous or ongoing strategies that represent programs that are, or since prior and existing plans have become, fully integrated into the normal operational and administrative framework of the community have been identified within the Capabilities section of each annex and removed from the updated mitigation strategy.
- Selected mitigation projects have been documented with an Action Worksheet, based on FEMA's Action Worksheet templates and recent guidance documents.

Action Worksheets have been included for selected priority physical projects identified by the County and participating municipalities. Physical projects being carried forward from the prior plan strategies are not necessarily documented on Action Worksheets as the project screening, identification and development, and prioritization process was accomplished during the last planning process. Whether or not the projects were new or "carry forward", and documented on Action Worksheets or not, all projects included in the updated County and local mitigation strategies have identified hazards addressed, project description, benefits, costs, responsible party, sources of funding, timeline and priority. Further, non-physical actions (e.g. integration actions, studies, etc.) are typically not documented on Action Worksheets.

As discussed within the hazard profiles in Section 5.4, the long-term effects of climate change are anticipated to exacerbate the impacts of weather-related hazards including extreme temperatures, flood, severe storm, severe winter storm and wildfire. By way of addressing these climate change-sensitive hazards within their local mitigation strategies and integration actions, communities are working to evaluate and recognize these long-term implications and potential impacts, and to incorporate in planning and capital improvement updates.

Municipalities included mitigation actions to address vulnerable critical facilities. These actions have been proposed in consideration of protection against 500-year events, or worst-case scenarios. When determined to be feasible and practical, mitigation planning for critical facilities identified as previously sustaining flooding and/or being located in a FEMA floodplain will be developed to achieve protection to the 500-year flood event or the actual worst-damage scenario, whichever is greater.

It is recognized, however, that in the case of projects being funded through Federal mitigation programs, the level of protection may be influenced by cost-effectiveness as determined through a formal benefit-cost analysis. In the case of "self-funded" projects, municipal discretion must be recognized. Further, it must be recognized that the County and municipalities have limited authority over privately-owned critical facility owners with regard to mitigation at any level of protection.





### 6.6.2 Update of County Mitigation Strategy

The update of the County-level mitigation strategies included a review of progress on the actions/initiatives identified in the 2017 Warren County Hazard Mitigation Plan, using a process similar to that used to review municipal mitigation strategy progress. The County, through their various department representatives, were provided with a Mitigation Action Plan Review Worksheet identifying all of the county-level actions/initiatives from the 2017 plan. For each action, relevant county representatives were asked to indicate the status of each action (“No Progress/Unknown”, “In Progress/Not Yet Complete”, “Continuous”, “Completed”, “Discontinued”), and provide review comments on each.

Projects/initiatives identified as “Complete”, as well as though actions identified as “Discontinued”, have been removed from this plan update. Those actions the county has identified as “No Progress/Unknown”, “In Progress/Not Yet Complete” or “Continuous” have been carried forward in the County’s updated mitigation strategy.

Throughout the course of the plan update process, additional regional and county-level mitigation actions have been identified. These were identified through:

- Review of the results and findings of the updated risk assessment;
- Review of available regional and county plans, reports, and studies;
- Direct input from County departments and other county and regional agencies, including:
  - Department of Emergency Services – Office of Emergency Management
  - Soil & Water Conservation District
  - Department of Planning
  - Department of Public Works
  - GIS Program
  - Department of Information Technology
  - County Administrator
- Input from Regional Agencies
  - Adirondack/Glens Falls Transportation Council
  - Glens Falls Hospital
  - SUNY Adirondack
  - Climate Smart Communities
- Input from Business
  - Finch Paper
- Input received through the public and stakeholder outreach process.





As discussed within the hazard profiles in Section 5.4, the long-term effects of climate change are anticipated to exacerbate the impacts of weather-related hazards including extreme temperatures, flood, severe storm, severe winter storm and wildfire. As such, the County has included mitigation actions and initiatives, including continuing and long-term planning and emergency management support, to address these long-term implications and potential impacts.

Various County departments and agencies have included mitigation actions to address vulnerable critical facilities. These actions have been proposed in consideration of protection against 500-year events, or worst-case scenarios. These actions have been proposed in consideration of protection against 500-year events, or worst-case scenarios. When determined to be feasible and practical, mitigation planning for critical facilities identified as previously sustaining flooding and/or being located in a FEMA floodplain will be developed to achieve protection to the 500-year flood event or the actual worst-damage scenario, whichever is greater. As an example, the County Department of Environmental Facilities (WC DEF) re-evaluated mitigation projects at their critical wastewater facilities throughout the County to provide 500-year levels of protection.

It is recognized, however, that in the case of projects being funded through Federal mitigation programs, the level of protection may be influenced by cost-effectiveness as determined through a formal benefit-cost analysis. In the case of “self-funded” projects, local government authority must be recognized. Further, it must be recognized that the County has limited authority over privately-owned critical facility owners with regard to mitigation at any level of protection.

### 6.6.3 Mitigation Strategy Evaluation and Prioritization

Section 201.c.3.iii of 44 CFR requires an action plan describing how the actions identified will be prioritized.

Recent FEMA planning guidance (March 2013) identifies a modified STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) mitigation action evaluation methodology that uses a set of 10 evaluation criteria suited to the purposes of hazard mitigation strategy evaluation. This method provides a systematic approach that considers the opportunities and constraints of implementing a particular mitigation action. The March 2023 mitigation workshop presented by FEMA representatives further amplified these evaluation criteria and indicated that communities may want to consider other factors.

Based on this guidance, the Steering and Planning Committees have developed and applied an action evaluation and prioritization methodology which includes an expanded set of fourteen (14) criteria to include the consideration of cost-effectiveness, availability of funding, anticipated timeline, and if the action addresses multiple hazards.

The fourteen (14) evaluation/prioritization criteria used in the 2014 update process are:





1. Life Safety – How effective will the action be at protecting lives and preventing injuries?
2. Property Protection – How significant will the action be at eliminating or reducing damage to structures and infrastructure?
3. Cost-Effectiveness – Are the costs to implement the project or initiative commensurate with the benefits achieved?
4. Technical – Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.
5. Political – Is there overall public support for the mitigation action? Is there the political will to support it?
6. Legal – Does the municipality have the authority to implement the action?
7. Fiscal – Can the project be funded under existing program budgets (i.e., is this initiative currently budgeted for)? Or would it require a new budget authorization or funding from another source such as grants?
8. Environmental – What are the potential environmental impacts of the action? Will it comply with environmental regulations?
9. Social – Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?
10. Administrative – Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?
11. Multi-hazard – Does the action reduce the risk to multiple hazards?
12. Timeline – Can the action be completed in less than 5 years (within our planning horizon)?
13. Local Champion – Is there a strong advocate for the action or project among the jurisdiction's staff, governing body, or committees that will support the action's implementation?
14. Other Local Objectives – Does the action advance other local objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of other plans and programs?

Participating jurisdictions were asked to use these criteria to assist them in evaluating and prioritizing mitigation actions identified in the 2014 update. Specifically, for each mitigation action, the jurisdictions were asked to assign a numeric rank (-1, 0, or 1) for each of the 14 evaluation criteria, defined as follows:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Further, jurisdictions were asked to provide a brief summary of the rationale behind the numeric rankings assigned, as applicable. The numerical results of this exercise were then used by each jurisdiction to help prioritize the action or strategy as "Low", "Medium," or "High." While this provided





a consistent, systematic methodology to support the evaluation and prioritization of mitigation actions, jurisdictions may have additional considerations that could influence their overall prioritization of mitigation actions.

It is noted that jurisdictions may be carrying forward mitigation actions and initiatives from prior mitigation strategies that were prioritized using different, but not necessarily contrary, approaches. Mitigation actions in a number of the existing and prior Warren County municipal HMPs were prioritized according to the following criteria:

- **High Priority:** A project that meets multiple plan goals and objectives, benefits exceed cost, has funding secured under existing programs or authorizations, or is grant-eligible, and can be completed in 1 to 5 years (short-term project) once project is funded.
- **Medium Priority:** A project that meets at least one plan goal and objective, benefits exceed costs, funding has not been secured and would require a special funding authorization under existing programs, grant eligibility is questionable, and can be completed in 1 to 5 years once project is funded.
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, and project is not grant-eligible and/or timeline for completion is considered long-term (5 to 10 years).

At their discretion, jurisdictions carrying forward prior initiatives were encouraged to re-evaluate their priority, particularly if conditions that would affect the prioritization criteria had changed. Where communities have determined that their original priority ranking for “carry forward” initiatives remained valid, their earlier priority ranking is indicated on the prioritization table, however the plan update criteria ratings are indicated with a null “-” marking.

For the plan update there has been an effort to develop more clearly defined and action-oriented mitigation strategies. These local strategies include projects and initiatives that have been well-vetted and are seen by the community as the most effective approaches to advance their local mitigation goals and objectives within their capabilities. As such, many of the initiatives in the updated mitigation strategy were ranked as “High” or “Medium” priority, as reflective of the community’s clear intent to implement, available resources notwithstanding. In general, initiatives that would have had “low” priority rankings were appropriately screened out during the local action evaluation process.

### 6.6.4 Benefit/Cost Review

Section 201.6.c.3iii of 44CFR requires the prioritization of the action plan to emphasize the extent to which benefits are maximized according to a cost/benefit review of the proposed projects and their associated costs. Stated otherwise, cost-effectiveness is one of the criteria that must be applied during the evaluation and prioritization of all actions comprising the overall mitigation strategy.





The benefit/cost review applied in for the evaluation and prioritization of projects and initiatives in this plan update process was qualitative; that is, it does not include the level of detail required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. For all actions identified in the local strategies, jurisdictions have identified both the costs and benefits associated with project, action, or initiative.

**Costs** are the total cost for the action or project, and may include administrative costs, construction costs (including engineering, design and permitting), and maintenance costs.

**Benefits** are the savings from losses avoided attributed to the implementation of the project, and may include life-safety, structure and infrastructure damages, loss of service or function, and economic and environmental damage and losses.

When available, jurisdictions were asked to identify the actual or estimated dollar value for project costs and associated benefits. Having defined costs and benefits allows a direct comparison of benefits versus costs, and a quantitative evaluation of project cost-effectiveness. Often, however, numerical costs and/or benefits have not been identified or may be impossible to quantitatively assess.

For the purposes of this planning process, jurisdictions were tasked with evaluating project cost-effectiveness with both costs and benefits assigned to “High”, “Medium” and “Low” ratings. Where quantitative estimates of costs and benefits were available, ratings/ranges were defined as:

Low = < \$10,000      Medium = \$10,000 to \$100,000      High = > \$100,000

Where quantitative estimates of costs and/or benefits were not available, qualitative ratings using the following definitions were used:

**Table 6-2. Qualitative Cost and Benefit Ratings**

Costs	
High	Existing funding levels are not adequate to cover the costs of the proposed project, and implementation would require an increase in revenue through an alternative source (e.g., bonds, grants, and fee increases).
Medium	The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Low	The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
Low	Long-term benefits of the project are difficult to quantify in the short term.





Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-effective.

For some of the Warren County initiatives identified, the Planning Committee may seek financial assistance under FEMA's HMGP or Hazard Mitigation Assistance (HMA) programs. These programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed when funding applications are prepared, using the FEMA BCA model process. The Planning Committee is committed to implementing mitigation strategies with benefits that exceed costs. For projects not seeking financial assistance from grant programs that require this sort of analysis, the Planning Committee reserves the right to define "benefits" according to parameters that meet its needs and the goals and objectives of this plan.

This section contains information regarding adoption of the 2023 Warren County Multi-Jurisdictional Hazard Mitigation Plan by the County and each participating jurisdiction.

### **Plan Adoption by Local Governing Bodies**

Adoption by the local governing bodies demonstrates the commitment of Warren County and each participating jurisdiction to fulfill the mitigation goals [and objectives] and mitigation strategies outlined in the Plan. Adoption legitimizes the Plan and authorizes responsible agencies to execute their responsibilities.

The County and all participating jurisdictions will proceed with formal adoption proceedings when FEMA provides conditional approval of this plan. Following adoption or formal action on the plan, the jurisdiction must submit a copy of the resolution or other legal instrument showing formal adoption (acceptance) of the plan to NYS DHSES. This will then be submitted to FEMA with the resolution in Appendix A of this Plan. The jurisdictions understand that FEMA will transmit acknowledgement of verification of formal plan adoption and the official approval of the plan to the mitigation plan coordinator.

The resolution issued to support adoption of the plan is included as Appendix A, Resolution of Plan Adoption.

In addition to being required by DMA 2000, adoption of the plan is necessary because:

- It lends authority to the plan to serve as a guiding document for all local and state government officials;
- It gives legal status to the plan in the event it is challenged in court;
- It certifies the program and grant administrators that the plan's recommendations have been properly considered and approved by the governing authority and jurisdictions' citizens; and
- It helps to ensure the continuity of mitigation programs and policies over time because elected officials, staff, and other community decision-makers can refer to the official document when making decisions about the community's future.

Source: FEMA. 2003. "How to Series"-Bringing the Plan to Life (FEMA 386-4).





## SECTION 7. PLAN MAINTENANCE

### 7.1 OVERVIEW

This section details the formal process that will ensure that the HMP remains an active and relevant document and that the Planning Partnership maintains their eligibility for applicable funding sources. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually and producing an updated plan every five years. In addition, this section describes how public participation will be integrated throughout the plan maintenance and implementation process. It explains how the mitigation strategies outlined in this plan update will be incorporated into existing planning mechanisms and programs, such as comprehensive land use planning processes, capital improvement planning, and building code enforcement and implementation. The plan's format allows sections to be reviewed and updated when new data become available, resulting in a plan that will remain current and relevant.

The plan maintenance matrix shown in Table 7-1 provides a synopsis of responsibilities for plan monitoring, evaluation, and update, which are discussed in further detail in the sections below.

The overarching goal of the plan maintenance procedure is to ensure that all participating jurisdictions remain engaged in not only implementing the plan but in its continuous review and update, to ensure it is a relevant and living document. The county is committed to supporting municipalities in frequent communications regarding the status of mitigation projects and to communicating the mitigation successes amongst the county agencies and municipalities. This maintenance procedure is a springboard for each community to routinely use the plan as a resource and roadmap to fund and implement projects to increase the resiliency of their communities.

**Table 7-1. Plan Maintenance Matrix**

Task	Approach	Timeline	Lead Responsibility	Support Responsibility
Monitoring	Preparation of status updates and action implementation tracking as part of submission for Annual Progress Report.	By April 1 <sup>st</sup> or upon major update to Comprehensive Plan or major disaster	Jurisdictional points of contact identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)	Jurisdictional implementation lead identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)
Integration	In order for integration of mitigation principles action to become an organic part of the ongoing county and municipal activities, the county will incorporate the	By April 1 <sup>st</sup> , each year with interim email reminders to address integration in county and municipal activities.	HMP Coordinator and jurisdictional points of contact identified in Section 8 (Planning Partnership) and Section 9	HMP Coordinator





Task	Approach	Timeline	Lead Responsibility	Support Responsibility
	distribution of the safe growth worksheet (see 7.1.2 below) for annual review and update by all participating jurisdictions.		(Jurisdictional Annexes)	
Evaluation	Review the status of previous actions as submitted by the monitoring task lead and support to assess the effectiveness of the plan; compile and finalize the Annual Progress Report	Finalized progress report completed by April 15 <sup>th</sup> of each year	Steering Committee; Plan Maintenance element	Jurisdictional points of contacts identified in Section 9 (Jurisdictional Annexes)
Update	Reconvene the planning partners, at a minimum, every 5 years to guide a comprehensive update to review and revise the plan.	Every 5 years or upon major update to Comprehensive Plan or major disaster	Warren County HMP Coordinator	Jurisdictional points of contacts identified in Section 9 (Jurisdictional Annexes)

## 7.2 MONITORING, EVALUATING AND UPDATING THE PLAN

The procedures for monitoring, evaluating, and updating the plan are provided below.

The HMP Coordinator is assigned to manage the maintenance and update of the plan during its performance period. The HMP Coordinator will chair the Planning Committee and be the prime point of contact for questions regarding the plan and its implementation as well as to coordinate incorporation of additional information into the plan.

The Planning Committee shall fulfill the monitoring, evaluation and updating responsibilities identified in this section which is comprised of a representative from each participating jurisdiction. Each jurisdiction is expected to maintain a representative on the Planning Committee throughout the plan performance period (five years from the date of plan adoption). As of the date of this plan, primary and secondary mitigation planning representatives (points-of-contact) are identified in each jurisdictional annex in Section 9 (Jurisdictional Annexes).

Regarding the composition of the committee, it is recognized that individual commitments change over time, and it shall be the responsibility of each jurisdiction and its representatives to inform the HMP Coordinator of any changes in representation. The HMP Coordinator will strive to keep the committee makeup as a uniform representation of planning partners and stakeholders within the planning area.





Currently, the Warren County HMP Coordinator is designated as:

Jim Lieberum, CPESC District Manager  
Warren County SWCD  
394 Schroon River Road  
Warrensburg NY 12885  
Phone: 518.623.3119  
Email: [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

### 7.2.1 Monitoring

The Planning Committee shall be responsible for monitoring progress on, and evaluating the effectiveness of, the plan, and documenting annual progress. Each year, beginning one year after plan development, Warren County and local Planning Committee representatives will collect and process information from the departments, agencies and organizations involved in implementing mitigation projects or activities identified in their jurisdictional annexes (Section 9) of this plan, by contacting persons responsible for initiating and/or overseeing the mitigation projects.

In the first year of the performance period, this will be accomplished by utilizing an online performance progress reporting system, the BATool<sup>SM</sup> which will enable municipal and county representatives of directly access mitigation initiatives to easily update the status of each project, document successes or obstacles to implementation, add or delete projects to maintain mitigation project implementation. It is anticipated that all participating partners will be prompted by the tool to update progress on a quarterly basis, providing an incentive for participants to refresh their mitigation strategies and to continue implementation of projects. It is expected that this reporting system will support the submittal of an increased number of project grant fund applications due to the functionality of the system which facilitates the sorting and prioritization of projects.

In addition to progress on the implementation of mitigation actions, including efforts to obtain outside funding; and obstacles or impediments to implementation of actions, the information that Planning Committee representatives shall be expected to document, as needed and appropriate include:

- Any grant applications filed on behalf of any of the participating jurisdictions
- Hazard events and losses occurring in their jurisdiction,
- Additional mitigation actions believed to be appropriate and feasible,
- Public and stakeholder input.

Plan monitoring for years 2 through 4 of the plan performance periods will be similarly addressed via the BATool<sup>SM</sup> or manually.





## 7.2.2 Integration Process of the HMP into Municipal Planning Mechanisms

Hazard mitigation is sustained action taken to reduce or eliminate the long-term risk to human life and property from natural hazards. Integrating hazard mitigation into a community's existing plans, policies, codes, and programs leads to development patterns that do not increase risk from known hazards or leads to redevelopment that reduces risk from known hazards. The Warren County Planning Partnership was tasked with identifying how hazard mitigation is integrated into existing planning mechanisms. Refer to Section 9 (Jurisdictional Annexes) for how this is done for each participating municipality. During this process, many municipalities recognized the importance and benefits of incorporating hazard mitigation into future municipal planning and regulatory processes.

The Planning Partnership representatives will incorporate mitigation planning as an integral component of daily government operations. Planning Partnership representatives will work with local government officials to integrate the newly adopted hazard mitigation goals and actions into the general operations of government and partner organizations. Further, the sample adoption resolution (Section 2 – Plan Adoption) includes a resolution item stating the intent of the local governing body to incorporate mitigation planning as an integral component of government and partner operations. By doing so, the Planning Partnership anticipates that:

1. Hazard mitigation planning will be formally recognized as an integral part of overall planning and emergency management efforts;
2. The Hazard Mitigation Plan, Comprehensive Plans, Emergency Management Plans and other relevant planning mechanisms will become mutually supportive documents that work in concert to meet the goals and needs of County residents.

During the HMP annual review process, each participating municipality will be asked to document how they are utilizing and incorporating the Warren County HMP into their day-to-day operations and planning and regulatory processes. Additionally, each municipality will identify additional policies, programs, practices, and procedures that could be modified to accommodate hazard mitigation actions and include these findings and recommendations in the Annual HMP Progress Report. The following checklist was adapted from FEMA's Local Mitigation Handbook (2013), Appendix A, Worksheet 4.2. This checklist will help a community analyze how hazard mitigation is integrated into local plans, ordinances, regulations, ordinances, and policies. By completing the checklist, it will help municipalities identify areas that integrate hazard mitigation currently and where to make improvements and reduce vulnerability to future development. In this manner, the integration of mitigation into municipal activities will evolve into an ongoing culture within the county and its municipalities.



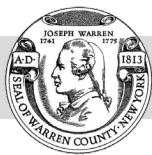


Table 7-2. Safe Growth Check List

Planning Mechanisms	Do you Do This?		Notes: How is it being done or how will this be utilized in the future?
	Yes	No	
Operating, Municipal and Capital Improvement Program Budgets			
<ul style="list-style-type: none"><li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li></ul>			
<ul style="list-style-type: none"><li>Annually, during adoption process, the municipality will review mitigation actions when allocating funding.</li></ul>			
<ul style="list-style-type: none"><li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?</li></ul>			
<ul style="list-style-type: none"><li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?</li></ul>			
<ul style="list-style-type: none"><li>Do budgets provide funding for hazard mitigation projects identified in the County HMP?</li></ul>			
Human Resource Manual			
<ul style="list-style-type: none"><li>Do any job descriptions specifically include identifying and/or implementing mitigation projects/actions or other efforts to reduce natural hazard risk?</li></ul>			
Building and Zoning Ordinances			
<ul style="list-style-type: none"><li>Prior to, zoning changes, or development permitting, the municipality will review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use.</li></ul>			
<ul style="list-style-type: none"><li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li></ul>			
<ul style="list-style-type: none"><li>Does it contain natural overlay zones that set conditions</li></ul>			





Planning Mechanisms	Do you Do This?		Notes: How is it being done or how will this be utilized in the future?
	Yes	No	
<ul style="list-style-type: none"> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li> </ul>			
<ul style="list-style-type: none"> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li> </ul>			
<ul style="list-style-type: none"> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains?</li> </ul>			
<b>Subdivision Regulations</b>			
<ul style="list-style-type: none"> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</li> </ul>			
<ul style="list-style-type: none"> <li>Do the regulations allow density transfers where hazard areas exist?</li> </ul>			
<b>Comprehensive Plan</b>			
<ul style="list-style-type: none"> <li>Are the goals and policies of the plan related to those of the County HMP?</li> </ul>			
<ul style="list-style-type: none"> <li>Does the future land use map clearly identify natural hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Do the land use policies discourage development or redevelopment with natural hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?</li> </ul>			





Planning Mechanisms	Do you Do This?		Notes: How is it being done or how will this be utilized in the future?
	Yes	No	
<b>Land Use</b>			
<ul style="list-style-type: none"> <li>Does the future land use map clearly identify natural hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Do the land use policies discourage development or redevelopment with natural hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?</li> </ul>			
<b>Transportation Plan</b>			
<ul style="list-style-type: none"> <li>Does the transportation plan limit access to hazard areas?</li> </ul>			
<ul style="list-style-type: none"> <li>Is transportation policy used to guide growth to safe locations?</li> </ul>			
<ul style="list-style-type: none"> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)?</li> </ul>			
<b>Environmental Management</b>			
<ul style="list-style-type: none"> <li>Are environmental systems that protect development from hazards identified and mapped?</li> </ul>			
<ul style="list-style-type: none"> <li>Do environmental policies maintain and restore protective ecosystems?</li> </ul>			
<ul style="list-style-type: none"> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems?</li> </ul>			
<b>Grant Applications</b>			
<ul style="list-style-type: none"> <li>Data and maps will be used as supporting documentation in grant applications.</li> </ul>			
<b>Municipal Ordinances</b>			
<ul style="list-style-type: none"> <li>When updating municipal ordinances, hazard mitigation will be a priority</li> </ul>			
<b>Economic Development</b>			
<ul style="list-style-type: none"> <li>Local economic development group will take into account</li> </ul>			





Planning Mechanisms	Do you Do This?		Notes: How is it being done or how will this be utilized in the future?
	Yes	No	
information regarding identified hazard areas when assisting new businesses in finding a location.			
<b>Public Education and Outreach</b>			
<ul style="list-style-type: none"><li>Does the municipality have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events?</li></ul>			

### 7.2.3 Evaluating

The evaluation of the mitigation plan is an assessment of whether the planning process and actions have been effective, if the HMP goals are being achieved, and whether changes are needed. The HMP will be evaluated on an annual basis to determine the effectiveness of the programs, and to reflect changes that could affect mitigation priorities or available funding.

The status of the HMP will be discussed and documented at an annual plan review meeting of the Planning Committee, to be held either in person or via teleconference approximately one year from the date of local adoption of this update, and successively thereafter. At least two weeks before the annual plan review meeting, the Warren County HMP Coordinator will advise Planning Committee members of the meeting date, agenda and expectations of the members.

The Warren County HMP Coordinator will be responsible for calling and coordinating the annual plan review meeting and Soliciting input regarding progress toward meeting plan goals and objectives.. These evaluations will assess whether:

- Goals and objectives address current and expected conditions.
- The nature or magnitude of the risks has changed.
- Current resources are appropriate for implementing the HMP and if different or additional resources are now available.
- Actions were cost effective.
- Schedules and budgets are feasible.
- Implementation problems, such as technical, political, legal or coordination issues with other agencies are presents.
- Outcomes have occurred as expected.
- Changes in county, city, town or village resources impacted plan implementation (e.g., funding, personnel, and equipment)





- New agencies/departments/staff should be included, including other local governments as defined under 44 CFR 201.6.

Specifically, the Planning Committee will review the mitigation goals, objectives, and activities using performance-based indicators, including:

- New agencies/departments
- Project completion
- Under/over spending
- Achievement of the goals and objectives
- Resource allocation
- Timeframes
- Budgets
- Lead/support agency commitment
- Resources
- Feasibility

Finally, the Planning Committee will evaluate how other programs and policies have conflicted or augmented planned or implemented measures, and shall identify policies, programs, practices, and procedures that could be modified to accommodate hazard mitigation actions (“Implementation of Mitigation Plan through Existing Programs” subsection later in this section discusses this process). Other programs and policies can include those that address:

- Economic development
- Environmental preservation
- Historic preservation
- Redevelopment
- Health and/or safety
- Recreation
- Land use/zoning
- Public education and outreach
- Transportation

The Planning Committee should refer to the evaluation forms, Worksheets #2 and #4 in the FEMA 386-4 guidance document, to assist in the evaluation process (see Appendix G – Plan Review Tools). Further, the Planning Committee should refer to any process and plan review deliverables developed by the county or participating jurisdictions as a part of the plan review processes established for prior or existing local HMPs within the county.

The Warren County HMP Coordinator shall be responsible for preparing an Annual HMP Progress Report for each year of the performance period, based on the information provided by the local





Planning Committee members, information presented at the annual Planning Committee meeting, and other information as appropriate and relevant. These annual reports will provide data for the five-year update of this HMP and will assist in pinpointing any implementation challenges. By monitoring the implementation of the HMP on an annual basis, the Planning Committee will be able to assess which projects are completed, which are no longer feasible, and what projects should require additional funding.

The Annual HMP Progress Report shall be posted on the Warren County Department of Planning and Development website to keep the public apprised of the plan's implementation (<https://www.warrencountynewyorkhmp.com>). Additionally, the website provides a general overview of the plan and its purpose and use in the community. For communities who might choose to join the NFIP CRS program, this report will also be provided to each CRS participating community in order to meet annual CRS recertification requirements. To meet this recertification timeline, the Planning Committee will strive to complete the review process and prepare an Annual HMP Progress Report by April 1<sup>st</sup> of each year.

The HMP will also be evaluated and revised following any major disasters, to determine if the recommended actions remain relevant and appropriate. The risk assessment will also be revisited to see if any changes are necessary based on the pattern of disaster damages or if data listed in the Section 5.4 (Hazard Profiles) of this plan has been collected to facilitate the risk assessment. This is an opportunity to increase the community's disaster resistance and build a better and stronger community.

### **7.2.4 Updating**

44 CFR 201.6.d.3 requires that local hazard mitigation plans be reviewed, revised as appropriate, and resubmitted for approval in order to remain eligible for benefits awarded under DMA 2000. It is the intent of the Warren County HMP Planning Committee to update this plan on a five-year cycle from the date of initial plan adoption.

To facilitate the update process, the Warren County HMP Coordinator, with support of the Planning Committee, shall use the second annual Planning Committee meeting to develop and commence the implementation of a detailed plan update program. The Warren County HMP Coordinator shall invite representatives from NYS DHSES to this meeting to provide guidance on plan update procedures. This program shall, at a minimum, establish who shall be responsible for managing and completing the plan update effort, what needs to be included in the updated plan, and a detailed timeline with milestones to assure that the update is completed according to regulatory requirements.





At this meeting, the Planning Committee shall determine what resources will be needed to complete the update. The Warren County HMP Coordinator shall be responsible for assuring that needed resources are secured.

Following each five-year update of the mitigation plan, the updated plan will be distributed for public comment. After all comments are addressed, the HMP will be revised and distributed to all planning group members and the New York State Hazard Mitigation Officer.

### **7.2.5 Grant Monitoring and Coordination**

Warren County recognizes the importance of having an annual coordination period that helps each planning partner become aware of upcoming mitigation grant opportunities identifies multi-jurisdiction projects to pursue. Grant monitoring will be the responsibility of each municipal partner as part of their annual progress reporting. The Warren County HMP Coordinator will keep the planning partners apprised of Hazard Mitigation Assistance grant openings and assist in developing letters of intent for grant opportunities when practicable.

Warren County intends to be a resource to the planning partnership in the support of project grant writing and development. The degree of this support will depend on the level of assistance requested by the partnership during open windows for grant applications. As part of grant monitoring and coordination, Warren County intends to provide the following:

- Notification to planning partners about impending grant opportunities.
- A current list of eligible, jurisdiction-specific projects for funding pursuit consideration.
- Notification about mitigation priorities for the fiscal year to assist the planning partners in the selection of appropriate projects.

Grant monitoring and coordination will be integrated into the annual progress report or as needed based on the availability of non-HMA or post-disaster funding opportunities.

## **7.3 IMPLEMENTATION OF MITIGATION PLAN THROUGH EXISTING PROGRAMS**

Effective mitigation is achieved when hazard awareness and risk management approaches and strategies become an integral part of public activities and decision-making. Within the county there are many existing plans and programs that support hazard risk management, and thus it is critical that this hazard mitigation plan integrate and coordinate with, and complement, those existing plans and programs.

The “Capability Assessment” section of Section 6 (Mitigation Strategy) provides a summary and description of the existing plans, programs and regulatory mechanisms at all levels of government (federal, state, county and local) that support hazard mitigation within the county. Within each jurisdictional annex in Section 9 (Jurisdictional Annexes), the county and each participating





jurisdiction identified how they have integrated hazard risk management into their existing planning, regulatory and operational/administrative framework (“existing integration”), and how they intend to promote this integration (“opportunities for future integration”).

It is the intention of Planning Committee representatives to incorporate mitigation planning as an integral component of daily government operations. Planning Committee representatives will work with local government officials to integrate the newly adopted hazard mitigation goals and actions into the general operations of government and partner organizations. Further, the sample adoption resolution (Section 2 – Plan Adoption) includes a resolution item stating the intent of the local governing body to incorporate mitigation planning as an integral component of government and partner operations. By doing so, the Planning Committee anticipates that:

1. Hazard mitigation planning will be formally recognized as an integral part of overall emergency management efforts;
2. The Hazard Mitigation Plan, Comprehensive Plans, Emergency Management Plans and other relevant planning mechanisms will become mutually supportive documents that work in concert to meet the goals and needs of county residents.

Other planning processes and programs to be coordinated with the recommendations of the hazard mitigation plan include the following:

- Emergency response plans
- Training and exercise of emergency response plans
- Debris management plans
- Recovery plans
- Capital improvement programs
- Municipal codes
- Community design guidelines
- Water-efficient landscape design guidelines
- Stormwater management programs
- Water system vulnerability assessments
- Community Wildfire Protection Plans
- Comprehensive Flood Hazard Management Plans
- Resiliency plans
- Community Development Block Grant-Disaster Recovery action plans
- Public information/education plans

Some action items do not need to be implemented through regulation. Instead, these items can be implemented through the creation of new educational programs, continued interagency coordination, or improved public participation.





During the annual plan evaluation process, the Planning Committee representatives will identify additional policies, programs, practices, and procedures that could be modified to accommodate hazard mitigation actions and include these findings and recommendations in the Annual HMP Progress Report.

## 7.4 CONTINUED PUBLIC INVOLVEMENT

Warren County and participating jurisdictions are committed to the continued involvement of the public in the hazard mitigation process. This HMP update will continue to be posted on-line (<https://www.warrencountynewyorkhmp.com>). In addition, public outreach and dissemination of the HMP will include:

- Links to the plan on municipal websites of each jurisdiction with capability.
- Continued utilization of existing social media outlets (Facebook, Twitter) to inform the public of natural hazard events, such as floods and severe storms. Educate the public via the jurisdictional websites on how these applications can be used in an emergency situation.
- Development of annual articles or workshops on flood hazards to educate the public and keep them aware of the dangers of flooding.

Planning Committee representatives and the Warren County HMP Coordinator will be responsible for receiving, tracking, and filing public comments regarding this HMP. The public will have an opportunity to comment on the plan via the hazard mitigation website at any time. The HMP Coordinator will maintain this website, posting new information and maintaining an active link to collect public comments.

The public can also provide input at the annual review meeting for the HMP and during the next five-year plan update. The Warren County HMP Coordinator is responsible for coordinating the plan evaluation portion of the meeting, soliciting feedback, collecting and reviewing the comments, and ensuring their incorporation in the five-year plan update as appropriate. Additional meetings might also be held as deemed necessary by the planning group. The purpose of these meeting would be to provide the public an opportunity to express concerns, opinions, and ideas about the mitigation plan.

The Planning Committee representatives shall be responsible to assure that:

- Public comment and input on the plan, and hazard mitigation in general, are recorded and addressed, as appropriate.
- Copies of the latest approved plan (or draft in the case that the five-year update effort is underway) are available for review, along with instructions to facilitate public input and comment on the Plan.





- Appropriate links to the Warren County Hazard Mitigation Plan website are included on municipal websites.
- Public notices are made as appropriate to inform the public of the availability of the plan, particularly during Plan update cycles.

The Warren County HMP Coordinator shall be responsible to assure that:

- Public and stakeholder comment and input on the plan, and hazard mitigation in general, are recorded and addressed, as appropriate.
- The Warren County HMP website is maintained and updated as appropriate.
- Copies of the latest approved plan are available for review at appropriate county facilities along with instructions to facilitate public input and comment on the plan.

Public notices, including media releases, are made as appropriate to inform the public of the availability of the plan, particularly during plan update cycles.





# Acronyms and Abbreviations

%	Percent
AAA	American Avalanche Association
ACRES	Assessment, Cleanup and Redevelopment Exchange System
ACS	American Community Survey
ADA	American Disabilities Act
AFG	Assistance to Firefighters Grants
AFPB	Agricultural and Farmland Protection Board
AGM	Department of Agriculture and Markets
AML	Agriculture and Markets Law
ANSS	Advanced National Seismic System
APA	Approval Pending Adoption
APIPP	Adirondack Park Invasive Plant Program
APLUDP	Adirondack Park Land Use and Development Plan
ARC	American Red Cross
ARPA	American Rescue Plan Act
BCA	Benefit Cost Analysis
BCEGS	Building Code Effectiveness Grading Schedule
BFE	Base Flood Elevation
BOCA	Building Officials Code Administration
BR	Biennial Report
BRIC	Building Resilient Infrastructure and Communities Program
BUI	Buildup Index





BUILD	Better Utilizing Investments to Leverage Development
CAC	Community Advisory Committee
CAGR	Compound Annual Growth Rate
CARP	County Animal Response Plan
CAV	Community Assistance Visit
CBRN	Chemical, Biological, Radiological, and Nuclear
CBS	Chemical Bulk Storage
CDBG	Community Development Block Grant
CDBG-DR	Community Development Block Grant Disaster Recovery
CDC	Centers for Disease Control and Prevention
CDMS	Comprehensive Data Management System
CEHA	Coastal Erosion Hazard Areas
CEO	Chief Executive Officer
CEPA	County Emergency Preparedness Assessment
CEMP	Comprehensive Emergency Management Plan
CFM	Certified Floodplain Manager
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CMP	Coastal Management Program
COG	Continuity of Operations/Continuity of Government
COOP	Continuity of Operations Plan
CRRA	Community Risk and Resiliency Act
CRREL	Cold Regions Research and Engineering Laboratory
CRS	Community Rating System





CSC	Climate Smart Communities (NYSDEC)
CT	Connecticut
CWICNY	Champlain Watershed Improvement Coalition of New York, Inc.
CWSRF	Clean Water State Revolving Fund
CY	Cubic Yards
DBSC	Department of State Division of Building Standards and Codes
DCEA	Division of Code Enforcement and Administration
DHS	Department of Homeland Security
DFIRM	Digital Flood Insurance Rate Map
DHSES	Division of Homeland Security and Emergency Services
DMA 2000	Disaster Mitigation Act of 2000
DOT	Department of Transportation
DPW	Department of Public Works
DR	Major Disaster Declaration (FEMA)
EAP	Emergency Action Plan
ECL	Environmental Conservation Law
EF	Enhanced Fujita Scale
EFC	New York State Environmental Facilities Corporation
EHS	Extremely Hazardous Substances
EM	Emergency Declaration (FEMA)
EM	Emergency Management
EMPG	Emergency Management Performance Grants Program
EMS	Emergency Medical Services
EOC	Emergency Operation Center





EOP	Emergency Operation Plan
EPA	Environmental Protection Agency
EPF	Environmental Protection Fund
EPZ	Emergency Planning Zone
EWP	Emergency Watershed Protection Program
FD	Fire Department
FDRA	Fire Danger Rating Areas
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIA	Flood Insurance Administration
FIS	Flood Insurance Study
FM	Fuel Moisture
FMA	Flood Mitigation Assistance
FPA	Floodplain Administrator
FPE	Floodplain Easement
FPI	Fire Potential Index
GGFT	Greater Glens Falls Transit
GHGI	Greenhouse Gas Inventories
GIS	Geographic Information System
GSN	Global Seismographic Network
HAZMAT	Hazardous Material
HAZUS	Hazards U.S.





HHPD	Rehabilitation of High Hazard Potential Dams grant program
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
HOC	Hazard of Concern
HRRF	Homeownership Repair and Rebuilding Fund
HSGP	Homeland Security Grant Program
HTFC	Housing Trust Fund Corporation
HUD	U.S. Department of Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
IA	Individual Assistance
IBC	International Building Code
ICIS	Integrated Compliance Information System
IPCC	International Panel on Climate Change
ISO	Insurance Service Organization
IT	Information Technology
KBDI	Keetch–Byram Drought Index
LCSN	Lamon–Doherty Cooperative Seismographic Network
LEPC	Local Emergency Planning Committee
LGRMIF	Local Government Records Management Improvement Fund
LOIP	Letter of Intent to Participate
LWRP	Local Waterfront Revitalization Program
MARFC	Middle Atlantic River Forecast Center
MEF	Mission Essential Functions





MHI	Median Household Income
Mi	Mile
MMI	Modified Mercalli Intensity Scale
MMS	Moment Magnitude Scale
MNRR	Metro North Railroad
MOA	Memorandum of Agreement
Mph	Miles per Hour
MRCC	Midwestern Regional Climate Center
MRP	Mean Return Period
MSL	Mean Sea Level
MTA	Metropolitan Transportation Authority
N/A	Not Applicable
NA	Not Available
NASA	National Aeronautics and Space Administration
NAC-AAA	National Avalanche Center – American Avalanche Association
NAVD	North American Vertical Datum
NCDC	National Climate Data Center
NCEI	National Centers for Environmental Information
NDMC	National Drought Mitigation Center
NDSP	National Dam Safety Program
NEHRP	National Earthquake Hazard Reductions Program
NESEC	Northeast States Emergency Consortium
NESIS	Northeast Snowfall Impact Scale
NFDRS	National Fire Danger Rating System





NFIP	National Flood Insurance Program
NHC	National Hurricane Center
NHD	National Hydrography
NIC	National Influenza Centers
NID	National Inventory of Dams
NJAFM	New Jersey Association of Floodplain Managers
NJOEM	New Jersey Office of Emergency Management
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Administration
NPCC	New York City Panel on Climate Change
NPDES	National Pollutant Discharge Elimination System
NPDP	National Performance of Dams Program
NPL	National Priorities List
NOUE	Notification of Unusual Event
NPS	National Park Service
NRC	Nuclear Regulatory Commission
NRCC	Northeast Regional Climate Center
NRCS	Natural Resources Conservation Service
NSIDC	National Snow and Ice Data Center
NSSL	National Severe Storms Library
NVRC	Northern Virginia Regional Commission
NWS	National Weather Service
NY	New York
NYC	New York City





NYCEM	New York City Area Consortium for Earthquake Loss Mitigation
NYCDEP	New York City Department of Environmental Protection
NYC OEM	New York City Office of Emergency Management
NYCRR	New York Codes, Rule, and Regulations
NYS	New York State
NYS DHSES	New York State Division of Homeland Security and Emergency Services
NYS DEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDPC	New York State Disaster Preparedness Commission
NYS GIS	New York State Geographic Information System
NYSGS	New York State Geologic Survey
NYS HCR	New York State Homes and Community Renewal
NYS OFP&C	New York State Office of Fire Prevention and Control
NYSOPRHP	New York State Parks, Recreation and Historic Preservation
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
NYSERDA	New York State Energy Research and Development Authority
NYSHMP	New York State Hazard Mitigation Plan
NYSOEM	New York State Office of Emergency Management
NYS OFP&C	New York State Office of Fire Prevention and Control
OCR	Office of Community Renewal
OEM	Office of Emergency Management





OES	Office of Emergency Services
OFPC	Office of Fire Prevention and Control
OPRHP	Office of Parks Recreation and Historic Preservation
OPSG	Operation Stonegarden
PA	Public Assistance
PAG	Protective Action Guides
PSAF	Pandemic Severity Assessment Framework
PBS	Petroleum Bulk Storage
PCDA	Property Condition Disclosure Act
PCS	Permit Compliance System
PD	Police Department
PDM	Pre-Disaster Mitigation Program
PDR	Purchase of Development Rights
PE	Professional Engineer
PGA	Peak Ground Acceleration
PIO	Public Information Officer
POC	Point of Contact
Pop.	Population
PPP	Paycheck Protection Program
PRISM	Partnership for Regional Invasive Species Management
PSI	Pandemic Severity Index
PUD	Planned Unit Development
PW	Public Works
RACES	Radio Amateur Civil Emergency Services





RCRAInfo	Resource Conservation and Recovery Act Information
RCV	Replacement Cost Value
RDD	Radiological Dispersion Devices
REDC	Regional Economic Development Council
RL	Repetitive Loss
RSI	Regional Snowfall Index
RTE	Route
RSZ	Ramapo Seismic Zone
SAE	Site Area Emergency
SBA	Small Business Administration
SC	Steering Committee
SDI	State Drought Index
SEMS	Superfund Enterprise Management System
SEQRA	State Environmental Quality Review Act
SF	Square Feet
SFHA	Special Flood Hazard Area
SFMRG	State Flood Risk Management Guidance
SHELDUS	Spatial Hazard Events and Losses Database for the United States
SHSP	State Homeland Security Program
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SLR	Sea Level Rise
SPC	Storm Prediction Center
SPDES	State Pollutant Discharge Elimination System
Sq. Mi.	Square mile





SRL	Severe Repetitive Loss
SPIA	Sperry–Piltz Ice Accumulation Index
SSBG	Social Services Block Grant Program
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, Environmental
SVI	Social Vulnerability Index
SWCD	Soil and Water Conservation District
SWMP	Storm Water Management Plan
SWOO	Strengths, Weaknesses, Obstacles and Opportunities
TBD	To Be Determined
TD	Tropical Depression
TDR	Transfer of Development Rights
THIRA	Threat & Hazard Identification & Risk Assessment
TIGER	Transportation Investment Generating Economic Recovery
TMDL	Total Maximum Daily Load
TNT	Trinitrotoluene
TORRO	The Tornado and Storm Research Organization
TRI	Toxic Release Inventory
TS	Tropical Storm
TSCA	Toxic Substances Control Act
TV	Television
UASI	Urban Areas Security Initiative
UE	Unusual Event
USACE	U.S. Army Corps of Engineers
USEDA	U.S. Economic Development Administration





USD	U.S. Dollar
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEDA	U.S. Economic Development Administration
USEPA	U.S. Environmental Protection Agency
USFA	U.S. Fire Administration
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
VA	Vulnerability Assessment
VFD	Volunteer Fire District
WC	Warren County
WCDPCD	Warren County Department of Planning and Community Development
WCDPW	Warren County Department of Public Works
WCOES	Warren County Office of Emergency Services
WCSWCD	Warren County Soil and Water Conservation District
WCT	Wind Chill Temperature
WFAS	Wildland Fire Assessment System
WHO	World Health Organization
WMD	Weapons of Mass Destruction
WNV	West Nile Virus
WQIP	Water Quality Improvement Project
WUI	Wildland Urban Interface





### Sections 1,2,3

Warren County. 2016. "Warren County Hazard Mitigation Plan 2016 Update."

### Section 4

Cornell Program on Applied Demographics. 2023. *New York Counties Data*. Accessed 2023. <https://pad.human.cornell.edu/counties/>.

Cornell University. 2018. *County Projections Explorer*. Accessed 2023. <https://pad.human.cornell.edu/counties/projections.cfm>.

FEMA. 2023. *Disaster Declarations for States and Counties*. Accessed 2023. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.

U.S. Census Bureau. 2023. *2021: ACS 5-Year Estimates Data Profiles*. Accessed 2023. <https://data.census.gov/>.

U.S. Census. 2023. *Poverty Thresholds*. Accessed 2023. <https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html>.

U.S. EPA. 2023. *About the Data*. Accessed 2023. <https://www.epa.gov/enviro/about-data>.

—. 2023. *Multisystem Search*. Accessed 2023. <https://enviro.epa.gov/facts/multisystem.html>.

Warren County Emergency Services. 2022. "CEPA."

Warren County. 2016. "Warren County Hazard Mitigation Plan 2016 Update."

### Section 5.1

Warren County. 2016. "Warren County Hazard Mitigation Plan 2016 Update."

### Section 5.2

County, W. (2022). *Dam Inundation Maps*. Retrieved from <https://warrencountyny.gov/emergency/daminundationmaps>

### Section 5.4.1

FEMA. 2023. *Disaster Declarations for States and Counties*. Accessed 2023. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.

—. 2003. *FEMA Flood Insurance Study Tutorial*. [https://www.fema.gov/media-library-data/20130726-1550-20490-1795/ot\\_fis.pdf](https://www.fema.gov/media-library-data/20130726-1550-20490-1795/ot_fis.pdf).

—. 2007. *Floodplain Management Principles and Current Practices*. <https://training.fema.gov/hiedu/aemrc/courses/coursetreat/fm.aspx>.

—. 2018. *Why Dams Fail*. <https://www.fema.gov/why-dams-fail>.

New York State. 2019. *MitigateNY, Flooding*. Accessed October 2022, 2022. <https://mitigateny.availabs.org/hazards/riverine>.





NYS DEC. 2009. *Part 673 Dam Safety Regulations*.  
[https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I06198200b5a111dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I06198200b5a111dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)) .

NYSDERDA. 2014. *Responding to Climate Change in New York State (ClimAID)*. November 07. Accessed October 22, 2022. <https://www.nysderda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>.

USACE. 2023. *National Levee Database*. <https://levees.sec.usace.army.mil/#/>.

—. n.d. *U.S. Army Corps of Engineers Engineering and Design Dam Safety Assurance Program, ER 1110-2-1155, Appendix E*. [https://www.law.cornell.edu/cfr/text/7/appendix-A\\_to\\_subpart\\_E\\_of\\_part\\_1724](https://www.law.cornell.edu/cfr/text/7/appendix-A_to_subpart_E_of_part_1724).

#### Section 5.4.2

Association, Westchester County. 2020. *Towards a Stronger Future*. September. Accessed 2021. <https://www.westchester.org/wp-content/uploads/2020/09/WCA-PPWGR-V-FINAL-091420.pdf>.

CDC. 2019. *2014-2016 Ebola Outbreak in West Africa*. March 08. Accessed October 13, 2022. <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/index.html>.

—. 2022. *Areas at Risk for Zika*. February 25. Accessed October 13, 2022. <https://www.cdc.gov/zika/geo/index.html>.

—. 2022. *Climate change and infectious diseases*. August 02. Accessed October 13, 2022. <https://www.cdc.gov/ncezid/what-we-do/climate-change-and-infectious-diseases/index.html>.

—. 2022. *Ebola (Ebola Virus Disease)*. September 26. Accessed October 13, 2022. <https://www.cdc.gov/vhf/ebola/index.html>.

—. 2022. *Ebola in Uganda*. October 04. Accessed October 13, 2022. <https://wwwnc.cdc.gov/travel/notices/alert/ebola-in-uganda>.

—. 2022. *Factors That Affect Your Risk of Getting Very Sick from COVID-19*. August 11. Accessed October 13, 2022. <https://www.cdc.gov/coronavirus/2019-ncov/your-health/risks-getting-very-sick.html>.

—. 2022. *H5N1 Bird Flu Detections across the United States (Backyard and Commercial)*. October 11. Accessed October 13, 2022. <https://www.cdc.gov/flu/avianflu/data-map-commercial.html>.

—. 2019. *How Is Pandemic Flu Different from Seasonal Flu?* May 07. Accessed October 13, 2022. <https://www.cdc.gov/flu/pandemic-resources/basics/about.html>.

—. 2016. *Investigating an Outbreak*. September 15. Accessed October 13, 2022. <https://www.cdc.gov/csels/dsepd/ss1978/lesson6/section2.html#:~:text=An%20outbreak%20or%20an%20epidemic%20is%20the%20occurrence,be%20related%20to%20one%20another%20in%20some%20way>.





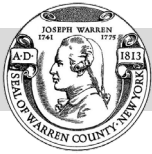
- 2023 | HAZARD MITIGATION PLAN – WARREN COUNTY, NEW YORK





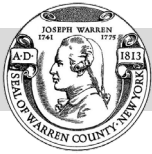
- Standforth, Laura. 2010. "H1N1 deaths in Albany, Warren counties." *Times Union*. July 02. Accessed October 13, 2022. <https://www.timesunion.com/local/article/H1N1-deaths-in-Albany-Warren-counties-546250.php>.
- USDA FSA. 2022. *Disaster Designation Information*. 06 17. Accessed 10 10, 2022. <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/disaster-designation-information/index>.
- Warren County. 2017. *Warren County Hazard Mitigation Plan*. Hazard Mitigation Plan, Warren County: Warren County.
- . 2022. *Warren County NY COVID-19 Response and Business Continuity*. October. Accessed October 13, 2022. <https://warren-county-ny-covid-19-warrencountyny.hub.arcgis.com/pages/warren-county-covid-19-information>.
- WHO. 2010. *Pandemic influenza*. May 13. Accessed October 13, 2022. <https://www.who.int/europe/news-room/fact-sheets/item/pandemic-influenza>.
- WHO. 2009. "Pandemic Influenza Preparedness and Response: A WHO Guidance Document." Guidance.
- . 2018. *Zika virus*. July 20. Accessed October 13, 2022. <https://www.who.int/news-room/fact-sheets/detail/zika-virus>.
- Section 5.4.3
- Brown, W. (2001). *Hazard Maps Help Save Lives and Property*. USGS. Retrieved from <http://pubs.usgs.gov/fs/1996/fs183-96/fs183-96.pdf>
- FEMA. (2001). *Understanding Your Risks: Identifying Hazards and Estimating Losses*. FEMA.
- FEMA. (2013). *Earthquakes*. Retrieved from Earthquakes: <http://www.ready.gov/earthquakes>
- FEMA. (2020, October). *Hazus Earthquake Model Technical Manual*. Retrieved 9 2021, from [https://www.fema.gov/sites/default/files/2020-10/fema\\_hazus\\_earthquake\\_technical\\_manual\\_4-2.pdf](https://www.fema.gov/sites/default/files/2020-10/fema_hazus_earthquake_technical_manual_4-2.pdf)
- FEMA. (2022). *Disaster Declarations for States and Counties*. Retrieved 2022, from <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>
- LCSN. (2014). *LCSN Stations*. Retrieved from <http://www.ldeo.columbia.edu/LCSN/Station/station.php>
- NASA. (2004). *Retreating Glaciers Spur Alaskan Earthquakes*. NASA. Retrieved from <http://www.nasa.gov/centers/goddard/news/topstory/2004/0715glacierquakes.html>
- New York State Museum. (2012). *GIS Database*. NYS. Retrieved from <http://www.nysm.nysed.gov/gis/>
- NJOEM. (2013). *New Jersey Hazard Mitigation Plan*. NJOEM.
- NYCEM. (2019). *NYC Hazard Mitigation*. Retrieved 9 2021, from <https://nychazardmitigation.com/hazard-specific/earthquakes/what-is-the-hazard/>
- NYS DHSES. (2014). *2014 New York State Standard Multi-Hazard Mitigation Plan*. Retrieved from <http://www.dhses.ny.gov/oem/mitigation/plan.cfm>





- NYS DHSES. (2019). *Mitigate NY*. Retrieved from <https://mitigateny.availabs.org/>.
- PA DCNR. (2007). *Earthquake Hazard in Pennsylvania*. Retrieved from [https://www.google.com/url?client=internal-element-cse&cx=016351591786576881989:rc4cp9drohe&q=http://elibrary.dcnr.pa.gov/PDFProvider.ashx%3Faction%3DPDFStream%26docID%3D1752494%26chksum%3D%26revision%3D0%26docName%3DES10\\_EQHazard\\_Pa%26nativeExt%3Dpdf%26P](https://www.google.com/url?client=internal-element-cse&cx=016351591786576881989:rc4cp9drohe&q=http://elibrary.dcnr.pa.gov/PDFProvider.ashx%3Faction%3DPDFStream%26docID%3D1752494%26chksum%3D%26revision%3D0%26docName%3DES10_EQHazard_Pa%26nativeExt%3Dpdf%26P)
- Shedlock, K. M., & Pakiser, L. C. (1997). *Earthquakes*. USGS. Retrieved from <http://pubs.usgs.gov/gip/earthq1/>
- Tantala, M. (2003). *Earthquake Risk and Mitigation in New York, New Jersey, and Connecticut Region*. New York: NYCOEM. Retrieved from <http://nycem.org/techdocs/FinalReport/03-SP02p.pdf>.
- USGS. (2012). *Earthquake Glossary*. Retrieved from USGS: <http://earthquake.usgs.gov/learn/glossary/>
- Volkert, R., & Witte, R. (2015). *Geological History and Virtual Field Trip of the New Jersey Highlands*. Retrieved 2022, from New Jersey Geological Survey: <http://www.state.nj.us/dep/njgs/enviroed/freedwn/HighlandsVFT.pdf>
- #### 5.4.4
- Center for Disease Control and Prevention [CDC]. 2012. "Natural Disasters and Severe Weather." *Center for Disease Control and Protection*. December 03. Accessed August 22, 2022. <https://www.cdc.gov/disasters/winter/guide.html>.
- Cornell University. n.d. *The Climate of New York*. Accessed August 30, 2022. <http://www.weather.com/weather/wxclimatology/monthly/USNY0378>.
- EPA. 2022. *Heat Island Effect*. June 6. Accessed August 30, 2022. <https://www.epa.gov/heat-islands>.
- FEMA. 2023. *Disaster Declarations for States and Counties*. Accessed 2023. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.
- National Weather Service. n.d. *Cold Weather Safety*. Accessed August 22, 2022. <https://www.weather.gov/safety/cold>.
- NOAA. 2012. "Location of US Climate Divisions." *Earth System Research Laboratory. Physical Sciences Laboratory*. Accessed 2022. <http://www.esrl.noaa.gov/psd/data/usclimdivs/data/map.html>.
- . 2009. *National Weather Service, Heat Wave*. June 25. Accessed August 30, 2022. <https://w1.weather.gov/glossary/index.php?word=heat+wave>.
- NWS. 2021. "Weather Related Fatality and Injury Statistics." *National Weather Service*. Accessed August 23, 2022. <https://www.weather.gov/hazstat/>.
- NYS DHSES. 2019. "Hazards." *MitigateNY*. Accessed August 23, 2022. <https://mitigateny.availabs.org/hazards/heatwave>.
- NYSDHSES. n.d. "Heat Safety Tips." *NYSDHSES*. Accessed August 23, 2022. <https://www.dhses.ny.gov/heat-safety-tips>.





- NYSDERDA. 2014. "Responding to Climate Change in New York State (ClimAID)." NYSDERDA. September. Accessed August 23, 2022. <https://www.nysderda.ny.gov/About/Publications/Research%20and%20Development%20Technical%20Reports/Environmental%20Research%20and%20Development%20Technical%20Reports/Response%20to%20Climate%20Change%20in%20New%20York>.
- USDA. 2017. "2017 Census of Agriculture for Warren County, New York." [https://www.nass.usda.gov/Publications/AgCensus/2017/Online\\_Resources/County\\_Profiles/New\\_York/cp36113.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/New_York/cp36113.pdf).
- USGS. 2020. *Drought, Fire and Extreme Weather*. <https://www.usgs.gov/ecosystems/climate-adaptation-science-centers/science/drought-fire-and-extreme-weather>.
- Section 5.4.5
- Consortium, Northeast States Emergency. 2021. *Ice Jams*. Accessed 2021. <http://nesec.org/ice-jams/>.
- Council, Land-Of-Sky Regional. 1999. *Stormwater Problems and Impacts: Why All the Fuss?* Accessed 2021. <https://www.chathamcountync.gov/home/showpublisheddocument/2515/636162136084830000>.
- Das, Apurba, Maureen Reed, and Karl-Erich Lindenschmidt. 2018. *Sustainable Ice-Jam Flood Management for Socio-Economic and Socio-Ecological Systems*. Accessed 2021. <https://www.mdpi.com/2073-4441/10/2/135/htm>.
- Environment, Department of Energy &. 2021. *Why is Stormwater a Problem?* Accessed 2021. <https://doee.dc.gov/service/why-stormwater-problem>.
- eSchoolToday. 2021. *Effects of flooding*. Accessed 2021. <https://eschooltoday.com/learn/effects-of-flooding/>.
- FEMA. 2022. *Benefits of Natural Floodplains*. April 01. Accessed October 13, 2022. <https://www.fema.gov/floodplain-management/wildlife-conservation/benefits-natural#:~:text=Some%20of%20the%20benefits%20of%20floodplains%20to%20a,quality%20recreational%20opportunities%20%28fishing%2C%20bird%20watching%2C%20boating%2C%20etc.%29>.
- . 2022. *Declared Disasters*. Accessed 10 10, 2022. [https://www.fema.gov/disaster/declarations?field\\_dv2\\_state\\_territory\\_tribal\\_value=TX&field\\_year\\_value%5B2022%5D=2022&field\\_year\\_value%5B2021%5D=2021&field\\_year\\_value%5B2020%5D=2020&field\\_year\\_value%5B2019%5D=2019&field\\_year\\_value%5B2018%5D=2018&field\\_year](https://www.fema.gov/disaster/declarations?field_dv2_state_territory_tribal_value=TX&field_year_value%5B2022%5D=2022&field_year_value%5B2021%5D=2021&field_year_value%5B2020%5D=2020&field_year_value%5B2019%5D=2019&field_year_value%5B2018%5D=2018&field_year).
- . 2022. *Disaster Declarations for States and Counties*. Accessed 2022. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.
- FEMA. 2018. *Ice-Jam Analyses and Mapping*. Guidance for Flood Risk , FEMA. [https://www.fema.gov/sites/default/files/2020-02/Ice\\_Jam\\_Guidance\\_Feb\\_2018.pdf](https://www.fema.gov/sites/default/files/2020-02/Ice_Jam_Guidance_Feb_2018.pdf).





- . 2022. *NATIONAL FLOOD INSURANCE PROGRAM*. October. Accessed October 13, 2022. [https://www.fema.gov/sites/default/files/documents/fema\\_nfip-flood-insurance-full-manual\\_102022.pdf](https://www.fema.gov/sites/default/files/documents/fema_nfip-flood-insurance-full-manual_102022.pdf).
- Flood Guidance UK. 2017. *Types of flooding*. November 14. Accessed October 12, 2022. <http://www.floodguidance.co.uk/what-is-resilience/types-flooding/>.
- Harris, Tom. 2001. *How Floods Work*. June. Accessed October 13, 2022. <https://science.howstuffworks.com/nature/natural-disasters/flood.htm>.
- Melina, Remy, and Karen Rowan. 2010. *The Science of Flash Floods*. June 11. Accessed 2021. <https://www.livescience.com/6592-science-flash-floods.html#:~:text=Flash%20floods%20can%20occur%20along,send%20water%20surging%20onto%20shore>.
- National Geographic. 2022. *Floodplain*. May 20. Accessed October 13, 2022. <https://education.nationalgeographic.org/resource/flood-plain>.
- NESEC. 2021. *Ice Jams*. Accessed October 13, 2022. <https://necsec.org/ice-jams/>.
- New York City. 2019. *2019 NYC Hazard Mitigation*. <https://nychazardmitigation.com>.
- New York State. 2019. *MitigateNY, Flooding*. Accessed October 2022, 2022. <https://mitigateny.availabs.org/hazards/riverine>.
- NOAA. 2015. *Ice Jams & Flooding*. Accessed 2021. [https://www.weather.gov/media/dmx/Hydro/DMX\\_InfoSht\\_IceJamsAndFlooding.pdf](https://www.weather.gov/media/dmx/Hydro/DMX_InfoSht_IceJamsAndFlooding.pdf).
- . 2021. *SEVERE WEATHER 101*. December 15. Accessed October 13, 2022. <https://www.nssl.noaa.gov/education/svrwx101/floods/faq/>.
- . 2022. *Storm Events Database*. Accessed 10 10, 2022. <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=-999%2CALL>.
- . 2021. *Understanding Stormwater Inundation*. Accessed 2021. <https://coast.noaa.gov/stormwater-floods/understand/>.
- NPDP. 2021. *NPDP Dam Incident Database*. Accessed 2021. [http://npdp.stanford.edu/dam\\_incidents](http://npdp.stanford.edu/dam_incidents).
- NWS. 2021. *Flash floods and floods...the Awesome Power!* Accessed 2021. <https://www.weather.gov/pbz/floods>.
- NYSDA. 2014. *Responding to Climate Change in New York State (ClimAID)*. November 07. Accessed October 2022, 2022. <https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>.
- O'Connor, Jim E., Gordon E. Grant, and John E. Costa. 2002. *The Geology and Geography of Floods*. American Geophysical Union.





- USDA FSA. 2022. *Disaster Designation Information*. 06 17. Accessed 10 10, 2022. <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/disaster-designation-information/index>.
- Warren County. 2017. *Warren County Hazard Mitigation Plan*. Hazard Mitigation Plan, Warren County: Warren County.
- Wyoming, Teton County. 2021. *Impacts of a Flash Flood*. Accessed 2021. <https://www.tetoncountywy.gov/412/Impacts-of-a-Flash-Flood>.
- Section 5.4.6
- APIPP. 2023. *About Us*. <https://adkinvasives.com/About/About-Us/>.
- Cornell Cooperative Experience. 2019. *Brown Marmorated Stink Bug*. November 27. Accessed September 1, 2022. <https://monroe.cce.cornell.edu/environment/invasive-nuisance-species/invasive-pests/brown-marmorated-stink-bug>.
- . 2019. *New York State Hemlock Initiative*. February 26. Accessed September 2, 2022. <https://blogs.cornell.edu/nyschemlockinitiative/hemlock-woolly-adelgid/>.
- Cornell Cooperative Extension. 2021. *Armyworm*. March 2. Accessed September 1, 2022. <https://monroe.cce.cornell.edu/environment/invasive-nuisance-species/invasive-pests/armyworm>.
- . 2018. *Hemlock Woolly Adelgid in Monroe County and New York State*. February 26. Accessed September 1, 2022. <https://monroe.cce.cornell.edu/events/2017/02/28/hemlock-woolly-adelgid-in-monroe-county-and-new-york-state>.
- Democrat & Chronicle. 2014. *Invasive weed black swallow-wort spreads in Monroe*. Newspaper, Rochester: Democrat & Chronicle.
- FEMA. 2022. *Disaster Declarations for States and Counties*. Accessed 2022. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.
- Finch, Deborah M., Jack L. Butler, Justin B. Runyon, Christopher J. Fettig, Francis F. Kilkenny, Jose Shibu, Susan Frankel, et al. 2021. "Effects of Climate Change on Invasive Species." In *Invasive Species in Forests and Rangelands of the United States*, 57-84. Poland: Springer.
- Masters, Greg, and Lindsey Norgrove. 2010. *Climate Change and Invasive Alien Species*. Working Paper, CABI.
- Monroe County Soil & Water Conservation District. 2020. *Emerald Ash Borer*. Accessed September 4, 2022. <https://www.monroecountyswcd.org/page-57.html>.
- Natural Resource Defense Council. 2015. "Climate Changes Threatens Health." *Natural Defense Council*. October 13. Accessed August 29, 2022. <https://www.nrdc.org/resources/climate-change-threatens-health>.





- New York Codes, Rules, and Regulations. 2022. "Conditions governing regulated invasive species." *Legal Information Institute (LII)*. April 6. Accessed September 1, 2022. <https://www.law.cornell.edu/regulations/new-york/6-NYCRR-575.6>.
- New York Invasive Species (IS) Information. 2022. *New York Invasive Species (IS) Information*. Accessed August 29, 2022. <https://nyis.info/partners/>.
- New York Invasive Species Network. 2019. *Emerald Ash Borer*. Accessed 2023. [https://nyis.info/invasive\\_species/emerald-ash-borer/](https://nyis.info/invasive_species/emerald-ash-borer/).
- New York State Integrated Pest Management. 2023. *Spotted Lanternfly*. <https://nysipm.cornell.edu/environment/invasive-species-exotic-pests/spotted-lanternfly/>.
- NYSDEC. n.d. *Beaver*. Accessed January 31, 2023. <https://www.dec.ny.gov/animals/63052.html>.
- . 2021. *Emerald Ash Borer (EAB)*. Accessed September 1, 2022. <https://www.dec.ny.gov/animals/7253.html>.
- . n.d. *Emerald Ash Borer (EAB)*. Accessed January 31, 2023. <https://www.dec.ny.gov/animals/7253.html>.
- . 2018. *Hemlock Woolly Adelgid*. Accessed September 1, 2022. <https://www.dec.ny.gov/animals/7250.html>.
- . n.d. *Invasive Species Regulations*. Accessed August 29, 2022. <https://www.dec.ny.gov/animals/99141.html>.
- . 2022. *Invasive Species Council and Advisory Committee*. Accessed September 1, 2022. <https://www.dec.ny.gov/animals/6989.html#:~:text=Invasive%20Species%20Council%201%20About%20the%20Council.%20The,Membership.%20...%203%20Role%20of%20the%20Council.%20>
- NYSERDA. 2011/2014. *ClimAID - Updating the 2011 ClimAID Climate Risk Information*. Albany: NYS. <https://www.nyserdera.ny.gov/About/Publications/Research%20and%20Development%20Technical%20Reports/Environmental%20Research%20and%20Development%20Technical%20Reports/Response%20to%20Climate%20Change%20in%20New%20York>.
- The Post Star. 2022. March 20. Accessed 2023. [https://poststar.com/news/local/road-in-chester-closed-after-beaver-dam-flooding/article\\_e43d7632-6dbb-5cdd-9c5e-ee0aa0c536f4.html](https://poststar.com/news/local/road-in-chester-closed-after-beaver-dam-flooding/article_e43d7632-6dbb-5cdd-9c5e-ee0aa0c536f4.html).
- USDA. 2017. "2017 Census of Agriculture for Warren County, New York." [https://www.nass.usda.gov/Publications/AgCensus/2017/Online\\_Resources/County\\_Profiles/New\\_York/cp36113.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/New_York/cp36113.pdf).
- . 2017. *2017 Census of Agriculture Monroe County New York*. [https://www.nass.usda.gov/Publications/AgCensus/2017/Online\\_Resources/County\\_Profiles/New\\_York/cp36055.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/New_York/cp36055.pdf).

Section 5.4.7





- FEMA. 2023. *Disaster Declarations for States and Counties*. Accessed 2023. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.
- . 2023. "National Risk Index." Accessed 2023. <https://hazards.fema.gov/nri/map>.
- National Centers for Environmental Information. 2023. "Storm Events Database." February. Accessed 2023. <https://www.ncdc.noaa.gov/stormevents/>.
- National Weather Service. 2023. "Past Weather Events." *Albany, NY WFO*. Accessed 2023. <https://www.weather.gov/aly/PastEvents>.
- New York State. 2019. "2019 New York State Hazard Mitigation Plan." *MitigateNY*. Accessed 2023. <https://mitigateny.availabs.org/>.
- . 2019. *MitigateNY*. Accessed October 5, 2022. <https://mitigateny.availabs.org/hazards/lightning>.
- . 2019. *MitigateNY*. Accessed October 5, 2022. <https://mitigateny.availabs.org/hazards/hurricane>.
- NWS. 2021. *National Weather Service Glossary*. Accessed 2021. <https://forecast.weather.gov/glossary.php>.
- . 2010. "Thunderstorms, Tornadoes, Lightning...Nature's Most Violent Storms." June 25. Accessed 2021. <https://www.weather.gov/media/owlie/ttl6-10.pdf>.
- NYSERDA. 2014. "Responding to Climate Change in New York State (ClimAID)." Accessed 2023. <https://www.nysenda.ny.gov/About/Publications/Energy-Analysis-Reports-and-Studies/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>.
- . 2011. "Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State." <https://www.nysenda.ny.gov/-/media/Files/Publications/Research/Environmental/EMEP/climaid/ClimAID-Report.pdf>.
- USGS. n.d. *Hurricane Impacts on the Coastal Environment*. <https://pubs.usgs.gov/fs/hurricane-impacts/>.  
Section 5.4.8
- Beach, Lisa. 2022. *How to Protect the Environment During the Winter Months*. Accessed 2022. <https://www.neefusa.org/health/how-protect-environment-during-winter-months#:~:text=Winter%20weather%20brings%20some%20unique%20challenges%20to%20the,possible%20to%20lessen%20our%20impact%20on%20the%20environment>.
- Center for Science Education. 2022. *Blizzards*. Accessed 2022. <https://scied.ucar.edu/learning-zone/storms/blizzards#:~:text=Where%20Do%20Blizzards%20Occur%3F%20In%20the%20United%20States%2C,where%20it%20is%20cold%20on%20high%20altitude%20mountaintops>.
- FEMA. 2022. *Disaster Declarations for States and Counties*. Accessed 2022. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.
- Larson, Samantha. 2013. "Earth Changes." Accessed 2022. <https://www.sott.net/article/269729-As-ice-storm-pummels-US-proposed-storm-rating-index-may-help-people-prepare>.





- NOAA. 2018. *Northeast Snowfall Impact Scale*. Accessed 2022. <https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.ncdc:C00453;view=html>.
- . n.d. *Severe Weather 101*. <https://www.nssl.noaa.gov/education/svrwx101/winter/>.
- . n.d. "Winter Weather." Accessed 2022. <https://www.nssl.noaa.gov/research/winter/>.
- NY DEC. 2023. *Climate Change Effects and Impacts*. 7 4. Accessed 7 4, 2023. <https://www.dec.ny.gov/energy/94702.html>.
- Places, Best. n.d. *Warren County*. Accessed 2022. [https://www.bestplaces.net/climate/county/new\\_york/warren#:~:text=Warren%20County%2C%20New%20York%20gets%2044%20inches%20of,average%20is%2028%20inches%20of%20snow%20per%20year](https://www.bestplaces.net/climate/county/new_york/warren#:~:text=Warren%20County%2C%20New%20York%20gets%2044%20inches%20of,average%20is%2028%20inches%20of%20snow%20per%20year).
- Schwartz, John. 2021. *How climate change is affecting winter storms*. Accessed 2022. <https://www.nytimes.com/2020/12/17/climate/climate-change-winter.html>.
- n.d. "SPIA Index." Accessed 2022. <https://www.spia-index.com/>.
- Squires, Michael F, Jay H Lawrimore, Richard R Heim, David A Robinson, Mathieu R Gerbush, and Thomas W Estilow. 2014. "The Regional Snowfall Index." Accessed 2022. <https://www.ncei.noaa.gov/monitoring-content/snow-and-ice/rsi/docs/RSI-Dec-2014-BAMS.pdf>.
- State, New York. 2019. *Hazards*. <https://mitigateny.availabs.org/hazards>.
- Warren County . 2017. "Warren County Hazard Mitigation Plan." Plan.
- WCVB. 2022. *What's required for this weekend's storm to officially qualify as a blizzard?* Accessed 2022. <https://www.wcvb.com/article/boston-massachusetts-weather-forecast-blizzard-definition-jan-2022/38910788>.
- Section 5.4.9
- Burgan, R, R Klaver, and J Klaver. 2000. "Fuel Models and Fire Potential from Satellite and Surface Observations." *USFS - WFAS*. <https://www.wfas.net/index.php/nfdrs-next-day-forecast-experimental-products-39/35-fpi-paper>.
- FEMA. 1997. "Avoiding Wildfire Damage: A Checklist for Homeowners." *FEMA*. <https://www.fema.gov/pdf/hazard/wildfire/wdfrdam.pdf>.
- . 2023. *Disaster Declarations for States and Counties*. Accessed 2022. <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>.
- Lee. 2014. *Climate Change May Spark More Lightning Strikes, Igniting Wildfires*. <https://news.nationalgeographic.com/news/2014/11/141113-climate-change-lightning-atmosphere-science/>.





- North Carolina Forest Service. 2009. "NC Fire Danger Technote 03." May 15. [https://www.ncforests-service.gov/fire\\_control/pdf/technotes/FDTN03.pdf](https://www.ncforests-service.gov/fire_control/pdf/technotes/FDTN03.pdf).
- NVRC. 2006. "Northern Virginia Regional Hazard Mitigation Plan." *Northern Virginia Regional Commission*. <http://www.novaregion.org/index.aspx?NID=661>.
- NWS. 2009. "Fire Weather Glossary." *National Weather Service*. <https://www.weather.gov/okx/fireweatherglossary>.
- NYS DHSES. 2019. <https://mitigateny.availabs.org/hazards/drought>.
- . 2011. "2011 New York State Standard Multi-Hazard Mitigation Plan." *New York State Division of Homeland Security and Emergency Services*. <http://www.dhSES.ny.gov/oem/mitigation/archive/hm-plan-2011.cfm>.
- . 2014. "2014 New York State Standard Multi-Hazard Mitigation Plan." <http://www.dhSES.ny.gov/oem/mitigation/plan.cfm>.
- NYSDEC. n.d. "FIREWISE New York - Wildland Fire Safety and Prevention." Accessed 2022. <https://www.dec.ny.gov/lands/42524.html>.
- . 2022. "Forest Ranger Rosters." <https://www.dec.ny.gov/about/667.html>.
- . 2018. *Map of Wildland Fire Protection Areas*. <https://www.dec.ny.gov/lands/68331.html>.
- NYSDERDA. 2014. "Responding to Climate Change in New York State (ClimAID)." *NYSDERDA*. September. Accessed August 23, 2022. <https://www.nyserda.ny.gov/About/Publications/Research%20and%20Development%20Technical%20Reports/Environmental%20Research%20and%20Development%20Technical%20Reports/Response%20to%20Climate%20Change%20in%20New%20York>.
- Radeloff, Volker C. 2018. "Rapid growth of the US wildland-urban interface raises wildfire risk." *Sustainable Defensible Space*. n.d. "FAQ." Accessed 2022. <https://defensiblespace.org/faq/>.
- US EPA. 2020. "Climate Change Indicators in the United States." Washington DC.
- USDA. 2023. *Disaster Designation Information*. <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/disaster-designation-information/index>.
- . 2012a. "Effects of Climatic Variability and Change on Forest Ecosystems: A Comprehensive Science Synthesis for the U.S. Forest Sector." December. [http://www.usda.gov/oce/climate\\_change/effects\\_2012/FS\\_Climate1114%20opt.pdf](http://www.usda.gov/oce/climate_change/effects_2012/FS_Climate1114%20opt.pdf).
- . 2011. "Wildland Fire." <https://www.fs.usda.gov/ccrc/topics/wildfire>.
- USFA. 2022. September 1. <https://www.usfa.fema.gov/statistics/deaths-injuries/states.html>.
- USFS. n.d. "Fire Danger Rating - Wildland Fire Assessment System." *USFS*. <http://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32>.
- . n.d. "Haines Index." *U.S. Forest Service*. <https://www.wfas.net/index.php/haines-index-fire-potential--danger-34>.





- . n.d. "Keetch-Byram Drought Index." *U.S. Forest Service*. <https://www.wfas.net/index.php/keetch-byram-index-moisture--drought-49>.
- . 2013. *Wildfire, Wildlands, and People: Understanding and Preparing for a Wildfire in the Wildland-Urban Interface*. <https://www.fs.fed.us/openspace/fote/reports/GTR-299.pdf>.

USGS. 2018. *Water Quality after a Wildfire*. <https://ca.water.usgs.gov/wildfires/wildfires-water-quality.html>.

#### Section 6

Adirondack Park Agency. unknown. *Citizen's Guide to Adirondack Park Agency Land Use Regulations*. Adirondack Park Agency.

Warren County. 2016. "Warren County Hazard Mitigation Plan 2016 Update."

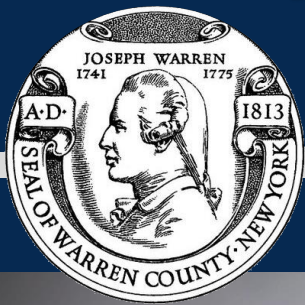
#### Sections 7, 8

Warren County. 2016. "Warren County Hazard Mitigation Plan 2016 Update."



# HAZARD MITIGATION PLAN

Warren County, New York



VOLUME II



2023



Prepared By:  
Tetra Tech, Inc.  
6 Century Drive, Suite 300  
Parsippany, NJ 07054





## TABLE OF CONTENTS

### VOLUME II

<b>SECTION 8. PLANNING PARTNERSHIP .....</b>	<b>8-1</b>
8.1 Background .....	8-1
<b>SECTION 9. JURISDICTIONAL ANNEXES .....</b>	<b>9-1</b>
9.1 Warren County .....	9-1
9.2 Town of Bolton .....	9-2
9.3. Town of Chester .....	9-3
9.4 City of Glens Falls .....	9-4
9.5 Town of Hague .....	9-5
9.6 Town of Horicon .....	9-6
9.7 Town of Johnsbury .....	9-7
9.8 Town of Lake George .....	9-8
9.9 Village of Lake George .....	9-9
9.10 Town of Lake Luzerne .....	9-10
9.11 Town of Queensbury .....	9-11
9.12 Town of Stony Creek .....	9-12
9.13 Town of Thurman .....	9-13
9.14 Town of Warrensburg .....	9-14





## SECTION 8. PLANNING PARTNERSHIP

This section provides a description of the Warren County's HMP update planning partnership, their responsibilities throughout the planning process, and the jurisdictional annexes developed from their plan update efforts.

### 8.1 BACKGROUND

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. All participating jurisdictions must meet the requirements of Chapter 44 of the Code of Federal Regulations (44 CFR):

*"Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan" [Section 201.6a (4)].*

For the Warren County HMP update, The County formed a Planning Partnership to leverage resources and to meet requirements for the federal Disaster Mitigation Action of 2000 (DMA) its communities. The DMA provides the following definition for a local government:

*Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under state law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.*

Each participating planning partner has prepared a jurisdictional annex to this plan. These annexes, as well as information on the process of creating them, are contained in this Volume 2 of this HMP.

#### 8.1.1 Initial Solicitation and Letters of Intent

Warren County Department of Emergency Services solicited the participation of the incorporated city and all of the towns and villages within the County at the outset of this project. Jurisdictions that expressed interest signed a "Letter of Intent" and/or an authorizing resolution committing their participation and resources to the development of the Westchester County HMP Update.

Table 8-1 lists those jurisdictions that elected to participate in the 2023 Warren County HMP Update process, and have met the minimum requirements of participation as established by the County and Steering Committee:



**Table 8-1. Participating Jurisdictions in Warren County**

Participating Jurisdictions		
Warren County	Horicon (T)	Queensbury (T)
Bolton (T)	Johnsburg (T)	Stony Creek (T)
Chester (T)	Lake George (T)	Thurman (T)
Glens Falls (C)	Lake George (V)	Warrensburg (T)
Hague (T)	Lake Luzerne (T)	

## 8.2 PLANNING PARTNER RESPONSIBILITIES

The Planning Committee agreed to the following list of expectations:

- Review 2017 HMP goals and re-establish HMP update goals and objectives.
- Establish a timeline for completion of the HMP update.
- Ensure the HMP update meets the requirements of the DMA 2000 and FEMA and NYS DHSES guidance.
- Solicit and encourage the participation of regional agencies, a range of stakeholders, and citizens in the HMP development process.
- Assist in gathering information for inclusion in the HMP, including the use of previously developed reports and data.
- Organize and oversee the public involvement process and support outreach efforts in the community.
- Develop, revise, adopt, and maintain Volume I of the HMP update in its entirety and the local jurisdictional annex in Volume II.

As described in Section 7 (Plan Maintenance), the planning partnership is intended to remain active beyond the regulatory update to support plan maintenance. It is anticipated that the composition of the Steering and Planning Committees will change over time, and it will be the responsibility of each jurisdiction and its representatives to inform the HMP Coordinator of any changes in representation.

### 8.2.1 Jurisdictional Annex Preparation Process

As stated in the 2022 New York State Hazard Mitigation Planning Standards, jurisdictional annexes provide a unique, stand-alone guide to mitigation planning for each jurisdiction. The Warren County HMP Update includes an annex for Warren County and for every jurisdiction within the County's borders. Section 9 (Jurisdictional Annexes) includes an annex for every jurisdiction in Warren County.





## Annex Development

In order to facilitate update of the County and Jurisdictional Annexes, data from the 2017 Warren County HMP annexes was transferred to a new, updated new annex format, developed to meet federal and state criteria. Clear instructions provided to the County and municipality. These instructions provided a basis to address the following:

- Document changes in capabilities and vulnerabilities
- Provide a current status of the 2017 HMP mitigation strategy
- Develop a new mitigation strategy to address identified issues and to increase community resiliency

The County invited all municipalities to participate in a municipal kick-off meeting held on November 2, 2022, to provide an overview of the planning process. Subsequently, the contract consultant distributed a suite of municipal-specific worksheets to each planning partner populated with carryover information from the 2017 plan and designed to provide intuitive guidance to updating key information required to develop the 2023 plan update. This was intended to assist each municipality in updating, integrating, and completing annex input. During this first round of data gathering, the consultant provided guidance upon request to municipal representatives regarding input of growth and development trends; planning, legal, fiscal, and regulatory capabilities; education and outreach capabilities; NFIP information and capabilities; areas of integration; and updating the 2017 mitigation strategy.

On February 15, 2023, the County convened a planning partnership meeting to review the relative risk assessment methodology and County-wide results to inform the municipal points of contact of the information to be reviewed, updated, or confirmed by each planning partner. The consultant distributed individualized risk ranking worksheets to facilitate the municipal review and adjusting of the initial results as needed. The consultant supported municipalities by interpreting results if needed and to provide context of how this supports the development of strong mitigation actions to reduce the impacts of the hazards of concern.

A mitigation workshop was held on March 15, 2023 to provide an overview of developing a strong mitigation strategy. Finally, the last round of support meetings held in March through April 2023 addressed the development of the updated mitigation strategy, the confirmation of sheltering, housing and evacuation route information, and confirmation of the risk ranking and other gaps in information in the draft municipal annexes.

### Hazard Ranking Exercise

The risk assessment and risk ranking for each jurisdiction was presented in the February 2023 risk ranking meeting wherein there was a discussion of the overall risk assessment for the hazards of concern on the County and jurisdiction level. At this meeting, each planning partner was asked to review the ranked risk specific for its jurisdiction. Refer to Section 5.3 (Hazard Ranking) for the





methodology of the hazard ranking process. The calculated ranking was presented to each jurisdiction, and they were asked to review the ranking and revised based on history of events, probability of occurrence, and the potential impact on people, property, and the economy. The objectives of this exercise were to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes and to help prioritize types of mitigation actions that should be considered. Hazards that were ranked as *high* for each jurisdiction as a result of this exercise were considered to be priorities for identifying appropriate mitigation actions, although jurisdictions also identified actions to mitigate *medium* or *low* ranked hazards, as appropriate.

### Mitigation Strategy Workshop

NYS DHSES attended and presented at a mitigation strategy workshop to Warren County and its jurisdictions during the March 15, 2023. This meeting, the consultant as well as FEMA and NYS DHSES discussed the importance of developing strong mitigation actions as well as state requirements for the plan. The purpose of this workshop was to guide the planning partnership in completing this portion of the planning process and how projects that are well developed and documented are more quickly identifiable for selection when grants become available. Information regarding consultant support prior to and subsequent to the meeting is provided in the Annex Development section, above.

### Municipal Support Meetings

In addition to the municipal kick-off meeting, municipal support meetings were held throughout October and November 2021. During scheduled meetings, municipalities, the consultant worked one-on-one with the planning partners to complete their jurisdictional annex. Each section of the annex was discussed to ensure accuracy and completeness. This included, but not limited to, the following:

- Reviewing the calculated hazard ranking for the jurisdiction and provide input to adjust the ranking as necessary.
- Inspecting the list of critical facilities located in the jurisdiction and its exposure to the 1 percent and 0.2 percent flood hazard area. As required in the 2017 New York State Hazard Mitigation Planning Standards, critical facilities located in the Special Flood Hazard Area must document that critical facilities are protected to the 500-year flood event, or worst damage scenario. For those that do not meet this level of protection, the plan must include an action to meet this criterion or explain why it is not feasible to do so. By reviewing the list, the jurisdictions could identify additional mitigation actions related to the critical facilities found in the municipality.
- Identifying mitigation initiatives that have reasonable potential to be accomplished within the lifespan of the County HMP (five years), including both FEMA-eligible projects and those projects using funds from non-FEMA sources.





## Jurisdictional Annexes

While the jurisdictional annex format is designed to document and assure local compliance with the DMA 2000 regulations, its greater purpose and function includes:

- Providing a locally-relevant synthesis of the overall mitigation plan that can be readily presented, distributed, and maintained.
- Facilitating local understanding of the community's risk to natural hazards.
- Facilitating local understanding of the community's capabilities to manage natural hazard risk, including opportunities to improve those capabilities.
- Facilitating local understanding of the efforts the community has taken, and plans to take, to reduce their natural hazard risk.
- Facilitating the implementation of mitigation strategies, including the development of grant applications.
- Providing a framework by which the community can continue to capture relevant data and information for future HMP updates.

Each jurisdiction's annex is intended to be a *living document* and will continue to be improved as resources permit. As such, its design is intended to promote and accommodate continued efforts to maintain the annex to be current and to improve the effectiveness of the annex as the key tool, reference, and guiding document by which the jurisdiction will implement hazard mitigation locally.

The following provides a description of the various elements of the jurisdictional annex.

**Section 9.X.1: Hazard Mitigation Plan Planning Team:** Identifies the hazard mitigation planning primary and alternate(s) contacts, the floodplain administrator, and additional contributors identified by the jurisdiction or who participated in the plan update. Further detail is provided in Section 3 (Planning Process) and Appendix B (Participation Matrix).

**Section 9.X.2: Municipal Profile:** Provides an overview and profile of the jurisdiction, including an identification of areas of known and anticipated future development and the vulnerability of those areas to the hazards of concern.

**Section 9.X.3: Capability Assessment and Integration:** Provides an inventory and evaluation of the jurisdiction's tools, mechanisms, and resources available to support hazard mitigation and natural hazard risk reduction. Within the municipal annexes, tables provide an inventory of the municipality's planning, regulatory, administrative, technical, and fiscal capabilities. Further, another table identifies the municipality's level of participation in state and federal programs designed to promote and incentivize local risk reduction efforts. *Integration of Hazard Mitigation into Existing and Future Planning Mechanisms* is provided within the capability assessment table to indicate how each planning mechanism can reduce risk. This annotated table indicates how the jurisdiction integrated hazard risk management into their existing planning, regulatory, and administrative framework (*integration capabilities*) and how they intend to promote this integration (*integration actions*).





Further information regarding federal, state, and local capabilities can be found in the Capability Assessment portion of Section 6 (Mitigation Strategy).

**Section 9.X.4: National Flood Insurance Program (NFIP) Compliance:** This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

- **National Flood Insurance Program (NFIP):** Documents the NFIP as implemented within the jurisdiction. This summary was based on surveys prepared by or interviews conducted with the NFIP Floodplain Administrators for each NFIP-participating community in the county. This subsection identifies actions to enhance implementation and enforcement of the NFIP within the community.
- **National Flood Insurance Program (NFIP) Summary:** Provides NFIP summary statistics for the jurisdiction.

**Section 9.X.5: Growth and Development Trends:** A breakdown of building permits given, within or outside of the regulatory floodplain and an identification of areas of known and anticipated future development and infrastructure and the vulnerability of those areas to the hazards of concern.

**Section 9.X.6: Jurisdictional Risk Assessment:** Provides information regarding each plan participant's vulnerability to the identified hazards. Full data and information on the hazards of concern, the methodology used to develop the vulnerability assessments, and the results of those assessments that serve as the basis of these local risk rankings may be found in Volume 1, Section 5 (Risk Assessment).

- **Hazard Area Extent and Location Map:** Includes a series of maps illustrating identified hazard zones, and critical facilities. Further, these maps show areas of known or anticipated future development, as available and provided by the jurisdiction.
- **Natural Hazard Event History Specific to the Municipality:** Identifies hazard events that caused significant impacts within the jurisdiction, including a summary characterization of those impacts as identified by the jurisdiction. The documentation of events and losses is critical to supporting the identification and justification of appropriate mitigation actions, including providing critical data for benefit-cost analysis. This inventory of events and losses is a work-in-progress and will continue to be improved as resources permit. As such, the lack of data or information for a specific event does not necessarily mean that the jurisdiction did not suffer significant losses during that event.
- **Hazard Risk Ranking:** Identifies and characterizes the broad range of hazards that pose risk to the entire planning area; however, each jurisdiction has differing degrees of risk exposure and vulnerability aside from the whole. The local risk ranking serves to identify each jurisdiction's degree of risk to each hazard as it pertains locally, supporting the appropriate selection and prioritization of initiatives that will reduce the highest levels of risk for each community.





- **Critical Facilities Flood Risk:** Identifies potential flood losses to critical facilities in the jurisdiction based on the flood vulnerability assessment process presented in Section 5 (Risk Assessment).
- **Identified Issues:** Presents other specific hazard vulnerabilities as identified by the jurisdiction.

**Section 9.X.7: Mitigation Strategy and Prioritization:** Discusses and provides the status of past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

- **Past Mitigation Initiative Status:** Where applicable, reviews progress of the jurisdiction's prior mitigation strategy, identifying the disposition of each prior action, project, or initiative in the jurisdiction's updated mitigation strategy. Other completed or on-going mitigation activities that were not specifically part of a prior local mitigation strategy would be included in this subsection.
- **Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy:** Other completed or ongoing mitigation activities that were not specifically part of a prior local mitigation strategy may be included in this subsection as well.
- **Proposed Hazard Mitigation Initiatives for the Plan Update:** Table 9.X-11 presents the jurisdiction's updated mitigation strategy. As indicated, applicable mitigation actions, projects, and initiatives are further documented on an Action Worksheet, which provides details on the project identification, evaluation, prioritization, and implementation process. Table 9.X-12 provides a summary of the local mitigation strategy prioritization process discussed in Section 6 (Mitigation Strategy).
- **Proposed Mitigation Action Types:** A matrix of the proposed mitigation actions by hazard and FEMA and CRS Category.
- **Prioritization of Actions:** A matrix identifying 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives prioritize actions as 'High', 'Medium', or 'Low.'

**Section 9.X.8: Action Worksheets:** Provides each municipality with a more developed starting point for project implementation should funding become available. While mitigation action worksheets are not a state or federal requirement, the County and communities elected to include this more detailed mitigation strategy information better position for funding and implementation of mitigation projects.

### 8.2.2 Coverage Under the Plan

The County as well as all 13 communities within the County fully met the participation requirements specified by the Steering Committee. Planning partners not having met principal requirements including completion of the jurisdictional data collection worksheets, completion of the jurisdictional annex, or participation in workshops or individual support meetings.





Table 8-2 lists the status of each jurisdiction, whether or not they submitted letters of intent to participate, and their ultimate status in this plan update. Appendix B (Participation Matrix) and Appendix C (Meeting Documentation) provide details on participation and meeting attendance.

**Table 8-2. Jurisdictional Status**

Municipality	Letter of Intent to Participate	Attended Workshops and/or Meetings?	Provided Update on Past Projects	Submitted Mitigation Actions for Current Plan	Seeking Approval for Adoption (meets requirements)
Bolton (T)	X	X	X	X	X
Chester (T)	X	X	X	X	X
Glens Falls (C)	X	X	X	X	X
Hague (T)	X	X	X	X	X
Horicon (T)	X	X	X	X	X
Johnsburg (T)	X	X	X	X	X
Lake George (T)	X	X	X	X	X
Lake George (V)	X	X	X	X	X
Lake Luzerne (T)	X	X	X	X	X
Queensbury (T)	X	X	X	X	X
Stony Creek (T)	X	X	X	X	X
Thurman (T)	X	X	X	X	X
Warrensburg (T)	X	X	X	X	X

Warren County and its communities recognize that the 2023 Warren County Hazard Mitigation Plan is a valuable resource in increasing resilience to the impacts of future hazard events. As this plan is maintained over the 5-year performance period, it is anticipated that the information and data contained in this plan will be leveraged to implement priority mitigation and resilience projects.





## SECTION 9. JURISDICTIONAL ANNEXES

### 9.1 WARREN COUNTY

This section presents the jurisdictional annex for Warren County that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the County, who in the County participated in the planning process, an assessment of Warren County's risk and vulnerability, the different capabilities used in the County, and an action plan that will be implemented to achieve a more resilient community.

#### 9.1.1 Hazard Mitigation Planning Team

The County identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many County departments, including Planning, Public Affairs, Office of the County Administrator, Fire Prevention & Building Code Enforcement. Warren County Department of Emergency Services and the Warren County Soil and Water Conservation District provided project leadership and represented the county on the Warren County Hazard Mitigation Plan Planning Partnership and Steering Committee and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the County's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.1-1. Hazard Mitigation Planning Team**

Primary Point of Contact		Alternate Point of Contact	
Name/Title: Jim Lieberum, CPESC – District Manager, Hazard Mitigation Coordinator Address: 394 Schroon River Rd, Warrensburg, NY 12885 Phone Number: 518-623-3119 Email: jiml@warrenswcd.org		Name/Title: Ann Marie Mason – Director of Emergency Services Address: 1340 State Route 9, Lake George, NY 12845 Phone Number:518-824-6652 Email: masona@warrencountyny.gov	
Additional Contributors			
Name/Title: Ann Marie Mason – Director of Emergency Services Method of Participation: Provided information on previous events, capabilities			
Name/Title: Jim Lieberum – Warren County SWCD for SWCD and DPW			





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided information on previous actions	
Name/Title: Ethan Gaddy –Assistant County Planner	
Method of Participation: Provided information on previous actions	

## 9.1.2 County Profile

Warren County is located in the northeastern part of New York State. It is bounded on the east by Lake George and Washington County, to the west by Hamilton and Saratoga Counties, to the north by Essex and Hamilton Counties, and to the south by Saratoga County.

Warren County was formed in 1813 from Washington County. The County is included in the Glen Falls Metropolitan Statistical Area. Warren County consists of 13 municipalities, covering 932 square miles. The County is one of the 62 counties in New York State and is comprised of one city, 11 towns, and one incorporated village.

The County contains 11 town governments, 1 city government, 1 village government, and the County government. State and federal government statutes and regulations control how the local governments operate. Local governments include the City of Glen Falls; the Towns of Bolton, Chester, Hague, Horicon, Johnsburg, Lake George, Lake Luzerne, Queensbury, Stony Creek, Thurman, and Warrensburg; and the Village of Lake George. The County and each municipality operate under the limits prescribed by various rules and laws of New York State. Each government entity has various responsibilities, funding sources, staffing levels, elected positions, and administrative capacities.

According to the U.S. Census, the 2020 population for Warren County was 65,737, a 0.1 percent increase from the 2010 Census. Data from the 2020 U.S. Census indicate that 4.3 percent of the population is 5 years of age or younger and 22.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

For more information on Warren County, refer to Section 4 (County Profile).

## 9.1.3 Jurisdictional Capability Assessment and Integration

Warren County performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.





- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for Warren County to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to Warren County. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Fire Prevention and Building Code	State and Local	Planning and Development
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The County adopted the New York State Uniform Fire Prevention and Building Code.				
<b>Zoning/Land Use Code</b>	Yes	Zoning Ordinance	Local	Planning and Development
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Warren County Department of Planning and Community Development and Warren County (WC) Planning Board provides technical services to local planning and zoning boards for matters related to community master plans, zoning ordinances and related land use regulations.				
<b>Subdivision Ordinance</b>	Yes	Subdivision Ordinance	Local	Warren County Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Warren County Department of Planning and Community Development and Warren County (WC) Planning Board provides technical services to local planning and zoning boards for matters related to community master plans, zoning ordinances and related land use regulations.				
<b>Site Plan Ordinance</b>	Yes	Site Plan Ordinance	Local and County	Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Warren County Department of Planning and Community Development and Warren County (WC) Planning Board provides technical services to local planning and zoning boards for matters related to community master plans, zoning ordinances and related land use regulations.				
<b>Stormwater Management Ordinance</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	No	-	-	-
<b>Flood Damage Prevention Ordinance</b>	No	-	-	-
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	No	-	-	-
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	No	-	-	-
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	Yes	Upper Hudson River Watershed Revitalization Plan, 2020	Regional	NY Department of State
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Hudson River is one of the most culturally, economically, and ecologically important waterbodies in New York State. Overtime, human activity – including industrialization, urbanization, and modification have placed significant pressure				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
on the natural resources of the region. This plan takes stock of that pressure and identifies goals and projects that will improve the water quality within the Upper Hudson River Watershed.				
<b>Stormwater Management Plan</b>	No	-	-	-
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-
<b>?</b>				
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/ Resiliency/Sustainability Plan</b>	No	-	-	-
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan, 2022	Local, County	Office of Emergency Services
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Comprehensive Emergency Management Plan establishes the basic requirements for managing emergencies in Warren County. The objective of the plan is to identify, assess and prioritize local and regional vulnerabilities to emergencies or disasters and the resources available to prevent or mitigate, respond to, and recover from them, outline short, medium and long range measures to improve the County's capability to manage hazards, show that County and local governments will take appropriate actions to prevent or mitigate effects of hazards and be prepared to respond to and recover from them when an emergency or disaster occurs, provide for the efficient utilization of all</p>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>available resources during an emergency, provide for the utilization and coordination of local government, state and federal programs to assist disaster victims, and to prioritize the response to the needs of the elderly, disabled, low income, and other groups which may be inordinately affected, and provide for the utilization and coordination of state and federal programs for recovery from a disaster with attention to the development of mitigative programs.</p> <p>The Plan includes annexes for hazardous material response, hazardous weather, and mass care.</p>				
<b>Continuity of Operations Plan</b>	Yes	Warren County Continuity of Operations Plan (COOP)	Local, County	Office of Emergency Services
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>A Continuity of Operations (COOP) Plan presents the threats, hazards, and vulnerabilities that an agency is subject to during daily operations. A COOP Plan also establishes what the mission essential functions (MEF) are for the County as well as for each department or agency. MEFs are the limited set of government functions that must be continued throughout or resumed rapidly after a disruption of normal activities. Critical tasks are those actions that are necessary to maintain or restore Warren County's MEFs.</p> <p>The ability for Warren County to maintain its critical services to County residents during emergencies is vital. To that end, effective planning is the key to ensuring a timely response and sustainment of critical services. In order to achieve that goal, Warren County identified MEFs and resources to ensure that those functions can be continued throughout or resumed rapidly after a disruption of normal activities. The Warren County COOP Plan ensures county-level MEFs that are crucial for providing basic services necessary to the health and safety of the people within Warren County are supported.</p>				
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	No	-	-	-
<b>Public Health Plan</b>	No	-	-	-
<b>Other</b>	Yes	Warren County Excessive Heat Plan 2022	County	Warren County Emergency Services
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The purpose of this Annex is to guide County agencies and Operational Area jurisdictions during an Excessive Heat Event. This Annex identifies resources, actions and critical issues regarding a weather event, including monitoring, public information, and congregate care and/or shelter. This Annex should be used in conjunction with the Warren County Comprehensive Emergency Management Plan (CEMP) and follow the Emergency Operations Center (EOC) guidelines whenever needed.</p> <p>This Annex is intended to provide a written plan to assist Warren County agencies with managing information and responding to an Excessive Heat Event. As with all emergency plans, these guidelines will provide relevant agencies and decision makers with flexible tools, options and considerations as the situation dictates and evolves.</p>				





Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
This Annex recognizes that in the event of such an emergency, this plan would draw upon the collaborative efforts and relationships of various agencies in order to provide appropriate resources, manpower and response to such an event. The end goal is to ensure a coordinated response occurs during an Excessive Heat Event, with public information being a primary focus. The Warren County Office of Emergency Services will support Operational Areas of jurisdiction through interagency support, as needed.			

## Development and Permitting Capability

The table below summarizes the capabilities of Warren County to oversee and track development.

**Table 9.1-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	No	Development permits are issued at the local level
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	-
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	N/A	-
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	-

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to Warren County and their current responsibilities that contribute to hazard mitigation.

**Table 9.1-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	No	- These responsibilities fall to the staff in the planning department.
Zoning Board of Adjustment	No	-
Planning Department	Yes	The Warren County Planning Department is responsible for analyzing, prioritizing and planning for the balanced and sustainable use of the county's natural resources and built environment to enhance the quality of life for current and future generations while respecting the character of the county





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	The mission of the County-sponsored local development corporation is to further projects and programs that enhance the economic well-being of Warren County and its communities. In addition to serving as a fiduciary account for County Planning Department projects and repository for housing program funding awards, disbursements and repayments, the LDC administers the county's small business lending program.
Public Works/Highway Department	Yes	The Department of Public Works is responsible for overseeing all County highway and bridge construction, maintenance of all road machinery and snow removal, as well as managing the following divisions: Floyd Bennett Memorial Airport, Maintenance Shop, Buildings and Grounds, Civil Defense & Natural Disaster, Parks & Recreation, Engineering, Sewer Administration, and Highway & Traffic.
Construction/Building/Code Enforcement Department	Yes	<p>The Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code in Warren County (except in the Town of Queensbury and City of Glens Falls).</p> <p>Duties and responsibilities include:</p> <ul style="list-style-type: none"> <li>• Issuance of Building Permits (including manufactured homes)</li> <li>• Issuance of Solid Fuel Burning Device Permits (woodstoves, fireplaces and pellet stoves)</li> <li>• Issuance of Demolition Permits</li> <li>• Conducting Plan Reviews for Code Compliance</li> <li>• Conducting construction inspections</li> <li>• Issuing Certificates of Occupancy, Completion, Compliance and Operating Permits</li> <li>• Conducting Fire Safety Inspections</li> <li>• Inspection of structures following fire or explosion</li> <li>• Responding to fire safety and life safety complaints</li> </ul>
Emergency Management/Public Safety Department	Yes	Warren County Office of Emergency Services is responsible for the safety of the residents and visitors through the provision of training for volunteers, development of emergency plans that incorporate mitigation, preparedness, response and recovery for all types of major disasters that occur within Warren County.
Warning Systems / Services	Yes	IPAWS; NY-Alerts





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
(mass notification system, outdoor warning signals, etc.)		
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	yes	The DPW department has a maintenance program to reduce risk. It involves brushing and tree maintenance, ditching, clearing culvert pipes of debris and replacement and if needed upsizing damaged or deteriorated culvert pipes. Based on the program, a certain number of miles of roadway are checked, determine what work is needed and then perform the work. The average is about 20–30 miles in each shop per year.
Mutual aid agreements	Yes	There are mutual aid agreements covering Fire & EMS service within the county.
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Hazard Mitigation Coordinator
Other	No	–
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Warren County Planning Board; Warren County Department of Planning and Community Development; WC SWCD
Engineers or professionals trained in building or infrastructure construction practices	Yes	WC Fire Prevention and Building Codes; WC Department of Public Works; WC SWCD
Planners or engineers with an understanding of natural hazards	Yes	WC Department of Planning and Community Development and WC Planning Board; WC SWCD
Staff with expertise or training in benefit/cost analysis	Yes	Warren County Soil and Water Conservation District
Professionals trained in conducting damage assessments	No	–
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Warren GIS
Environmental scientist familiar with natural hazards	Yes	Warren County Soil and Water Conservation District
Surveyor(s)	No	–
Emergency Manager	Yes	Warren County Office of Emergency Services
Grant writer(s)	Yes	Warren County Soil and Water Conservation District
Resilience Officer	No	–
Other (this could include stormwater engineer, environmental specialist, etc.)	No	–

## Fiscal Capability

The table below summarizes financial resources available to Warren County.



**Table 9.1-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

### Education and Outreach Capability

The table below summarizes the education and outreach resources available to Warren County.

**Table 9.1-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Public Information Officer
Personnel skilled or trained in website development	Yes	IT Department and Public Information Officer
Hazard mitigation information available on your website	Yes	There is a link to the Warren County Soil & Water Conservation District Website on the Warren County Website. They are the Hazard Mitigation Coordinator for Warren County.
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	NY-Alert, Ready Warren County NY App
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	Ready Warren County NY App – offers emergency preparedness information and tools to residents of the county.





## Community Classifications

The table below summarizes classifications for community programs available to Warren County.

**Table 9.1-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	Yes	Bronze	May 28, 2020
Storm Ready Certification	Yes	Warren County is Storm Ready	September 19, 2022
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.1-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Strong
Infestation and Invasive Species	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate





### 9.1.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

#### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for Warren County.

**Table 9.1-9. NFIP Summary**

Jurisdiction	# Policies	# Claims (Losses)*	Total Loss Payments*	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties	# Policies in the 1% Flood Boundary
Warren County	111	114	\$1.8 Million	1	1	1	Unavailable

Source: FEMA, 3/2023

Notes: \*Claims data extracted from HUDEX on 1/26/2023

RL: Repetitive Loss

SRL: Severe Repetitive Loss

RL FMA Definition: Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition: Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

#### Flood Vulnerability Summary

NFIP administration and floodplain management is performed on the local community level as the NFIP Floodplain Administrator is identified in the flood damage prevention ordinance for each participating community. However, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code for communities in the county with the exception of the Town of Queensbury and City of Glens Falls. Upon receipt of a signed zoning compliance certificate, as applicable, the county performs the code review. For the Town of Thurman, FIRM review is performed in the absence of zoning regulations.

The County supports communities by providing education and coordination in the following areas:

- The County HMP Coordinator provides periodic outreach to communities to provide technical information and guidance to support effective floodplain management and to advise the availability of mitigation funding opportunities.
- The County Department of Public Works and the County Soil & Water Conservation District actively identifies and mitigates flood and erosion problem areas in the County.
- The County coordinates with NYSDEC to provide information to communities regarding participation in the NFIP.





### 9.1.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.1-10 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.1-10. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	92	0	61	0	77	0	83	0	110	0	109	0
Multi-Family	7	0	5	0	4	0	2	0	0	0	42	0
Other (commercial, mixed-use, etc.)	12	0	15	0	26	0	15	0	16	0	14	0
Total New Construction Permits Issued	111	0	81	0	107	0	100	0	126	0	165	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development					
Recent Major Development and Infrastructure from 2017 to Present												
Refer to municipal annexes.												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Refer to municipal annexes.												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.1.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for Warren County's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps are provided in the hazard profiles (Section 5.4) to illustrate the probable areas impacted within Warren County based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. The source of the regulatory





floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.

## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

Table 9.1-11 provides details regarding municipal-specific loss and damages the County experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.1-11. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
July 1, 2017	Thunderstorm/Wind	Yes	<p>An upper-level disturbance interacted with a very moist atmosphere on July 1, generating several rounds of thunderstorms across areas mainly along and north of I-90. These storms resulted in torrential rainfall and flash flooding in portions of Herkimer, Fulton, Warren, Washington, and Rensselaer Counties. It was the second straight day of heavy rainfall for some of these areas. The village of Hoosick Falls was hit particularly hard by flash flooding, with many residences experiencing basement and first-floor flooding and several roads washed out as Woods Brook overwhelmed its flood protection system and coursed through the town. A state of emergency was declared for the village, where an estimated \$300,000 in damage occurred. Across Rensselaer County, flooding resulted in an estimated \$3.6 million in damage. Rainfall amounts up to 4 were recorded in Washington County where several roads were washed out. Neighboring</p>	<p>Clendon Brook Road in Queensbury and Bear Town Road in Lake Luzerne were washed out due to heavy rains.</p>





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			Warren County estimated \$1 million in flood damage. In Herkimer County, a mudslide closed a state highway, and people had to be evacuated from locations in the villages of Herkimer and Frankfort due to rising water. Several area rivers reached minor and moderate flood stage, including the Mettawee River at Granville which crested just below major flood stage. Finally, a few of the storms resulted in isolated wind damage.	
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York.	A large swath of rainfall totaling 2–5 inches, with isolated areas as high as 7 inches, occurred over the Mohawk Valley and southern Adirondacks, resulting in reports of flash flooding. The runoff caused rapid rises on area creeks and streams, with river gauges reaching record levels along the Mohawk River at Little Falls, the West Canada Creek at Hinckley and Kast Bridge, and the Sacandaga River at Hope.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19	The County was subject to closures and masking/social distancing requirements.
March 20, 2022	Beaver Dam Failure	N/A	Beaver Dam on Hidden Lake failed flooding	Properties were flooded along Olmstedville Road. A section of Olmstedville Road was washed out.
April 18–19, 2022	Late winter storm	N/A	8–11 inches of snow.	Due to weight of snow many trees, branches and power lines fell. 16 thousand county residents without power.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				Roads blocked making it difficult to plow the snow.

Notes:

EM: Emergency Declaration (FEMA)

FEMA: Federal Emergency Management Agency

DR: Major Disaster Declaration (FEMA)

N/A: Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes Warren County's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for Warren County. Warren County reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

**Table 9.1-12. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Medium	Medium	Low	High	High	High	Medium

Dam Failure	Disease Outbreak
High	Low

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the County





## Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.1-13. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Fairgrounds	County Building	X	X	-	Extension building not in the floodplain. Cornell Cooperative Extension will not store equipment in the floodplain.

Source: Warren County 2022

## Identified Issues

After review of Warren County's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, Warren County identified the following vulnerabilities within their community:

- The Middleton Bridge is located in the Towns of Bolton and Warrensburg and crosses the Schroon River. The bridge is failing and has been closed. A replacement bridge is needed.
- Critical facilities require backup power to maintain continuity of operations. The following critical facilities require backup power:
  - Toney Pit facility
  - North End DPW Facility
  - South End DPW Facility
  - Snow Removal Equipment building at Floyd Bennet Memorial Airport
- Washouts have impacted both sides of County Route 11.





- 13th Lake Road (County Route 78) in the Town of Johnsbury has unstable slopes. The frost freeze cycle is problematic on the steep bare side slope. Rock/boulders have impacted the road and created hazardous driving conditions. Work has been done to reduce failures including new gabion baskets and grading of sections of the slope but additional efforts are needed. There is a private property issue – land rights, acquisition issues here.
- Integration of hazard mitigation in County plans is limited.
- The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.
- NFIP floodplain administration in the County’s municipalities is often limited, requiring County support.
- Currently, only seven communities in Warren County participate in the Climate Smart Communities program with five communities and Warren County being certified (bronze certification). Additional participation in the program would allow for greater climate change preparation and county sustainability.
- The County lacks disaster debris management planning to provide adequate procedures to address post-disaster cleanup.
- Warren County lacks a plan for supporting residents that require housing/relocation following a severe hazard event that results in destruction of their homes.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.
- There are many areas affected by localized stormwater flooding that are not identified on FEMA FIRMs. FIRMs have been noted as being outdated or inaccurate in many municipalities.
- There are a number of undersized culverts in the County which contribute to localized flooding.
- Vulnerable populations may need immediate access to heating or cooling centers during periods of extreme temperatures and need current information regarding location of heating and cooling centers.
- Communities do not have a clear understanding of the potential impacts of flooding on stream processes and related post-flood implications.
- Loon Lake Dam is a high hazard dam under the jurisdiction of the Town of Chester. Failure of the dam would also impact State Highway Route 8/9. Rehabilitation of the dam is needed to protect from dam failure. An engineering study of the dam has been completed.

### 9.1.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.





### **Past Mitigation Initiative Status**

---

The following table indicates progress on the community’s mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the ‘Capability Assessment’ earlier in this annex.





Table 9.1-14. Status of Previous Mitigation Actions

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Cost		
WC-1	Remove the Middleton Bridge over the Schroon River in the Towns of Bolton and Warrensburg. (Revised from 2011 strategy)	Flood, Severe Storm	Failing bridge. Closed.	WCDPW, A/GFTC, Towns of Bolton and Warrensburg	In Progress	Level of Protection		1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Damages Avoided; Evidence of Success		
WC-2	Backup Power for Critical DPW Facilities: Install or upgrade backup power systems at the County DPW facilities including the Toney Pit Facility and DPW facilities at Warrensburg, North End and South End.	All Hazards		WCDPW	In Progress; Portable generator at the Toney Pit. Main DPW office/sign shop and mechanic shop (Warrensburg) have backup power.	Cost		1. Include in 2023 HMP 2. Toney Pit facility needs fixed site permanent generator. North End and South End still need generators. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-3	Backup Power for County Airport: Replace/upgrade backup power systems at the county-owned Floyd Bennett Memorial Airport (GFL) in Queensbury, considered a county critical facilities. 2 generators, one portable. Will handle runway lights, building and gas pumps, but only when portable generator is started. Multiple generators here	All Hazards		County DPW – Airport Administration Division	In Progress	Cost		1. Include in 2023 HMP 2. The County has a newer portable generator that provides back up power for all facilities except the newly constructed Snow Removal Equipment (SRE) Building. The alternate generator although very old is used as a backup to the portable backup. Next steps would be to evaluate/acquire a generator for the SRE building and to monitor the old stationary generator for potential replacement. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





## Section 9. Jurisdictional Annexes

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	are very old, and may not be located optimally. Evaluate the need for replacement/upgrades, including consideration of relocation.							<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
WC-4	Human Services Building Backup Power Improvements: Install a new transfer switch to all systems in building. Generator will handle entire building at this time though it is not set up to do so.	All Hazards	Low power support in an event.	WCDPW – Facilities Committee	Complete	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Complete</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-5	County Fuel Supply Resiliency: Assure that the County has adequate fueling facilities, resistant to power outages and properly distributed, so that emergency vehicles and equipment are able to respond to, and support recovery from, hazard events and disasters in the County and	All Hazards	Power back up for following fueling stations: Muni center, Wsbg @ Main Office, Hague, Bolton, North Creek, Horicon, WC Airport.  *****No backup at fueling station in Lake Luzerne	WCDPW	Ongoing Capability	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Ongoing capability</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Cost		
WC-6	County DPW Projects: Bridges, Roads, Culvert upgrades/mitigation. Specific projects noted are: Back To Sodom Road Bridge (Johnsburg) Market Street Bridge (Horicon) Padanarum Road Bridge #2 (Bolton) Blair Road Bridge (Horicon) Bay Road (Queensbury) – Reconstruction Round Pond Road, Queensbury Avenue, and Boulevard Road (Queensbury) – Rehabilitation Continuing Maintenance of all bridges and culverts  Assure that any mitigation addresses the 500-year flood event or “worst damage scenario	Flood, Severe Storm, Severe Winter Storm; Earthquake; Landslide	Infrastructure upgrades necessary.	WCDPW, A/GFTA; working with local municipalities and NYSDOT	Complete. All work completed on specified items.	Level of Protection		1. Discontinue 2. 3. Complete
						Damages Avoided; Evidence of Success		
WC-7	County Route 11 Flood Mitigation Project: At this time, the Warren County Department of Public Works is seeking assistance to:	Flood, Severe Storm	Washouts have impacted both sides of County Route 11.	WCDPW	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project					Evaluation of Success (if project status is <u>complete</u> )		Next Steps	
		Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)			1. Project to be included in 2023 HMP or Discontinue	2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	<p>Develop a hydrologic study and, (2) Develop a remediation plan.</p> <p>The hydrologic study will identify the existing and potential water inputs into the watershed and will detail out storm derived water volumes, detention volumes and, peak unit discharges. The remediation plan will be developed based off of the technical data that the hydrologic study has calculated. The remediation plan will incorporate traditional and alternative designs for stabilization, drainage and roadway construction at this location. Once completed, the study and plan will provide guidance to the County DPW with its decision making to mitigate for future losses of this roadway. Assure that any mitigation addresses the 500-year flood event or "worst damage scenario".</p>								





## Section 9. Jurisdictional Annexes

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Cost		
WC-8	Landslide – 13 <sup>th</sup> Lake Road (County Route 78) – Unstable slope – vulnerability is County Road. Continue to evaluate possible mitigation actions; implement once designed and funding is secured. Added Gabion baskets. There is a private property issue – land rights, acquisition issues here. No determinations as to what to do. Tough spot with not much room. In Johnsbury next to Hamilton County line	Landslide	Frost freeze cycle problematic on steep bare side slope. Rock/boulders impact road and create hazard. Work has been done to reduce failures including new gabion baskets and grading of sections of the slope.	WCDPW	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-9	Countywide Debris Management Plan: Develop plans for debris management after hazard events, including severe winter snow/ice events, and other severe storms. 5-Year County plan to be coordinated with DPW, all municipalities and NYSDEC. Include consideration of invasive species (e.g. Asian Longhorn Beetle, Emerald Ash Borer) on the generation of	Severe Storm, Severe Winter Storm, Infestation		WCOES, WCDPW; A/GFTC; all municipalities	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





## Section 9. Jurisdictional Annexes

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	vegetative debris, and the overall management of that debris. This plan shall consider the debris management challenges presented by the 500-year event							<ol style="list-style-type: none"> <li>Project to be included in 2023 HMP or Discontinue</li> <li>If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>If discontinue, explain why.</li> </ol>
WC-10	Develop County COOP/COG Plan: A County COOP/COG plan will have provisions in place for notification, what facilities/services must be continuous, which ones must be available when, alternate locations. Municipalities would need to develop their own COOP plans	Severe Storm; Severe Winter Storm; Infestation		WCOES, WCDPW; A/GFTC; all municipalities	Completed July 2017 and updated annually.	Cost		<ol style="list-style-type: none"> <li>Discontinue.</li> <li></li> <li>Complete.</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-11	County-Wide Housing Location/Relocation Planning Initiative for Disaster Displaced Residents and Structures: Warren County Office of Emergency Services to develop and implement a program to work with all Warren County municipalities to identify sites within the community suitable for relocation of houses out of the floodplain, or building new houses	All Hazards		Warren County Office of Emergency Services	No progress	Cost		<ol style="list-style-type: none"> <li>Continue in HMP 2023</li> <li>WCOES will develop a Plan for Displaced Residents, once approved and appendix will be added to this plan</li> <li></li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project					Evaluation of Success (if project status is <u>complete</u> )		Next Steps
		Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)			
	<p>once properties in the floodplain are demolished. As part of this program, all communities will be surveyed to identify potential sites, including any pre-disaster actions that may be required to make them viable for these purposes. Further, this effort will include working with other County departments and regional and local stakeholders who own or manage potentially suitable sites (e.g. County parks) for the potential siting of temporary housing, and determining what improvements would need to be made to accommodate temporary housing (e.g. water, electric, sanitary services, bathing facilities), and that outside funding would likely be needed if such improvements were not already available.</p> <p>It is noted that while a community may identify</p>							<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	suitable sites for relocation, the use (including transfer of ownership) of suitable private property would be at the discretion of the property owner.							<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
WC-12	Ensure the County website has all the current and updated NFIP flood data and mapping	Flood, Severe Storm		Warren County Department of Planning and Community Development (WCDPCD), WCOES	Complete	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. The information is shown on the Community Map on the Warren County GIS Website: <a href="https://arcgis.com">Warren County Community Map (arcgis.com)</a></li> </ol>
WC-13	Encourage local municipalities to review their codes (specifically municipal zoning and emergency codes), and provide support for such reviews and amendments at the request of local governments. This review should help to ensure that all jurisdictions have flood damage prevention codes that appropriately regulate activities in flood hazard areas. It is noted that the County does not have any Land Use Codes and cannot require local municipalities to adopt	All Hazards		WCDPCD	Ongoing Capability	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Ongoing capability</li> </ol>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	or modify their local codes. The County can and will encourage local municipalities to review their codes to determine if there are any mitigations measures that can be included in any amendments.							1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
WC-14	Review and update County and municipal plans to integrate goals, objectives, and activities from this HMP which are not found in existing regulatory documents, as appropriate.	All Hazards		WCDPCD	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-15	Continue to enhance and maintain the critical facility database developed during, and as a critical part of, this hazard mitigation plan update process. Continue to leverage this database to identify vulnerable critical facilities in support of mitigation action WC-18 and -19 below.	All Hazards		WCDPCD	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-16	County Stormwater Management/MS4: Complete county-wide mapping for stormwater management and MS4 compliance. Continue	Flood, Severe Storm		Warren County Soil and Water Conservation District (WC SWCD)	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided;		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Evidence of Success		
	to support and implement stormwater improvement projects as funding is made available (typically through State). The County is an MS4 community within the Glens Falls and Lake George area. SWCD is the County S/W Management Officer and have done all the mapping within the MS4 area. They will have the countywide MS4 area mapped by end of 2016							<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>
WC-17	Provide applicable support to municipalities as they maintain local compliance with and good-standing in the NFIP including adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further assist communities with meeting and/or	Flood		County (WCSWCD and WCOES), working with municipalities with support from NYS DEC, NYS DHSES, ISO, FEMA	Ongoing Capability	Cost		<ol style="list-style-type: none"><li>1. Discontinue</li><li>2.</li><li>3. Ongoing capability</li></ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	exceeding the minimum NFIP standards and criteria through the following NFIP-related actions identified in subsequent initiatives, as follows: Local Support of Private-Property Mitigation Public Outreach Website Direct outreach and information program to RL/SRL and other flood-prone property owners Promote local participation in ongoing map update efforts Flood Damage Prevention Ordinance (FDPO) Updates, and Higher Regulatory Standards Building Local Floodplain Management Capabilities through training and seminars							<ol style="list-style-type: none"> <li>Project to be included in 2023 HMP or Discontinue</li> <li>If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>If discontinue, explain why.</li> </ol>
WC-18	Promote the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with Critical Facilities and NFIP Repetitive Loss (RL)	Flood		County (WCSWCD and WCOES), working with municipalities with support from NYS DEC, NYS DHSES, ISO, FEMA	Ongoing capability	Cost		<ol style="list-style-type: none"> <li>Discontinue</li> <li></li> <li>Ongoing capability</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	and Severe Repetitive Loss (SRL) properties as a priority. The County shall provide local support as applicable and feasible, which may include direct outreach to flood-prone property owners, specifically those identified as Critical Facilities, as NFIP RL/SRL or otherwise identified as flood-prone, and working with interested and voluntary property owners to mitigate their properties based on available funding from FEMA and local match availability.							<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
WC-19	Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what they can do in the way of mitigation, preparedness (including flood insurance), and response in the event of an emergency	All Hazards		WCSWCD; WCOES; other County Departments as applicable	In Progress: SWCD conducted one meeting at each county community plus presented at several other events in regards to HM awareness /impacts/potential resolutions	Cost		<ol style="list-style-type: none"> <li>1. Include in 2023</li> <li>2.</li> <li>3.</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-20	County and Local Mitigation Capability Building:	All Hazards		County, through WCSWCD and WCOES; as	Ongoing capability; SWCD has conducted 7	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Ongoing capability</li> </ol>
						Level of Protection		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	Arrange/facilitate and/or promote regional workshops, trainings and continuing education (prepared and offered by others) in the following areas: <ul style="list-style-type: none"><li>Floodplain Management and the Certified Floodplain Managers (CFM) certification</li><li>Community Rating System (CRS) – Limited to promoting workshops or training opportunities offered by others as available</li><li>Stream Intervention Programs (ongoing with WCSWCD)</li><li>Benefit–Cost Analysis (BCA)</li><li>Substantial Damage</li></ul>		Need accurate NFIP data.	supported by NYS DHSES, FEMA and ISO	(?) emergency stream intervention trainings in the county and regionally since 2017.  DPW is well versed with BCA and is willing to assist with HM BCA.	Damages Avoided; Evidence of Success		<div>1. Project to be included in 2023 HMP or Discontinue</div> <div>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</div> <div>3. If discontinue, explain why.</div>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	Estimating (SDE) • NFIP Elevation Certificates (EC)							1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
WC-21	The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. As of November 2016, FEMA and NYS DEC are presenting work maps for the Hudson-Hoosic Watershed, and seeking public and stakeholder comment. To the extent applicable and feasible, the County shall use all available means of promoting broad local government and public involvement through announcing meetings and providing available supporting data as applicable.	Flood		County, through WCSWCD and WCOES; promoting FEMA and NYS DEC map update efforts	In Progress; FEMA and DEC process – have not heard anything about results	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-22	Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities through the	Flood		County, through WCSWCD and WCOES; promoting FEMA and NYS DEC	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided;		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Evidence of Success		
	following In Progress activities: •Update and adopt the local Flood Damage Protection Ordinance (FDPO) to conform to latest regulations and guidance including the following: o Proper identification of "Administrator" o Proper reference to current regulatory mapping and any other "best available data" being used •Higher Regulatory Standards (per local interest): o Additional Freeboard o Cumulative Substantial Damages/Improvements							1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
WC-23	The County shall review and incorporate the latest information on climate change projections while considering planning, engineering and undertaking mitigation actions and other projects throughout the County. Specifically, the County shall refer to the latest ClimAID "Responding to Climate	All Hazards		All County Departments and Agencies	Ongoing Capability	Cost Level of Protection Damages Avoided; Evidence of Success		1. Discontinue 2. 3. Ongoing capability





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	Change in New York State" reports (2011, and 2014 Supplement) developed by the New York State Energy Research and Development Authority (NYSERDA), as well as other state and nationally-recognized, peer-reviewed, science-based sources of climate projection data and information, as available							<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
WC-24	Promote County and Municipal participation in the Climate Smart Communities program.	Flood		All County Departments and Agencies	In Progress	Cost		<ol style="list-style-type: none"> <li>1. Include in 2023 HMP</li> <li>2.</li> <li>3.</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
WC-25	Floodprone Critical Facilities in Warren County – Identify Critical Facilities at which the structures or the parcel are located wholly or partially within the 100-year floodplain. The County will compile the names, types, locations of facilities and their relationships to the flood zone(s).	Flood		County OEM, NYS DHSES	In Progress	Cost		<ol style="list-style-type: none"> <li>1. Include in 2023 HMP</li> <li>2.</li> <li>3.</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project					Evaluation of Success (if project status is <u>complete</u> )		Next Steps
		Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)			
	<p>Once the Critical Facilities are identified, identify appropriate level of protection for the facilities. Indicate whether there is no history of flooding and conditions exist where future damage is unlikely or if there is a history of flooding or future damage is likely based on existing conditions. For those facilities that have been damaged previously, identify any known protection measures already in place.</p> <p>If protective measures are in place, evaluate potential long-term mitigation actions to eliminate the need for response</p> <p>If no protective measures are in place, assemble a planning team to collaborate on mitigation alternatives to reduce or eliminate the vulnerability to flooding. The Critical Facilities that fall into this</p>							<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>





Project #	Project					Evaluation of Success (if project status is <u>complete</u> )		Next Steps	
		Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)			1. Project to be included in 2023 HMP or Discontinue	2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	<p>category will be protected to a 500-year flood event.</p> <p>Timeframe for this action is as follows:          6 months: convene a meeting of communities and stakeholders for critical facilities in the floodplain to assess response or mitigation measures; develop a prioritized list based on extent of past damages, the relative isolation of the facility, the number of residents dependent on it, etc.          12 months: meet and then conduct site visits with NYS DHSES mitigation staff using the prioritized list;          24 months: prepare complete on-site information for the stakeholders; who is responsible for coordinating the action; what is needed for each facility during a flooding event; who is contacted to obtain the needed supplies</p>								





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	24 months: complete worksheets for all vulnerable critical infrastructure in Warren County							<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>

DRAFT





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.1-14, Warren County identified the following mitigation efforts completed since the last HMP:

- In November of 2018, the Warren County Soil and Water Conservation District purchased sandbagger machinery and developed a Memorandum of Agreement to enable community use of the machine to reduce flood losses in areas not protected by mitigation projects or flood reduction infrastructure.
- The County has mitigated the beaver dam/flood impoundment issue on Route 11 and has Implemented a monitoring program to reduce potential flood impacts.
- County hosted RiskMAP meeting for the upper Hudson and Sacandaga River and Lake Champlain stakeholder.
- County is installing a solar array at the county airport. Potential solar location is the Toney Pit, south end or north end.
- The County and municipalities have implemented mitigation actions to protect critical facilities and infrastructure throughout the planning area. As an example, the Highway Department maintains a multi-year, rotating program of roadway and culvert (drainage) maintenance and improvements to help mitigate stormwater damage to county roads.
- The County Department of Public Works department has a maintenance program to reduce risk. It involves brushing and tree maintenance, ditching, clearing culvert pipes of debris and replacement and if needed upsizing damaged or deteriorated culvert pipes to a 1-percent change design capacity. Based on the program, a certain number of miles of roadway are checked, determine what work is needed and then perform the work. The average is about 20-30 miles in each shop per year. Areas mitigated include:
  - West Hague Road over Hague Brook (@ Fish and Game )
  - West Hague Road over Hague Brook (@ Macoy Rd.)
  - Moon Hill Road over unnamed stream (replaced round with squash prior to federal aid project)
  - 13th Lake Road (Twin Pipes @ Barton Mines)
  - CR 11 – Horicon Ave.(Bolton) over Finkle Brook
  - Call Street over Bennie Brook
  - Bay Road over Halfway Brook (was triple culverts but DOT considered it a bridge)
  - Bay Road over Glen Lake outlet
  - Warrensburg Road over Number 9 Brook (@ Cameron Road)
- The County awarded ARPA funding to the Warren County Soil & Water Conservation District to purchase and have installed data collection devices on Glen Lake and Lake Sunnyside, the two lakes listed in both the County and Town of Queensbury MS4 programs. Parameters monitored include air temperature, relative humidity, barometric pressure, rainfall, water level,





& water temperature at 15-minute or 30-minute intervals. This data will be publicly accessible through a dashboard.

- The County awarded ARPA funding to Warren County Soil & Water Conservation District to purchase and install a weather monitoring station at the Warren County Soil & Water Conservation District office which is operational.
- The Warren County Soil & Water District consults USGS-maintained stream gauges on the Hudson River and its tributaries at North Creek, Hadley, and Fort Edward; at the tributaries on the Boreas river, the Indian River in Indian Lake, the Sacandaga at Hope and Hadley and the Schroom at Riverbank. Streams that flow to Lake George have had stream gauges and flow data since the 70's during the National Urban Runoff Program study, and by NYSDEC (90's), Darrin Freshwater Institute (2000's) and currently by IBM and RPI (Jefferson Project) in East Brook, West Brook, English Brook, Finkle Brook, Indian Brook, Shelving Rock Brook, Hague Brook and at the outlet of Lake George.
- The County has created an app to enable real time reporting of hazard events. This app called ReadyWarrenCountyNY and has been shared on social media including on the County Facebook and local TV news station. The app provides information regarding hazards, including the location of cooling centers in the County. It also enables the publication of alerts for towns and villages and has the ability to geo-locate users for targeted outreach and messaging as needed. It can be used to support mitigation alerts and is linked to a storm reporter app to report storm observations, hazard areas, and photos. It is anticipated that the data gathered through this app will improve mitigation grant funding applications by providing information to support strong benefit cost analyses.

### Proposed Hazard Mitigation Initiatives for the HMP Update

Warren County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.1-15. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X	X		X	X		X		X
Extreme Temperature	X	X	X	X	X	X	X	X		X
Flood	X	X		X	X	X			X	X





Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Severe Storm	X	X			X	X			X	X
Severe Winter Storm	X	X			X	X				X
Wildfire	X	X			X	X				X
Infestation	X	X			X	X				X
Dam Failure	X	X			X	X			X	X
Disease Outbreak	X			X	X		X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.1-16).

The table below summarizes the specific mitigation initiatives Warren County would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.



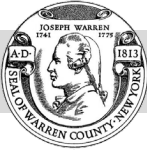
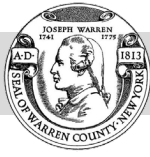


Table 9.1-16. Proposed Hazard Mitigation Initiatives

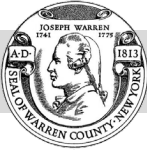
Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Warren County-001	Middleton Bridge Replacement	1	Earthquake, Extreme Temperature, Flood, Severe Storm	<p><b>Problem:</b> The Middleton Bridge (a historic structure) is located in the Towns of Bolton and Warrensburg and crosses the Schroon River. The bridge is failing and has been closed. A replacement bridge is needed. This is a long-term project. It is in the design process currently.</p> <p><b>Solution:</b> The County will acquire property to build a new bridge in a different location. Once property rights are secured, the County will construct the bridge to withstand a 500-year flood event.</p>	No	Will require permitting	Within 10 years	WCDPW, A/GFTC, Towns of Bolton and Warrensburg	High	Vital transportation route reestablished	BRIC, PDM, HMGP, County budget	Low	SIP	PP
2023-Warren County - 002	Backup Power for Critical Facilities	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire	<p><b>Problem:</b> Critical facilities require backup power to maintain continuity of operations. The following critical facilities require backup power:</p> <ul style="list-style-type: none"><li>• Toney Pit facility</li><li>• North End DPW Facility</li><li>• South End DPW Facility</li><li>• Snow Removal Equipment building at Floyd Bennet Memorial Airport</li><li>• Old Shop</li></ul> <p><b>Solution:</b> The generators will provide continuous power for services to ensure the health and safety of residents, businesses and visitors. By providing power to municipal facilities and the department of public works, staff will be able to provide pre-, during, and post event services to communicate, monitor and respond to citizen issues. Services such as heat and cooling will be uninterrupted to support the needs of vulnerable populations, community alerts and rapid inspections and</p>	Yes	None	Within 5 years	Engineer, Public Works	High	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, County Budget	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	Clt\$ Category
				monitoring to be available for earthquake events, equipment fuel will be available during snow, wildfire, and wind events to maintain uninterrupted access to critical facilities. The County Engineer will research what size generator is needed to power each facility. The County will then purchase and install the selected generator and necessary electrical components to supply backup power to each facility. Public Works will be responsible for maintenance and testing of each generator following installation.										
2023-Warren County-003	Digitization of Dam Inundation Maps	6	Dam Failure	<b>Problem:</b> The County does not have full digitized dam inundation mapping. <b>Solution:</b> The County maintains hardcopy inundation maps for Butler, Keenan, and Wilkie. The County will digitize these for the next plan update (and for use in the interim).	Yes	No	Within 5 years	Warren County Office of Emergency Services	Staff time	Reduction of dam impacts	County budget	High	LPR	ES
2023-Warren County-004	13th Lake Road (County Route 78)	1	Earthquake, Extreme Temperature	<b>Problem:</b> 13th Lake Road (County Route 78) in the Town of Johnsbury has unstable slopes. The frost freeze cycle is problematic on the steep bare side slope. Rock/boulders have impacted the road and created hazardous driving conditions. Work has been done to reduce failures including new gabion baskets and grading of sections of the slope but additional efforts are needed. There is a private property issue – land rights, acquisition issues here. <b>Solution:</b> The County WCDPW will conduct an engineering study to explore potential strategies to reduce the landslide risk and implement cost-effective solutions.	No	None identified	Within 5 years	Public Works	TBD by engineering study	Reduction in landslides, road closures, hazardous driving conditions	BRIC, PDM, HMGP, CHIPS, County budget	High	NSP, SIP	NR, PP





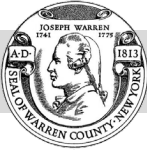
Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	C&S Category
2023-Warren County-005	Hazard Mitigation Planning Integration	4	All Hazards	<p><b>Problem:</b> Integration of hazard mitigation in County plans is limited.</p> <p><b>Solution:</b> The County will review and update County plans and encourage municipalities to update their plans to integrate goals, objectives, and activities from this HMP which are not found in existing regulatory documents, as appropriate. The County will work with the Adirondack Park Agency to integrate best floodplain management practices with the Park and will reference and integrate the hazard mitigation plan during the update of the comprehensive plan. As part of the integration the County will seek out projects that can be funded by the Climate Smart Program and which will increase resilience and sustainability.</p>	No	None	Within 5 years	Planning	Staff time	Integration of hazard mitigation	County budget	High	LPR	PR
2023-Warren County-006	Support Updated NFIP Mapping	4	Flood	<p><b>Problem:</b> The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.</p> <p><b>Solution:</b> To the extent applicable and feasible, the County shall use all available means of promoting broad local government and public involvement through announcing meetings and providing available supporting data as applicable.</p>	No	None	Within 5 years	FEMA, City of Glens Fall, Town of Lake Luzerne, Town of Queensbury with support from Warren County Public Information Office	Staff time	Improved floodplain mapping	County budget	High	LPR	PR
2023-Warren County-007	NFIP Floodplain Administration Support	1, 4	Flood	<p><b>Problem:</b> NFIP floodplain administration in the County's municipalities is often limited, requiring County support.</p> <p><b>Solution:</b> The County will provide support to municipalities as they work to update</p>	No	None	1 year	County, through WCSWCD and WCOES; promoting	Staff time	Increased floodplain administration capabilities at the local level	County budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				and enhance local floodplain management regulatory capabilities through the following activities: <ul style="list-style-type: none"><li>Update and adopt the local Flood Damage Protection Ordinance (FDPO) to conform to latest regulations and guidance including the following:<ul style="list-style-type: none"><li>Proper identification of “Administrator”</li><li>Proper reference to current regulatory mapping and any other “best available data” being used</li><li>NYS mandate 2 foot freeboard requirement for all new construction</li></ul></li><li>Higher Regulatory Standards (per local interest):<ul style="list-style-type: none"><li>Cumulative Substantial Damages/Improvements</li></ul></li><li>Identify educational opportunities to increase the knowledge and capabilities of local staff including potential sponsorship of attendance at the 2024 NYSFSMA conference.</li></ul>				FEMA and NYS DEC						
2023–Warren County – 008	Climate Smart Communities	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire	<b>Problem:</b> Currently, only seven communities in Warren County participate in the Climate Smart Communities program with five communities and Warren County being certified (bronze certification). Additional participation in the program would allow for greater climate change preparation and county sustainability.	No	None	2 years	All County Departments and Agencies	Staff time	Greater climate change preparation and county sustainability.	County budget	High	LPR	PR





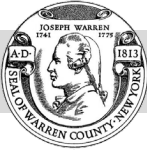
Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CIS Category
				<b>Solution:</b> The County will encourage County and Municipal participation in the Climate Smart Communities program. The County will work to improve its Climate Smart rating as it has adopted the Climate Smart Pledge/										
2023-Warren County-009	Countywide Disaster Debris Management Plan	3	All Hazards	<b>Problem:</b> The County lacks disaster debris management planning to provide adequate procedures to address post-disaster cleanup. <b>Solution:</b> The County will develop a plan for debris management after hazard events, including severe winter snow/ice events, and other severe storms. 5-Year County plan to be coordinated with DPW, all municipalities and NYSDEC. Include consideration of invasive species (e.g. Asian Longhorn Beetle, Emerald Ash Borer) on the generation of vegetative debris, and the overall management of that debris. This plan shall consider the debris management challenges presented by the 500-year event.	No	None	2 years	DPW, Warren County Office of Emergency Services	Staff time	Improved post-disaster capabilities	County budget	High	LPR	ES
2023-Warren County-010	County-Wide Housing Location/Relocation Planning Initiative	3	All Hazards	<b>Problem:</b> Warren County lacks a plan for supporting residents that require housing/relocation following a severe hazard event that results in destruction of their homes. <b>Solution:</b> Warren County Office of Emergency Services will develop and implement a program to work with all Warren County municipalities to identify sites within the community suitable for relocation of houses out of the floodplain or building new houses once properties in the floodplain are demolished. As part of this program, all communities will be surveyed	No	None	3 years	Warren County Office of Emergency Services, Municipalities	Staff time	Hazard Preparedness, Temporary housing secured	County budget	High	LPR	ES





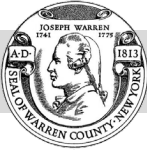
Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CIR\$ Category
				to identify potential sites, including any pre-disaster actions that may be required to make them viable for these purposes. Further, this effort will include working with other County departments and regional and local stakeholders who own or manage potentially suitable sites (e.g. County parks) for the potential siting of temporary housing, and determining what improvements would need to be made to accommodate temporary housing (e.g. water, electric, sanitary services, bathing facilities), and that outside funding would likely be needed if such improvements were not already available.										
2023-Warren County-011	Substantial Damage Procedures	3	All Hazards	<p><b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.</p> <p><b>Solution:</b> The County will develop official procedures for Substantial Damage and Substantial Improvement determinations.</p>	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	County budget	High	LPR	PP, PR
2023-Warren County-012	Localized Flood Area Database/ Mapping	4	Flood	<p><b>Problem:</b> There are many areas affected by localized stormwater flooding that are not identified on FEMA FIRMs. FIRMs have been noted as being outdated or inaccurate in many municipalities.</p> <p><b>Solution:</b> The County will gather information of the location and history of flooding in unmapped areas of localized flooding to support the identification of problem areas and the associated projects to reduce flood risk. Input will be gathered using the County-developed <b>Ready Warren County NY</b> app in which location and damage data</p>	No	None	Within 5 years	Warren County GIS Dept. with support by County DPW and County SWCD	Staff time	Improved floodplain maps	County budget; HMA grants	High	LPR	PR





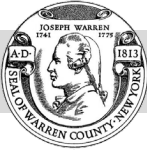
Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CIS Category
				(including photos) will be downloaded and process by the County for use in supporting mitigation projects to reduce the vulnerability of floodprone areas.										
2023-Warren County-013	Culvert Flood Capacity Initiative	1	Severe Storm, Flood	<p><b>Problem:</b> There are a number of undersized culverts in the County which contribute to localized flooding. While the County is addressing 300+ through a project grant through the Lake George and Lake Champlain Regional Planning Board, the County needs to review the remaining 900+ culverts.</p> <p><b>Solution:</b> Warren County Department of Public Works will determine the proper sizing and capacity, obtain funding, and upsize the following culverts which have been identified as undersized, causing localized flooding leveraging and explaining the current program.</p>	No	May require permitting	2 years	Warren County Department of Public Works	High (\$300,000)	Reduced road damages, improved emergency access	HMGP, BRIC, PDM, CHIPS, WQIP, County budget	High	SIP	SP
2023-Warren County-014	Vulnerable Population Temperature-Related Support Services	1, 2, 3	Extreme Temperature	<p><b>Problem:</b> Vulnerable populations may need immediate access to heating or cooling centers during periods of extreme temperatures and need current information regarding location of heating and cooling centers.</p> <p><b>Solution:</b> The County has an extreme heat response plan and updates website to show current cooling stations. The County work to identify additional locations and update available info. Warren County Emergency Services will create a protocol to provide up-to-date information regarding active heating and cooling centers via web updates and reverse notification systems.</p>	Yes	No	Within 5 years	Warren County Emergency Services	Staff time	Health and life safety improvements for vulnerable populations	County Operating Budget	High	EAP	PI, ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CIS Category
2023-Warren County-015	Post-Flood Stream Intervention Training	1, 5	Flood	<p><b>Problem:</b> Communities do not have a clear understanding of the potential impacts of flooding on stream processes and related post-flood implications.</p> <p><b>Solution:</b> Warren County SWCD will provide education to municipal Highway Departments intended to be used as a tool to assist communities to better understand how streams function, why flooding occurs, and how to address impacts to communities.</p>	No	No	Annually, within 5 years	Warren County SWCD, municipal Highway Departments	Staff time	Reduction of flood damages and post-flood environmental impacts	County Operating Budget	High	EAP	PI
2023-Warren County-016	Support Loon Lake Dam Rehabilitation	6	Dam Failure	<p><b>Problem:</b> Loon Lake Dam is a high hazard dam under the jurisdiction of the Town of Chester. Failure of the dam would also impact State Highway Route 8/9. Rehabilitation of the dam is needed to protect from dam failure. An engineering study of the dam has been completed.</p> <p><b>Solution:</b> Warren County SWCD will provide a support role as the Town of Chester rehabilitates Loon Lake Dam, including providing technical expertise or support in any grant applications.</p>	Yes	Yes	Within 5 years	Warren County SWCD, Town of Chester	Staff time	Protection of high hazard dam	HHPD, County budget	High	SIP	SP
2023-Warren County-017	Digitization of Dam Inundation Maps	4	Dam Failure	<p><b>Problem:</b> Lack of digitized dam maps limits the ability of the county and dam owners to effectively mitigate risk due the lack of quantitative data regarding specific inundation impacts.</p> <p><b>Solution:</b> Warren County will digitize the dam inundation maps.</p>	No	No	Within 5 years	Warren County GIS	Staff time	Reduction of dam risk	County Operating Budget	High	LPR	PR
2023-Warren County-018	Disease Outbreak Notification	2	Disease Outbreak	<p><b>Problem:</b> There is a need for expanded notification services for disease outbreak warning throughout the county.</p> <p><b>Solution:</b> Warren County will provide and maintain links to the County's website with a webpage to notify residents of any</p>	No	No	Within 5 years	Warren County Public Health Department	Staff time	Health and safety improvements	County Operating Budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				disease outbreak and mitigation strategies. Public Health also maintains a Facebook page as well.										

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:		Potential FEMA HMA Funding Sources:		Timeline:	
CAV	Community Assistance Visit	FMA	Flood Mitigation Assistance Grant Program	The time required for completion of the project upon implementation.	
CRS	Community Rating System	HMGP	Hazard Mitigation Grant Program		
DPW	Department of Public Works	BRIC	Building Resilient Infrastructure and Communities Program	Cost: The estimated cost for implementation.	
EHP	Environmental Planning and Historic Preservation				
FEMA	Federal Emergency Management Agency			Benefits: A description of the estimated benefits, either quantitative and/or qualitative.	
FPA	Floodplain Administrator				
HMA	Hazard Mitigation Assistance				
N/A	Not applicable				
NFIP	National Flood Insurance Program				
OEM	Office of Emergency Management				

Critical Facility:

Yes Critical Facility located in 1% floodplain

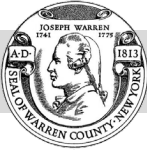
Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.





- *Natural Resource Protection (NR)*—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- *Structural Flood Control Projects (SP)*—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- *Emergency Services (ES)*—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.

DRAFT



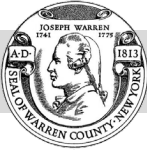


The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.1-17. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Warren County-001	Middleton Bridge Replacement	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Warren County-002	Backup Power for Critical Facilities	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Warren County-003	Digitization of Dam Inundation Maps	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Warren County-004	13th Lake Road (County Route 78)	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Warren County-005	Hazard Mitigation Planning Integration	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Warren County-006	Support Updated NFIP Mapping	0	1	1	1	1	1	1	1	1	1	0	0	1	1	11	High
2023-Warren County-007	NFIP Floodplain Administration Support	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Warren County-008	Climate Smart Communities	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Warren County-009	Countywide Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Warren County-010	County-Wide Housing Location/Relocation Planning Initiative	1	0	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Warren County-011	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Warren County-012	Localized Flood Area Database/ Mapping	0	1	1	1	1	1	0	1	1	1	0	0	1	1	10	High
2023-Warren County-013	Culvert Flood Reduction Initiative	1	1	1	1	1	1	0	1	1	0	1	0	1	1	11	High
2023-Warren County-014	Vulnerable Population Temperature-Related Support Services	1	0	1	1	1	1	1	0	1	0	0	0	1	1	9	High
2023-Warren County-015	Post-Flood Stream Intervention Training	0	1	1	1	1	1	0	1	1	0	0	0	1	1	9	High
2023-Warren County-016	Support Loon Lake Dam Rehabilitation	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
2023-Warren County-017	Digitization of Dam Inundation Maps	0	1	1	1	1	1	0	1	1	1	0	0	1	1	10	High
2023-Warren County-018	Disease Outbreak Notification	1	0	1	1	1	0	1	0	1	1	0	1	1	0	9	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.1.8 Action Worksheets

The following action worksheets were developed by Warren County to aid in the submittal of grant applications to support the funding of high priority proposed actions.

DRAFT





Action Worksheet			
<b>Project Name:</b>	Critical Facility Backup Power		
<b>Project Number:</b>	2023-Warren County-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	Critical facilities require backup power to maintain essential functions during and after disaster events.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The City will purchase and install permanent fixed generators and necessary electrical components at the following facilities: <ul style="list-style-type: none"> <li>• Toney Pit facility</li> <li>• North End DPW Facility</li> <li>• South End DPW Facility</li> <li>• Snow Removal Equipment building at Floyd Bennet Memorial Airport</li> <li>• Old Shop</li> </ul>		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	SWCD, Emergency Services	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels	\$100,000 per facility	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000 per facility	Weather dependent; poses a threat to wildlife; expensive repairs if needed
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
Project Name:	Critical Facility Backup Power	
Project Number:	2023-Warren County-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of critical facilities
Property Protection	1	Project will protect buildings from power loss.
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	0	Within 5 years
Agency Champion	1	SWCD, Emergency Services, Facility managers
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.2 TOWN OF BOLTON

This section presents the jurisdictional annex for the Town of Bolton that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Bolton's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.2.1 Hazard Mitigation Planning Team

The Town of Bolton identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including Planning and Zoning and the Engineer. The Director of Planning and Zoning represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.2-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Joshua Westfall, AICP, Director of Planning and Zoning Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Westfall.J@Town.Bolton.NY.US	Name/Title: Richard Roman – Code Enforcement Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Roman.R@Town.Bolton.NY.US
<b>NFIP Floodplain Administrator</b>	
Name/Title: Joshua Westfall, AICP Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Miller.R@Town.Bolton.NY.US	
<b>Additional Contributors</b>	
Name/Title: Joshua Westfall, AICP, Director of Planning and Zoning	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided information on previous events, capabilities, NFIP administration, status update on past actions, reviewed annex, provided input on hazard rankings, contributed to mitigation strategy.	
Name/Title: Cheryl Bolton – Planning and Zoning Secretary Method of Participation: Assist in compiling information.	
Name/Title: Matt Coon – Dep. Highway Superintendent Method of Participation: Assist in compiling information.	

## 9.2.2 Municipal Profile

The Town of Bolton is in the Adirondack Mountains in New York State and is located between the shores of Lake George to the east and the Schroon River to the west. It is found in eastern Warren County. The Town is bordered to the north by the Towns of Horicon and Hague, to the south by the Town of Lake George and Lake George, to the east by Lake George, and to the west by the Town of Warrensburg. The following hamlets are found in the Town of Bolton: Bolton, Bolton Landing, North Bolton, and Riverbank. Basin Bay, Boon Bay, Huddle Bay, Northwest Bay, Lake George, and Trout Lake are the major bodies of water found throughout the Town. Additionally, the Cat and Thomas Mountain areas and the Tongue Mountain Range are mountainous areas within the community.

The Town has a total area of 90.1 square miles, of which, 63.4 square miles is land and 26.7 square miles is water.

Glens Falls Hospital services the region for emergency and major medical care. Urgent Care is provided in Warrensburg by Hudson Headwater Healthcare Urgent Care Center. Routine medical care is provided in Bolton by the Bolton Health Center, operated by Hudson Headwaters.

According to the U.S. Census, the 2020 population for the Town of Bolton was 2,012, a 13.5 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 2.8 percent of the population is 5 years of age or younger and 28.7 percent is 65 years of age or older. It should be noted however that since the pandemic, there has been an increase in the conversion of seasonal homes to year-round residences; this assertion is supported by a general increase in voter registration for that period (Warren Co. BOE).

Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Bolton has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 6.03% of the population does not have a high school diploma
- 22.39% of the population has a disability
- 4.88% of households do not have a vehicle
- 5.85% of the population is living below the poverty level
- 2.08% of the population is unemployed





### 9.2.3 Jurisdictional Capability Assessment and Integration

The Town of Bolton performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Bolton to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

#### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Bolton. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.2-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes – (Warren Co.)	New York State Uniform Code and the Energy Conservation Construction Code	County	Warren Co. Fire Prevention & Building Code Enforcement Department
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Bolton follows the New York State Uniform Code and the Energy Conservation Code to ensure standards to protect new development.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 200 – Zoning	Local	Zoning Admin. Zoning & Planning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>Zoning Ordinance is in place to promote the health, safety, and general welfare of the community and to protect the property values and aesthetics of the community by channeling and directing growth and by regulating and restricting the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yard, courts and other open spaces, the density of population and the location and use of buildings, structures and land for trade, industry, residence and other purposes, to the maximum extent permissible within the proper exercise of the police power as delegated by the Town Law.</p> <p>The Zoning Code outlined requirements for all proposals subject to administrative and Board reviews and outlines the requirements for identifying flood-prone locations on any submitted plans.</p>				
<b>Subdivision Ordinance</b>	Yes	Chapter 150 – Subdivision of Land	Local	Planning Board Zoning Admin. Zoning & Planning Office
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Ordinance requires approval of any application for subdivision of land and proposed subdivisions of existing lands before any action can be taken. The Subdivision law permits cluster subdivisions to preserve environmental resources and take advantage of siting infrastructure. .</p>				
<b>Site Plan Ordinance</b>	Yes	Chapter 200 – Article 5 (approval of Site Plans and Certain Uses)	Local	Planning Board Zoning Admin. Zoning & Planning Office
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>As outlined in the Zoning Code, hazard areas, to include flood plains, are to be shown on any plan proposals.</p>				
<b>Stormwater Management Ordinance</b>	Yes	Chapter 125 – Stormwater and Erosion Control	Local	Zoning Admin. Zoning & Planning Office
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Ordinance protects and safeguards the general health, safety, and welfare of the public residing in or visiting the Town by preserving and protecting the quality of the ground and surface waters.</p> <p>The Chapter differentiates between Major and Minor stormwater projects and outlines different requirements for each including approval processes.</p>				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes – (NYS)	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.</p>				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	Yes	Town of Bolton Waterfront Consistency Review Law	Local	Planning Board
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The purpose of this local law is to provide a framework to incorporate the policies of the Towns Local Waterfront Revitalization Program.				
<b>Flood Damage Prevention Ordinance</b>	Yes	Local Law No. 1 of the year 1996, Flood Damage Prevention	Federal, State, County and Local	Zoning Administrator
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities. B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction. C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters. D. Control filling, grading, dredging and other development which may increase erosion or flood damages. E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands. F. Qualify for and maintain participation in the National Flood Insurance Program. The ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	No	-	-	-
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Comprehensive Plan 2003	Local	Zoning and Planning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town Comprehensive Plan was established to monitor the growth and development of the Town.				
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	No	In Process: Drinking Water Source Protection Program	Local	Dir. Of Planning & Zoning Planning & Zoning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Drinking Water Source Protection Program will examine the Edgecomb Pond watershed area in the central part of Town. Edgecomb Pond is the Town of Bolton's sole drinking water source. Water in Edgecomb Pond is held behind concrete dam rated as C.				
Stormwater Management Plan	Yes	Chapter 125	Local	Zoning Admin. Planning & Zoning
Open Space Plan	No	-	-	-
Urban Water Management Plan	No	-	-	-
Habitat Conservation Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Community Wildfire Protection Plan	No	-	-	-
Community Forest Management Plan	No	-	-	-
Transportation Plan	No	-	-	-
Agriculture Plan	No	-	-	-
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
Tourism Plan	No	-	-	-
Business/ Downtown Development Plan	No	-	-	-
Other (for example NYRCR, etc.)	Yes	Local Waterfront Revitalization Pan	Local	Town Board, Planning Board, Zoning Board of Appeals, Zoning Administrator, Planning & Zoning Office
How has or will this be integrated with the HMP and how does this reduce risk?				
The LWRP considers resources and appropriate development along the Town's many waterfronts.				
<b>Response/Recovery Planning</b>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Comprehensive Emergency Management Plan</b>	Yes	Emergency Action Plan	Local	Town Public Works
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Plan includes evacuation protocols and is updated annually.				
<b>Continuity of Operations Plan</b>	No	-	-	-
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	No	-	-	-
<b>Public Health Plan</b>	Yes	Public Employer Health Emergency Plan	Local	Town Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Plan identifies work procedures and key personnel in the event of a pandemic situation.				
<b>Other</b>	Yes	Public Employer Health Emergency Plan	Local	Town Board

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Bolton to oversee and track development.

**Table 9.2-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
• If you issue development permits, what department is responsible?	N/A	Planning & Zoning
• If you do not issue development permits, what is your process for tracking new development?	N/A	County Building Permits
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood Zone Permit
Do you have a buildable land inventory?	No	-
• If you have a buildable land inventory, please describe	N/A	-





Indicate if your jurisdiction implements the following	Yes/No	Comment:
Describe the level of build-out in your jurisdiction.	N/A	Roughly 25 percent of the Town has been developed. Much of the remaining land is protected.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Bolton and their current responsibilities that contribute to hazard mitigation.

**Table 9.2-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board is charged with specific duties and responsibilities to include; review of site plans, stormwater & subdivision plans; holding public hearings and forwarding recommendations on proposed zoning changes; and reviewing major developments
Zoning Board of Adjustment	Yes	The primary role of a Zoning Board is to review and decide cases where a relaxation of the ordinance is sought or where there is an alleged error in a zoning decision. In general, the Zoning Board of Appeals is the body established to: hear appeals of decisions rendered by zoning administrators, interpret unclear provisions in the zoning ordinance, decide on applications by landowners to permit buildings or land uses which vary from the zoning regulations
Planning Department	Yes	Planning and Zoning Department is responsible for code enforcement as well as permit review and approval, maintaining building codes, grant coordination and administration, inter-department collaboration, and code revisions.
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Bolton Community Development Program
Public Works/Highway Department	Yes	The Highway Department oversees maintaining the town roads and sidewalks throughout the Town of Bolton. They pave roads, install or repair culverts, clean the shoulders of the roads, sweep the streets and plow and sand to keep the roads safe all year round
Construction/Building/Code Enforcement Department	Yes	See Planning Department
Emergency Management/Public Safety Department	No	-
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Emergency Text Alert System





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Parks/ Building and Grounds at Town Facilities. Town Highway along Town rights-of-way.
Mutual aid agreements	Yes	Neighboring Municipalities and DPW
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	–
Other	No	–
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Director of Planning and Zoning/Zoning Administrator, Zoning Enforcement Officer, Town-Designated Engineer(s)
Engineers or professionals trained in building or infrastructure construction practices	Yes	Town-Designated Engineer
Planners or engineers with an understanding of natural hazards	Yes	Director of Planning and Zoning/Zoning Administrator, Town-Designated Engineer
Staff with expertise or training in benefit/cost analysis	Yes	Director of Planning and Zoning/Zoning Administrator, Planning and Grant Consultants
Professionals trained in conducting damage assessments	Yes	Building Department/Code Officials, Outside Contractor
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Director of Planning and Zoning/Zoning Administrator
Environmental scientist familiar with natural hazards	No	–
Surveyor(s)	No	–
Emergency Manager	No	–
Grant writer(s)	Yes	Director of Planning and Zoning, Consultant
Resilience Officer	No	–
Other (this could include stormwater engineer, environmental specialist, etc.)	No	–
<b>Administrative/technical capability self-assessment</b>		
<b>Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.</b>		
The considerable skill level enumerated above represents skill and knowledge across a spectrum of disciplines. The 2021 addition of a AICP certified Town Planner (Dir. of P & Z) has expanded in-house opportunities for code and ordinance updates, grant surveillance, grant writing, grant administration, coordination between boards and departments, and enhanced zoning enforcement.		

## Fiscal Capability

The table below summarizes financial resources available to the Town of Bolton.

**Table 9.2-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No





Financial Resources	Accessible or Eligible to Use? (Yes/No)
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Bolton.

**Table 9.2-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	Supervisor's Office – Text Message Alert System
Personnel skilled or trained in website development	Yes	Supervisor's Office, Planning and Zoning Office
Hazard mitigation information available on your website	Yes	Information from this hazard mitigation plan is shared on the Town website.
Social media for hazard mitigation education and outreach	No	–
Citizen boards or commissions that address issues related to hazard mitigation	No	–
Warning systems for hazard events	Yes	Text Message Service
Natural disaster/safety programs in place for schools	No	–
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	Yes	Text Message Service

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Bolton.

**Table 9.2-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	–	–
Building Code Effectiveness Grading Schedule (BCEGS)	No	–	–





Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Public Protection (ISO Fire Protection Classes 1 to 10)	No	–	–
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	Yes	Registered	February 7, 2022
Storm Ready Certification	No	–	–
Firewise Communities classification	No	–	–
Other	No	–	–

Note:

N/A Not applicable

– Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.2-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Strong
Flood	Strong
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Strong
Earthquake	Moderate
Extreme Temperature	Strong
Flood	Strong
Severe Storm	Strong

### 9.2.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.





## National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Bolton.

**Table 9.2-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Bolton	8	5	\$40,328	0	0	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Bolton.

**Table 9.2-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	Locations where undersized bridges or culverts exist (mountainous areas, East Schroon River Road, private roads) are floodprone. The Town does not maintain a list of properties damaged by flooding.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Code Enforcement and Planning and Zoning Office reviews damage and determines substantial- also reviewed by County Building Dept.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Planning and Zoning





NFIP Topic	Comments
Are any certified floodplain managers on staff in your jurisdiction?	Yes – Floodplain Administrator
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes. New York State guidance.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	No
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Review of Past Files
What are the barriers to running an effective NFIP program in the community, if any?	Limited Flood Plain Area
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"><li>If so, state the violations.</li></ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	The most recent CAV was June 6, 2013.
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"><li>What is the date that your flood damage prevention ordinance was last amended?</li></ul>	Chapter 200, 125, and 150
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"><li>If exceeds, in what ways?</li></ul>	Meet
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Site Plan Review, Stormwater Management and Erosion, Subdivision Review
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not participating

### 9.2.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its





hazards of concern. Table 9.2-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.2-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	16	N/A	11	N/A	13	N/A	15	N/A	20	N/A	18	N/A
Multi-Family	0	N/A	4	N/A	0	N/A	0	N/A	0	N/A	0	N/A
Other (commercial, mixed-use, etc.)	3	N/A	4	N/A	3	N/A	4	N/A	3	N/A	2	N/A
Total New Construction Permits Issued	19	N/A	19	N/A	16	N/A	19	N/A	23	N/A	20	N/A
Property or Development Name	Type of Development	# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2017 to Present												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Twin Bolton	Residential	21		4799 Lake Shore Drive		None		Preliminary Approval				
Capri Village	Residential	17		3926 Lake Shore Drive		None		Preliminary Approval				
Larkin Campground	Commercial, campground	104 campsites		863 E Schroon River Road		Flood		Final Approval				

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

Note: Information on permits within the SFHA was unavailable for this planning process.

## 9.2.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Bolton's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Bolton has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.2-1. Town of Bolton Flood Hazard Area Extent and Location Map

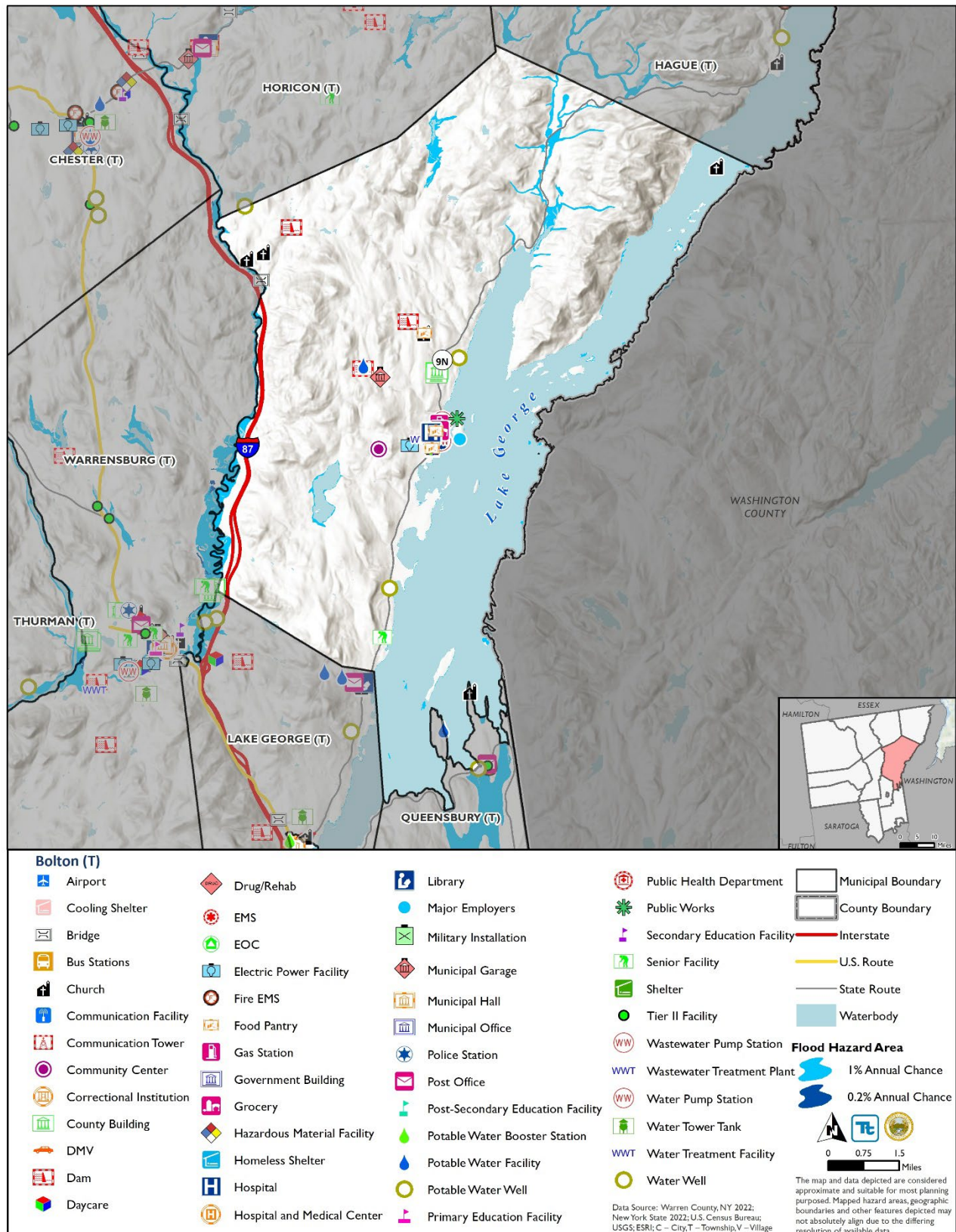






Figure 9.2-2. Town of Bolton Earthquake (Soil Class) Hazard Area Extent and Location Map

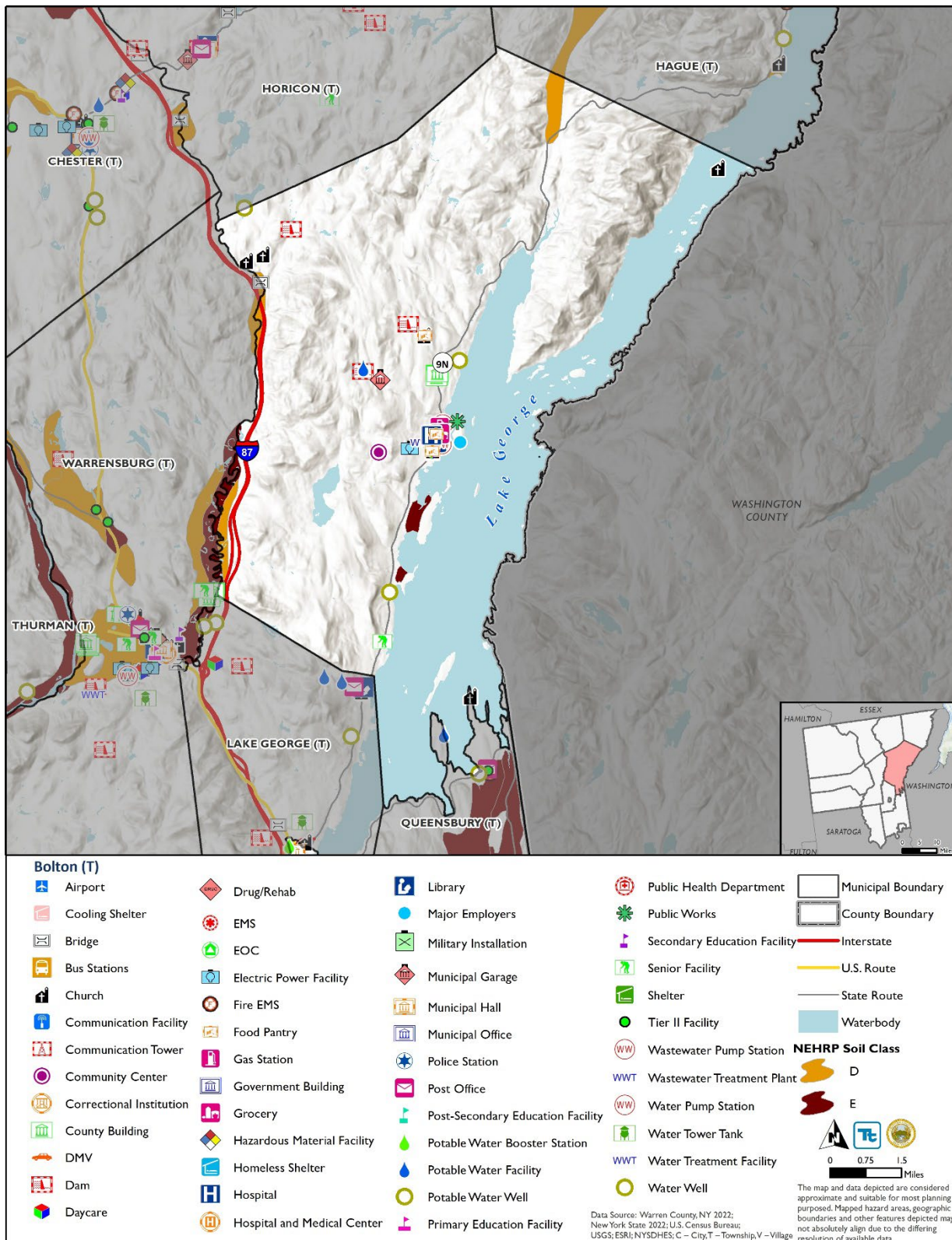
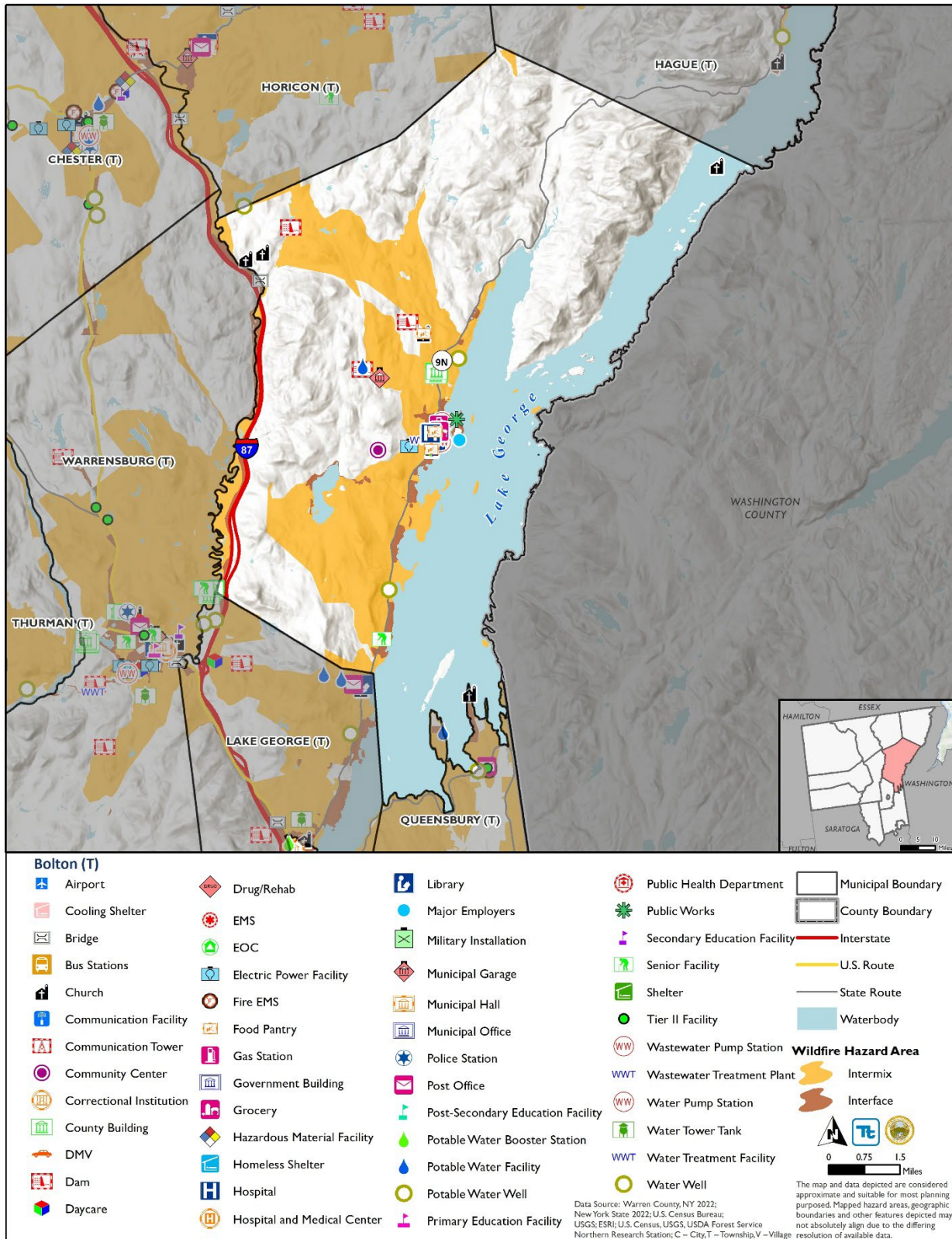






Figure 9.2-3. Town of Bolton Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Bolton's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.2-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.2-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
December 26 – 27, 2019	Ice Storm	N/A	Ice storm covering tree limbs and power lines causing breakage and power outage.	Multiple areas in Bolton without power, due to fallen powerlines. Debris removal and chipping of fallen limbs occurred due to this event.
March 14 – 15 2017	Severe Storm with blizzard like conditions.	N/A	Blizzard like conditions, 20-24 inches of snow. Extreme winds causing limited visibility and falling trees.	Clearing and maintaining accessible roadway through Bolton. Multiple areas in Bolton without power.
March 16 – 17 – 20, 2017	Severe wind and snow conditions.	N/A	Continuation of opening roadways.	Clearing and maintaining accessible roadway through Bolton
May 6 – 9, 2017	Flooding/Beaver	N/A	Flooding due to beaver dam and pond overflow. Roadway in need of complete replacement.	Padanarum Road was stripped to bare ledge. Road repair included multiple loads of Item #4, replacement of two, 24' x 40' and one 24' x 40' culverts.
October 30 – 31, 2017	Windstorm	N/A	Severe early morning, 3:30am winds causing trees down and multiple roadways unpassable.	Multiple areas in Bolton without power, due to fallen powerlines. Debris removal and chipping throughout Bolton.
December 23 – 24, 2017	Ice Storm	N/A	Ice storm covering tree limbs and power lines causing breakage and power outage.	Clearing trees from multiple roadways.
August 4 – 5, 2018	Heavy Rainfall and Wind	N/A	Heavy rain and wind resulting in trees and powerlines down in Bolton.	Debris removal and chipping of fallen limbs occurred due to this event.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
November 9 –10, 2018	Heavy wet Snow event	N/A	Heavy wet snow, 12 plus inches, causing trees down throughout Bolton.	Clearing trees from multiple roadways to gain plowing access.
November 25, 2018	Rain to Ice Storm	N/A	Ice storm covering tree limbs and power lines causing breakage and power outage.	Multiple roadways blocked. Chipping limbs and clearing debris
June 24 – 26, 2019	Flooding/Beaver	N/A	Flooding due to beaver dam and pond overflow. Roadway and culvert in need of replacement.	Padanarum Road repair included multiple loads of Item #4, replacement of two, 12' x 30', one 36' x 40' and one 36' x 60' culverts.
October 17 – 19, 2019	Wind and Rainstorm	N/A	Heavy rain and wind causing trees down and debris covered roads in Bolton	Multiple areas in Bolton without power, due to fallen powerlines. Debris removal and chipping throughout Bolton.
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening low-pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York.	Significant damage to roadways in the northern portion of the Town of Bolton resulting in the washout of numerous culverts and three bridges severing access to a significant portion of Padanaram Road. Work is still ongoing and the lower portion of Padanaram Road remains inaccessible. The Town, along with NYS in securing FEMA funding
January 11 – 12, 2020	Heavy Rainfall	N/A	Heavy rain, spike of unseasonal warm temperatures caused flooding Substantial damage to roadways in northern Bolton	Washouts on Trout Falls Rd., Hendricks Rd. and Padanarum Rd.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19	Lost revenue in the busy summer tourism season and numerous closures of public facilities due to State and Federal guidelines.
June 8 – 9, 2020	Flooding/Beaver	N/A	Flooding due to beaver dam and pond overflow. Roadway and culvert in need of replacement.	Trout Falls Road repair included multiple loads of Item #4, and replacement of and one 40' x 15' culvert.
December 24-25 and	Heavy Rainfall and Flooding	N/A	There was severe rainfall and flooding damage throughout Bolton.	Road repair and washout repair on





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
28-29, 2020				several Town roads. Significant need on Trout Falls Rd., East. Schroon River Rd. and Dixon Hill Rd.
July 30 – August 1, 2021	Heavy Rainfall	N/A	Heavy rain and flooding in Bolton	Significant road repair and washout repair on Padanarum Rd. and East Rd. (Spur Rd.).
December 11 – 12, 2021	Significant wind and Rain	N/A	Heavy freezing rain and wind in Bolton	Multiple areas in Bolton without power, due to fallen powerlines. Debris removal and chipping of fallen limbs occurred due to this event.

**Notes:**

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Bolton's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Bolton. The Town of Bolton reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:





- The Town changed the hazard ranking for flood from low to medium, noting that failing and undersized culverts have led to increased flood risk in the Town.
- The Town agreed with the remaining calculated hazard rankings.

**Table 9.2-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Medium	High	High	Medium	Medium

Dam Failure	Disease Outbreak
High	Medium

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.2-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
None identified					

Source: Warren County 2022

### Identified Issues

After review of the Town of Bolton's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Bolton identified the following vulnerabilities within their community:

- The Hamlet of Bolton experiences periodic stormwater flooding.





- An auxiliary spillway is needed for the Edgecomb Pond Dam. The Dam (owned by Bolton Water District) is in need of some improvements. The Town is in the process of contracting for a structural evaluation of the existing dam.
- Critical facilities require backup power to maintain essential functions during and after disaster events.
- Additional training for wildfire response is needed for Town officials.
- Additional flood education is needed for the Town's residents to encourage better awareness, personal mitigation choices, and NFIP coverage.\*
- The Town uses the Red Alert notification system for emergency notifications, but the coverage and use of the system is unknown.\*
- Continual beaver dam breaches result in flooding and damages to local roads and culverts.
- The Town Highway Department has identified numerous culverts in need of upsizing. Culverts have previously been damaged due to deficiencies. 2019 flooding resulted in significant damage and roadway washouts.
- The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make determinations, and provide for appeals.
- The Middleton Bridge is located in the Towns of Bolton and Warrensburg and crosses the Schroon River. The bridge is failing and has been closed. A replacement bridge is needed.
- An assessment of the main pump station on the shore of Lake George is underway to determine the necessary improvements to the facility.
- Improved firefighting capabilities are needed to respond to wildfire.
- In order to have the necessary water supply to fight wildfire events, improvements are needed to the Town's water infrastructure.
- Improved coordinated responses are needed to address potential dam failure events and mitigation of possible inadequacies.
- There is a history of private roadway flooding caused by stormwater inadequacies.

\*This issue was identified as a specific area of concern based on resident response to the Warren County Hazard Mitigation Citizen survey.

### 9.2.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going





programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.2-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost		
1	Develop a Hamlet-wide Stormwater Drainage System plan for the Hamlet of Bolton	Flood		Planning, Town Board	No Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
						Damages Avoided; Evidence of Success		
2	Adopt and implement the Local Waterfront Revitalization Plan (draft released in July, 2014).	All Hazards		Town Board	Complete	Cost		1. Discontinue 2. 3. Complete
						Level of Protection	Additional Protection for Waterfront Resources	
						Damages Avoided; Evidence of Success		
3	Edgecomb Pond Dam Auxiliary Spillway Development Project: Install an auxiliary spillway for the dam which provides water to hamlet (built-up) area. Drainage easements have been acquired in area where new spillway would be built.	Flood		Bolton Water District, Town Board	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
4	Edgecomb Pond Dam Upgrades: Make structural upgrades and improvements of the existing Edgecomb Pond Dam as called for by the upcoming structural evaluation. The Dam (owned by Bolton Water District) is in need of some improvements. The Town is in the process of contracting for a structural evaluation of the existing dam	Flood		Bolton Water District, Town Board	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





## SECTION 9.2. Town of Bolton

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost		
5	Obtain funding to purchase generators for municipally-owned critical facilities, including the School and town hall.	All Hazards		Town Supervisor, County Office of Emergency Services	No Progress	Level of Protection		1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Damages Avoided; Evidence of Success		
6	Send a town representative to the NYS Wildland Fire Suppression Training	Wildfire		Fire Department, Town Supervisor	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						1. Damages Avoided; Evidence of Success		
7	Distribute county-provided educational materials on benefits of carrying NFIP policies and increase knowledge of NFIP services, and provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding.	Flood		County Office of Emergency Services, Town Floodplain Administrator, Town Board	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
8	Apply for grants to assist with mitigation activities including Edgecomb Pond Dam projects and backup power provisions for the school and Town Hall.	All Hazards		Town Board	No Progress	Cost		1. Discontinue 2. 3. Funding acquisition will be part of the individual projects.
						Level of Protection		
						Damages Avoided; Evidence of Success		
9	Conduct an advanced mapping of all households, businesses, and other property owners who have signed up for Red Alert notification system, and where they lie in relationship to hazard areas.	All Hazards		Town Planning, Town Planning Board	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
10	Develop and implement a strategy to mitigate risk to public and property from beaver dam breaches.	Flood	Continual beaver dam breaches affecting local roads and culverts	Town Board, County	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project statu2s is complete)		Next Steps
						Cost		
11	Culverts improvements, as called for by the Town Highway Department. Specifically, the following culverts will be replaced: <ul style="list-style-type: none"> <li>6 culverts on Padanarum Rd</li> <li>8 culverts on Wall Street</li> <li>12 culverts on E. Schroom River Rd</li> <li>8 culverts on S. Trout Lake Rd</li> <li>5 culverts on Upper/ Lower Brerton with catch basins</li> <li>7 culverts on Finkle Rd.</li> <li>8 culverts on Mohican Rd, 3 with catch basins</li> </ul>	Flood	Numerous culverts replacements on Padanaram Rd. due to storm damage and FEMA funding. TL road culverts replaced due to storm damage. Need additional culvert works on E. Schroom, Wall Street, Brereton, S. Trout Lake as well as other areas.	Town Highway Department	In Progress	Cost	500,000+	1. Include in 2023 HMP 2. 3.
						Level of Protection	Protect town roads	
						Damages Avoided; Evidence of Success	Replacement in kind	
12	Install a dry hydrant at the water company property at Edgecomb Pond.	Fire		Town DPW	Ongoing Capability	Cost.	Unknown	1. Discontinue 2. 3. Ongoing capability
						Level of Protection	Use for fire connections and benefit emergency water system connections to water plant.	
						Damages Avoided, Evidence of Success	Fire damage.	





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.2-15, the Town of Bolton identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Bolton participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.2-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X	X		X	X	X	X			X
Flood	X	X	X	X	X	X	X	X	X	X
Severe Storm	X	X		X	X	X	X		X	X
Severe Winter Storm	X	X		X	X	X	X			X
Wildfire	X	X		X	X	X	X			X
Infestation	X	X	X	X	X	X	X	X		X
Dam Failure	X	X		X	X	X	X		X	X
Disease Outbreak	X	X		X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.2-17).

The table below summarizes the specific mitigation initiatives the Town of Bolton would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.2-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Bolton-001	Hamlet of Bolton Stormwater Drainage System Plan	1, 3	Flood	<b>Problem:</b> The Hamlet of Bolton experiences periodic stormwater flooding. <b>Solution:</b> The Town will develop a Hamlet-wide Stormwater Drainage System plan for the Hamlet of Bolton and enact any identified cost-effective stormwater infrastructure improvements.	No	None	Within 5 years	Planning, Town Board	Medium for planning effort, TBD for cost-effective infrastructure improvements	Reduction in stormwater flooding	BRIC, HMGP, PDM, CHIPS, Town budget	High	LPR	PR, SP
2023-Town of Bolton-002	Edgecomb Pond Dam Auxiliary Spillway Development Project	1, 6	Dam Failure	<b>Problem:</b> An auxiliary spillway is needed for the Edgecomb Pond Dam. The Dam is a high hazard dam. <b>Solution:</b> Install an auxiliary spillway for the dam which provides water to hamlet (built-up) area. Drainage easements have been acquired in area where new spillway would be built.	Yes	Permitting may be required	Within 5 years	Bolton Water District, Town Board	High	Prevention of dam failure	BRIC, HMGP, PDM, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Bolton-003	Edgecomb Pond Dam Upgrades	1, 6	Dam Failure	<b>Problem:</b> The Edgecomb Pond Dam is a high hazard dam. The dam (owned by Bolton Water District) is in need of some improvements. The Town is in the process of contracting for a structural evaluation of the existing dam. <b>Solution:</b> Make structural upgrades and improvements of the existing Edgecomb Pond Dam as called for by the upcoming structural evaluation.	Yes	Permitting may be required	Within 5 years	Bolton Water District, Town Board	High	Prevention of dam failure	BRIC, HMGP, PDM, Town budget	High	SIP	SP
2023-Town of Bolton-004	Generators for Critical Facilities	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> Critical facilities require backup power to maintain essential functions during and after disaster events. <b>Solution:</b> The Town will purchase and install permanent fixed generators and necessary electrical components at the following facilities:	Yes	None	Within 5 years	Town Supervisor, County Office of Emergency Services	High	Protect public health and safety and ensure continued operation of critical facility and essential functions during power outages.	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program,	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<ul style="list-style-type: none"><li>Town Hall/ Police</li><li>Bolton Fire District</li><li>Community Center</li></ul> <p>The generators will provide continuous power for services to ensure the health and safety of residents, businesses and visitors. By providing power to municipal facilities and the department of public works, staff will be able to provide pre-, during, and post event services to communicate, monitor and respond to citizen issues. Services such as heat and cooling will be uninterrupted to support the needs of vulnerable populations, community alerts and rapid</p>							Municipal Budget			





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				inspections and monitoring to be available for earthquake events, equipment fuel will be available during snow, wildfire, and wind events to maintain uninterrupted access to critical facilities.										
2023-Town of Bolton-005	Wildland Fire Suppression Training	3	Wildfire	<b>Problem:</b> Additional training for wildfire response is needed for Town officials. <b>Solution:</b> The Town will send a representative to the NYS Wildland Fire Suppression Training.	No	None	Within 5 years	Fire Department, Town Supervisor	Staff time	Increased wildfire emergency response capabilities	Town budget, NY	High	LPR	ES
2023-Town of Bolton-006	Flood Education and Outreach	2	Flood	<b>Problem:</b> Additional flood education is needed for the Town's residents to encourage better awareness, personal mitigation choices, and NFIP coverage. <b>Solution:</b> The Town will distribute county-provided educational	No	None	Within 2 years	County Office of Emergency Services, Town Floodplain Administrator, Town Board	Low	Increased flood awareness	County budget, Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				materials on benefits of carrying NFIP policies and increase knowledge of NFIP services, and provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding.										
2023-Town of Bolton-007	Red Alert Notification System Coverage Mapping	2, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<p><b>Problem:</b> The Town uses the Red Alert notification system for emergency notifications, but the coverage and use of the system is unknown.</p> <p><b>Solution:</b> The Town will conduct an advanced mapping of all households, businesses, and other property owners who have signed up for Red Alert notification system, and where they lie in relationship to hazard areas. The system mapping will</p>	No	None	Within 5 years	Town Planning, Town Planning Board	Low	Identification of emergency notification coverage issues to inform outreach	Town budget	High	EAP	PI, ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				be used to increase preparedness for earthquake, extreme temperature, flood, severe storm, severe winter storm, wildfire, infestation, dam failure, and disease outbreak events.										
2023-Town of Bolton-008	Beaver Dam Strategies	5	Flood, Infestation and Invasive Species	<p><b>Problem:</b> Continual beaver dam breaches result in flooding and damages to local roads and culverts.</p> <p><b>Solution:</b> The Town will develop and implement a strategy to mitigate risk to public and property from beaver dam breaches. The strategy will include an assessment of waterways with beaver dams and development of proposed mitigations including fencing, intake pipes, and remove of adjacent vegetation. Maintenance</p>	No	Yes, some solutions may not be available due to beaver restrictions	Within 5 years	Town Board, NYS DEC, Private property owners, Warren County Soil and Water Conservation District (SWCD)	TBD by identified strategies	Reduction in beaver dam failure flood events	Town budget	High	NSP	NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Bolton-009	Culvert Replacement and Upsizing	1	Severe Storm, Flood	<p>strategies will be evaluated.</p> <p><b>Problem:</b> The Town Highway Department has identified numerous culverts in need of upsizing. Culverts have previously been damaged due to deficiencies. 2019 flooding resulted in significant damage and roadway washouts.</p> <p><b>Solution:</b> The following culverts will be replaced and upsized:</p> <ul style="list-style-type: none"><li>• 8 culverts on Wall Street</li><li>• 12 culverts on E. Schroon River Rd</li><li>• 8 culverts on S. Trout Lake Rd</li><li>• 5 culverts on Upper/ Lower Brerton with catch basins</li><li>• 7 culverts on Finkle Rd.</li><li>• 8 culverts on Mohican Rd, 3</li></ul>	No	May require permitting at some locations	Within 5 years	Town Highway Department, Warren County	High	Reduction in flooding, flood damages to culverts and roadways	Bridge NY, HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				with catch basins Other locations will be identified as necessary. Coordination will take place with the County where necessary due to ownership.										
2023-Town of Bolton-010	Flood Damage Prevention Ordinance Update	1, 4	Flood	<b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement. <b>Solution:</b> The Town will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LPR	PR
2023-Town of Bolton-011	Substantial Damage Procedures	1, 3, 4	Earthquake, Flood, Severe Storm, Severe Winter Storm,	<b>Problem:</b> While major events that result in substantial damage of structures are rare, municipalities need to have official	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	Municipal Budget	High	LPR	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Wildfire, Dam Failure	procedures in place to inspect structures, make determinations, and provide for appeals. <b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations for earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazards..										
2023-Town of Bolton-012	Middleton Bridge Replacement	1	Earthquake, Extreme Temperature, Flood, Severe Storm	<b>Problem:</b> The Middleton Bridge is located in the Towns of Bolton and Warrensburg and crosses the Schroon River. The bridge is failing and has been closed. A replacement bridge is needed. <b>Solution:</b> The Town will support the County's efforts to replace and improve the bridge and to increase in freeboard	No	Will require permitting	Within 5 years	WCDPW, A/GFTC, Town of Bolton Administration, Town of Warrensburg	High	Vital transportation route reestablished	BRIC, PDM, HMGP, County budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				or elimination of obstacles in channel provide data and information as necessary.										
2023-Town of Bolton-013	Main Pump Station on Shore of Lake George	1	Flood, Severe Storm	<b>Problem:</b> An assessment of the main pump station on the shore of Lake George is underway to determine the necessary improvements to the facility. <b>Solution:</b> Based on the results of the assessment, the Town will either replace and improve the pump station to harden or increase capacity or make the necessary upgrades to protect from hazard events and maintain service.	Yes	None	Within 5 years	Engineer	TBD by assessment	Maintain critical services of pump station	Northern Border, Congressional Funding Requests, DEC- WQIP, EFC, HMGP, PDM, Town budget	High	SIP	SP
2023-Town of Bolton-014	Fire District Capability Improvements	3	Wildfire	<b>Problem:</b> Improved firefighting capabilities are needed to respond to wildfire. <b>Solution:</b> The Town will assist with the	No	None	Within 5 years	Fire District, Administration	High	Improved wildfire fighting capabilities	Assistance to Firefighters Grant Program	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				purchase of brush fire and wildfire equipment.										
2023-Town of Bolton-015	Water Infrastructure and Availability	1, 2	Wildfire	<b>Problem:</b> In order to have the necessary water supply to fight wildfire events, improvements are needed to the Town's water infrastructure. <b>Solution:</b> The Town will complete the following improvements to the water infrastructure system: Upgrades to PRV Station; Comprehensive right-sizing of distribution system; Consideration of capital budgeting financed through infrastructure/ capital assessments/ fees; Explore alternative to reservoir (low water levels Fall 2022); Outreach to residents to conserve water	Yes	None	Within 5 years	Planning, Water Department	High	Water supply maintained	Capital budget	High	SIP, EAP	PP, PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Bolton-016	Dam Failure Capability Improvements	1, 3, 6	Dam Failure	during times of drought. <b>Problem:</b> Improved coordinated responses are needed to address potential dam failure events and mitigation of possible inadequacies. <b>Solution:</b> The Town will initiate better coordination between entities responsible for dam maintenance and emergency response to identify improvement necessary to upgrade and protect dams and improve response capabilities. The coordination will result in the development of a stakeholder outreach plan for dam maintenance and emergency response. The Town will be responsible	Yes	None	Within 5 years	Planning	TBD by discussions with dam owners and emergency response agencies	Improved dam maintenance and emergency response capabilities	HHPD, HMGP, BRIC, PDM	High	SIP, LPR	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				for development of the outreach plan.										
2023-Town of Bolton-017	Stormwater Engineering Reviews	4	Flood, Severe Storm	<p><b>Problem:</b> There is a history of private roadway flooding caused by stormwater inadequacies.</p> <p><b>Solution:</b> The Town will require engineering review of stormwater projects for private roads and other stormwater related efforts for all Planning Board projects.</p>	No	None	1 year	Planning Board, Administration	Staff time	Improved review of stormwater projects, less stormwater flooding	Town budget	High	LPR	PR, SP
2023-Town of Bolton-018	Public Outreach and Awareness Program	1, 2,	Infestation, Disease Outbreak	<p><b>Problem:</b> The Town needs to increase public outreach and awareness of hazard reduction and public health measures.</p> <p><b>Solution:</b> The Town will provide community and public outreach for residents to include, but not be limited to, the following to promote and effect hazard risk reduction: -Provide and maintain links to the</p>	No	No	2 years	Planning, Public Health	Staff time	Increased public awareness	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				town's webpage to provide information on any infestation concerns and strategies. -Provide and maintain links to the town's webpage to provide information on any disease outbreak concerns along with public health information and mitigation strategies.										

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

**Potential FEMA HMA Funding Sources:**

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation.


**Cost:**

The estimated cost for implementation.

**Benefits:**

A description of the estimated benefits, either quantitative and/or qualitative.

**Critical Facility:**

Yes  Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.





- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

### CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.2-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Bolton-001	Hamlet of Bolton Stormwater Drainage System Plan	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Bolton-002	Edgecomb Pond Dam Auxiliary Spillway Development Project	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Bolton-003	Edgecomb Pond Dam Upgrades	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Bolton-004	Generators for Critical Facilities	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-Town of Bolton-005	Wildland Fire Suppression Training	1	1	1	1	1	1	1	1	1	1	0	0	1	0	11	High
2023-Town of Bolton-006	Flood Education and Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-Town of Bolton-007	Red Alert Notification System Coverage Mapping	1	0	1	1	1	1	1	1	1	1	1	0	1	0	11	High
2023-Town of Bolton-008	Beaver Dam Strategies	0	1	1	1	1	1	0	1	1	1	1	1	1	0	11	High
2023-Town of Bolton-009	Culvert Replacement and Upsizing	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Bolton-010	Flood Damage Prevention Ordinance Update	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Bolton-011	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	0	11	High
2023-Town of Bolton-012	Middleton Bridge Replacement	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-Town of Bolton-013	Main Pump Station on Shore of Lake George	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-Town of Bolton-014	Fire District Capability Improvements	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Bolton-015	Water Infrastructure and Availability	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Bolton-016	Dam Failure Capability Improvements	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Bolton-017	Stormwater Engineering Reviews	0	1	1	1	1	1	1	1	1	1	1	1	1	0	12	High
2023-Town of Bolton-018	Public Outreach and Awareness Program	1	0	1	1	1	0	1	0	1	1	1	1	0	0	9	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.2.8 Action Worksheets

The following action worksheets were developed by the Town of Bolton to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Culvert Replacement and Upsizing		
<b>Project Number:</b>	2023-Town of Bolton-009		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	The Town Highway Department has identified numerous culverts in need of upsizing. Culverts have previously been damaged due to deficiencies.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	<p>The following culverts will be replaced and upsized:</p> <ul style="list-style-type: none"> <li>• 8 culverts on Wall Street</li> <li>• 12 culverts on E. Schroon River Rd</li> <li>• 8 culverts on S. Trout Lake Rd</li> <li>• 5 culverts on Upper/ Lower Brerton with catch basins</li> <li>• 7 culverts on Finkle Rd.</li> <li>• 8 culverts on Mohican Rd, 3 with catch basins</li> </ul> <p>Other locations will be identified as necessary. Coordination will take place with the County where necessary due to ownership.</p>		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	At least a 5-year event; will be determined once project is complete	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding, flood damages to culverts and roadways
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	Bridge NY, HMGP, BRIC, PDM, CHIPS, Town budget
<b>Responsible Organization:</b>	Town Highway Department, Warren County	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
	Action	Estimated Cost	Evaluation
<b>Alternatives:</b>	No Action	\$0	Current problem continues
	Remove roads	\$20,000	Roadways cannot be removed
	Relocate roads to another location	\$50,000	Roadways will still need to cross streams, costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Culvert Replacement and Upsizing	
<b>Project Number:</b>	2023-Town of Bolton-009	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project will protect roadways from flooding, culvert damages
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Storm, Flood
Timeline	0	Within 5 years
Agency Champion	1	Town Highway Department, Warren County
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.3 TOWN OF CHESTER

This section presents the jurisdictional annex for the Town of Chester that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Chester's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.3.1 Hazard Mitigation Planning Team

The Town of Chester identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including Planning and Zoning, and the Supervisors office. The Zoning Administrator, and Deputy Supervisor represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.3-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Craig Leggett, Supervisor Address: P.O. Box 423, Chestertown, New York 12817 Phone Number: 518-494-2711 Email: <a href="mailto:supervisor@townofchesterny.org">supervisor@townofchesterny.org</a>	Name/Title: Larry Turcotte, Councilman Address: P.O. Box 423, Chestertown, New York 12817 Phone Number: 518-321-6544 Email: <a href="mailto:townofchesterboardmember@gmail.com">townofchesterboardmember@gmail.com</a>
<b>NFIP Floodplain Administrator</b>	
Name/Title: Jeremy Little – Zoning Administrator Address: P.O. Box 423, Chestertown, New York 12817 Phone Number: 518-494-7369 Email: <a href="mailto:zoning@townofchesterny.org">zoning@townofchesterny.org</a>	
<b>Additional Contributors</b>	
Name/Title: Marion Eagan, Deputy Supervisor Method of Participation: provided information on previous events, status updates on previous mitigation actions.	





Primary Point of Contact	Alternate Point of Contact
Name/Title: Jeremy Little, Zoning Administrator Method of Participation: Provided permit information, NFIP administration information	
Name/Title: Jessica Leerkes, Office Assistant Method of Participation: Provided input on hazard rankings, reviewed annex, contributed to mitigation strategy	
Name/Title: Craig Leggett, Supervisor Method of Participation: Reviewed annex, contributed to mitigation strategy	

### 9.3.2 Municipal Profile

The Town of Chester is in northern Warren County, between the Schroon River and the Hudson River in the southeastern corner of the Adirondack Park. The New York legislature created the Town on March 25, 1799.

The Town has a total area of 87.1 square miles of which 84.5 square miles are land and 2.6 square miles are water. The Town is situated in the Adirondack Park, and the northern town line is the border of Essex County. The Town incorporates five hamlets: Chestertown, Darrowsville, Igerna, Pottersville, and Riparius.

According to the U.S. Census, the 2020 population for the Town of Chester was 3,086, an 8.0 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 1.7 percent of the population is 5 years of age or younger and 24.2 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Chester has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 7.63% of the population does not have a high school diploma
- 13.35% of the population has a disability
- 0.80% of households do not have a vehicle
- 8.24% of the population is living below the poverty level
- 5.54% of the population is unemployed

### 9.3.3 Jurisdictional Capability Assessment and Integration

The Town of Chester performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.





- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Chester to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Chester. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.3-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Code	State and Local	Warren County Fire Prevention and Building Code Enforcement Department
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Chester adopted the New York State Uniform Code which guides how new development takes place and what protections are put in place. The Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code.				
<b>Zoning/Land Use Code</b>	Yes	Zoning Local Law – 2005	Local, Adirondack Park	Town Board, Adirondack Park Agency
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this Local Law is to promote the health, safety, and general welfare of the community. The further objective is to protect property values, common values, the environment, and the aesthetics of the community				
<b>Subdivision Ordinance</b>	Yes	Subdivision Regulations – 2012	Local, Adirondack Park Agency (APA)	Town Board, APA
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Subdivision Ordinance establishes the regulations for the orderly, efficient and economical development of the Town. Land to be subdivided will be of character that it can be used safely for building purposes without danger to health, or peril from fire, flood or other menace; that proper provision will be made for drainage, water supply, sewerage and other needed improvements; that all proposed lots shall be so laid out and of such size as to be in harmony with the development pattern of the neighboring properties				





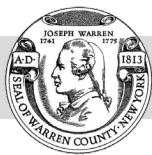
	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Site Plan Ordinance</b>	Yes	Zoning Local Law – Article 5 – Site Plan Review	Local	Planning and Zoning, Town Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this Ordinance is to allow the proper integration of commercial and industrial uses and other uses into the community. The Ordinance objective is to evaluate proposed land uses that may cause conflict between existing and proposed uses or be in conflict with natural site conditions, with particular reference to the arrangement, layout and design of the proposed uses of a single parcel of land.				
<b>Stormwater Management Ordinance</b>	No	–	–	–
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	–	–	–
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	–	–	–
<b>Environmental Protection Ordinance</b>	No	–	–	–
<b>Flood Damage Prevention Ordinance</b>	Yes	Local Law for Flood Damage Prevention – 2020	Local	Town Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this local law to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ol style="list-style-type: none"><li>1. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities</li><li>2. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction</li><li>3. Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters</li><li>4. Control filling, grading, dredging and other development which may increase erosion or flood damages</li><li>5. Regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands</li><li>6. Qualify and maintain for participation in the National Flood Insurance Program.</li></ol> The Local Law requires two feet of freeboard for all construction.				
<b>Wellhead Protection</b>	No	–	–	–





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	Yes	Section 7.01 Shoreline Regulations	Local	Town Board
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The purpose of these regulations is to allow reasonable access and use of the Town's waterfront with concern for the public health, welfare and safety. It is the Town's intent to minimize the impact to the shoreline environment and its natural character. These regulations are in addition to other applicable federal, state, and local regulations.</p> <ol style="list-style-type: none"> <li>1. All construction on any shoreline lot shall be carried out in such a manner as to minimize interference with the natural course of such waterway, to avoid erosion of the shoreline, to minimize increased runoff of ground and surface water into the waterway, to remove only that vegetation which is necessary to the accomplishment of the project, and to generally maintain the existing aesthetic and ecological character of the shoreline.</li> <li>2. Any marina, boat service facility or any storage of petroleum products within one hundred (100) feet, or other reasonable setback from the shoreline, as determined necessary by the Planning Board, shall include adequate provisions for insuring that any leak, rupture, or spill will be contained and not be introduced into or affect the adjacent waterway.</li> <li>3. Any paved or otherwise improved parking, loading or service area within one hundred (100) feet of any shoreline shall be designed and constructed so as to minimize surface runoff and the entrance of any chemical pollutants or earthen siltation into the waterway.</li> <li>4. If the minimum lot areas, widths and shore frontages specified for any uses by local and state agencies are inadequate to insure a potable water supply and safe sewerage and other waste disposal, such lot areas, widths and frontages shall be increased to meet water supply and distribution and sewerage needs.</li> <li>5. Except as otherwise herein provided, the minimum shoreline setback of any on-site sewage drainage field or seepage pit shall be one hundred (100) feet from the shoreline, irrespective of the zoning district or land use classification.</li> <li>6. There shall be no grading within ten (10) feet from the top of the slope of any stream bed or drainage way.</li> </ol>				
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Master Plan of the Town of Chester, 2002	Local	Town Board
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Town Comprehensive Plan monitors the increasingly intense development pressure, while fostering growth and maintaining the rural characteristics of the Town.</p>				
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-
<b>Stormwater Management Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	Yes	Cunningham Community Forest Master Plan 2021	Local	Town Board
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Cunningham Community Forest Master Plan project was developed as a recommendation of the Chestertown Hamlet Plan and funded through a 2019 grant from NYSDEC's Adirondack Smart Growth Program with the goal of developing a plan to manage the site for forestry and recreation. The project has been developed in two parts – a Forest Management Plan and a Site Master Plan.</p>				
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/ Resiliency/Sustainability Plan</b>	No	-	-	-
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan	Local, County	Town Board, Warren County
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>Consider the following:</p> <ul style="list-style-type: none"> <li>Does your CEMP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards?</li> </ul>				
<b>Continuity of Operations Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Substantial Damage Response Plan	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Public Health Plan	No	-	-	-
Other	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Chester to oversee and track development.

**Table 9.3-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	The Planning and Zoning Office issues Zoning permits
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	For any development in the SFHA subject to the Town Flood Damage Prevention Local Law requirements, a FDP is issued.
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	Approximately 78% of the Town is built-out.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Chester and their current responsibilities that contribute to hazard mitigation.




**Table 9.3-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board reviews and approves all site plans, minor and major subdivisions
Zoning Board of Adjustment	Yes	The Zoning Board of Appeals consists of five members and reviews and approves all variance applications
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Highway Department responsibilities include: Plowing, Paving, Tree Trimming, Road repair, culvert installation, stormwater maintenance.
Construction/Building/Code Enforcement Department	Yes	Warren County Building Codes
Emergency Management/Public Safety Department	Yes	Warren County Office of Emergency Services
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Highway Department
Mutual aid agreements	Yes	Fire Company and EMS Squad
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning and Zoning, Warren County Planning Office, Town Consulting Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Town Engineer
Planners or engineers with an understanding of natural hazards	Yes	Town Engineer
Staff with expertise or training in benefit/cost analysis	No	Consultant Support
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Assessor and Zoning Office, Warren County Office of Emergency Services and Warren County Planning Department





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Town Supervisor
Grant writer(s)	Yes	Town Supervisor
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

## Fiscal Capability

The table below summarizes financial resources available to the Town of Chester.

**Table 9.3-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes – Water and Cable TV
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Unknown
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Chester.

**Table 9.3-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Jack Bartlett
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-





Outreach Resources	Available? (Yes/No)	Comment:
Natural disaster/safety programs in place for schools	Yes	School districts in the Town include North Warren, Johnsburg, and Minerva.
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Chester.

**Table 9.3-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable  
- Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.3-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong





Hazard	Adaptive Capacity – Strong/Moderate/Weak
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

### 9.3.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

#### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Chester.

**Table 9.3-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Chester	14	13	\$90,426	0	1	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

#### Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Chester.

**Table 9.3-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> <li>Do you maintain a list of properties that have been damaged by flooding?</li> </ul>	Areas along the Hudson and Schroon Rivers are most prone to flooding. Additional flood zones are located along Loon Lake, Friends Lake, and Schroon Lake. No list of properties is maintained.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> <li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li> </ul>	N/A
Are any RiskMAP projects currently underway in your jurisdiction?	No





NFIP Topic	Comments
<ul style="list-style-type: none"> <li>If so, state what projects are underway.</li> </ul>	
<p>How do you make Substantial Damage determinations?</p> <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	<p>Damages are reviewed and a damage worksheet is completed. If the damages are greater than 50% of the market value prior to the damage, it is classified as Substantial Damage.</p> <p>No declarations were made for recent flood events.</p>
<p>How many properties have been mitigated (elevation or acquisition) in your jurisdiction?</p> <ul style="list-style-type: none"> <li>If there are mitigation properties, how were the projects funded?</li> </ul>	None
<p>Do your flood hazard maps adequately address the flood risk within your jurisdiction?</p> <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	No, FIRM Panels haven't been updated since 1985 for the Town of Chester.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Planning and Zoning Department
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<p>Does your floodplain management staff need any assistance or training to support its floodplain management program?</p> <ul style="list-style-type: none"> <li>If so, what type of assistance/training is needed?</li> </ul>	Yes, training related to development in SFHA would be helpful for the staff to support the floodplain management program.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Determined based on the cost of the improvement. Substantial Improvement worksheet is completed and if the improvement cost is greater than 50% of the market value of the structure, it is classified as a substantial improvement.
What are the barriers to running an effective NFIP program in the community, if any?	Unknown
<p>Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?</p> <ul style="list-style-type: none"> <li>If so, state the violations.</li> </ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV – December 2, 2019
<p>What is the local law number or municipal code of your flood damage prevention ordinance?</p> <ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	Local Law 1 of 2020 (adopted February 11, 2020)
Does your floodplain management program meet or exceed minimum requirements?	Meets requirements





NFIP Topic	Comments
<ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	None
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

### 9.3.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.3-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.3-11. Recent and Expected Future Development**

Type of Development	2017	2018	2019	2020	2021	2022
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)						
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	14	0	15	0	20	0
Multi-Family	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0
Total New Construction Permits Issued	14	0	15	0	20	0

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2017 to Present					
None identified					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
None anticipated					

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.3.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools)





and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Chester's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Chester has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.3-1. Town of Chester Flood Hazard Area Extent and Location Map

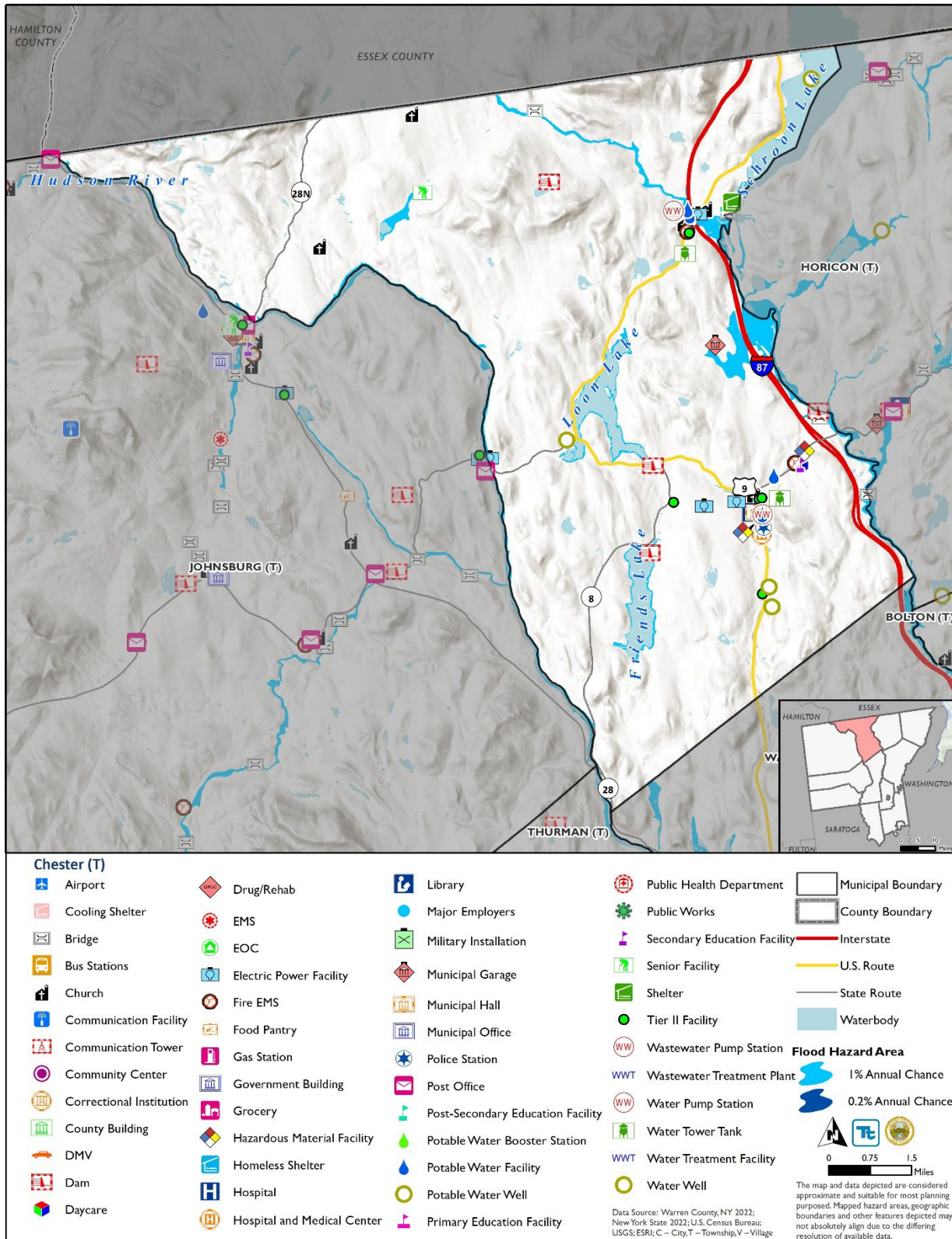






Figure 9.3-2. Town of Chester Earthquake (Soil Class) Hazard Area Extent and Location Map

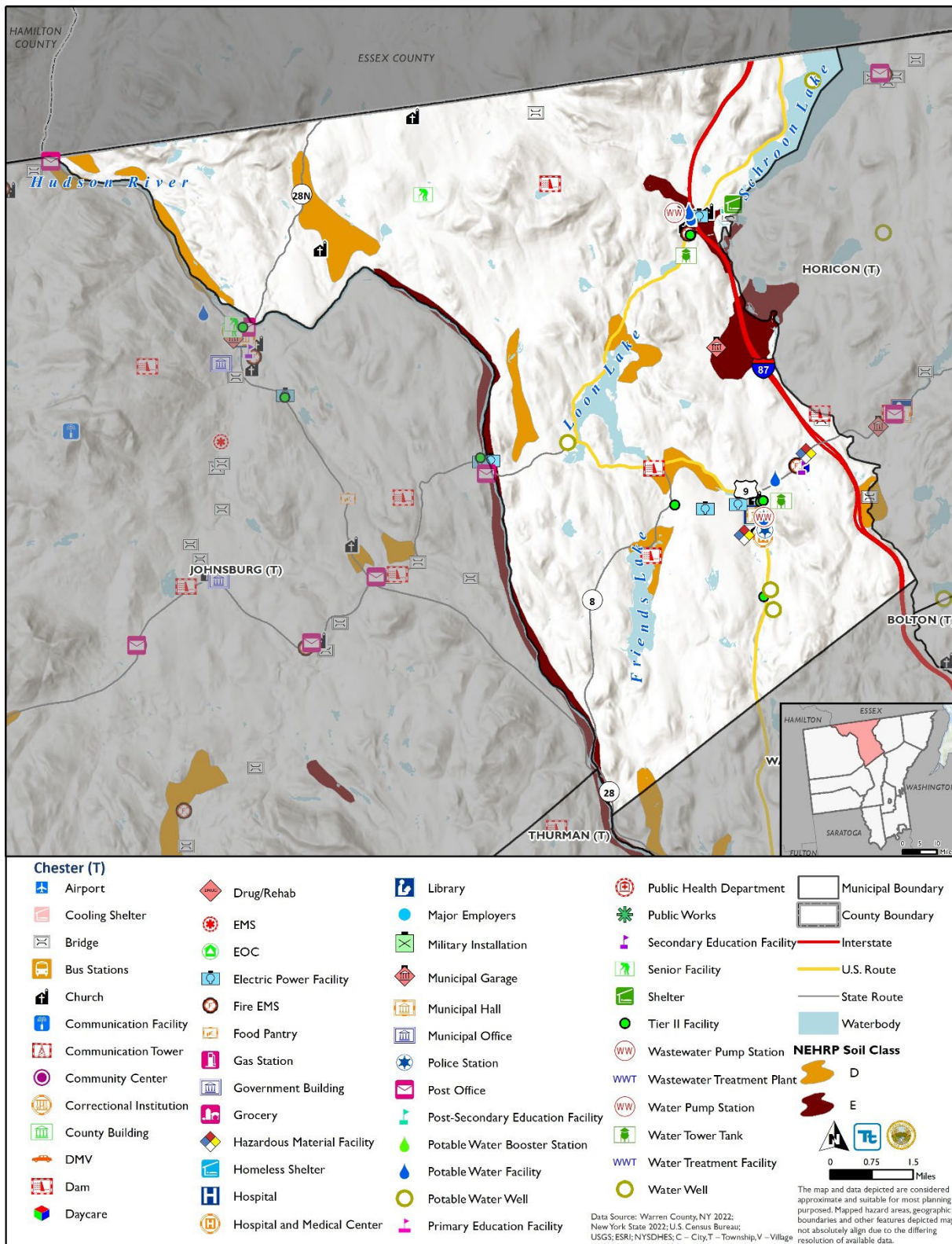
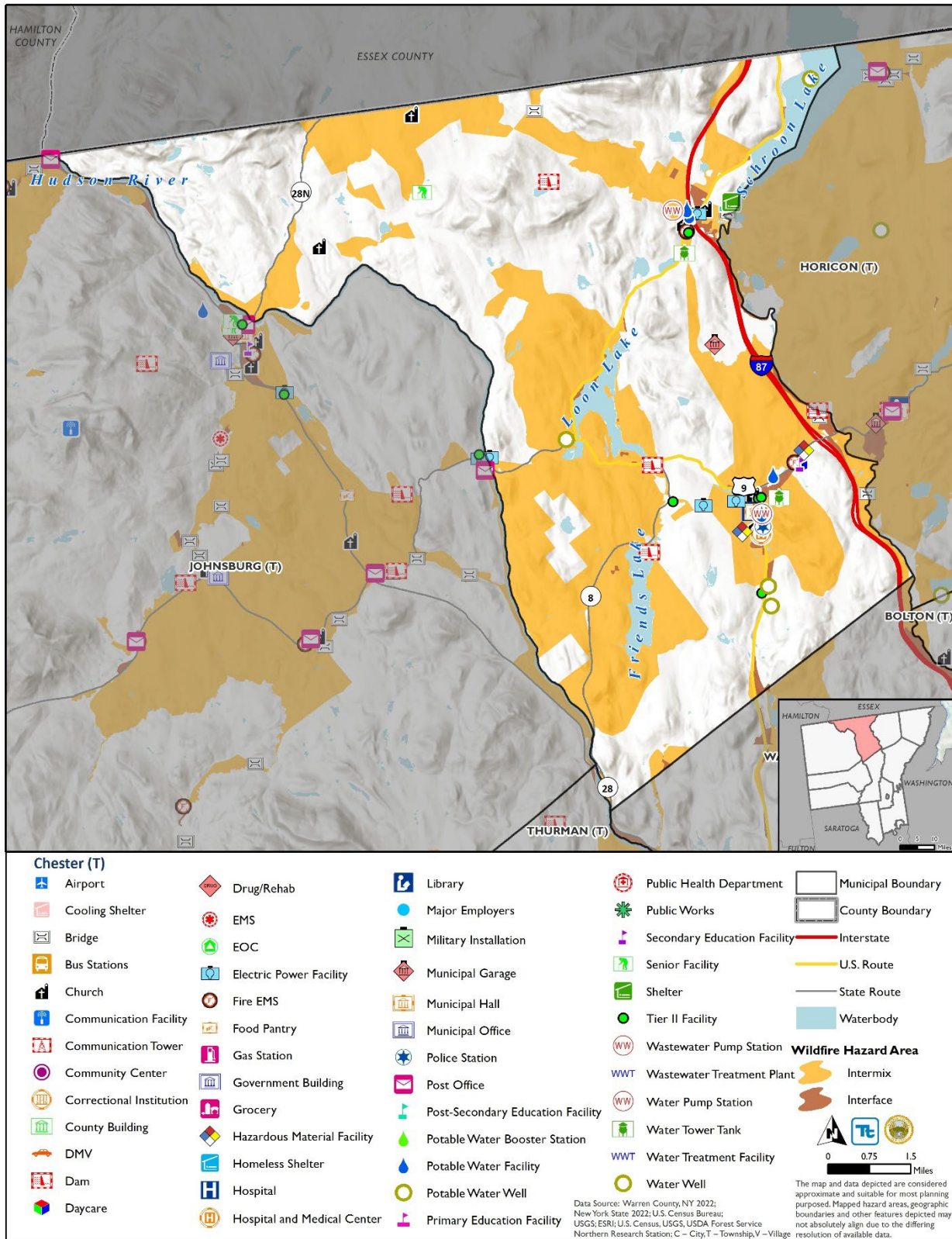






Figure 9.3-3 Town of Chester Earthquake (Soil Class) Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume 1, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Chester's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.3-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.3-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 31, 2019	Thunderstorms and flooding (DR-4472)	Yes	Heavy rain and strong winds throughout the County caused significant flooding and widespread power outages. FEMA validated damages in excess of \$3 million.	Town-wide power outage. Numerous roads flooded, closed, and damaged. Chestertown water district pump house flooded and the electrical system was damaged.
March 21, 2022	Beaver Dam Breach	No	Beaver Dam Breach that flooded/washed out roadways.	Flooding and damage to Hidden Lake Road and Olmsteadville Road.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Chester's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.





As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Chester. The Town of Chester reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town changed the hazard ranking for flood from low to medium, noting flooding issues from undersized culverts and concerns with flooding from beaver dams.
- The Town changed the hazard ranking for wildfire from low to medium, noting the severity of recent summertime droughts make wildfire more likely.
- The Town agreed with the remainder of the calculated hazard rankings.

**Table 9.3-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Medium	High	High	Medium	Medium

Dam Failure	Disease Outbreak
High	Low

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.



**Table 9.3-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Friends Lake Dam	Dam	X	X	–	Maintained by Friends Lake Property Owners Association
Loon Lake Dam	Dam	X	X	2023–Town of Chester–004	–
Valentine Chester	Bridge	X	X		Designed to withstand flood events. 30' deep piers.
Alder Brook	Bridge	X	X		Designed to withstand flood events. 30' deep piers.
Pottersville Water Plant	Potable Water Facility	X	X	2023–Town of Chester–016	–
Olmstedville Wells	Potable Water Facility	X	X	2023–Town of Chester–016	–

Source: Warren County 2022

In addition to critical facilities that are exposed to flooding, the following high hazard dams are located in or could impact the Town of Chester:

- Loon Lake Dam

### Identified Issues

After review of the Town of Chester's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Chester identified the following vulnerabilities within their community:

- Old River Road is floodprone along the Hudson River and has a past history of damages. There is no ingress or egress beyond the point of flooding.
- Town Hall Emergency Shelter, Hudson Headwaters, and North Warren Emergency Squad Headquarters (located in Chester, serves Chester and Horicon) lack backup power. When power is lost, the critical services they provide are also lost.
- The Town lacks a defined public outreach and awareness program or office.\*
- Loon Lake Dam is a high hazard dam. Failure of the dam would also impact State Highway Route 8/9. Rehabilitation of the dam is needed to protect from dam failure. An engineering study of the dam has been completed.
- Continual beaver dam breaches result in flooding and damage to local roads and culverts. Several roads including Stock Farm Rd, Igerna Rd, and Perry Rd have beaver dams, which if breached would cause severe flooding and damage to roads and properties.





- The Town Master Plan of the Town of Chester, 2002, requires update.
- Additional flood education is needed for residents.\*
- The Loon Lake EAP is outdated and requires updates for contacts and contact information.
- The Town is not a member of the StormReady program.
- The Town of Chester would like to strengthen zoning requirement to protect new development from hazards.
- Stock Farm Road and Perry Road have undersized culverts that contribute to flooding and may result in damages.
- The Town has limited adaptive capacity for earthquake, extreme temperature, flood, wildfire, infestation, dam failure and disease outbreak.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 1 repetitive loss property, but other properties may be impacted by flooding as well. Areas along the Hudson and Schroon Rivers are most prone to flooding.\*
- Severe windstorms and snowstorms can result in falling trees that damage power lines and cause outages.
- The Pottersville Water Plant and Olmstedville Wells are critical facilities located in the 1-percent floodplain at the same location. It is unknown if the facilities are adequately protected for the 0.2-percent flood level.

\*This issue was identified as a specific area of concern based on resident response to the Warren County Hazard Mitigation Citizen survey.

### 9.3.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.3-15. Status of Previous Mitigation Action**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps 1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost		
TCH-1	Align the highway budget with mitigation actions identified in the hazard mitigation plan.			Town Board, Highway Department, Planning Department	In Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-2	Complete one mile of roadway elevation on Old River Road.			Town DPW, Planning Department	No Progress	Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. 3.
TCH-3	Acquire funding and install backup generators at critical facilities, including Town Hall Emergency Shelter, Chestertown Hall, Hudson Headwaters, and North Warren Emergency Squad Headquarters (located in Chester, serves Chester and Horicon).			Town Board, Town Planning Department	In Progress	Cost		1. Include in 2023 HMP 2. Chestertown Hall can be removed. 3.
22TCH-4	Replace culverts and/or expand culvert capacity at Stock Farm Road and Wood Wells Road to meet 50-year storm requirements and reduce flooding overflow			Town Public Works / Highway	In Progress; Wood Wells Road Culver work has been completed	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-5	Identify funding for Lake Loon dam rehabilitation and EAP.			Owned by Loon Lake Park District, managed by Town Board	In Progress	Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. 3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps 1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost		
TCH-6	Develop and implement a strategy to mitigate risk to public and property from beaver dam breaches			Planning Department, NYS DEC, Private property owners, Warren County Soil and Water Conservation District (SWCD)	In Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-7	Integrate the risk assessment and recommendations of the hazard mitigation plan with the comprehensive plan			Town Board, Planning Department	In Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-8	Purchase/acquire a tub grinder to support debris management after hazard event			Town Public Works/ Highway, Engineer, Local Utilities/ Developers	Ongoing Capability	Level of Protection		1. Discontinue 2. 3. Ongoing Capability. Town hires a contractor as needed or utilizes County equipment to grind all debris at the Transfer Station.
TCH-9	Provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding. Information may include brochures, FEMA handouts, posters, pamphlets, note cards and online links			Town Board, County Office of Emergency Services	In Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-10	Educate specific homeowners who have property in the floodplain areas on carrying NFIP policies.			Town Floodplain Administrator	Ongoing Capability	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-11	Work with Warren County to implement zoning regulations to discourage building new structures in disaster prone areas			Town Board, Planning Department	No Progress	Level of Protection		1. Include in 2023 HMP 2. 3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps 1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost		
TCH-12	Participate in the StormReady program			Town Board, Planning Department	In Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
TCH-13	Design a network of citizens that will check in on elderly, functional needs, and low- income individuals during major events.			Town Board, County Office of Emergency Services	Ongoing Capability	Damaged Avoided; Evidence of Success		1. Discontinue 2. 3. Ongoing capability. This is completed in combination with the fire companies, under the direction of county and fire companies, includes individuals with oxygen needs.
TCH-14	Acquire funding to send a town representative to the 2017 NYS Wildland Fire Suppression Training			Local Fire Departments, County Office of Emergency Services	No Progress	Cost		1. Discontinue 2. 3. No longer a priority
TCH-15	Maintain a current inventory of at-risk buildings and infrastructure and continually update inventory of at-risk structures in each jurisdiction with annual review and revision			Zoning Administration Office	Ongoing Capability	Level of Protection		1. Discontinue 2. 3. Ongoing capability
TCH-16	Provide continuing education and training for local Floodplain Administrator to ensure code enforcement and proper inspections			Floodplain Administrator.	Complete	Damaged Avoided; Evidence of Success		1. Discontinue 2. 3. Complete





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.3-15, the Town of Chester identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Chester participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.3-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X	X		X	X	X	X			X
Flood	X	X	X	X	X	X	X	X	X	X
Severe Storm	X	X	X	X	X	X	X	X	X	X
Severe Winter Storm	X	X	X	X	X	X	X	X		X
Wildfire	X	X		X	X	X	X			X
Infestation	X	X	X	X	X	X	X	X		X
Dam Failure	X	X		X	X	X	X		X	X
Disease Outbreak	X	X		X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.3-17).

The table below summarizes the specific mitigation initiatives the Town of Chester would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.3-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Chester-001	Elevate Old River Road	1	Flood	<b>Problem:</b> Old River Road is floodprone along the Hudson River and has a past history of damages. There is no ingress or egress beyond the point of flooding. <b>Solution:</b> The Town will elevate one mile of Old River Road.	No	None	Within 5 years	Town DPW, Planning Department	High	Reduction in flooding on Old River Road	HMGP, BRIC, PDM, Municipal Budget	High	SIP	PP
2023-Town of Chester-002	Critical Facilities Backup Power	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire	<b>Problem:</b> Town Hall Emergency Shelter, Hudson Headwaters, and North Warren Emergency Squad Headquarters (located in Chester, serves Chester and Horicon) lack backup power. When power is lost, the critical services they provide are also lost. <b>Solution:</b> The Town will purchase and install backup power and necessary electrical components at critical facilities. The Highway Department will be responsible for maintenance. The Town Municipal Center will require a 150kW generator. The generators will provide continuous power for services to ensure the health and safety of residents,	Yes	None	Within 5 years	Town Board, Town Planning Department	High, costs for Town Municipal Center is approximately \$78,000	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				businesses and visitors. By providing power to municipal facilities and the department of public works, staff will be able to provide pre-, during, and post event services to communicate, monitor and respond to citizen issues. Services such as heat and cooling will be uninterrupted to support the needs of vulnerable populations, community alerts and rapid inspections and monitoring to be available for earthquake events, equipment fuel will be available during snow, wildfire, and wind events to maintain uninterrupted access to critical facilities.										
2023-Town of Chester-003	Public Outreach and Awareness Program	2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation,	<p><b>Problem:</b> The Town lacks a defined public outreach and awareness program or office.</p> <p><b>Solution:</b> The Town will include hazard mitigation information on the municipal website and develop programs/plans inform citizens on natural hazards, risk, and ways to protect themselves during such events. Solution: The Town will undertake the following outreach initiatives:-Educate</p>	No	None	2 years	Administration	Low	Increased public awareness	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Disease Outbreak	residents regarding steps to be taken to decrease the impact of natural hazards (including dam failure, disease outbreak, earthquake, extreme temperature, drought, flood, infestation, severe storm, severe winter storm, and wildfire ) by developing, enhancing, and implementing education programs, brochures, school presentations informing groups about ways to reduce risk, and other outreach activities. -Provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding. -Educate the community on benefits of carrying NFIP policies and increase knowledge of NFIP services.										
2023-Town of Chester-004	Loon Lake Dam Rehabilitation	1, 6	Dam Failure	<b>Problem:</b> Loon Lake Dam is a high hazard dam. Failure of the dam would also impact State Highway Route 8/9. Rehabilitation of the dam is needed to protect from dam failure. An engineering study of the dam has been completed.	Yes	May require permitting	Within 5 years	Loon Lake Park District, managed by Town Board	High	Dam failure risk reduced	HHPD, HMGP, BRIC, PDM, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will implement the actions identified in the engineering study, including anchoring of the dam and spillway and repair of the grouting and facing, and new concrete for the spillway apron and sidewalls. All repairs will be made to withstand 500-year flood event specifications.										
2023-Town of Chester-005	Beaver Dam Strategies	5	Flood, Infestation and Invasive Species	<p><b>Problem:</b> Continual beaver dam breaches result in flooding and damage to local roads and culverts. Several roads including Stock Farm Rd, Igerna Rd, and Perry Rd have beaver dams, which if breached would cause severe flooding and damage to roads and properties.</p> <p><b>Solution:</b> The Town will investigate and install methods to reduce the impact of potential beaver dam breach. The investigation will include a flood study to evaluate the impacts of beaver dam breaches and potential solutions. Solutions could include intake pipes, fencing, excessive vegetation removal</p>	No	Yes, some solutions may not be available due to beaver restrictions	Within 5 years	Planning Department, NYS DEC, Private property owners, Warren County Soil and Water Conservation District (SWCD)	TBD by identified strategies	Reduction in beaver dam failure flood events	Town budget	High	NSP	NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Chester-006	Master Plan Update	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<p>or other appropriate measures.</p> <p><b>Problem:</b> The Town Master Plan of the Town of Chester, 2002, requires update.</p> <p><b>Solution:</b> The Town will update the Master Plan, integrating aspects of hazard mitigation where applicable. The Master Plan will support risk reduction and evaluate land use, health and safety, and environmental quality to support a more resilient future for the Town.</p>	No	None	Within 5 years	Town Board, Planning Department	Low	Integration of hazard mitigation	Town budget	High	LP R	PR
2023-Town of Chester-007	Flood Education and Outreach	2	Flood	<p><b>Problem:</b> Additional flood education is needed for residents.</p> <p><b>Solution:</b> The Town will provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding. Information may include brochures, FEMA handouts, posters, pamphlets, note cards and online links. The Town will educate specific homeowners who have property in the</p>	No	None	2 years	Town Board, County Office of Emergency Services	Low	Increased flood awareness	Town and County budgets	High	EA P	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				floodplain areas on carrying NFIP policies.										
2023-Town of Chester-008	Loon Lake Dam EAP	6	Flood	<b>Problem:</b> The Loon Lake EAP is outdated and requires updates for contacts and contact information. <b>Solution:</b> The Town will update the EAP and ensure it is maintained annually.	Yes	None	Within 6 months	Loon Lake Park District, managed by Town Board	Staff time	EAP kept up to date, improved emergency response capabilities	BRIC, PDM, Loon Lake Park District, Town budget	High	LP R	ES
2023-Town of Chester-009	StormReady Program	3	Severe Storm, Severe Winter Storm	<b>Problem:</b> The Town is not a member of the StormReady program. <b>Solution:</b> The Town will complete the necessary pre-requisites and join the StormReady program.	Yes	None	Within 5 years	Town Board, Planning Department	Medium	Increased storm threat identification and warning, increased preparedness	Emergency Management Performance Grants (EMPG) Program, Town budget	High	LP R, EAP	PI, ES
2023-Town of Chester-010	Zoning Regulations	4, 5	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Town of Chester would like to strengthen zoning requirement to protect new development from hazards. <b>Solution:</b> The Town will work with Warren County to implement zoning regulations to discourage building new structures in disaster prone areas to address earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazards.	No	None	Within 5 years	Town Planning Board, Warren County	Staff time	Reduction in hazard prone development	County and Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Chester-011	Upsizing Culverts	1	Flood, Severe Storm	<b>Problem:</b> Stock Farm Road and Perry Road have undersized culverts that contribute to flooding and may result in damages. <b>Solution:</b> The Town will replace the undersized culverts, increasing culvert sizing to meet 50-year storm requirement.	No	None anticipated	Within 5 years	Highway Department	High	Reduced flooding and flood damages	CHIPS, BRIC, PDM, HMGP, Town budget	High	SIP	SP
2023-Town of Chester-012	Increased Adaptive Capacity	3, 4	Earthquake, Extreme Temperature, Flood, Wildfire, Infestation, Dam Failure, Disease Outbreak.	<b>Problem:</b> The Town has limited adaptive capacity for earthquake, extreme temperature, flood, wildfire, infestation, dam failure and disease outbreak. <b>Solution:</b> The Town will utilize shared services, intermunicipal resources (including equipment) and other agencies for help in addressing hazards. An addendum to the local emergency plan will be developed that includes a list of intermunicipal resources and agencies with contact information.	No	None	Within 5 years	Administration	Staff time	Increased adaptive capacity	Town budget	High	LP R	PR, ES
2023-Town of Chester-013	Substantial Damage Procedures	1, 3, 4	Earthquake, Flood, Severe Storm, Severe	<b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures,	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain	Municipal budget	High	LP R	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Winter Storm, Wildfire, Dam Failure	make determinations, and provide for appeals. <b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations for earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazards.						administration				
2023-Town of Chester-014	Repetitive Loss Properties	1	Flood, Severe Storm	<b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 1 repetitive loss property, but other properties may be impacted by flooding as well. Areas along the Hudson and Schroon Rivers are most prone to flooding. <b>Solution:</b> The Town will conduct outreach to 10 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, the Town will work with property-owners to	No	None	Within 5 years	FPA, homeowners	High	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	FEMA HMGP and FMA, local cost share by residents	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).										
2023-Town of Chester-015	Hazardous Tree Identification	4, 5	Infestation and Invasive Species, Severe Storm, Severe Winter Storm	<p><b>Problem:</b> Severe windstorms and snowstorms can result in falling trees that damage power lines and cause outages.</p> <p><b>Solution:</b> The Town Highway Department will complete a survey of trees in the Town that are in danger of falling on power lines. In particular, the Highway Department will look to identify trees that have damage due to pests or disease. The results of this survey will be shared with utility companies to request hazardous trees be trimmed or removed.</p>	No	None	2 years	Highway Department	Low	Hazardous trees identified	Town budget	High	NSP	NR
2023-Town of Chester-016	Critical Facility Flood Protection	1	Flood	<b>Problem:</b> The Pottersville Water Plant and Olmstedville Wells are critical facilities located in the 1% floodplain at the same location. It is unknown if the facilities are adequately protected for the 0.2% flood level.	Yes ●	None	Within 5 years	Engineer	TBD	Protection of critical facilities from flooding	HMGP, BRIC, PDM, Town budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Engineer will conduct an engineering study to determine flood exposure of the facilities. Cost-effective mitigation actions will be completed to protect the facilities, as necessary.										

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

**Potential FEMA HMA Funding Sources:**

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation.

**Cost:**

The estimated cost for implementation.

**Benefits:**

A description of the estimated benefits, either quantitative and/or qualitative.

**Critical Facility:**

Yes Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

**CRS Category:**





- *Preventative Measures (PR)*—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- *Property Protection (PP)*—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- *Public Information (PI)*—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- *Natural Resource Protection (NR)*—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- *Structural Flood Control Projects (SP)*—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- *Emergency Services (ES)*—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.3-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Chester-001	Elevate Old River Road	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Chester-002	Critical Facilities Backup Power	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-Town of Chester-003	Public Outreach and Awareness Program	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-Town of Chester-004	Loon Lake Dam Rehabilitation	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-Town of Chester-005	Beaver Dam Strategies	0	1	1	1	1	0	0	1	1	1	1	0	1	0	9	High
2023-Town of Chester-006	Master Plan Update	0	1	1	1	1	1	1	1	1	1	1	0	1	0	11	High
2023-Town of Chester-007	Flood Education and Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-Town of Chester-008	Loon Lake Dam EAP	1	1	1	1	1	1	1	1	1	1	0	0	1	0	11	High
2023-Town of Chester-009	StormReady Program	1	0	1	1	1	1	1	1	1	1	1	0	1	0	11	High
2023-Town of Chester-010	Zoning Regulations	1	1	1	1	1	1	1	1	1	1	1	0	1	0	12	High
2023-Town of Chester-011	Upsizing Culverts	1	1	1	1	1	0	0	1	1	1	1	0	1	0	10	High
2023-Town of Chester-012	Increased Adaptive Capacity	1	1	1	1	1	1	1	1	1	1	1	0	1	0	12	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Chester-013	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	0	11	High
2023-Town of Chester-014	Repetitive Loss Properties	1	1	1	1	0	1	0	1	1	1	1	0	1	0	10	High
2023-Town of Chester-015	Hazardous Tree Identification	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-Town of Chester-016	Critical Facility Flood Protection	1	1	1	0	1	1	0	1	1	1	0	0	1	1	10	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.3.8 Action Worksheets

The following action worksheets were developed by the Town of Chester to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Loon Lake Dam Rehabilitation		
<b>Project Number:</b>	2023-Town of Chester-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Dam Failure		
<b>Description of the Problem:</b>	Loon Lake Dam is a high hazard dam. Failure of the dam would also impact State Highway Route 8/9. Rehabilitation of the dam is needed to protect from dam failure. An engineering study of the dam has been completed.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Town will implement the actions identified in the engineering study, including anchoring of the dam and spillway and repair of the grouting and facing, and new concrete for the spillway apron and sidewalls. All repairs will be made to withstand 500-year flood event specifications.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	500-year flood	<b>Estimated Benefits (losses avoided):</b>	Dam failure avoided, meet safety requirements
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	5 years	<b>Potential Funding Sources:</b>	HHPD, HMGP, BRIC, PDM, Town budget
<b>Responsible Organization:</b>	Loon Lake Park District, managed by Town Board	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build New Dam	Very High	Costly
	Remove Dam	High	Dam cannot be removed for safety reason.
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Loon Lake Dam Rehabilitation	
<b>Project Number:</b>	2023-Town of Chester-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project protects life from dam failure
Property Protection	1	Project protects property from dam failure
Cost-Effectiveness	1	
Technical	1	
Political	1	There is public support for the project
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	The project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Dam Failure
Timeline	0	Within 5 years
Agency Champion	1	Loon Lake Park District, managed by Town Board
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.4 CITY OF GLENS FALLS

This section presents the jurisdictional annex for the City of Glens Falls that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the City participated in the planning process, an assessment of the City of Glens Falls' risk and vulnerability, the different capabilities used in the City, and an action plan that will be implemented to achieve a more resilient community.

#### 9.4.1 Hazard Mitigation Planning Team

The City of Glens Falls identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many City departments, including the Water and Sewer Department and the Glens Falls Hospital. The Director of Emergency Management represented the community on the Warren County Hazard Mitigation Plan Planning Partnership, Steering Committee, and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.4-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Justin Reckner, Code Enforcement Officer, Building & Codes Address: 42 Ridge Street, Glens Falls, NY 12801 Phone Number: 518-761-3848 Email: jreckner@cityofglensfalls.com	Name/Title: William Norton – Water and Sewer Superintendent Address: 42 Ridge Street, Glens Falls, NY 12801 Phone Number: 518-761-3820 Email: wnorton@cityofglensfalls.com
<b>NFIP Floodplain Administrator</b>	
Name/Title: Justin Reckner, Code Enforcement Officer, Building & Codes Address: 42 Ridge Street, Glens Falls, NY 12801 Phone Number: 518-761-3848 Email: jreckner@cityofglensfalls.com	
<b>Additional Contributors</b>	
Name/Title: Sheila Mender, Secretary to Water/Sewer Superintendent & City Engineer	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided information on capabilities	
Name/Title: Philip Cancelliere, Building Inspector	
Method of Participation: Provided building permit information	
Name/Title: William Norton, Water and Sewer Superintendent	
Method of Participation: Provided information on previous events, status update on previous actions	

## 9.4.2 Municipal Profile

The City of Glens Falls is located in the southeastern corner of Warren County in the Adirondack foothills. It is bordered by the Town of Queensbury to the north, east and west and the Hudson River and Saratoga County to the south. The City has a total land area of 3.9 square miles of which 3.8 square miles is land and 0.1 square miles is water. Interstate 87, U.S. Route 9, New York Route 32 and New York Route 9L are major transportation routes serving the City.

The City was incorporated in 1908 with a strong mayor charter. The City's Common Council has six members, five are elected from wards and one is elected at large.

The City owns a large amount of watershed land, protecting the City water supply, within the adjacent Town of Queensbury.

According to the U.S. Census, the 2020 population for the City of Glens Falls was 14,830, a 2.9 percent increase from the 2010 Census. Data from the 2020 U.S. Census indicate that 6.1 percent of the population is 5 years of age or younger and 14.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the City of Glens Falls has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 8.82% of the population does not have a high school diploma
- 17.46% of the population has a disability
- 15.25% of households do not have a vehicle
- 10.73% of the population is living below the poverty level
- 6.12% of the population is unemployed

## 9.4.3 Jurisdictional Capability Assessment and Integration

The City of Glens Falls performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.





- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Glens Falls to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Glens Falls. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.4-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Fire Prevention and Building Code; Chapter 109 Building Code Administration.	Local, State	Building and Codes
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The City of Glens Falls adopted the New York State Uniform Fire Prevention and Building Code to require safe construction.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 220 – Zoning	Local	Building and Codes
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this ordinance is to guide the future growth and development of the City in accordance with a well-considered plan of land use and population distribution that represents and promotes beneficial and convenient relationships among residential, commercial, industrial and public areas within the City, considering the suitability of each area for such uses, as indicated by existing conditions, trends in population and mode of living, and future needs for various types of land development. The Ordinance requires the use of adequate light, air and privacy, prevention of overcrowding of land and undue concentration of population, beneficial circulation of traffic throughout the City, safety and security from fire, flood and other dangers, protect and conserve the existing character of the City.				
<b>Subdivision Ordinance</b>	Yes	Chapter 192 – Subdivision of Land	Local	Planning Board, Building and Codes
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance requires any subdivided areas of land to submit a preliminary plat application that show the land will have proper drainage, water, sewerage, and follow the zoning and land use of the City.				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Site Plan Ordinance</b>	Yes	Chapter 220 – Article §220-27 – Site Plan Review and Approval	Local	Building and Codes
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose and intent of the site plan review and approval is to accomplish the development, mixed-use character and limited area of the City. New developments will mitigate the impact on neighboring properties, traffic, resources and the general welfare of the City.				
<b>Stormwater Management Ordinance</b>	Yes	Chapter 220 – Zoning	Local	Water and Sewer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Stormwater Management Ordinance establishes a Stormwater Pollution Prevention Plan.				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	–	–	–
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	–	–	–
<b>Environmental Protection Ordinance</b>	Yes	Chapter 204 – Trees	Local	Tree Commission
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Except upon the order of the Tree Commission, it shall be unlawful for any person, firm or corporation or the officer or employee of a corporation, without a permit from the Tree Commission, to remove, destroy, cut, break, climb or injure any tree, plant or shrub or portion thereof that is planted or growing in or upon any public highway or public place within the City of Glens Falls or cause, authorize or procure any person to remove, destroy, cut, break, climb or injure any such tree or shrub or portion thereof or to injure, misuse or remove or cause, authorize or procure any person to injure, misuse or remove any device set for the protection of any tree, plant or shrub in or upon any public highway.				
<b>Flood Damage Prevention Ordinance</b>	Yes	Chapter 113 – Flood Damage Prevention, 1989	Local	Building and Codes
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"><li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities</li><li>B. Require that uses vulnerable to floods, including facilities which serve such uses, are protected against flood damage at the time of initial construction</li><li>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters</li><li>D. Control filling, grading, dredging and other development which may increase erosion or flood damages</li></ul>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands				
F. Qualify for and maintain participation in the National Flood Insurance Program.				
The chapter needs to be updated to include the state's two foot freeboard requirement.				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	-	-	-	-
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	No	-	-	-
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-
<b>Stormwater Management Plan</b>	Yes	Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP)	Local	Water and Sewer; Common Council
How has or will this be integrated with the HMP and how does this reduce risk?				
Stormwater pollution prevention plan requirement. No application for approval of a land development activity shall be reviewed until the appropriate board has received a stormwater pollution prevention plan (SWPPP).				
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Transportation Plan	No	-	-	-
Agriculture Plan	No	-	-	-
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
Tourism Plan	No	-	-	-
Business/ Downtown Development Plan	No	-	-	-
Other (for example NYRCR, etc.)	Yes	2015–2019 City of Glen Falls Consolidated Plan; 2014 Community Development Action Plan	Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Response/Recovery Planning</b>				
Comprehensive Emergency Management Plan	No	-	-	-
Continuity of Operations Plan	No	-	-	-
Substantial Damage Response Plan	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Public Health Plan	No	-	-	-
Other	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the City of Glens Falls to oversee and track development.



**Table 9.4-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Building & Codes/Planning
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	SFHA
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	Most development within the City is re-development. There is limited opportunity for new development currently.

### Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Glens Falls and their current responsibilities that contribute to hazard mitigation.

**Table 9.4-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board consists of eight members that have the power and authority to approve plats for subdivision within the City.
Zoning Board of Adjustment	Yes	The Zoning Board of Appeals is an eight-member board responsible for the review and approval of any permits, easements and land use changes.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Glens Falls Urban Renewal Agency
Public Works/Highway Department	Yes	The Department of Public Works is responsible for: <ul style="list-style-type: none"><li>Maintenance of all City-owned buildings and grounds</li><li>Maintenance of all City-owned parks, recreation facilities, and green areas within the street</li><li>Right of way work permit</li><li>Road maintenance</li><li>Sidewalk construction</li><li>Sign and street line painting</li><li>Snow and ice control</li></ul>





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		<ul style="list-style-type: none"> <li>Snow dump permit (PDF)</li> <li>Street cleaning</li> <li>Street lighting</li> <li>Traffic control lights</li> <li>Yard waste collection</li> </ul>
Construction/Building/Code Enforcement Department	Yes	The Building and Codes Department is responsible for issuing building permits, conducting code inspections, and coordinating meetings of the Planning Board and Zoning Board of Appeals
Emergency Management/Public Safety Department	Yes	Fire and Police Departments
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	See Public Works/Highway Department
Mutual aid agreements	Yes	Fire and EMS
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	Code Enforcement Officer and City Engineer
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Water and Sewer GIS Technician
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-





## Fiscal Capability

The table below summarizes financial resources available to the City of Glens Falls.

**Table 9.4-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Glens Falls.

**Table 9.4-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	-





## Community Classifications

The table below summarizes classifications for community programs available to the City of Glens Falls.

**Table 9.4-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	2/2016
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.4-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate





## 9.4.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the City of Glens Falls.

**Table 9.4-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
City of Glens Falls	12	0	\$0	0	0	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

### Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Glens Falls.

**Table 9.4-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	Flooding takes place within the Special Flood Hazard Area along the Hudson River. The Town does not maintain a list of properties that have been damaged by flooding.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	The City lacks official substantial damage procedures. No declarations have been made for recent flood events.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None





NFIP Topic	Comments
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	N/A
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Building and Codes
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes, the City would like floodplain training for the Code Enforcement Officer.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The City performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the City, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the City. Upon receipt of a signed zoning compliance certificate, the county performs the code.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Alteration level two or three
What are the barriers to running an effective NFIP program in the community, if any?	Low Flood Risk
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	22O-23
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets Federal and State requirements
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Site Plan Review
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not participating





### 9.4.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.4-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.4-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	11	0	7	0	5	0	15	0	6	0	8	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	1	0
Other (commercial, mixed-use, etc.)	0	0	1	0	1	0	10	0	6	0	5	0
Total New Construction Permits Issued	11	0	8	0	6	0	25	0	12	0	14	0
Property or Development Name	Type of Development	# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2017 to Present												
None identified.												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None identified.												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.4.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the City of Glens Falls's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Glens Falls has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.4-1. City of Glens Falls Flood Hazard Area Extent and Location Map

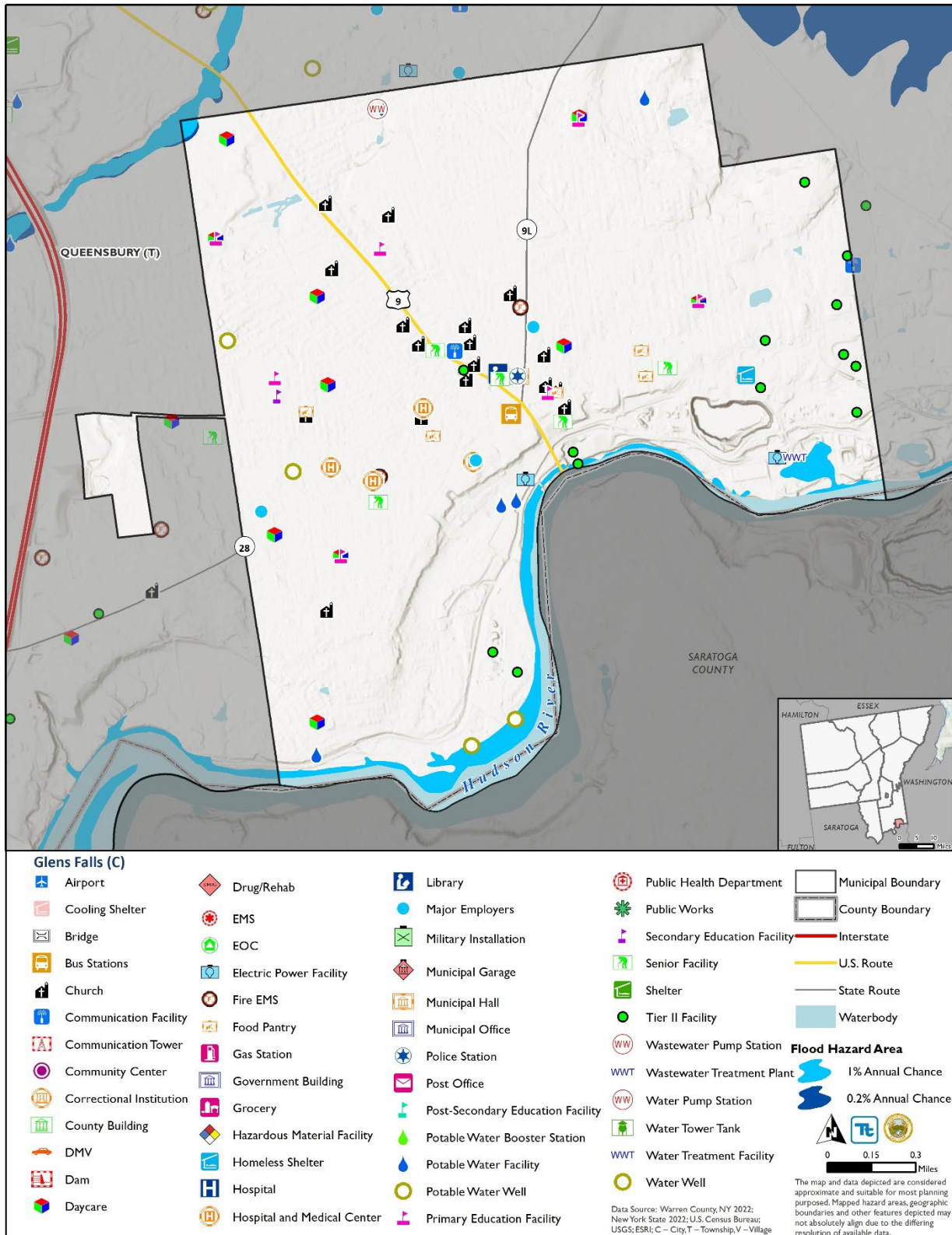






Figure 9.4-2. City of Glens Falls Earthquake (Soil Class) Hazard Area Extent and Location Map

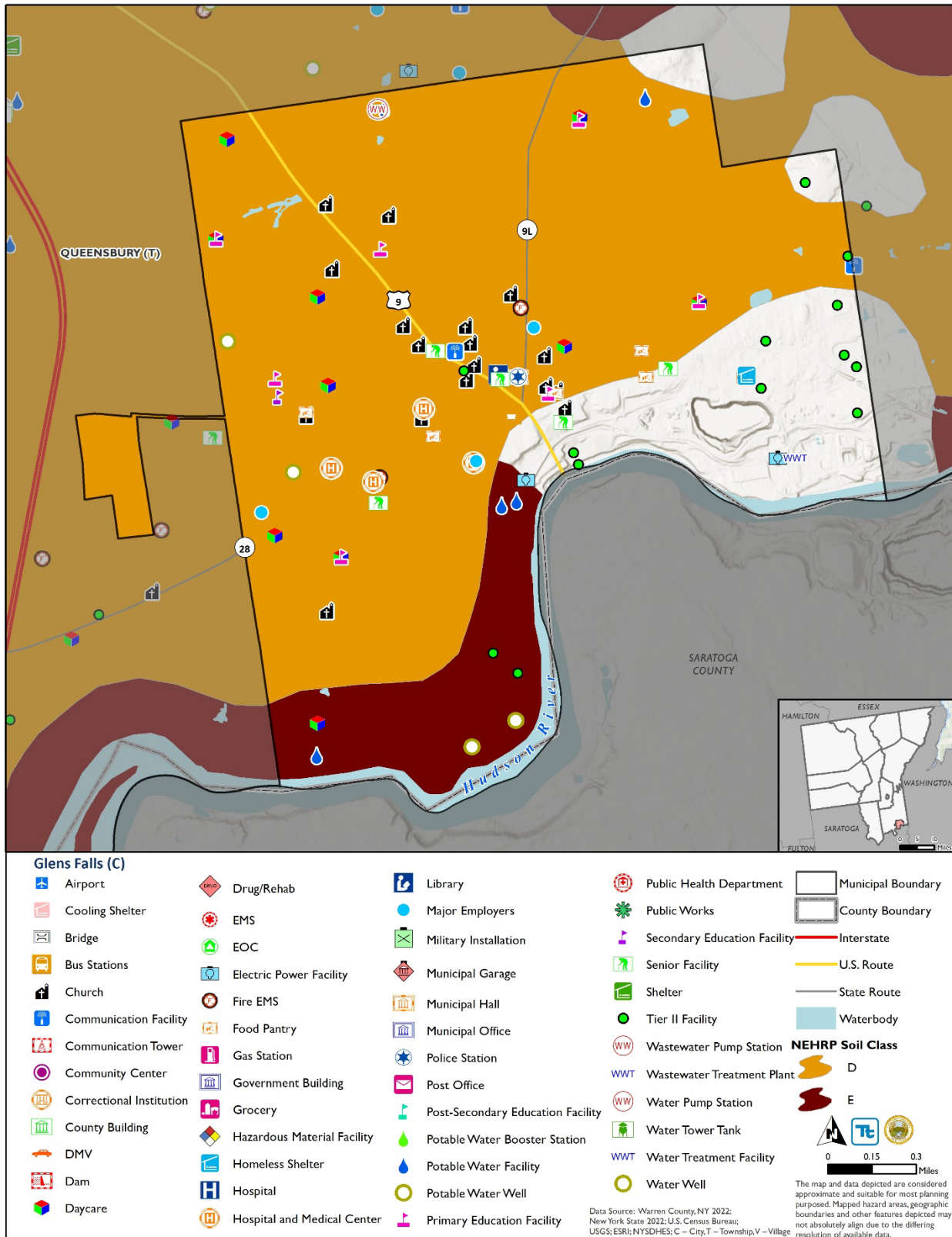
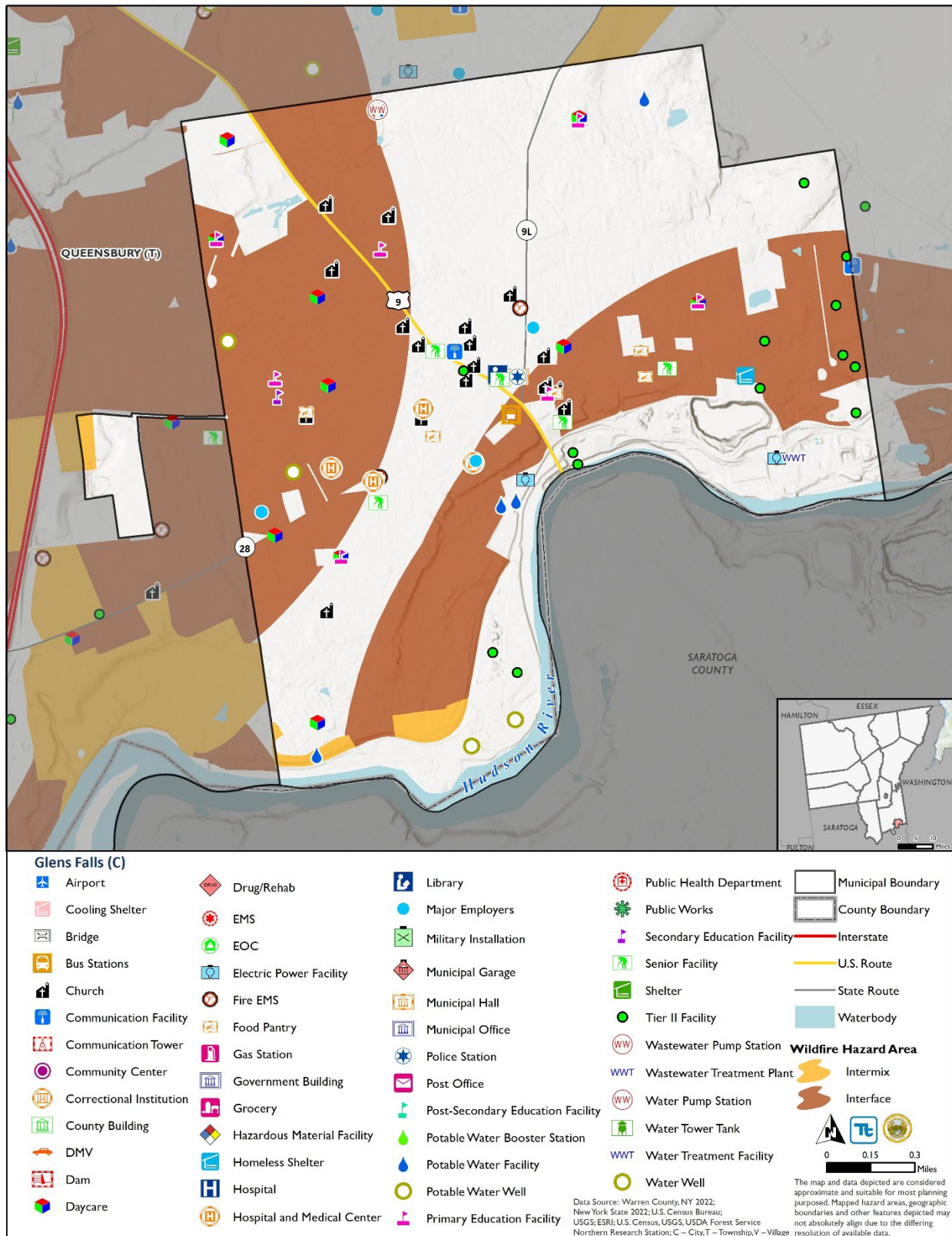






Figure 9.4-3. City of Glens Falls Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Glens Falls' history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.4-12 provides details regarding municipal-specific loss and damages the City experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.4-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
July 1, 2017	Severe thunderstorms	N/A	Roads and property washed out.	Hillside at WWTP washed out, basement flooded.
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) “Halloween Storm”	Yes	A strengthening low-pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York.	Although the County was impacted, the City did not report significant damages.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19	The City was subject to closures and masking/social distancing requirements.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable





## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Glens Falls risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Glens Falls. The City of Glens Falls reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City indicated the following:

- The City agreed with the calculated hazard rankings.

**Table 9.4-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Medium	Medium	Low	High	High	High	Medium

Dam Failure	Disease Outbreak
Medium	Low

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance





flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.4-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Finch, Pruyn&Co Landfill#1 Evoqua Water Technologies	Tier II Facility	X	X	2023-City of Glens Falls-O11	-
Island Drive Water Well	Water Well	X	X	2023-City of Glens Falls-O11	-

Source: Warren County 2022

## Identified Issues

After review of the City of Glens Falls hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Glens Falls identified the following vulnerabilities within their community:

- The City's fire water hydrant system has issues with low flow.
- Flooding is an ongoing issue in the Bush Street area, where residential building is currently ongoing.
- Hazard mitigation integration is needed in the Community Development program to guide safe development practices.
- Critical facilities require backup power to maintain essential functions during and after disaster events.
- Infill housing is being considered in Queensbury and some other dam failure inundation areas. This could increase risk, resulting in increased dam hazard ratings.
- Climate change will result in changes in the frequency and severity of hazard events, resulting in outdated development guidelines and maintenance practices.
- The City's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- The City's Floodplain Administrator requires additional training to increase capabilities.
- The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.





- Finch, Pruyn&Co Landfill#1 Evoqua Water Technologies is a Tier II facility located in the 1-percent floodplain. The facility is a privately owned critical facility.

### 9.4.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.4-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost		
CGF-1	Water System Hydraulic Analysis: Perform a dynamic hydraulic analysis to address low flows in the City's fire water hydrant systems. The analysis would be completed in two parts – first create a model of the system, then identify and implement solutions.	Wildfire	Some hydrants may have insufficient pressure	Fire Department, Water and Sewer, DPW	In Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
						Damages Avoided; Evidence of Success		
CGF-2	Wilke Intake Spillway Improvements as specified by engineering assessment of the Wilke Intake Queensbury Dam.	Flood (Dam Failure)	Minor repairs and maintenance required	Water and Sewer Board, Common Council	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing Capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
CGF-3	Work with Finch Paper to: <ul style="list-style-type: none"> <li>Better understand when trains are moving and may block the single WWTP ingress/egress.</li> <li>Install an emergency gate in the fence.</li> </ul>	Severe Storm, Severe Winter Storm	Train blocks main road for short periods of time	DPW, Fire Department, Finch Paper	Complete	Cost		1. Discontinue 2. 3. Complete
						Level of Protection		
						Damages Avoided; Evidence of Success		
CGF-4	Evaluate causes of flooding and possible mitigation solutions in	Flood	Need to better control stormwater	DPW, Water and Sewer	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		





## SECTION 9.4. City of Glens Falls

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Damages Avoided; Evidence of Success	
	the Bush Street area, where residential building is currently ongoing.							1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
CGF-5	Continue to incorporate green infrastructure design into development and redevelopment projects	Flood, Severe Storm, Severe Winter Storm	Need for more green infrastructure	DPW, Water and Sewer, Building and Codes	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
CGF-6	Integrate natural hazard mitigation strategies, such as property protection measures, into the Community Development program, as appropriate.	All Hazards		Community Development, Common council	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
CGF-7	Work with facility owners to install or upgrade permanent back-up power at the following critical facilities: •WWTP •All City district school •City Hall •Standby power for four or five lift/pumping stations •Library (supplement current partial backup power.) •The Pines (private nursing home) •Stichman Towers (senior living) – replace older backup power system	Severe Storm, Severe Winter Storm		DPW, Building and Codes	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
CGF-		Flood	Catch basins need to be	DPW, Water and Sewer	Ongoing Capability	Cost		1. Discontinue 2.
						Level of Protection		





## SECTION 9.4. City of Glens Falls

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Damages Avoided; Evidence of Success	
	Develop and implement a catch basin cleaning program.		cleaned regularly					3. Ongoing Capability
CGF-9	Improve public education/understanding of the dam failure inundation zones (specifically in Queensbury), where they are looking to do some infill housing (increases risk – and could increase dam hazard ratings).	Flood		DPW, Community Development, Building and Codes	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.
CGF10	Develop and implement a street tree maintenance program.	Severe Storm, Severe Winter Storm	Trees must be evaluated and kept trimmed	DPW	Ongoing Capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability
CGF-11	Develop guidelines and standards for incorporating likely impacts of climate change into design and maintenance programs.	All Hazards		DPW, Community Development, Building and Codes, Common Council	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.4-15, the City of Glens Falls identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The City of Glens Falls participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.4-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X			X	X				X
Extreme Temperature	X	X			X	X				X
Flood	X	X		X	X	X	X			X
Severe Storm	X	X			X	X			X	X
Severe Winter Storm	X	X			X	X			X	X
Wildfire	X	X			X	X				X
Infestation	X	X			X	X				X
Dam Failure	X	X		X	X	X	X			X
Disease Outbreak	X	X			X	X				X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.4-17).

The table below summarizes the specific mitigation initiatives the City of Glens Falls would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.4-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023 -City of Glens Falls-001	Water System Hydraulic Analysis	1	Wildfire	<b>Problem:</b> The City's fire water hydrant system has issues with low flow. <b>Solution:</b> The City will perform a dynamic hydraulic analysis to address low flows in the City's fire water hydrant systems. The analysis would be completed in two parts – first create a model of the system, then identify and implement solutions.	Yes	None	Within 5 years	Fire Department, Water and Sewer, DPW	TBD by analysis	Restore flow for water hydrant system to improve wildfire response capabilities, increase preparedness	Assistance to Firefighters Grant Program, BRIC, PDM, HMGP, City budget	High	SIP	PP, ES
2023 -City of Glens Falls-002	Bush Street Flood Study	1	Severe Storm, Flood	<b>Problem:</b> Flooding is an ongoing issue in the Bush Street area, where residential building is currently ongoing. <b>Solution:</b> The City will evaluate causes of flooding and possible mitigation solutions in the Bush Street area. Cost effective solutions will be implemented.	No	None	Within 5 years	DPW, Water and Sewer	TBD by evaluation and selected solutions	Address current and potential future flooding issues	HMGP, BRIC, PDM, City budget	High	SIP, LP, R	PP, SP, PR
2023 -City	Community Developme	4	Earthquake, Extreme	<b>Problem:</b> Hazard mitigation integration	No	None	Within 5 years	Community Developme	Low	Increased integration,	City budget	High	LP, R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
of Glens Falls-003	nt Hazard Mitigation Integration		Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	is needed in the Community Development program to guide safe development practices. <b>Solution:</b> The City will integrate natural hazard mitigation strategies, such as property protection measures, into the Community Development program, as appropriate. The recommended hazard mitigation strategies will be compiled into a development guide to aid in enacting hazard mitigation practices. This guide will be consistent with the Hazard Mitigation Plan.				nt, Common council		safer development practices				
2023 -City of Glens Falls-004	Critical Facility Backup Power	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire	<b>Problem:</b> Critical facilities require backup power to maintain essential functions during and after disaster events. <b>Solution:</b> The City will purchase and install permanent fixed generators and	Yes	None	Within 5 years	DPW, Building and Codes, Facility managers	High	Protect public health and safety, and ensure continued operation of critical facility and essential functions	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				necessary electrical components at the following facilities: <ul style="list-style-type: none"><li>•WWTP</li><li>•All City district school</li><li>•City Hall</li><li>•Standby power for four or five lift/pumping stations</li><li>•Library (supplement current partial backup power.)</li><li>•The Pines (private nursing home)</li><li>•Stichman Towers (senior living) – replace older backup power system</li></ul> The generators will provide continuous power for services to ensure the health and safety of residents, businesses and visitors. By providing power to municipal facilities and the department of public works, staff will be able to provide pre-, during, and post event services to communicate, monitor and respond to citizen						during power outages.	Performance Grants (EMPG) Program, City Budget			





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				issues. Services such as heat and cooling will be uninterrupted to support the needs of vulnerable populations, community alerts and rapid inspections and monitoring to be available for earthquake events, equipment fuel will be available during snow, wildfire, and wind events to maintain uninterrupted access to critical facilities.										
2023 -City of Glens Falls-005	Dam Failure Education	2	Dam Failure	<p><b>Problem:</b> Infill housing is being considered in Queensbury and some other dam failure inundation areas. This could increase risk, resulting in increased dam hazard ratings.</p> <p><b>Solution:</b> The City will conduct education to improve public education/understanding of the dam failure inundation zones.</p>	Yes	No	2 years	DPW, Community Development, Building and Codes	Low	Increased public awareness	City budget	High	EAP	PI
2023 -City of	Climate Change Standards	1, 4	Earthquake, Extreme Temperatures	<b>Problem:</b> Climate change will result in changes in the	Yes	No	Within 5 years	DPW, Community Development	Low	Climate change planning	City budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
Glens Falls-006			e, Flood, Severe Storm, Severe Winter Storm, Wildfire	<p>frequency and severity of hazard events, resulting in outdated development guidelines and maintenance practices.</p> <p><b>Solution:</b> The City will develop guidelines and standards for incorporating likely impacts of climate change into design and maintenance programs. This action provides long-term risk reduction by taking future climate change into account and proactively reducing risk to increase the city's ability to withstand future hazard events.</p>				nt, Building and Codes, Common Council						
2023 -City of Glens Falls-007	Flood Damage Prevention Ordinance Update	1	Flood	<b>Problem:</b> The City's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a	No	None	1 year	FPA, Common Council	Staff time	Meet state standards, increased building requirements	City budget	High	LP R	PR





## SECTION 9.4. City of Glens Falls

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				freeboard requirement. <b>Solution:</b> The City will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.										
2023 -City of Glens Falls-008	Floodplain Administration or Training	1, 4	Flood	<b>Problem:</b> The City's Floodplain Administrator requires additional training to increase capabilities. <b>Solution:</b> The City will send the FPA to training available from NYS and FEMA, potentially exploring certified floodplain manager training.	No	None	2 years	FPA	Staff time	Increase floodplain administration capabilities	City budget	High	LP R	PR, PI
2023 -City of Glens Falls-009	Support Updated NFIP Mapping	1, 4	Flood	<b>Problem:</b> The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are	No	None	Within 5 years	FPA	Staff time	Improved floodplain mapping	City budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				seeking public and stakeholder comment. <b>Solution:</b> To the extent applicable and feasible, the City shall use all available means of promoting broad local government and public involvement through announcing meetings and providing available supporting data from FEMA and NYS DEC to the public and stakeholders as applicable. The City will announce public meetings on their website and will engage the public through outreach channels including the city website.										
2023 -City of Glens Falls-010	Substantial Damage Procedures	3	All Hazards	<b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration, improve recovery efforts	Municipal budget	High	LP R	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The City will develop official procedures for Substantial Damage and Substantial Improvement determinations.										
2023 -City of Glens Falls- 011	Critical Facility Flood Outreach 1	2	Flood	<b>Problem:</b> Finch, Pruyn&Co Landfill#1 Evoqua Water Technologies is a Tier II facility located in the 1-percent floodplain. The facility is a privately owned critical facility. <b>Solution:</b> The City FPA will conduct outreach to the facility manager to discuss flood risk and potential mitigation strategies to consider.	Yes	No	Within 6 months	FPA	Staff time	Facility manager aware of flood risk and potential mitigation actions	City budget	High	EAP	PI
2023 -City of Glens Falls- 012	Critical Facility Flood Outreach 2	2	Flood	<b>Problem:</b> The Island Drive Water Well is located in the 1-percent floodplain. The facility is a privately owned critical facility. <b>Solution:</b> The City FPA will conduct outreach to the facility manager to discuss flood risk and potential	Yes	No	Within 6 months	FPA	Staff time	Facility manager aware of flood risk and potential mitigation actions	City budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				mitigation strategies to consider.										

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

**Potential FEMA HMA Funding Sources:**

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation.


**Cost:**

The estimated cost for implementation.

**Benefits:**

A description of the estimated benefits, either quantitative and/or qualitative.

**Critical Facility:**

Yes  Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

**CRS Category:**

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.





- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.4-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Glens Falls-001	Water System Hydraulic Analysis	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2023-City of Glens Falls-002	Bush Street Flood Study	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-City of Glens Falls-003	Community Development Hazard Mitigation Integration	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-City of Glens Falls-004	Critical Facility Backup Power	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-City of Glens Falls-005	Dam Failure Education	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-City of Glens Falls-006	Climate Change Standards	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-City of Glens Falls-007	Flood Damage Prevention Ordinance Update	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-City of Glens Falls-008	Floodplain Administrator Training	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-City of Glens Falls-009	Support Updated NFIP Mapping	0	1	1	1	1	1	1	1	1	1	0	0	1	1	11	High
2023-City of Glens Falls-010	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-City of Glens Falls-011	Critical Facility Flood Outreach 1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-City of Glens Falls-012	Critical Facility Flood Outreach 2	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High





*Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).*





### 9.4.8 Action Worksheets

The following action worksheets were developed by the City of Glens Falls to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Critical Facility Backup Power		
<b>Project Number:</b>	2023-City of Glens Falls-004		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	Critical facilities require backup power to maintain essential functions during and after disaster events.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	<p>The City will purchase and install permanent fixed generators and necessary electrical components at the following facilities:</p> <ul style="list-style-type: none"> <li>• WWTP</li> <li>• All City district school</li> <li>• City Hall</li> <li>• Standby power for four or five lift/pumping stations</li> <li>• Library (supplement current partial backup power.)</li> <li>• The Pines (private nursing home)</li> <li>• Stichman Towers (senior living) – replace older backup power system</li> </ul>		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	DPW, Building and Codes, Facility managers	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels	\$100,000 per facility	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000 per facility	Weather dependent; poses a threat to wildlife; expensive repairs if needed
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			





<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	





Action Worksheet		
Project Name:	Critical Facility Backup Power	
Project Number:	2023-City of Glens Falls-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of critical facilities
Property Protection	1	Project will protect buildings from power loss.
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	0	Within 5 years
Agency Champion	1	DPW, Building and Codes, Facility managers
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.5 TOWN OF HAGUE

This section presents the jurisdictional annex for the Town of Hague that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Hague's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.5.1 Hazard Mitigation Planning Team

The Town of Hague identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Supervisor, Highway Department, Zoning, and Floodplain Administrator. The Town Supervisor represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.5-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Edna A. Frazier, Supervisor/Town of Hague Address: 9793 Graphite Mountain Road, P.O. Box 509 Hague, NY 12836 Phone Number: 518-543-6161 Email: supervisor@townofhague.org	Name/Title: Matthew Coffin, Deputy Highway Superintendent Address: 9793 Graphite Mountain Road, P.O. Box 509 Hague, NY 12836 Phone Number: 518-543-6161 Email: zoning@townofhague.org
<b>NFIP Floodplain Administrator</b>	
Name/Title: Matthew Magee, Zoning Administrator Address: 9793 Graphite Mountain Road, P.O. Box 509 Hague, NY 12836 Phone Number: 518-543-6161 Email: zoning@townofhague.org	
<b>Additional Contributors</b>	





Primary Point of Contact	Alternate Point of Contact
Name/Title: Catherine Clark, Assistant Flood Plain Administrator Method of Participation: Provided information on previous events, capabilities, NFIP administration capabilities, building permits, and the status of previous actions. Provided input on hazard rankings. Reviewed annex and contributed to mitigation strategy.	
Name/Title: Tim Fiallo, Highway Clerk Method of Participation: Provided information on the status of previous actions	
Name/Title: Matthew Magee, Zoning Administrator Method of Participation: Provided input on hazard rankings. Reviewed annex and contributed to mitigation strategy.	
Name/Title: Edna A. Frazier, Supervisor/Town of Hague Method of Participation: Reviewed annex and contributed to mitigation strategy.	

## 9.5.2 Municipal Profile

The Town of Hague is located in the Eastern Adirondacks and situated on the northern shore of Lake George at the northeast corner of Warren County. The Town is bordered on the east by Washington County and on the north by Essex County. The Town has a total land area of 79.6 square miles of which 64.0 square miles is land and 15.6 square miles is water. The Town includes one hamlet, Hague, and three neighborhoods: Graphite, Sabbath Day Point, and Silver Bay.

According to the U.S. Census, the 2020 population for the Town of Hague was 633, a 9.4 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 3.8 percent of the population is 5 years of age or younger and 41.7 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Hague has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 6.64% of the population does not have a high school diploma
- 10.66% of the population has a disability
- 2.77% of households do not have a vehicle
- 9.87% of the population is living below the poverty level
- 5.39% of the population is unemployed

## 9.5.3 Jurisdictional Capability Assessment and Integration

The Town of Hague performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.





- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Hague to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Hague. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.5-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Fire Prevention and Building Code	Local and State	Warren County Fire Prevention and Building Code Enforcement Department
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town has adopted the Building Code of NY which sets provisions for safe construction. The Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 160 – Zoning	Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance is established to promote health, safety and general welfare of the community and protect the property values and aesthetics of the community. The Ordinance also ensures optimum overall conservation, protection, development and use of scenic, aesthetic, wildlife, recreational, open space, historic, ecological and natural resources of the Adirondack Park.				
<b>Subdivision Ordinance</b>	Yes	Chapter 150 – Subdivision Ordinance	Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance empowers the Planning Board to review and approve, conditionally approve or disapprove plats showing lots, blocks or sites, with or without highways; to approve the development of entirely or partially undeveloped plats already on file. The regulations consider land subdivision as part of an orderly, efficient, and economical aspect of development for the Town. Land that is to be subdivided is required to be useful to the community, meaning it must have drainage, water supply, sewage, and other necessities.				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources and can be used to restrict the subdivision of land within or adjacent to natural hazard areas.				
<b>Site Plan Ordinance</b>	Yes	Article VI of the Zoning Code	Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Permitted uses are examined through the site plan review requirements for each zoning district.				
<b>Stormwater Management Ordinance</b>	Yes	6 NYCRR 645 & 646	Local	Lake George Park Commission (LGPC)
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town adopted the New York State Department of Environmental Conservation Procedural and Substantive Regulations which protect the general welfare, safety and health of the public by protecting the quality of the ground and surface waters of the Park.				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	No	-	-	-
<b>Flood Damage Prevention Ordinance</b>	Yes	Chapter 99 – Flood Damage, 1996	Federal, State, County and Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities</li> <li>B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction. Flood fringe and Flood zones yes.</li> <li>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters</li> <li>D. Control filling, grading, dredging and other development which may increase erosion or flood damages</li> </ul>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands no</p> <p>F. Qualify for and maintain participation in the National Flood Insurance Program.</p> <p>The Town requires all new construction in the floodplain to be elevated 3 feet above ground level. No base flood elevations are available in the Town's FIRM.</p>				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	Yes	Chapter 88 – Drainage Ditches	Local	Adirondack Park Agency and Town
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>Chapter 88 – Drainage Ditches sets requirements for application and consultation for drainage ditches to prevent water damage from blocked ditches.</p>				
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Land Use Plan (Comprehensive Plan) Adopted 2003 Last amended in 2017	Local	Town Council, Planning Board
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The land use policies in the Land Use Plan discourage development or redevelopment with natural hazard areas. The plan provides adequate space for expected future growth in areas located outside natural hazard areas.</p>				
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-
<b>Stormwater Management Plan</b>	Yes	1985 the Town gave their authority to over Stormwater Management to the LGPC	LGPC	LGPC
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>All new development must incorporate stormwater management to parcels were new and replacement of structures occur.</p>				
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Economic Development Plan</b>	Yes	Adirondack Park Agency Economic Development Plan	Local	Adirondack Park Agency
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Plan currently does not have a connection to hazards or hazard mitigation planning.				
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/ Resiliency/Sustainability Plan</b>	No	-	-	-
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Comprehensive Emergency Management Plan – 2013	Local	Supervisor's Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Comprehensive Emergency Management Plan guides emergency response in the Town.				
<b>Continuity of Operations Plan</b>	No	-	-	-
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	No	-	-	-
<b>Public Health Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Other	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Hague to oversee and track development.

**Table 9.5-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Zoning
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	SFHA
Do you have a buildable land inventory?	Yes	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	The Town of Hague has 452 Vacant RES Properties.
Describe the level of build-out in your jurisdiction.	N/A	Zoning is in place. The development of each zone is restricted by the slope and soils.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Hague and their current responsibilities that contribute to hazard mitigation.

**Table 9.5-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board consists of five members and meets on the first Thursday of each month. The purpose of the Planning Board is to: <ul style="list-style-type: none"><li>Assure that the development within the Town is consistent with the Land Use Plan (Comprehensive Plan)</li><li>Conduct site plan reviews as required by the Town Zoning and Codes, and review subdivision requests as required by the Town Subdivision Code</li></ul>





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		<ul style="list-style-type: none"> <li>Make recommendations to the Zoning Board of Appeals when requested as part of the variance appeal process.</li> </ul>
Zoning Board of Adjustment	Yes	<p>The Zoning Board of Appeals is a five member board that meets on the fourth Thursday of each month. The purpose of the Zoning Board is:</p> <ul style="list-style-type: none"> <li>To render determinations where variances from the zoning code are requested.</li> <li>To hear appeals from applicants seeking interpretation or reversal of determination by the Zoning Enforcement Officer.</li> </ul>
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Town Highway Department is responsible for maintenance and repairs of Town roads including, paving, drainage, brush/mowing, sanding and salting.
Construction/Building/Code Enforcement Department	Yes	<p>Zoning Enforcement Officer is responsible for:</p> <ul style="list-style-type: none"> <li>Issues permits for land use, zoning, septic, subdivision and variance</li> <li>Provides technical assistance to the Planning Board, the Zoning Board of Appeals and the Local Board of Health</li> <li>Provides the point of contact to report alleged zoning or sanitary violations</li> <li>Administers the Town Property Maintenance Law</li> <li>Administers the Flood Hazard Zoning District (Flood Plain)</li> </ul>
Emergency Management/Public Safety Department	No	-
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Mutual Aid agreements exist between the Fire Department and Warren County
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with knowledge of land development and land management practices	Yes	Engineers are hire on a need basic. All codes allow for the Boards to hire professional services to advise on all permit applications.
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Zoning Enforcement Officer
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	No	Warren County Emergency Management provides services.
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>Administrative/technical capability self-assessment</b>		
<b>Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.</b>		
Engineers are hired on a need basic. All codes allow for the Boards to hire professional services to advise on all permit applications.		

## Fiscal Capability

The table below summarizes financial resources available to the Town of Hague.

**Table 9.5-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes, sewer
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No





Financial Resources	Accessible or Eligible to Use? (Yes/No)
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Hague.

**Table 9.5-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	-

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Hague.

**Table 9.5-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	O6 6Y	1/1/2019
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	N/A	-	-
Storm Ready Certification	No	(Warren County participates)	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable





## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.5-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Weak
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Strong
Infestation	Weak
Dam Failure	Moderate
Disease Outbreak	Moderate

## 9.5.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Hague.

**Table 9.5-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Hague	1	2	\$8,021	0	0	0

Source: FEMA 2023

Notes:

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.





*RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.*

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Hague.

**Table 9.5-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	The Town is seeking to map areas that are flood prone or on the flood fringe. The Town does not currently maintain a list of properties that have been damaged by flooding.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	The Town does not current have substantial damage procedures.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	No, flood hazard maps lack base flood elevation. Updated FIRMs are needed with base flood elevations to guide proper development
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Zoning
Are any certified floodplain managers on staff in your jurisdiction?	Zone Enforcement Officer
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	Yes. Training for the ZEO. Due to cost barriers, online CRS and NAI webinars that are offered for free from the ASFM website could be utilized.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.





NFIP Topic	Comments
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	FEMA maps and GIS.
What are the barriers to running an effective NFIP program in the community, if any?	Lack of staff and funding.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> <li>If so, state the violations.</li> </ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV: October 1, 2010
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	Section 160-49 amended 11-10-1998
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	Meets minimum NFIP requirements but flood damage prevention ordinance requires update to meet state standards.
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Yes, via the Planning Board under Site Plan review.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

## 9.5.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.5-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.5-11. Recent and Expected Future Development**

Type of Development	2017	2018	2019	2020	2021	2022
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)						
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA





Type of Development	2017		2018		2019		2020		2021		2022	
Single Family	6	0	8	0	6	1	3	0	5	0	7	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total New Construction Permits Issued</b>	<b>6</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>7</b>	<b>0</b>
Property or Development Name	Type of Development	# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2017 to Present												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None anticipated												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.5.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Hague's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Hague has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.5-1. Town of Hague Flood Hazard Area Extent and Location Map

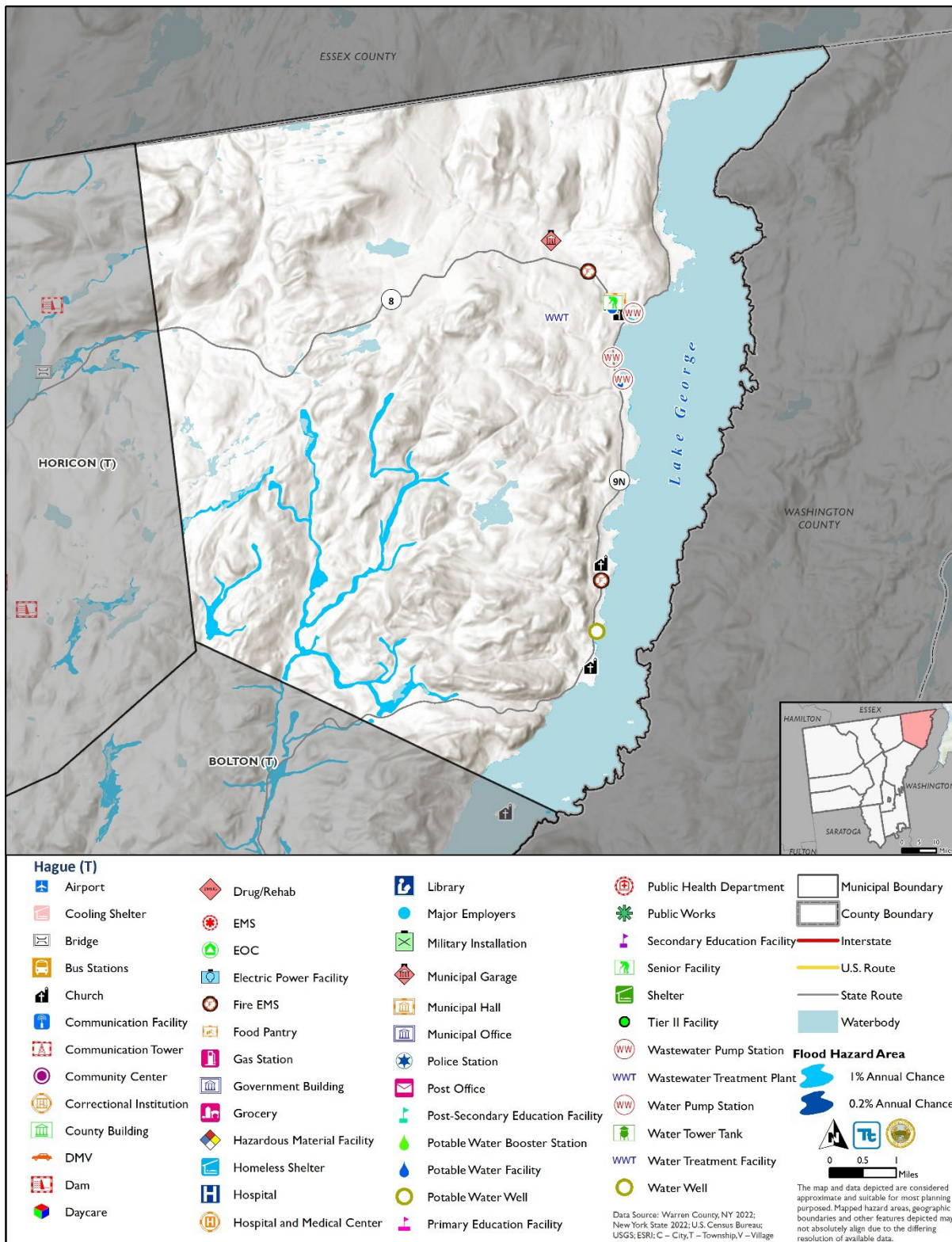






Figure 9.5-2. Town of Hague Earthquake (Soil Class) Hazard Area Extent and Location Map

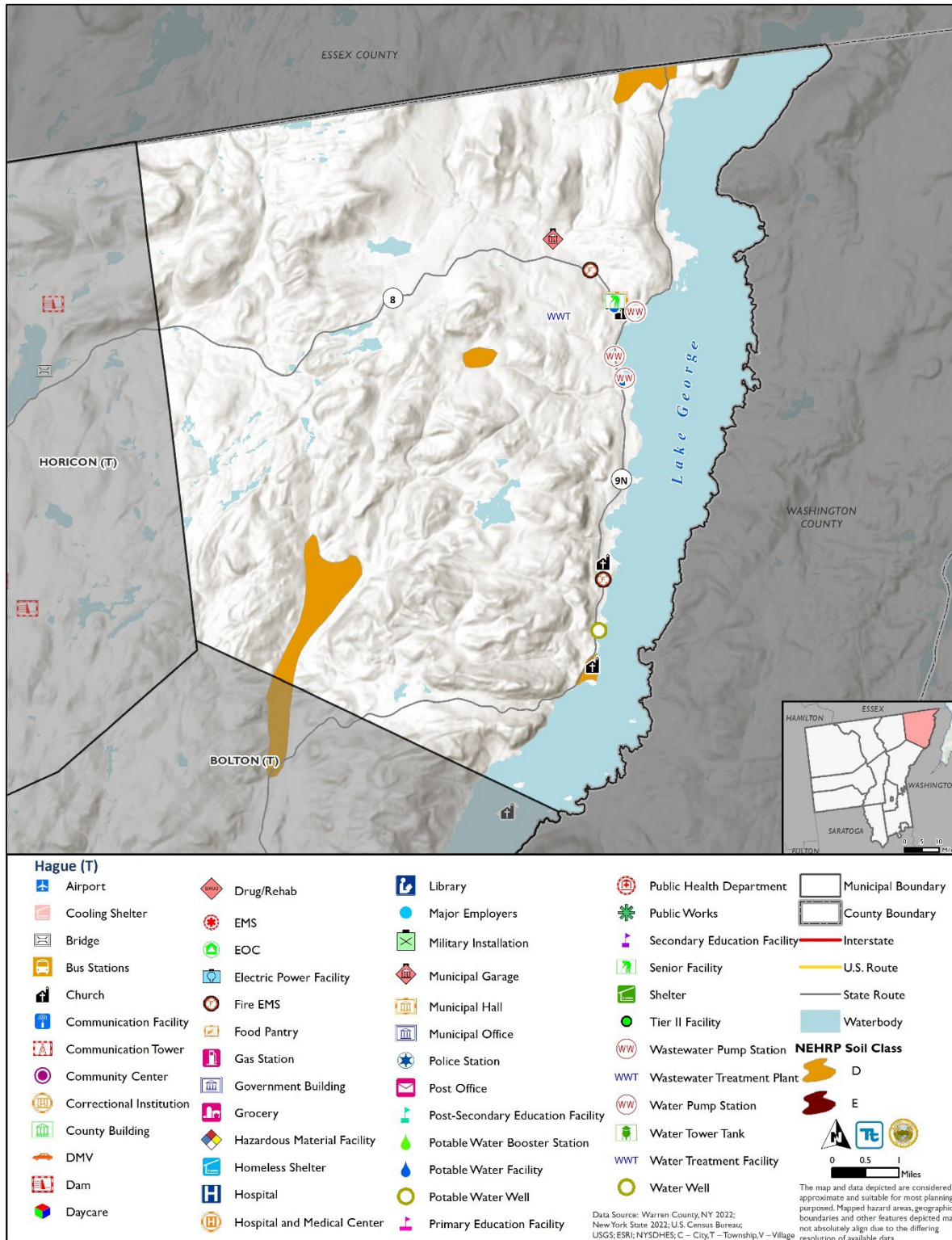
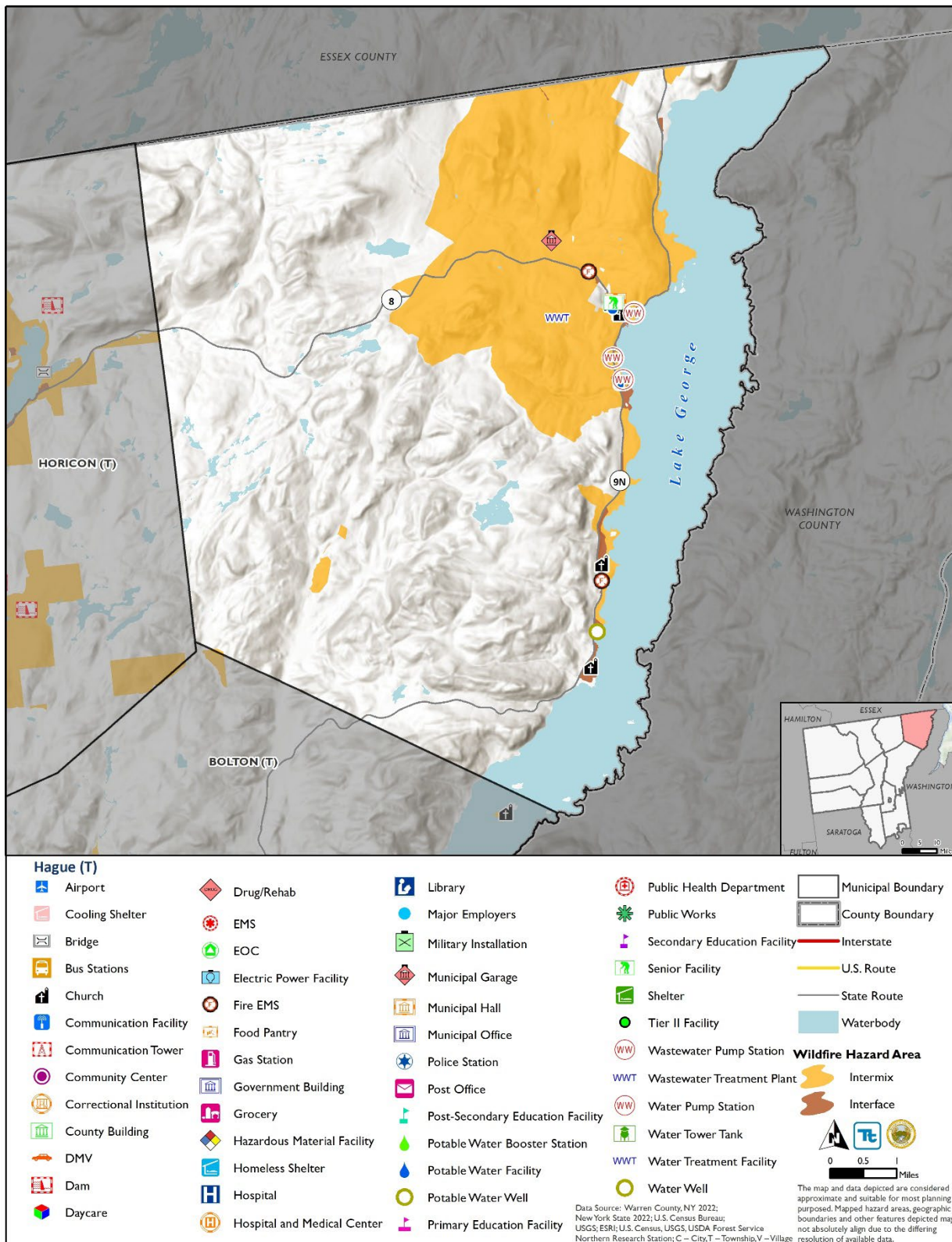






Figure 9.5-3. Town of Hague Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Hague's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.5-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.5-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
May 31, 2017	Hail	N/A	Severe thunderstorms impacted eastern New York on May 31, 2017 as a cold upper-level disturbance interacted with a moderately unstable airmass. Showers and thunderstorms began in the late morning across western and central New York, and rapidly intensified upon reaching the Capital District around 4 pm. With cold air and strong winds at mid-levels of the atmosphere and moist air near the surface, the environment was prime for large hail.	Although the County was impacted, the Town did not report substantial impacts.
June 18, 2018	Thunderstorm Wind	N/A	A line of strong thunderstorms with gusty winds moved through the region ahead of a cold frontal boundary. A few of these storms produced damaging wind gusts in Warren county, knocking down trees and wires.	A tree was knocked down on Route 9N.
October 31, 2019 – November 1, 2019	Severe Storms, Straight Line Winds, Flooding (DR-4472)	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New	There were six roads in the town of Hague damaged or washed out by flooding, including Route 8 near Graphite.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			<p>York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York. A state of emergency was declared for Warren County, and boil water notices were issued in Warren County due to floodwater inundation of private and public water systems.</p>	
January 20, 2020	COVID-19 Pandemic (DR-4480) and (EM-3434)	Yes	-	The Town was subject to closures and social distancing/masking requirements.
August 23, 2020	Thunderstorm Wind	N/A	Thunderstorms developed over portions of eastern New York during the afternoon of the 23rd. Some of these storms became severe, resulting in downed trees and wires. Hail up to 1.5 inches was also reported in Albany county.	Trees and wires downed on Route 9N near Rogers Rock Campground.
August 29, 2020	Thunderstorm Winds	No	Thunderstorms developed over portions of eastern New York during the afternoon of the 29th. A couple of these storms produced hail up to ping pong ball size. They later spawned two EF1 tornadoes in the towns of Stillwater and Schaghticoke, with damage to a couple of residences and a high school. An EFO tornado briefly touched down in southwestern Warren County. Sporadic wind damage was noted elsewhere.	Wires downed in the Town of Hague.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
June 21, 2021	Thunderstorm Winds	N/A	A lifting warm front across the region brought a hot and humid air mass into the region, leading to maximum heat indices reaching 95 to 98 degrees across some valley locations of eastern New York. An approaching cold front from the west led to numerous showers and thunderstorms during the afternoon and evening hours. A funnel cloud was spotted by an observer in Warren County looking northward toward Lake George.	Trees and wires were downed near Route 8 and 9N in the Town of Hague.

**Notes:**

EM      Emergency Declaration (FEMA)

FEMA    Federal Emergency Management Agency

DR      Major Disaster Declaration (FEMA)

N/A      Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Hague's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Hague. The Town of Hague reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:





- The Town changed the hazard ranking for flood from low to medium, noting that culverts in the Town are undersized and contribute to flooding under increasingly severe heavy rainfall events.
- The Town changed the hazard ranking for wildfire from low to medium, noting that wildland areas are congested and require clearing to prevent severe wildfire. However, the Town lacks the authority to complete this work and relies on NYS DEC.
- The Town agreed with the remainder of the calculated hazard rankings.

**Table 9.5-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Medium	High	High	Medium	Medium

Dam Failure	Disease Outbreak
Medium	Medium

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.5-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
LAKESIDE REGIONAL CHURCH	Religious	X	X	2023-Town of Hague-015	-
Hague Senior Citizens Club, Inc.	Health and Medical	X	X	2023-Town of Hague-015	-

Source: Warren County 2022





## Identified Issues

After review of the Town of Hague's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Hague identified the following vulnerabilities within their community:

- The Silver Bay Road culvert is undersized and contributes to flooding.
- The Yaw Road culvert is undersized and contributes to flooding.
- The Town Transfer Station culvert is undersized and contributes to flooding.
- The Terrace Road culverts are undersized and contributes to flooding.
- All culverts on Padanarum Road are undersized and require replacement.
- The Town's Land Use Plan was adopted in 2003 and last amended in 2017. When the plan is updated, it will be important to integrate information from this hazard mitigation plan.
- Additional training is needed for Town staff to respond to hazard events and mitigate risk. In particular, the Zoning Enforcement Officer requires additional training in floodplain management.
- It is important for the Town to have buildings with flood risk identified and mapped for emergency response and planning purposes. Current flood maps from FEMA are considered too vague.
- Private property owners may be unaware of opportunities to mitigate risk to their properties.
- The Town's flood damage prevention ordinance is outdated and lacks the state's freeboard requirement.
- While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make determinations, and provide for appeals.
- Wildland areas are congested and require clearing to prevent severe wildfire. Wildland areas are under the jurisdiction of NYS DEC.
- The FIRM for the Town of Hague lacks base flood elevations. This limits data to inform proper construction elevations within the floodplain.
- There are two critical facilities located in the SFHA: Lakeside Regional Church and Hague Senior Citizens Club, Inc.. Neither critical facility is owned by the Town.

### 9.5.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going





programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.5-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost		
THG-1	Integrate the risk assessment and recommendations of the hazard mitigation plan into the Town's Land Use Plan (Comprehensive Plan).	All Hazards		Town Council, Planning Board	No Progress	Level of Protection		1. Include in 2023 HMP 2. 3.
						Damages Avoided; Evidence of Success		
THG-2	Arrange for additional training for relevant staff on hazard risk reduction.	All Hazard		Town Supervisor, County Emergency Management	Ongoing Capability	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
THG-3	Implement measures to ensure all critical facilities in the floodplain (both in 1% and 0.2% flood zones) are protected to the 500-year flood (0.2 percent annual chance flood) level.	Flood, Sever Storm		Town DPW, Planning Board	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
THG-7	Educate residents regarding options for mitigating their properties from natural hazards using various outreach	All Hazards		Town Supervisor, County Emergency Services	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided;		





## SECTION 9.5. Town of Hague

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Damages Avoided; Evidence of Success	
	techniques including informational mailers, brochures, school presentations, and other outreach activities.							
THG-8	Update current inventory of at-risk buildings and infrastructure to include at-risk structures outside of the flood and flood-fringe zones, including those located along stream and brook corridors, impacted during a 100 yr. event.	Flood, Severe Storm		Town Board, Superintendent of school districts, County Office of Emergency Services	In Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
THG-9	Boat Launch Culvert pipe replacement	Flood		Town of Hague, Army Corp of Engineering, & NYSDEC	Complete	Cost		1. Discontinue 2. 3. Complete
						Level of Protection		
						Damages Avoided; Evidence of Success		
THG-10	Semi-annual inspection of all streams and brooks for Beaver dams and any tree that presents a hazard of falling into the stream	Flood,		Town of Hague Highway Department & NYSDEC; Warren County soil & Water	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
THG-11	Rain gardens - Erosion and Stormwater prevention	Flood, Severe Storm		Town of Hague, Zoning Enforcement Officer	Complete	Cost		1. Discontinue 2. 3. Complete
						Level of Protection		
						Damages Avoided;		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Evidence of Success		
THG-12	Install catch basins along state roads.	Flood, Severe Storm		NYSDOT, Town of Hague	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
THG-13	Vegetation removal from brook beds at the intersection of all bridges, Town, County, & NYS	Flood, Severe Winter Storm		Town of Hague Highway Department, Warren County soil & Water	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.5-15, the Town of Hague identified the following mitigation efforts completed since the last HMP:

- Highway crew have improved culverts in over 21 lane miles of Town roads and enlarged over 13 locations since 2017 while conducting inspections and cleanouts of all Town culverts.
- Pudding Island Road: 40' x 36" culvert pipe replaced.
- Mc Coy Road- Replacement/Removal of culvert and upgrade and installation of Bridge in place of same. Total funds spent in the amount of \$492,000 +/-.

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Hague participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.5-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA						CRS			
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X			X	X	X	X			
Extreme Temperature	X			X	X	X	X			
Flood	X	X		X	X	X	X		X	
Severe Storm	X	X		X	X	X	X		X	
Severe Winter Storm	X			X	X	X	X			
Wildfire	X		X	X	X	X	X	X		
Infestation	X			X	X	X	X			
Dam Failure	X			X	X	X	X			
Disease Outbreak	X			X	X	X	X			

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.5-17).

The table below summarizes the specific mitigation initiatives the Town of Hague would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.5-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Hague -001	Silver Bay Road Culvert Replacement	1	Severe Storm, Flood	<b>Problem:</b> The Silver Bay Road culvert is undersized and contributes to flooding. <b>Solution:</b> The Town will replace and install a box culvert to the 50-year flood event.	No	None	1 year	Highway Department	\$257,455 (Federal \$193,091.25 and State \$32,181.88)	Reduction in flooding, flood damages	FEMA funding reimbursement for 2019 damages.	High	SIP	SP
2023-Town of Hague -002	Yaw Road Culvert Replacement	1	Severe Storm, Flood	<b>Problem:</b> The Yaw Road culvert is undersized and contributes to flooding. <b>Solution:</b> The Town will replace the existing culvert pipe with a 60' x 40' wide wing wall pipe.	No	None	2 years	Highway Department	\$918,904.71	Reduction in flooding, flood damages	CHIPS, HMGP, BRIC, PDM, Town budget	High	SIP	SP
2023-Town of	Town Transfer Station	1	Severe Storm, Flood	<b>Problem:</b> The Town Transfer Station	No	None	Within 5 years	Highway Department	High	Reduction in flooding, flood damages	HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
Hague-003	Culvert Upsizing			<p>culvert is undersized and contributes to flooding.</p> <p><b>Solution:</b> The Town will install 100' of new pipe and an expansion from 12" to 16" in diameter.</p>										
2023-Town of Hague-004	Terrace Road Culvert Upsizing	1	Severe Storm, Flood	<p><b>Problem:</b> The Terrace Road culverts are undersized and contributes to flooding.</p> <p><b>Solution:</b> The Town will complete the following culvert upgrades: A) 60' culvert pipe upgraded from 10" to 12"; B) 220' Culvert pipe upgraded from 10" to 12"; C) 40'</p>	No	None	Within 5 years	Highway Department	High	Reduction in flooding, flood damages	HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Culvert pipe upgraded from 10" to 12".										
2023-Town of Hague-005	Padanarum Road Culvert Upsizing	1	Severe Storm, Flood	<b>Problem:</b> All culverts on Padanarum Road are undersized and require replacement. <b>Solution:</b> The Town will upsize and replace all culverts on Padanarum Road to the 50-year storm specification.	No	None	Within 5 years	Highway Department	High	Reduction in flooding, flood damages	HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP
2023-Town of Hague-006	Hazard Mitigation Integration In Land Use Plan	1, 4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Town's Land Use Plan was adopted in 2003 and last amended in 2017. When the plan is updated, it will be important to integrate information from this	No	None	Within 5 years	Town Council, Planning Board	Low	Improved integration	Town budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				hazard mitigation plan. <b>Solution:</b> The Town will update the Land Use Plan and use information such as hazard areas and frequency to guide land use decision making.										
2023-Town of Hague-007	Staff Training	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> Additional training is needed for Town staff to respond to hazard events and mitigate risk. In particular, the Zoning Enforcement Officer requires additional training in floodplain management.	No	None	2 years	Town Council, Zoning Enforcement Office	Staff time	Increased capabilities of Town staff	Town budget	High	LPR / EAP	PR, PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will provide training opportunities for staff on hazards and hazard mitigation with an emphasis on future conditions. The Town will have the ZEO complete floodplain management trainings offered by FEMA and NYS DEC and pursue CFM certifications.										
2023-Town of Hague-008	Flood Risk Inventory	2, 3	Flood	<b>Problem:</b> It is important for the Town to have buildings with flood risk identified and mapped for emergency response and planning	No	None	2 years	FPA, Planning Board	Low	Improved understanding of flood risk	BRIC, Town budget	High	EAP / LPR	PI, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				purposes. Current flood maps from FEMA are considered too vague. <b>Solution:</b> The Town will update the current inventory of at-risk buildings and infrastructure to include at-risk structures outside of the flood and flood-fringe zones, including those located along stream and brook corridors, impacted during a 100 yr. event.										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Hague-009	Public Education Program	2	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure	<b>Problem:</b> Private property owners may be unaware of opportunities to mitigate risk to their properties. <b>Solution:</b> The Town will educate residents regarding options for mitigating their properties from natural hazards using various outreach techniques including informational mailers, brochures, school presentations, and other outreach activities.	No	None	2 years	Town Council	Low	Increased public awareness of potential mitigation measures for private property	Town budget	High	EAP	PI
2023-Town	Flood Damage	1, 4	Flood	<b>Problem:</b> The Town's flood	No	None	1 year	FPA, Town Council	Staff time	Meet state standards,	Town budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
of Hague -010	Prevention Ordinance Update			<p>damage prevention ordinance is outdated and lacks the state's freeboard requirement.</p> <p><b>Solution:</b> The Town will update the ordinance to include a 2 foot freeboard requirement for all construction.</p>						stronger flood protection for new construction				
2023-Town of Hague -011	Substantial Damage Procedures	4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<p><b>Problem:</b> While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make</p>	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration, improve recovery efforts	Municipal Budget	High	LPR	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				determinations, and provide for appeals.										
				<b>Solution:</b> The municipality will develop official procedures for Substantial Damage and Substantial Improvement determination for earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazard events..										
2023-Town of Hague-012	Wildfire Risk Reduction	5	Wildfire	<b>Problem:</b> Wildland areas are congested and require clearing to prevent severe	No	None	Within 5 years	Administration, NYS DEC	Staff time	Reduction in wildfire risk	Town budget	High	NSP	NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				wildfire. Wildland areas are under the jurisdiction of NYS DEC.  <b>Solution:</b> The Town will submit information on problem areas for wildfire in wildlands to NYS DEC. The Town will provide additional information/support to NYS DEC as necessary.										
2023-Town of Hague-013	Updated FIRM Request	4	Flood	<b>Problem:</b> The FIRM for the Town of Hague lacks base flood elevations. This limits data to inform proper construction elevations	No	None	1 year	FPA, Administration, FEMA	Staff time	Updated FIRMs with BFEs established	Municipal budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				within the floodplain. <b>Solution:</b> The Town will continue to request updated FIRMs from FEMA that will include BFEs. When remapping is initiated, the Town will provide data and information as necessary to support FEMA.										
2023-Town of Hague-014	Roadway Damage and Maintenance Documentation	4	Flood, Severe Storm	<b>Problem:</b> The Town's roadways are often damaged during severe storm events. Roadways are under the jurisdiction of the Town, County, and State. Consistent	No	None	3 years	Administration, Highway Department	Low	Improved documentation of damages, communication with County and State agencies.	Town budget	High	LPR	PR, PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				documentation of damages is needed to alert the proper jurisdictions, apply for FEMA reimbursement, and document maintenance. <b>Solution:</b> The Town will develop standard procedures or a mobile application to document flood damages and maintenance to support potential requests for reimbursement, hazard mitigation applications, and alert other jurisdictions of damage to										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Hague -015	Critical Facilities Flood Outreach	1, 3	Flood	<p>their infrastructure.</p> <p><b>Problem:</b> There are two critical facilities located in the SFHA: Lakeside Regional Church and Hague Senior Citizens Club, Inc.. Neither critical facility is owned by the Town.</p> <p><b>Solution:</b> The FPA will conduct outreach to each facility manager, noting the exposure to flooding and potential mitigation actions.</p>	Yes	No	Within 6 months	FPA	Staff time	Critical facility managers aware of flood risk, mitigation options	Town budget	High	EAP	PI

Notes:2

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV Community Assistance Visit  
CRS Community Rating System

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation.





DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
FEMA Federal Emergency Management Agency  
FPA Floodplain Administrator  
HMA Hazard Mitigation Assistance  
N/A Not applicable  
NFIP National Flood Insurance Program  
OEM Office of Emergency Management

BRIC Building Resilient Infrastructure and  
Communities Program


Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:

Yes  Critical Facility located in 1% floodplain

Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.5-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Hague-001	Silver Bay Road Culvert Replacement	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Town of Hague-002	Yaw Road Culvert Replacement	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Hague-003	Town Transfer Station Culvert Upsizing	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Hague-004	Terrace Road Culvert Upsizing	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Hague-005	Padanarum Road Culvert Upsizing	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Hague-006	Hazard Mitigation Integration In Land Use Plan	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Hague-007	Staff Training	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Hague-008	Flood Risk Inventory	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Hague-009	Public Education Program	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Hague-010	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Hague-011	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Hague-012	Wildfire Risk Reduction	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Hague-013	Updated FIRM Request	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Hague-014	Roadway Damage and Maintenance Documentation	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Hague-015	Critical Facilities Flood Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.5.8 Action Worksheets

The following action worksheets were developed by the Town of Hague to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Yaw Road Culvert Replacement		
<b>Project Number:</b>	2023-Town of Hague-002		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	The Yaw Road culvert is undersized and contributes to flooding.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Town will replace the existing culvert pipe with a 60' x 40' wide wing wall pipe.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	At least a 5-year event; will be determined once project is complete	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding, flood damages
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	\$ 918,904.71	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, BRIC, PDM, CHIPS, Town budget
<b>Responsible Organization:</b>	Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove road	\$20,000	Roadway cannot be removed
	Relocate road to another location	\$50,000	Costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Yaw Road Culvert Replacement	
<b>Project Number:</b>	2023-Town of Hague-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project will protect roadways from flooding, culvert damages
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Storm, Flood
Timeline	0	Within 5 years
Agency Champion	1	Highway Department
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	





Damages to Yaw Road due to a 2019 storm event





## SECTION 9.

### 9.6 TOWN OF HORICON

This section presents the jurisdictional annex for the Town of Horicon that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Horicon's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.6.1 Hazard Mitigation Planning Team

The Town of Horicon identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Supervisor, Highway Department, and Zoning. The Supervisor represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.6-1. Hazard Mitigation Planning Team**

Primary Point of Contact		Alternate Point of Contact	
Name/Title: Michael N. Geraci, Supervisor Address: P.O. Box 90, State Route 8, Brant Lake, NY 12815–0090 Phone Number: –494–3867 Email: supervisor@horiconny.gov		Name/Title: Darian Granger, Highway Superintendent Address: P.O. Box 90, State Route 8, Brant Lake, NY 12815–0090 Phone Number: 518–494–2115 Email: highway@horiconny.gov	
NFIP Floodplain Administrator			
Name/Title: Kristena Williams Zoning Administrator Address: P.O. Box 90, State Route 8, Brant Lake, NY 12815–0090 Phone Number: 518–494–4245 Email: zoningplanning@horiconny.gov			
Additional Contributors			
Name/Title: Michael N Geraci, Supervisor			





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided information on previous events, capabilities. Provided input on hazard rankings. Reviewed annex. Contributed to mitigation strategy.	
Name/Title: Matthew Magee, Zoning Administrator	
Method of Participation: Provided information on NFIP administration, status of previous mitigation actions	
Name/Title: Darian Granger, Highway Superintendent	
Method of Participation: Reviewed annex	

## 9.6.2 Municipal Profile

The Town of Horicon is in the Adirondack Park on Warren County's northern border. Horicon is bordered by the Towns of Schroon to the north, Hague to the east, Bolton to the south, and Chester to the west. It is part of the Glens Falls Metropolitan Statistical Area. The Town has a total land area of 71.8 square miles of which 66.1 square miles is land and 5.7 square miles is water. The Town includes six hamlets: Adirondack, Brant Lake, Pottersville, Schroon Lake, South Horicon, and Starbuckville. Brant Lake is located in the central portion of the Town and Schroon Lake is located partly in the northwest part of Town. The major through fare within the town is NYS Route 8.

According to the U.S. Census, the 2020 population for the Town of Horicon was 1,471, a 5.9 percent increase from the 2010 Census. Data from the 2020 U.S. Census indicate that 2.2 percent of the population is 5 years of age or younger and 28.8 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Horicon has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 6.64% of the population does not have a high school diploma
- 10.66% of the population has a disability
- 2.77% of households do not have a vehicle
- 9.87% of the population is living below the poverty level
- 5.39% of the population is unemployed

## 9.6.3 Jurisdictional Capability Assessment and Integration

The Town of Horicon performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.





- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Horicon to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Horicon. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.6-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Building and Fire Code	State and Local	Warren County Fire Prevention and Building Code Enforcement
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town adopted the New York State Uniform Fire Prevention and Building Code. The Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code.				
<b>Zoning/Land Use Code</b>	Yes	Zoning Ordinance, 2016	Local	Zoning Administrator
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance regulates the zoning districts throughout the Town. The purpose of this Local Law is to promote the health, safety, and general welfare of the community and protect the property values and aesthetics of the community by channeling and directing growth and by regulating and restricting the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yard, courts and other open spaces, the density of population and the location and use of development, structures and land for commercial, industrial, residential and other purposes, to the extent permissible within the proper exercise of the police power.  It is the further purpose and objective of this Local Law to ensure optimum overall conservation, protection, development and use of the unique scenic, aesthetic, wildlife, recreational, open space, historic, ecological and natural resources of the Adirondack Park and to preserve the beauty and character of the Adirondack Park setting to the benefit of the community; and to retain the natural vistas of the Adirondacks to the benefit of the residents and visitors to the community.				
<b>Subdivision Ordinance</b>	Yes	Subdivision Ordinance	Local	Zoning Administrator
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Subdivision Regulations require a pavement width of 20 feet with 2 feet shoulders for both Town highways and private roads. Newly constructed Town highways must have an asphalt driving surface. Private roads may have a gravel surface provided that slopes do not exceed 7 percent.				
<b>Site Plan Ordinance</b>	Yes	Zoning Ordinance – Site Plan	Local	Planning Board
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The purpose of Site Plan Approval is to ensure that the design, layout and operation of an allowed use within a district:</p> <ol style="list-style-type: none"> <li>1. Minimizes adverse impacts upon neighboring properties, the natural and man-made environment, roadways, and the community in general;</li> <li>2. Is in keeping with the character of the area in which it is located; and</li> <li>3. Is consistent with the goals and objectives of the Town of Horicon Comprehensive Plan.</li> </ol>				
<b>Stormwater Management Ordinance</b>	No	-	-	-
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.</p>				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	No	-	-	-
<b>Flood Damage Prevention Ordinance</b>	Yes	Flood Damage Prevention Ordinance	Federal, State, County and Local	Zoning Administrator
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:</p> <ol style="list-style-type: none"> <li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities</li> <li>B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction</li> <li>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters</li> <li>D. Control filling, grading, dredging and other development which may increase erosion or flood damages</li> <li>E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands</li> <li>F. Qualify for and maintain participation in the National Flood Insurance Program.</li> </ol> <p>There are no Base Flood Elevations established for the Town of Horicon.</p>				
<b>Wellhead Protection</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Emergency Management Ordinance	No	-	-	-
Climate Change Ordinance	No	-	-	-
Other	No	-	-	-
<b>Planning Documents</b>				
Comprehensive Plan	Yes	Town of Horicon Comprehensive Plan, 2010	Local	Comprehensive Plan Steering Committee
How has or will this be integrated with the HMP and how does this reduce risk? The Comprehensive Plan is establishes a guide for future growth and development in the Town. The Plan discusses the environmental resources of the Town, examines current land use patterns, analyzes growth trends, discusses future needs and established policies designed to insure the promotion of health, safety, and general welfare of the existing and future Town residents.				
Capital Improvement Plan	No	-	-	-
Disaster Debris Management Plan	No	-	-	-
Floodplain Management or Watershed Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Urban Water Management Plan	No	-	-	-
Habitat Conservation Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Community Wildfire Protection Plan	No	-	-	-
Community Forest Management Plan	No	-	-	-
Transportation Plan	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Agriculture Plan	No	-	-	-
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
Tourism Plan	No	-	-	-
Business/ Downtown Development Plan	No	-	-	-
Other (for example NYRCR, etc.)	No	-	-	-
<b>Response/Recovery Planning</b>				
Comprehensive Emergency Management Plan	Yes	Warren County Comprehensive Emergency Management Plan	Local, County	Warren County OEM
How has or will this be integrated with the HMP and how does this reduce risk? The Town utilizes the Warren County Comprehensive Emergency Management Plan prior to and during hazard events to establish roles for Town departments and areas of safety for residents.				
Continuity of Operations Plan	No	-	-	-
Substantial Damage Response Plan	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Public Health Plan	No	-	-	-
Other	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Horicon to oversee and track development.



**Table 9.6-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Zoning
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	Warren County issues permits.
Do you have a buildable land inventory?	Yes	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	There are buildable parcels through the Town of Horicon
Describe the level of build-out in your jurisdiction.	N/A	Minimal

### Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Horicon and their current responsibilities that contribute to hazard mitigation.

**Table 9.6-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Town of Horicon Planning Board is a five member board appointed by the Town Board. The Planning Board considers applications for Major and Minor Subdivisions, Conditional Uses (Site Plan Review) and Boundary Line Adjustments.
Zoning Board of Adjustment	Yes	The Zoning Board of Appeals (ZBA) for the Town of Horicon is a five-member board appointed by the Town Board. The Zoning Board of Appeals (ZBA) considers applications for exceptions to the Town's Zoning regulations such as Area Variances, Use Variances, and Appeals/Interpretation of Determination from the Zoning Administrator.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Highway Department is responsible for maintaining approximately 52 miles of paved town roads and associated infrastructure including: <ul style="list-style-type: none"><li>Snow plowing and sanding</li><li>Road re-surfacing and grading</li><li>Pruning &amp; removing trees along town highway roads</li><li>Installing &amp; repairing culverts</li></ul>





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		<ul style="list-style-type: none"> <li>• Digging &amp; maintaining ditches</li> <li>• Provide proper channeling of road &amp; storm water runoff</li> </ul> <p>Current equipment includes:</p> <ul style="list-style-type: none"> <li>• 5 salt spreaders/plows</li> <li>• Grader</li> <li>• 2 front loaders</li> </ul> <p>New York State DOT and Warren County have primary responsibility for highway repairs and reconstruction on roadways that border Schroon Lake and Brant Lake.</p>
Construction/Building/Code Enforcement Department	No	Code enforcement is the responsibility of Warren County.
Emergency Management/Public Safety Department	No	-
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Warren County has contracted with a firm to implement an emergency notification system to be operational in early 2023.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Mutual aid agreements with Chestertown Fire Department
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	No	Rely on Warren County
Grant writer(s)	No	-
Resilience Officer	No	-





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

## Fiscal Capability

The table below summarizes financial resources available to the Town of Horicon.

**Table 9.6-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Horicon.

**Table 9.6-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	Yes	Active social media forum via website and Facebook.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	Warren County has contracted with a firm to implement an emergency notification system to be operational in early 2023.
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform	No	-





Outreach Resources	Available? (Yes/No)	Comment:
citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>		

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Horicon.

**Table 9.6-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	–	–
Building Code Effectiveness Grading Schedule (BCEGS)	No	–	–
Public Protection (ISO Fire Protection Classes 1 to 10)	No	–	–
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	–	–
Storm Ready Certification	No	(Warren County participates)	–
Firewise Communities classification	No	–	–
Other	No	–	–

Note:

N/A Not applicable  
– Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.6-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate





Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam Failure	Moderate
Disease Outbreak	Moderate

### 9.6.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Horicon.

**Table 9.6-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Horicon	11	5	\$112,548	0	0	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

### Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Horicon.

**Table 9.6-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> <li>Do you maintain a list of properties that have been damaged by flooding?</li> </ul>	No
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> <li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li> </ul>	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> <li>If so, state what projects are underway.</li> </ul>	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	On case-by-case bases, collaboration of Highway Superintendent, Zoning Administrator and Town Supervisor.





NFIP Topic	Comments
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"> <li>If there are mitigation properties, how were the projects funded?</li> </ul>	Six claims have been paid since 2016
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	No, too vague.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Zoning Administrator
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> <li>If so, what type of assistance/training is needed?</li> </ul>	The Floodplain Administrator would benefit from training. Due to cost barriers, online CRS and NAI webinars that are offered for free from the ASFM website could be utilized.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	FEMA maps and GIS
What are the barriers to running an effective NFIP program in the community, if any?	Lack of staff, training, and funding sources
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> <li>If so, state the violations.</li> </ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	April 27, 2016
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	Zoning Section 8.13
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	Meets
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Yes, site plan review





NFIP Topic	Comments
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

### 9.6.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.6-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.6-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	8	N/A	7	N/A	6	N/A	7	N/A	14	N/A	7	N/A
Multi-Family	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
Other (commercial, mixed-use, etc.)	2	N/A	3	N/A	0	N/A	1	N/A	4	N/A	1	N/A
Total New Construction Permits Issued	10	N/A	10	N/A	6	N/A	8	N/A	18	N/A	8	N/A
Property or Development Name	Type of Development	# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2017 to Present												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None anticipated												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

Note: Information on permits within the SFHA was unavailable for this planning process.

### 9.6.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Horicon's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using





mapping techniques and technologies and for which the Town of Horicon has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.6-1. Town of Horicon Flood Hazard Area Extent and Location Map

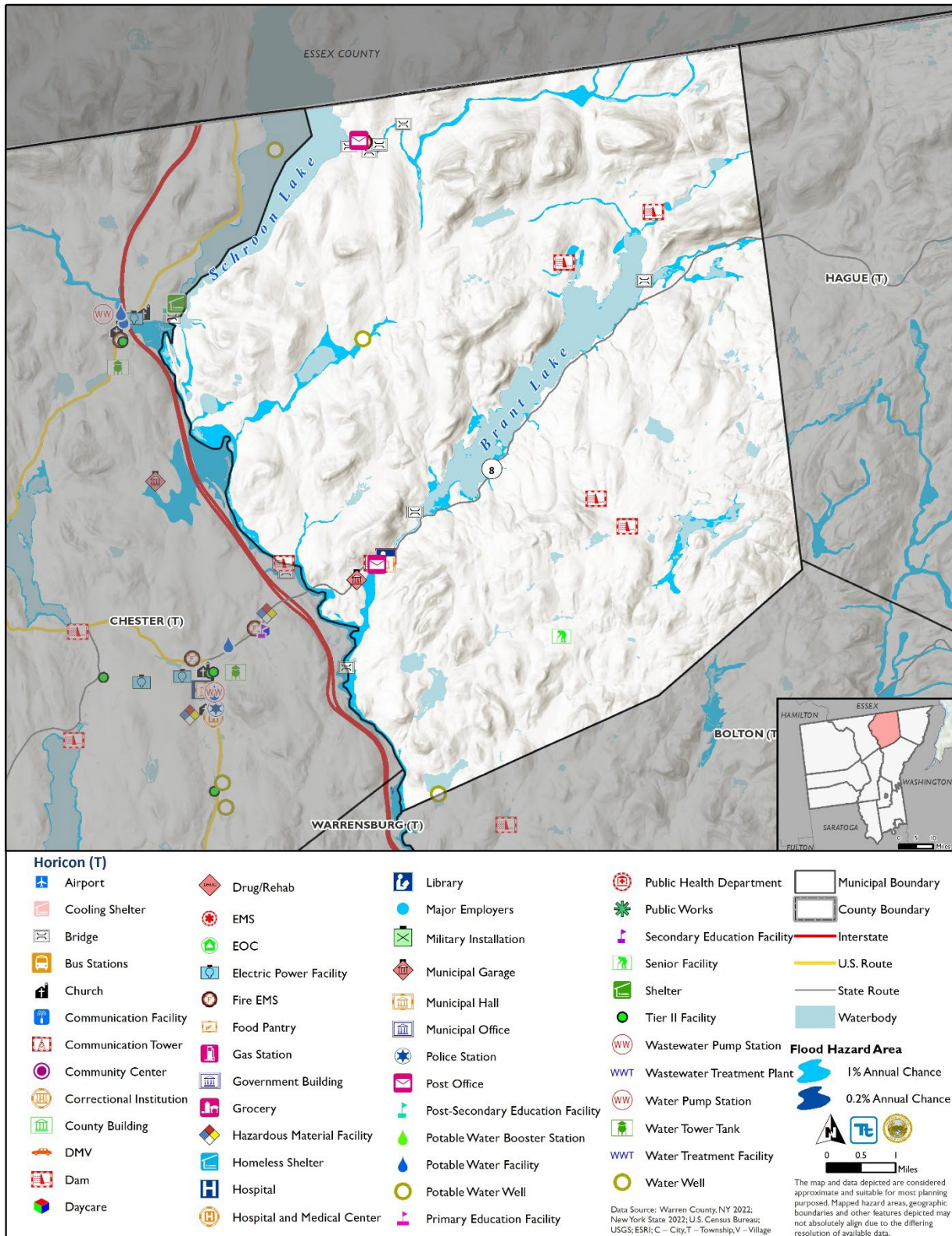






Figure 9.6-2. Town of Horicon Earthquake (Soil Class) Hazard Area Extent and Location Map

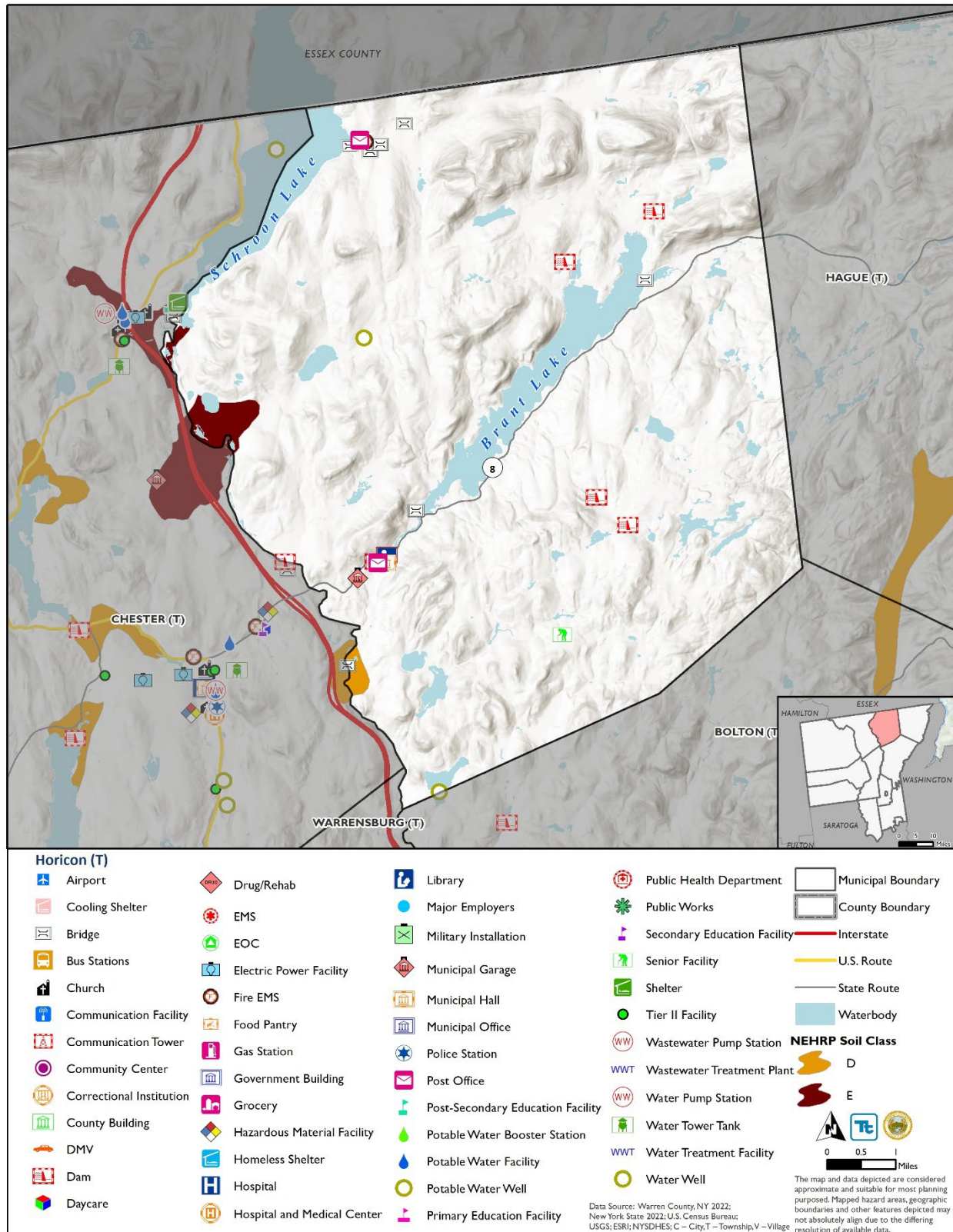
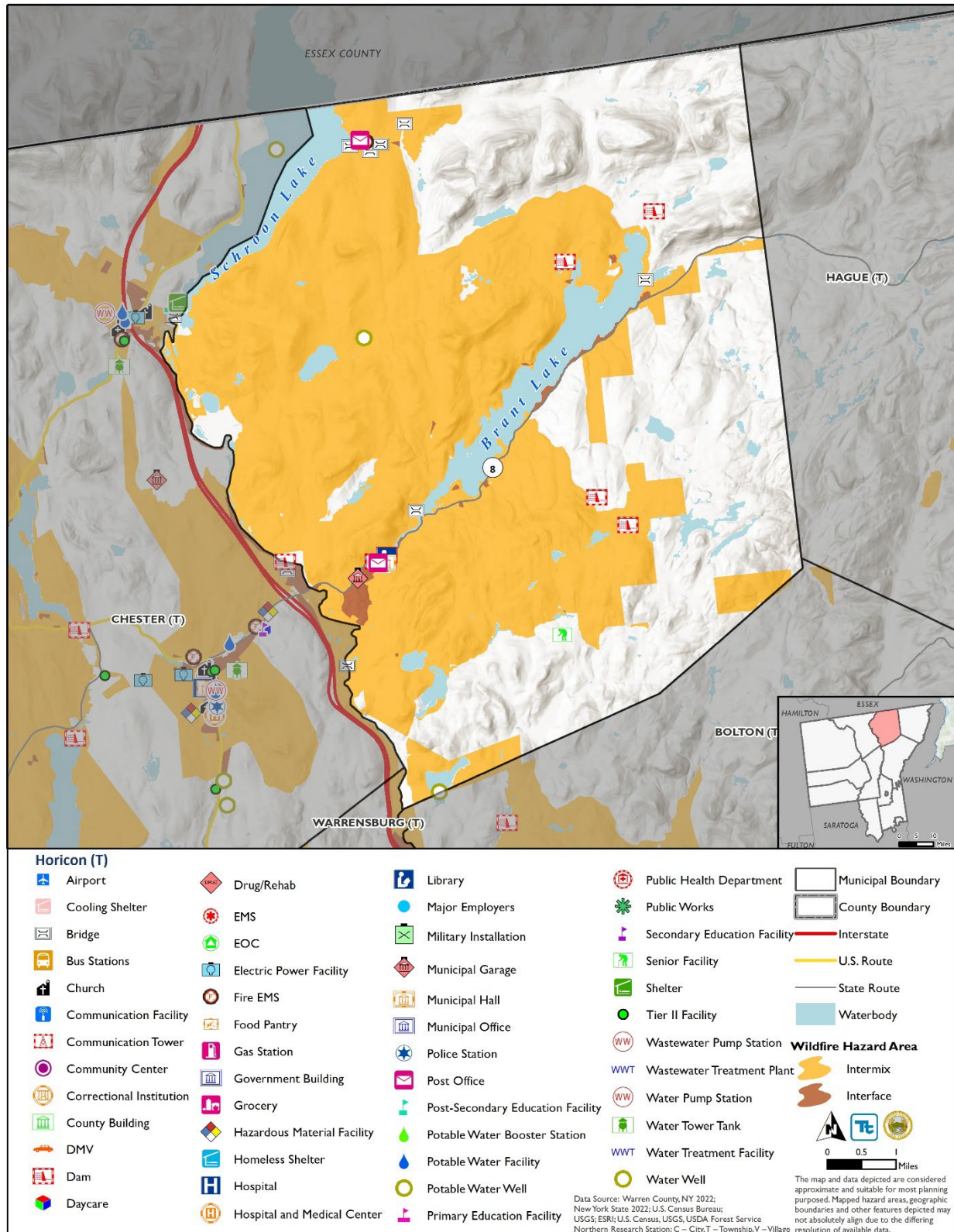






Figure 9.6-3. Town of Horicon Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume 1, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Horicon's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.6-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.6-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 31–November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) Halloween Storm	Yes	Severe storm, straight line winds, and flooding	Roughly \$7,000 in materials and \$4,500 in staff time.
January 20, 2022	Covid-19 pandemic (DR-4480/EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	The Town was subject to closures and masking/social distancing requirements.
April 18–19, 2022	Severe Winter Storm	N/A	8–11 inches of snow. Due to weight of snow, many trees, branches and power lines fell. 16,000 county residents were without power. Roads blocked made it difficult to plow the snow.	Although the County was impacted, the Town did not report substantial damages.

Notes:

EM      Emergency Declaration (FEMA)

FEMA    Federal Emergency Management Agency

DR      Major Disaster Declaration (FEMA)

N/A      Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Horicon's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the





economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Horicon. The Town of Horicon reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town agreed with the calculated hazard rankings.

Table 9.6-13. Hazard Ranking Input

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Low	High	High	Low	Medium

Dam Failure	Disease Outbreak
Medium	Medium

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2’ above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.




**Table 9.6-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Clear Brook Dam	Dam	X	X	-	No inadequacies noted. The dam is assumed to be protected to the 0.2% flood level.
Starbuckville Dam	Dam	X	X	-	Maintained by separate commission. No inadequacies noted. The dam is assumed to be protected to the 0.2% flood level.
Brant Lake Lower Dam	Dam	X	X	-	No inadequacies noted. The dam is assumed to be protected to the 0.2% flood level.
Brant Lake Upper Dam	Dam	X	X	2023-Town of Horicon-002	-
Brant Lake Pedestrian	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be protected to the 0.2% flood level.
Market Street	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be protected to the 0.2% flood level.
South Horicon	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be protected to the 0.2% flood level.
Starbuckville	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be protected to the 0.2% flood level.
Valentine Mill	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be protected to the 0.2% flood level.
Blair Cross	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be





Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
					protected to the 0.2% flood level.
Johnson Road	Bridge	X	X	-	No inadequacies noted. The bridge is assumed to be protected to the 0.2% flood level.
Horicon Free Library	Library	X	X	-	The facility is slightly elevated and is assumed to be protected to the 0.2% flood level
Brant Lake Post Office	Post Office	X	X	-	The facility is slightly elevated and is assumed to be protected to the 0.2% flood level.

Source: Warren 2022

## Identified Issues

After review of the Town of Horicon's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Horicon identified the following vulnerabilities within their community:

- The culvert on Alder Brook Road is undersized and corroded. The culvert fails to meet the 1.25X active stream channel width for Alder Brook that feeds into the Schroon River. Historically, flooding has closed the roadway 1-2 times per year. When flooded, there are residences, season camps, and farms that have reduced access.

The current structure has completely corroded in the bottom and takes a significant amount of flow. During high storm events, the crossing causes streambed materials to build up and inhibit the natural flow of the watercourse. This along with beaver activity results in inadequate flow conditions and inhibits aquatic passability. Alder Brook has a C(T) stream classification and outlets into the Schroon River. Sedimentation in these waterbodies can impact the drinking water supply.

The Town has secured \$30,000 for planning through the NYS DEC Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant. Due to the elevation of the surrounding terrain, it is not feasible to upsize the existing culvert.

- Brant Lake has experienced high water levels due to lack of a lake level control system. High water levels have caused access issues to docks and marinas. Continued high water events could stress the dam and increase the risk of failure.





- Additional education of the public is needed so property owners are aware of risks and ways to protect their property.
- Residents with limited ability to access emergency notifications, prepare for, or evacuate when necessary require additional assistance before, during, and after hazard events.
- The Town's Floodplain Administrator requires additional training to increase capabilities.
- The Town lacks a Town specific emergency plan and currently relies on the County plan.
- Ernest Smith one lane temporary bridge. It is the only access for residents living on Ernest Smith Road.
- The Town has limited ability to communicate in real time with residents during emergency situations or to notify residents of an impending emergency.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.

### 9.6.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

---

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.6-15. Status of Previous Mitigation Actions**

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing Capability, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in the 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Level of Protection	
THO-1	Secure funding and complete culvert replacement and road elevation for Alder Brook Road. All mitigation efforts shall be made in consideration of Federal and State directives to mitigate critical infrastructure to address protection to the 500-year flood event or "worst damage scenario".	Flood, Severe Storm		Town Supervisor, Highway Department, SWCD	No Progress			1. Include in 2023 HMP 2. 3.
THO-2	Install lake level control system and other surface improvements at Upper Brant Lake Dam. All mitigation efforts shall be made in consideration of Federal and State directives to mitigate critical infrastructure to address protection to the	Dam Failure, Flood, Severe Storm		Town Supervisor, Highway Department, SWCD	No Progress			1. Include in 2023 HMP 2. 3.





Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing Capability, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in the 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost		
	500-year flood event or "worst damage scenario".							
THO-3	Integrate the risk assessment and recommendations of the hazard mitigation plan into the comprehensive plan and community development plan.	All Hazards		Planning Board	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
THO-4	Educate residents at a public meeting regarding steps to be taken to decrease the impact of natural hazards by developing, enhancing, and disseminating educational material informing groups about ways to reduce risk.	All Hazards		Town Supervisor, Planning Board, school districts; County Office of Emergency Services	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
THO-5	Work with the Highway Department to monitor and remove trees/limbs in storm areas that	Severe Storm, Severe Winter Storm		Town DPW, Highway Department	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided;		





Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing Capability, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in the 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Evidence of Success		
	present potential hazards to keep trees from threatening lives, property, and public infrastructure during storm events. Seek additional funding as available.							
THO-6	Design a network of citizens that will check in on elderly, functional needs, and low-income individuals during major events.	All Hazards		Planning Board, Town Supervisor	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
THO-7	Provide continuing education and training for local Floodplain Administrator to ensure code enforcement and proper inspections.	Flood		Town Supervisor, Planning Board	No Progress	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.6-15, the Town of Horicon identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Horicon participated in a mitigation action workshop in August 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.6-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X			X	X	X	X			X
Flood	X	X	X	X	X	X	X	X	X	X
Severe Storm	X	X	X	X	X	X	X	X	X	X
Severe Winter Storm	X	X		X	X	X	X			X
Wildfire	X			X	X	X	X			X
Infestation	X			X	X	X	X			X
Dam Failure	X			X	X	X	X			X
Disease Outbreak	X			X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.6-17).

The table below summarizes the specific mitigation initiatives the Town of Horicon would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.6-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Horicon-001	Alder Brook Road	1, 3, 5	Severe Storm, Flood	<b>Problem:</b> The culvert on Alder Brook Road is undersized and corroded. The culvert fails to meet the 1.25X active stream channel width for Alder Brook that feeds into the Schroon River. Historically, flooding has closed the roadway 1-2 times per year. When flooded, there are residences, season camps, and farms that have reduced access. The current structure has completely	None	May require permitting	Within 5 years	Town Supervisor, Highway Department, SWCD	\$30,000 for planning, High for structural improvements	Reduced occurrence of flooding, flood damages at Alder Brook Road. Improve fish and wildlife populations and reduce sedimentation to improve public drinking water source.	NYS DEC NPG grant program secured for planning; HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP, NSP	SP, NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				corroded in the bottom and takes a significant amount of flow. During high storm events, the crossing causes streambed materials to build up and inhibit the natural flow of the watercourse. This along with beaver activity results in inadequate flow conditions and inhibits aquatic passability. Alder Brook has a C(T) stream classification and outlets into the Schroon River.										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>Sedimentation in these waterbodies can impact the drinking water supply. The Town has secured \$30,000 for planning through the NYS DEC Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant. Due to the elevation of the surrounding terrain, it is not feasible to upsize the existing culvert.</p> <p><b>Solution:</b> Following planning and design, the Town will secure funding and</p>										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				complete culvert replacement with an 18" arch culvert and elevation of 300' of roadway for Alder Brook Road. The proposed structure will be designed to meet the active channel width sizing requirements and will allow for aquatic passability. All mitigation efforts shall be made in consideration of Federal and State directives to mitigate critical infrastructure to address protection to the 500-year										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				flood event or "worst damage scenario".										
2023-Town of Horicon-002	Upper Brant Lake Dam	1	Severe Storm, Flood	<p><b>Problem:</b> Brant Lake has experienced high water levels due to lack of a lake level control system. High water levels have caused access issues to docks and marinas. Continued high water events could stress the dam and increase the risk of failure.</p> <p><b>Solution:</b> The Town will install a lake level control system and other surface improvements at Upper Brant Lake</p>	Yes	May require permitting	Within 5 years	Town Supervisor, Highway Department, SWCD	High	Reduction in risk of dam failure	HMGP, BRIC, PDM, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Dam. All mitigation efforts shall be made in consideration of Federal and State directives to mitigate critical infrastructure to address protection to the 500-year flood event or "worst damage scenario".										
2023-Town of Horicon-003	Public Information Meeting	2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure	<b>Problem:</b> Additional education of the public is needed so property owners are aware of risks and ways to protect their property. <b>Solution:</b> The Town will educate residents at public	No	None	1 year	Town Supervisor, Planning Board, SWCD, school districts; County Office of Emergency Services	Staff time	Increased public awareness	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				meetings regarding steps to be taken to decrease the impact of natural hazards by developing, enhancing, and disseminating educational material informing groups about ways to reduce risk.										
2023-Town of Horicon-004	Special Needs Assistance Network	2, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure, Disease Outbreak	<b>Problem:</b> Residents with limited ability to access emergency notifications, prepare for, or evacuate when necessary require additional assistance before, during, and after	No	None	2 years	Planning Board, Town Supervisor	Low	Better social network and support system for hazard response	Town budget	High	EAP	PI, ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				hazard events. <b>Solution:</b> The Town will design a network of citizens that will check in on elderly, functional needs, and low-income individuals during major events.										
2023-Town of Horicon -005	FPA Training	4	Flood	<b>Problem:</b> The Town's Floodplain Administrator requires additional training to increase capabilities. <b>Solution:</b> The Town will send the FPA to training available from NYS and FEMA, potentially exploring certified	No	None	2 years	FPA	Staff time	Increase floodplain administration capabilities	Town budget	High	LPR	PR, PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				floodplain manager training.										
2023-Town of Horicon -006	Emergency Plan	3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> The Town lacks a Town specific emergency plan and currently relies on the County plan. <b>Solution:</b> The Town will develop a Town specific emergency plan and work with Warren County to ensure integration between the two plans.	No	None	Within 5 years	Administration, Warren County	Medium	Improved emergency planning	Town budget	High	LPR	ES
2023-Town of Horicon -007	Ernst Smith Road Bridge	1, 3	Earthquake, Flood, Severe Storm, Severe Winter Storm	<b>Problem:</b> Ernest Smith one lane temporary bridge. It is the only access for residents living on Ernest Smith Road.	Yes	May require permitting	Within 5 years	Highway Department	High	Access maintained for residents on Ernest Smith Road.	HMGP, BRIC, PDM, Town budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will replace the temporary bridge with a permanent bridge, designed to withstand a 500-year flood event.										
2023-Town of Horicon-008	Promote Warren County Emergency Notification System	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> The Town has limited ability to communicate in real time with residents during emergency situations or to notify residents of an impending emergency. <b>Solution:</b> The Town will conduct an outreach campaign to encourage all residents to register for Warren	No	None	1 year	Administration	Low	Increased emergency communication capabilities	Town budget	High	EAP	PI, ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				County's emergency notification application.										
2023-Town of Horicon-009	Substantial Damage Procedures	4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<p><b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.</p> <p><b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determination for earthquake,</p>	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	Municipal budget	High	LPR	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				flood, severe storm, severe winter storm, wildfire, and dam failure hazard events..										

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit

CRS Community Rating System

DPW Department of Public Works

EHP Environmental Planning and Historic Preservation

FEMA Federal Emergency Management Agency

FPA Floodplain Administrator

HMA Hazard Mitigation Assistance

N/A Not applicable

NFIP National Flood Insurance Program

OEM Office of Emergency Management

**Potential FEMA HMA Funding Sources:**

FMA Flood Mitigation Assistance Grant Program

HMGP Hazard Mitigation Grant Program

BRIC Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation.


**Cost:**

The estimated cost for implementation.

**Benefits:**

A description of the estimated benefits, either quantitative and/or qualitative.

**Critical Facility:**

Yes  Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

**CRS Category:**





- *Preventative Measures (PR)*—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- *Property Protection (PP)*—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- *Public Information (PI)*—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- *Natural Resource Protection (NR)*—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- *Structural Flood Control Projects (SP)*—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- *Emergency Services (ES)*—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.6-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Horicon-001	Alder Brook Road	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Horicon-002	Upper Brant Lake Dam	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Horicon-003	Public Information Meeting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Horicon-004	Special Needs Assistance Network	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Horicon-005	FPA Training	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Horicon-006	Emergency Plan	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Horicon-007	Ernst Smith Road Bridge	1	1	1	1	1	0	0	1	1	1	1	0	1	1	11	High
2023-Town of Horicon-008	Promote Warren County Emergency Notification System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Horicon-009	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.6.8 Action Worksheets

The following action worksheets were developed by the Town of Horicon to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Alder Brook Road		
<b>Project Number:</b>	2023-Town of Horicon-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	<p>The culvert on Alder Brook Road is undersized and corroded. The culvert fails to meet the 1.25X active stream channel width for Alder Brook that feeds into the Schroon River. Historically, flooding has closed the roadway 1-2 times per year. When flooded, there are residences, season camps, and farms that have reduced access.</p> <p>The current structure has completely corroded in the bottom and takes a significant amount of flow. During high storm events, the crossing causes streambed materials to build up and inhibit the natural flow of the watercourse. This along with beaver activity results in inadequate flow conditions and inhibits aquatic passability. Alder Brook has a C(T) stream classification and outlets into the Schroon River. Sedimentation in these waterbodies can impact the drinking water supply.</p> <p>The Town has secured \$30,000 for planning through the NYS DEC Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant. Due to the elevation of the surrounding terrain, it is not feasible to upsize the existing culvert.</p>		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Following planning and design, the Town will secure funding and complete culvert replacement with an 18" arch culvert and elevation of 300' of roadway for Alder Brook Road. The proposed structure will be designed to meet the active channel width sizing requirements and will allow for aquatic passability. All mitigation efforts shall be made in consideration of Federal and State directives to mitigate critical infrastructure to address protection to the 500-year flood event or "worst damage scenario".		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	protection to the 500-year flood event or "worst damage scenario".	<b>Estimated Benefits (losses avoided):</b>	Reduced occurrence of flooding, flood damages at Alder Brook Road. Improve fish and wildlife populations and reduce sedimentation to improve public drinking water source.
<b>Useful Life:</b>	75 years	<b>Goals Met:</b>	1, 3, 5
<b>Estimated Cost:</b>	\$30,000 for planning, High for structural improvements	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	NYS DEC NPG grant program secured for planning; HMGP, BRIC, PDM, CHIPS, Town budget
<b>Responsible Organization:</b>	Town Supervisor, Highway Department, SWCD	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove road	N/A	Roadway cannot be removed as access will be lost





	Relocate road to another location	Very high	Costly
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
<b>Project Name:</b>	Alder Brook Road	
<b>Project Number:</b>	2023-Town of Horicon-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will improve drinking water source, improve emergency access on Alder Brook Road.
<b>Property Protection</b>	1	Project will protect roadway from flooding, reduce culvert damages.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	The project is technically feasible.
<b>Political</b>	1	
<b>Legal</b>	1	The Town has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	Project will reduce sedimentation in the waterway to improve aquatic habitat.
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Severe Storm, Flood
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Town Supervisor, Highway Department, SWCD
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	





## SECTION 9.

### 9.7 TOWN OF JOHNSBURG

This section presents the jurisdictional annex for the Town of Johnsburg that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Johnsburg's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.7.1 Hazard Mitigation Planning Team

The Town of Johnsburg identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including Highway Department, Bookkeeper and Safety Officer. The Bookkeeper, Highway Superintendent, Safety Officer, and Assistant Highway Superintendent represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.7-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Danae Tucker – Bookkeeper Address: 219 Main Street, North Creek, NY 12853 Phone Number: 518-251-2421 x8 Email: <a href="mailto:bookkeeper@johnsburgny.com">bookkeeper@johnsburgny.com</a>	Name/Title: Fred Comstock – Highway Superintendent Address: 88 Ski Bowl Road, North Creek, NY 12853 Phone Number: 518-251-2113 Email: <a href="mailto:hwy1@johnsburgny.com">hwy1@johnsburgny.com</a>
<b>NFIP Floodplain Administrator</b>	
Name/Title: Colin Mangan Address: 219 Main Street, North Creek, NY 12853 Phone Number: 518-251-2421 x8 Email: <a href="mailto:bookkeeper@johnsburgny.com">bookkeeper@johnsburgny.com</a>	
<b>Additional Contributors</b>	
Name/Title: Ernie Dunkley – Safety Officer	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: provided data and information on capabilities, NFIP administration, statuses of previous actions. Provided input on hazard rankings and contributed to mitigation strategy.	
Name/Title: Mike Dunkley – Deputy Highway Superintendent	
Method of Participation: provided data and information	
Name/Title: Colin Mangan – Zoning Enforcement Officer	
Method of Participation: Provided permit information	

## 9.7.2 Municipal Profile

The Town of Johnsbury is in the northwest corner of Warren County. It is part of the Glens Falls Metropolitan Statistical Area. The Town borders Hamilton County on the north and west and the Hudson River on the east. The Town includes seven hamlets: Bakers Mills, Garnet Lake, Johnsbury, North Creek, Riparius, Sodom and Wevertown. Bodies of water include the Hudson River and Garnet Lake. U.S. Route 8 passes through the Town.

According to the U.S. Census, the 2020 population for the Town of Johnsbury was 2,143, a 10.5 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 4.0 percent of the population is 5 years of age or younger and 27.3 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Johnsbury has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 6.82% of the population does not have a high school diploma
- 17.74% of the population has a disability
- 7.69% of households do not have a vehicle
- 4.68% of the population is living below the poverty level
- 1.71% of the population is unemployed

## 9.7.3 Jurisdictional Capability Assessment and Integration

The Town of Johnsbury performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.





For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Johnsbury to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Johnsbury. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.7-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Building Uniform Code	State and Local	Building Department, Warren County Fire Prevention and Building Code Enforcement Department
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> All applicants for a building permit must be issued a Site Plan Compliance letter by the Town Zoning Enforcement Officer before the County will issue Certificate of Occupancy. The Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code				
<b>Zoning/Land Use Code</b>	Yes	Local Law #1 – Zoning Law 2008	Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The overall purpose of this Ordinance is to promote the health, safety, and general welfare by regulating the density of population; and the location, intensity and use of buildings, structures and land; for trade, residence, recreation or other purposes.				
<b>Subdivision Ordinance</b>	Yes	Local Law #2 – Subdivision	Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Any division of land into two or more lots, parcels or sites, whether adjoining or not, for the purpose of sale, lease, license or any form of separate ownership or occupancy by any person is required to include a map, plat or other plan for subdivision if not previously filed.				
<b>Site Plan Ordinance</b>	Yes	Land Use Planning Fee Structures	Local	Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Site Plan Review fees range depending on square foot of buildings.				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Stormwater Management Ordinance</b>	No	-	-	-
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	No	-	-	-
<b>Flood Damage Prevention Ordinance</b>	Yes	Town of Johnsbury Flood Damage Protection Law – 1987	Federal, State, Local	Zoning Enforcement Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this local law to promote the health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed: <ul style="list-style-type: none"><li>• To protect human life and health;</li><li>• To minimize expenditure of public money for costly flood control projects;</li><li>• To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li><li>• To minimize prolonged business interruptions;</li><li>• To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer line, and streets and bridges located in areas of special flood hazard;</li><li>• To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;</li><li>• To insure that potential buyers are notified that property is in an area of special flood hazard; and</li><li>• To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li></ul> The ordinance requires update to meet state requirements for two feet of freeboard.				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Other	No	-	-	-
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Town of Johnsburg Comprehensive Plan	Local	Zoning and Planning
How has or will this be integrated with the HMP and how does this reduce risk? The Comprehensive Plan is the guiding requirement for growth, development and preservation throughout the Town. The Plan identifies the Town current environmental resources and community infrastructure, examines current land use patterns and analyzes current and future growth trends.				
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-
<b>Stormwater Management Plan</b>	No	-	-	-
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/ Resiliency/Sustainability Plan</b>	No	-	-	-
<b>Tourism Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan	County	Warren County OES
How has or will this be integrated with the HMP and how does this reduce risk? The County Comprehensive Emergency Management Plan (CEMP) enhances the County's ability to manage emergency/disaster situations. The Plan outlines a comprehensive approach to risk reduction before a disaster or emergency and identifies short and long-term recovery goals.				
<b>Continuity of Operations Plan</b>	No	-	-	-
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	No	-	-	-
<b>Public Health Plan</b>	No	-	-	-
<b>Other</b>	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Johnsbury to oversee and track development.

**Table 9.7-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"> <li>If you issue development permits, what department is responsible?</li> </ul>	N/A	Zoning Officer
<ul style="list-style-type: none"> <li>If you do not issue development permits, what is your process for tracking new development?</li> </ul>	N/A	-





Indicate if your jurisdiction implements the following	Yes/No	Comment:
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	SFHA
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"> <li>If you have a buildable land inventory, please describe</li> </ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	25 % of the parcels in the municipality are vacant.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Johnsburg and their current responsibilities that contribute to hazard mitigation.

**Table 9.7-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board is responsible for site plan application review, site plan approval, and subdivision application review and approval.
Zoning Board of Adjustment	Yes	The Zoning Board of Appeals is responsible for reviewing and approving, approving with conditions all variance applications. The Zoning Enforcement Officer has the final approval of permits.
Planning Department	Yes	Planning / Zoning Board
Mitigation Planning Committee	Yes	Olasheski / Arsenault
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Arnheirt / Arsenault
Public Works/Highway Department	Yes	The Highways Department maintains 94 miles of Town roads, only a quarter of which have paved surfaces.
Construction/Building/Code Enforcement Department	Yes	Zoning Officer
Emergency Management/Public Safety Department	Yes	New Safety Officer and Program
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	The Town is exploring developing a warning system that can be run through the web page developer. Town Board will have to vote on the extra expense.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Highway Dept. ditching / cutting shoulders / cutting down hazardous trees
Mutual aid agreements	Yes	Local Fire Department and EMS Response
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	New Safety Officer working with Town Board to set up programs and job description to follow.





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Other	Yes	Town has implemented a safety program that is growing. Safety officer is working with the Town on risk management and coordination.
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Adirondack Park Agency (APA) and Clough H. Harbor Associates as needed on contractual basis.
Engineers or professionals trained in building or infrastructure construction practices	Yes	Adirondack Park Agency (APA) and Clough H. Harbor Associates as needed on contractual basis.
Planners or engineers with an understanding of natural hazards	Yes	Zoning Enforcement Officer, Adirondack Park Agency (APA) and Clough H. Harbor Associates as needed on contractual basis.
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Town Safety Officer
Grant writer(s)	Yes	Olisheski / Nestle
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

## Fiscal Capability

The table below summarizes financial resources available to the Town of Johnsburg.

**Table 9.7-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No





## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Johnsburg.

**Table 9.7-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	North Shore Solutions
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	Yes	Facebook Page
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	Building a possible solution in town web page. Have to bring the plan in front of town board
Natural disaster/safety programs in place for schools	No	School has emergency procedures
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	Looking into programs such as a phone app, Sign on Town Hall, and town web site. All have never been done before and will have to be adopted by the town board as soon as completed.

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Johnsburg.

**Table 9.7-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	(Webster County participates)	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable





## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.7-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Weak
Extreme Temperature	Weak
Flood	Weak
Severe Storm	Weak
Severe Winter Storm	Weak
Wildfire	Weak
Infestation	Weak
Dam Failure	Weak
Disease Outbreak	Moderate

### 9.7.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

#### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Johnsbury.

**Table 9.7-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Johnsbury	7	4	\$56,870	0	1	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.





*RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.*

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Johnsburg.

**Table 9.7-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> <li>Do you maintain a list of properties that have been damaged by flooding?</li> </ul>	Areas around creeks are prone to flooding. Yes, the Town maintains a list.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> <li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li> </ul>	No property owners have expressed interest in mitigation.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> <li>If so, state what projects are underway.</li> </ul>	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	The Town Floodplain Administrator makes substantial damage estimates in conjunction with FEMA for publicly owned infrastructure.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"> <li>If there are mitigation properties, how were the projects funded?</li> </ul>	Unknown
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	Yes. But with beavers changing locations and weather changes some places are in risk of flooding
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Zoning Officer
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> <li>If so, what type of assistance/training is needed?</li> </ul>	The Floodplain Administrator attends continuing education and/or certification training. Due to cost barriers, online CRS and NAI webinars that are offered for free from the ASFM website could be utilized.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.





NFIP Topic	Comments
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Zoning Officer
What are the barriers to running an effective NFIP program in the community, if any?	Lack of funding
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"><li>If so, state the violations.</li></ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV: April 28, 2015
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"><li>What is the date that your flood damage prevention ordinance was last amended?</li></ul>	Local Law #1, Year 1987
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"><li>If exceeds, in what ways?</li></ul>	Meets
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Planning and Zoning Board considers efforts to reduce flood risk when reviewing development applications
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	The Town has not considered joining the CRS program.

### 9.7.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern.





Table 9.7-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.



**Table 9.7-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	1	0	8	1	10	0	10	0	13	0	11	0
Multi-Family	0	0	0	0	0	0	0	0	3	0	2	0
Other (commercial, mixed-use, etc.)	0	0	7	0	3	0	6	0	9	0	12	0
Total New Construction Permits Issued	1	0	15	1	13	0	16	0	25	0	25	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development					
Recent Major Development and Infrastructure from 2017 to Present												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None anticipated												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.7.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Johnsbury's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Johnsbury has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.7-1. Town of Johnsburg Flood Hazard Area Extent and Location Map

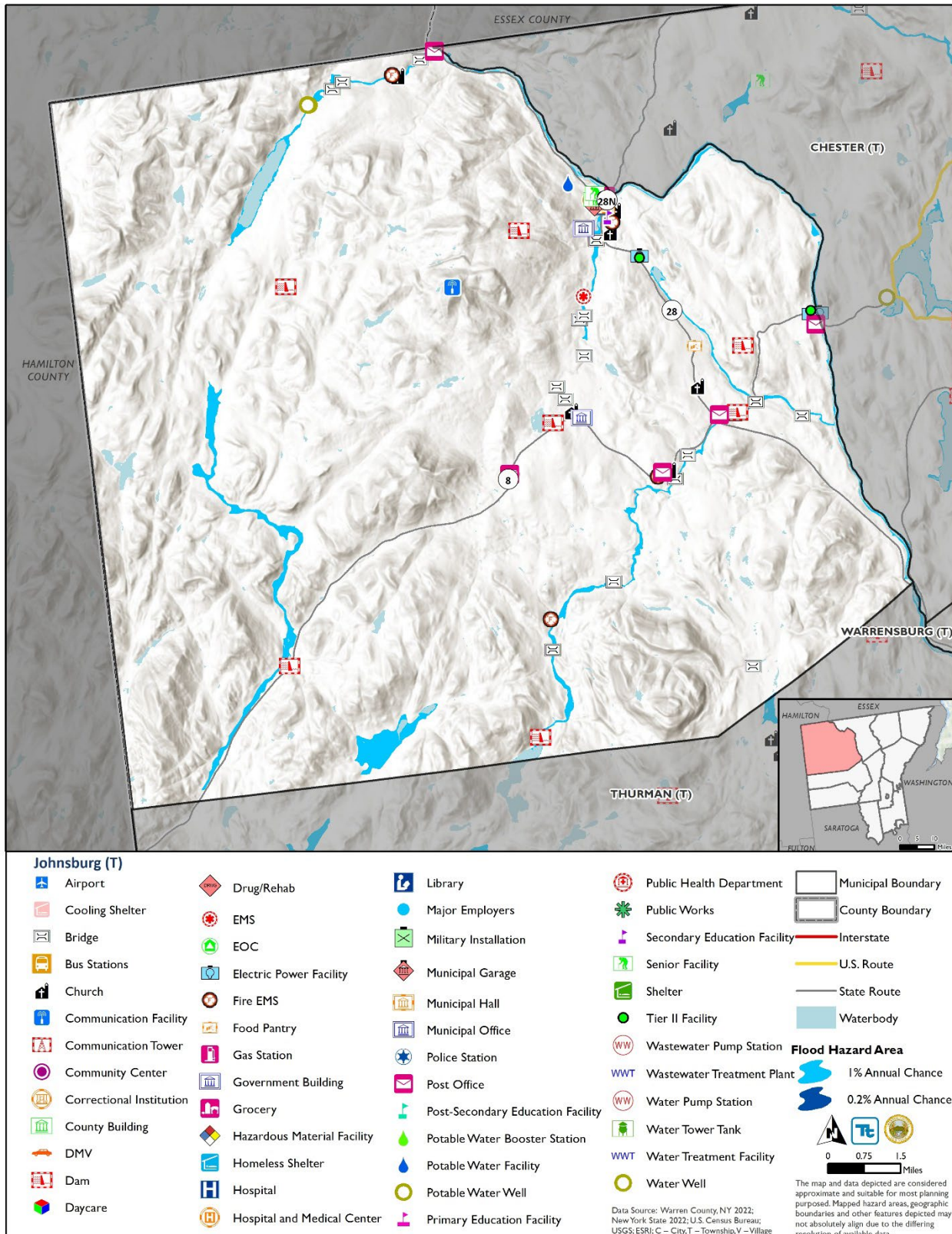






Figure 9.7-2. Town of Johnsburg Earthquake (Soil Class) Hazard Area Extent and Location Map

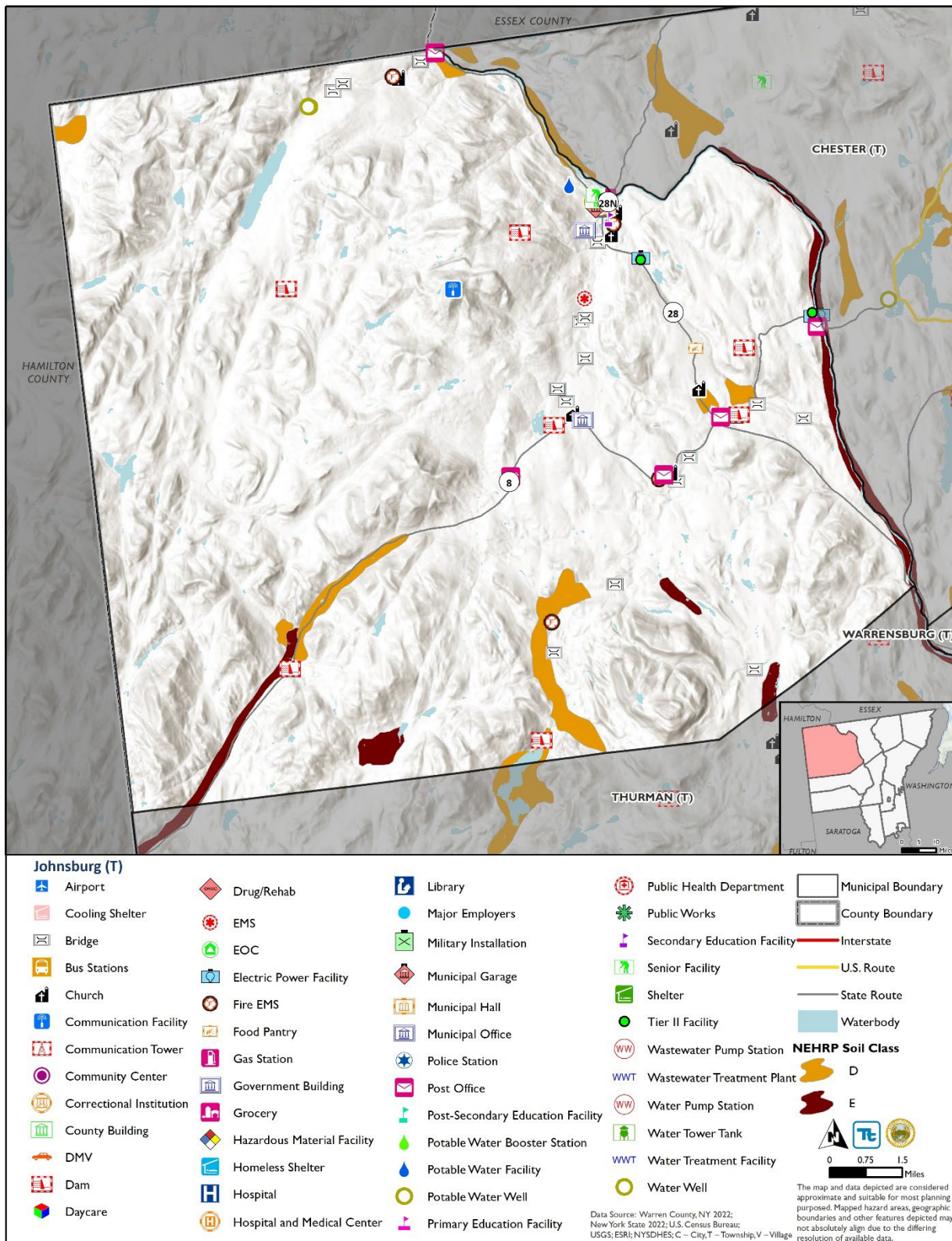
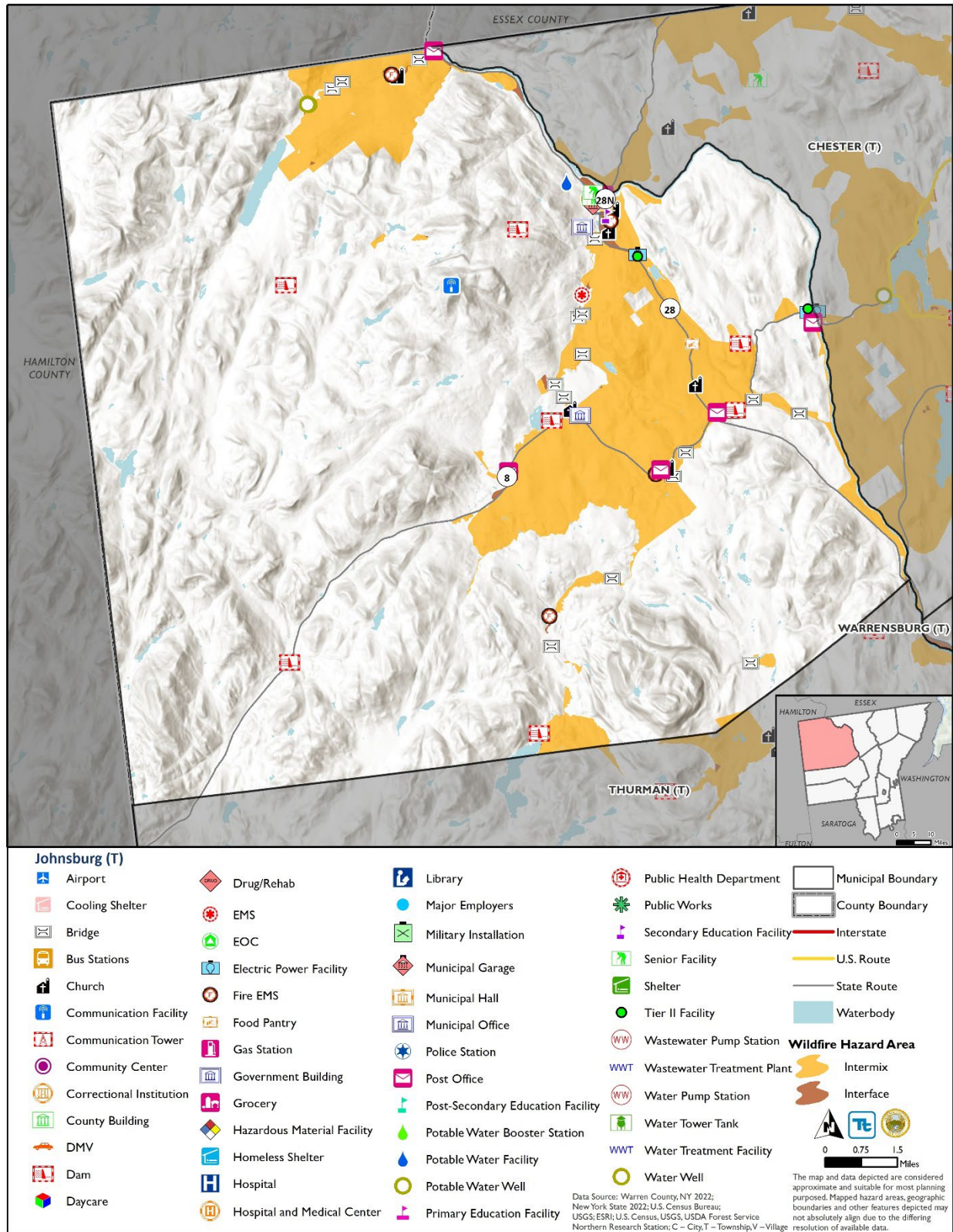






Figure 9.7 3. Town of Johnsburg Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume 1, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Johnsbury's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.7-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.7-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 31 2019	Halloween Storm: Severe Storms, Straight-line winds, Flooding (DR-4472)	Yes	Severe storm, straight line winds, and flooding	Flooding, tree damage, roads washed out, power lines down.
April 19, 2022	Wet Snow	No	Heavy snow	Trees down, power out, Impassable roads.
January 20, 2022	Covid-19 pandemic (DR-4480/EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	The Town was subject to closures and masking/social distancing requirements.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Johnsbury's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.





As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Johnsbury. The Town of Johnsbury reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town changed the hazard ranking for flood from low to medium, noting that dam failure risk (high) would contribute to flood risk.
- The Town changed the hazard ranking for wildfire from low to medium, noting an increase in wildfire occurrence.
- The Town agreed with the remainder of the calculated hazard rankings.

**Table 9.7-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Medium	High	High	Medium	Medium

Dam Failure	Disease Outbreak
High	Medium

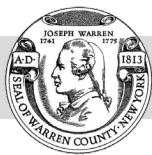
Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.



**Table 9.7-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Murphy Saw Mill Dam	Dam	X	X	N/A	This is a privately owned low hazard irrigation dam and as such will not be designed to the 0.2-percent flood level.
Millwood	Bridge	X	X	2023–Town of Johnsburg-010	–
Heath Road	Bridge	X	X	2023–Town of Johnsburg-010	–
Dillon Hill	Bridge	X	X	2023–Town of Johnsburg-010	–
Peaceful Valley Valhaus	Bridge	X	X	2023–Town of Johnsburg-010	–
Main Street	Bridge	X	X	2023–Town of Johnsburg-010	–
Spikehorn	Bridge	X	X	2023–Town of Johnsburg-010	–
Smith	Bridge	X	X	2023–Town of Johnsburg-010	–
Claude Straight	Bridge	X	X	2023–Town of Johnsburg-010	–
Harrington	Bridge	X	X	2023–Town of Johnsburg-010	–
South Johnsburg Pipearch	Bridge	X	X	2023–Town of Johnsburg-010	–
Hudson Street	Bridge	X	X	2023–Town of Johnsburg-010	–
Crane Mountain	Bridge	X	X	2023–Town of Johnsburg-010	–

Source: Warren County 2022

In addition to critical facilities that are exposed to flooding, the following high hazard dams are located in or could impact the Town of Johnsburg:

- Garnet Lake Dam

### Identified Issues

After review of the Town of Johnsburg’s hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Johnsburg identified the following vulnerabilities within their community:

- The Comprehensive Plan is the guiding requirement for growth, development and preservation throughout the Town. The Plan requires update to better integrate hazard mitigation concepts.





- Beaver dams contribute to flooding during big storm events due to overflow or release. Dams are identified at Riverside Station Road, Coulter Road, Crane Mt, Hudson Street, Bateman, Goodman Sodom, and the Town Park.
- Critical facilities require backup power to maintain essential functions during and after disaster events. Numerous critical facilities in the Town lack backup power.
- The Town is interested in increasing outreach surrounding hazard mitigation.
- The Town lacks an emergency notification system.
- The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- Culverts throughout the Town are aging, broken, and undersized.
- Dead or damaged trees pose a hazard as they can fall and block roadways or knock out power lines. This poses a wildfire risk as well.
- Only a quarter of roadways maintained by the Highway Department have paved surfaces. This has led to road washouts and bad ditch lines over time.
- Numerous bridges in the Town are anticipated to be at or near end of useful life.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.

### 9.7.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

---

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.7-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost		
JB-1 (carryover)	Integrate the risk assessment and recommendations of the hazard mitigation plan into the comprehensive plan.	All Hazards		Planning Board	In Progress	Level of Protection		<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
						Damages Avoided; Evidence of Success		
JB-2	Repair or retrofit low-lying bridges on Garnett Lake Road and Harvey Road.	Severe Storm, Flood		Town Board, Highway Dept.	Complete	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Garnett Lake road and Harvey road are completed</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
JB-3	Crown Riverside Station road to prevent debris buildup and ice formation.	Severe Storm, Flood		Town DPW, Planning Department	In Progress	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. River ice has not come close to the roadway. Looking into putting in a 5ft or 8ft squash pipe to control beaver dam overflow on big storms</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
JB-4	Notify and provide needed support to the facility managers/operators of those critical facilities located in the floodplain and evaluate the facility's flood	Flood, Severe Storm		Johnsburg Public Works, Planning Board	Ongoing Capability	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Ongoing capability</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						of Success		
	vulnerability and identify feasible mitigation options. Working from available data on critical facilities in the floodplain, the Town shall provide direct outreach to facility managers/operators of their vulnerability, and work to develop needed data to support vulnerability assessments performed by the County. Facility owners/operators shall be advised of opportunities to insure and mitigate their flood risks, and the Town shall assist (non-financial) with securing mitigation grant funding as available and appropriate.  Efforts to mitigate critical facilities shall recognize Federal and State directives for protection to the 500-year flood level or "worst case scenario".							<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
JB-5	Provide annual education and training for local Floodplain Administrator to ensure code enforcement and proper inspections.	Flood		Town Board	Ongoing Capability	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2. Ongoing capability</li> <li>3. Ongoing capability</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
		Flood			In Progress	Cost		<ol style="list-style-type: none"> <li>1. Include in 2023 HMP</li> </ol>





## SECTION 9.7. Town of Johnsborg

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Level of Protection	Damages Avoided; Evidence of Success	
JB-6	Develop and implement a strategy to mitigate risk to public and property from beaver dam breaches along Coulter Road.			Planning Dept., NYSDEC, Private Property Owners Town Highway				<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
JB-7 (carryover)	Conduct education and outreach to residents and business owners to inform them if their properties are in known hazard areas, and actions they can take to protect those properties.	Earthquake, Flood		Town Clerk	Ongoing Capability	Cost		<ol style="list-style-type: none"> <li>1. Discontinue</li> <li>2.</li> <li>3. Ongoing capability</li> </ol>
JB-8	Purchase and install backup power generators for municipally-owned critical facilities, including Johnsborg Central School.	Earthquake, Severe Storm, Severe Winter Storm		Johnsborg Public Works, Central School District	In Progress	Cost		<ol style="list-style-type: none"> <li>1. Include in 2023 HMP</li> <li>2. Highway / Parks / Town Hall</li> <li>3.</li> </ol>





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.7-15, the Town of Johnsbury identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Johnsbury participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.7-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	XX			X
Extreme Temperature	X	X		X	X	X	X			X
Flood	X	X	X	X	X	X	X	X	X	X
Severe Storm	X	X	X	X	X	X	X	X	X	X
Severe Winter Storm	X	X	X	X	X	X	X	X		X
Wildfire	X	X	X	X	X	X	X	X		X
Infestation	X	X	X	X	X	X	X	X		X
Dam Failure	X	X		X	X	X	X			X
Disease Outbreak	X	X		X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.7-17).

The table below summarizes the specific mitigation initiatives the Town of Johnsbury would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.7-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Johnsbury-001	Comprehensive Plan Update	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> The Comprehensive Plan is the guiding requirement for growth, development and preservation throughout the Town. The Plan requires update to better integrate hazard mitigation concepts. <b>Solution:</b> The Town will integrate the risk assessment and recommendations of the hazard mitigation plan into the Comprehensive Plan.	No	None	Within 5 years	Planning Board	Low	Increased integration	Town budget	High	LPR	PR
2023-Town of Johnsbury-002	Beaver Dam Flood Risk Reduction	1, 5	Severe Storm, Flood	<b>Problem:</b> Beaver dams contribute to flooding during big storm events due to overflow or release. Dams are identified at Riverside Station	No	May require permitting	Within 5 years	Town DPW, Planning Department	High	Reduction in flooding	HMGP, BRIC, PDM, CHIPS, Town budget	High	NSP, SIP	NR, SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Road, Coulter Road, Crane Mt, Hudson Street, Bateman, Goodman Sodom, and the Town Park.  <b>Solution:</b> The Town will develop and implement a strategy to mitigate risk to public and property from beaver dams. This will include determining if putting in a 5ft or 8ft squash pipe to control beaver dam overflow on big storms is a cost effective solution. Cost effective solutions will be implemented.										
2023-Town of Johnsbury-003	Generators for Critical Facilities	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter	<b>Problem:</b> Critical facilities require backup power to maintain essential functions during and after disaster events. Numerous critical facilities in	Yes	None	Within 5 years	Engineer, Central School District, Highway Department, Parks Department	High; Estimated cost is \$6K per unit before installation.	Protect public health and safety, and ensure continued operation of critical	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Storm, Wildfire, Dam Failure	<p>the Town lack backup power.</p> <p><b>Solution:</b> The Town will purchase and install permanent fixed generators and necessary electrical components at the following facilities:</p> <ul style="list-style-type: none"><li>• Town Hall</li><li>• Johnsbury Central School</li><li>• Highway Department</li><li>• Parks Department</li><li>• Tannery Pond</li><li>• Weavertown Court House</li></ul> <p>It is assumed 20K generators will be needed for each facility. Following</p>						facility and essential functions during power outages.	County Management Performance Grants (EMPG) Program, Municipal Budget, School Budget			





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				installation, the Highway Department will be responsible for maintenance.										
2023-Town of Johnsbury-004	Hazard Mitigation Outreach	2	All hazards	<p><b>Problem:</b> The Town is interested in increasing outreach surrounding hazard mitigation.</p> <p><b>Solution:</b> The Town will develop and distribute guides for weather and emergency events. The Town will work with a web designer to add a mailing list to the Town website that the public can sign up for and be notified of hazard related information. In addition, the Town will evaluate potential outreach programs such as a phone app, Sign on Town Hall,</p>	No	None	2 years	Administration, Safety Officer	Low	Increased public awareness	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				school programs, and Town website updates and implement the selected strategies.										
2023-Town of Johnsbury-005	Emergency Notification System	2, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> The Town lacks an emergency notification system. <b>Solution:</b> The Town will explore options for an emergency notification system, select a system, implement the system, and promote residents to sign up.	No	None	2 years	Town Board	Medium	Emergency notification system established	Town budget	High	EAP	ES
2023-Town of Johnsbury-006	Flood Damage Prevention Ordinance Update	1	Flood	<b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				freeboard requirement. <b>Solution:</b> The Town will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.										
2023-Town of Johnsbury-007	Culvert Replacement	1	Flood, Severe Storm	<b>Problem:</b> Culverts throughout the Town are aging, broken, and undersized. <b>Solution:</b> The Town will complete a survey of culverts to identify the location, age, and size of each culverts. Following the survey, the Town will complete upsizing and replacement as necessary.	No	None	Within 5 years	Highway Department	High	Reduction in flood, flood damages, and road closures	CHIPS, HMGP, BRIC, PDM, Town budget	High	SIP	SP
2023-Town of Johnsbury-008	Dead Tree Removal	5	Severe Storm, Severe Winter Storm,	<b>Problem:</b> Dead or damaged trees pose a hazard as they can fall and block roadways or knock out power	No	None	2 years	Highway Department, Power company	Medium	Reduction in road closures and power outages	Town budget	High	NSP	NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Wildfire, Infestation	lines. This poses a wildfire risk as well. <b>Solution:</b> The Town will identify and remove dead and damaged trees along roadways to prevent damage. The Town will also mark trees to review with the power company for removal to protect power grid and reduce risk of starting a wildfire.										
2023-Town of Johnsbury-009	Unpaved Roads Improvements	1	Flood, Severe Storm, Severe Winter Storm	<b>Problem:</b> Only a quarter of roadways maintained by the Highway Department have paved surfaces. This has led to road washouts and bad ditch lines over time. <b>Solution:</b> The Town Highway Department will add additional material to unpaved roads	No	None	Within 5 years	Highway Department	High	Reduction in road washouts and flooding	CHIPS, Town budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				and shape to promote safe runoff. The Highway Department will dig out stormwater ditches that have become filled in over time.										
2023-Town of Johnsbury-010	Bridge Survey and Replacement	1	Flood, Severe Storm	<b>Problem:</b> Numerous bridges in the Town are anticipated to be at or near end of useful life. <b>Solution:</b> The Town will complete an engineering study to determine the status of Town owned bridges and develop a strategy and schedule for replacement. Replaced bridges will be built to the 500-year standard.	Yes	Permitting may be required	Within 5 years	Highway Department	High	Bridge failure avoided	CHIPS, HMGP, BRIC, PDM, Town budget	High	SIP	PP
2023-Town of	Substantial Damage Procedures	4	All Hazards	<b>Problem:</b> While major events that result in	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements,	Municipal budget	High	LPR	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
Johnsbury-011				substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.  <b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations.						improved floodplain administration				

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.


Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:





Yes  Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

**CRS Category:**

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.7-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Johnsburg-001	Comprehensive Plan Update	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Johnsburg-002	Beaver Dam Flood Risk Reduction	0	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High
2023-Town of Johnsburg-003	Generators for Critical Facilities	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Johnsburg-004	Hazard Mitigation Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Johnsburg-005	Emergency Notification System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Johnsburg-006	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Johnsburg-007	Culvert Replacement	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Johnsbury-008	Dead Tree Removal	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Town of Johnsbury-009	Unpaved Roads Improvements	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Johnsbury-010	Bridge Survey and Replacement	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Johnsbury-011	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.7.8 Action Worksheets

The following action worksheets were developed by the Town of Johnsburg to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Generators for Critical Facilities		
<b>Project Number:</b>	2023-Town of Johnsborg-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	Critical facilities require backup power to maintain essential functions during and after disaster events. Numerous critical facilities in the Town lack backup power.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	<p>The Town will purchase and install permanent fixed generators and necessary electrical components at the following facilities:</p> <ul style="list-style-type: none"> <li>• Town Hall</li> <li>• Johnsborg Central School</li> <li>• Highway Department</li> <li>• Parks Department</li> <li>• Tannery Pond</li> <li>• Weavertown Court House</li> </ul> <p>It is assumed 20K generators will be needed for each facility. Following installation, the Highway Department will be responsible for maintenance.</p>		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Engineer, Central School District, Highway Department, Parks Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels at each facility	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbines at each facility	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
<b>Progress Report (for plan maintenance)</b>			





<b>Date of Status Report:</b>	
<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	





Action Worksheet		
<b>Project Name:</b>	Generators for Critical Facilities	
<b>Project Number:</b>	2023-Town of Johnsbury-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of critical facilities
<b>Property Protection</b>	1	Project will protect buildings from power loss.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	The project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Town has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	All Hazards
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineer, Central School District, Highway Department, Parks Department
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	





## SECTION 9.

### 9.8 TOWN OF LAKE GEORGE

This section presents the jurisdictional annex for the Town of Lake George that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Lake George's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.8.1 Hazard Mitigation Planning Team

The Town of Lake George identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Planning Department, Highway Department and Public Works Department. The Director of Planning and Zoning, Highway Department and Superintendent of Public Works represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.8-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Dan Barusch – Director of Planning and Zoning Address: 20 Old Post Road, Lake George, NY 12845 Phone Number: 518-668-5131 ex. 5 Email: <a href="mailto:dbarusch@lakegeorgetown.org">dbarusch@lakegeorgetown.org</a>	Name/Title: Rob Lanfear Jr. – Highway Superintendent Address: 22 Gage Road, Lake George, NY 12845 Phone Number: 518-668-2742 Email: <a href="mailto:highway@lakegeorgetown.org">highway@lakegeorgetown.org</a>
<b>NFIP Floodplain Administrator</b>	
Name/Title: Dan Barusch – Director of Planning and Zoning Address: 20 Old Post Road, Lake George, NY 12845 Phone Number: 518-668-5131 ex. 5 Email: <a href="mailto:dbarusch@lakegeorgetown.org">dbarusch@lakegeorgetown.org</a>	
<b>Additional Contributors</b>	
Name/Title: Dan Barusch, Director of Planning and Zoning	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided information on previous events, capabilities, NFIP administration, permit information. Contributed to mitigation strategy. Reviewed annex.	
Name/Title: Doug Frost, Code Enforcement Officer	
Method of Participation: Provided information on major development. Contributed to mitigation strategy.	

## 9.8.2 Municipal Profile

The Town of Lake George is in southeastern Warren County proximate to the southwestern shore of Lake George. The Town has a land area of 32.7 square miles of which 30.2 square miles is land and 2.5 square miles is water. There are three hamlets located in the Town: Big Hollow, Crosbyside and Diamond Point. The Town also included Bloody Pond located in the south part of town. Interstate 87 passes through the town.

According to the U.S. Census, the 2020 population for the Town of Lake George was 2,904 a 4.4 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 7.4 percent of the population is 5 years of age or younger and 27.0 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Lake George has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 8.38% of the population does not have a high school diploma
- 14.96% of the population has a disability
- 5.20% of households do not have a vehicle
- 4.94% of the population is living below the poverty level
- 1.48% of the population is unemployed

## 9.8.3 Jurisdictional Capability Assessment and Integration

The Town of Lake George performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.





For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Lake George to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Lake George. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.8-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	Warren County Code Chapter 150 (State Uniform Fire Prevention and Building Code); Town of Lake George Code Chapter 80 (Fire prevention and building construction)	County, Local	Town of Lake George Planning and Zoning Office; Warren County Fire Prevention and Building Code Enforcement
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Lake George adopted the New York State Uniform Fire Prevention and Building Code. The Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code.				
<b>Zoning/Land Use Code</b>	Yes	Town of Lake George Chapter 175 (Zoning)	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance works in accordance with the Comprehensive Development Plan and is designed to promote the health, safety, morals and general welfare of the Town and to lessen congestion in the streets, to secure safety from fire, panic and other dangers, to provide adequate light and air, to avoid undue concentrations of population and to facilitate adequate provisions of the transportation, water, sewerage, schools, parks.  The Ordinance works to preserve and protect the natural characteristics of Lake George Park and the waters of Lake George and its tributaries to further benefit the community and retain the natural elements of the Adirondacks and Lake George.				
<b>Subdivision Ordinance</b>	Yes	Town of Lake George Chapter 150 (Subdivision of Land)	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance establishes the requirements and regulations for any subdivision projects. The Ordinance gives the Planning Board the responsibility to approve and approve with recommendations any subdivision projects.				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Site Plan Ordinance</b>	Yes	Town of Lake George Chapter 175 (Zoning), Article VI (Site Plan Review)	Local	Planning and Zoning Office, Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this Ordinance is to allow proper integration into the community uses which may be suitable within a zoning district only on certain conditions and only at appropriate locations. Because of their characteristics or the special character of the area in which they are to be located, their uses require special consideration so that they may be properly located and planned with respect to: <ul style="list-style-type: none"><li>• Impact on surrounding properties</li><li>• Impact on the natural, historic and scenic resources of the Town</li><li>• Protection of the health, safety and welfare of the community</li><li>• Substantial conformance with the Town of Lake George Comprehensive Plan</li></ul>				
<b>Stormwater Management Ordinance</b>	Yes	Town of Lake George Chapter 148 (Stormwater Management and Erosion and Sediment Control)	Local	Planning and Zoning Office; Stormwater Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance establishes minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public.				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to "caveat emptor," a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	No	-	-	-
<b>Flood Damage Prevention Ordinance</b>	Yes	NFIP mandated - Town of Lake George Code Chapter 83 (Flood Damage Prevention), 1996	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"><li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities.</li><li>B. Require that uses vulnerable to floods, including facilities which serve such uses, are protected against flood damage at the time of initial construction.</li></ul>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters.</p> <p>D. Control filling, grading, dredging and other development which may increase erosion or flood damages.</p> <p>E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.</p> <p>F. Qualify for and maintain participation in the National Flood Insurance Program.</p> <p>The chapter requires update to the meet the state's two foot freeboard requirement.</p>				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	Yes	Stream Corridor Management Regulations for the Lake George Park (175-34 in Lake George Town Code)	State/Local	Lake George Park Commission ; Planning and Zoning Office
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Stream Corridor management regulations that were adopted by the LGPC were also adopted by the Town of Lake George with the revised Stormwater Management Regulations package. Additional buffer requirements will restrict any and all development or clearing of vegetative buffer at least 35' from all classified streams.</p>				
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Town of Lake George Comprehensive Plan (2015)	Local	Planning and Zoning Office, Comprehensive Plan Committee
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Comprehensive Plan establishes the short and long-term goals of the Town while maintaining the character of the Town and to maintain the health, safety and general welfare of the community.</p>				
<b>Capital Improvement Plan</b>	Yes	Town of Lake George Capital Improvement Plan (2022)	Local	Planning and Zoning Office
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Capital Improvement Plan contains several projects related to infrastructure retrofitting to help ameliorate potential issues or damage to public property from hazardous storms, primarily the reconstruction of Big Hollow Road bridge over English Brook.</p>				
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	Yes	2009 Stream Assessment Report; 2013 Lake George Aquatic Invasive Species Prevention Plan	Local	Lake George Waterkeeper; Lake George Park Commission





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
2009 Stream Assessment Report: Includes an assessment of the chemical, physical, and biological data collected in the Lake George watershed.				
2013 Lake George Aquatic Invasive Species Prevention Plan: This document will be used by the Lake George Park Commission (Commission or LGPC) to evaluate alternative methods to limit to the maximum extent practicable the future introduction of aquatic invasive species (AIS) into Lake George. A range of alternative measures to prevent the introduction of AIS into Lake George have been identified and evaluated, including pros and cons, costs and logistics, and these are presented in detail in this Plan. The Preferred Alternative recommended in the Plan presents the highest practical level of prevention of potential new AIS introductions into Lake George, while minimizing the inconvenience to boaters. The Preferred Alternative is the mandatory inspection, prior to launch, of all motorized boats that are brought by trailer to Lake George. Those boats that do not meet the inspection standard of Clean-Drained-Dry (C-D-D) will be required to meet that standard prior to launch. If any trailered boat does not meet this standard, they must be decontaminated through a high pressure hot water (HPHW) process at the inspection site, at no cost, prior to launch into Lake George.				
<b>Stormwater Management Plan</b>	Yes	Town of Lake George Stormwater Management Program (SWMP) Plan	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Stormwater Management Plan outlines activities to address stormwater education, outreach, and implementation under the state requirements within the designated Urbanized Areas, as determined by the Census. The Plan documents the current efforts undertaken and planned by the Town.				
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	Yes	Lake George Economic Development Plan (2017)	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Other than discussion on incorporation of enhanced and upgraded utilities as part of any additional development to occur in the economic development zone(s), there is not much in relation to risk reduction in the Economic Development Plan.				
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/Resiliency/Sustainability Plan</b>	Yes	Lake George Climate Action Plan (2020)	Local	Planning and Zoning Office





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Joint Town-Village Climate Action Plan addresses several things related to hazard and risk reduction and adapting to Climate Change and the adverse impacts it poses on the community. Several projects / actions identified in the CAP are related to infrastructure right-sizing, analyzing storm size for potential municipal infrastructure projects, and suggested policies to help encourage low impact development and other tools to deal with impacts of hazards from Climate Change.				
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-
<b>Comprehensive Emergency Management Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan	County	Warren County OES
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The County Comprehensive Emergency Management Plan (CEMP) enhances the County's ability to manage emergency/disaster situations. The Plan outlines a comprehensive approach to risk reduction before a disaster or emergency and identifies short and long-term recovery goals.				
<b>Continuity of Operations Plan</b>	No	-	-	-
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan (Section 4)	County	Warren County OES
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Section IV of the County CEMP identifies the roles and responsibilities of communities prior to and after an emergency event.				
<b>Public Health Plan</b>	No	-	-	-
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				
<b>Other</b>	Yes	Town of Lake George Pandemic Operations Plan (2021)	Local	Planning and Zoning Office / Town Offices
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In regards to health hazard reduction there is not much in the plan to reduce risk per say, but the plan is specific to the response and operations of the government should a pandemic (such as COVID-19 Pandemic) occur. Required by NYS in 2020/2021.				





## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Lake George to oversee and track development.

**Table 9.8-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	–
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Lane Use and Development Permits (and Zoning Compliance Certificates), Planning and Zoning Office
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	–
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Floodplain Development Permits are required buy only in identified FEMA flood zones/floodplains, not in localized flood-prone areas
Do you have a buildable land inventory?	Yes	–
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	Part of the LGA Data Atlas identifies building land inventory on a large/broad scale and LGA Data Atlas
Describe the level of build-out in your jurisdiction.	N/A	Build out analysis included in the Data Atlas.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Lake George and their current responsibilities that contribute to hazard mitigation.

**Table 9.8-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board is authorized to review and approve, approve with conditions, or disapprove site plans and subdivisions pursuant to and in accordance with the standards and procedures set forth in the Zoning Ordinance and Subdivision regulations.
Zoning Board of Adjustment	Yes	The Zoning Board of Appeals shall be appellate only and shall be limited to hearing and deciding appeals from and reviewing any order, requirement, decision, interpretation, or determination made by the Zoning Officer.
Planning Department	Yes	The Planning and Zoning Office administers the Zoning Code, Stormwater Regulations and Subdivision Regulations of the Town of Lake George, among other things. Additional duties of the Planning and Zoning Office include: <ul style="list-style-type: none"><li>• Septic Initiative Program (SIP) administration and Septic Permitting</li><li>• Hazard Mitigation Planning</li><li>• Climate Resiliency and Energy Efficiency Planning</li><li>• Historic Preservation Planning</li></ul>





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		<ul style="list-style-type: none"> <li>• Parks, Trails and Recreation Planning</li> <li>• Economic Development</li> <li>• Stormwater Management and MS4 Program Administration</li> <li>• Capital Improvement Planning</li> <li>• Assistance with Caldwell Sewer District</li> <li>• Geographic Information Systems (GIS)</li> <li>• Floodplain Management</li> <li>• Grant writing, administration, and management</li> <li>• Pandemic and Emergency Management Planning</li> <li>• Housing Development and Assistance</li> </ul>
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	"Go Green Committee" Town of Lake George Consolidated Board of Health
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Highway Department is responsible for the 33 miles (center lane) of Town Roads. The Department has an agreement with the County to provide some maintenance to 1 mile of County Highways for which it is reimbursed. The Department also provides sanding and snow removal for the Lake George Central School.
Construction/Building/Code Enforcement Department	Yes	See Planning Department
Emergency Management/Public Safety Department	Yes	Town of Lake George Emergency Squad Lake George Village Volunteer Fire Department
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Lake George Volunteer Fire Department Mutual Aid Plan; Lake George EMS Mutual Aid
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Town of Lake George Planning and Zoning Office; Director of Planning and Zoning; Code Enforcement Officer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Town of Lake George Planning and Zoning Office; Director of Planning and Zoning; Town of Lake George Town Engineer - Private (LaBella)





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with an understanding of natural hazards	Yes	Town of Lake George Planning and Zoning Office; Director of Planning and Zoning
Staff with expertise or training in benefit/cost analysis	Yes	Town of Lake George Comptroller; Director of Planning and Zoning
Professionals trained in conducting damage assessments	Yes	Most of the Highway Department is "unofficially trained through experience"
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Town of Lake George Planning and Zoning Office; Director of Planning and Zoning; Town of Lake George Town Engineer – Private (LaBella)
Environmental scientist familiar with natural hazards	Yes	Town of Lake George Planning and Zoning Office; Director of Planning and Zoning
Surveyor(s)	No	–
Emergency Manager	Yes	Town Supervisor; Director of Planning and Zoning and Town Comptroller (Pandemic Response Coordinators)
Grant writer(s)	Yes	Town of Lake George Planning and Zoning Office; Director of Planning and Zoning
Resilience Officer	No	–
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater Management Officer (Director of Planning and Zoning); Floodplain Administrator (Director of Planning and Zoning)

#### Administrative/technical capability self-assessment

#### **Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.**

Administrative and Technical capabilities allow the Town to easily integrate both mitigation and adaptation projects and undertakings in the Town in relation to risks and associated hazards from the HMP. The Highway Department is continuously working to mitigate impacts of storms and hazards to the Town roads through infrastructure upgrades and rightsizing, and the Planning Department continues to work on cross-integration between all planning disciplines, with goals of incorporating hazards and other potential risks into the various planning documents and efforts in Town such as within the Climate Action Plan and the Stormwater Management Program/Plan. In 2023, a potential Southern Basin Floodplain Management Plan will be developed in conjunction with the LC-LGRPB.

## Fiscal Capability

The table below summarizes financial resources available to the Town of Lake George.

**Table 9.8-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes – Eligible at budget time
User fees for water, sewer, gas or electric service	Yes – Eligible at budget time
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes – Eligible
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes – accessible





Financial Resources	Accessible or Eligible to Use? (Yes/No)
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes – accessible

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Lake George.

**Table 9.8-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	–
Personnel skilled or trained in website development	No	–
Hazard mitigation information available on your website	Yes	Located under Planning and Zoning Department
Social media for hazard mitigation education and outreach	No	–
Citizen boards or commissions that address issues related to hazard mitigation	No	–
Warning systems for hazard events	No	–
Natural disaster/safety programs in place for schools	No	May take place within LG Central School District
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	–

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Lake George.

**Table 9.8-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	–	–
Building Code Effectiveness Grading Schedule (BCEGS)	No	–	–
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	September 1, 2014
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	Yes	Passed CSC Pledge, Certified	Pledge (2016) Certified (2020)
Storm Ready Certification	No	(Warren County participates)	–
Firewise Communities classification	No	–	–
Other	No	–	–

Note:





N/A Not applicable  
 - Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.8-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

## 9.8.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Lake George.

**Table 9.8-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Lake George	8	7	\$23,323	0	1	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss





*RL FMA Definition* Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

*RL NFIP Definition* Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Lake George.

**Table 9.8-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	Yes, the Town maintains a list of properties that have been flood damaged. The Town has a short list of properties that are within FEMA flood zones. There are additional areas in Town in “flood-prone” areas, which are not on FEMA flood maps.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No, the Town does not identify property owners interested in mitigation.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	FEMA did a RiskMAP Analysis for the Upper Hudson Watershed in 2018/2019, and are working separately on a Warren County Flood Hazard Study in 2022.
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	The Town does not have a staff person who is authorized to make substantial damage estimates
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	Based on records, none of the (dozen or so) properties that exist within the mapped FEMA flood zones have been mitigated/elevated/acquired.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	No, they do not. The only flood zone maps from FEMA are in relation to the Schroon River. There are many other flood prone areas in Town, and the Town hopes to work on a Floodplain Management Plan to preempt any potential FIRM updates/requests.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Planning and Zoning Office (Director of Planning and Zoning)
Are any certified floodplain managers on staff in your jurisdiction?	The Director of Planning and Zoning acts as the Floodplain Administrator, but is not a CFM.
Do you have access to resources to determine possible future flooding conditions from climate change?	Not directly, no.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	The FPA is adequately supported and trained. The FPA would consider additional training/certifications when available.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS,	Zoning staff conduct routine inspections on properties within the floodplain (specifically in the Schroon River





NFIP Topic	Comments
education/outreach, inspections, engineering capability)	<p>Floodplain); assist with damage assessments conducted by Lake George Department of Public Works / Highways when damages are recorded; and have recently started educating specific applicants that may lie within / near floodplains within Lake George. The Director of Planning and Zoning also works on floodplain development permit review when/if they are submitted. Education and Outreach on the topic is less than adequate.</p> <p>The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.</p>
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Consultation with NFIP documents, the Town's Flood Damage Prevention Ordinance (Ch. 83), and the Town's Engineer /Counsel as applicable/needed.
What are the barriers to running an effective NFIP program in the community, if any?	The program is in good shape and good standing with NFIP, but improvements could be made to the education/outreach aspects.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> <li>If so, state the violations.</li> </ul>	The Town is in good standing with NFIP compliance.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	September 10, 2015
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	The Town's Flood Damage Prevention Ordinance, Chapter 83 of the Town Code. Originally adopted in 1994 but amended in full in 1996. Could use amendments.
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	Meets minimum requirements
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	<p>Any applications that go through the Planning and Zoning Office, including Area/Use variances, Site Plan Reviews, and Land Use and Development permits, are all considered for flood permit review (only deemed necessary if the parcel falls within the floodplain boundaries).</p> <p>Other plans or programs that support floodplain management include our stormwater management program plan, our stormwater regulations located in Town Code Chapter 148, which include strict stormwater mitigation measures and standards for all projects located within the town. Consistently the Town Planning Board requires stormwater control measures for projects in order to help reduce flood risk and control stormwater runoff.</p>





NFIP Topic	Comments
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Due to limited resources it may not be feasible to participate, depending on level of involvement or recurring work required.

## 9.8.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.8-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.8-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	90	0	80	0	80	0	85	0	84	0	80	0
Multi-Family	0	–	0	–	1	0	0	–	2	0	4	0
Other (commercial, mixed-use, etc.)	17	0	11	1	15	1	21	0	25	0	14	0
Total New Construction Permits Issued	107	0	91	1	96	1	106	0	111	0	98	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development					
Recent Major Development and Infrastructure from 2017 to Present												
Crosbyside Townhomes	Residential	19 townhomes (2/3 bd units) – assume 48 bedrooms)	264.35–1–20		None identified		Underway, expected completion in 2023					
Hillcrest Townhomes	Residential	24 townhomes (2/3 bd units) – assume 60 bedrooms)	264.12–1–27.1		None identified		Underway, expected completion in 2024					
Hearthstone Townhomes	Residential	10 townhomes (3 bd units) – assume 30 bedrooms	238.16–1–6		None identified		Underway, expected completion in 2024					





Type of Development	2017	2018	2019	2020	2021	2022
Sun Valley Apartments	Residential	39 apartments (2 bd units) – assume 78 bedrooms	264.11-1-37	None identified	Underway, expected completion in 2024	
Forest Ridge	Residential	7 lot subdivision, 6 single family homes	Truesdale Road	None identified	Began 2017, in progress	
Hearthstone Townhouses	Residential	11 lot subdivision to include 10 townhomes	Lakeshore Drive	None identified	Began 2021, in progress	
Mountain's Edge	Residential	17 single family homes	Michelli Road	None identified	Approved in 2012, started construction 2022. 1 home complete, 5 underway.	
Whisper Glen	Residential	10 lots	Route 9N	None identified	Approved in 2009, 2021 start to construction, 3 houses currently underway.	
Diamond Lookout	Residential	15 lots	Diamond Point Road	None identified	3-4 complete, 3-4 underway	
Spring Woods Subdivision	Residential	12 lots	Diamond Point Road	None identified	3 homes complete, 1 underway	
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>						
Route 9L Laundromat	Commercial	N/A – 14,000 gpd commercial maximum capacity	264.11-1-4.2	None identified	Planning Board approval pending; 2023 construction anticipated	
Lamondo 9L Rentals	Residential	7 rentals (3 bd units) – assume 21 bedrooms	264.08-2-28, 264.08-2-29	None identified	Planning Board approval pending; 2024 construction anticipated	
English Brook Village	Residential	16 apartments (2/3 bd units) – assume 40 bedrooms	251.10-2-31.2	None identified	Approved (in engineering review); 2025 construction anticipated	
McGowan/Schermerhorn Senior Living	Residential	32 apartments (mostly 1 bd, some 2 bd units) – assume 40 bedrooms	264.12-1-7	None identified	Sketch Plan Review; 2025 construction anticipated	





Type of Development	2017	2018	2019	2020	2021	2022
Gross PUD (Ramada)	Mixed Use	99 apartments (2/3 bd units) – assume 250 bedrooms; and 5,000 SF commercial space	264.03-2-2	None identified	Sketch Plan Review; 2026 construction anticipated	
LG Community Partners (Bloody Pond)	Residential	64 apartments (2/3 bd units) – assume 160 bedrooms*	264.12-1-61, 264.12-1-62, 264.12-1-58.12	None identified	Sketch Plan Review; 2027 construction anticipated	
Waterslide World PUD	Mixed Use	150 apartments (1/2/3 bd units) – assume 300 bedrooms; and assume 50,000 SF commercial space	264.11-1-3, 264.11-1-2, 264.11-1-1	None identified	Nothing submitted; 2027-2028 construction anticipated	
Schermerhorn 9L project	Residential	16 apartments (2/3 bd units) – assume 40 bedrooms	264.11-1-40	None identified	Nothing submitted; 2026 construction anticipated	
Ellsworth Magic Forest Apartments	Residential	90 apartments (1/2/3 bd units) – assume 180 bedrooms**	264.04-1-35, 264.04-1-36, 264.04-1-37	None identified	Nothing submitted; 2027-2028 construction anticipated	

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

\*\* Permit software does not differentiate between residential and commercial projects, so assumptions/estimates were used. 98 permits for 2022 is from 1/1/22 to 11/9/22 (Assume another 10-15 permits before 12/31/22)

2018 Project – LG Riverview RV Park Campground expansion (APA project, DEC SPDES, Town approvals) – no actual “structures”

2019 Project – LG Escape Campground Wetland Remediation and Shoreline Project (APA Project, DEC SPDES, Town approvals) – no actual “structures” other than water conveyance structures (i.e. culverts)





### 9.8.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Lake George's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Lake George has significant exposure are provided. [The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.](#)





Figure 9.8-1. Town of Lake George Flood Hazard Area Extent and Location Map

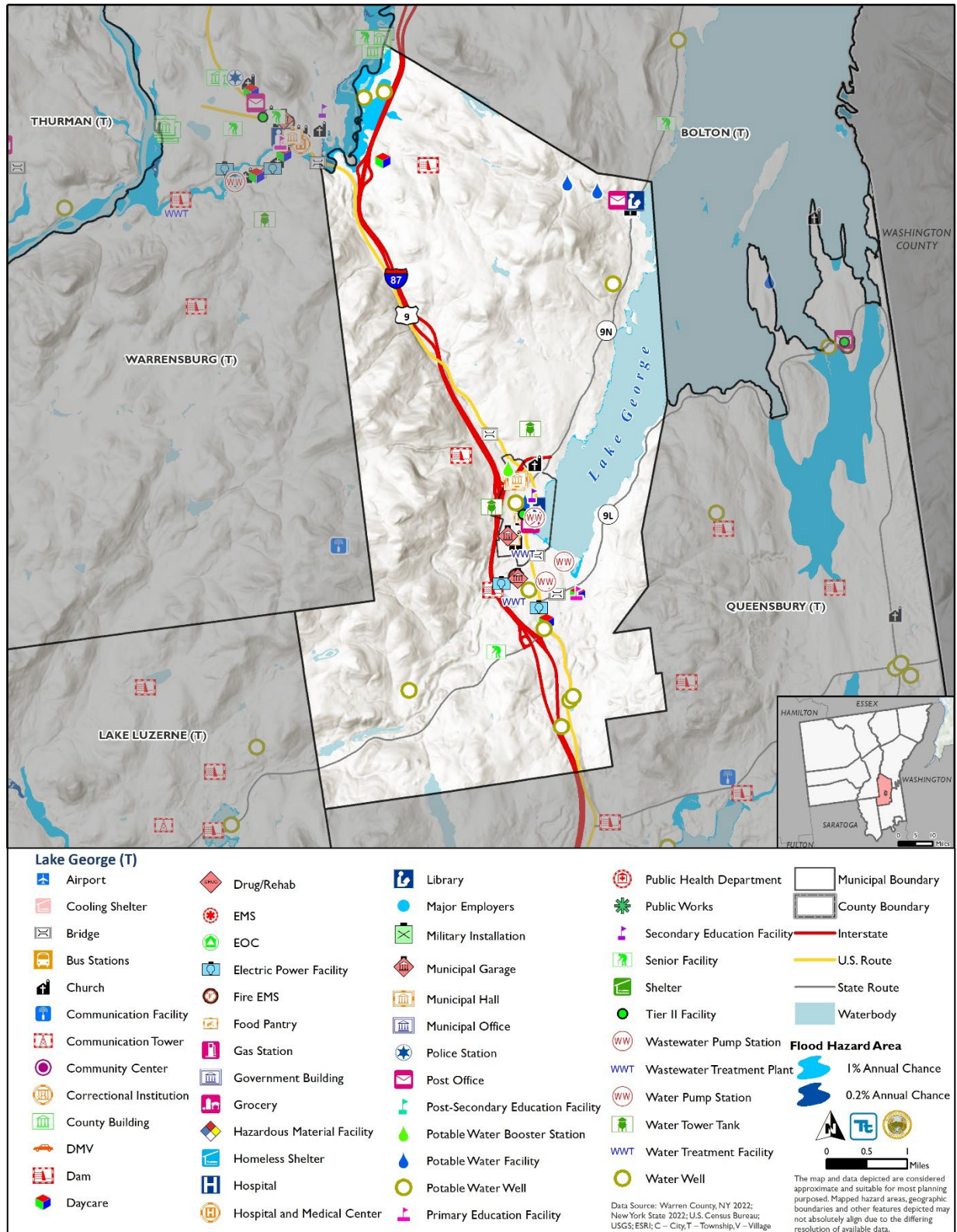
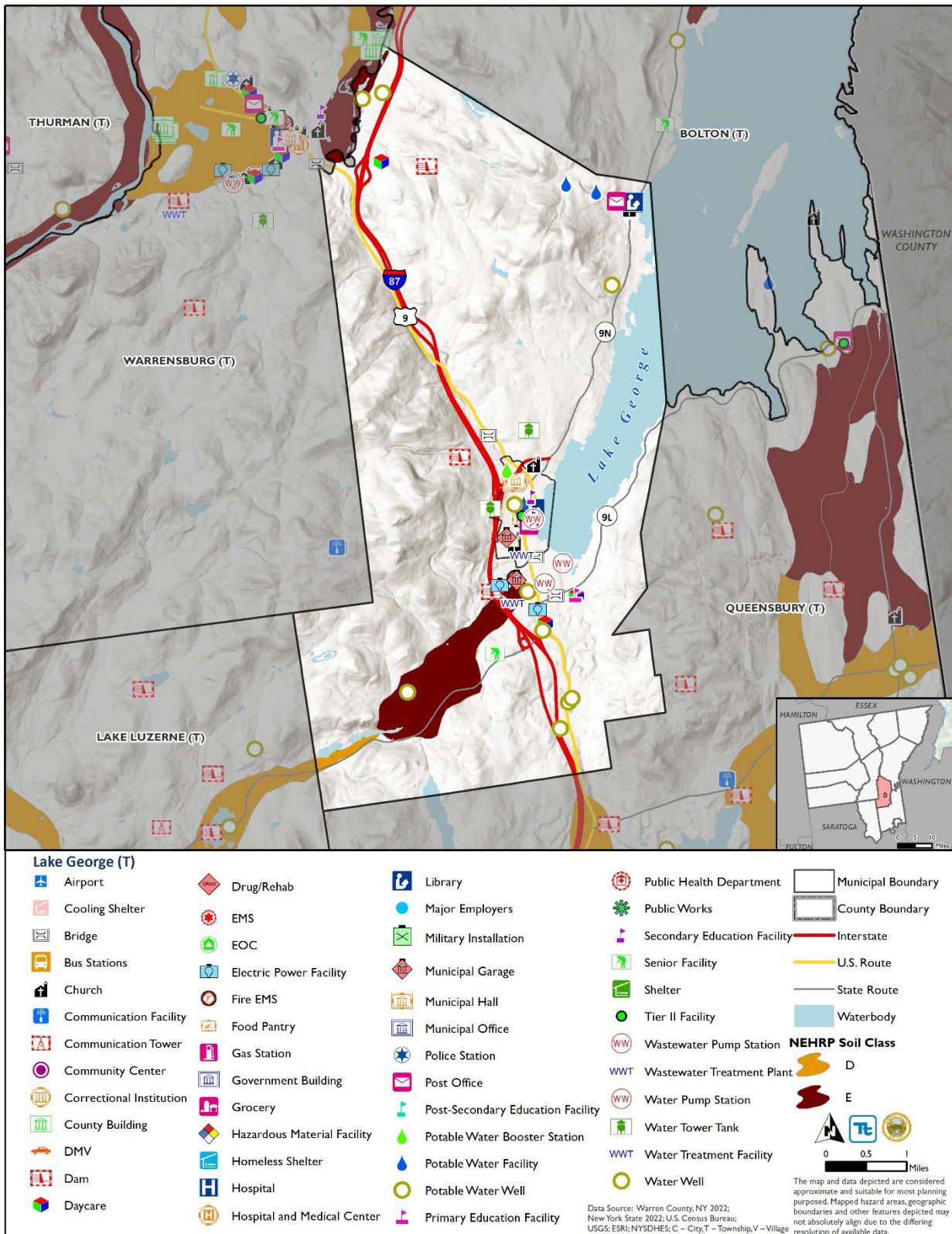






Figure 9.8-2. Town of Lake George Earthquake (Soil Class) Hazard Area Extent and Location

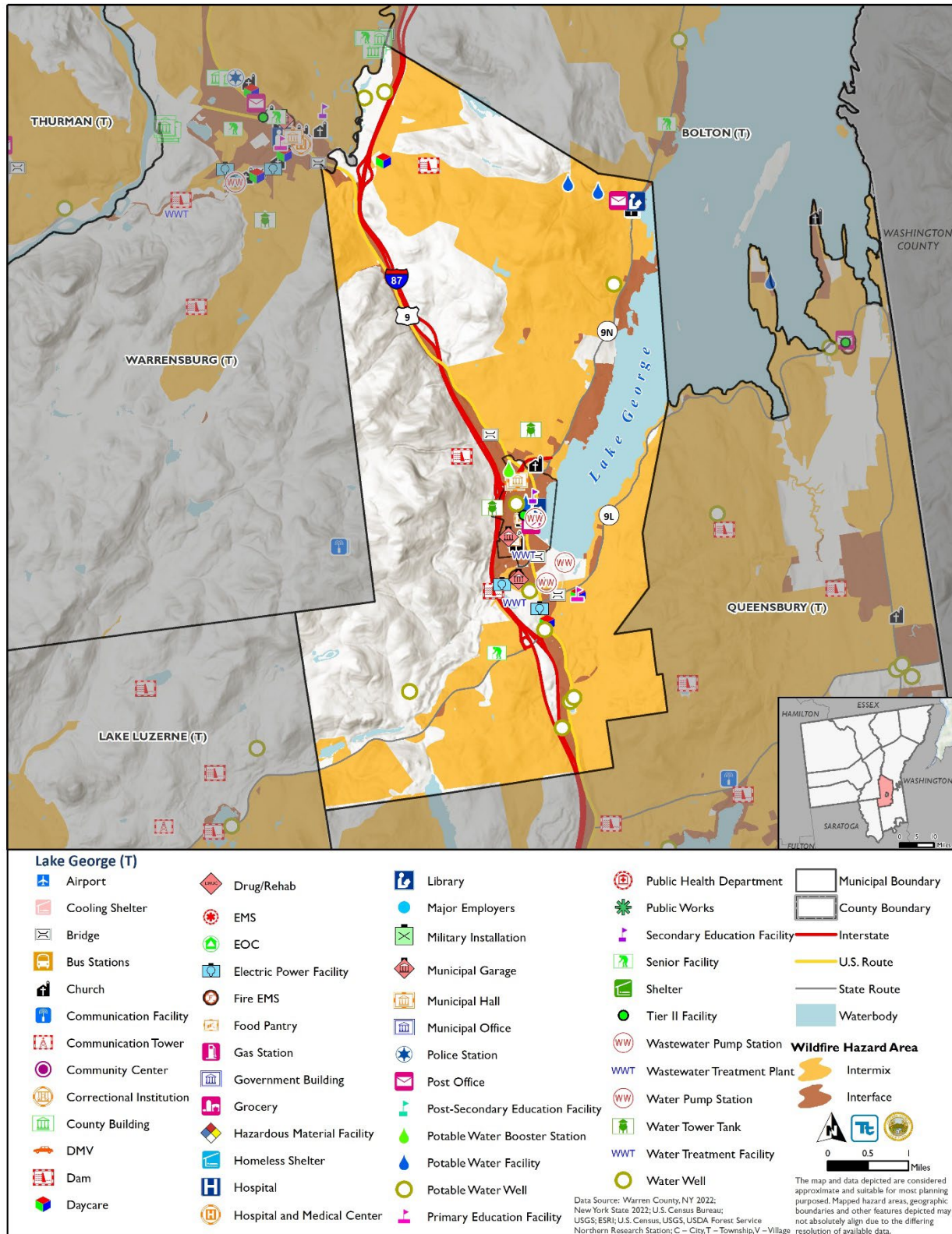


Map





Figure 9.8 3. Town of Lake George Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Lake George's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.8-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.8-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
May 4, 2018	Thunderstorm Wind	Yes	A powerful low pressure system formed on May 4th, pushing a strong cold front across eastern New York. A line of thunderstorms developed along this front in the afternoon and evening, resulting in widespread wind damage. Nearly 60,000 customers lost power as a result of the storms. Particularly intense damage occurred in the villages of Johnstown and Cambridge, the town of Hebron, and Saratoga National Historical Park, where dozens of trees were uprooted and snapped in concentrated swaths. Some of these trees fell onto cars and houses, resulting in property damage. the evening hours, strong non-thunderstorm winds developed behind the cold front, impacting portions of the southern Adirondacks. Winds gusted as high as 58 mph at Chestertown, and a few trees and limbs were downed.	Route 9L was closed between Bay and Beach Roads due to downed trees and wires.
October 31, 2019	Halloween Storm: Severe Storms, Straight-line winds, Flooding (DR-4472)	Yes	2-4" of rain fell causing localized flooding and scattered areas of damage to public and private property	Minor flooding from some stormwater systems and minor damage to local roadways, larger damage to private properties (Lakefront Terrace Hotel).
September 8, 2021	Thunderstorm Wind	No	A line of strong to severe thunderstorms resulted in widespread damage over eastern New York on Wednesday September 8, 2021.	A trained weather spotter reported numerous trees snapped and uprooted along Exit 22 north of 9N.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2022	Covid-19 pandemic (DR-4480, EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	The Town was subject to closures and masking/social distancing requirements.
February 18, 2022	Flood	No	A storm system pushed across the region during February 17-18, 2022. Warm air pushed northward into the region along with periods of rainfall before a cold front brought the return of windy and colder weather. A convective line of gusty showers also accompanied the cold frontal passage. Some locations picked up over 1 inch of rainfall which led to minor flooding in a few locations. In the wake of the cold front, strong winds affected areas mainly along and south of I-90 with gusts 40 to 55 mph observed, resulted in a few downed trees. The warm and rainy weather ahead of the cold front resulted in some snow melt as well as some ice to break up on area rivers and streams. As the colder weather returned, localized ice jams formed, some of which led to flooding, including in Dolgeville and Canajoharie.	The Howard Johnson by Wyndham Lake George hotel parking lot on Canada Street was flooded early Friday morning. The Lake George Volunteer Fire Department rescued a man who was trapped on top of his pickup truck in the flooded parking lot. Lake George Fire Chief said the flooding was a result of water runoff from Prospect Mountain that flows into the drainage portion of the parking lot which wasn't able to keep up with the amount of water coming in. There was about 8 feet of water in the parking lot. The rooms on the ground level of the hotel also flooded with water.
April 8, 2022	Flooding "April Storm"	Unknown	2-3" of rain fell causing localized flooding and scattered areas of damage to public and private property	The Town's Lower Pump Station flooded from runoff concentrated off of Beach Road, causing major I&I. Other private damaged recorded to Lakefront Terrace Hotel (Washout).

Notes:

- EM Emergency Declaration (FEMA)  
 FEMA Federal Emergency Management Agency  
 DR Major Disaster Declaration (FEMA)  
 N/A Not applicable





**Figure 9.8-3. 2019 Flooding at Lake George Escape Campground**



Source: Warren County SWCD

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Lake George's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Lake George. The Town of Lake George reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town changed the hazard ranking for flood from low to medium, noting that while calculated probability of flood may be low, impacts on people/property/economy is medium at least from flooding, and the degree to which climate change will affect this is high.
- The Town changed the hazard ranking for dam failure from high to medium, noting that there is exposure to dam failure but the risk of failure is low.
- The Town agreed with the remainder of the calculated hazard rankings.



**Table 9.8-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Medium	High	High	High	Medium

Dam Failure	Disease Outbreak
Medium	Medium

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.8-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
None identified					

Source: Warren County 2022

Although the Town of Lake George does not have any critical facilities located in the 1-percent or 0.2-percent floodplain, the Town believes that the current FIRM maps underrepresent the proper size of the floodplain.

### Identified Issues

After review of the Town of Lake George's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Lake George identified the following vulnerabilities within their community:

- Integration of hazard mitigation concepts is needed to support the Town's hazard mitigation goals.





- The Town does not participate in the StormReady program. The Town is interested in increasing storm warning and notifications.
- Stormwater conveyances around the Town are maintained and improved by the Highway Department; however, improvements to the systems are few and far between due to lack of funding for expensive retrofits or repairs needed.
- An IMA exists between the Town and County regarding maintenance for a roadway in the Winter, but the Town is unsure if a formal IMA exists between the two regarding other hazard response and effectiveness.
- The Town is seeking to establish an agreement with NYS DEC to ensure state owned properties and facilities are maintained and addressed during and after hazard events.
- The Town lacks a debris management plan to handle post-disaster cleanups.
- Current floodplain mapping is considered inadequate and requires more data and detail.
- Additional training for wildfire response is needed for Town officials.
- While FEMA brochures are available at Town Hall and some information is available on the Town website, additional flood outreach is needed.
- The FPA (Director of Planning and Zoning) lacks certification and could use updated training.
- To date, two sub-watershed assessments have been completed (East side/Front Street; Lakeview Circle) but additional sub-watershed assessments should be completed to further Town-wide efforts.
- Lake George Escapes Campground and Riverview Campground have a history of flood issues. Both have completed some work since 2017, some of which were related to stormwater runoff and/or dealing with surface water, but each would benefit from flood-proofing audits.
- Stormwater flooding requires stormwater improvements to reduce flood risk at several locations in the Town.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.
- The Old County Courthouse is a Town owned facility that lacks a backup power source. The facility houses several Lake George Historical Association and museum, Lake Champlain Regional Planning Office, and other groups.
- An update to the Town Comprehensive Plan is needed in the next few years.
- Staff require training to respond to dam failure events. There are several privately owned dams including Big Hollow Reservoir, Gage Brook Reservoir, and Orebed Reservoir.
- Problem: There is a general lack of public awareness regarding hazards and response. Although the Town completes outreach related to hazards, improvements can be made to encourage better personal mitigation and education for children. Critical infrastructure for the sewer district has been compromised by the elevated Beach Road, which creates direct runoff towards the Lower Pump Station.
- There are a few properties that are within the Schroon River flood zone, but the Town is unaware of their status in terms of repetitive loss or flood insurance claims. Some property along the River or along English Brook would likely benefit from either.





### 9.8.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.8-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		<ol style="list-style-type: none"> <li>Next Steps Project to be included in 2023 HMP or Discontinue</li> <li>If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>If discontinue, explain why.</li> </ol>
						Cost		
TLG-1	Review and update local comprehensive and stormwater plans to integrate the risk assessment, goals, objectives, activities, and recommendations of the hazard mitigation plan which are not found in existing regulatory documents.	All Hazards	Plan consistency	Town Board, Planning Dept.	In Progress	Level of Protection		<ol style="list-style-type: none"> <li>Include in 2023 HMP</li> <li>Limited manpower has been an obstacle for this action. A review of local plans will be done in the next year or two in anticipation of including new HMP objectives and goals into these plans, as appropriate. The potential future floodplain management plan will be the biggest effort to achieve this goal.</li> <li></li> </ol>
						Damages Avoided; Evidence of Success		
TLG-2	Participate in the StormReady program.	Flood, Severe Storm	Unknown	Town Board, Planning Dept.	No Progress	Cost		<ol style="list-style-type: none"> <li>Include in 2023 HMP</li> <li></li> <li></li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-3	Develop and implement a plan to collaborate with State and private property owners to reduce risks from beaver dams in areas including Truesdale Hill Road.	Flood	Pre-2017 beaver dam issues on Truesdale Hill Road.	Planning Dept, NYS DEC, Private property owners	No Progress	Cost		<ol style="list-style-type: none"> <li>Discontinue</li> <li></li> <li>This was a low priority item in the prior plan and since the prior plan minimal if any damage or issue has been identified with the two areas in Town with beaver dams.</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
TLG-4	Maintain cleared areas around roadways (obstructions of groundwater, infestation), including: <ul style="list-style-type: none"> <li>Rt. 9L</li> <li>Flat Rock Rd.</li> <li>Front St.</li> <li>Lakeshore Dr.</li> <li>Prospect Mountain</li> <li>Roads adjacent to Lake</li> </ul>	Flood	General debris management in relation to storms/hazards	Town HIGHWAY DEPARTMENT	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-5	Educate residents regarding steps to be taken to decrease the impact of natural hazards (including ice storms, wild/forest fires, severe storms, tornado, earth-quakes, and all other natural hazards) by developing, enhancing, and implementing education programs, brochures, school presentations informing groups about ways to reduce risk, and other outreach activities.	All Hazards	Education and Outreach of hazards is lacking	Town Board; Superintendent; Planning Department; school districts; County Office of Emergency Services	In Progress	Cost		1. Include in 2023 HMP 2. Limited manpower has been an obstacle and minimal funding for hazard-related activities has delayed any educational outreach. Assistance with education and outreach of hazards would be a primary focus of improving local efforts. Unclear whether or not the County office of Emergency Services or the School Districts have instituted educational outreach regarding natural hazards. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-6	Coordinate/create mutual aid agreements public	All Hazards	Recorded agreements regarding	Town HIGHWAY DEPARTMENT	In Progress	Cost		1. Include in 2023 HMP 2. IMA exists between the Town and County regarding maintenance for a
						Level of Protection		





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	works departments to ensure efficient use of resources during and after storm events.		hazard response is lacking			Damages Avoided; Evidence of Success		roadway in the Winter, but not sure formal IMA exists between the two regarding storm response and effectiveness. If not, suggest a consolidated one.  3.
TLG-7	Agreement between the Town and NYS DEC for cleaning and maintaining properties and roadways on state and private owned lands, including Prospect Mountain and Battlefield Park grounds.	Flood	Unknown (but the 2022 April flood in the pump station solidified the need)	Town Board, Planning Department, NYS DEC	No Progress	Cost Level of Protection Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. To also include how NYS DEC will attempt to work with the Town to safeguard and prohibit hazards (floods) at the two sewer pump stations on the NYS DEC lands. 3.
TLG-8	Develop a Debris Management Plan specifically for the Town of Lake George.	Flood, Severe Winter Storm	Debris management in general in relation to hazards/floods	Town HIGHWAY DEPARTMENT, Planning Dept.	No Progress	Cost Level of Protection Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. Potentially incorporate Debris Management into a County-wide plan. 3.
TLG-9	Develop a Town of Lake George Flood Management Plan.	Flood	Flood zone identified and mapped floodplains are inadequate	Planning Dept.	In Progress	Cost Level of Protection Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. Town is working with the LC-LGRPB to secure funding to develop a Southern Basin Flood Management Plan. 3.
TLG-10	Send a LGVFD representative to	Wildfire	Unknown	Fire Dept, Town Supervisor	No Progress	Cost Level of Protection		1. Discontinue 2.





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	NYS Wildland Fire Supp. Training.					Damages Avoided; Evidence of Success		3. It is assumed that the Fire Department have members who have attended or routinely attend NYS wildland fire suppression training.
TLG-11	Provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding. Information may include brochures, FEMA handouts, and online links.	Flood	Education and Outreach of hazards is lacking	Town Board, County OES	In Progress	Cost		1. Include in 2023 HMP 2. FEMA brochures are available at the Town Hall and floodplain information in general is available on the Town's website, but no other outreach is completed. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-12	Educate specific homeowners who have property in the floodplain areas on carrying NFIP policies.	Flood	NFIP properties unaware of program or potential hazards/issues	Town Floodplain Administrator	In Progress	Cost		1. Include in 2023 HMP 2. General response and information has been given to those in the flood zones in Town that have asked or been in contact with the Town. No consolidated formal effort to educate all owners at once is completed. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-13	Continue an annual inventory to detail at-risk infrastructure and public structures in the Town of Lake George.	All Hazards	Unknown	Planning Dept., Building Inspector, Warren County	In Progress	Cost		1. Include in 2023 HMP 2. Would be beneficial to include a high-level summary of at-risk facilities/structures in this HMP. However, it is likely that will be integrated into a Flood management plan if one is completed. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-14	Support the mitigation of vulnerable structures	All Hazards	Obvious needs to adapt to hazards that	Town Board, Planning Dept.,	Ongoing Capability	Cost		1. Include in 2023 HMP 2. Would be beneficial to include a high-level summary of at-risk
						Level of Protection		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	<p>via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with critical facilities and repetitive loss properties as a priority when applicable. Town support shall include direct outreach to flood-prone property owners, specifically critical facility owners/operators and those identified by FEMA as RL/SRL or otherwise identified as flood-prone, and working with interested and voluntary property owners to mitigate their properties based on available funding from FEMA and local (property owner) match availability.</p> <p>Efforts to mitigate critical facilities shall recognize Federal and State directives for protection to the</p>		cannot be mitigated, as well as planning for Climate Change			Damages Avoided; Evidence of Success		<p>infrastructure in this HMP. However, it is likely that will be integrated into a Flood management plan if one is completed. The Highway Department to continue right-sizing infrastructure where appropriate/as needed.</p> <p>3.</p>





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	500-year flood level or "worst case scenario".							
TLG-15	Send a town representative to the local (County) and/or State FPA training.	Flood	FPA lacks certification and could use updated training	Town Board, Planning Dept.	No Progress	Cost		1. Include in 2023 HMP 2. The Director of Planning and Zoning (also the FPA) would be interested in attending FPA training but has not yet done so. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-16	Develop engineering assessment of sub-watersheds in town. Assess all areas of town with issues of stormwater runoff. Could be annexes to Flood Management Plan (TLG-9)	Flood	Need to focus locally on smaller geographic areas that cause flooding	Town Board, Planning Dept	In Progress	Cost		1. Include in 2023 HMP  2. To date, two subwatershed assessments have been completed (East side/Front Street; Lakeview Circle) but additional subwatershed assessments should be completed to further Town-wide efforts. It is likely that will be integrated into a Flood management plan if/when one is completed.  3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-17	Encourage flood mitigation at Lake George Escapes Campground, including potentially elevating or flood-proofing office and maintenance buildings.	Flood	Primary focus is on ameliorating issues at the campground properties in the flood zones	Town Floodplain Administrator, Planning Dept.,	In Progress	Cost		1. Include in 2023 HMP  2. Add Riverview Campground. Both Riverview and LG Escapes have completed some work since 2017, some of which were related to stormwater runoff and/or dealing with surface water. Both would benefit from flood-proofing audits.  3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-18	Lake View Circle Drive and Pine Lane Intersection	Flood	Priority area for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept.	Complete	Cost	\$100,000	1. Discontinue 2.
						Level of Protection		





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	stormwater improvements.					Damages Avoided; Evidence of Success	Less sediment and overall material entering into the lake from the tributary outfall at Lakefront Terrace. No discharges/overflows in Lakeview Circle since the project was completed.	3. Part of the larger Lakeview Circle Stormwater Improvements (2017-2018), a DEC WIP grant project that incorporated \$100k of stormwater and stream stabilization work.
TLG-19	Middle Road South of Sherrick Drive stormwater improvements	Flood	Priority area for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept.	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2. Consider merging all localized actions/projects into one? It is likely that will be integrated into a Flood management plan if/when one is completed.
						Damages Avoided; Evidence of Success		3
TLG-20	Middle Road South of Carefree Lane stormwater improvements	Flood	Priority area for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2. Consider merging all localized actions/projects into one? It is likely that will be integrated into a Flood management plan if/when one is completed. Consider indicating LGLC help purchase McAviney site for potential wetland project.
						Damages Avoided; Evidence of Success		
TLG 21	Michelli Drive stormwater improvements	Flood	Priority area for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2. Consider merging all localized actions/projects into one? It is likely that will be integrated into a Flood management plan if/when one is completed.
						Damages Avoided; Evidence of Success		3.
		Flood				Cost		





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
TLG-23	Continue to review and evaluate additional projects from sub-watershed report (Antler Ave & Lake View Circle Dr. intersection; Lake View Brook outlet; Carefree Lane) for further action.		Priority areas for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept	In Progress	Level of Protection		1. Include in 2023 HMP 2. Focus on development of new sub-watershed analyses or integration of such analyses into the Flood management Plan for potential project concept and evaluation. 3.
						Damages Avoided; Evidence of Success		
TLG-24	Middle Road North of Carefree Lane – Install a roadside buffer along the stream banks a 200' section of the brook that flows alongside Middle Road between two stream crossings. Project would increase water quality in this stretch of brook flowing very close and parallel to Middle Road.	Flood	Priority area for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept	No Progress	Cost		1. Include in 2023 HMP 2. Consider merging all localized actions/projects into one? It is likely that will be integrated into a Flood management plan if/when one is completed. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLG-25	Complete Municipal Stormwater Retrofit Recommendations not already included in this HMP as presented in the 2014 Lake View Watershed Report.	Flood	Priority area for stormwater	Town HIGHWAY DEPARTMENT, Planning Dept	Complete	Cost	\$100,000 total	1. Discontinue 2.
						Level of Protection	75-85%	
						Damages Avoided; Evidence of Success	No more discharges/overflows. Material being captured in practices	3. Part of the larger Lakeview Circle Stormwater Improvements (2017-2018), a DEC WIP grant project that incorporated \$100k of stormwater and stream stabilization work. Since the work was completed, no stormwater discharges have occurred in the watershed,





## SECTION 9.8. Town of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		1. Next Steps Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
								other than the unassociated issues downstream at the Lakefront Terrace.
TLG-26	Provide municipal support as needed and appropriate to the following NYS DOT project: DOT is planning Bridge corrective maintenance at two locations along NYS Route 9 over English Brook, within Town of Lake George during Fall 2017. The project proposes to add scour material to prevent continued erosion and protect the structures.	Flood	Unknown	Town HIGHWAY DEPARTMENT, Planning Department – supporting NYS DOT project	No Progress	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Project already completed (?) by DOT. Possible incorporation of general action item regarding municipal support and involvement in design and needs assessment for state highway projects.





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.8-15, the Town of Lake George identified the following mitigation efforts completed since the last HMP:

- Backup power was established for the water station at Diamond Point.
- Lake George Escape Campground was flooded in 2019 leaving the majority of campsites impacted. In 2019, representatives of the Campground met with representatives from the Town, County, Schroon Lake Park District to discuss flood risk and potential mitigation actions. Roughly 90-percent of the campground is in the floodplain. At Lake George Escape Camping Resort, a million dollar project was completed to restore wetlands that had been filled post-APA Act by previous owners, create new/enhance existing wetlands as remediation for material that can't be removed, and restore eroded streambanks along the Schroon River caused by uncontrolled access by campers.
- Stormwater infrastructure improvements were completed near the McAviney wetlands.

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Lake George participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.8-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X	X		X	X	X	X			X
Flood	X	X		X	X	X	X		X	X
Severe Storm	X	X		X	X	X	X		X	X
Severe Winter Storm	X	X		X	X	X	X			X
Wildfire	X			X	X	X	X			X
Infestation	X			X	X	X	X			X
Dam Failure	X			X	X	X	X			X
Disease Outbreak	X			X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.8-17).

The table below summarizes the specific mitigation initiatives the Town of Lake George would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.8-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023–Town of Lake George-001	Hazard Mitigation Integration	4	All Hazards	<p><b>Problem:</b> Integration of hazard mitigation concepts is needed to support the Town’s hazard mitigation goals.</p> <p><b>Solution:</b> A review of local plans will be done in the next year or two in anticipation of including new HMP objectives and goals into these plans, as appropriate. The potential future floodplain management plan will be the biggest effort to achieve this goal.</p>	No	None	2 years	Town Board, Planning Department	Low	Increased integration and planning consistency	Town budget	High	LP R	PR
2023–Town of Lake George-002	StormReady Program	3	Severe Storm, Severe Winter Storm	<p><b>Problem:</b> The Town does not participate in the StormReady program. The Town is interested in increasing storm warning and notifications.</p> <p><b>Solution:</b> The Town will complete program</p>	Yes	None	Within 5 years	Town Board, Planning Department	Low	Increased storm warning and notifications	Town budget	High	LP R	ES





## SECTION 9.8. Town of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				prerequisites and apply to join the NWS StormReady program.										
2023-Town of Lake George-003	Stormwater Retrofit Fund	4	Flood, Severe Storm	<p><b>Problem:</b> Stormwater conveyances around the Town are maintained and improved by the Highway Department; however, improvements to the systems are few and far between due to lack of funding for expensive retrofits or repairs needed.</p> <p><b>Solution:</b> The Town will consider a stormwater retrofit fund in the Town Budget, to be associated with MS4 program boundary.</p>	Yes	None	Within 5 years	Administration, Highway Department	Staff time	Funding established for stormwater improvements	Town budget	High	SIP	SP
2023-Town of Lake George-004	Mutual Aid Agreements	3, 4	Flood, Severe Storm, Severe Winter Storm, Wildfire	<b>Problem:</b> An IMA exists between the Town and County regarding maintenance for a roadway in the Winter, but the Town is unsure if a	No	None	1 year	Town Highway Department, Warren County	Staff time	Increased capabilities, partnership	Town budget	High	LP R	PR





## SECTION 9.8. Town of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>formal IMA exists between the two regarding other hazard response and effectiveness.</p> <p><b>Solution:</b> The Town will coordinate/ create consolidated mutual aid agreements public works departments to ensure efficient use of resources during and after storm events.</p>										
2023-Town of Lake George-005	NYS DEC and Town Maintenance Agreements	3, 4	Flood, Severe Storm, Severe Winter Storm, Wildfire	<p><b>Problem:</b> The Town is seeking to establish an agreement with NYS DEC to ensure state owned properties and facilities are maintained and addressed during and after hazard events.</p> <p><b>Solution:</b> The Town will work to establish an agreement between the Town and NYS DEC for cleaning and maintaining properties and</p>	No	None	1 year	Town Board, Planning Department, NYS DEC	Staff time	Increased capabilities, partnership	Town budget	High	LP R	PR





## SECTION 9.8. Town of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				roadways on state and private owned lands, including Prospect Mountain and Battlefield Park grounds. This will also include how NYS DEC will attempt to work with the Town to safeguard and prohibit hazards (floods) at the two sewer pump stations on the NYS DEC lands.										
2023-Town of Lake George-006	Debris Management Plan	3, 4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Town lacks a debris management plan to handle post-disaster cleanups. <b>Solution:</b> The Town will develop a debris management plan and integrate with the County plan.	No	None	Within 5 years	Town HIGHWAY DEPARTMENT, Planning Dept.	Low	Better post-disaster planning	BRIC, PDM, Town budget	High	LP R	ES
2023-Town of Lake George-007	Flood Management Plan	4	Flood	<b>Problem:</b> Current floodplain mapping is considered inadequate and requires more data and detail. <b>Solution:</b> The Town is working with the	No	None	Within 5 years	Planning Dept., LC-LGRP B	Medium	Better flood data, floodplain mapping	LGRP B, BRIC, PDM, Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				LC-LGRP to secure funding to develop a Southern Basin Flood Management Plan. The Plan will include a high-level summary of at-risk facilities and structures.										
2023-Town of Lake George-008	NYS Wildland Fire Suppression Training	3	Wildfire	<b>Problem:</b> Additional training for wildfire response is needed for Town officials. <b>Solution:</b> The Town will send a representative to the NYS Wildland Fire Suppression Training.	No	None	Within 5 years	Fire Dept, Town Supervisor	Staff time	Increased wildfire emergency response capabilities	Town budget, NY	High	LP R	ES
2023-Town of Lake George-009	Flood Outreach	2	Flood	<b>Problem:</b> While FEMA brochures are available at Town Hall and some information is available on the Town website, additional flood outreach is needed. <b>Solution:</b> The Town will expand outreach to educate specific homeowners who have property in the floodplain areas on	No	None	2 years	FPA	Low	Increased flood awareness, NFIP coverage	Town budget	High	EA P	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				carrying NFIP policies and other flood related initiatives.										
2023-Town of Lake George-O10	FPA Training	4	Flood	<b>Problem:</b> The FPA (Director of Planning and Zoning) lacks certification and could use updated training. <b>Solution:</b> The Town will support the FPA in courses to become a Certified Floodplain Manager.	No	None	Within 5 years	Town Board, Planning Dept.	Low	Increase flood administration capabilities	Town budget	High	LP R	PR
2023-Town of Lake George-O11	Engineering Assessment of Sub-Watersheds	4	Flood, Severe Storm	<b>Problem:</b> To date, two sub-watershed assessments have been completed (East side/Front Street; Lakeview Circle) but additional sub-watershed assessments should be completed to further Town-wide efforts. <b>Solution:</b> The Town will develop an engineering assessment of sub-watersheds in Town. This will include	No	None	Within 5 years	FPA, Planning	Medium	Increased planning, identification of flood issues	BRIC, HMGP, Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				assessing all areas of Town with issues of stormwater runoff. Results will be considered as annexes to the proposed Flood Management Plan										
2023-Town of Lake George-012	Encourage Flood Mitigation at Campgrounds	1, 2	Flood	<p><b>Problem:</b> Lake George Escapes Campground and Riverview Campground have a history of flood issues. Both have completed some work since 2017, some of which were related to stormwater runoff and/or dealing with surface water, but each would benefit from flood-proofing audits.</p> <p><b>Solution:</b> The Town will offer to complete flood-proofing audits where flood mitigation has been completed and suggest additional mitigation</p>	No	None	Within 5 years	Town Floodplain Administrator, Planning Dept., Lake George Escapes Campground, Riverview Campground	Low for audits	Increased flood resilience of campgrounds	Town budget, Campground budgets	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Lake George-013	Stormwater Improvements	1	Severe Storm, Flood	<p>opportunities at each campground.</p> <p><b>Problem:</b> Stormwater flooding requires stormwater improvements to reduce flood risk at several locations in the Town.</p> <p><b>Solution:</b> The Town will make the following stormwater improvements:</p> <ul style="list-style-type: none"><li>• Middle Road South of Carefree Lane stormwater improvements</li><li>• Michelli Drive stormwater improvements</li><li>• Middle Road North of Carefree Lane –</li></ul>	No	May require permitting	Within 5 years	Town HIGHWAY DEPARTMENT, Planning Dept	High	Reduction in stormwater flooding	HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Install a roadside buffer along the stream banks a 200' section of the brook that flows alongside Middle Road between two stream crossings. Project would increase water quality in this stretch of brook flowing very close and parallel to Middle Road.										
2023-Town of Lake	Substantial Damage Procedures	1, 3, 4	All Hazards	<b>Problem:</b> While major events that result in substantial	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved	Municipal budget	High	LP R	PP / PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
George-014				<p>damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.</p> <p><b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations.</p>						floodplain administration				
2023-Town of Lake George-015	Backup Power for Old County Courthouse	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm	<p><b>Problem:</b> The Old County Courthouse is a Town owned facility that lacks a backup power source. The facility houses several Lake George Historical Association and museum, Lake Champlain Regional Planning Office, and other groups.</p> <p><b>Solution:</b> The Engineer will evaluate the Old County Courthouse to determine the proper size</p>	Yes	No	Within 5 years	Engineer, Highway Department	\$20,000 – \$25,000	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Town budget	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				generator necessary to power the Old County Courthouse building. The Highway Department will oversee installation of a fixed generator and necessary electrical components to supply backup power to the building. The Highway Department will be responsible for maintenance and testing of the generator following installation.										
2023-Town of Lake George-016	Comprehensive Plan Integration	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure,	<p><b>Problem:</b> An update to the Town Comprehensive Plan is needed in the next few years.</p> <p><b>Solution:</b> During the update process, the Town will integrate information from the hazard mitigation plan regarding hazard areas and</p>	No	None	2 years	Administration	Low	Increased integration and planning for smart growth	Town budget	High	LP R	PR





# SECTION 9.8. Town of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Lake George-017	Staff Training for Dam Failure	3	Disease Outbreak Dam Failure	safe development practices. <b>Problem:</b> Staff require training to respond to dam failure events. There are several privately owned dams including Big Hollow Reservoir, Gage Brook Reservoir, and Orebed Reservoir. <b>Solution:</b> Staff responsible for emergency response will undergo training for dam failure events.	Yes	None	2 years	Administration	Staff time	Increased staff capabilities	Town budget	High	EAP	ES
2023-Town of Lake George-018	Expanded Hazard Outreach	2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> There is a general lack of public awareness regarding hazards and response. Although the Town completes outreach related to hazards, improvements can be made to encourage better personal mitigation and education for children. <b>Solution:</b> The Town will consider and	No	None	1 year	Administration	Low	Increased public awareness	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				implement various new approaches to outreach including hosting public workshops, holding informational sessions, or improving the Town's website page for Hazard mitigation and response. Outreach will also focus on the importance of hazard awareness and planning for seasonal residents and tourists. The Town will educate residents regarding steps to be taken to decrease the impact of natural hazards (including ice storms, wild/forest fires, severe storms, tornado, earthquakes, and all other natural hazards) by developing, enhancing, and implementing education programs, brochures, school										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				presentations informing groups about ways to reduce risk, and other outreach activities.										
2023-Town of Lake George-019	Lower Pump Station Stormwater Protection	1	Flood, Severe Storm	<p><b>Problem:</b> Critical infrastructure for the sewer district has been compromised by the elevated Beach Road, which creates direct runoff towards the Caldwell Lower Pump Station.</p> <p><b>Solution:</b> The Town will work with the DEC to either install stormwater management controls to direct runoff away from the pump station, or to help it infiltrate before it reaches the pump station doors.</p>	Yes	None	Within 5 years	Administration, NYS DEC, Highway Department	Medium	Reduction in flood risk to Lower Pump Station to maintain critical services	FEMA HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Town Budget	High	SIP	SP
2023-Town of Lake George-020	Home Elevations	1	Flood, Severe Storm	<b>Problem:</b> There are a few properties that are within the Schroon River flood zone, but the Town	No	None	Within 5 years	FPA, homeowners	High	Reduction in flood risk to residential structures	FMA, HMGP, BRIC, PDM, homeowners	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>is unaware of their status in terms of repetitive loss or flood insurance claims. Some property along the River or along English Brook would likely benefit from either.</p> <p><b>Solution:</b> The Town will survey properties in floodprone areas to understand elevation needs. The Town will work with homeowners to consider elevations of buyouts.</p>							or cost-share			

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
HIGHWAY DEPARTMENT	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.


Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.





Critical Facility:

Yes  Critical Facility located in 1% floodplain

Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.8-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Lake George-001	Hazard Mitigation Integration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Lake George-002	StormReady Program	1	0	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Lake George-003	Stormwater Retrofit Fund	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Lake George-004	Mutual Aid Agreements	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Lake George-005	NYS DEC and Town Maintenance Agreements	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Lake George-006	Debris Management Plan	1	0	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Lake George-007	Flood Management Plan	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
2023-Town of Lake George-008	NYS Wildland Fire Suppression Training	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High





## SECTION 9.8. Town of Lake George

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Lake George-009	Flood Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Lake George-010	FPA Training	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Lake George-011	Engineering Assessment of Sub-Watersheds	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Lake George-012	Encourage Flood Mitigation at Campgrounds	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Lake George-013	Stormwater Improvements	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Lake George-014	Substantial Damage Procedures	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Lake George-015	Backup Power for Old County Courthouse	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Lake George-016	Comprehensive Plan Integration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Lake George-017	Staff Training for Dam Failure	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Lake George-018	Expanded Hazard Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Lake George-019	Lower Pump Station Stormwater Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Lake George-020	Home Elevations	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.8.8 Action Worksheets

The following action worksheets were developed by the Town of Lake George to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Backup Power for Old County Courthouse		
<b>Project Number:</b>	2023-Town of Lake George-015		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm		
<b>Description of the Problem:</b>	The Old County Courthouse is a Town owned facility that lacks a backup power source. The facility houses several Lake George Historical Association and museum, Lake Champlain Regional Planning Office, and other groups.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will evaluate the Old County Courthouse to determine the proper size generator necessary to power the Old County Courthouse building. The Highway Department will oversee installation of a fixed generator and necessary electrical components to supply backup power to the building. The Highway Department will be responsible for maintenance and testing of the generator following installation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	\$20,000 - \$25,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Town budget
<b>Responsible Organization:</b>	Engineer, Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Backup Power for Old County Courthouse	
<b>Project Number:</b>	2023-Town of Lake George-015	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of numerous agencies.
Property Protection	1	Project will protect buildings from power loss.
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm
Timeline	0	Within 5 years
Agency Champion	1	Engineer, Highway Department
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
Project Name:	Lower Pump Station Stormwater Protection		
Project Number:	2023-Town of Lake George-019		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Critical infrastructure for the sewer district has been compromised by the elevated Beach Road, which creates direct runoff towards the Caldwell Lower Pump Station.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will work with the DEC to either install stormwater management controls to direct runoff away from the pump station, or to help it infiltrate before it reaches the pump station doors.		
Is this project related to a Critical Facility?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Is this project related to a Critical Facility located within the 100-year floodplain?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Reduction in flood risk to Lower Pump Station to maintain critical services
Useful Life:	TBD by feasibility assessment	Goals Met:	1
Estimated Cost:	TBD by feasibility assessment	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Town Budget
Responsible Organization:	Administration, NYS DEC, Highway Department	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Problem continues.
	Relocate pump station	N/A	Not possible
	Build levee around facility	N/A	No space for full levee system
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
<b>Project Name:</b>	Lower Pump Station Stormwater Protection	
<b>Project Number:</b>	2023-Town of Lake George-019	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Maintain critical services
Property Protection	1	Project will protect Lower Pump Station from flood damage.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Administration, NYS DEC, Highway Department
Other Community Objectives	1	Protection of critical services
Total	11	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.9 VILLAGE OF LAKE GEORGE

This section presents the jurisdictional annex for the Village of Lake George that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Village participated in the planning process, an assessment of the Village of Lake George's risk and vulnerability, the different capabilities used in the Village, and an action plan that will be implemented to achieve a more resilient community.

#### 9.9.1 Hazard Mitigation Planning Team

The Village of Lake George identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Village departments, including the Planning and Zoning Department and the Highway Department and Department of Public Work. The Director of Planning and Zoning represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.9-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Ray Perry, Mayor Address: P.O. Box 791, Village of Lake George, NY 12845 Phone Number: 518-668-5771 Email: <a href="mailto:mayor@villageoflakegeorge.us">mayor@villageoflakegeorge.us</a>	Name/Title: Keith Lanfear, Superintendent of Public Works Address: P.O. Box 791, Village of Lake George, NY 12845 Phone Number: 518-796-6378 Email: <a href="mailto:lgdpw@hotmail.com">lgdpw@hotmail.com</a>
<b>NFIP Floodplain Administrator</b>	
Name/Title: Dan Barusch – Director of Planning and Zoning Address: 20 Old Post Road, Lake George, NY 12845 Phone Number: 518-668-5722 Ext.5 Email: <a href="mailto:dbarusch@lakegeorgetown.org">dbarusch@lakegeorgetown.org</a>	
<b>Additional Contributors</b>	
Name/Title: Robert Blais – Former mayor	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided data and information	
Name/Title: John Helms – DPW Foreman	
Method of Participation: Provided data and information	
Name/Title: Dan Barusch – Director of Planning and Zoning	
Method of Participation: Provided information on past events, building permits, capabilities, NFIP administration, status update on previous actions	
Name/Title: Keith Lanfear – Superintendent	
Method of Participation: Provided feedback on risk rankings, contributed to mitigation strategy	

## 9.9.2 Municipal Profile

The Village of Lake George is a Village in the Town of Lake George in Warren County. It is situated on the shores of Lake George. The Village has a total area of 0.6 square miles all of which is land

According to the U.S. Census, the 2020 population for the Village of Lake George was 1,008, an 11.3 percent increase from the 2010 Census. Data from the 2020 U.S. Census indicate that 3.3 percent of the population is 5 years of age or younger and 21.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Village of Lake George has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 8.38% of the population does not have a high school diploma
- 14.96% of the population has a disability
- 5.20% of households do not have a vehicle
- 4.94% of the population is living below the poverty level
- 1.48% of the population is unemployed

## 9.9.3 Jurisdictional Capability Assessment and Integration

The Village of Lake George performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.





For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Village of Lake George to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Village of Lake George. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.9-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	Village of Lake George Code Chapter 78 (Building Construction); Warren County Code Chapter 150 (State Uniform Fire Prevention and Building Code);	Local, County	Planning and Zoning; Warren County Fire Prevention and Building Codes
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Village adopted the New York State Uniform Fire Prevention and Building Code, but has the County administer and issue Building Permits on behalf of the Village.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 220 – Zoning	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance works in accordance with the Comprehensive Development Plan and is designed to promote the health, safety, morals and general welfare of the Town and to lessen congestion in the streets, to secure safety from fire, panic and other dangers, to provide adequate light and air, to avoid undue concentrations of population and to facilitate adequate provisions of the transportation, water, sewerage, schools, parks.				
<b>Subdivision Ordinance</b>	Yes	Chapter §220-10 (Subdivision)	Local	Planning and Zoning Office, Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Planning Board is empowered to approve plats. The Planning Board of the Village of Lake George is authorized and empowered to approve plats showing lots, blocks or sites, with or without streets or highways, to approve the development of entirely or partially undeveloped plats already filed in the office of the county clerk and to conditionally approve preliminary plats, within the Village of Lake George.				
<b>Site Plan Ordinance</b>	Yes	Chapter 220, Article VII (Site Plan Review)	Local	Planning and Zoning Office, Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The ordinance provides for the review of development through Site Plan Review by Planning Board, which assesses all potential impacts of and on development.				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Stormwater Management Ordinance</b>	Yes	Chapter 220, Article IX (Stormwater Management Regulations)	Local	Planning and Zoning Office; Village of Lake George Department of Public Works
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this Ordinance is to protect and safeguard the general health, safety, welfare of the public residing in or visiting the Village by preserving and protecting the quality of the ground and surface waters by the following means: A. Prevent any increase in stormwater runoff from any development in order to reduce flooding, siltation and stream bank erosion B. Prevent any increase in pollution caused by stormwater runoff from development which would otherwise degrade the quality of water in Lake George and its tributaries and render it unfit for human consumption, interfere with water-based recreation or adversely affect aquatic life C. Prevent any increase in total annual volume of surface water runoff which flows from any specific site during and following development above that which prevailed prior to development D. Meet the requirements of minimum measures 4 and 5 of the SPDES General Permit for Storm Water Discharges from Municipal Separate Stormwater Sewer Systems (MS4s), Permit No. GP-02-02, or as amended or revised E. Require land development activities to conform to the substantive requirements of the New York State Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities GP-02-01 or as amended or revised.				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to "caveat emptor," a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	Yes	Chapter 201 - Trees	Local	Tree Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In order to establish a responsible program for planting, maintenance, husbandry, or removal of trees or shrubs in the Village, the Board of Trustees finds it necessary to establish and to adopt this Local Law to provide an orderly framework to maximize the benefits afforded by trees within the Village.				
<b>Flood Damage Prevention Ordinance</b>	Yes	Chapter 114 - Flood Damage Prevention, 1996	Local	Planning and Zoning Office, Floodplain Administrator
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters D. Control filling, grading, dredging and other development which may increase erosion or flood damages E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands F. Qualify and maintain for participation in the National Flood Insurance Program				
The chapter requires update to meet the state's 2 foot freeboard requirements.				
Wellhead Protection	No	-	-	-
Emergency Management Ordinance	No	-	-	-
Climate Change Ordinance	No	-	-	-
Other	Yes	Stream Corridor Management Regulations for the Lake George Park (220-44 in Lake George Village Code)	State/Local	Lake George Park Commission ; Planning and Zoning Office
How has or will this be integrated with the HMP and how does this reduce risk? The Stream Corridor Management Regulations that were adopted by the LGPC were also adopted by the Village of Lake George in 2022 with the revised Stormwater Management Regulations package. Additional buffer requirements will restrict any and all development or clearing of vegetative buffer at least 35' from all classified streams.				
<b>Planning Documents</b>				
Comprehensive Plan	Yes	Village of Lake George Comprehensive Plan (2004)	Local	Planning and Zoning Office, Village Board
How has or will this be integrated with the HMP and how does this reduce risk? The Comprehensive Plan guides long term development in the Village. The Plan needs updating, and the update should have a section/element on hazards and emergencies/response, etc. It could also look at growth limitations or other regulations in vulnerable areas.				
Capital Improvement Plan	No	-	-	-
Disaster Debris Management Plan	No	-	-	-
Floodplain Management or Watershed Plan	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Stormwater Management Plan</b>	Yes	Village of Lake George Stormwater Management Program (SWMP) Plan	Local	Planning and Zoning Office, Department of Public Works
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Stormwater Management Plan outlines activities to address stormwater education, outreach, and implementation under the state requirements within the designated Urbanized Areas, as determined by the Census. The Plan documents the current efforts undertaken and planned by the Village.				
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	Yes	Lake George Economic Development Plan (2017)	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Other than discussion on incorporation of enhanced and upgraded utilities as part of any additional development to occur in the economic development zone(s), there is not much in relation to risk reduction in the Economic Development Plan.				
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/Resiliency/Sustainability Plan</b>	Yes	Lake George Climate Action Plan (2020)	Local	Planning and Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Joint Town-Village Climate Action Plan addresses several things related to hazard and risk reduction and adapting to Climate Change and the adverse impacts it poses on the community. Several projects / actions identified in the CAP are related to infrastructure right-sizing, analyzing storm size for potential municipal infrastructure projects, and suggested policies to help encourage low impact development and other tools to deal with impacts of hazards from Climate Change.				
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan	County	Warren County OES
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The County Comprehensive Emergency Management Plan (CEMP) enhances the County's ability to manage emergency/disaster situations. The Plan outlines a comprehensive approach to risk reduction before a disaster or emergency and identifies short and long-term recovery goals.				
<b>Continuity of Operations Plan</b>	No	-	-	-
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan (Section 4)	County	Warren County OES
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Section IV of the County CEMP identifies the roles and responsibilities of communities prior to and after an emergency event.				
<b>Public Health Plan</b>	No	-	-	-
<b>Other</b>	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Village of Lake George to oversee and track development.

**Table 9.9-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"> <li>If you issue development permits, what department is responsible?</li> </ul>	N/A	Planning and Zoning issues Local Village Permits (and Zoning Compliance Certificates)
<ul style="list-style-type: none"> <li>If you do not issue development permits, what is your process for tracking new development?</li> </ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Floodplain Development Permits are required but only in identified FEMA flood zones/floodplains, not in localized flood-prone areas. No floodplain permits issued since at least 2017.





Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you have a buildable land inventory?	Yes	-
<ul style="list-style-type: none"> <li>If you have a buildable land inventory, please describe</li> </ul>	N/A	Part of the LGA Data Atlas identifies building land inventory on a large/broad scale
Describe the level of build-out in your jurisdiction.	N/A	Build out analysis also included in the Data Atlas. The Village is assumed to be near 85-90% build-out based on undeveloped land.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Lake George and their current responsibilities that contribute to hazard mitigation.

**Table 9.9-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board reviews those applications for projects in the Village for which the Village Code requires review.
Zoning Board of Appeals	Yes	The Zoning Board of Appeals shall be appellate only and shall be limited to hearing and deciding appeals from and reviewing any order, requirement, decision, interpretation, or determination made by the Zoning Officer.
Planning Department	Yes	<p>The Planning and Zoning Office administers the Zoning Code and other Land Use Regulations of the Village of Lake George.</p> <p>This office works with the Planning Board and the Zoning Board of Appeals in regulating development throughout the Village, and focuses on the following additional duties:</p> <ul style="list-style-type: none"> <li>Hazard Mitigation Planning</li> <li>Climate Resiliency and Energy Efficiency Planning</li> <li>Historic Preservation Planning</li> <li>Parks, Trails and Recreation Planning</li> <li>Economic Development</li> <li>Stormwater Management and MS4 Program Administration assistance</li> <li>Floodplain Management</li> <li>Grant writing, administration, and management</li> <li>Housing Development and Assistance</li> </ul>
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	"Go Green Committee" Town of Lake George Consolidated Board of Health
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Public Works Department is responsible for all roadways, and other public facilities in the Village,





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		including water and sewer infrastructure and public buildings.
Construction/Building/Code Enforcement Department	Yes	See Planning Department
Emergency Management/Public Safety Department	Yes	Town of Lake George Emergency Squad Lake George Village Volunteer Fire Department
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Lake George Volunteer Fire Department Mutual Aid Plan; Lake George EMS Mutual Aid
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Village of Lake George Planning and Zoning Office; Director of Planning and Zoning; Code Enforcement Officer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Village of Lake George Planning and Zoning Office; Director of Planning and Zoning; Town of Lake George Town Engineer – Private (LaBella)
Planners or engineers with an understanding of natural hazards	Yes	Village of Lake George Planning and Zoning Office; Director of Planning and Zoning
Staff with expertise or training in benefit/cost analysis	Yes	Director of Planning and Zoning
Professionals trained in conducting damage assessments	Yes	Most of the Public Works Department is “unofficially trained through experience”
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Village of Lake George Planning and Zoning Office; Director of Planning and Zoning; Town of Lake George Town Engineer – Private (LaBella)
Environmental scientist familiar with natural hazards	Yes	Village of Lake George Planning and Zoning Office; Director of Planning and Zoning
Surveyor(s)	No	-
Emergency Manager	Yes	Village Mayor
Grant writer(s)	Yes	Village of Lake George Planning and Zoning Office; Director of Planning and Zoning
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater Management Officer (DPW Superintendent); Floodplain Administrator (Director of Planning and Zoning)
<b>Administrative/technical capability self-assessment</b>		
<b>Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.</b>		
Administrative and Technical capabilities allow the Village to easily integrate both mitigation and adaptation projects and undertakings in the Village in relation to risks and associated hazards from the HMP. The Public Works Department		





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
is continuously working to mitigate impacts of storms and hazards to the Town roads through infrastructure upgrades and rightsizing, and the Planning Department continues to work on cross-integration between all planning disciplines, with goals of incorporating hazards and other potential risks into the various planning documents and efforts in the Village such as within the Climate Action Plan and the Stormwater Management Program/Plan. In 2023, a potential Southern Basin Floodplain Management Plan will be developed in conjunction with the LC-LGRP.		

## Fiscal Capability

The table below summarizes financial resources available to the Village of Lake George.

**Table 9.9-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes – Eligible at budget time
User fees for water, sewer, gas or electric service	Yes – Eligible at budget time
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes – Eligible
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes – accessible
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes – accessible

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Village of Lake George.

**Table 9.9-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	Warren County Hazard Mitigation link on website
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-





Outreach Resources	Available? (Yes/No)	Comment:
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"> <li>If yes, please describe.</li> </ul>	Yes	The municipality pairs up with the LGPC for public outreach.

## Community Classifications

The table below summarizes classifications for community programs available to the Village of Lake George.

**Table 9.9-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	–	–
Building Code Effectiveness Grading Schedule (BCEGS)	No	–	–
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	September 1, 2014
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	Yes	Passed CSC Pledge, Certified	2012 Certified (2020)
Storm Ready Certification	No	(Warren County is StormReady)	–
Firewise Communities classification	No	–	–
Other	No	–	–

Note:

N/A Not applicable

– Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.9-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Moderate
Severe Winter Storm	Moderate





Hazard	Adaptive Capacity – Strong/Moderate/Weak
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

### 9.9.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Lake George.

**Table 9.9-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Village of Lake George	2	13	\$503,746	1	1	1

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

### Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Village of Lake George.

**Table 9.9-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> <li>Do you maintain a list of properties that have been damaged by flooding?</li> </ul>	The Village does not maintain a list of properties per se, however it is understood that a small sliver (5' +/-) of each property adjacent to the lakeshore in the Village fall within Zone AE.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> <li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li> </ul>	No, the Village does not identify property owners interested in mitigation. Aside from seawall structures and certain lakeshore amenities, not many properties have structures in the floodplain.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> <li>If so, state what projects are underway.</li> </ul>	FEMA did a RiskMAP Analysis for the Upper Hudson Watershed in 2018/2019, and are working separately on a Warren County Flood Hazard Study in 2022.





NFIP Topic	Comments
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	The Village does not have a staff person who is authorize to make substantial damage estimates
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"> <li>If there are mitigation properties, how were the projects funded?</li> </ul>	Based on records, none of the (two dozen or so) properties that have some land within the mapped FEMA flood zone AE have been mitigated/elevated/acquired.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	No they do not. The only Flood zone maps from FEMA are in relation to the geographic bounds of Lake George. There are many other flood prone areas in the Village, particularly adjacent to major tributaries of Lake George, and the Village hopes to work on a Floodplain Management Plan with the Town of Lake George to preempt any potential FIRM updates/map amendment requests.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Planning and Zoning Office (Director of Planning and Zoning)
Are any certified floodplain managers on staff in your jurisdiction?	The Director of Planning and Zoning acts as the Floodplain Administrator, but is not a CFM.
Do you have access to resources to determine possible future flooding conditions from climate change?	Not directly, no.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> <li>If so, what type of assistance/training is needed?</li> </ul>	The FPA is adequately supported and trained. The FPA would consider additional training/certifications when available.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	<p>Zoning staff conduct routine inspections on properties within the floodplain (along the lakeshore); assist with damage assessments conducted by Lake George Department of Public Works / Highways when damages are recorded; and have recently started educating specific applicants that may lie within / near floodplains within Lake George. The Director of Planning and Zoning also works on floodplain development permit review when/if they are submitted (none submitted to date since 2017). Education and Outreach on the topic is less than adequate.</p> <p>The Village performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Village, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Village. Upon receipt of a signed zoning compliance certificate, the county performs the code.</p>
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Consultation with NFIP documents, the Village's Flood Damage Prevention Ordinance (Ch. 114), and the Village's Engineer /Counsel as applicable/needed.





NFIP Topic	Comments
What are the barriers to running an effective NFIP program in the community, if any?	The program is in good shape and good standing with NFIP, but improvements could be made to the education/outreach aspects.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> <li>If so, state the violations.</li> </ul>	The Village is in good standing with NFIP compliance far as the Village is aware.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	According to State records, the Village has not had a CAV completed.
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	The Village's Flood Damage Prevention Ordinance, Chapter 114 of the Village Code. Originally adopted date is unknown, but assumed to be post-1996 based on FIRM map date. Could use amendments.
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	Meets minimum requirements
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Any applications that go through the Planning and Zoning Office, including Area/Use variances, Site Plan Reviews, and Land Use and Development permits, are all considered for flood permit review (only deemed necessary if the parcel and any portion of the proposed project itself falls within the floodplain boundaries).  Other plans or programs that support floodplain management include our stormwater management program plan, our stormwater regulations located in Village Code Chapter 220, which include strict stormwater mitigation measures and standards for all projects located within the Village. Consistently the Village Planning Board requires stormwater control measures for projects in order to help reduce flood risk and control stormwater runoff.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	The Village would be interested in seeing what was involved with becoming part of the CRS program, but due to limited resources it may not be feasible to participate, depending on level of involvement or recurring work required.

### 9.9.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.9-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.9-11. Recent and Expected Future Development**

Type of Development	2017	2018	2019	2020	2021	2022
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)						





Type of Development	2017		2018		2019		2020		2021		2022	
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	Unknown	Unknown	12	0	15	0	8	0	15	0	8	0
Multi-Family	Unknown	Unknown	1	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	Unknown	Unknown	11	0	16	0	10	0	13	0	11	0
<b>Total New Construction Permits Issued</b>	<b>Unknown</b>	<b>Unknown</b>	<b>24</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>19</b>	<b>0</b>

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
<b>Recent Major Development and Infrastructure from 2017 to Present</b>					
None identified					
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>					
English Brook Village	Multi-family residential	16 units / 4 structures	511 Canada Street	Adjacent to English Brook	Final engineering review, permits pending

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

Dan Barusch took over Planning and Zoning in December 2017. Prior to that, records were not kept cumulatively or distinctly.

\*\* Permit spreadsheet/table does not necessarily differentiate between residential and commercial projects, so assumptions/estimates were used. 19 permits for 2022 is from 1/1/22 to 11/23/22 (Assume another 2+/- permits before 12/31/22)

## 9.9.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Village of Lake George's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Village of Lake George has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.9-1. Village of Lake George Flood Hazard Area Extent and Location Map

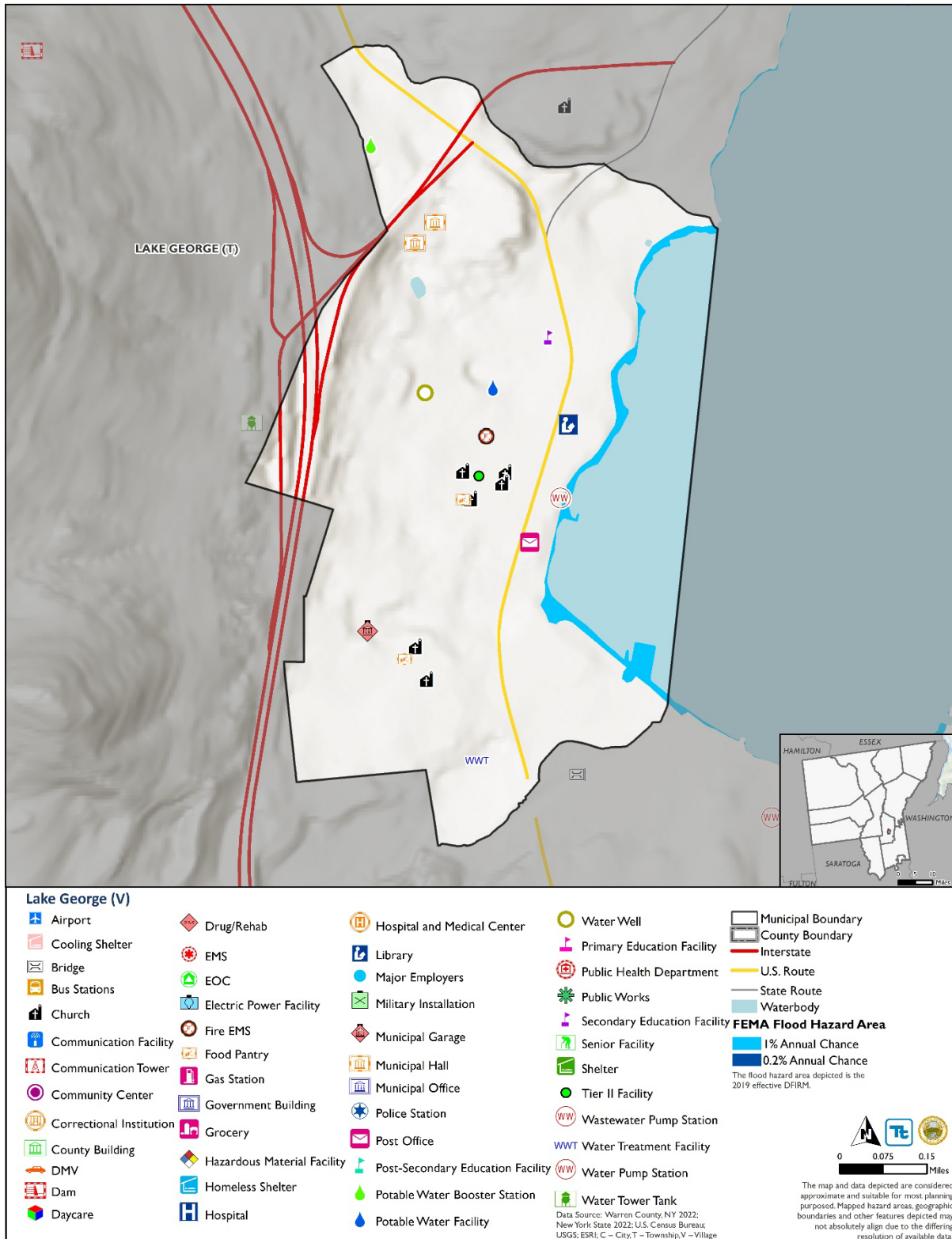






Figure 9.9-2. Village of Lake George Earthquake (Soil Class) Hazard Area Extent and Location Map

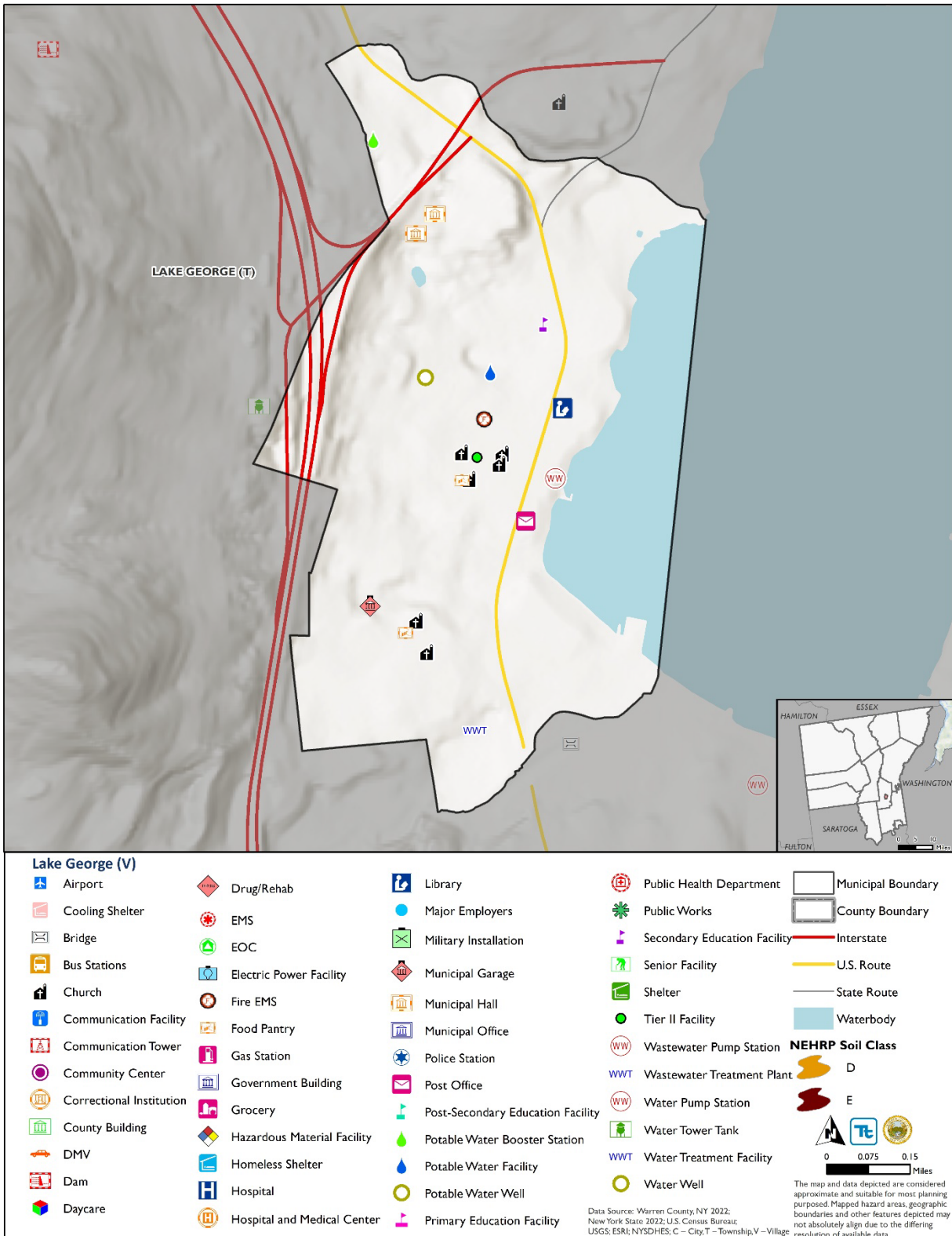
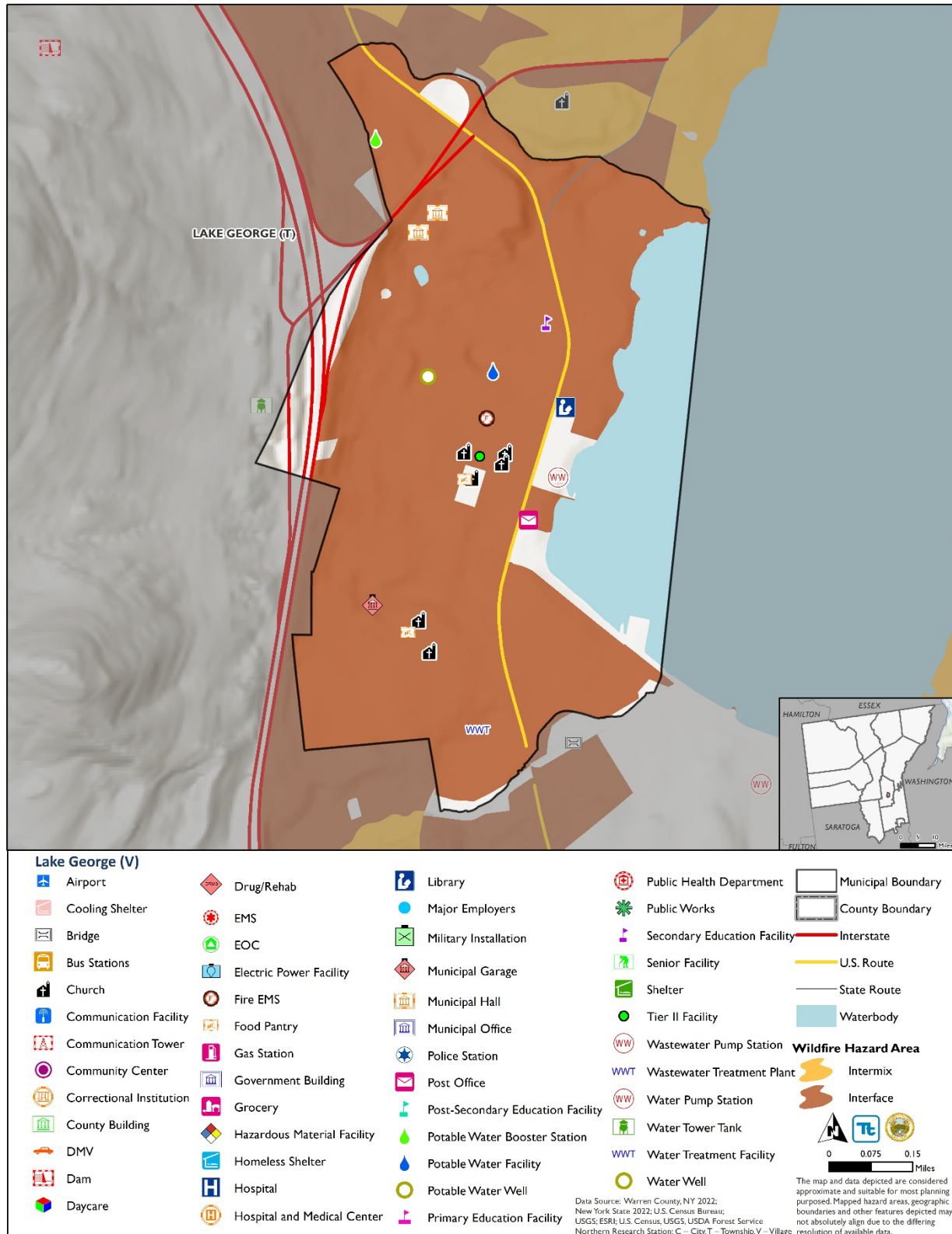






Figure 9.9-3. Village of Lake George Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Village of Lake George's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.9-12 provides details regarding municipal-specific loss and damages the Village experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.9-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
May 4, 2018	Thunderstorm Wind	Yes	A powerful low pressure system formed on May 4th, pushing a strong cold front across eastern New York. A line of thunderstorms developed along this front in the afternoon and evening, resulting in widespread wind damage. Nearly 60,000 customers lost power as a result of the storms. Particularly intense damage occurred in the villages of Johnstown and Cambridge, the town of Hebron, and Saratoga National Historical Park, where dozens of trees were uprooted and snapped in concentrated swaths. Some of these trees fell onto cars and houses, resulting in property damage. the evening hours, strong non-thunderstorm winds developed behind the cold front, impacting portions of the southern Adirondacks. Winds gusted as high as 58 mph at Chestertown, and a few trees and limbs were downed.	Localized downed trees and wires and power outages, but no known damages.
October 31, 2019	Flooding "Halloween Storm" (DR-4472)	Yes	2-4" of rain fell causing localized flooding and scattered areas of damage to public and private property	Minor localized flooding from some stormwater systems and minor damage to local roadways,





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				larger damage to private properties (Howard Johnsons Motel).
September 8, 2021	Thunderstorm Wind	No	A line of strong to severe thunderstorms resulted in widespread damage over eastern New York on Wednesday September 8, 2021.	A trained weather spotter reported numerous trees snapped and uprooted along Exit 22 north of 9N.
January 20, 2022	Covid-19 pandemic (DR-4480, EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	The Village was subject to closures and masking/social distancing requirements.
February 18, 2022	Flood	No	A storm system pushed across the region during February 17-18, 2022. Warm air pushed northward into the region along with periods of rainfall before a cold front brought the return of windy and colder weather. A convective line of gusty showers also accompanied the cold frontal passage. Some locations picked up over 1 inch of rainfall which led to minor flooding in a few locations. In the wake of the cold front, strong winds affected areas mainly along and south of I-90 with gusts 40 to 55 mph observed, resulted in a few downed trees. The warm and rainy weather ahead of the cold front resulted in some snow melt as well as some ice to break up on area rivers and streams. As the colder weather returned, localized ice jams formed, some of which led to flooding, including in Dolgeville and Canajoharie.	The Howard Johnson by Wyndham Lake George hotel parking lot on Canada Street was flooded early Friday morning. The Lake George Volunteer Fire Department rescued a man who was trapped on top of his pickup truck in the flooded parking lot. Lake George Fire Chief said the flooding was a result of water runoff from Prospect Mountain that flows into the drainage portion of the parking lot which wasn't able to keep up with the amount of water coming in. There was about 8 feet of water in the parking lot. The rooms on the ground level of the hotel also flooded with water.

## Notes:

EM Emergency Declaration (FEMA)  
FEMA Federal Emergency Management Agency  
DR Major Disaster Declaration (FEMA)  
N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Village of Lake George's risk assessment results and data used to determine the hazard ranking.





## Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Village of Lake George. The Village of Lake George reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Village indicated the following:

- The Village changed the hazard ranking for disease outbreak from low to medium, noting that the Village has higher population density that could allow for the spread of disease.
- The Village agreed with the remainder of the calculated hazard rankings.

**Table 9.9-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Medium	Low	High	High	High	Medium

Dam Failure	Disease Outbreak
Low	Medium

*Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction*

## Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).





The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.9-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
None Identified.					

Source: Warren County 2022

## Identified Issues

After review of the Village of Lake George's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Village of Lake George identified the following vulnerabilities within their community:

- The Comprehensive Plan requires update. Updates should integrate hazard mitigation information and information from the Lake George Climate Action Plan.
- The Village has an informal agreement for use of the Elementary School and High School for sheltering but a formal agreement needs to be established.
- Numerous critical facilities in the Village lack backup power. Critical facilities require backup power to maintain essential functions during and after disaster events.
- Bradley Street pump station is vulnerable to flooding.
- Current public outreach on hazards and hazard mitigation is limited.
- The Village's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- Improved floodplain management is needed in the Village to guide development, flood mitigation, and provide better flood data.
- Several projects / actions identified in the CAP are related to infrastructure right-sizing related to changes from climate change.
- Schuyler Street Culvert is undersized. Causing localized flooding.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.
- The Village lacks a disaster debris management plan.

### 9.9.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.





### Past Mitigation Initiative Status

---

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
VLG-1	Work with property owners to mitigate flood risk to repetitively damaged properties, including providing non-financial assistance to property owner to secure mitigation funding as available, at property owner request.	Flood	General issue	Village and WCWSD	In Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.
VLG-2	Provide direct outreach to Motel 6 property owner to consider structural and non-structural mitigation measures to reduce repetitive flooding to roughly 12 units on lower level. Provide non-financial assistance to property owner to secure mitigation funding as available, at property owner request.	Flood	Specific localized flooding on private property	Village and WCWSD	Complete	Cost	\$100,000	1. Discontinue
						Level of Protection	Full	2.
						Damages Avoided; Evidence of Success	Success – no floods or backups on property since work completed. Assumed repeated damages avoided.	3. While long term upstream measures have not been implemented, in March 2022 the property owner remedied the failed culvert underneath the property, alleviating the flooding on site and ameliorating future potential flood damage.
VLG-3	Develop and implement a plan to	Flood	General issue	Village	No Progress	Cost		1. Discontinue
						Level of Protection		





## SECTION 9.9. Village of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Level of Protection	
	collaborate with private property owners to reduce risks from beaver dams.					Damages Avoided; Evidence of Success		2. 3. The Village is unaware of any beaver dams located in the Village or even proximate. Damage can occur from this damming far upstream in the Town, but this is not of direct concern to the Village at this time.
VLG-4	Identify opportunities to incorporate hazard mitigation strategies into the stormwater management program.	Flood	General planning issue	Planning and Zoning; Village DPW	Ongoing Capability	Cost	Level of Protection	1. Discontinue 2. 3. Ongoing capability
VLG-5	Participate in the development and implementation of a County-wide Debris Management Plan – on County's five-year plan.	All Hazards	General planning issue	Planning and Zoning; Village DPW	No Progress	Cost	Level of Protection	1. Include in 2023 HMP 2. 3.
VLG-6	Provide training for Village staff with respect to ice storm risk management.	Ice, Winter Storm	General hazard training	Village DPW	Ongoing Capability	Cost	Level of Protection	1. Discontinue 2. 3. Ongoing capability. Training has occurred, and will continue
VLG-7	Expand Village website to include links to information on natural hazard and risk management.	All Hazards	General educational / informational item	Village DPW	Ongoing Capability	Cost	Level of Protection	1. Discontinue 2. 3. Ongoing capability. Website has links to the Town website with Hazard Mitigation information. Some updates have been made.
		All Hazards			In Progress	Cost		1. Include in 2023 HMP





## SECTION 9.9. Village of Lake George

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, Progress, Complete) No	Evaluation of Success (if project status is complete)		Next Steps
						Level of Protection	Damages Avoided; Evidence of Success	
VLG-8	Establish a formal agreement with the Elementary School and High School to designate those facilities as emergency shelters.		General hazard planning partnership	Mayor / Village Board				2. 3. Unknown at this time if this was completed, but it should be.
VLG-9	Look into backup power needs for senior housing facilities, including Hunter's Run.	All Hazards	Unknown	Village Trustees	No Progress	Cost		1. Include in 2023 HMP 2. No progress. Could include other facilities such as emergency shelters, public facilities, etc. 3.
VLG-10	Bradley Street Pump Station Elevation	Flood	Potential for pump station flooding	Water Dept.	In Progress	Cost		1. Include in 2023 HMP 2. 3.
VLG-11	Review and update local plans to integrate goals, objectives, and activities from this HMP which are not found in existing regulatory documents, as appropriate.	All Hazards	General planning issue	Planning Board	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.9-15, the Village of Lake George identified the following mitigation efforts completed since the last HMP:

- The municipality purchased a new Jetter –Vac Truck for use.

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Village of Lake George participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.9-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X	X		X	X	X	X		X	X
Flood	X	X		X	X	X	X		X	X
Severe Storm	X	X		X	X	X	X		X	X
Severe Winter Storm	X	X		X	X	X	X		X	X
Wildfire	X	X		X	X	X	X			X
Infestation	X	X		X	X	X	X			X
Dam Failure	X	X		X	X	X	X			X
Disease Outbreak	X	X		X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.9-17).

The table below summarizes the specific mitigation initiatives the Village of Lake George would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.9-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Village of Lake George-001	Comprehensive Plan Update	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> The Comprehensive Plan requires update. Updates should integrate hazard mitigation information and information from the Lake George Climate Action Plan. <b>Solution:</b> During the Comprehensive Plan update, the Village will include a section/element on hazards and emergencies/response, etc. The update will consider suggested policies from the Lake George Climate Action Plan to help encourage low impact development and other tools to deal with impacts of hazards from climate change. The Plan will also consider growth	No	None	Within 5 years	Village FPA, WCWSD	Low	Increased integration of hazard mitigation concepts	Village budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				limitations or other regulations in vulnerable areas.										
2023-Village of Lake George-002	Sheltering Agreements	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Village has an informal agreement for use of the Elementary School and High School for sheltering but a formal agreement needs to be established. <b>Solution:</b> The Village will establish a formal agreement with the Elementary School and High School to designate those facilities as emergency shelters.	Yes	None	1 year	Mayor / Village Board, School District	Staff time	Sheltering formal agreements established	Village budget	High	LP R	PR, ES
2023-Village of Lake George-003	Critical Facility Backup Power	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire,	<b>Problem:</b> Numerous critical facilities in the Village lack backup power. Critical facilities require backup power to maintain essential functions during and after disaster events. Facilities lacking	Yes	None	Within 5 years	Village Trustees, Facility managers	High	Protect public health and safety, and ensure continued operation of critical facility and essential functions	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Dam Failure	backup power include: <ul style="list-style-type: none"> <li>• Senior housing facilities including Hunter's Run</li> <li>• Emergency shelters</li> </ul> The generators will provide continuous power for services to ensure the health and safety of residents, businesses, and visitors. By providing power to municipal facilities and the department of public works, staff will be able to provide pre-, during, and post event services to communicate, monitor and respond to citizen issues. Services such as heat and cooling will be uninterrupted to						during power outages.	Performance Grants (EMPG) Program, Municipal Budget			





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				support the needs of vulnerable populations, community alerts and rapid inspections and monitoring to be available for earthquake events, equipment fuel will be available during snow, wildfire, and wind events to maintain uninterrupted access to critical facilities. <b>Solution:</b> The Town will work with facility managers to purchase and install permanent fixed generators and necessary electrical components at each critical facility. The facility managers will be responsible for maintenance following installation.										





## SECTION 9.9. Village of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Village of Lake George-004	Bradley Street Pump Station Elevation	1	Severe Storm, Flood	<b>Problem:</b> Pump station is vulnerable to flooding events. <b>Solution:</b> The Village will review the elevation of the pump station and develop a design to elevate it in accordance with floodplain regulations and will implement the project when funding is available.	Yes	None anticipated	Within 5 years	Water Department	High	Reduced flood risk	HMGP, BRIC, PDM, CHIPS, Village budget	High	SIP	SP
2023-Village of Lake George-005	Education and Outreach	2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> Current public outreach on hazards and hazard mitigation is limited. <b>Solution:</b> The Village will expand outreach offerings, considering opportunities to share information on the Village website, utilize social media, and consider public workshops or meetings. The village will utilize its	No	None	2 years	Administration	Low	Increased public awareness	Village budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				social media and leverage resident communication platforms (digital and analogue) to provide hazard information including alerts, mitigation measures and explanation of code and ordinances related to hazard mitigation.										
2023-Village of Lake George-006	Flood Damage Prevention Ordinance Update	1	Flood	<p><b>Problem:</b> The Village's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.</p> <p><b>Solution:</b> The Village will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.</p>	No	None	1 year	FPA, Village Board	Staff time	Meet state standards, increased building requirements	Village budget	High	LP R	PR





## SECTION 9.9. Village of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Village of Lake George-007	Southern Basin Floodplain Management Plan	1, 4	Flood	<p><b>Problem:</b> Improved floodplain management is needed in the Village to guide development, flood mitigation, and provide better flood data.</p> <p><b>Solution:</b> In 2023, a potential Southern Basin Floodplain Management Plan will be developed in conjunction with the LC-LGRP. The Village will use the Floodplain Management Plan to create the necessary flood data to provide to FEMA for updated FIRMs.</p>	No	None	2 years	FPA, Village Board, LC-LGRP.	Medium	Improved guide for development, flood mitigation, and provide better flood data.	LC-CGRP, BRIC, PDM	High	LP R	PR
2023-Village of Lake George-008	Infrastructure Right-Sizing to Meet Climate Change Challenges	1	Extreme Temperature, Severe Storm, Severe Winter Storm, Flood	<p><b>Problem:</b> Several projects / actions identified in the CAP are related to infrastructure right-sizing related to changes from climate change.</p> <p><b>Solution:</b> Using the CAP as a guide, the</p>	No	May require permitting at some locations	Within 5 years	Village Highway Department	High	Reduction in flooding, flood damages to culverts and roadways	HMGP, BRIC, PDM, CHIPS, Village budget	High	SIP	SP





## SECTION 9.9. Village of Lake George

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Village will right-size necessary infrastructure components.										
2023-Village of Lake George-009	Schuyler Street Culvert	1	Flood, Severe Storm	<b>Problem:</b> Schuyler Street Culvert is undersized. Causing localized flooding. <b>Solution:</b> The Village will review the capacity of the culvert and design improvements to increase capacity to the Schuler Street Culvert which will be implemented when funding is available.	No	None anticipated	Within 5 years	Village Highway Department, WCSWD	High	Reduction in flood risk	HMGP, BRIC, PDM, CHIPS, Village budget	High	SIP	SP
2023-Village of Lake George-010	Substantial Damage Procedures	3	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals. <b>Solution:</b> The Village will develop official procedures for Substantial	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	Municipal budget	High	LP, R	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Damage and Substantial Improvement determinations or earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazard events..										
2023-Village of Lake George-011	Participate in County-wide Debris Management Plan	3	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Village lacks a disaster debris management plan. <b>Solution:</b> The Village will participate in the development and implementation of a County-wide Debris Management Plan to address earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazard debris management..	No	None	Within 5 years	Administration, Warren County	Staff time	Plan established to address post disaster cleanup	Village budget	High	LP R	ES

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

Potential FEMA HMA Funding Sources:

Timeline:





CAV Community Assistance Visit  
CRS Community Rating System  
DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
FEMA Federal Emergency Management Agency  
FPA Floodplain Administrator  
HMA Hazard Mitigation Assistance  
N/A Not applicable  
NFIP National Flood Insurance Program  
OEM Office of Emergency Management

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program  
BRIC Building Resilient Infrastructure and  
Communities Program

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:

Yes  Critical Facility located in 1% floodplain

Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.9-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Village of Lake George-001	Comprehensive Plan Update	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Village of Lake George-002	Sheltering Agreements	1	0	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Village of Lake George-003	Critical Facility Backup Power	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Village of Lake George-004	Bradley Street Pump Station Elevation	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Village of Lake George-005	Education and Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Village of Lake George-006	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Village of Lake George-007	Southern Basin Floodplain Management Plan	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Village of Lake George-008	Infrastructure Right-Sizing to Meet Climate Change Challenges	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Village of Lake George-009	Schuyler Street Culvert	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Village of Lake George-010	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.9.8 Action Worksheets

The following action worksheets were developed by the Village of Lake George to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Infrastructure Right-Sizing to Meet Climate Change Challenges		
<b>Project Number:</b>	2023-Village of Lake George-008		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Extreme Temperature, Severe Storm, Severe Winter Storm, Flood		
<b>Description of the Problem:</b>	Several projects / actions identified in the Climate Action Plan are related to infrastructure right-sizing related to changes from climate change.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Using the Climate Action Plan as a guide, the Village will right-size necessary infrastructure components.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	TBD by final design	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding, flood damages to culverts and roadways
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	BRIC, PDM, HMGP, CHIPS, Town budget
<b>Responsible Organization:</b>	Village Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove infrastructure	N/A	Infrastructure cannot be removed
	Relocate infrastructure	N/A	Not feasible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Infrastructure Right-Sizing to Meet Climate Change Challenges	
<b>Project Number:</b>	2023-Village of Lake George-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduction in flood damages to culverts and roadways
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Extreme Temperature, Severe Storm, Severe Winter Storm, Flood
Timeline	0	Within 5 years
Agency Champion	1	Village Highway Department
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.10 TOWN OF LAKE LUZERNE

This section presents the jurisdictional annex for the Town of Lake Luzerne that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Lake Luzerne's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.10.1 Hazard Mitigation Planning Team

The Town of Lake Luzerne identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Zoning Officer and Town Supervisor. The Town Supervisor and Zoning Enforcement Officer represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.10-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Eugene J. Merlino – Town Supervisor Address: P.O. Box 370, 539 Lake Ave, Lake Luzerne, NY 12846 Phone Number: 518-696-2711 Email: <a href="mailto:supervisorlakeluzerne@hotmail.com">supervisorlakeluzerne@hotmail.com</a>	Name/Title: Ronnie Deuel – Highway Superintendent Address: P.O. Box 370, 539 Lake Ave, Lake Luzerne, NY 12846 Phone Number: 518-696-3071 Email: <a href="mailto:lakeluzernehgwydept@yahoo.com">lakeluzernehgwydept@yahoo.com</a>
<b>NFIP Floodplain Administrator</b>	
Name/Title: Karen Putney – Zoning Officer Address: P.O. Box 370, 539 Lake Ave, Lake Luzerne, NY 12846 Phone Number: 518-696-2711 Email: <a href="mailto:lakeluzerne4@albany.twcbc.com">lakeluzerne4@albany.twcbc.com</a>	
<b>Additional Contributors</b>	
Name/Title: Ronnie Deuel, Highway Superintendent	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided data and information, provided update on past events. Reviewed vulnerability of critical facilities.	
Name/Title: Karen Putney, Zoning Officer Method of Participation: Provided information on capabilities, NFIP administration, permitting. Reviewed annex. Contributed to mitigation strategy.	
Name/Title: Kristopher Kassay, Deputy Zoning Officer Method of Participation: Provided and researched information on capabilities, permitting. Provided input on risk rankings, contributed to mitigation strategy, and reviewed annex.	
Name/Title: Eugene J. Merlino, Town Supervisor Method of Participation: Reviewed annex. Contributed to mitigation strategy.	

## 9.10.2 Municipal Profile

The Town of Lake Luzerne is within the Adirondack Park in southern Warren County. It is part of the Glens Falls Metropolitan Statistical Area. The Town has a total land area of 54.1 square miles of which 52.6 square miles are land and 1.4 square miles is water. The Town is bordered by Saratoga County on the south and west, the Town of Warrensburg on the north, and the Town of Queensbury and the Town of Lake George on the west. There are six hamlets in the Town: Bearstown, Danielstown, Fourth Lake, Hartman, Lake Luzerne, and Lake Vanare. Town government is run by the Town Board as the executive, administrative and legislative body of the Town. The Town Supervisor presides over Town Board meetings and may be assigned certain powers of administration and supervision.

According to the U.S. Census, the 2020 population for the Town of Lake Luzerne was 3,079, a 8.0 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 2.6 percent of the population is 5 years of age or younger and 26.2 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Lake Luzerne has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 15.61% of the population does not have a high school diploma
- 17.88% of the population has a disability
- 5.47% of households do not have a vehicle
- 6.49% of the population is living below the poverty level
- 0.89% of the population is unemployed

## 9.10.3 Jurisdictional Capability Assessment and Integration

The Town of Lake Luzerne performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.





- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Lake Luzerne to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Lake Luzerne. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.10-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	1984 Uniform Code through the current version known as 2020 Building Code NYS	County	Warren County Fire Prevention and Building Code Enforcement Department
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town has adopted the 2020 Building Code to ensure new development meets modern safety standards. The Warren County Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code				
<b>Zoning/Land Use Code</b>	Yes	Zoning Ordinance	Local	Planning Board, Zoning Office, and ZBA
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The overall purpose of this Ordinance is to promote the health, safety, and general welfare by regulating the density of population; and the location, intensity and use of buildings, structures and land; for trade, residence, recreation or other purposes. This also identifies parcels in the special flood plain areas.				
<b>Subdivision Ordinance</b>	Yes	Subdivision Ordinance	Local	Planning Board/ZBA
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Any division of land into two or more lots, parcels or sites, whether adjoining or not, for the purpose of sale, lease, license or any form of separate ownership or occupancy by any person is required to include a map, plat or other plan for				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
subdivision if not previously filed. The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.				
<b>Site Plan Ordinance</b>	Yes	Zoning Ordinance	Local	Planning Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The ordinance identifies parcels that are in the special floodplain.				
<b>Stormwater Management Ordinance</b>	Yes	State Environment Quality Review Act (SEQRA)	State	Planning Board/ZBA/Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Stormwater management is reviewed during the SEQRA through review from the agency that is responsible.				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to "caveat emptor," a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	No	SEQRA	State	Planning Board/ZBA/Zoning Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> SEQRA identifies parcels that may have environmental impacts.				
<b>Flood Damage Prevention Ordinance</b>	Yes	Flood Damage Prevention Ordinance	Federal, Local	Zoning Office, Planning Board, Warren County Building Codes Office
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:				
<ul style="list-style-type: none"> <li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities</li> <li>B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction</li> <li>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters</li> <li>D. Control filling, grading, dredging and other development which may increase erosion or flood damages</li> <li>E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands</li> <li>F. Qualify and maintain for participation in the National Flood Insurance Program</li> </ul>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The ordinance requires 2 feet of freeboard for all new construction.				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	No	-	-	-
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Waterfront Revitalization Strategy & Comprehensive Plan	Local	Planning Department
How has or will this be integrated with the HMP and how does this reduce risk? The Plan includes identifying community issues and attitudes, locating notable features in the Town, and assessing socioeconomic conditions and trends in the community and region. The plan will also seek to identify the issues and opportunities for growing the population; improving tourism, participating in regional economic initiatives; addressing housing, land use issues; improving recreational opportunities; and addressing community service issues including water, wastewater, roads, internet, and cell service.				
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	Yes	Watershed Plan (2000), Lake Luzerne Lake Management Plan (1/2020)	Local	Warren County Soil & Water
How has or will this be integrated with the HMP and how does this reduce risk? Watershed Plan (2000) completed by Warren County Soil & Water and Lake Luzerne Lake Management Plan (1/2020) by multiple authors.				
<b>Stormwater Management Plan</b>	No	-	-	-
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk? Much of the State land is already conserved and the Town has an open space agreement.				
<b>Economic Development Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Community Wildfire Protection Plan	No	-	-	-
Community Forest Management Plan	No	-	-	-
Transportation Plan	No	-	-	-
Agriculture Plan	No	-	-	-
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
Tourism Plan	No	-	-	-
Business/ Downtown Development Plan	No	-	-	-
Other (for example NYRCR, etc.)	No	-	-	-
<b>Response/Recovery Planning</b>				
Comprehensive Emergency Management Plan	Yes	Emergency Plan for the Town of Lake Luzerne (4/2021)	Local	Town Supervisor
How has or will this be integrated with the HMP and how does this reduce risk? The Emergency Plan provides guidance for emergency response during disaster events.				
Continuity of Operations Plan	Yes	Emergency Plan for the Town of Lake Luzerne (4/2021)	Local	Town Supervisor
How has or will this be integrated with the HMP and how does this reduce risk? Continuity of Operations are included in the Emergency Plan for the Town of Lake Luzerne done 4/2021.				
Substantial Damage Response Plan	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Public Health Plan	Yes	Cooling Station refuge (Summer of 2022) Senior center designated as a disaster refuge (Red Cross 9/2022)	Local	Red Cross
How has or will this be integrated with the HMP and how does this reduce risk?				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The plan allows the Town to work cooperatively with County OES to coordinate and implement services provided during either type of event. Allows direct outreach to the at-risk population.				
Other	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Lake Luzerne to oversee and track development.

**Table 9.10-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Zoning Office and Planning Board through land use permits and subdivision reviews.
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	In the future, will add a column for parcels in the floodplain to allow tracking
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	The Town does not currently have this information but can work with the Warren County Planning Department in the future to develop this.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Lake Luzerne and their current responsibilities that contribute to hazard mitigation.

**Table 9.10-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Lake Luzerne's Planning Board consists of seven members, all of whom are appointed by the Town Board of Lake Luzerne. The purpose of the Planning Board is as follows: <ul style="list-style-type: none"><li>A. to assure that the development within the town is consistent with the Land Use Plan (Comprehensive Plan)</li><li>B. to conduct site plan reviews as required by the Town Zoning Ordinance and review</li></ul>





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		subdivision requests as required by the Town Subdivision Code C. to make recommendations to the Zoning Board of Appeals when requested as part of the variance appeals process.
Zoning Board of Adjustment	Yes	Lake Luzerne's Zoning Board of Appeals (ZBA) consists of five members, all of whom are appointed by the Town Board of Lake Luzerne. The purpose of the ZBA is to render determinations where variances from the zoning code are requested and hear appeals from applicants seeking interpretations or reversal of determination by Lake Luzerne's Zoning Enforcement Officer.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Highway and Water Department maintenance responsibilities includes: brining roads before snowfall; sweeping roads in the spring; review of roads scheduled to be paved; any new projects and/or repairs; and general maintenance.
Construction/Building/Code Enforcement Department	Yes	The function of the Zoning Enforcement Officer are: A. Issues permits for land use, zoning, septic, subdivision and variance. B. Provides technical assistance to the Planning Board, the Zoning Board of Appeals and the Local Board of Health. C. Provides the point of contact to report alleged zoning or sanitary violations. D. Administers the Flood Hazard Overlay District (Floodplain). E. Ensuring continuity between Warren County building codes office and State building construction codes
Emergency Management/Public Safety Department	Yes	Warren County
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Town website, Mailchimp (mass email service)
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Highway Department
Mutual aid agreements	Yes	DPW/EMS.
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Town engineer (Cedarwood) and forester (Lake George Forestry) on retainer
Engineers or professionals trained in building or infrastructure construction practices	Yes	The Town uses Warren County Building Code and Fire Prevention Office. Also contracts with a company for engineering purposes.
Planners or engineers with an understanding of natural hazards	Yes	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	County GIS Staff, Warren County Soil & Water
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Local Surveyors
Emergency Manager	Yes	Town Supervisor and Highway Superintendent
Grant writer(s)	Yes	County Office
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>Administrative/technical capability self-assessment</b>		
<b>Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.</b>		
By targeting parcels in the flood zones, the Town is able to ensure any construction is done according to the current regulation.		

## Fiscal Capability

The table below summarizes financial resources available to the Town of Lake Luzerne.

**Table 9.10-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes – Water Only
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes





Financial Resources	Accessible or Eligible to Use? (Yes/No)
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Lake Luzerne.

**Table 9.10-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	Town contracts consultant to update and maintain Municipal website
Hazard mitigation information available on your website	Yes	Capability to use MailChimp, Website can be updated as needed by Town contracted consultant
Social media for hazard mitigation education and outreach	Yes	Town contracts consultant to update and maintain municipal social media accounts
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Lake Association
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	Yes	Town website, Mailchimp (mass email service)

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Lake Luzerne.

**Table 9.10-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	Warren County is certified	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:





N/A Not applicable  
 - Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.10-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Moderate
Severe Winter Storm	Moderate
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

### 9.10.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Lake Luzerne.

**Table 9.10-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Lake Luzerne	33	31	\$816,609	0	2	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss





**RL FMA Definition** Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

**RL NFIP Definition** Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Lake Luzerne.

**Table 9.10-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	Flooding takes place along the Hudson River and stream properties. Impacted roadways include River Road, Davern Drive, Pleasant View, and Stevens Lane. The Town does not maintain a list of properties that were damaged by flooding.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No property owners have expressed interest in flood mitigation.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	The Warren County Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code and would be responsible for making determinations.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Unknown, the current maps are the 1984 FIRM maps. The Town also use the Warren County GIS program and the floodplain layer to adequately identify parcels.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Zoning Office
Are any certified floodplain managers on staff in your jurisdiction?	Yes, Warren County has certified building inspectors.
Do you have access to resources to determine possible future flooding conditions from climate change?	Warren county is currently updating their floodplain maps, but currently we have a limited ability to develop objective information
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	The Floodplain Administrator is adequately supported and will be continuing additional training when available.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	All flood zone building applications are reviewed to ensure adherence to the towns adopted Flood Damage Local Law # 1.





NFIP Topic	Comments
	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	The Warren County building codes makes this determination based on market value from the assessor's office and the cost of the proposed construction
What are the barriers to running an effective NFIP program in the community, if any?	Staffing
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"><li>If so, state the violations.</li></ul>	No – in good standing
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	September 4, 2019
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"><li>What is the date that your flood damage prevention ordinance was last amended?</li></ul>	Local Law #1
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"><li>If exceeds, in what ways?</li></ul>	Meets
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	No
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not participating

### 9.10.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.10-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

The Town has not separated out permits in the floodplain area. The process to issue permits begins with Town zoning approval then on to the Warren County building codes office for approval of construction according to the NYS building code. When the Town issues a zoning compliance form, it is marked to note if it is in the SFHA and then the County assures that it is built to the regulations





of the floodplain. In the future, the Town will mark on the accounting list if it is in the floodplain or not.

**Table 9.10-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	14	N/A	12	N/A	8	N/A	12	N/A	12	N/A	16	N/A
Multi-Family	0	N/A	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	2	N/A	19	N/A	19	N/A	19	N/A	25	N/A	21	N/A
Total New Construction Permits Issued	16	N/A	31	N/A	27	N/A	31	N/A	37	N/A	37	N/A

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2017 to Present					
None identified					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Lake Luzerne Woods	Residential	17 lots	Sagamore Drive	None	Approved
Evergreen Estates	Residential	11 lots	Call Street	None	Approved in 2011
TBD, proposed subdivision	Residential	8-10 lots	Hidden Valley Road	None	Proposed
TBD, proposed subdivision	Residential	TBD	Route 9N	None	Proposed

SFHA Special Flood Hazard Area (1% flood event)

Note: Information on building permits issued within the SFHA was not available for this plan update.

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.10.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Lake Luzerne's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Lake Luzerne has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.10-1. Town of Lake Luzerne Flood Hazard Area Extent and Location Map

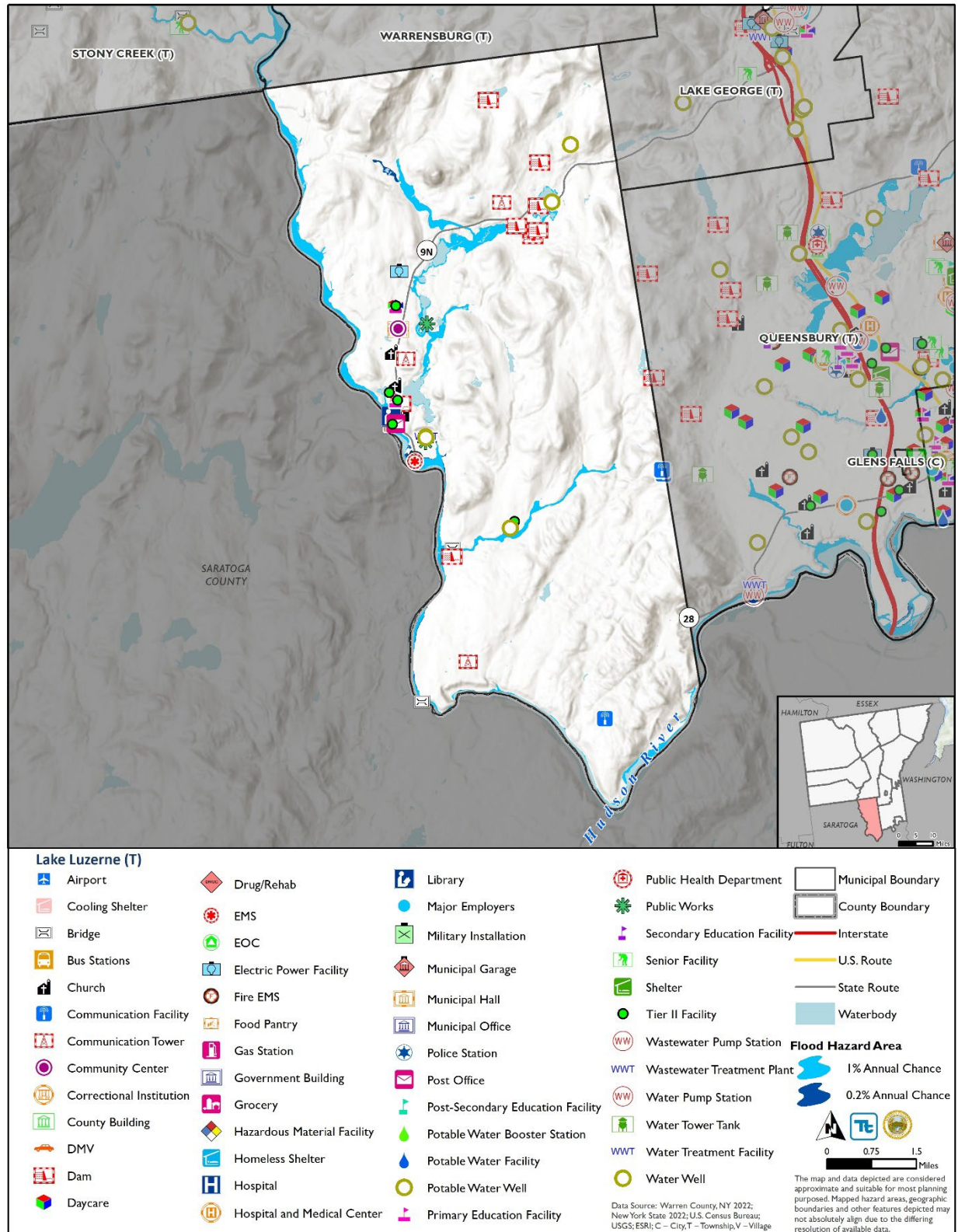






Figure 9.10-2. Town of Lake Luzerne Earthquake (Soil Class) Hazard Area Extent and Location Map

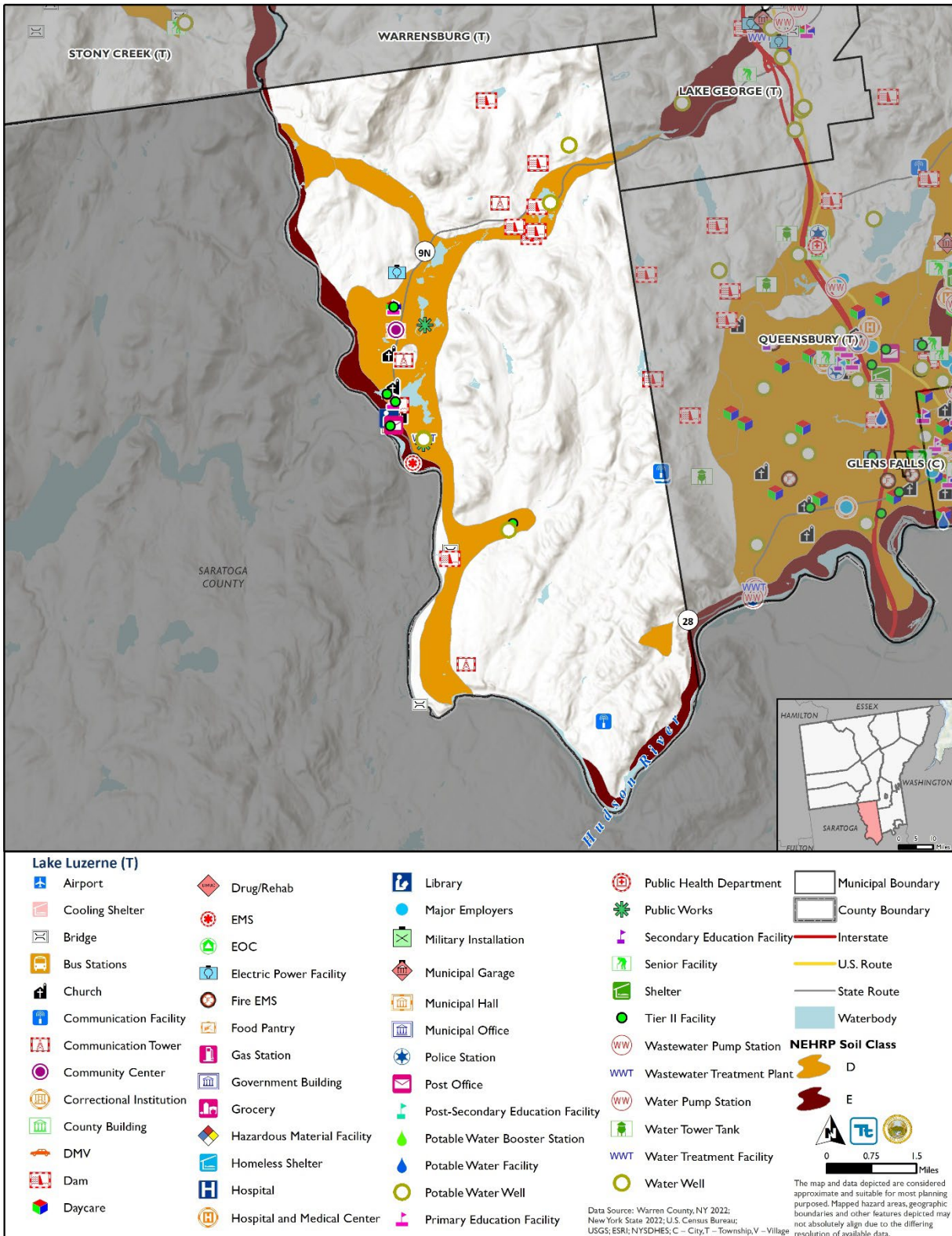
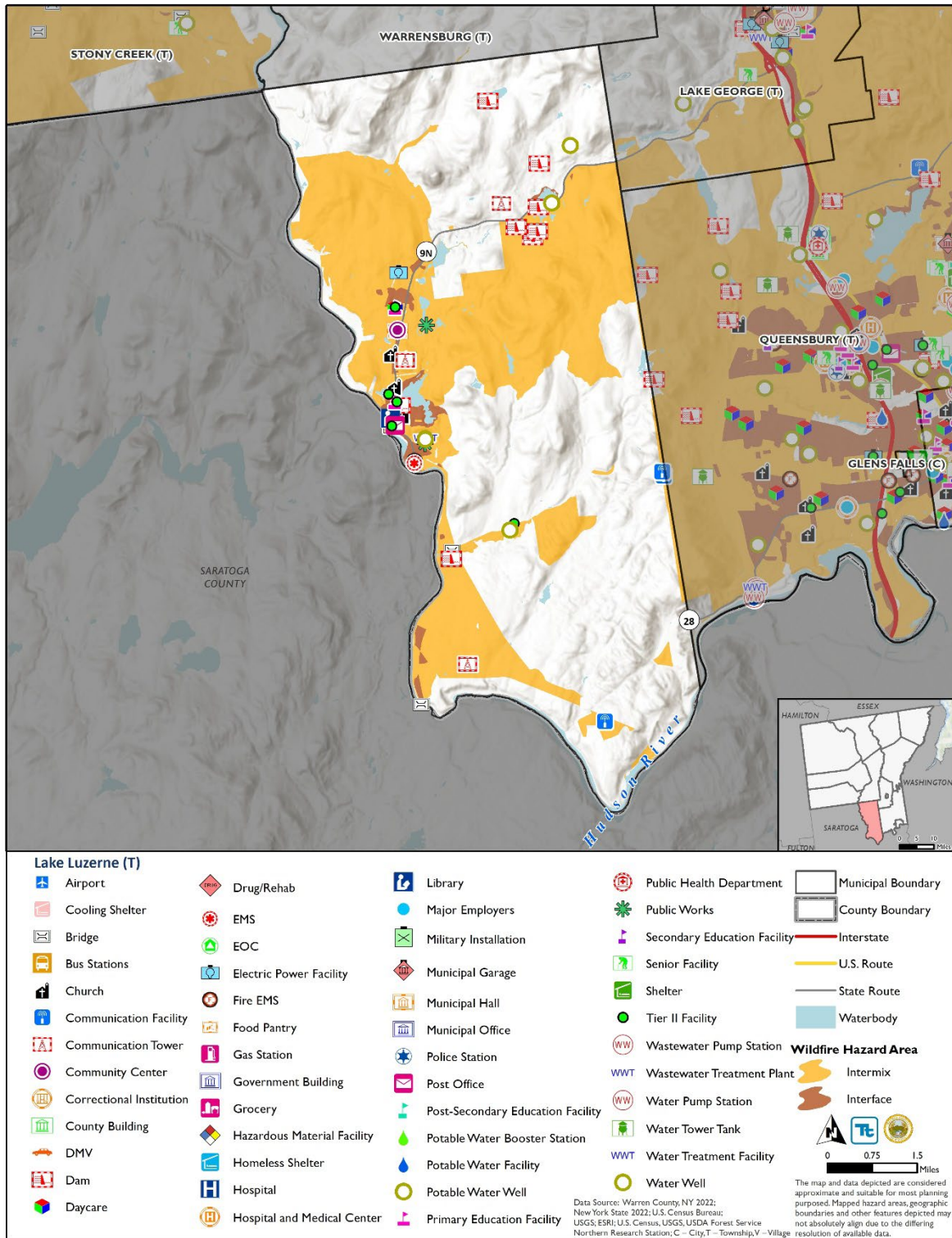






Figure 9.10-3. Town of Lake Luzerne Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Lake Luzerne's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.10-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.10-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
July 2017 Beartown	Road washout	No	Beartown experienced road washout.	Three culverts washed out.
October 31 – November 1, 2019	Severe Storms, Straight Line Winds, Flooding (DR-4472)	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York. A state of emergency was declared for Warren County, and boil water notices was issued in Warren County due to floodwater inundation of private and public water systems.	Three culverts washed out.
May 29, 2020	Windstorm	No	Wind (tornado) event.	Tree damage, damage to private property and major power outages
January 20, 2020	COVID-19 Pandemic (DR-4480 and EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	The Town was subject to closures and masking/social distancing requirements.
April 2021	Road washout	No	Beartown experienced road washout.	Three culverts washed out.

Notes:

EM      Emergency Declaration (FEMA)

FEMA    Federal Emergency Management Agency





DR Major Disaster Declaration (FEMA)  
N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Lake Luzerne's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Lake Luzerne. The Town of Lake Luzerne reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town agreed with the calculated hazard rankings.

**Table 9.10-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Medium	Medium	Low	High	High	Medium	Medium

Dam Failure	Disease Outbreak
Medium	Low

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at





<http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.10-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Ferguson Dam	Dam	X	X	–	No deficiencies noted.
Lake Forest Dam	Dam	X	X	2023-Town of Lake Luzerne-011	–
Lake Luzerne Dam	Dam	X	X	–	Maintenance recently completed.
Densmore	Bridge	X	X	–	Recently constructed to modern standards
East River Drive	Bridge	X	X	–	County bridge. No deficiencies noted.
Luzerne-Hadley EMS	EMS Station	–	X	–	–

Source: Warren County 2022

## Identified Issues

After review of the Town of Lake Luzerne’s hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Lake Luzerne identified the following vulnerabilities within their community:

- Problem: There is a need for two replacement stream crossings on Beartown Road for Schaeffers Brook (Upper and Lower Crossings). Both crossings are located in the Upper Hudson River watershed. The road at these locations has been washed out several times in the past decade. Sediment has been deposited into this trout stream leading to the Hudson River during each washout event (estimated between 5 to 10 cubic yards per event). The current crossings consist of heavily damaged 5.8' x 4' x 30' arched culverts with a secondary overflow round culvert measuring 30" in diameter. The Town’s flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.





- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 2 repetitive loss properties, but other properties may be impacted by flooding as well. Areas of previous flood damages exist on River Road, Davern Drive, Pleasant View Drive, and Stephen Lane.
- The Reed Park Road bridge is degraded and requires replacement. The cobble stone backwall and portions of wingwalls have missing mortar and displaced stones throughout. The majority of the shotcrete is cracked and spalling. Substructures protrude into the waterway and the existing foundation type is unknown. There is deterioration of the concrete and undermining mostly at the upstream end as the water from the large waterbody creates a high velocity flow as the water level downstream try to equalize.
- The Town currently does not participate in the CRS program but is unsure if participation would be cost-effective.
- Continual beaver dam breaches result in flooding and damage potential in areas including Towner Road, Reed Park Road, Ralph Road, and Potash Road.
- The Town lacks procedures for disaster debris management.
- While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make determinations, and provide for appeals.
- The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.
- Emergency planning is in need of update. If current leadership is not available to utilize their past knowledge and experience mitigating hazards, emergency response capabilities may be reduced.
- Lake Forest Dam is a privately owned dam. The dam owner has noted that funding would be needed to address necessary maintenance of the dam.

### 9.10.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





Table 9.10-15. Status of Previous Mitigation Actions

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Level of Protection	
TLL-1	Integrate the risk assessment and recommendations of the HMP into the Town Master plan.	All Hazards		Town Board	Ongoing Capability	Damages Avoided; Evidence of Success		1. Discontinue 2. 3. Ongoing capability
TLL-2	Increase personnel capabilities, knowledge and preparedness level by increasing number of natural hazard exercises.	All Hazards		Highway Superintendent/Town Board	Ongoing Capability -Zoning officer and Highway Superintendent attended Reducing Development Impacts to Streams: Cause and Effect (7/2019) hosted by Warren County Soil and Water. -Zoning officer attended Flood Plain Management Training (11/2019)	Damages Avoided; Evidence of Success		1. Discontinue 2. 3. Ongoing capability
TLL-3					No Progress	Cost		1. Include in 2023 HMP





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Level of Protection	Damages Avoided; Evidence of Success	
	Consider Participation in the CRS program.	Flood		Town Board		Cost		1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
TLL-4	Prepare a Natural Resource Inventory for Lake Luzerne to provide the community with information needed to make decisions about the protection of critical resources and changes to municipal laws.	All Hazards		Town Board	Ongoing Capability. Lake Vanare emergency action plan established. 2022 repairs to Lake Luzerne dam.	Level of Protection		2. 3.
						Damages Avoided; Evidence of Success		
						Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLL-5	Mitigate Bear Town Road by upgrading the existing culvert and elevating the roadway.	Flood	Culvert undersized	Highway Superintendent	In Progress	Cost		1. Include in 2023 HMP 2. Applied for 4 grants that have been denied. Two impacted road crossings 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
TLL-6 (carryover)	Compile and maintain lists of elderly, functional	All Hazards		Town Board, Recreation Assistant	Ongoing Capability	Cost		1. Discontinue 2.
						Level of Protection		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	needs, and low-income individuals of concern during major events. – Obtain a list of elderly meals on wheels recipients. – Obtain a list of senior star recipients from the assessor					Damages Avoided; Evidence of Success		1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
TLL-7 (carryover)	Update "Flood Damage Prevention Local Law # 1 of 1987, and consider including a provision to ask for assessment relief (unimproved private properties get a lower assessment) if property owners agree to not develop in flood prone areas	Flood		Town Board, Code Officer, FPA	No Progress	Cost Level of Protection Damages Avoided; Evidence of Success		3. Ongoing capability. Lists are ongoing and constantly updated
TLL-8 (carryover)	Provide residents with information listing steps taken to	Flood		Town Board, County Office of Emergency	Ongoing Capability	Cost Level of Protection		1. Include in 2023 HMP 2. 3. 1. Discontinue 2.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Damages Avoided; Evidence of Success		
	lessen potential flood damage to reduce the impact and on the benefits of carrying flood insurance through NFIP.			Services, Town Floodplain Administrator, Warren County Soil & Water Department				<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
TLL-9	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with critical facilities and repetitive loss properties as a priority when applicable. Town support shall include direct outreach to flood-prone property owners, specifically critical	All Hazards		Town Board	In Progress	Cost Level of Protection Damages Avoided; Evidence of Success		<ol style="list-style-type: none"> <li>1. Include in 2023 HMP</li> <li>2.</li> <li>3.</li> </ol>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
	<p>facility owners/operators and those identified by FEMA as RL/SRL or otherwise identified as flood-prone, and working with interested and voluntary property owners to mitigate their properties based on available funding from FEMA and local (property owner) match availability.</p> <p>Efforts to mitigate critical facilities shall recognize Federal and State directives for protection to the 500-year flood level or "worst case scenario".</p>							<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
TLL-10	Replace and elevate Reed Park Road Bridge	Flood		Highway Superintendent	In Progress	Cost		<ol style="list-style-type: none"> <li>1. Include in 2023 HMP</li> <li>2. Applied for two grants which were denied</li> </ol>
						Level of Protection		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )		Next Steps
						Cost	Damages Avoided; Evidence of Success	
								1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
TLL-11	Evaluate ways to mitigate flooding to the 500-year event level at Lake Avenue Firehouse. Implement best mitigation alternative(s) as funding is secured.	All Hazards		Town Fire Department, Highway Superintendent	Complete	Cost	Damages Avoided; Evidence of Success	1. Discontinue 2. 3. Complete
TLL-12	Stabilize Slope on Hall Hill Road	Flood, Severe Storm		Town Highway Superintendent, WCSW	Complete	Cost	Damages Avoided; Evidence of Success	1. Discontinue 2. 3. Complete
TLL-13	Develop and implement a plan to collaborate with State and private property owners to reduce risks from beaver dams in areas including	Flood		Highway Department, NYS DEC, Private property owners	In Progress	Cost	Damages Avoided; Evidence of Success	1. Include in 2023 HMP 2. Additional beaver dams include Ralph Road and Potash Road 3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is <u>complete</u> )			Next Steps
	Towner Road and Reed Park Road.								<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.10-15, the Town of Lake Luzerne identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Lake Luzerne participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.10-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X				X	X				X
Extreme Temperature	X				X	X				X
Flood	X	X	X		X	X		X	X	X
Severe Storm	X	X			X	X			X	X
Severe Winter Storm	X				X	X				X
Wildfire	X				X	X				X
Infestation	X		X		X	X		X		X
Dam Failure	X			X	X	X	X			X
Disease Outbreak	X				X	X				X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.10-17).

The table below summarizes the specific mitigation initiatives the Town of Lake Luzerne would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.10-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Lake Luzerne-001	Bear Town Road	1, 5	Flood, Severe Storm	<b>Problem:</b> There is a need for two replacement stream crossings on Beartown Road for Schaeffers Brook (Upper and Lower Crossings). Both crossings are located in the Upper Hudson River watershed. The road at these locations has been washed out several times in the past decade. Sediment has been deposited into this trout stream leading to the Hudson River	No	Permitting will be required from NYSDEC and USACE, generally these projects fall under the NYSDEC General Permit (GP-5-09-002) and the USACE Nationwide permit #3 (Maintenance). These permits will be obtained once the draft design has been approved by the municipality.	Within 5 years	Highway Superintendent, Warren County Soil and Water Conservation District	\$100,000 per crossing	Reduction in flooding and flood damage, improved water quality and protection of critical fish habitat.	WQIP, HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>during each washout event (estimated between 5 to 10 cubic yards per event). The current crossings consist of heavily damaged 5.8' x 4' x 30' arched culverts with a secondary overflow round culvert measuring 30" in diameter.</p> <p><b>Solution:</b> The Town will mitigate Bear Town Road by upgrading the existing culverts and elevating the roadway. The replacement structure proposed at</p>										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				each location is an aluminum box culvert with full invert and headwalls measuring 18.2' X 4.7' X 35' in order to meet both NYSDEC and USACE sizing requirements for this location.										
2023-Town of Lake Luzerne -002	Flood Damage Prevention Ordinance Update	1	Flood	<b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement. <b>Solution:</b> The Town will update and	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				adopt the ordinance to include a 2 feet freeboard requirement for all construction. The Town will consider including a provision to ask for assessment relief (unimproved private properties get a lower assessment) if property owners agree to not develop in flood prone areas.										
2023-Town of Lake Luzerne -003	Repetitive Loss Mitigation	1	Flood, Severe Storm	<b>Problem:</b> Frequent flooding events have resulted in damages to residential properties.	No	None	Within 5 years	Highway Superintendent	Staff time, High for elevations	Reduction in flooding and flood damage	HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 2 repetitive loss properties, but other properties may be impacted by flooding as well. Areas of previous flood damages exist on River Road, Davern Drive, Pleasant View Drive, and Stephen Lane.</p> <p><b>Solution:</b> The Town FPA will work with homeowners to discuss options for</p>										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				funding to elevate structures.										
2023-Town of Lake Luzerne -004	Reed Park Road Bridge	1	Flood	<b>Problem:</b> The Reed Park Road bridge is degraded and requires replacement. The cobble stone backwall and portions of wingwalls have missing mortar and displaced stones throughout. The majority of the shotcrete is cracked and spalling. Substructures protrude into the waterway and the existing foundation type is unknown. There is deterioration	Yes	May require permitting	Within 5 years	Highway Superintendent	\$1.2 million	Bridge safety restored, strengthened to withstand future flood events	BridgeNY, HMGP, BRIC, PDM, Town budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>of the concrete and undermining mostly at the upstream end as the water from the large waterbody creates a high velocity flow as the water level downstream try to equalize.</p> <p><b>Solution:</b> The Town will complete a reconstruction of the bridge. The new bridge will be designed to withstand a 500-year flood event. The final structure type will be selected during design, however for estimating</p>										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				purposes a three sided structure with precast wingwalls is assumed. The bridge will have a proposed span length of 28.5ft which is 1.5 times the existing waterway opening. However a full hydraulic analysis would be completed during design.										
2023-Town of Lake Luzerne -005	Consider Participation in the CRS Program	1, 4	Flood	<b>Problem:</b> The Town currently does not participate in the CRS program but is unsure if participation would be cost-effective.	No	None	3 years	FPA, Administration	Staff time	CRS participation evaluated	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will request a What If Statement to determine potential savings that could be provided by the CRS program and evaluate necessary floodplain management upgrades. If cost-effective, the Town will join the program.										
2023-Town of Lake Luzerne -006	Beaver Mitigation	1, 5	Flood, Infestation and Invasive Species	<b>Problem:</b> Continual beaver dam breaches result in flooding and damage potential in areas including Towner Road, Reed Park Road, Ralph	No	Yes, some solutions may not be available due to beaver restrictions	Within 5 years	Highway Department, NYS DEC, Private property owners, Warren County Soil and Water Conservation District (SWCD)	TBD by identified strategies	Reduction in beaver dam failure flood events	Town budget	High	NSP	NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Road, and Potash Road. <b>Solution:</b> Develop and implement a plan to collaborate with State and private property owners to reduce risks from beaver dams in areas including Towner Road and Reed Park Road.										
2023-Town of Lake Luzerne -007	Disaster Debris Management	3	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Town lacks procedures for disaster debris management. <b>Solution:</b> The Town will explore possible shared services with Hadley for disaster debris response.	No	None	2 years	Highway Department, Administration, Town of Hague	Staff time	Improved post-disaster capabilities	Town budget	High	LP R	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Lake Luzerne -008	Substantial Damage Procedures	1, 3	All Hazards	<b>Problem:</b> While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make determinations, and provide for appeals. <b>Solution:</b> The Town will develop and implement substantial damage and substantial improvement determination procedures.	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	Municipal Budget	High	LP R	PP, PR
2023-Town of Lake	Support Updated NFIP Mapping	1, 4	Flood	<b>Problem:</b> The City of Glens Falls and the Towns of	No	None	Within 5 years	FPA	Staff time	Improved floodplain mapping	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
Luzerne -009				<p>Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.</p> <p><b>Solution:</b> To the extent applicable and feasible, the Town shall use all available means of</p>										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				promoting broad local government and public involvement through announcing meetings and providing available supporting data as applicable.										
2023-Town of Lake Luzerne -010	Emergency Planning	3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> Emergency planning is in need of update. If current leadership is not available to utilize their past knowledge and experience mitigating hazards, emergency response capabilities may be reduced.	No	None	Within 5 years	Administration	Staff time	Improved emergency planning and capabilities	Town budget	High	LP R	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will develop plans of actions for use in times of emergency.										
2023-Town of Lake Luzerne -O11	Lake Forest Dam Outreach	1, 2	Dam Failure	<b>Problem:</b> Lake Forest Dam is a privately owned dam. The dam owner has noted that funding would be needed to address necessary maintenance of the dam. <b>Solution:</b> The Town will share information about grant opportunities from FEMA and NYS to the dam owner.	Yes <span style="color: blue;">●</span>	None identified	2 years	Administration, facility manager	Staff time	Facility manager aware of funding opportunities for potential mitigation of the dam	Town budget for outreach	High	EAP	PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

Potential FEMA HMA Funding Sources:

Timeline:





CAV Community Assistance Visit  
CRS Community Rating System  
DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
FEMA Federal Emergency Management Agency  
FPA Floodplain Administrator  
HMA Hazard Mitigation Assistance  
N/A Not applicable  
NFIP National Flood Insurance Program  
OEM Office of Emergency Management

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program  
BRIC Building Resilient Infrastructure and  
Communities Program

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:

Yes  Critical Facility located in 1% floodplain

Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.10-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Lake Luzerne-001	Bear Town Road	0	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High
2023-Town of Lake Luzerne-002	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Lake Luzerne-003	Repetitive Loss Mitigation	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Lake Luzerne-004	Reed Park Road Bridge	0	1	1	1	1	0	0	1	1	1	0	0	1	1	9	High
2023-Town of Lake Luzerne-005	Consider Participation in the CRS Program	1	1	1	1	0	1	1	1	1	1	0	0	1	1	11	High
2023-Town of Lake Luzerne-006	Beaver Mitigation	0	1	1	1	1	0	1	1	1	1	1	0	1	1	11	High
2023-Town of Lake Luzerne-007	Disaster Debris Management	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Lake Luzerne-008	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Luzerne-009	Support Updated NFIP Mapping	0	1	1	1	1	1	1	1	1	1	0	0	1	1	11	High
2023-Town of Lake Luzerne-011	Lake Forest Dam Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.10.8 Action Worksheets

The following action worksheets were developed by the Town of Lake Luzerne to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Bear Town Road		
<b>Project Number:</b>	2023-Town of Lake Luzerne-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	There is a need for two replacement stream crossings on Beartown Road for Schaeffers Brook (Upper and Lower Crossings). Both crossings are located in the Upper Hudson River watershed. The road at these locations has been washed out several times in the past decade. Sediment has been deposited into this trout stream leading to the Hudson River during each washout event (estimated between 5 to 10 cubic yards per event). The current crossings consists of heavily damaged 5.8' x 4' x 30' arched culverts with a secondary overflow round culvert measuring 30" in diameter.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Town will mitigate Bear Town Road by upgrading the existing culverts and elevating the roadway. The replacement structure proposed at each location is an aluminum box culvert with full invert and headwalls measuring 18.2' X 4.7' X 35' in order to meet both NYSDEC and USACE sizing requirements for this location.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	TBD by final design	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding, flood damages
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	\$100,000 per crossing	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	BRIC, PDM, HMGP, CHIPS, Town budget
<b>Responsible Organization:</b>	Highway Superintendent, Warren County Soil and Water Conservation District	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove road	N/A	Roadway cannot be removed
	Relocate road to another location	N/A	Not feasible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Bear Town Road	
<b>Project Number:</b>	2023-Town of Lake Luzerne-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project will protect roadways from flooding, culvert damages
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	0	Permitting will be required from NYSDEC and USACE, generally these projects fall under the NYSDEC General Permit (GP-5-09-002) and the USACE Nationwide permit #3 (Maintenance). These permits will be obtained once the draft design has been approved by the municipality.
Fiscal	0	Project requires funding support.
Environmental	1	improved water quality and protection of critical fish habitat.
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Storm, Flood
Timeline	0	Within 5 years
Agency Champion	1	Highway Superintendent, Warren County Soil and Water Conservation District
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	









## SECTION 9.

### 9.11 TOWN OF QUEENSBURY

This section presents the jurisdictional annex for the Town of Queensbury that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Queensbury's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.11.1 Hazard Mitigation Planning Team

The Town of Queensbury identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Planning Department, Building of Code Enforcement, Highway Department, and the Fire Marshal. The Land Use Planner represented the community on the Warren County Hazard Mitigation Plan Planning Partnership, Steering Committee, and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.11-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title John Strough – Supervisor Address: 742 Bay Road, Queensbury, NY 12804 Phone Number:(518) 761-8229 Email: <a href="mailto:gbysupervisor@queensbury.net">gbysupervisor@queensbury.net</a>	Name/Title: Craig Brown, Planning/Community Development Director Address: 742 Bay Road, Queensbury, NY 12804 Phone Number: (518) 761-8220 Email: <a href="mailto:craigb@queensbury.net">craigb@queensbury.net</a>
<b>NFIP Floodplain Administrator</b>	
Name/Title: John O'Brien – Director of Building and Code Enforcement Address: 742 Bay Road, Queensbury, NY 12804 Phone Number: 518-761-8256 Email: <a href="mailto:johnno@queensbury.net">johnno@queensbury.net</a>	
<b>Additional Contributors</b>	
Name/Title: Dave Duell – Highway Superintendent	





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided data and information	
Name/Title: Mike Palmer – Fire Marshal	
Method of Participation: Provided data and information	
Name/Title: Laura Moore – Land Use Planner	
Method of Participation: Provided information on previous events, capabilities, building permits, reviewed hazard rankings, contributed to mitigation strategy, reviewed annex	
Name/Title: John O'Brien – Director of Building and Code Enforcement	
Method of Participation: Provided information on NFIP administration, building permits	
Name/Title: Kate Deck – Building and Codes Department	
Method of Participation: Provided information on building permits	
Name/Title: John Strough – Supervisor	
Method of Participation: Provided information on dams impacting the Town, contributed to mitigation strategy.	

### 9.11.2 Municipal Profile

The Town of Queensbury is in the southeastern corner of Warren County. It has a total land area of 64.81 square miles of which 63.01 square miles is land and 1.80 square miles is water. The Town is bordered to the west by the Town of Lake Luzerne, to its east by Washington County, to its north by Lake George, and to its south by the City of Glens Falls and the Hudson River. Queensbury is a town of the first class and is governed by a town board consisting of four councilmembers and a town supervisor. The town includes 16 hamlets and one census-designated place including: Brayton, East Lake George, French Mountain, Glen Lake, Glens Falls North, Harrisena, Kattskill Bay, Lake Sunnyside, Oneida Corners, Paradise Beach, Queensbury, West Glens Falls, Jenkinsville, South Queensbury, Top O'the World and West Mountain. In addition to portions of Lake George, the Town includes Glen Lake and Lake Sunnyside.

According to the U.S. Census, the 2020 population for the Town of Queensbury was 29,169, a 4.54 percent increase from the 2010 Census. Data from the 2020 U.S. Census indicate that 3.90 percent of the population is 5 years of age or younger and 24.1 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Queensbury has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 8.86% of the population does not have a high school diploma
- 14.34% of the population has a disability
- 6.62% of households do not have a vehicle
- 4.91% of the population is living below the poverty level
- 0.00% of the population is unemployed

### 9.11.3 Jurisdictional Capability Assessment and Integration

The Town of Queensbury performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section





6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Queensbury to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Queensbury. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.11-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Code; Chapter 58 Building Requirements	Local	Building Code Enforcement Officer, Fire Marshal
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Queensbury adopted the New York State Uniform Fire Prevention and Building Code to guide safe new development.  Chapter 58 requires an elevator for all housing complexes for the elderly or handicapped which contain 10 or more units above the first floor.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 179 – Zoning	Local	Zoning Administrator /Code Compliance Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Ordinance promotes the health, safety and general welfare of the residents and property owners of the Town. The Ordinance ensures the overall conservation, protection, development and use of the unique scenic, aesthetic, wildlife, recreational, open space, historic, ecological and natural resources of the Town.				
<b>Subdivision Ordinance</b>	Yes	Chapter 178 – Zoning – Subdivision Review Chapter 183	Local	Zoning Administrator /Code Compliance Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The type of two-lot subdivision allowed without Planning Board approval would not seem to generally cause any environmental concerns and also would not seem to warrant the expenditure of time and money by all concerned for a review by the Planning Board. Also, as subdivisions in the Adirondack Park may be subject to restrictions or notification procedures under state law, any subdivision in the Adirondack Park would still be subject to Planning Board review to make it easier, procedurally, to be sure that law is complied with in the event that compliance is necessary.				
<b>Site Plan Ordinance</b>	Yes	Chapter 179 – Zoning	Local	Zoning Administrator/ Code Compliance Officer/ Planning Board, Zoning Board of Appeals
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of site plan review is to ensure that a site can properly accommodate proposed new uses and/or structures or expansion of existing uses and structures with minimal effect on neighboring properties and the general area within the vicinity of the site and to ensure that such development is appropriately integrated into the community in accordance with the goals and objectives of this chapter and the Comprehensive Plan.				
<b>Stormwater Management Ordinance</b>	Yes	Chapter 147 – Stormwater Management	Local	Zoning Administrator/ Code Compliance Officer/ Stormwater Officer
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this chapter is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing within the Town of Queensbury by preserving and protecting the quality of the ground- and surface waters.  The Ordinance outline the following objective of purpose: <ul style="list-style-type: none"><li>A. Meet the requirements of minimum measures 4 and 5 of the NYS Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s), Permit No. GP-02-02, as amended or revised</li><li>B. Require land development activities to conform to the substantive requirements of the SPDES General Permit for Construction Activities, GP-02-01, as amended or revised</li><li>C. Minimize increases in stormwater runoff from land development activities in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels</li></ul>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>D. Minimize increases in pollution caused by stormwater runoff from land development activities which would otherwise degrade local water quality</p> <p>E. Minimize the total annual volume of stormwater runoff which flows from any specific site during and following development to the maximum extent practicable</p> <p>F. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management practices and ensure that these management practices are properly maintained and eliminate threats to public safety.</p> <p>G. Provide for more stringent requirements within the portion of the Town that is within the Lake George Park, reflecting the unique environmental sensitivity of Lake George and the need to protect its water quality.</p>				
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	Yes	Chapter 179 Zoning-13-050 Destruction	Local	Building and Code Enforcement Zoning Administrator/ Code Compliance Officer
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>Any structure which is nonconforming due to a setback violation or, in the case of multifamily housing, due to greater density than would be allowed by this chapter, which is destroyed wholly or in part by fire, flood, wind, hurricane, tornado or other act beyond the control of man shall be allowed to reconstruct according to its original dimension and density if a complete building permit for said reconstruction is submitted within 18 months of said destruction. If a complete building permit for reconstruction has not been submitted within this period, the rebuilt structure must conform to this chapter.</li> <li>Any structure which is a nonconforming use according to the provisions of this chapter that is destroyed by fire, flood, wind, hurricane, tornado or other act beyond the control of man, to the extent of 50% of the assessed value of the structure or more, may be replaced if a complete building permit for said reconstruction is submitted within 18 months of the destructive incident. If a complete building permit for reconstruction has not been submitted within this period, the rebuilt structure must conform to this chapter.</li> </ul>				
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>In addition to facing potential liability for failing to disclose under the exceptions to "caveat emptor," a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.</p>				
<b>Growth Management</b>	No	-	-	-
<b>Environmental Protection Ordinance</b>	Yes	Chapter 179 Article 6; Chapter 94 Freshwater Wetlands	Local	Zoning Administrator/ Code Compliance Officer
<p>Chapter 179: It is declared to be the public policy of the Town of Queensbury to preserve, protect and conserve freshwater wetlands and the benefits derived therefrom, to prevent any despoliation and destruction of freshwater wetlands and to regulate the development of such wetlands in order to secure the natural benefits of freshwater</p>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
wetlands, consistent with the general welfare and beneficial economic, social and agricultural development of the Town. It is further declared to be the policy of the Town of Queensbury to exercise its authority pursuant to Article 24 of the State Environmental Conservation Law, as such Article may from time to time be amended.				
<b>Flood Damage Prevention Ordinance</b>	Yes	Chapter 91 – Flood Damage Prevention, 1996	Local	Building and Code Enforcement/Floodplain Manager (Director Building and Codes)
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"><li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities</li><li>B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction</li><li>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters.</li><li>D. Control filling, grading, dredging and other development which may increase erosion or flood damages</li><li>E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands</li><li>F. Qualify and maintain for participation in the National Flood Insurance Program.</li></ul> The objective of this Ordinance are to: <ul style="list-style-type: none"><li>A. Protect human life and health</li><li>B. Minimize expenditure of public money for costly flood control projects</li><li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public</li><li>D. Minimize prolonged business interruptions</li><li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard</li><li>F. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas</li><li>G. Provide that developers are notified that property is in an area of special flood hazard.</li><li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li></ul> The ordinance currently requires 1 foot of freeboard for all construction. The ordinance requires update to meet NYS's 2 feet of freeboard requirement.				
<b>Wellhead Protection</b>	No	-	-	-
<b>Emergency Management Ordinance</b>	No	-	-	-
<b>Climate Change Ordinance</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Other	Yes	Chapter 173 Water	Local	Superintendent of Water Department
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i>  The purpose and the intent of this article is to conserve and protect the water supply of the water districts in the Town of Queensbury by limiting, restricting and/or prohibiting its use for certain purposes, in the interest of public health, safety and welfare.</p>				
<b>Planning Documents</b>				
Comprehensive Plan	Yes	Comprehensive Land Use Plan – 2007 (Being updated in 2022–2023)	Local	Planning and Community Development
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i>  The Comprehensive Plan outlines short-term and long-term goals that will monitor the growth and development of the Town while enhancing economic health, walkability, environmental protection and quality of life for the Town residents and visitors.</p>				
Capital Improvement Plan	No	–	–	–
Disaster Debris Management Plan	No	–	–	–
Floodplain Management or Watershed Plan	No	–	–	–
Stormwater Management Plan	No	–	–	–
Open Space Plan	Yes	An Open Space Vision for the Town of Queensbury	Local	Planning and Development
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i>  The Plan introduces long-term goals for conservation of natural resources, and cultural heritage.</p>				
Urban Water Management Plan	No	–	–	–
Habitat Conservation Plan	No	–	–	–
Economic Development Plan	No	–	–	–
Community Wildfire Protection Plan	No	–	–	–
Community Forest Management Plan	No	–	–	–
Transportation Plan	No	–	–	–
Agriculture Plan	No	–	–	–





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				
<b>Climate Action/ Resiliency/Sustainability Plan</b>	No	-	-	-
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town has a local committee, but no plan is in place.				
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	Yes	Chapter 88 19 NYCRR Part 1203 Code and Energy	NYS & Local	Fire Marshal, Building and Codes Enforcement Officers
Promotes the health, safety and general welfare of the residents and property owners of the Town. The Ordinance ensures the overall conservation, protection, development and use of the unique scenic, aesthetic, wildlife, recreational, open space, historic, ecological and natural resources of the Town				
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Comprehensive Emergency Management Plan	Local	Town Supervisor, Emergency Management Coordinator
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Plan establishes the potential hazards that could impact the Town and as assessment of the capabilities existing in the Town to deal with potential problems. The Plan identifies management responsibilities of the Town departments and related agencies, both emergency and non-emergency. The Plan emphasizes the interrelationship of activities, functions and expertise necessary to deal with emergencies.				
<b>Continuity of Operations Plan</b>	Currently under review	To be adopted Summer of 2023 default to CEMP as guidance is provided in CEMP document	Local	Town Supervisor
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Provides protection of materials and continued use of materials as needed.				
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	Yes	Yearly evaluation with County	County & Local	Fire Marshal
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Evaluates risks for various hazards.				
<b>Post-Disaster Recovery Plan</b>	Yes	Comprehensive Emergency Management Plan	Local	Town Supervisor, Emergency Management Coordinator





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Plan establishes the potential hazards that could impact the Town and as assessment of the capabilities existing in the Town to deal with potential problems. The Plan identifies management responsibilities of the Town departments and related agencies, both emergency and non-emergency. The Plan emphasizes the interrelationship of activities, functions and expertise necessary to deal with emergencies.				
<b>Public Health Plan</b>	Yes	COVID 19 Pandemic Response Plan March 23, 2021	Local	Town Supervisor, Emergency Management Coordinator & others
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Plan identifies how to respond to Covid-19 pandemic and can guide future disease outbreak event responses.				
<b>Other</b>	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Queensbury to oversee and track development.

**Table 9.11-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Approvals of Projects by Planning Board and Zoning Board. Applications to Building and Codes
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood Plan manger/Building and Codes Director
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	The Town is able to generate data/map of acres of development versus area of potential development.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Queensbury and their current responsibilities that contribute to hazard mitigation.




**Table 9.11-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board is responsible for site plan application review, site plan approval, and subdivision application review and approval.
Zoning Board of Appeals	Yes	The Zoning Board of Appeals is responsible for reviewing and approving, approving with conditions all variance applications.
Planning Department	Yes	<p>The Planning Office is charged with long-range planning, maintenance of the Town's Comprehensive Land Use Plan, capital planning, and technical research and support.</p> <p>The staff also provides technical support to our office as well as other departments with Geographic Information System (GIS) assistance, technical research and analysis, and compliance with State (SEQRA) and Federal (NEPA) environmental review requirements.</p>
Mitigation Planning Committee	Yes	Emergency Management Planning Committee
Environmental Board/Commission	No	-
Open Space Board/Committee	Yes	501c3 entity outside
Economic Development Commission/Committee	Yes	Housing and Community Development
Public Works/Highway Department	Yes	<p>The Highway Department maintains the following Town roads:</p> <ul style="list-style-type: none"> <li>• Bay Road</li> <li>• Haviland Road</li> <li>• Blind Rock Road/Round Pond Road</li> <li>• Hicks Road</li> <li>• Boulevard #32</li> <li>• Moon Hill Road</li> <li>• Corinth Road</li> <li>• Ox Bow Hill Road</li> <li>• Country Club Road</li> <li>• Pilot Knob Road</li> <li>• Dix Avenue</li> <li>• Quaker Road</li> <li>• East Sunnyside</li> <li>• Queensbury Avenue</li> <li>• Glenwood Avenue</li> <li>• Sunnyside Road</li> <li>• West Mountain Road</li> </ul>
Construction/Building/Code Enforcement Department	Yes	<p>The Building &amp; Codes Office is responsible for review and issuance of building permits in compliance with the New York State versions of the International Codes as well as enforcement of the Towns local laws and ordinances.</p> <p>The Building and Code Office regulates the licensing of manufactured home communities, junkyards and the local</p>





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		flood damage protection law and respond to complaints regarding suspected violations of the NYS Building Codes as well as construction without a building permit, unfit living conditions, uncontrolled junk, disposal of garbage and refuse, short term rentals, new and replacement septic system inspections, property transfer septic inspections and other quality of life violations.
Emergency Management/Public Safety Department	Yes	Supported through the CEMP.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Warren County Emergency OES Ap notification ap, and other mass warning via phone.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The Highway Department is responsible for tree trimming.
Mutual aid agreements	Yes	Warren County Department of Public Works
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Outside Contract with Pinnacle
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Queensbury Planning Office
Engineers or professionals trained in building or infrastructure construction practices	Yes	Fire Marshal/ Building and Code Enforcement Officers
Planners or engineers with an understanding of natural hazards	Yes	Queensbury Planning Office & Outside contract with Town Designated Engineer
Staff with expertise or training in benefit/cost analysis	Yes	Town Supervisor, Safety Officer
Professionals trained in conducting damage assessments	Yes	Town Supervisor, Safety Officer
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Town of Queensbury GIS Department, Planning Office
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Fire Marshal
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Health Officer Brian Nelson MD

## Fiscal Capability

The table below summarizes financial resources available to the Town of Queensbury.



**Table 9.11-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes – Recreation fees
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Adirondack Regional Council

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Queensbury.

**Table 9.11-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	Outside Contract Storedtech and Envision
Hazard mitigation information available on your website	Yes	Town Website
Social media for hazard mitigation education and outreach	Yes	National Grid (ICS) incident Command System training/Warren County
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	Yes	Fire Department and EMS hold educational assemblies within the schools, Fire Marshal as well.
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	-

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Queensbury.



**Table 9.11-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	–	–
Building Code Effectiveness Grading Schedule (BCEGS)	No	–	–
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	2016
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	Yes	Bronze	September 25, 2021
Storm Ready Certification	No	(Warren County is certified)	–
Firewise Communities classification	No	–	–
Other	No	–	–

Note:

N/A Not applicable

– Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.11-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Weak
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Moderate
Severe Winter Storm	Moderate
Wildfire	Moderate
Infestation	Strong
Dam Failure	Strong
Disease Outbreak	Moderate

### 9.11.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.





## National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Queensbury.

**Table 9.11-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Queensbury	44	13	\$49751	0	1	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Queensbury.

**Table 9.11-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	The Town does not maintain a list of properties. Areas prone to flooding Meadowbrook Road, Intersection of Haviland and Ridge Road, Bay Road between Pickle Hill Road and Route 149, Harris Bay Yacht Club Route 9L area, Big Boom, Arberger and Colby Drive Hudson River area, Canterbury Drive Glen Lake area.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No property owners are currently interested in mitigation.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	FEMA is updating the floodplain maps
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Site visit by Building and Codes
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	Unknown
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	No. FEMA maps are outdated and sometimes show flood hazards where none exist.
<b>NFIP Compliance</b>	





NFIP Topic	Comments
What local department is responsible for floodplain management?	Director of Building and Codes Enforcement/GIS Administrator
Are any certified floodplain managers on staff in your jurisdiction?	Director of Building and Codes Enforcement
Do you have access to resources to determine possible future flooding conditions from climate change?	Unknown
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	The floodplain administrator is currently adequately trained for floodplain management responsibilities, although additional training would be welcome.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	<p>The floodplain administrator is the sole person assuming responsibilities for floodplain administration including, permit review, inspections, record keeping and GIS.</p> <p>The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.</p>
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Local Code for Building and Code
What are the barriers to running an effective NFIP program in the community, if any?	Staffing shortage
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	The most recent CAV was October 23, 2019.
What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Town of Queensbury Chapter 91 adopted June 17, 2002.
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets minimum requirements
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	There are no programs providing education and outreach to the community regarding flood hazards.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not Participating





### 9.11.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.11-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.11-11. Recent and Expected Future Development**

Type of Development	2017	2018	2019	2020	2021	2022
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)						
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	63	0	56	0	60	2
Multi-Family	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	70	0	75	0	79	1
Total New Construction Permits Issued	133	0	131	0	139	3

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2017 to Present					
Clearbrook	Subdivision	14	Big Boom Road	Hudson River	No house under construction
John Clendon	Subdivision	20	John Clendon Road	Rush Pond recreation area	Under construction
Cerrone	Subdivision	45	Upper Sherman	Leaf Dump	No houses under construction
JP Gross	Subdivision	14	Luzerne Road	APA/Slopes	No houses under construction
JP Gross	Site Plan	Two new buildings	27 Silver Circle	NA	Under construction
JP Gross	Site Plan	New addition16000 sq ft to 4324	407 Big Bay Road	NA	Under construction
FHB	Site Plan	24 units 3 story structure first floor day care	78-80 Main Street	NA	Approved under construction
Schermerhorn	Site Plan	20 units 4 separate buildings	20 Newcomb Street	NA	Approved under construction
Tim Barber	subdivision	5 lot industrial sites buildings estimated 100,000sqft, 80,000 sq	Native Drive	Forested area	Approved





Type of Development	2017	2018	2019	2020	2021	2022
		ft,25000 sq ft,60000 sq ft, exiting building with additions 169,550 sq ft				
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>						
Tim Barber	Site Plan	40,000 sq ft building	23 Native Drive	NA		Discussion only
Tim Barber	Site Plan	25000 sq ft building	32 Native Drive	NA		Discussion only
Schermerhorn	Site Plan	40 units two buildings	End of Walker Lane	NA		SEQR Coordination
FHB	Subdivision	19 lots	Jenkinsville Road	NA		Drinking water contamination has prevented development until water issue is resolved
Schermerhorn	Site Plan	60 Units two buildings	575 Bay Road	NA		SEQR Coordination
Legacy/Habitat for Humanity	Site Plan/Subdivision	27 unit	Baybridge Drive	NA		Repurpose of project

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.11.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Queensbury's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Queensbury has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.11-1. Town of Queensbury Flood Hazard Area Extent and Location Map

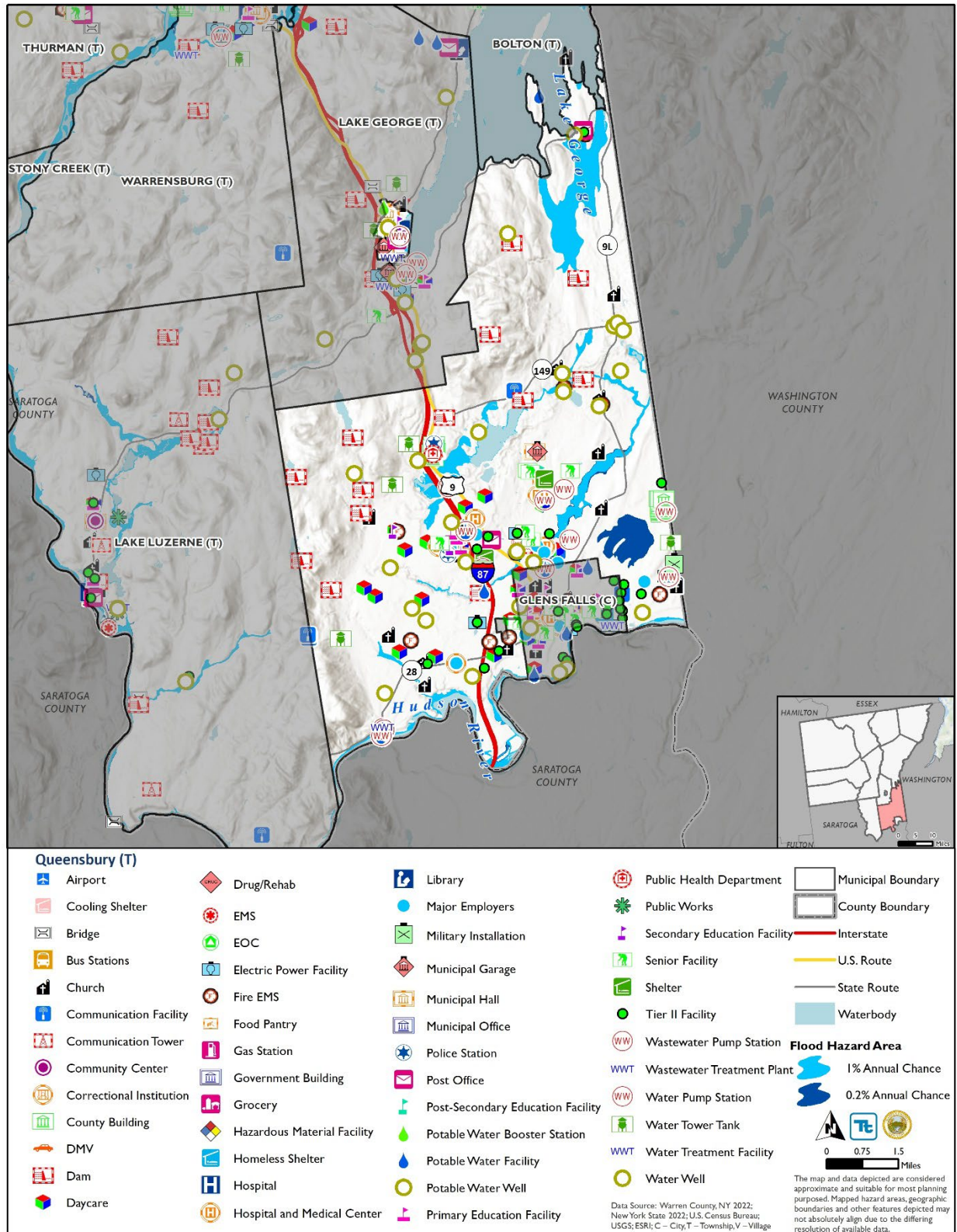






Figure 9.11-2. Town of Queensbury Earthquake (Soil Class) Hazard Area Extent and Location Map

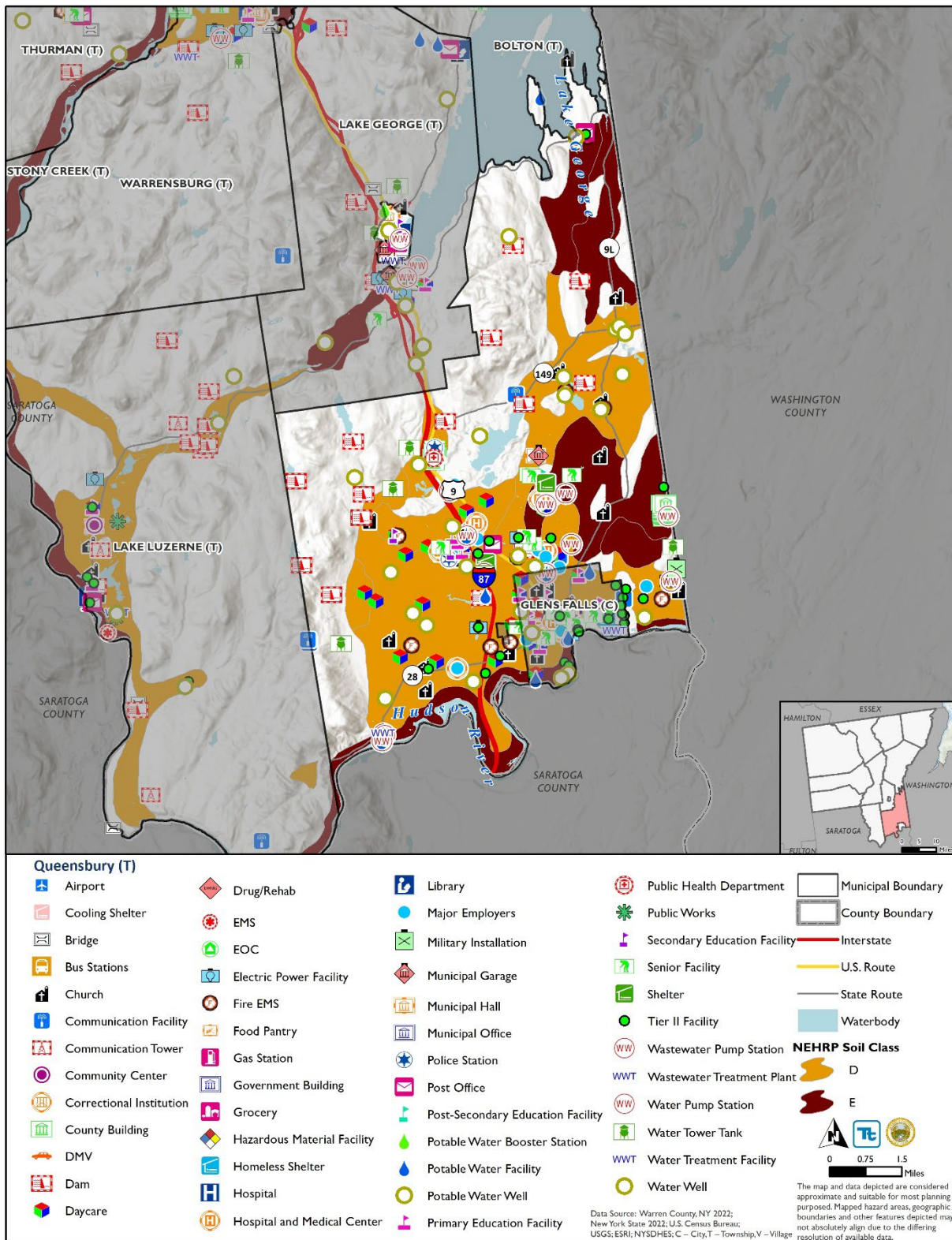
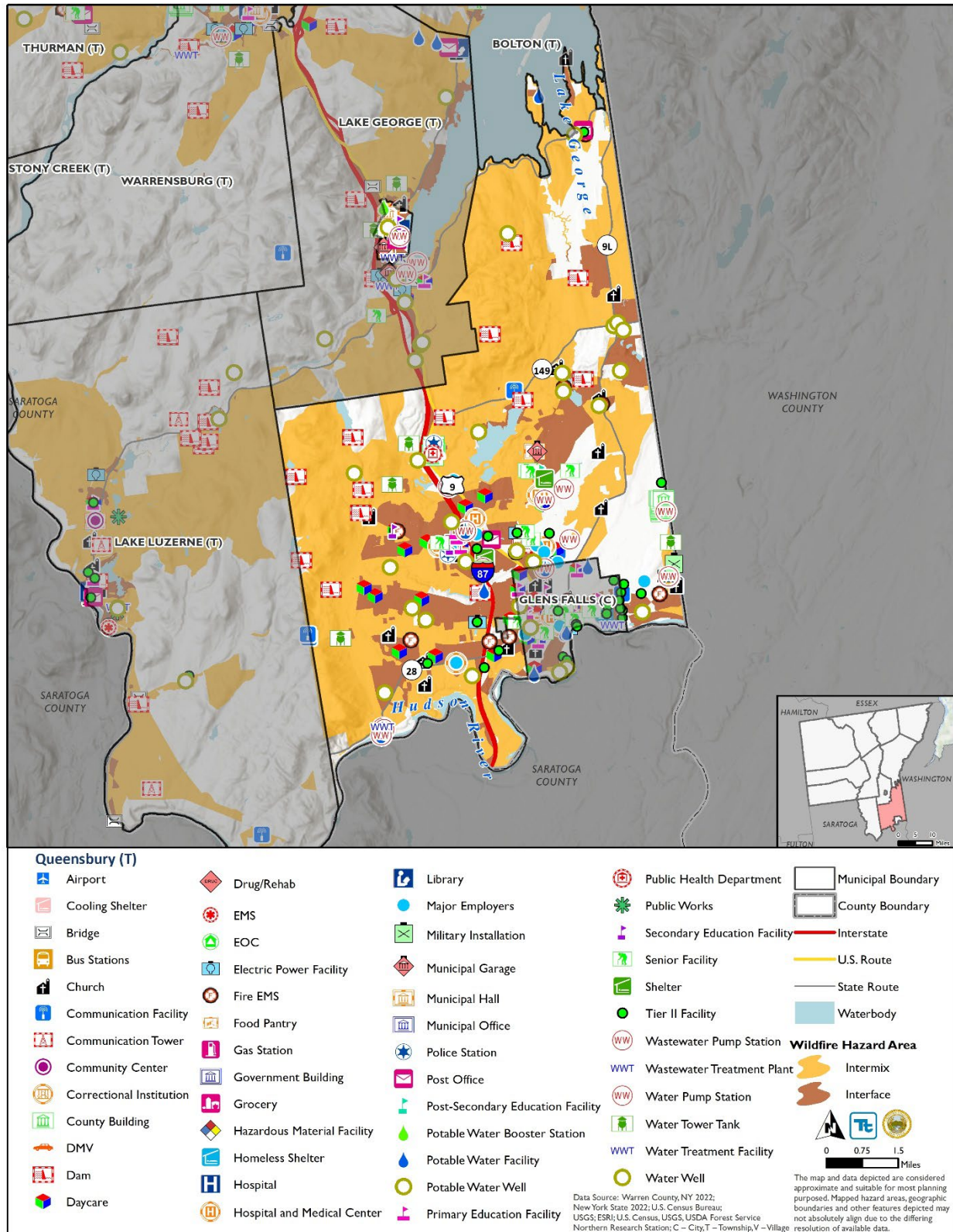






Figure 9.11 3. Town of Queensbury Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Queensbury's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.11-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.11-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York.	A large swath of rainfall totaling 2–5 inches, with isolated areas as high as 7 inches, occurred over the Mohawk Valley and southern Adirondacks, resulting in reports of flash flooding. The runoff caused rapid rises on area creeks and streams, with river gauges reaching record levels along the Mohawk River at Little Falls, the West Canada Creek at Hinckley and Kast Bridge, and the Sacandaga River at Hope.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19	The Town was subject to closures and social distancing/masking requirements.
October 2020	Surface water contamination	No	Harmful Algae Bloom– surface water contamination	Water contamination
Prior to 2021	Culvert washout	No	Culvert washout at Clendon Brook and West Mountain–County infrastructure.	\$839,000 to Queensbury (Warren County) for the replacement of the Luzerne Road culvert carrying Clendon Brook





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				\$1 million to Warren County for the replacement of the Corinth Road (CR28) culvert carrying Clendon Brook
Early August 2022	Heavy rain	No	Culvert washout of Bay and Quaker. County infrastructure in the Town.	A culvert repair was necessary due to flooding.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Queensbury's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Queensbury. The Town of Queensbury reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town changed the hazard rankings for flood from low to medium, noting that flooding has limited impact on residential structures but does impact the Town.
- The Town changed the hazard ranking for disease outbreak from low to medium, noting that coronavirus and future variants continue to pose a risk to the population.
- The Town indicated a medium ranking for wildfire.





- The Town agreed with the remaining calculated hazard rankings.

**Table 9.11-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Medium	Medium	Medium	High	High	Medium	Medium

Dam Failure	Disease Outbreak
High	Medium

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.11-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Hovey Pond Dam	Dam	X	X	2023-Town of Queensbury-015	-
Dream Lake Dam	Dam	X	X	2023-Town of Queensbury-015	-
Halfway Creek Dam	Dam	X	X	2023-Town of Queensbury-015	-
Halfway Brook Pumping Station	Potable Water Facility	X	X	2023-Town of Queensbury-015	-
Queensbury Water Plant	Potable Water Facility	X	X	2023-Town of Queensbury-015	-
Glens Falls Independent Living Center	Senior Facility	X	X	2023-Town of Queensbury-014	-
Wastewater Pump Station	Wastewater Pump Station	X	X	2023-Town of Queensbury-015	-





Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Low Lift Pumps	Wastewater Pump Station	X	X	2023-Town of Queensbury-015	-
Water Well	Water Well	X	X	2023-Town of Queensbury-015	-
Water Well	Water Well	X	X	2023-Town of Queensbury-015	-

Source: Warren County 2022

In addition to critical facilities that are exposed to flooding, the following high hazard dams are located in or could impact the Town of Queensbury:

- Butler Storage Reservoir Dam
- Feeder Dam at Glens Falls
- Keenan Reservoir Dam
- Wilkie Reservoir Dam

The Town receives copies of Emergency Action Plans (EAPs) for each high hazard dam, Butler Pond Reservoir Dam, and Halfway Brook Reservoir Dam. The EAPs are updated periodically. These dams receive periodic inspections from NYSDEC and the Town receives copies of the inspection reports.

The Town has also noted the importance of the following critical facilities that are not located in the floodplain:

- SUNY Adirondack
- Queensbury School Campus
- Bay Ride Fire Station
- West Glens Falls Fire Station
- Queensbury Central Fire Station
- North Queensbury Fire Station
- South Queensbury Fire Station
- West Glens Falls EMS Building

## Identified Issues

After review of the Town of Queensbury's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Queensbury identified the following vulnerabilities within their community:

- Critical facilities require backup power to maintain essential functions during and after disaster events. Mountain Lakes EMS lacks a generator and the generator for Town Hall requires replacement.
- The Town currently does not participate in the Community Rating System.
- The Comprehensive Land Use Plan outlines short-term and long-term goals that will monitor the growth and development of the Town while enhancing economic health, walkability,





environmental protection and quality of life for the Town residents and visitors. The Plan is currently going through an update.

- The Town lacks a continuity of government plan.
- Staff require additional training to improve capabilities to handle hazard event response and mitigation.
- National Grid and the Town DPW complete tree trimming in the Town but responsibilities are not confirmed.
- The Town completes outreach on hazards and hazard mitigation but would like to improve educational offerings and expand on topics.
- An update to date building inventory is necessary to provide data for planning and emergency response.
- The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has one repetitive loss property but other properties may be impacted by flooding as well. Areas prone to flooding Meadowbrook Road, Intersection of Haviland and Ridge Road, Bay Road between Pickle Hill Road and Route 149, Harris Bay Yacht Club Route 9L area, Big Boom, Arberger and Colby Drive Hudson River area, and the Canterbury Drive Glen Lake area.
- Senior housing facilities in the Town lack backup power. Current laws do not require a backup generator and buildings are only designed for 90 minutes of lighting if power is lost. Due to the rural nature of the County, power loss during severe storms is a consistent threat.
- Glens Falls Independent Living Center is located in the 1-percent floodplain. The facility is a critical facility but is privately owned.
- The Town of Queensbury has numerous Town owned critical facilities located in the 1-percent floodplain.

### 9.11.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

---

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this





plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.11-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Level of Protection	
TQB-1	Participate in the Community Rating System	Flood, Severe Storm		Town of Queensbury	No Progress			1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
TQB-2 (carryover)	Integrate the risk assessment and recommendations of the hazard mitigation plan into the Town Comprehensive Plan.	All Hazards		Town Board, Planning Department	In Progress			1. Include in 2023 HMP 2. 3.
TQB-3	Develop a Continuity of Government Plan.	All Hazards		Fire Marshal, Town Board	In Progress			1. Include in 2023 HMP 2. 3.
TQB-4 (carryover)	Identify training opportunities	All Hazards		County, Town	In Progress			1. 2. 3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (If project status is complete)		Next Steps
						Cost	Level of Protection	
	for relevant staff (building code enforcement, fire marshal and community development) to better understand and identify opportunities for natural hazard risk reduction.					Damages Avoided; Evidence of Success		<ol style="list-style-type: none"> <li>Project to be included in 2023 HMP or Discontinue</li> <li>If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>If discontinue, explain why.</li> </ol>
TQB-5	Train staff in benefit cost analysis and in preparing grant applications for mitigation projects.	All Hazards		County, Town	In Progress	Cost		<ol style="list-style-type: none"> <li>Include in 2023 HMP</li> <li></li> <li></li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
TQB-6	Work with National Grid to further develop and confirm tree removal responsibilities.	Severe Storm, Severe Winter Storm		Town DPW, Highway Department	In Progress	Cost		<ol style="list-style-type: none"> <li>Include in 2023 HMP</li> <li></li> <li></li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		
TQB-7	Obtain funding to purchase generators for	Severe Storm		DPW	In Progress	Cost		<ol style="list-style-type: none"> <li>Include in 2023 HMP</li> <li></li> <li></li> </ol>
						Level of Protection		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Damages Avoided; Evidence of Success		
	municipally-owned critical facilities, including backup power for Mountain Lakes EMS							<ol style="list-style-type: none"> <li>Project to be included in 2023 HMP or Discontinue</li> <li>If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>If discontinue, explain why.</li> </ol>
TQB-8	Diesel Bypass Pump – Queensbury Wastewater Department: A trash diesel pump to bypass sanitary sewer flow at our sewer pump stations in case of a lightning strike that damages electrical equipment such as our backup generator.	Severe Storm		DPW/Water & Wastewater Department	Complete	Cost Level of Protection		<ol style="list-style-type: none"> <li>Discontinue</li> <li></li> <li>Complete</li> </ol>
						Damages Avoided; Evidence of Success	Completed 2014	
TQB-9	Work with the County on a coordinated dam Safety program.	Flood		DPW	Ongoing Capability	Cost Level of Protection		<ol style="list-style-type: none"> <li>Discontinue</li> <li></li> <li>Ongoing capability</li> </ol>
						Damages Avoided;		



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
						Evidence of Success		
TQB-10	Conduct GIS mapping of all culverts, including details on culvert size, age, construction type, etc.	Flood		Planning Office, DPW, Contractor	Ongoing Capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability
TQB-11 (carryover)	Educate residents regarding steps to be taken to decrease the impact of natural hazards (including ice storms, wild/forest fires, severe storms, tornado, earthquakes, and all other natural hazards) by developing, enhancing, and implementing education	Earthquake, Flood, Wildfire,		Town Board; Superintendent of school districts; County Office of Emergency Services	In Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
	programs, brochures, school presentations informing groups about ways to reduce risk, and other outreach activities.							<ol style="list-style-type: none"> <li>Project to be included in 2023 HMP or Discontinue</li> <li>If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>If discontinue, explain why.</li> </ol>
TQB-12 (carryover)	Provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding.	Flood		Town Board, County/Local DPW	In Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.
TQB-13 (carryover)	Educate the community on benefits of carrying NFIP policies and increase knowledge of NFIP services.	Flood, Severe Storm		Town Floodplain Administrator	In Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.
TQB-14 (carryover)	Maintain a current inventory of	All Hazards		Town Board, County Office of Emergency Services	In Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
								3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
	at-risk buildings and infrastructure and continually update inventory of at-risk structures.					Damages Avoided; Evidence of Success		<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.11-15, the Town of Queensbury identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Queensbury participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.11-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X	X		X	X	X	X			X
Flood	X	X		X	X	X	X			X
Severe Storm	X	X	X	X	X	X	X	X		X
Severe Winter Storm	X	X	X	X	X	X	X	X		X
Wildfire	X		X	X	X	X	X	X		X
Infestation	X		X	X	X	X	X	X		X
Dam Failure	X			X	X	X	X			X
Disease Outbreak	X			X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.11-17).

The table below summarizes the specific mitigation initiatives the Town of Queensbury would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





**Table 9.11-17. Proposed Hazard Mitigation Initiatives**

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023–Town of Queensbury–001	Critical Facilities Backup Power	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm	<p><b>Problem:</b> Critical facilities require backup power to maintain essential functions during and after disaster events. Mountain Lakes EMS lacks a generator and the generator for Town Hall requires replacement.</p> <p><b>Solution:</b> The Town will purchase and install permanent fixed generators and necessary electrical components at critical facilities including Mountain Lakes EMS and Town Hall. DPW will be responsible for maintenance of the generators once installed. The generators will provide continuous power for services to ensure the health and safety of residents, businesses, and visitors. By providing power to municipal facilities and the department of public works, staff will be able to provide pre-, during, and post event services to communicate, monitor and respond to citizen issues. Services such as heat and cooling will be uninterrupted to</p>	Yes	None	Within 5 years	DPW	High	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.	HMGP, BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				support the needs of vulnerable populations, community alerts and rapid inspections and monitoring to be available for earthquake events, equipment fuel will be available during snow, wildfire, and wind events to maintain uninterrupted access to critical facilities										
2023-Town of Queensbury-002	Join the CRS Program	4	Flood	<b>Problem:</b> The Town currently does not participate in the Community Rating System. <b>Solution:</b> The Town will join the CRS program.	No	None	2 years	FPA	Staff time	Increased quality of floodplain administration, discounts on flood insurance premiums for residents	Town budget	High	LP R	PR
2023-Town of Queensbury-003	Comprehensive Plan Integration	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam	<b>Problem:</b> The Comprehensive Land Use Plan outlines short-term and long-term goals that will monitor the growth and development of the Town while enhancing economic health, walkability, environmental protection and quality of life for the Town residents and visitors. The Plan is currently going through an update.	No	None	1 year	Town Board, Planning Department	Low	Improved planning, integration	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Failure, Disease Outbreak	<b>Solution:</b> The Town will integrate the risk assessment and recommendations of the hazard mitigation plan into the Town Comprehensive Plan.										
2023-Town of Queensbury-004	Continuity of Government Plan	3, 4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure, Disease Outbreak	<b>Problem:</b> The Town lacks a continuity of government plan. <b>Solution:</b> The Town will develop and adopt a Continuity of Government Plan.	No	None	1 year	Fire Marshal, Town Board	Low	Improved planning, integration, continuity of government	Town budget	High	LP R	ES
2023-Town of Queensbury-005	Staff Training	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure,	<b>Problem:</b> Staff require additional training to improve capabilities to handle hazard event response and mitigation. <b>Solution:</b> The Town will identify training opportunities for relevant staff (building code enforcement, fire marshal and community development) to better understand and identify opportunities for natural hazard risk reduction. This will	No	None	Within 5 years	Administration, Town staff, County	Staff time	Improved staff capabilities	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Queensbury-006	Tree Trimming Agreements	5	Disease Outbreak Severe Storm, Severe Winter, Wildfire, Infestation	include benefit cost analysis to support grant applications.  <b>Problem:</b> National Grid and the Town DPW complete tree trimming in the Town but responsibilities are not confirmed.  <b>Solution:</b> The Town will work with National Grid to further develop and confirm tree removal responsibilities.	No	None	1 year	DPW, Administration, National Grid	Staff time	Agreements established and maintenance requirements understood	Town budget	High	LP, NSP	PR, N, R
2023-Town of Queensbury-007	Improved Hazard Outreach	2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Town completes outreach on hazards and hazard mitigation but would like to improve educational offerings and expand on topics.  <b>Solution:</b> The Town will undertake the following outreach initiatives: -Educate residents regarding steps to be taken to decrease the impact of natural hazards (including ice storms, wild/forest fires, severe storms, tornado, earthquakes, and all other natural hazards) by developing, enhancing, and implementing education programs, brochures, school presentations informing groups about ways to reduce	No	None	2 years	Town Board, Town DPW, FPA Superintendent of school districts; County Office of Emergency Services	Low	Improved public awareness	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				risk, and other outreach activities. -Provide residents with information listing steps taken to lessen potential flood damage to reduce the impact of flooding. -Educate the community on benefits of carrying NFIP policies and increase knowledge of NFIP services.										
2023-Town of Queensbury-008	Update Building Inventory	4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> An update to date building inventory is necessary to provide data for planning and emergency response. <b>Solution:</b> The Town will use data from the HMP and other sources to maintain a current inventory of at-risk buildings and infrastructure and continually update inventory of at-risk structures.	No	None	2 years	Town Board, County Office of Emergency Services	Staff time	Improved data for disaster response, and planning purposes	Town budget	High	LP R	PR
2023-Town of Queensbury-009	Flood Damage Prevention Ordinance	1	Flood	<b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement. <b>Solution:</b> The Town will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Queensbury-010	Support Updated NFIP Mapping	4	Flood	<p><b>Problem:</b> The City of Glens Falls and the Towns of Lake Luzerne and Queensbury are currently in an active process to update NFIP mapping within the Hudson-Hoosic Watershed. FEMA and NYS DEC have presented work maps for the Hudson-Hoosic Watershed and are seeking public and stakeholder comment.</p> <p><b>Solution:</b> To the extent applicable and feasible, the Town shall use all available means of promoting broad local government and public involvement through announcing meetings and providing available supporting data as applicable.</p>	No	None	Within 5 years	FPA	Staff time	Improved floodplain mapping	Town budget	High	LP R	PR
2023-Town of Queensbury-011	Substantial Damage Procedures	1, 3, 4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<p><b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.</p> <p><b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations. The Town will review current building and</p>	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	Municipal budget	High	LP R	PP / PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				zoning requirements to ensure proper alignment and make updates to the building and zoning code as necessary.										
2023-Town of Queensbury-012	Repetitive Loss Mitigation	1	Flood, Severe Storm	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has one repetitive loss property but other properties may be impacted by flooding as well. Areas prone to flooding Meadowbrook Road, Intersection of Haviland and Ridge Road, Bay Road between Pickle Hill Road and Route 149, Harris Bay Yacht Club Route 9L area, Big Boom, Arberger and Colby Drive Hudson River area, and the Canterbury Drive Glen Lake area.</p> <p><b>Solution:</b> The Town will conduct outreach to 25 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required</p>	No	None	Within 5 years	FPA	High	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	FEMA HMGP and FMA, local cost share by residents	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).										
2023-Town of Queensbury-013	Senior Housing Facility Backup Power	1, 2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm	<p><b>Problem:</b> Senior housing facilities in the Town lack backup power. Current laws do not require a backup generator and buildings are only designed for 90 minutes of lighting if power is lost. Due to the rural nature of the County, power loss during severe storms is a consistent threat.</p> <p><b>Solution:</b> The Town will complete outreach to senior housing facilities to discuss options for backup power.</p>	Yes	None	1 year	Administration	Staff time	Senior housing facilities aware of backup power needs and potential resources	Town budget	High	EAP	PI
2023-Town of Queensbury-014	Glens Falls Independent Living Center	1, 2	Flood	<p><b>Problem:</b> Glens Falls Independent Living Center is located in the 1-percent floodplain. The facility is a critical facility but is privately owned.</p> <p><b>Solution:</b> The FPA will conduct outreach to the facility manager to discuss flood risk at the facility and potential</p>	Yes	None	1 year	FPA	Staff time	Facility manager aware of flood risk and potential mitigation actions	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				mitigation measures to consider.										
2023-Town of Queensbury-015	Critical Facility Flood Mitigation	1	Flood	<p><b>Problem:</b> The Town of Queensbury has numerous Town owned critical facilities located in the 1-percent floodplain including:</p> <ul style="list-style-type: none"><li>• HOVEY POND DAM</li><li>• DREAM LAKE DAM</li><li>• HALFWAY CREEK DAM</li><li>• Halfway Brook Pumping Station</li><li>• Queensbury Water Plant</li><li>• Wastewater Pump Station</li><li>• Low Lift Pumps</li><li>• Two water wells</li></ul> <p><b>Solution:</b> The Town Engineer will conduct a feasibility assessment at each critical facility located in the floodplain to determine flood exposure and potential mitigation actions to protect the facilities to the 0.2-percent flood level. Cost effective mitigation actions identified will be carried out.</p>	Yes	None	Within 5 years	Engineer	High	Flood risk for critical facilities reduced, critical services protected	HMGP, BRIC, PDM, Town budget	High	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

Potential FEMA HMA Funding Sources:

Timeline:





CAV Community Assistance Visit  
CRS Community Rating System  
DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
FEMA Federal Emergency Management Agency  
FPA Floodplain Administrator  
HMA Hazard Mitigation Assistance  
N/A Not applicable  
NFIP National Flood Insurance Program  
OEM Office of Emergency Management

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program  
BRIC Building Resilient Infrastructure and  
Communities Program

The time required for completion of the project upon implementation.


Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:

Yes  Critical Facility located in 1% floodplain

Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.11-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Queensbury-001	Critical Facilities Backup Power	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Queensbury-002	Join the CRS Program	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Queensbury-003	Comprehensive Plan Integration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Queensbury-004	Continuity of Government Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Queensbury-005	Staff Training	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Queensbury-006	Tree Trimming Agreements	1	1	1	1	1	0	1	1	1	1	1	1	1	1	13	High
2023-Town of Queensbury-007	Improved Hazard Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Queensbury-008	Update Building Inventory	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Queensbury-009	Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Queensbury-010	Support Updated NFIP Mapping	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
2023-Town of Queensbury-011	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-Town of Queensbury-012	Repetitive Loss Mitigation	1	1	1	0	0	1	0	1	1	1	1	0	1	1	10	High
2023-Town of Queensbury-013	Senior Housing Facility Backup Power	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Town of Queensbury-014	Glens Falls Independent Living Center	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Queensbury-015	Critical Facility Flood Mitigation	1	1	1	0	1	1	0	1	1	1	0	0	1	1	10	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.11.8 Action Worksheets

The following action worksheets were developed by the Town of Queensbury to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Critical Facilities Backup Power		
<b>Project Number:</b>	2023-Town of Queensbury-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm		
<b>Description of the Problem:</b>	Critical facilities require backup power to maintain essential functions during and after disaster events. Mountain Lakes EMS lacks a generator and the generator for Town Hall requires replacement.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Town will purchase and install permanent fixed generators and necessary electrical components at critical facilities including Mountain Lakes EMS and Town Hall. DPW will be responsible for maintenance of the generators once installed.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Critical Facilities Backup Power	
<b>Project Number:</b>	2023-Town of Queensbury-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of critical facilities
Property Protection	1	Project will protect buildings from power loss.
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	0	Within 5 years
Agency Champion	1	Public Works
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.12 TOWN OF STONY CREEK

This section presents the jurisdictional annex for the Town of Stony Creek that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Stony Creek's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.12.1 Hazard Mitigation Planning Team

The Town of Stony Creek identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Town Supervisor and Town Board members. The Town Supervisor represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.12-1. Hazard Mitigation Planning Team**

Primary Point of Contact		Alternate Point of Contact	
Name/Title: Frank E. Thomas – Town Supervisor Address: 52 Hadley Road, Stony Creek, NY 12878 Phone Number: 518-696-3575 x302 Email: <a href="mailto:tcsupvr@frontier.com">tcsupvr@frontier.com</a>		Name/Title: Ed Lowell, Jr. – Councilman/Town Board Address: 52 Hadley Road, Stony Creek, NY 12878 Phone Number: 518-696-7162 Email: <a href="mailto:elowelljr@yahoo.com">elowelljr@yahoo.com</a>	
NFIP Floodplain Administrator			
Name/Title: Frank E. Thomas – Town Supervisor Address: 52 Hadley Road, Stony Creek, NY 12878 Phone Number: 518-696-3575 x302 Email: <a href="mailto:tcsupvr@frontier.com">tcsupvr@frontier.com</a>			
Additional Contributors			
Name/Title: Frank E. Thomas – Town Supervisor Method of Participation: Provided information on capabilities, NFIP administration, and the status of previous mitigation actions.			





### 9.12.2 Municipal Profile

The Town of Stony Creek is in the south-western corner of Warren County, in the southeast section of the Adirondack State Park. It is bordered by Warrensburg, Thurman, Hadley, Day and Wells. The entire Town is within the Adirondack Park

According to the U.S. Census, the 2020 population for the Town of Stony Creek was 758, a 1.2 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 3.4 percent of the population is 5 years of age or younger and 25.7 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Stony Creek has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 15.46% of the population does not have a high school diploma
- 19.77% of the population has a disability
- 3.56% of households do not have a vehicle
- 9.05% of the population is living below the poverty level
- 4.24% of the population is unemployed

### 9.12.3 Jurisdictional Capability Assessment and Integration

The Town of Stony Creek performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Stony Creek to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.





## Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Stony Creek. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.12-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Code	County	Warren County Fire Prevention and Building Code Enforcement
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town adopted the New York State Uniform Fire Prevention and Building Code to guide safe new development. The Warren County Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code				
<b>Zoning/Land Use Code</b>	Yes	582.1 Local land use programs under the Adirondack Park Agency Act.	State, Local	Adirondack Park Agency
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Under the Adirondack Park Agency Land Use Regulations, The APA is responsible for the following: A. Agency approval and local enactment of a local land use program B. Transfers to local government agency review jurisdiction over class B regional projects and variances from the shoreline restrictions C. Require the agency to apply certain of the standards and requirements of the local land use program in its review of class A regional projects				
<b>Subdivision Ordinance</b>	Yes	582.1 Local land use programs under the Adirondack Park Agency Act.	Local, State	Adirondack Park Agency
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Under the Adirondack Park Agency Land Use Regulations, The APA is responsible for the following: A. Agency approval and local enactment of a local land use program B. Transfers to local government agency review jurisdiction over class B regional projects and variances from the shoreline restrictions C. Require the agency to apply certain of the standards and requirements of the local land use program in its review of class A regional projects				
<b>Site Plan Ordinance</b>	No	-	-	-
<b>Stormwater Management Ordinance</b>	No	-	-	-
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	–	–	–
<b>Environmental Protection Ordinance</b>	No	–	–	–
<b>Flood Damage Prevention Ordinance</b>	Yes	Local Law #1 – Flood Damage Prevention	Local	Town Supervisor
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters D. Control filling, grading, dredging and other development which may increase erosion or flood damages E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands F. Qualify and maintain for participation in the National Flood Insurance Program				
<b>Wellhead Protection</b>	No	–	–	–
<b>Emergency Management Ordinance</b>	No	–	–	–
<b>Climate Change Ordinance</b>	No	–	–	–
<b>Other</b>	No	–	–	–
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	No	–	–	–
<b>Capital Improvement Plan</b>	No	–	–	–
<b>Disaster Debris Management Plan</b>	No	–	–	–





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Floodplain Management or Watershed Plan</b>	Yes	September 2020	Local in cooperation with County	Town Supervisor
<i>How has or will this be integrated with the HMP and how does this reduce risk? This plan identifies regions flood issues to enable cooperative mitigation opportunities.</i>				
<b>Stormwater Management Plan</b>	No	-	-	-
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	-	-	-
<b>Community Forest Management Plan</b>	No	-	-	-
<b>Transportation Plan</b>	No	-	-	-
<b>Agriculture Plan</b>	No	-	-	-
<b>Climate Action/ Resiliency/Sustainability Plan</b>	No	-	-	-
<b>Tourism Plan</b>	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	-	-	-
<b>Other (for example NYRCR, etc.)</b>	No	-	-	-
<b>Response/Recovery Planning</b>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Warren County Comprehensive Emergency Management Plan	Local, County	Warren County OES, Town Supervisor
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The County Comprehensive Emergency Management Plan (CEMP) enhances the County's ability to manage emergency/disaster situations. The Plan outlines a comprehensive approach to risk reduction before a disaster or emergency and identifies short and long-term recovery goals.				
Continuity of Operations Plan	No	-	-	-
Substantial Damage Response Plan	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Public Health Plan	No	-	-	-
Other	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Stony Creek to oversee and track development.

**Table 9.12-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	No	-
• If you issue development permits, what department is responsible?	N/A	-
• If you do not issue development permits, what is your process for tracking new development?	N/A	Zoning compliance only, but there is no local zoning. County Codes requires this.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory?	No	-
• If you have a buildable land inventory, please describe	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	Very rural community, estimated 6 homes built per year.





## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Stony Creek and their current responsibilities that contribute to hazard mitigation.

**Table 9.12-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	Yes	Assistance through County Planning Office
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Town Board acts in this capacity when necessary.
Public Works/Highway Department	Yes	One highway supervisor and six full time staff are responsible for upkeep and maintenance of roads and stream crossings. One custodian/operator at the SC transfer station. Landfill accepts municipal debris from storm events.
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Warren County OES and Sherriff, NYS Police, Stony Creek Fire Department, Stony Creek Rescue Squad (EMS)
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Culvert and ditch maintenance, trees and limbs, utilities upkeep
Mutual aid agreements	Yes	EMS with Warrensburg, Fire Dept – Luzerne, Thurman and Warrensburg, Shared municipal equipment – Thurman
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Adirondack Park Agency (APA)
Engineers or professionals trained in building or infrastructure construction practices	Yes	Warren County Fire Prevention and Building Codes, Private contractors
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Warren County Planning Department
Environmental scientist familiar with natural hazards	Yes	Warren County SWCD
Surveyor(s)	No	-
Emergency Manager	Yes	Town Supervisor, Highway Superintendent, Fire Chief
Grant writer(s)	Yes	Warren County Planning Department
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>Administrative/technical capability self-assessment</b>		
<b>Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.</b>		
The Town has begun to alter how stream crossings are handled to ensure that a more proper sized and placed structure is designed and installed. The Highway department does the majority of this type of work, with assistance from Warren County SCWD.		

## Fiscal Capability

The table below summarizes financial resources available to the Town of Stony Creek.

**Table 9.12-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes – through Warren County
Capital improvements project funding	Yes – Annual Budget
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Stony Creek.





Table 9.12-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	One volunteer staff has general capabilities
Hazard mitigation information available on your website	Yes	<a href="https://www.stonycreekny.com/">https://www.stonycreekny.com/</a>
Social media for hazard mitigation education and outreach	Yes	Highway has a Facebook page that they periodically update
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	-

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Stony Creek.

Table 9.12-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown/to be determined	Unknown/to be determined
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	Warren County is certified	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and





withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.12-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	High
Severe Winter Storm	High
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

#### 9.12.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

#### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Stony Creek.

**Table 9.12-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Stony Creek	0	4	\$2,355	0	0	0

Source: FEMA 2023

Notes: Number of policies based on publicly available data is unknown at this time.

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

#### Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Stony Creek.





Table 9.12-10. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> <li>Do you maintain a list of properties that have been damaged by flooding?</li> </ul>	Hildebrandt Road, Fodder Road, Van Auken Road, States Road Est, Louis Waite Road, and Roaring Branch Road. .No list of floodprone areas is maintained
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> <li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li> </ul>	No list is maintained
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> <li>If so, state what projects are underway.</li> </ul>	Yes, DEC was working on Hudson/Sacandaga but the Town has no updates.
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Unknown.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"> <li>If there are mitigation properties, how were the projects funded?</li> </ul>	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	No. Maps are from 1986 and paper copies only.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Town Supervisor
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	Not until new flood maps are produced.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> <li>If so, what type of assistance/training is needed?</li> </ul>	The FPA does not feel adequately supported and trained to fulfill the responsibilities of municipal Floodplain Administrator, and expressed interest in attending continuing education and/or certification training on floodplain management if offered in the County
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town FPA performs basic NFIP administration in the Town, and conducts education and outreach with regards to printed materials and notice of local training opportunities.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	County building codes
What are the barriers to running an effective NFIP program in the community, if any?	Small staff and lack of public education for understanding community benefit
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> <li>If so, state the violations.</li> </ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown





NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Local Law #1
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	None
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not Participating

### 9.12.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.12-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

**Table 9.12-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	1	N/A	2	N/A	1	N/A	1	N/A	1	N/A	2	N/A
Multi-Family	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
Other (commercial, mixed-use, etc.)	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
Total New Construction Permits Issued	1	N/A	2	N/A	1	N/A	1	N/A	1	N/A	2	N/A
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development					
Recent Major Development and Infrastructure from 2017 to Present												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None identified												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

Note: Information on permits within the SFHA was unavailable for this planning process.





### 9.12.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Stony Creek's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Stony Creek has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.12-1. Town of Stony Creek Flood Hazard Area Extent and Location Map

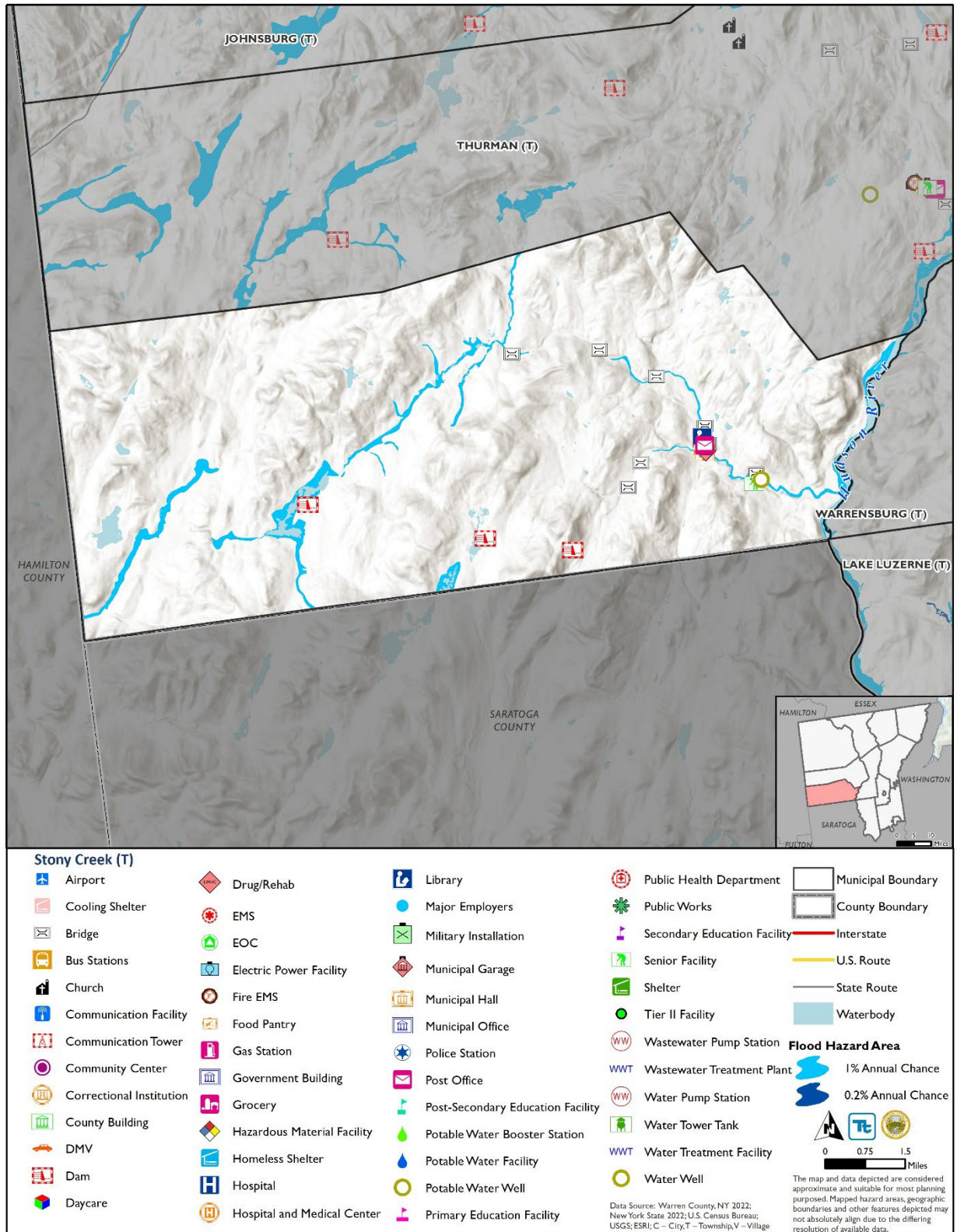






Figure 9.12-2. Town of Stony Creek Flood Earthquake (Soil Class) Hazard Area Extent and Location Map

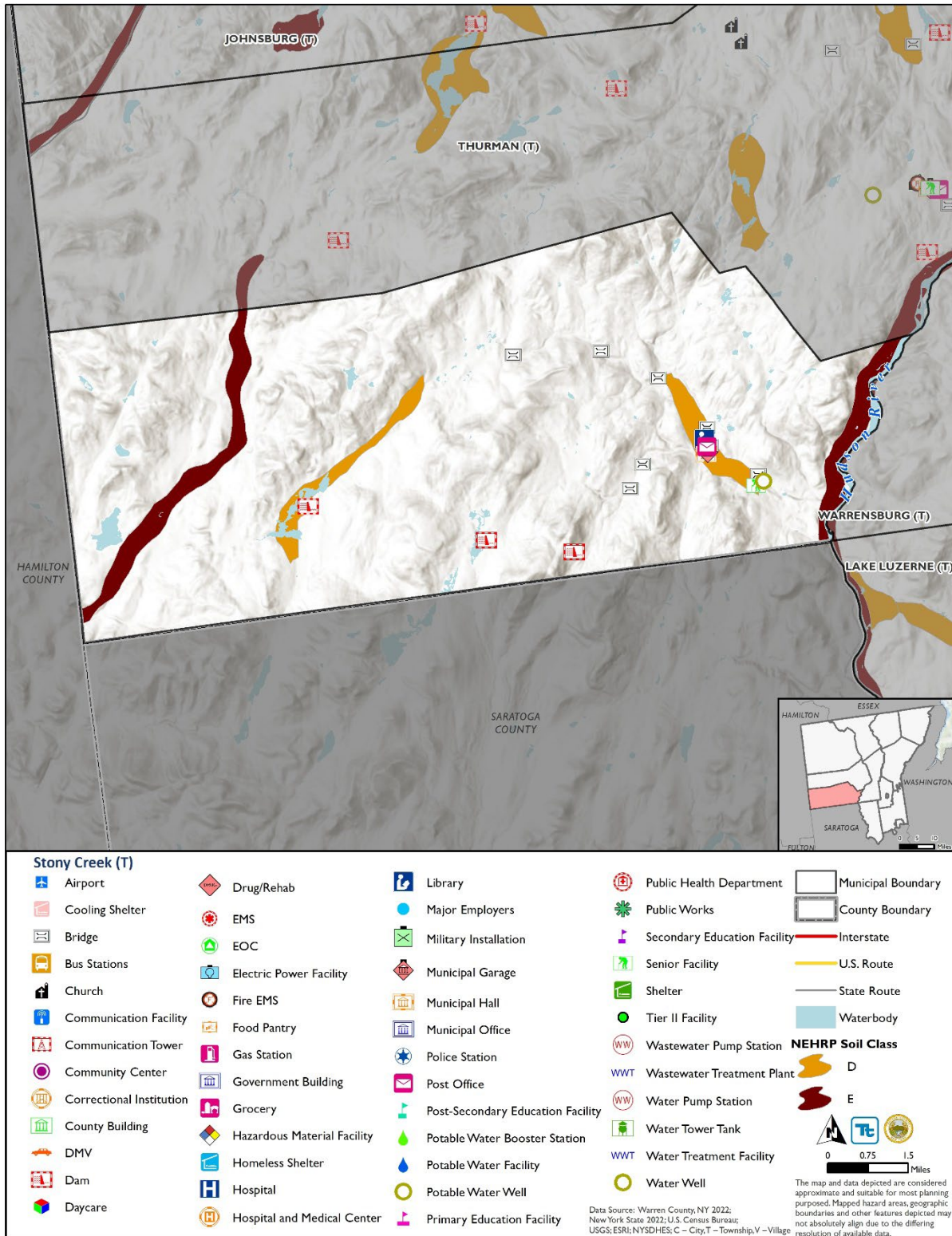
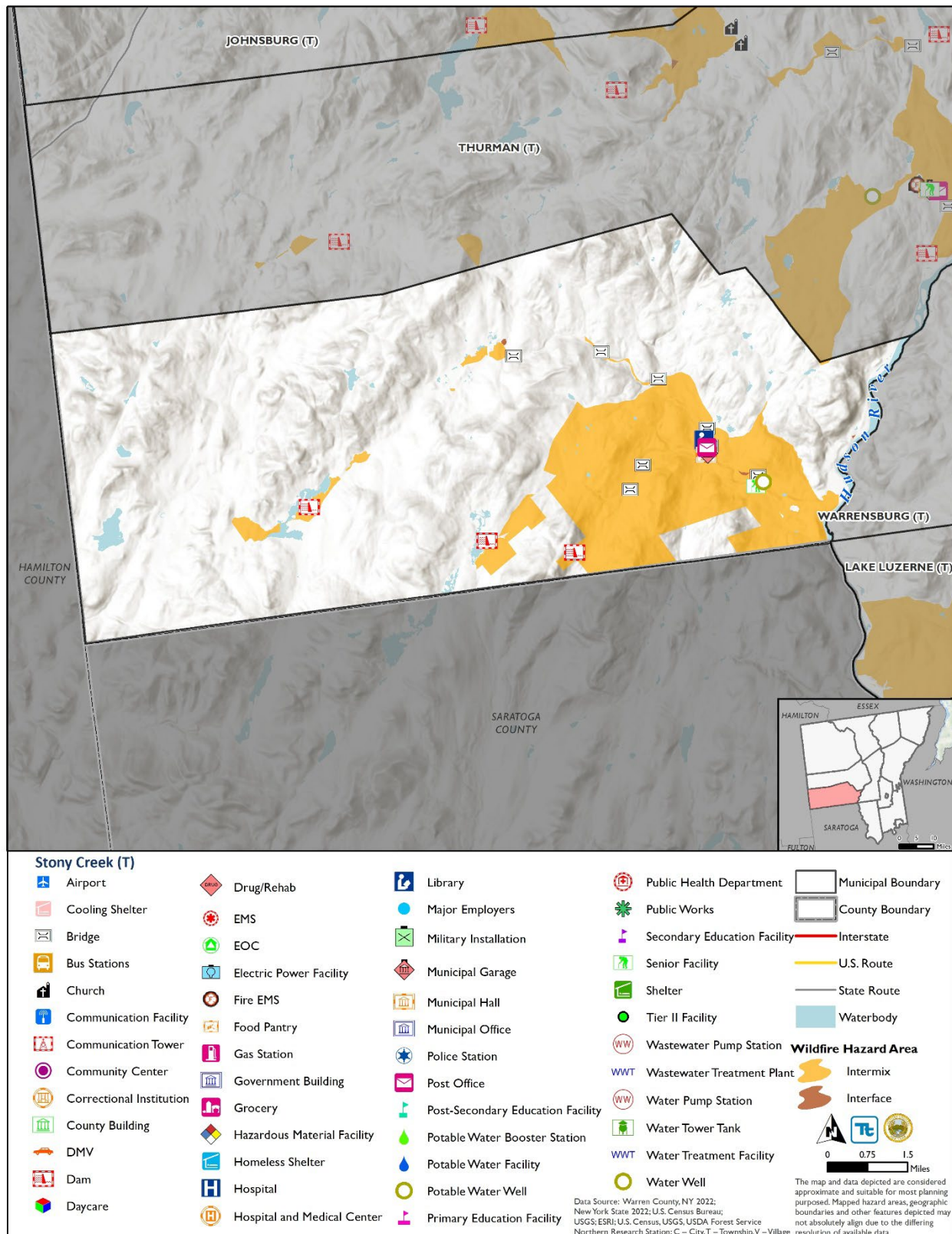






Figure 9.12-3. Town of Stony Creek Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Stony Creek's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.12-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.12-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York.	Although the County was impacted, the Town did not report significant damages.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19 .	The Town was subject to closures and social distancing/masking requirements.
September 2021	Beaver dam failure	No	Beaver dam failed.	Beaver dam failure damaged newly paved section of Roaring Branch Road.
April 18-19, 2022	Snowstorm	Yes	Heavy snowfall impacted the region.	Heavy snowfall caused power outages across the Town, along with road closures due to lines and





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				poles down in the roadways.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Stony Creek's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Stony Creek. The Town of Stony Creek reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town agreed with the calculated hazard rankings.

**Table 9.12-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Medium	Low	Low	High	High	Low	Medium

Dam Failure	Disease Outbreak
Medium	Low

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction





## Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.12-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Harrisburg Lake Dam	Dam	X	X	No action required.	Per NYDEC this is a low hazard dam and it is not rated. It is a recreational dam owned by Robert J. Sweet and it is not deemed required to be protected to the 0.2% flood level.
Warrensburg Road	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Stony Creek Center	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Lanfear	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Clarence White	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Grist Mill	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Warrensburg Road	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Stony Creek Center	Bridge	X	X	No action required.	This bridge is not identified as 'poor status' per the NY State highway inventory (2023)
Lanfear	Bridge	X	X	No action required.	BIN 3305650 This bridge is not identified as 'poor status' per the NY State highway inventory (2023)

Source: Warren County 2022

## Identified Issues

After review of the Town of Stony Creek's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Stony Creek identified the following vulnerabilities within their community:

- Undersized culverts in the Town contribute to flooding which can cause damages.





- Stream bank erosion is affecting private property on Roaring Branch Road. Some stabilization efforts have been made, but additional work is needed as a retaining wall has failed.
- The Town lacks a debris management plan to handle post-disaster cleanups.
- Additional flood education is needed for residents.
- A better understanding of building exposure data is needed for development and emergency planning.
- The floodplain administrator requires additional training.
- Additional training for wildfire response is needed for Town officials.
- The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make determinations, and provide for appeals.

### 9.12.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.12-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
						Cost	Level of Protection	Damages Avoided; Evidence of Success
TSC-1	Upgrade undersized culverts on Hildebrandt Road, Fodder Road, Van Auken Road, States Road Est, Louis Waite Road, and Roaring Branch Road.	Flood, Severe Storm		Town Highway Department	No Progress			
TSC-2	Develop a partnership between public and private partners to monitor and address risk from beaver dams.	Flood		Supervisor, Town Highway Department	Ongoing Capability			
TSC-3	Integrate green infrastructure projects such as a bioswale in the town park.	Flood, Severe Storm		Supervisor, Town Council	No Progress			
TSC-4	Roaring Branch Road Stream Bank stabilization – Stream bank erosion affecting private property. Some stabilization efforts have been made,	Flood, Severe Storm	Stabilization in progress, dealing with a failed retaining wall.	Town Highway Department	In Progress			





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
	but additional work is needed.					Cost		1. Project to be included in 2023 HMP or Discontinue
TSC-5 (carryover)	Obtain funding to purchase designated backup power generators for municipally-owned critical facilities, including the DPW facility at 48 Hadley Road.	All Hazards	Town Hall, Fire Dept and Highway garage -all have back up power	Town Highway Department	Complete	Level of Protection		2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).
						Damages Avoided; Evidence of Success		3. If discontinue, explain why.
TSC-6 (carryover)	Develop plans for debris management after hazard events, including severe winter snow/ice events, and other severe storms.	Earthquake, Flood, Severe Storm, Severe Winter Weather, Wildfire	Work with adjacent committees to develop a localized plan	Town Highway Department	No Progress	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Complete
TSC-7 (carryover)	Educate the community on steps taken to lessen potential flood damage to reduce the impact of flooding, and on the benefits of carrying NFIP policies.	Flood, Severe Storm	Will look to include info on specific town website page for landowners and flooding.	Town Supervisor, Warren County OES	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.
TSC-8	Review and update local comprehensive emergency plan to integrate education and outreach goals, objectives, and activities from this HMP.	All Hazards	Plan update anticipated in 2023.	Town Supervisor	No Progress	Cost		1. Include in 2023 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3
TSC-9					No Progress	Cost		1. Include in 2023 HMP



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)	1. Project to be included in 2023 HMP or Discontinue	2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).
(carryover)	Maintain a current inventory of at-risk buildings and infrastructure and continually update inventory of at-risk structures in each jurisdiction.	Earthquake, Flood, Severe Storm, Severe Winter Weather, Wildfire		1. Town Highway Department, APA		Level of Protection Damages Avoided; Evidence of Success		2. 3.
TSC-10 (carryover)	Provide continuing education and training for local Floodplain Administrator to ensure code enforcement and proper inspections.	Flood, Severe Storm		Town Supervisor/FPA	No Progress	Cost Level of Protection Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. 3.
TSC-11 (carryover)	Send a town representative to the NYS Wildland Fire Suppression Training.	Wildfire	Looking to send in 2023/24	Fire Marshal	No Progress	Cost Level of Protection Damages Avoided; Evidence of Success		1. Include in 2023 HMP 2. 3.





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.12-15, the Town of Stony Creek identified the following mitigation efforts completed since the last HMP:

- Town Hall – installed 10kw auto generator (area of refuge)
- Fire Department – stand by generator
- Highway Garage – manual generator

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Stony Creek participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.12-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X				X	X				X
Extreme Temperature	X			X	X	X	X			X
Flood	X	X	X	X	X	X	X	X	X	X
Severe Storm	X	X	X		X	X		X	X	X
Severe Winter Storm	X				X	X				X
Wildfire	X				X	X				X
Infestation	X			X	X	X	X			X
Dam Failure	X				X	X				X
Disease Outbreak	X			X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.12-17).

The table below summarizes the specific mitigation initiatives the Town of Stony Creek would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.12-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Stony Creek -001	Culvert Upsizing	1	Flood, Severe Storm	<b>Problem:</b> Undersized culverts in the Town contribute to flooding which can cause damages. <b>Solution:</b> The Town Highway Department will upgrade undersized culverts on Hildebrandt Road, Fodder Road, Van Auken Road, States Road Est, Louis Waite Road, and Roaring Branch Road.	No	May require permitting at some locations	Within 5 years	Town Highway Department	High	Reduction in flooding, flood damages to culverts and roadways	HMGP, BRIC, PDM, CHIPS, Town budget	High	SIP	SP
2023-Town of Stony Creek -002	Roaring Branch Road Stream Bank Stabilization	5	Flood, Severe Storm	<b>Problem:</b> Stream bank erosion is affecting private property on Roaring Branch Road. Some	No	May require permitting	Within 5 years	Town Highway Department	High	Reduction in flood damage risk	HMGP, BRIC, PDM, Town budget	High	NSP	NR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				stabilization efforts have been made, but additional work is needed as a retaining wall has failed. <b>Solution:</b> The Town will evaluate stream bank stabilization options along Roaring Branch Road and construct necessary streambank stabilization measures, including repairs to an existing failing retaining wall. <b>Solution:</b> The Town will evaluate stream bank stabilization options along Roaring Branch Road and construct										





## SECTION 9.12. Town of Stony Creek

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				necessary streambank stabilization measures, including repairs to an existing failing retaining wall.										
2023-Town of Stony Creek -003	Disaster Debris Management Plan	3	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> The Town lacks a debris management plan to handle post-disaster cleanups. <b>Solution:</b> The Town will work with adjacent committees to develop a localized disaster debris management plan and integrate with the County plan.	No	None	Within 5 years	Town Highway Department	Low	Better post-disaster planning	BRIC, PDM, Town budget	High	LPR	ES
2023-Town of Stony Creek -004	Flood Education	2	Flood	<b>Problem:</b> Additional flood education is needed for residents.	No	None	2 years	FPA, Town Supervisor, Warren County OES	Low	Increased flood awareness, NFIP coverage	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will educate the community on steps taken to lessen potential flood damage to reduce the impact of flooding, and on the benefits of carrying NFIP policies. In addition, the Town will include this information on a specific Town website page for landowners and flooding.										
2023-Town of Stony Creek -005	Establish Building Inventory	4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> A better understanding of building exposure data is needed for development and emergency planning.	No	None	Within 5 years	Town Highway Department, APA	Staff time	Increased capabilities, better planning	Town budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> Using information from the HMP as a base, the Town will maintain a current inventory of at-risk buildings and infrastructure and continually update inventory of at-risk structures in each jurisdiction.										
2023-Town of Stony Creek-006	FPA Training	4	Flood	<b>Problem:</b> The floodplain administrator requires additional training. <b>Solution:</b> The Town will send the FPA to available training from NYS and FEMA and consider certified	No	None	2 years	FPA, Administration	Staff time	Increase floodplain administration capabilities	Town budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				floodplain manager training.										
2023-Town of Stony Creek -007	Wildland Fire Suppression Training	4	Wildfire	<b>Problem:</b> Additional training for wildfire response is needed for Town officials. <b>Solution:</b> The Town will send a representative to the NYS Wildland Fire Suppression Training.	No	None	Within 5 years	Fire Marshal, Administration	Staff time	Increased wildfire emergency response capabilities	Town budget, NY	High	LPR	ES
2023-Town of Stony Creek -008	Flood Damage Prevention Ordinance Update	1	Flood	<b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<b>Solution:</b> The Town will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.										
2023-Town of Stony Creek -009	Substantial Damage Procedures	1, 3	All Hazards	<b>Problem:</b> While major events that result in substantial damage of structures are rare, municipalities need to have official procedures in place to inspect structures, make determinations, and provide for appeals. <b>Solution:</b> The Town will develop official procedures	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements , improved floodplain administration	Municipal Budget	High	LPR	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				for Substantial Damage and Substantial Improvement determinations.										
2023-Town of Stony Creek -010	Public Outreach and Awareness Program	1, 2	Extreme Temperature, Infestation, Disease Outbreak	<b>Problem:</b> The Town needs to increase public outreach and awareness of hazard reduction and public health measures through improving information accessible to the public. The town will conduct and improve community and public education and awareness to promote hazard risk reduction. The town will provide educational	No	None	2 years	Town	Staff time	Increased public	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				materials on the town website on hazard risk reduction for extreme temperature and disease outbreak to reduce impacts on public health. Educational materials and public notice information on infestation hazards will also be provided on the website. <b>Solution:</b> The town will conduct and improve community and public education and awareness to promote hazard risk reduction. The town will provide										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				educational materials on the town website on hazard risk reduction for extreme temperature and disease outbreak to reduce impacts on public health. Educational materials and public notice information on infestation hazards will also be provided on the website.										

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:


A description of the estimated benefits, either quantitative and/or qualitative.





OEM Office of Emergency Management

**Critical Facility:**

Yes  Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

**CRS Category:**

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.12-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Stony Creek-001	Culvert Upsizing	0	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High
2023-Town of Stony Creek-002	Roaring Branch Road Stream Bank Stabilization	0	1	1	0	1	0	0	1	1	1	1	0	1	1	9	High
2023-Town of Stony Creek-003	Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Stony Creek-004	Flood Education	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Stony Creek-005	Establish Building Inventory	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Stony Creek-006	FPA Training	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Stony Creek-007	Wildland Fire Suppression Training	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Stony Creek-008	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Stony Creek-009	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Stony Creek-010	Public Outreach and Awareness Program	1	0	1	1	1	0	1	0	1	1	1	1	0	0	9	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





## 9.12.8 Action Worksheets

The following action worksheets were developed by the Town of Stony Creek to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Culvert Upsizing		
<b>Project Number:</b>	2023-Town of Stony Creek-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	Undersized culverts in the Town contribute to flooding which can cause damages.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Town Highway Department will upgrade undersized culverts on Hildebrandt Road, Fodder Road, Van Auken Road, States Road Est, Louis Waite Road, and Roaring Branch Road.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	TBD by final design	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding, flood damages to culverts and roadways
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	BRIC, PDM, HMGP, CHIPS, Town budget
<b>Responsible Organization:</b>	Town Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove culverts	N/A	Culverts cannot be removed
	Relocate roadways	N/A	Not feasible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Culvert Upsizing	
<b>Project Number:</b>	2023-Town of Stony Creek-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Reduction in flood damages to culverts and roadways
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	0	May require permitting
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Town Highway Department
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.13 TOWN OF THURMAN

This section presents the jurisdictional annex for the Town of Thurman that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Thurman's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.13.1 Hazard Mitigation Planning Team

The Town of Thurman identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Town Supervisor and Highway Superintendent. The Town Supervisor and Town Board represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.13-1. Hazard Mitigation Planning Team**

Primary Point of Contact		Alternate Point of Contact	
Name/Title: Debra Runyon – Town Supervisor Address: 311 Athol Road, Athol NY 12810 Phone Number: 518-623-9649 x101 Email: <a href="mailto:supervisor@thurmannny.gov">supervisor@thurmannny.gov</a>		Name/Title: Patrick Wood – Highway Superintendent Address: P.O. Box 29 Athol, NY 12810 Phone Number: 518-623-9649 x104 Email: <a href="mailto:highwaydept@yahoo.com">highwaydept@yahoo.com</a>	
NFIP Floodplain Administrator			
Name/Title: Debra Runyon / Supervisor Address: 311 Athol Road, Athol NY 12810 Phone Number: 518-623-9649 x101 Email: <a href="mailto:supervisor@thurmannny.gov">supervisor@thurmannny.gov</a>			
Additional Contributors			
Name/Title: Town Board Method of Participation: provided data and information			
Name/Title: Debra Runyon – Town Supervisor			





Primary Point of Contact	Alternate Point of Contact
Method of Participation: Provided information on capabilities, status of previous mitigation actions. Contributed to risk rankings and mitigation strategy development.	

### 9.13.2 Municipal Profile

The Town of Thurman is in the western portion of Warren County. The Town is bordered on the east by the Hudson River and on the west by Hamilton County. It has a total land area of 92.8 square miles of which 91.3 square miles is land and 1.5 square miles is water. The Town of Thurman includes the hamlets of Thurman (location of Town Hall) and Chestertown. Garnet Lake is located within the Town.

According to the U.S. Census, the 2020 population for the Town of Thurman was 1,095, a 10.2 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 2.9 percent of the population is 5 years of age or younger and 29.2 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Thurman has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 15.46% of the population does not have a high school diploma
- 19.77% of the population has a disability
- 3.56% of households do not have a vehicle
- 9.05% of the population is living below the poverty level
- 7.94% of the population is unemployed

### 9.13.3 Jurisdictional Capability Assessment and Integration

The Town of Thurman performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis,





planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Thurman to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

### Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Thurman. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.13-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Code	County	Warren County Fire Prevention and Building Code Enforcement
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Thurman adopted the New York State Uniform Fire Prevention and Building Code to guide safe new development. The Warren County Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code.				
<b>Zoning/Land Use Code</b>	Yes	Zoning/Land Use Code	Local, County	Warren County Fire Prevention and Building Code Enforcement
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The zoning/land use code requires a minimum of 3 acres zoning to build.				
<b>Subdivision Ordinance</b>	Yes	Subdivision Regulations for the Town of Thurman, 2006	Local	Town Board.
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The regulations provide for the provision of adequate community facilities, set high standards for development, and promote the public health, safety, and welfare of all citizens.				
<b>Site Plan Ordinance</b>	Yes	Zoning/Land Use Code	Local, County	Warren County Fire Prevention and Building Code Enforcement
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Site plan review is completed at the County level.				
<b>Stormwater Management Ordinance</b>	No	-	-	-
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	–	–	–
<b>Environmental Protection Ordinance</b>	No	–	–	–
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				
<b>Flood Damage Prevention Ordinance</b>	Yes	Flood Damage Prevention Ordinance	Federal, State, County and Local	Town Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters. D. Control filling, grading, dredging and other development which may increase erosion or flood damages E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands F. Qualify and maintain for participation in the National Flood Insurance Program.  The ordinance currently lacks a freeboard requirement and requires update to meet the state’s 2 feet of freeboard requirement.				
<b>Wellhead Protection</b>	No	–	–	–
<b>Emergency Management Ordinance</b>	No	–	–	–
<b>Climate Change Ordinance</b>	No	–	–	–
<b>Other</b>	No	–	–	–
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	No	–	–	–
<b>Capital Improvement Plan</b>	No	–	–	–





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Disaster Debris Management Plan	No	-	-	-
Floodplain Management or Watershed Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Urban Water Management Plan	No	-	-	-
Habitat Conservation Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Community Wildfire Protection Plan	No	-	-	-
Community Forest Management Plan	No	-	-	-
Transportation Plan	No	-	-	-
Agriculture Plan	No	-	-	-
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
Tourism Plan	No	-	-	-
Business/ Downtown Development Plan	No	-	-	-
Other (for example NYRCR, etc.)	No	-	-	-
<b>Response/Recovery Planning</b>				
Comprehensive Emergency Management Plan	Yes	Emergency Action Plan	Local	Warren County
How has or will this be integrated with the HMP and how does this reduce risk?				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Chairman of the Warren County Board of Supervisors is ultimately responsible for county emergency response activities. The chairman controls all county owned resources and facilities for disaster response. The sheriff's office is in charge of communications. The American Red Cross is in charge of operations and temporary housing, food and clothing.				
<b>Continuity of Operations Plan</b>	No	-	-	-
<b>Substantial Damage Response Plan</b>	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	No	-	-	-
<b>Public Health Plan</b>	Yes	Public Employer Health Emergency Plan	Local	Warren County
How has or will this be integrated with the HMP and how does this reduce risk? The Plan was developed in accordance with the amended New York State Labor Law section 27-c and New York State Education Law paragraphs k and l subdivision 2 of section 2801-a. which requires public employers to adopt a plan for operations in the event of a declared public health emergency involving communicable disease.				
<b>Other</b>	No	-	-	-

## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Thurman to oversee and track development.

**Table 9.13-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	No	-
• If you issue development permits, what department is responsible?	N/A	-
• If you do not issue development permits, what is your process for tracking new development?	N/A	New development would go through the APA and County Building Code Enforcer
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	The County Code Enforcer would track this type of development.
Do you have a buildable land inventory?	No	-
• If you have a buildable land inventory, please describe	N/A	-





Indicate if your jurisdiction implements the following	Yes/No	Comment:
Describe the level of build-out in your jurisdiction.	N/A	There is minimum build-out in Thurman.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Thurman and their current responsibilities that contribute to hazard mitigation.

**Table 9.13-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	Town Highway Department is responsible for stormwater maintenance, tree trimming, etc.
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	No	-
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	All maintenance of this type is done by the Highway Department.
Mutual aid agreements	Yes	Shared Services agreement with the Town of Stony Creek
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	No	The Town contracts with a local engineering firm.
Engineers or professionals trained in building or infrastructure construction practices	No	The Town contracts with an engineering firm.
Planners or engineers with an understanding of natural hazards	No	The Town contracts with an engineering firm.
Staff with expertise or training in benefit/cost analysis	No	-





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Professionals trained in conducting damage assessments	Yes	The Highway Superintendent has 27 years of experience in dealing with the numerous culvert failures, ice jams and floods that the Town has experienced.
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	County Staff
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Warren County
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	The Town would rely on the Engineer for any major repairs and the effect they would have on the environment.
<b>Administrative/technical capability self-assessment</b>		
<b>Describe how your administrative/technical capabilities contribute to integration with the HMP and risk reduction in your community.</b>		
The long term experience the Town Highway Department employees have dealing with ice jams, floods, and stormwater runoff is relied upon to handle the assessment of hazards and the implementation of corrective actions.		

## Fiscal Capability

The table below summarizes financial resources available to the Town of Thurman.

**Table 9.13-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Thurman.



**Table 9.13-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	The Town contracts with a website developer.
Hazard mitigation information available on your website	No	The Town is establishing a new website that will have options to post hazard mitigation information. The town clerk is learning how to use the new website and will include this as soon as she can. We did announce this at our meeting Feb 16 <sup>th</sup> and it is listed in our minutes as well.
Social media for hazard mitigation education and outreach	No	The Town is establishing a new website that will have Facebook and social media options.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	N/A	The Town of Thurman does not have a school located within the Town.
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	Yes	As a small town, residents calling each other or posting on Thurman Happenings would be the existing method of getting the word out.

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Thurman.

**Table 9.13-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	(Warren County is certified)	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable





## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.13-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

### 9.13.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Thurman.

**Table 9.13-9. NFIP Summary**

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Thurman	3	5	\$85,530	0	0	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.





*RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.*

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Thurman.

**Table 9.13-10. NFIP Summary**

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	Any flood hazard maps would definitely identify the Hudson River as an area of flooding. Roads with old culverts are also a concern. The Assessor's office would be familiar with the flood risk areas. Most flood damage is to roads/bridges, not homes. The primary reoccurring roads are Dippikill, W. Stony Creek Road, Bear Pond Rd, Wolf Pond Road and Cameron Road.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	The Town does not maintain a list. To the Town's knowledge, no property owners are interested in mitigation at this time.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	Unknown
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Damage concerns focus on the roads, culverts and bridges. The Highway Superintendent would make that determination.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None that the Town is aware of.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Any flood hazard maps would definitely identify the Hudson River as an area of flooding. Roads with old culverts are also a concern. The Assessor's office would be familiar with the flood risk areas.
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Town Board
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	The Town has access to County information and the internet.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	Staff could benefit from training and assistance in identifying the areas most impacted and the options available to us for possible resources to mitigate the hazards. The supervisor will meet with the Highway Superintendent to discuss vulnerable areas and determine the proper course of action. Due to cost barriers, online CRS



12





Type of Development	2017		2018		2019		2020		2021		2022	
Single Family	3	-	1	-	1	-	2	-	3	-	4	-
Multi-Family	0	-	0	-	0	-	0	-	0	-	0	-
Other (commercial, mixed-use, etc.)	0	-	0	-	1	-	0	-	1	-	0	-
<b>Total New Construction Permits Issued</b>	<b>3</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>-</b>
Property or Development Name	Type of Development	# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2017 to Present												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None anticipated												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.13.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Thurman's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Thurman has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.13-1. Town of Thurman Hazard Area Extent and Location Map 1

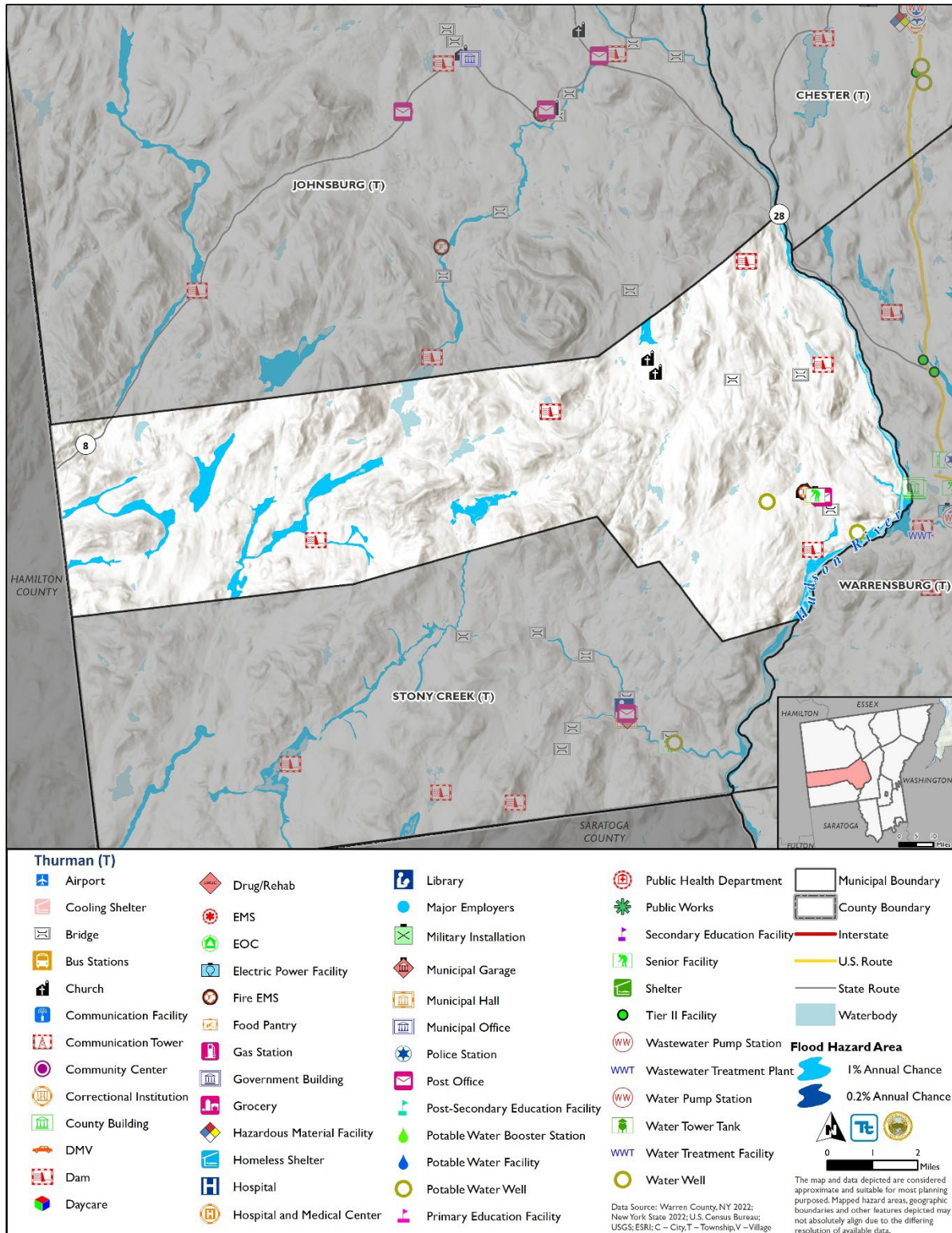






Figure 9.13-2. Town of Thurman Earthquake (Soil Class) Hazard Area Extent and Location Map

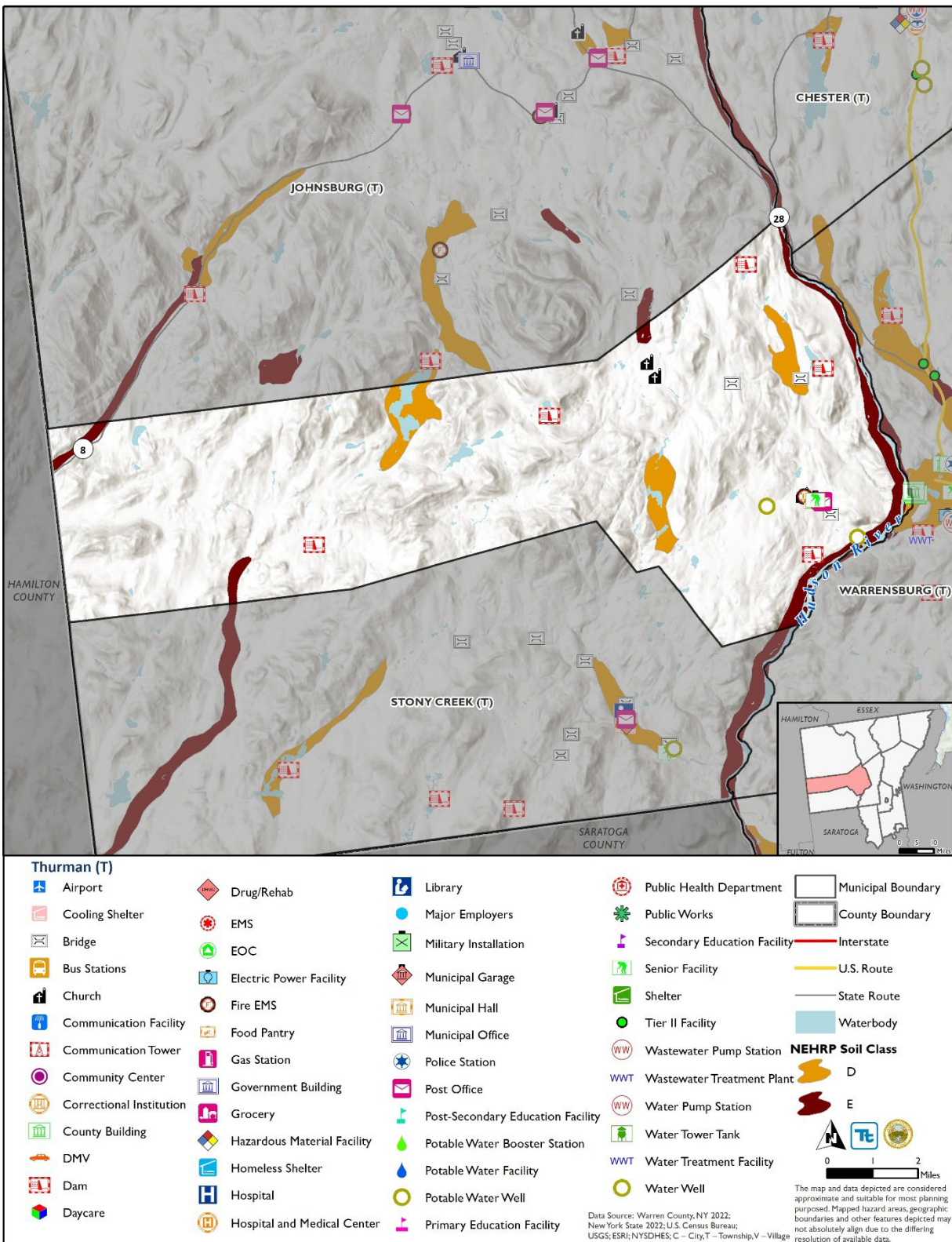
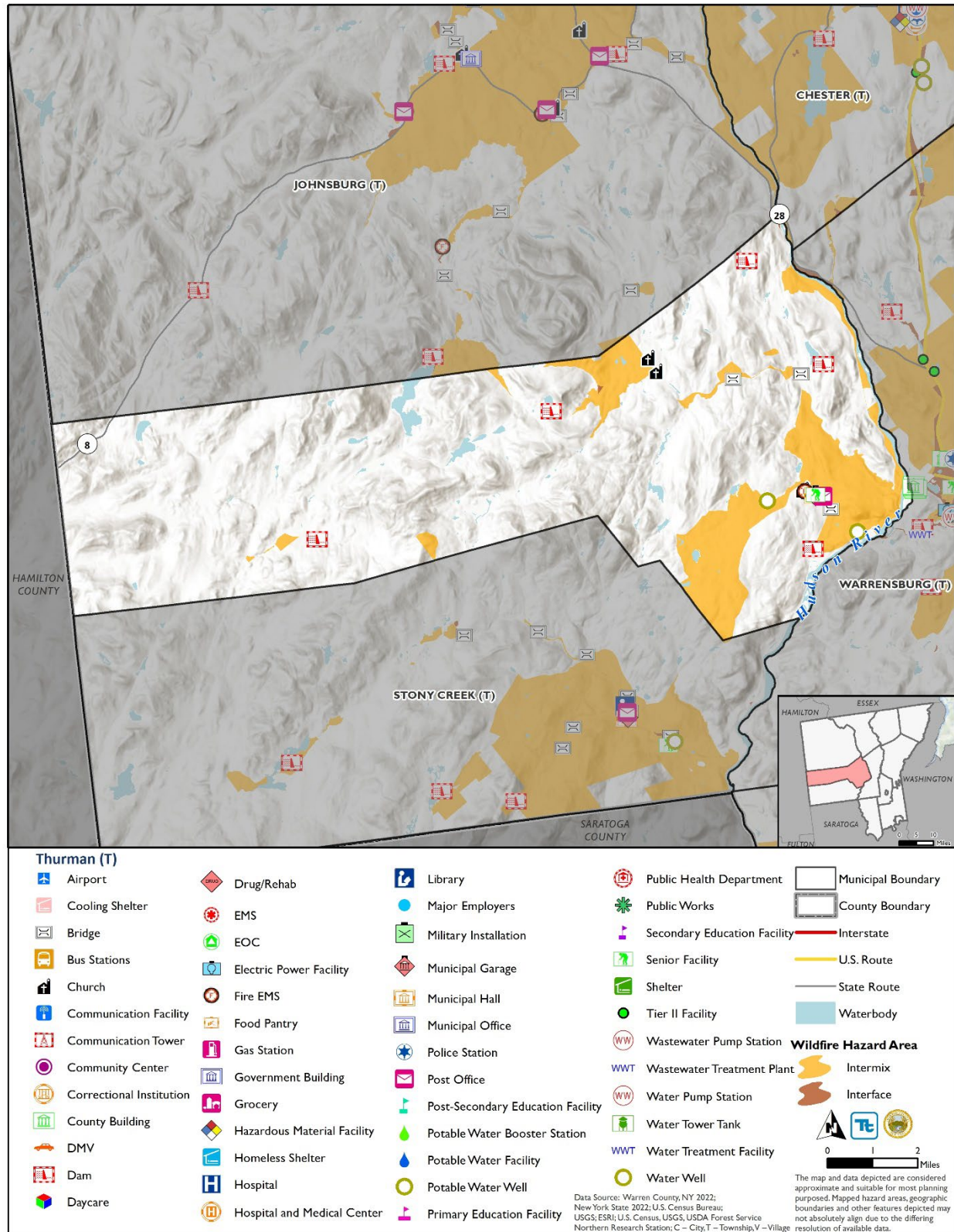






Figure 9.13-3. Town of Thurman Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Thurman's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.13-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.13-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January to February 2018	Ice Jam	No	Ice Jam/ Flooding	Large sections of ice came up the bank and caused River Road to close. A large section of the road actually fell into the River. The Highway Department was able to secure property further from the river and actually built a new road further from the river in that section.
April 15, 2019	Thunderstorm/Wind	No	Downed trees	Glen Athol Road was closed due to many downed trees.
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power	Eleven roads were closed due to damage from flash flooding. In particular Dippikill Road had clogged culverts due to debris and increased flow which washed out the road causing some residents to detour to get around. The flow of water over the two culverts resulted in undermining the stability of the road. There were residents who were trapped in their homes. The road caved in while a Highway employee was driving over the double culvert area. This could have resulted in the loss





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			outages over eastern New York.	of the truck and/or death of the employee.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19 .	Loss of the use of the town hall due to building closure. Loss of revenue for the expense of a hired daily cleaner to sanitize the town hall
2021	Flooding	No	Flooding	The culvert on Frank King Road was compromised and the road washed out. The culvert was replaced. Dippikill Road washed out due to flooding because the ditches that were cut there could not handle the flow of water after the culverts were blocked with debris.
February 19, 2022	Ice Jam	No	The ice flow on the Hudson River jammed up causing the ice to go up over the bank and cross River Road.	The 418 Bridge was closed, River Road was closed. This caused residents to have to detour around to Route 28. The Town had to spend many man hours clearing River Road. An excavator and driver was hired to remove large chunks of ice that were broken up by the highway department running payloaders. It took over a week to clear it.

**Notes:**

EM      Emergency Declaration (FEMA)

FEMA      Federal Emergency Management Agency

DR      Major Disaster Declaration (FEMA)

N/A      Not applicable

## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Thurman's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1,





Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Thurman. The Town of Thurman reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town changed the hazard ranking for extreme temperature from medium to low, noting that although climate change may increase the occurrence of extreme temperature events, there is not likely to be an impact of quality of life in the Town.
- The Town agreed with the remaining calculated hazard rankings.

**Table 9.13-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Low	Low	Low	High	High	Low	Medium

Dam Failure	Disease Outbreak
Medium	Low

*Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction*

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).





The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.13-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
Number Nine Brook Dam	Dam	X	X	-	Yes, no issues are noted with the dam design.
Cameron	Bridge	X	X	-	The Cameron Bridge near Stony Creek Road washed out in 2022 and has since been totally redone by Warren County.

Source: Warren County 2022

## Identified Issues

After review of the Town of Thurman's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Thurman identified the following vulnerabilities within their community:

- The most hazardous area in Thurman is Dippikill Road near Parker Cross Road (Patterson Brook). It is affected every winter. There are two old metal culverts side by side. They rust. The way the river turns there causes debris washing down to get caught up and block the flow. Then the water goes up and over the road causing washouts, closures, detours, trapped residents. The only remedy Thurman can afford is to fix the road in the same manner. This year the Highway Department was able to afford to hire a blasting company to blast the granite rock that prevented an adequate ditch from being dug that would help the water flow away from the road. This road has been the cause of FEMA mitigation in the past. The Halloween Storm did severe damage, but it was also damaged in the May 2011 storm, and just about every year it requires some type of repair.
- There is a culvert to lead water to the drainage ditch which moves the water under the road leading to the salt shed. This reduces the flood risk to the highway garage, road, and private residence.
- The records room used to be on the second floor, which was transformed into needed office space. Records were then moved to the basement on shelves that are 15 inches off the floor. Town Hall has a history of basement flooding. Records should be scanned and maintained electronically to reduce risk of losing records during a flood.
- The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- The Town website lacks information on hazards and hazard mitigation.





- The floodplain administrator requires additional training.
- The Town has limited sheltering capabilities.
- There are culverts in town that are very old, rusty metal. Some are two culverts placed side by side which clog and cause flooding.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.

### 9.13.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

---

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





Table 9.13-15. Status of Previous Mitigation Actions

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Level of Protection	
TTH-1 (carryover)	Address drainage and flooding issues throughout the town by installing bottomless culverts or other drainage improvements at locations including: <ul style="list-style-type: none"> <li>• Wolf Pond Road</li> <li>• Dippikill Road near Parker Cross Road (Patterson Brook)</li> <li>• River Road at Huber Road</li> <li>• Athol Road near Cameron Road</li> </ul>	Flood	There are culverts in town that are very old, rusty metal. Some, like the one on Dippikill, are two culverts placed side by side which clog and cause flooding.	Town Board, Highway Department	In Progress. This year the town hired a company to blast granite rock that prevented the roadside ditch at Dippikill from adequately allowing water flow to run along side the road, instead of crossing the road and causing flooding and road washout. Cost is a major factor as to why the bottomless culvert, which would solve the			<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol> <p>1. Include in 2023 HMP</p> <p>2. The most hazardous area in Thurman is Dippikill Road. It is affected every winter. There are two old metal culverts side by side. They rust. The way the river turns there causes debris washing down to get caught up and block the flow. Then the water goes up and over the road causing washouts, closures, detours, trapped residents. The only remedy Thurman can afford is to fix the road in the same manner. This year the Highway Department was able to afford to hire a blasting company to blast the granite rock that prevented an adequate ditch from being dug that would help the water flow away from the road.</p> <p>The Town of Thurman attempted to secure a grant to replace the double culverts with a bottomless culvert, but was not chosen as a grant recipient. The Town had the engineer provide a cost analysis and plans and will try to obtain funding again this year.</p> <p>This road has been the cause of FEMA mitigation in the past. The Halloween Storm did severe damage, but it was also damaged in the May 2011 storm, and just about every year it requires some type of repair.</p> <p>3.</p>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
					problem, has not been completed.			
TTH-2	Address drainage and flooding issues throughout the town by improving upon existing stormwater control measures at the following locations: <ul style="list-style-type: none"> <li>Bowen Hill Road at George's Knoll</li> <li>Garnet Lake Road/Little Pond at Henry Wescott Road</li> </ul>	Flood	Flooding will continue to be an ongoing problem for Thurman due to the nature of the roads. Maintaining the ditches, keeping the culverts cleaned out and continuous maintenance is the only way to control this.	Town Board, Highway Department	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
TTH-3 (carryover)	The Town of Thurman will coordinate with the County in the development of a county-wide debris management plan.	All Hazards		Town Board, Highway Department	No Progress. The Town is not aware of any County involvement regarding this, other than the annual snow and ice contract which	Cost		1. Discontinue 2. 3. No longer a priority





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
					provides funds for the Town and enables the removal of sand and debris from the ditches along county roads.			<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>
TTH-4	Stormwater and Flood Mitigation at Athol Road – The mitigation recommendation for this site is the installation of new culverts at two locations. The first site would collect runoff and convey it to the established drainage way on the Town property. That would eliminate flooding issues for one of the Town buildings, the public access points and the private residence. The second portion of this project would be to upsize the existing culvert that currently drains the	Flood		Town Board, Highway Department	No Progress	Cost		<ol style="list-style-type: none"> <li>1. There is a culvert to lead water to the drainage ditch which moves the water under the road leading to the salt shed. This reduces the flood risk to the highway garage, road, and private residence. The culvert that conveys water to Athol Rd has not been upsized. This should carryover to the next HMP.</li> <li>2.</li> <li>3.</li> </ol>
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Level of Protection	
	property and conveys it to Athol Road							
TTH-5	Digitize Town Hall Records – Town Hall has a history of basement flooding. Records should be scanned and maintained electronically to reduce risk of losing records during a flood.	Flood	Town Hall has a history of basement flooding. Records should be scanned and maintained electronically to reduce risk of losing records during a flood.	Town Board, Town Clerk	No Progress	Cost	Level of Protection	1. Include in 2023 HMP 2. The records room used to be on the second floor, which was transformed into needed office space. Records were then moved to the basement on shelves that are 15 inches off the floor. The Town would like to see the records digitized, but do not know how to go about it. Cost will be a factor. One of the actions to resolve this is to apply for a grant through NY state archives. 3.
TTH-7 (carryover)	Review and update local plans to integrate goals, objectives, and activities from this HMP which are not found in existing regulatory documents, as appropriate.	All Hazards	Planning of this nature has not been accomplished by prior town boards. The most important plan should be a financial plan to provide funds for the culvert replacements.	Town Board	Ongoing Capability	Cost	Level of Protection	1. Discontinue 2. 3. Ongoing capability
TTH-8	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or	All Hazards		Town Board	In Progress; A home on Dippkill Road had a FEMA site	Cost	Level of Protection	1. Include in 2023 HMP 2. 3.





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
	acquisition/relocation to protect structures from future damage, with critical facilities and repetitive loss properties as a priority when applicable. Town support shall include direct outreach to flood-prone property owners, specifically critical facility owners/operators and those identified by FEMA as RL/SRL or otherwise identified as flood-prone, and working with interested and voluntary property owners to mitigate their properties based on available funding from FEMA and local (property owner) match availability.  Efforts to mitigate critical facilities shall recognize Federal and State directives for protection to the 500-year flood level				inspection, and the project was completed. However, this should be an continuing item.	Evidence of Success		<ol style="list-style-type: none"> <li>1. Project to be included in 2023 HMP or Discontinue</li> <li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li> <li>3. If discontinue, explain why.</li> </ol>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
						Cost	Level of Protection	
TTH-9 (carryover)	Implement zoning regulations to discourage building new structures in disaster prone areas.	All Hazards	Without a zoning board only the County can accomplish these regulations.	Town Board	No Progress	Cost	Level of Protection	1. Discontinue 2. 3. Without a zoning board only the County can accomplish these regulations.
TTH-6	Educate residents regarding steps to be taken to decrease the impact of natural hazards (including ice storms, wild/forest fires, severe storms, tornado, earthquakes, and all other natural hazards) by developing, enhancing, and implementing education programs, brochures, school presentations informing groups about ways to reduce risk, and other outreach activities.	Flood	This is more of an ongoing concern than a problem. Thurman has had an influx of new owners purchasing homes for short term rentals who may not be aware of the dangers that flooding and ice jams can cause.	Town Board, Town Clerk	Ongoing Capability	Cost	Level of Protection	1. Discontinue 2. 3. Ongoing capability





### Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.13-15, the Town of Thurman identified the following mitigation efforts completed since the last HMP:

- None identified

### Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Thurman participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.13-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X		X	X	X	X			X
Extreme Temperature	X	X		X	X	X	X			X
Flood	X	X		X	X	X	X		X	X
Severe Storm	X	X		X	X	X	X		X	X
Severe Winter Storm	X	X		X	X	X	X			X
Wildfire	X	X		X	X	X	X			X
Infestation	X	X		X	X	X	X			X
Dam Failure	X	X		X	X	X	X			X
Disease Outbreak	X	X		X	X	X	X			X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.13-17).

The table below summarizes the specific mitigation initiatives the Town of Thurman would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.13-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Thurman-001	Dippikill Road Culverts	1	Flood, Severe Storm	<b>Problem:</b> The most hazardous area in Thurman is Dippikill Road near Parker Cross Road (Patterson Brook). It is affected every winter. There are two old metal culverts side by side. They rust. The way the river turns there causes debris washing down to get caught up and block the flow. Then the water goes up and over the road causing washouts, closures, detours, trapped residents. The only remedy	No	None	Within 5 years	Highway Department	High	Reduction in flooding and flood damages	BRIC, PDM, HMGP, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>Thurman can afford is to fix the road in the same manner. This year the Highway Department was able to afford to hire a blasting company to blast the granite rock that prevented an adequate ditch from being dug that would help the water flow away from the road.</p> <p>This road has been the cause of FEMA mitigation in the past. The Halloween Storm did severe damage, but it was also damaged in the May 2011 storm, and just about every year it</p>										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				requires some type of repair. <b>Solution:</b> The Town will replace the double culverts with a bottomless culvert.										
2023-Town of Thurman-002	Stormwater and Flood Mitigation at Athol Road	1	Flood, Severe Storm	<b>Problem:</b> There is a culvert to lead water to the drainage ditch which moves the water under the road leading to the salt shed. This reduces the flood risk to the highway garage, road, and private residence. <b>Solution:</b> The mitigation recommendation for this site is the installation of new culverts at two locations. The first site would collect runoff and	No	None	Within 5 years	Highway Department	High	Reduction in flooding and flood damages	BRIC, PDM, HMGP, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				convey it to the established drainage way on the Town property. That would eliminate flooding issues for one of the Town buildings, the public access points and the private residence. The second portion of this project would be to upsize the existing culvert that currently drains the property and conveys it to Athol Road.										
2023-Town of Thurman -003	Digitize Town Hall Records	4	Flood, Severe Storm, Severe Winter Storm, Wildfire	<b>Problem:</b> The records room used to be on the second floor, which was transformed into needed office space. Records were then moved to the basement	Yes	None	2 years	Town Board, Town Clerk	Medium	Risk of losing records during a flood	Town budget, NY State Archives grant	High	LPR	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				on shelves that are 15 inches off the floor. Town Hall has a history of basement flooding. Records should be scanned and maintained electronically to reduce risk of losing records during a flood. <b>Solution:</b> The Town will scan and electronically maintain current records and move to a digital format for future records.										
2023-Town of Thurman-004	Substantial Damage Procedures	3	Earthquake, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administration	County budget	High	LPR	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				structures, make determinations, and provide for appeals. <b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations. The Town will review current building and zoning requirements to ensure proper alignment and make updates to the building and zoning as needed to address earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazards.										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Thurman -005	Flood Damage Prevention Ordinance Update	1	Flood	<b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement. <b>Solution:</b> The Town will update and adopt the ordinance to include a 2 feet freeboard requirement for all construction.	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LPR	PR
2023-Town of Thurman -006	Town Website	2	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation,	<b>Problem:</b> The Town website lacks information on hazards and hazard mitigation. <b>Solution:</b> The Town will establish a new website and	No	None	1 year	Town Board	Low	Increased education and outreach	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Dam Failure, Disease Outbreak	include information on hazards of concern and options for mitigation of personal property.										
2023-Town of Thurman -007	FPA Training	1, 4	Flood	<b>Problem:</b> The floodplain administrator requires additional training. <b>Solution:</b> The Town will send the FPA to available training from NYS and FEMA and consider certified floodplain manager training.	No	None	2 years	FPA, Administration	Staff time	Increase floodplain administration capabilities	Town budget	High	LPR	PR
2023-Town of Thurman -008	Emergency Shelter Upgrades	3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm,	<b>Problem:</b> The Town has limited sheltering capabilities. <b>Solution:</b> The Town will upgrade Town Hall for use as a	Yes	None	Within 5 years	Administration	Medium	Sheltering capabilities improved	HMGP, BRIC, PDM, USDA Community Facilities program, Town budget	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Wildfire, Dam Failure	shelter. Necessary upgrades include heating/cooling upgrades and installation of a kitchen.										
2023-Town of Thurman -009	Culvert Upgrades	1	Flood, Severe Storm	<p><b>Problem:</b> There are culverts in town that are very old, rusty metal. Some are two culverts placed side by side which clog and cause flooding.</p> <p><b>Solution:</b> The Town Highway Department will address drainage and flooding issues throughout the Town by installing bottomless culverts, culverts that use plastic instead of metal to prevent rust issues, or other</p>	No	None	Within 5 years	Highway Department	High	Reduction in flooding and flood damages	BRIC, PDM, HMGP, CHIPS, Town budget	High	SIP	SP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				drainage improvements at locations including: •Wolf Pond Road •River Road at Huber Road										

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

**Potential FEMA HMA Funding Sources:**

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation.

**Cost:**

The estimated cost for implementation.

**Benefits:**

A description of the estimated benefits, either quantitative and/or qualitative.

**Critical Facility:**

Yes  Critical Facility located in 1% floodplain

**Mitigation Category:**

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.





*CRS Category:*

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.13-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Thurman-001	Dippikill Road Culverts	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Thurman-002	Stormwater and Flood Mitigation at Athol Road	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Thurman-003	Digitize Town Hall Records	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Town of Thurman-004	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Thurman - 005	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Thurman-006	Town Website	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Thurman-007	FPA Training	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Thurman-008	Emergency Shelter Upgrades	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Thurman-009	Culvert Upgrades	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.13.8 Action Worksheets

The following action worksheets were developed by the Town of Thurman to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Dippikill Road Culverts		
<b>Project Number:</b>	2023-Town of Thurman-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	<p>The most hazardous area in Thurman is Dippikill Road near Parker Cross Road (Patterson Brook). It is affected every winter. There are two old metal culverts side by side. They rust. The way the river turns there causes debris washing down to get caught up and block the flow. Then the water goes up and over the road causing washouts, closures, detours, trapped residents. The only remedy Thurman can afford is to fix the road in the same manner. This year the Highway Department was able to afford to hire a blasting company to blast the granite rock that prevented an adequate ditch from being dug that would help the water flow away from the road.</p> <p>This road has been the cause of FEMA mitigation in the past. The Halloween Storm did severe damage, but it was also damaged in the May 2011 storm, and just about every year it requires some type of repair.</p>		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Town will replace the double culverts with a bottomless culvert.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	10-year event	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding, flood damages
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	BRIC, PDM, HMGP, CHIPS, Town budget
<b>Responsible Organization:</b>	Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Stormwater Management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove road	\$20,000	Roadway cannot be removed
	Relocate road to another location	\$50,000	Costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Dippikill Road Culverts	
<b>Project Number:</b>	2023-Town of Thurman-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Project will protect roadways from flooding, culvert damages
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Storm, Flood
Timeline	0	Within 5 years
Agency Champion	1	Highway Department
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





## SECTION 9.

### 9.14 TOWN OF WARRENSBURG

This section presents the jurisdictional annex for the Town of Warrensburg that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the Town participated in the planning process, an assessment of the Town of Warrensburg's risk and vulnerability, the different capabilities used in the Town, and an action plan that will be implemented to achieve a more resilient community.

#### 9.14.1 Hazard Mitigation Planning Team

The Town of Warrensburg identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many Town departments, including the Code Enforcement Officer. The Code Enforcement Officer represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.14-1. Hazard Mitigation Planning Team**

Primary Point of Contact		Alternate Point of Contact	
Name/Title: James S. Hull – Code Enforcement Officer Address: 3797 Main Street, Warrensburg, NY12885 Phone Number: 518-623-9214 Email: <a href="mailto:jim.hull@townofwarrensburg.net">jim.hull@townofwarrensburg.net</a>		Name/Title: Kevin B. Geraghty – Town Supervisor Address: 3797 Main Street, Warrensburg, NY 12885 Phone Number: 518-623-9511 Email: <a href="mailto:kevin.geraghty@townofwarrendburg.net">kevin.geraghty@townofwarrendburg.net</a>	
NFIP Floodplain Administrator			
Name/Title: Patti Corlew Address:3797 Main Street Phone Number: 518-623-9214 Email: <a href="mailto:PattiCorlew@Townofwarrensburg.net">PattiCorlew@Townofwarrensburg.net</a>			
Additional Contributors			
Name/Title: James S. Hull – Code Enforcement Officer Method of Participation: Provided information on capabilities, past events, NFIP administration, building permits, and the status of previous actions. Provided input on hazard rankings and contributed to mitigation strategy.			





### 9.14.2 Municipal Profile

The Town of Warrensburg is centrally located in Warren County. The Town has a total land area of 64.8 square miles of which 63.7 square miles is land and 1.1 square miles is water. It is bordered by the Hudson River on the west. U.S. route 9 passes through the Town.

According to the U.S. Census, the 2020 population for the Town of Warrensburg was 3,959, a 3.3 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 5.4 percent of the population is 5 years of age or younger and 19.7 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

Additionally, the Town of Warrensburg has the following vulnerability characteristics (FEMA Resilience Analysis and Planning Tool):

- 14.98% of the population does not have a high school diploma
- 20.05% of the population has a disability
- 15.93% of households do not have a vehicle
- 8.24% of the population is living below the poverty level
- 3.45% of the population is unemployed

### 9.14.3 Jurisdictional Capability Assessment and Integration

The Town of Warrensburg performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Warrensburg to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.





## Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Warrensburg. *The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.*

**Table 9.14-2. Planning, Legal, and Regulatory Capability and Integration**

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	New York State Uniform Fire Prevention and Building Code	Local, County	Planning and Zoning, Warren County Fire Prevention and Building Code Enforcement Department
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Warrensburg has adopted the New York State Uniform Fire Prevention and Building Code to provide for safe new development. The Warren County Fire Prevention and Building Code Enforcement Department is responsible for the enforcement and administration of the New York State Uniform Code and the Energy Conservation Construction Code.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 211- Zoning	Local	Planning and Zoning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance promotes and protects the health, safety and general welfare of the residents of the Town. The Ordinance supports the conservation, protection, development and use of the unique scenic, aesthetic, wildlife, recreational, open space, historic, ecological and natural resources of the community.				
<b>Subdivision Ordinance</b>	Yes	Chapter 178 – Subdivision Regulations	Local	Town Board
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Ordinance requires that lands to be subdivided will have adequate safety measures for building purposes including proper drainage, peril from fire, flooding and other menaces to neighboring properties or public health, safety and welfare. Adequate infrastructure for drainage, water supply, sewerage and other necessities are required for any subdivision of land.				
<b>Site Plan Ordinance</b>	Yes	Chapter 211- Zoning, Article IX – Site Plan Review	Local	Planning and Zoning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The purpose of this Article is to allow for proper integration of uses into the community. All Site Plans have to be properly located and planning with respect to the Towns land use code and Comprehensive Plan, the site plan application must adequately identify its impact and effect on the surrounding areas, and has to accommodate the growth resulting from the proposed use without adverse effect on the Town.				
<b>Stormwater Management Ordinance</b>	No	-	-	-
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Real Estate Disclosure</b>	Yes	Property Condition Disclosure Act, NY Code – Article 14 §460-467	State	NYS Department of State, Real Estate Agent
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> In addition to facing potential liability for failing to disclose under the exceptions to “caveat emptor,” a home seller must make certain disclosures under the law or pay a credit of \$500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.				
<b>Growth Management</b>	No	–	–	–
<b>Environmental Protection Ordinance</b>	No	–	–	–
<b>Flood Damage Prevention Ordinance</b>	Yes	Chapter 116 – Flood Damage Prevention	Federal, State and Local	Planning and Zoning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"><li>A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities</li><li>B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction</li><li>C. Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters.</li><li>D. Control filling, grading, dredging and other development which may increase erosion or flood damages</li><li>E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands</li><li>F. Qualify and maintain for participation in the National Flood Insurance Program.</li></ul> The objective of this Ordinance are to: <ul style="list-style-type: none"><li>A. Protect human life and health</li><li>B. Minimize expenditure of public money for costly flood control projects</li><li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public</li><li>D. Minimize prolonged business interruptions</li><li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard</li><li>F. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas</li><li>G. Provide that developers are notified that property is in an area of special flood hazard</li><li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li></ul> The Ordinance lacks the state’s 2-foot freeboard requirement.				
<b>Wellhead Protection</b>	No	–	–	–
<b>Emergency Management Ordinance</b>	No	–	–	–





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Climate Change Ordinance</b>	No	-	-	-
<b>Other</b>	No	-	-	-
<b>Planning Documents</b>				
<b>Comprehensive Plan</b>	Yes	Town of Warrensburg Comprehensive Plan and Waterfront Revitalization Strategy, 2012	Local	Planning and Zoning
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The Comprehensive Plan focuses on Town-wide economic development and opportunities for tourism, enhancing Hamlet sustainability as the cultural and social pillar of the community, restore, improve and enhance Main Street as the commercial center of the Town, enhance and integrate the Town's waterfront, open space and environmental conservation and protection, diversifying housing types to cater to all demographics, enhance public services, infrastructure, broadband access and community/social interaction, and to maintain, improve, and promote access to existing recreation resources while maintaining and enhancing existing trails and recreation opportunities.</p> <p>The Plan is currently being updated.</p>				
<b>Capital Improvement Plan</b>	No	-	-	-
<b>Disaster Debris Management Plan</b>	No	-	-	-
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-
<b>Stormwater Management Plan</b>	Yes	Stormwater Management Plan, 2018; Storm water mapping report, 2013; Echo lake Water Quality Assessment, 2018	Town, County	Planning; Soil & Water Conservation Same
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>Reduces runoff into the street, reduces icing, also reduces water flow to the Schroon River</p>				
<b>Open Space Plan</b>	No	-	-	-
<b>Urban Water Management Plan</b>	No	-	-	-
<b>Habitat Conservation Plan</b>	No	-	-	-
<b>Economic Development Plan</b>	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	-	-	-





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Community Forest Management Plan	No	-	-	-
Transportation Plan	No	-	-	-
Agriculture Plan	No	-	-	-
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
Tourism Plan	No	-	-	-
Business/ Downtown Development Plan	No	-	-	-
Other (for example NYRCR, etc.)	No	-	-	-
<b>Response/Recovery Planning</b>				
Comprehensive Emergency Management Plan	Yes	Warren County Comprehensive Emergency Management Plan (CEMP)	Local, County	Planning and Zoning
<p><i>How has or will this be integrated with the HMP and how does this reduce risk?</i></p> <p>The County Comprehensive Emergency Management Plan (CEMP) enhances the County's ability to manage emergency/disaster situations. The Plan outlines a comprehensive approach to risk reduction before a disaster or emergency and identifies short and long-term recovery goals</p>				
Continuity of Operations Plan	No	-	-	-
Substantial Damage Response Plan	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Public Health Plan	No	-	-	-
Other	No	-	-	-





## Development and Permitting Capability

The table below summarizes the capabilities of the Town of Warrensburg to oversee and track development.

**Table 9.14-3. Development and Permitting Capability**

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	-
<ul style="list-style-type: none"><li>If you issue development permits, what department is responsible?</li></ul>	N/A	Warren County Building codes does all inspections, Planning & Zoning
<ul style="list-style-type: none"><li>If you do not issue development permits, what is your process for tracking new development?</li></ul>	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	When issued they are reviewed for flood zone
Do you have a buildable land inventory?	No	-
<ul style="list-style-type: none"><li>If you have a buildable land inventory, please describe</li></ul>	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	Roughly 60 percent of the Town is built out.

## Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Warrensburg and their current responsibilities that contribute to hazard mitigation.

**Table 9.14-4. Administrative and Technical Capabilities**

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board is responsible for reviewing residential and commercial land use development permits, site plan review and approval, major and minor subdivision review and approval.
Zoning Board of Adjustment	Yes	The Zoning Board of Appeals is responsible for reviewing and approving all area variance applications and use variance applications
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	The Economic Development Committee
Public Works/Highway Department	Yes	Highway Department
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Warrensburg EMS and Volunteer Fire Department
Warning Systems / Services	No	-





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
(mass notification system, outdoor warning signals, etc.)		
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Warrensburg Volunteer Fire Department
Human Resources Manual – Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Cedarwood Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Cedarwood Engineer
Planners or engineers with an understanding of natural hazards	Yes	Cedarwood Engineer
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Zoning Administrator, GIS
Environmental scientist familiar with natural hazards	Yes	Cedarwood Engineering
Surveyor(s)	No	-
Emergency Manager	No	-
Grant writer(s)	Yes	Bookkeeper/Grant Writer Staff
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

## Fiscal Capability

The table below summarizes financial resources available to the Town of Warrensburg.

**Table 9.14-5. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas or electric service	Yes – Sewer/Water
Impact fees for homebuyers or developers of new development/homes	No





Financial Resources	Accessible or Eligible to Use? (Yes/No)
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

## Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Warrensburg.

**Table 9.14-6. Education and Outreach Capabilities**

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? <ul style="list-style-type: none"><li>If yes, please describe.</li></ul>	No	-

## Community Classifications

The table below summarizes classifications for community programs available to the Town of Warrensburg.

**Table 9.14-7. Community Classifications**

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-





New York State Department of Environmental Conservation (NYSDEC) Climate Smart Community	No	-	-
Storm Ready Certification	No	Warren County is certified	-
Firewise Communities classification	No	-	-
Other	No	-	-

Note:

N/A Not applicable

- Unavailable

## Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

**Table 9.14-8. Adaptive Capacity**

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Storm	Strong
Severe Winter Storm	Strong
Wildfire	Moderate
Infestation	Moderate
Dam Failure	Moderate
Disease Outbreak	Moderate

### 9.14.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Warrensburg.





Table 9.14-9. NFIP Summary

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties (FMA definition)	# RL Properties (NFIP definition)	# SRL Properties
Town of Warrensburg	9	8	\$11,649	0	0	0

Source: FEMA 2023

Notes: Claims and payment data per HUDEX report accessed 1/26/2023

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.

## Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Warrensburg.

Table 9.14-10. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> <li>Do you maintain a list of properties that have been damaged by flooding?</li> </ul>	Area of 52 River Street (poor drainage and road elevation) Warren Street and Swan Street Road flooding from storm runoff
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> <li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li> </ul>	No list is maintained.  None as of this date.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> <li>If so, state what projects are underway.</li> </ul>	FEMA is updating the floodplain maps
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Actual Visit of the area affected None
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"> <li>If there are mitigation properties, how were the projects funded?</li> </ul>	One new construction at 47 River Street.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	No. FEMA Maps are outdated. Show flood hazards where none exist
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	Zoning Administrator
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No





NFIP Topic	Comments
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	Additional training and resources would be a benefit to the administrator
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The Town performs floodplain management activities including identification of structures within the floodplain. While local floodplain management is the responsibility of the Town, the Warren County Fire Prevention and Building Codes Enforcement Department is responsible for building code reviews in compliance with the NYS Uniform Code within the Town. Upon receipt of a signed zoning compliance certificate, the county performs the code.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Review of the proposed project Plans
What are the barriers to running an effective NFIP program in the community, if any?	Staffing shortage
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"><li>If so, state the violations.</li></ul>	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV: May 17, 2021
What is the local law number or municipal code of your flood damage prevention ordinance? <ul style="list-style-type: none"><li>What is the date that your flood damage prevention ordinance was last amended?</li></ul>	Chapter 116 – Flood Damage Prevention
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"><li>If exceeds, in what ways?</li></ul>	Meets
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Yes, planning board would take flood locations into consideration
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not at this time

### 9.14.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Table 9.14-11 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.



**Table 9.14-11. Recent and Expected Future Development**

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	3	N/A	3	N/A	5	N/A	6	N/A	6	N/A	11	N/A
Multi-Family	1	N/A	1	N/A	0	N/A	0	N/A	0	N/A	0	N/A
Other (commercial, mixed-use, etc.)	1	N/A	2	N/A	6	N/A	0	N/A	2	N/A	4	N/A
Total New Construction Permits Issued	5	N/A	6	N/A	11	N/A	6	N/A	8	N/A	15	N/A
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development					
Recent Major Development and Infrastructure from 2017 to Present												
Krystal Chrysler	Commercial	1	3940 Main Street		None		Complete					
Dollar General	Commercial	1	3760 Main Street		None		Complete					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None anticipated.												

SFHA Special Flood Hazard Area (1% flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

Note: Information on permits within the SFHA was unavailable for this planning process.

## 9.14.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.2 (Methodology and Tools) and Section 5.4 (Hazard Ranking) provide detailed summaries for the Town of Warrensburg's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Only maps for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Warrensburg has significant exposure are provided. The source of the regulatory floodplain information is from Warren County georeferenced FIRM maps dated from the 1980s and 1990s.





Figure 9.14-1. Town of Warrensburg Flood Hazard Area Extent and Location Map

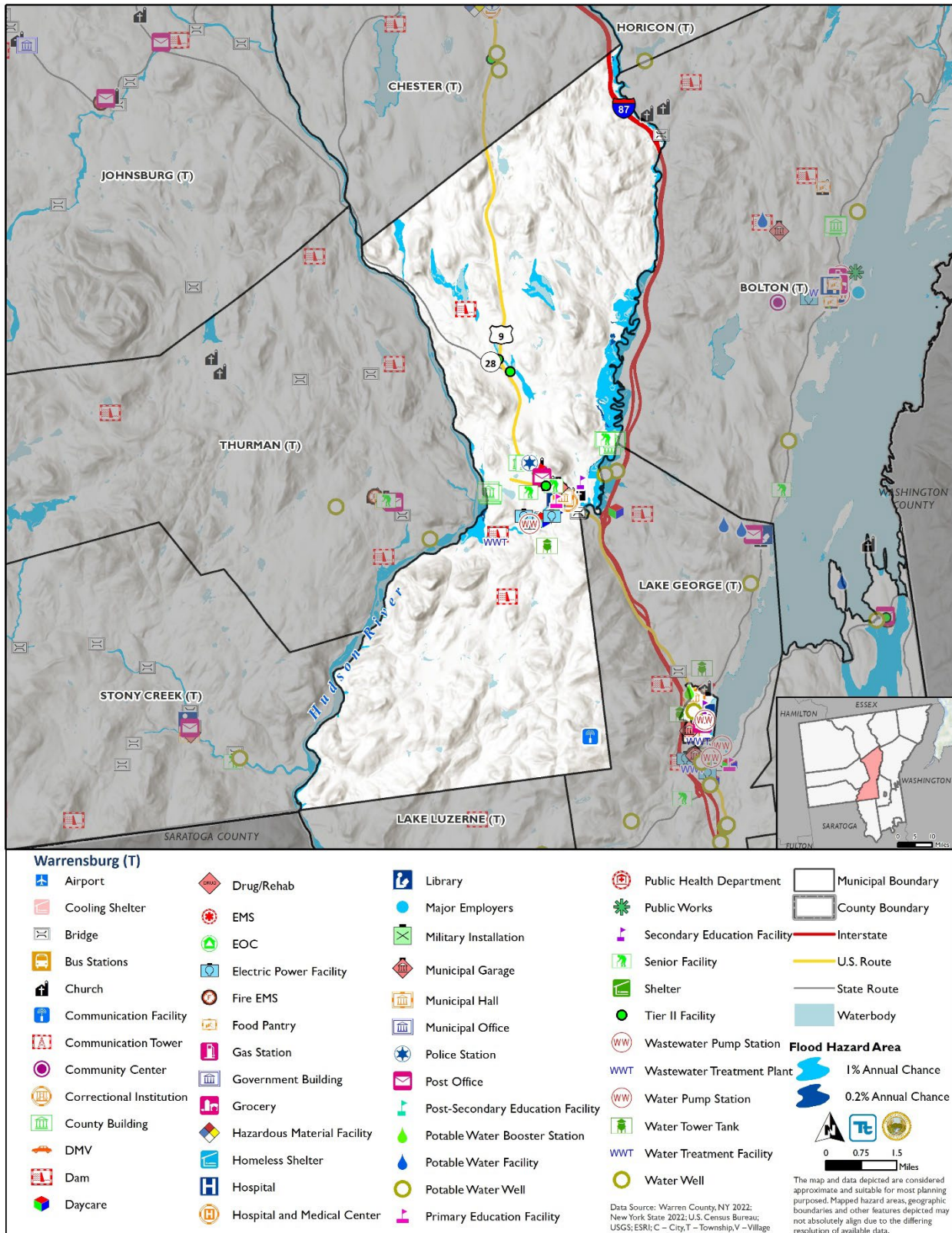






Figure 9.14-2. Town of Warrensburg Earthquake (Soil Class) Hazard Area Extent and Location Map

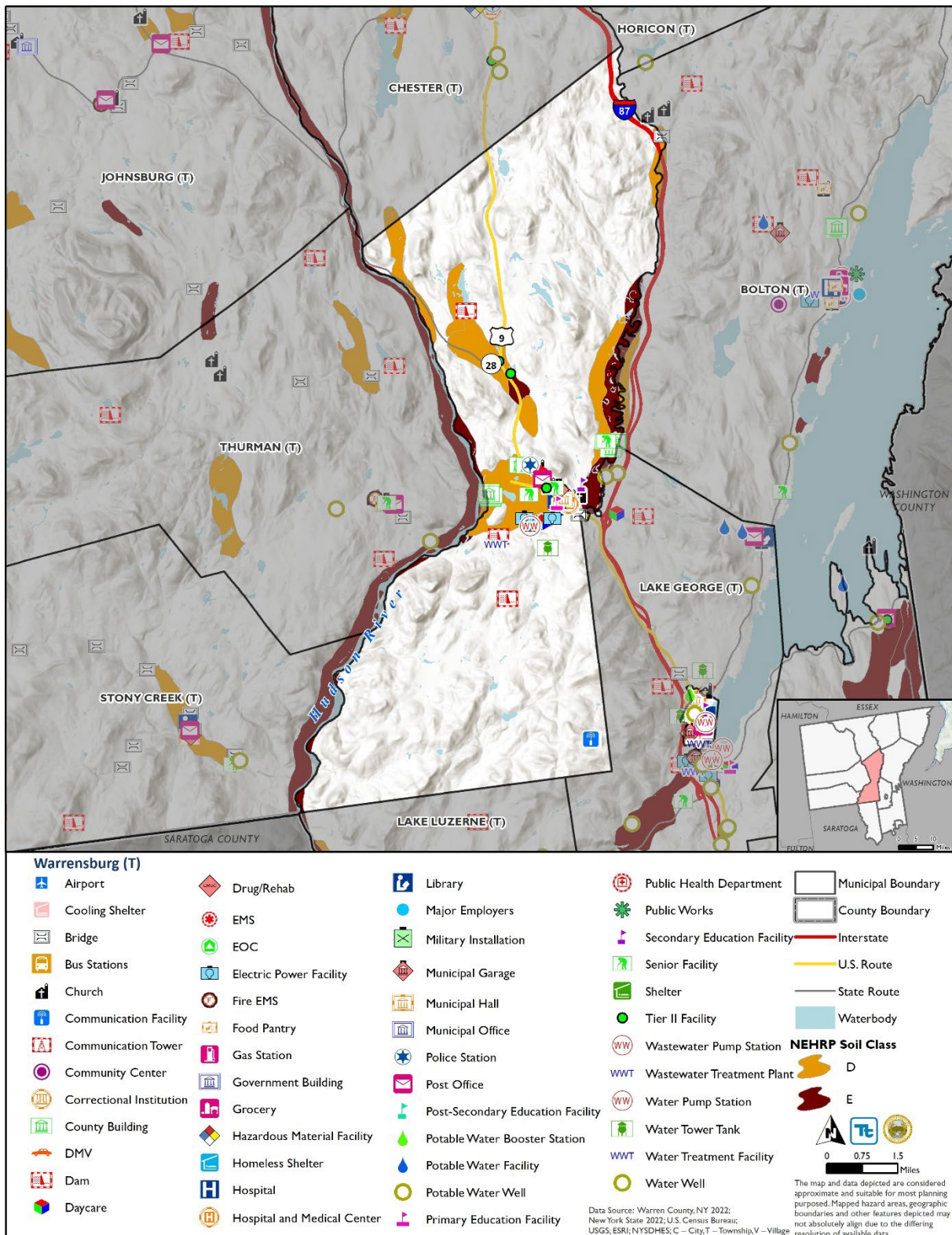
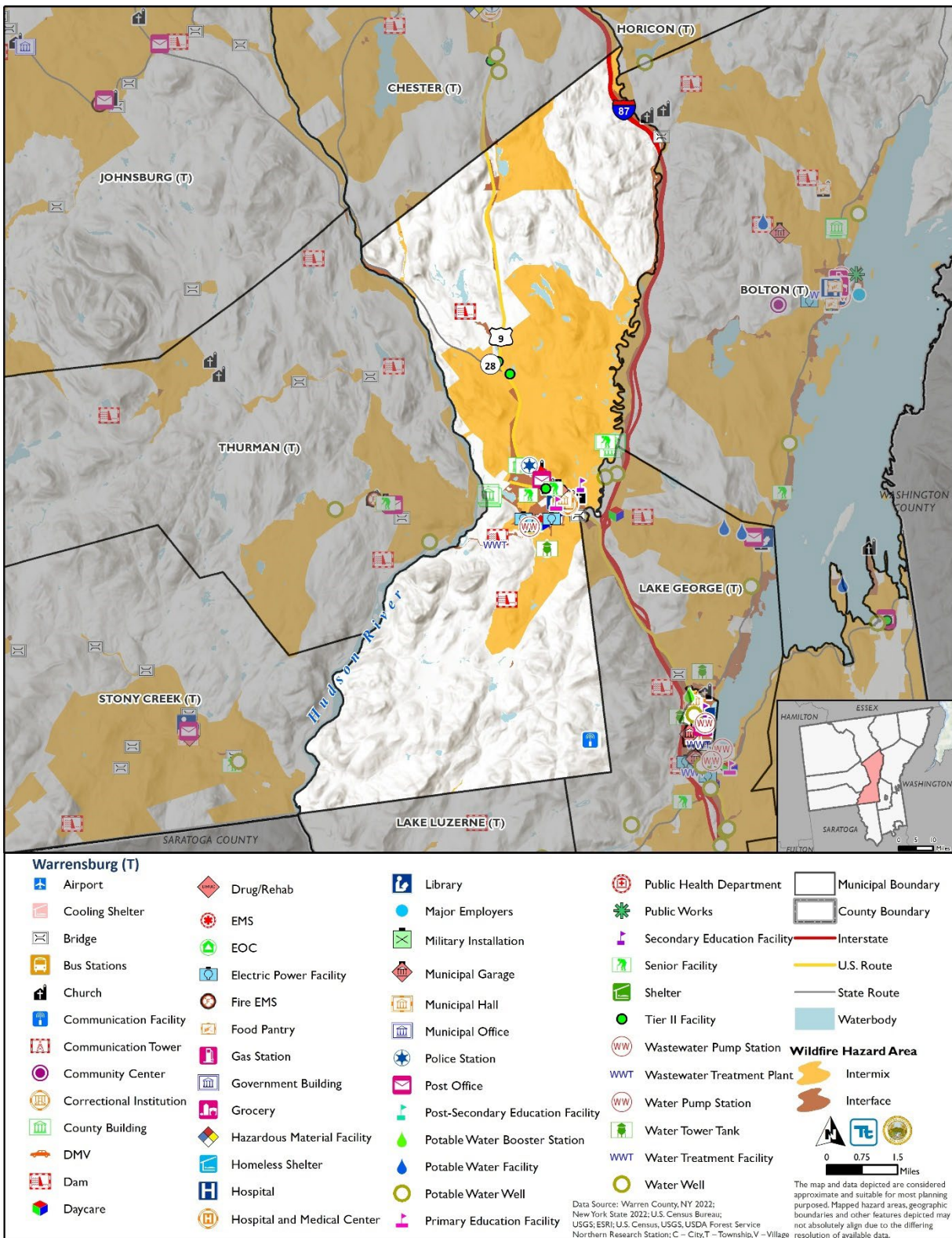






Figure 9.14 3. Town of Warrensburg Wildfire Hazard Area Extent and Location Map







## Hazard Event History

Warren County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 5 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Warrensburg's history of federally-declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. Table 9.14-12 provides details regarding municipal-specific loss and damages the Town experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

**Table 9.14-12. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening low pressure system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front, resulting in sporadic wind damage and scattered power outages over eastern New York.	A large swath of rainfall totaling 2–5 inches, with isolated areas as high as 7 inches, occurred over the Mohawk Valley and southern Adirondacks, resulting in reports of flash flooding. The runoff caused rapid rises on area creeks and streams, with river gauges reaching record levels along the Mohawk River at Little Falls, the West Canada Creek at Hinckley and Kast Bridge, and the Sacandaga River at Hope.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19	The Town was subject to closures and masking/social distancing requirements.
2020	Ice Jams	No	Ice jams occurred on the Hudson River.	Ice jam flooding impacted the Cronins Golf Course and the Fish Hatchery Building.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable





## Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 5 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Warrensburg's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 5.3 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Warrensburg. The Town of Warrensburg reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town indicated the following:

- The Town agreed with the calculated hazard rankings.

**Table 9.14-13. Hazard Ranking Input**

Earthquake	Extreme Temperature	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation
Medium	Medium	Low	High	High	High	Medium

Dam Failure	Disease Outbreak
Medium	Low

Note: The scale is based on the hazard rankings established in Volume 1, Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction

### Critical Facilities

NYSDEC Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a SFHA unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, New York State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 0.2-percent annual chance





flood event or worst damage scenario. For those that do not meet these criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

**Table 9.14-14. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Addressed by Proposed Action	Already Protected to 0.2% Flood Level (describe protections)
		1% Event	0.2% Event		
County Home	Bridge	X	X	2023-Town of Warrensburg-010	County owned, replaced recently
Judd	Bridge	X	X	2023-Town of Warrensburg-010	County owned, replaced recently
Milton	Bridge	X	X	2023-Town of Warrensburg-010	County owned, replaced recently
Bert Murray	Bridge	X	X	2023-Town of Warrensburg-010	County owned, replaced recently
Pack Forest Lake Dam	Dam	X	X	2023-Town of Warrensburg-010	Owned by Syracuse University. Managed by SUNY ESF.
Fairgrounds Facilities	County Building	X	X	2023-Town of Warrensburg-010	County owned buildings. One facility at higher risk elevated with sump pumps. New dam was placed on the Schroon River to control flooding.
Water Well, Schroon River Road	Water Well	X	X	-	Designed to withstand flooding

Source: Warren County 2022

## Identified Issues

After review of the Town of Warrensburg's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Warrensburg identified the following vulnerabilities within their community:

- Critical facilities require backup power to maintain continuity of operations. Town Hall lacks a backup power source.
- The Town is interested in investigating potential locations to install a fourth public water well in the Town of Warrensburg.
- The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.
- The floodplain administrator requires additional training.





- Integration of hazard mitigation concepts is needed to support the Town of Warrensburg Comprehensive Plan and Waterfront Revitalization Strategy update. The Plan was originally written in 2012.
- The Middleton Bridge is located in the Towns of Bolton and Warrensburg and crosses the Schroon River. The bridge is failing and has been closed. A replacement bridge is needed.\*
- Current floodplain mapping is outdated and has incorrectly mapped floodplains.
- River Street, Warren Street, and Swan Street experience stormwater flooding due to incorrectly graded roadway surfaces.
- While major events that result in substantial damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.
- Several critical facilities located within the Town's floodplain are not owned by the Town.

\*This issue was identified as a specific area of concern based on resident response to the Warren County Hazard Mitigation Citizen survey.

### 9.14.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

#### Past Mitigation Initiative Status

---

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.





**Table 9.14-15. Status of Previous Mitigation Actions**

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
WT-1 (carryover)	Educate residents and contractors regarding steps to be taken to decrease the impact of natural hazards (including ice storms, wild/forest fires, severe storms, tornado, earthquakes, flooding, and all other natural hazards) by developing, enhancing, and implementing education programs, brochures, school presentations informing groups about ways to reduce risk, and other outreach activities.	All Hazards		Town Board; Superintendent of school districts; County Office of Emergency Services; NYSDEC; Highway Dept	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
WT-2	Obtain funding, purchase, and install generators for municipally-owned critical facilities including: Town Hall	All Hazards		Town Board, County OES	In Progress; a new addition to the Fire House was completed and the	Cost		1. Include in 2023 HMP 2. Town Hall requires completion. The Firehouse is a designated shelter for the Town. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





## SECTION 9.14. Town of Warrensburg

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
	High School				entire building, old and new are on a backup generator.			1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
WT-3 (carryover)	Maintain a current inventory of at-risk buildings and infrastructure and continually update inventory of at-risk structures in each jurisdiction.	All Hazards		Town Board, Planning Department	No Progress	Cost		1. Discontinue 2. 3. No longer a priority
						Level of Protection		
						Damages Avoided; Evidence of Success		
WT-4 (carryover)	Provide annual education and training for local Floodplain Administrator to ensure code enforcement and proper inspections.	Flood		Town Board	No Progress	Cost		1. Discontinue 2. 3. Responsibilities of NFIP administration are with Warren County
						Level of Protection		
						Damages Avoided; Evidence of Success		
WT-5	Culvert improvement projects. Upsize Cross Road culvert. Roadway elevation and culvert improvement at Swan Street.	Severe Storm, Flood		Town Board, Highway Department	Complete; Culverts have been inspected by the Highway Supervisor Ed Pennock. New culverts to prevent washouts have been installed at	Cost		1. Discontinue 2. 3. Complete
						Level of Protection		
						Damages Avoided; Evidence of Success		





## SECTION 9.14. Town of Warrensburg

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
					the following locations. (A) Viele Pond Road (B) Library Ave Extension (C) Alden Ave. (D) Rock Ave. ( Pucker Street) Drop inlets and catch basins were cleaned, leaves were removed from along Town Highways, including brush.			
WT-6	Investigate potential locations and install a fourth public water well in the Town of Warrensburg.	All Hazards		Town Board	In Progress; The Town has and is working with the Town Engineering firm Cedar wood Engineering to establish, new well sites. A new water Main	Cost		1. Include in 2023 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, No Complete)	Next Steps		
						Evaluation of Success (if project status is complete)		
					is currently being installed on Alden Ave form the water supply tank on Alden Ave. This project is under construction and not complete to date. A new water supply line is being installed across the Rt. 9 Bridge coming into Town to replace the old one. That project is under construction and not complete. The Town Sewer plant will in the spring of 2023 go thru a cleaning of the sludge pits. That			<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Next Steps		
						Evaluation of Success (if project status is <u>complete</u> )		
					project is on hold due to weather, looking at spring completion.			<ol style="list-style-type: none"><li>1. Project to be included in 2023 HMP or Discontinue</li><li>2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate).</li><li>3. If discontinue, explain why.</li></ol>





## Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.14-15, the Town of Warrensburg identified the following mitigation efforts completed since the last HMP:

- None identified

## Proposed Hazard Mitigation Initiatives for the HMP Update

The Town of Warrensburg participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

**Table 9.14-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Earthquake	X	X			X	X				X
Extreme Temperature	X	X			X	X				X
Flood	X	X		X	X	X	X		X	X
Severe Storm	X	X			X	X			X	X
Severe Winter Storm	X	X			X	X				X
Wildfire	X	X			X	X				X
Infestation	X	X			X	X				X
Dam Failure	X	X			X	X				X
Disease Outbreak	X	X			X	X				X

Note: Mitigation categories are described below the Mitigation Initiatives Table (Table 9.14-17).

The table below summarizes the specific mitigation initiatives the Town of Warrensburg would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.





Table 9.14-17. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Warrensburg-001	Town Hall Backup Power	1, 3	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Dam Failure	<b>Problem:</b> Critical facilities require backup power to maintain continuity of operations. Town Hall lacks a backup power source. <b>Solution:</b> The Engineer will research what size generator is needed to power each facility. The Town will then purchase and install the selected generator and necessary electrical components	Yes	None	Within 5 years	Engineer, Highway Department	High	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.	HMGP, PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	High	SIP	ES





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				to supply backup power to each facility. The Highway Department will be responsible for maintenance and testing of each generator following installation.										
2023-Town of Warrensburg-002	Public Water Well	1	Wildfire	<b>Problem:</b> The Town is interested in investigating potential locations to install a fourth public water well in the Town of Warrensburg. <b>Solution:</b> The Town will continue working with the Town Engineering firm Cedar	Yes	None	Within 5 years	Town Engineering	High	Increased protection from drought	BRIC, Town budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				wood Engineering to establish new well sites. Once identified, the Town will install the well.										
2023-Town of Warrensburg-003	Flood Damage Prevention Ordinance Update	1	Flood	<p><b>Problem:</b> The Town's flood damage prevention ordinance requires update to meet state freeboard requirements. The current ordinance does not have a freeboard requirement.</p> <p><b>Solution:</b> The Town will update and adopt the ordinance to include a 2 feet freeboard requirement</p>	No	None	1 year	FPA, Town Board	Staff time	Meet state standards, increased building requirements	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2023-Town of Warrensburg-004	Floodplain Administration or Training	4	Flood	<p><b>Problem:</b> The floodplain administrator requires additional training.</p> <p><b>Solution:</b> The Town will send the FPA to available training from NYS and FEMA and consider certified floodplain manager training.</p>	No	None	2 years	FPA, Administration	Staff time	Increase floodplain administration capabilities	Town budget	High	LP R	PR
2023-Town of Warrensburg-005	Hazard Mitigation Integration	4	Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire, Infestation, Dam Failure,	<b>Problem:</b> Integration of hazard mitigation concepts is needed to support the Town of Warrensburg Comprehensive Plan and Waterfront Revitalization Strategy	No	None	2 years	Town Board, Planning Department	Low	Increased integration and planning consistency	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Disease Outbreak	<p>update. The Plan was originally written in 2012.</p> <p><b>Solution:</b> The Town will update the Town of Warrensburg Comprehensive Plan and Waterfront Revitalization Strategy using information from this hazard mitigation plan update to inform hazard areas and hazard mitigation techniques.</p>										
2023-Town of Warrensburg-006	Middleton Bridge Replacement	1	Earthquake, Extreme Temperature, Flood, Severe Storm	<b>Problem:</b> The Middleton Bridge is located in the Towns of Bolton and Warrensburg and crosses	No	Will require permitting	Within 5 years	WCDPW, A/GFTC, Town of Warrensburg Administration, Town of Bolton	High	Vital transportation route reestablished	BRIC, PDM, HMGP, County budget	High	SIP	PP





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				<p>the Schroon River. The bridge is failing and has been closed. A replacement bridge is needed.</p> <p><b>Solution:</b> The Town will support the County's efforts to replace the bridge and provide data and information as necessary.</p>										
2023-Town of Warrensburg-007	Support Updated FIRMs	1, 4	Flood	<p><b>Problem:</b> Current floodplain mapping is outdated and has incorrectly mapped floodplains.</p> <p><b>Solution:</b> The Town will assist FEMA during</p>	No	None	Within 5 years	FPA	Staff time	Improved floodplain mapping	Town budget	High	LP R	PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				remapping and provide input and data where possible.										
2023-Town of Warrensburg-008	Stormwater Upgrades	1	Flood, Severe Storm	<b>Problem:</b> River Street, Warren Street, and Swan Street experience stormwater flooding due to incorrectly graded roadway surfaces. <b>Solution:</b> The Highway Department will regrade the roadways so stormwater is directed towards current drop inlet locations.	No	None	Within 5 years	Highway Department	High	Improved stormwater management, reduction in flooding	HMGP, Town budget	High	SIP	SP
2023-Town of Warrensburg-009	Substantial Damage Procedures	3	Earthquake, Flood, Severe Storm, Severe	<b>Problem:</b> While major events that result in substantial	No	None	Within 5 years	FPA	Staff time	Meet NFIP requirements, improved floodplain administrati	Municipal budget	High	LP R	PP, PR





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
			Winter Storm, Wildfire, Dam Failure	damage of structures are rare, official procedures need to be in place to inspect structures, make determinations, and provide for appeals.						on; improved recovery efforts				
				<b>Solution:</b> The Town will develop official procedures for Substantial Damage and Substantial Improvement determinations. The Town will review current building and zoning requirements to ensure proper alignment										





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				and make updates to the building and zoning as needed to address earthquake, flood, severe storm, severe winter storm, wildfire, and dam failure hazards.										
2023-Town of Warrensburg-010	Critical Facility Outreach	4	Flood	<b>Problem:</b> Several critical facilities located within the Town's floodplain are not owned by the Town. <b>Solution:</b> The Town will conduct outreach to the facility managers to discuss flood exposure and potential mitigation measures	Yes 💧	None	Within 6 months	FPA	Staff time	Facility managers aware of flood risk and potential mitigation options	Town budget	High	EAP	PI





Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				that could be considered.										

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:

Yes  Critical Facility located in 1% floodplain

Mitigation Category:

- Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.





- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*





The prioritization criteria provided in Volume 1 Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

**Table 9.14-18. Summary of Prioritization of Actions**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Warrensburg - 001	Town Hall Backup Power	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Warrensburg - 002	Public Water Well	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2023-Town of Warrensburg - 003	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Town of Warrensburg - 004	Floodplain Administrator Training	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-Town of Warrensburg - 005	Hazard Mitigation Integration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Town of Warrensburg - 006	Middleton Bridge Replacement	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023-Town of Warrensburg - 007	Support Updated FIRMs	0	1	1	1	1	1	1	1	1	1	0	0	1	1	11	High





Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Warrensburg-008	Stormwater Upgrades	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2023-Town of Warrensburg-009	Substantial Damage Procedures	0	1	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2023-Town of Warrensburg-010	Critical Facility Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).





### 9.14.8 Action Worksheets

The following action worksheets were developed by the Town of Warrensburg to aid in the submittal of grant applications to support the funding of high priority proposed actions.





Action Worksheet			
<b>Project Name:</b>	Town Hall Backup Power		
<b>Project Number:</b>	2023-Town of Warrensburg-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	Critical facilities require backup power to maintain continuity of operations. Town Hall lacks a backup power source.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will research what size generator is needed to power each facility. The Town will then purchase and install the selected generator and necessary electrical components to supply backup power to each facility. The Highway Department will be responsible for maintenance and testing of each generator following installation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is this project related to a Critical Facility located within the 100-year floodplain?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Engineer, Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



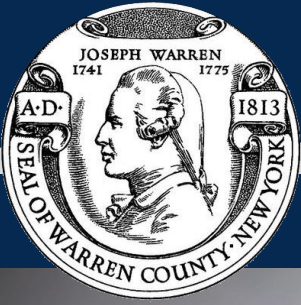


Action Worksheet		
<b>Project Name:</b>	Town Hall Backup Power	
<b>Project Number:</b>	2023-Town of Warrensburg-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of Town Hall
Property Protection	1	Project will protect building from power loss.
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	0	Within 5 years
Agency Champion	1	Engineer, Highway Department
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



# HAZARD MITIGATION PLAN

Warren County, New York



## APPENDICES



2023



Prepared By:  
Tetra Tech, Inc.  
6 Century Drive, Suite 300  
Parsippany, NJ 07054





## TABLE OF CONTENTS

### APPENDICES

Appendix A	Plan Adoption .....	A-1
Appendix B	Participation Matrix .....	B-1
Appendix C	Meeting Documentation .....	C-1
Appendix D	Public and Stakeholder Outreach.....	D-1
Appendix E	Supplementary Data .....	E-1
Appendix F	Critical Facilities .....	F-1
Appendix G	Plan Review Tools .....	G-1
Appendix H	NYSDHSES Guidance .....	H-1
Appendix I	Dam Failure .....	I-1
Appendix J	Public Comment.....	J-1





## APPENDIX A. ADOPTION RESOLUTIONS

The Warren County and municipal adoption resolutions will be included in this appendix upon receipt of the Federal Emergency Management Agency (FEMA) Approval Pending Adoption (APA) status. Please refer to Section 8 (Planning Partnership) for additional information on plan adoption procedures.

This appendix also includes an example resolution to be submitted by Warren County and participating jurisdictions authorizing adoption of the Warren County Hazard Mitigation Plan Update.





RESOLUTION NO. XXXX-XX  
A RESOLUTION OF THE **Governing Body** OF THE **Jurisdiction Name**  
AUTHORIZING THE ADOPTION OF THE  
2023 WARREN COUNTY, NY  
HAZARD MITIGATION PLAN UPDATE

WHEREAS the **(local governing body)** recognizes the threat that natural hazards pose to people and property within **(local government)**; and

WHEREAS the **(local government)** has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in **(local community)** from the impacts of future hazards and disasters; and

WHEREAS adoption by the **(local governing body)** demonstrates their commitment to hazard mitigation and achieving the goals outlined in the (title and date of mitigation plan).

NOW THEREFORE, BE IT RESOLVED BY THE **(LOCAL COMMUNITY), (STATE)**, THAT:

In accordance with **(local rule for adopting resolutions)**, the **(local governing body)** adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

ADOPTED by a vote of \_\_\_\_ in favor and \_\_\_\_ against, and \_\_\_\_ abstaining, this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_.

By: \_\_\_\_\_

(print name)

ATTEST: By: \_\_\_\_\_

(print name)

APPROVED AS TO FORM: By: \_\_\_\_\_

(print name)

ABSTAIN: \_\_\_\_\_

Mayor, **City/Town/Village** of \_\_\_\_\_

ATTEST: \_\_\_\_\_

Clerk, **City/Town/Village** of \_\_\_\_\_



# Warren County Board of Supervisors

## RESOLUTION NO. 493 OF 2023

**RESOLUTION INTRODUCED BY SUPERVISORS GERACI, MAGOWAN, SMITH, CONOVER, MCDEVITT, DRISCOLL, AND LEGGETT**

### **ADOPTING THE 2023 WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**

WHEREAS, Warren County recognizes the threat that natural hazards pose to people and property with Warren County, and

WHEREAS, Warren County has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000, and

WHEREAS, the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Warren County from the impacts of future hazards and disasters, and

WHEREAS, adoption by the Warren County Board of Supervisors demonstrates their commitment to hazard mitigation and achieving the goals outline in the 2023 Warren County Hazard Mitigation Plan, now, therefore, be it

RESOLVED, that the Warren County Board of Supervisors hereby adopts the 2023 Warren County Hazard Mitigation Plan, which is located and accessible at [www.warrencountynewyorkhmp.com](http://www.warrencountynewyorkhmp.com), and incorporated by reference herein, and be it further

RESOLVED, that this Plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations and only applies to this specific Plan and does not absolve the community from updating the Plan in 5 years.



STATE OF NEW YORK )  
 )ss.:  
COUNTY OF WARREN )

I, AMANDA ALLEN, Clerk, of the Board of Supervisors of the County of Warren, do hereby certify that the foregoing is a true and correct copy and the whole thereof of a Resolution duly adopted by the Board of Supervisors of the County of Warren, Lake George, New York at their Regular Board Meeting held on the 17<sup>th</sup> day of November, 2023.

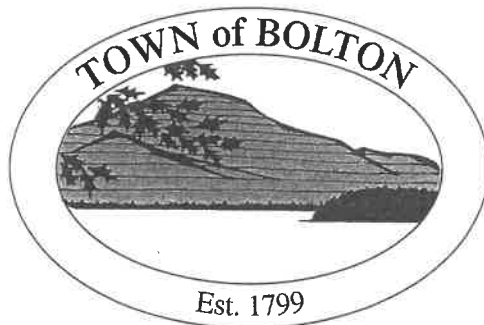
IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Board of Supervisors on this 30<sup>th</sup> day of January, 2024.

  
Amanda Allen, Clerk  
Warren County Board of Supervisors

*(Affix seal above)*



Assessor  
644-2894  
Justice Court  
644-2202  
Planning  
644-2893



Supervisor  
644-2461  
Town Clerk  
644-2444  
Fax  
518-644-2476

**RESOLUTION #346**

Councilmember Murnane moved, seconded by Councilmember MacEwan to authorize the adoption of the 2023 Warren County, NY Hazard Mitigation Plan Update as follows:

WHEREAS the Town of Bolton recognizes the threat that natural hazards pose to people and property within the Town of Bolton; and

WHEREAS the Town of Bolton has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Bolton from the impacts of future hazards and disasters; and

WHEREAS adoption by the Town of Bolton demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2023 Warren County, NY Hazard Mitigation Plan Update.

NOW THEREFORE, BE IT RESOLVED BY THE Town of Bolton, NY, THAT:

Section 1. In accordance with Municipal Home Rule, the Town of Bolton adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years. **All in Favor. Motion Carried.**



## CERTIFICATE OF RECORDING OFFICER

I, Jodi Petteys, Town Clerk of the Town of Bolton, Warren County, New York, do hereby certify that the attached is a true and correct copy of Resolution #346 of 2023, as adopted at a legally convened meeting of the Town Board of the Town of Bolton duly held on the 27<sup>th</sup> day of December 2023; and further that such a resolution has been fully recorded in the Town Minute Book in my office.

In witness thereof, I hereunto set my hand this 9<sup>th</sup> day of January, 2024.

  
SIGNATURE OF RECORDING OFFICER

  
TITLE OF RECORDING OFFICER





## **Town Clerk**

6307 State Route 9, P.O. Box 467  
Chestertown, New York 12817  
Tel: (518)494-5160  
Email: [TownClerk@townofchesterny.org](mailto:TownClerk@townofchesterny.org)

January 24, 2024

Warren County SWCD  
Jim Lieberum  
394 Schroon River Road  
Warrensburg, NY 12855

The following Resolution was adopted on January 9, 2024 regarding the Hazard Mitigation Plan Update:

**RESOLUTION NO. 24 OF 2024: AUTHORIZING THE ADOPTION OF THE 2023 WARREN COUNTY, NY HAZARD MITIGATION PLAN UPDATE**

**WHEREAS**, the Town of Chester recognizes the threat that natural hazards pose to people and property within the Town of Chester; and

**WHEREAS**, the Town of Chester has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS**, the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Chester from the impacts of future hazards and disasters; and

**WHEREAS**, adoption by the Town of Chester demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Warren County Hazard Mitigation Plan 2023 Update.

**NOW THEREFORE, BE IT RESOLVED**, by the Town of Chester, Warren County, New York, adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

On a motion by Councilwoman DuRose, seconded by Councilperson Cooper, Resolution No. 24 of 2024 was **ADOPTED**.

AYE 4 NO 0

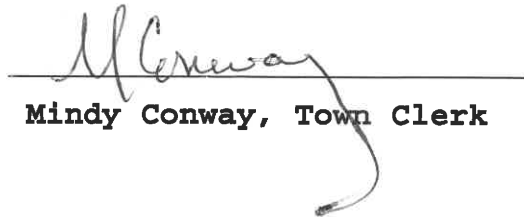


STATE OF NEW YORK

COUNTY OF WARREN

I, Mindy Conway, Town Clerk of the Town Board of the Town of Chester, Warren County, New York, do hereby certify that the forgoing is a true and correct copy of the whole thereof a Resolution duly adopted by the Town Board on the 9<sup>th</sup> day of January 2024.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official Seal of the Town of Chester this 24<sup>th</sup> day of January 2024.

  
Mindy Conway, Town Clerk



At a regular City of Glens Falls Common Council meeting held on Tuesday, February 13<sup>th</sup>, 2024, at City Hall, 42 Ridge Street, Glens Falls, New York 12801, the following resolution was passed:

**RESOLUTION NO. 27**

On the motion of Councilman-At-Large Clark, seconded by Councilwoman Gooden, all voting affirmatively, it was

**RESOLVED THAT,** The Common Council hereby approves and adopts the 2023 Warren County Hazard Mitigation Plan. This plan may be edited or amended after submission for review but will not require the city to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

**AYES:** Councilman-At-Large Clark, Councilman Landry, Councilwoman Gooden, Councilman Donohue, and Councilman Lapham.

**NAYS:** None.

**ABSTAIN:** None.

**ABSENT:** Councilwoman Palmer.

Said resolution hereby declared as **ADOPTED**.



**CITY OF GLENS FALLS**

**STATE OF NEW YORK            ss:**

**COUNTY OF WARREN**

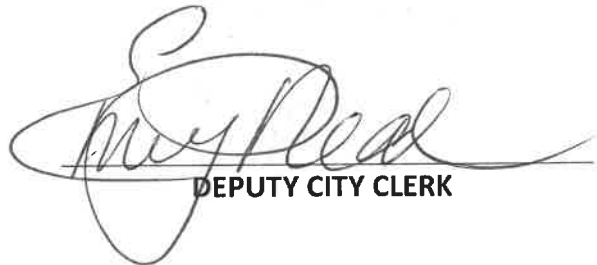
I, Emily Neal, **Deputy City Clerk** of the City of Glens Falls and Clerk to the **COMMON COUNCIL** of said City, do hereby certify that the Resolution and Order, of which the foregoing is a copy, was duly adopted by the **COMMON COUNCIL** of the City of Glens Falls, at a meeting of said **COMMON COUNCIL** held on the **13<sup>th</sup> day of February, 2024** and that I have compared the preceding resolution with the original resolution duly adopted by the said **COMMON COUNCIL** and contained in the minutes of said meeting of said **COMMON COUNCIL** now on file in my office, and that the same is a correct transcript therefrom and of the whole of said original.

**IN WITNESS WHEREOF, I HAVE HEREUNTO**

**subscribed my name and affixed the seal**

**of said City,**

**this 4<sup>th</sup> day of March 2024**



**DEPUTY CITY CLERK**



# Town of Hague

Community Center • 9793 Graphite Mountain Road • P.O. Box 509 • Hague, NY 12836

## RESOLUTION # 83 OF 2023

### **A RESOLUTION AUTHORIZING THE ADOPTION OF THE 2023 WARREN COUNTY, NY HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the Hague Town Board recognizes the threat that natural hazards pose to people and property  
Within the Town of Hague, and

WHEREAS, the Town of Hague has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren  
County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce  
or eliminate long-term risk to people and property in the Town of Hague from the impacts of future  
hazards and disasters; and

WHEREAS, adoption by the Hague Town Board demonstrates their commitment to hazard mitigation and  
achieving the goals outlined in the 2023 Warren County Hazard Mitigation Plan, NOW THEREFORE,  
BE IT

RESOLVED, that the Hague Town Board hereby adopts the 2023 Warren County Hazard Mitigation Plan. This  
plan may be edited or amended after submission for review, but will not require the re-adoption  
of any further iterations. This only applies to this specific plan and does not absolve the Town  
Board from updating the plan in 5 years.

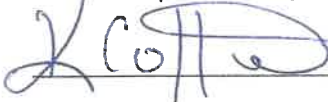
DULY ADOPTED BY THE FOLLOWING VOTE:

AYES: Deputy Supervisor Ramant, Cherubini, Bast, Patchett

NAYS: None

ABSENT: Supervisor Frasier

DATED: September 19, 2023



KIM COFFIN TOWN CLERK



**SUPERVISOR**  
Michael N. Geraci  
518-494-3647

**TOWN CLERK/TAX COLLECTOR**  
Krista Wood  
518-494-4643

**HIGHWAY SUPERINTENDENT**  
Darian Granger  
518-494-2115



**ASSESSOR**  
Christine Hayes  
518-494-4198

**ZONING ADMINISTRATOR**  
Matthew Magee  
518-494-4245

**TOWN COUNSEL**  
Mark Schachner  
518-793-6611

## HAMLETS OF ADIRONDACK & BRANT LAKE

### RESOLUTION #147-2023

Councilman Palmer and Councilman Olson introduced Res. No. 147 and moved its adoption:

**A RESOLUTION OF THE TOWN BOARD OF THE TOWN OF HORICON AUTHORIZING THE ADOPTION OF THE  
2023 WARREN COUNTY, NY HAZARD MITIGATION PLAN UPDATE**

WHEREAS the Horicon Town Board recognizes the threat that natural hazards pose to people and property within Town of Horicon; and

WHEREAS the Horicon Town Board has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Horicon from the impacts of future hazards and disasters; and

WHEREAS adoption by the Horicon Town Board demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2023 Warren County Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF HORICON, NY, THAT:

The Horicon Town Board adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

AYES: 5

NAYS: 0

ABSENT: 0

Councilperson Carlozzi: AYE

Councilperson Smith: AYE

Councilperson R. Olson: AYE

Councilperson P. Palmer: AYE

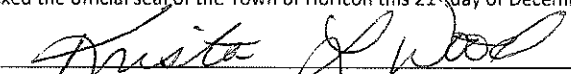
Supervisor Geraci: AYE

State of New York)

County of Warren)

I, KRISTA WOOD, TOWN CLERK OF THE TOWN OF HORICON, COUNTY OF WARREN, do hereby certify that the foregoing is a true and correct copy and the whole thereof of a Resolution duly adopted by the Town Board of the Town of Horicon on the 21<sup>st</sup> day of December, 2023.

IN WITNESS WHEREOF, I have set my hand and affixed the official seal of the Town of Horicon this 21<sup>st</sup> day of December, 2023.

  
Krista L. Wood, Town Clerk



# Town of Johnsborg

Meeting Date: January 16, 2024

Resolution # 24 – 19

## A RESOLUTION AUTHORIZING THE ADOPTION OF THE 2023 WARREN COUTNY, NY HAZARD MITIGATION PLAN UPDATE

WHEREAS, the Johnsborg Town Board recognizes the threat that natural hazards pose to people and property with the Town of Johnsborg, and

WHEREAS, the Town of Johnsborg has prepared a multi-hazard mitigation plan, hereby known as 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 200, and

WHEREAS, the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the Town of Johnsborg from the impacts of future hazards and disasters, and

WHEREAS, adoption by the Johnsborg Town Board demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2023 Warren County Hazard mitigation Plan,


NOW THEREFORE, BE IT RESOLVED, that the Johnsborg Town Board hereby adopts the 2023 Warren County Hazard Mitigation Plan. This plan may be edited or amended after submission for review, but will not require the re-adoption of any further iterations. This only applies to this specific plan and does not absolve the Town Board from updating the plan in 5 years.

### DULY ADOPTED BY THE FOLLOWING VOTE:

Ayes: 5 (Bean, Bowers, Heid, Stevens, Williams)

Nays: 0

Dated: January 16, 2024

  
Jean M. Comstock  
Town Clerk



**Dennis Dickinson** Supervisor  
**Vincent Crocitto** Deputy Supervisor  
**Daniel Hurley** Councilperson  
**Marisa Muratori** Councilperson  
**Nancy Stannard** Councilperson



**Jenn Farrell** Comptroller • **Lori Barber** Assessor • **Dan Barusch** Director of Planning & Zoning  
**Rob Lanfear** Superintendent of Highway • **Patty Schuster** • Town Clerk **Jim Martino** • Buildings & Grounds  
**Travis Howe** EMS Director

**A RESOLUTION OF THE TOWN BOARD OF THE TOWN OF LAKE GEORGE  
AUTHORIZING THE ADOPTION OF THE 2023 WARREN COUNTY, NY  
HAZARD MITIGATION PLAN UPDATE**

**RESOLUTION #165-2023**, Introduced by Councilperson Muratori and seconded by Councilperson Crocitto.

**WHEREAS**, the Town Board recognizes the threat that natural hazards pose to people and property within the Town of Lake George; and

**WHEREAS**, the Town Board has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS**, the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Lake George from the impacts of future hazards and disasters; and

**WHEREAS** adoption by the Town Board demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Warren County Hazard Mitigation Plan;

**NOW, THEREFORE, BE IT RESOLVED THAT**

The Town Board of the Town of Lake George adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

Duly adopted this 11<sup>th</sup> day of December 2023, by the following vote:

Ayes:	5	Crocitto, Hurley, Muratori, Stannard-Linehan, Dickinson
Nayes:	0	
Absent:	0	



**STATE OF NEW YORK**

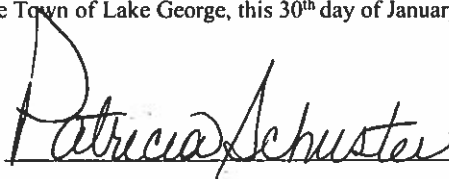
**COUNTY OF WARREN**

**TOWN OF LAKE GEORGE**



I, Patricia Schuster, Town Clerk of the Town of Lake George, Warren County, New York, DO HEREBY CERTIFY, that I have compared the foregoing with the original Resolution #165-2023 adopted by the Lake George Town Board at a meeting of said Board on the 11<sup>th</sup> day of December, 2023 and the foregoing is a true and correct copy of said Resolution.

IN WITNESS WHEREOF, I have hereunto set my hand and the seal of the Town of Lake George, this 30<sup>th</sup> day of January 2024.



Town Clerk



RESOLUTION NO. 14-2024

**A RESOLUTION OF THE VILLAGE TRUSTEES OF THE VILLAGE OF LAKE GEORGE**

**AUTHORIZING THE ADOPTION OF THE**

**2023 WARREN COUNTY, NY**

**HAZARD MITIGATION PLAN UPDATE**

WHEREAS the Village of Lake George recognizes the threat that natural hazards pose to people and property within Village of Lake George; and

WHEREAS the Village of Lake George has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Village of Lake George from the impacts of future hazards and disasters; and

WHEREAS adoption by the Village of Lake George demonstrates their commitment to hazard mitigation and achieving the goals outlined in the (title and date of mitigation plan).

NOW THEREFORE, BE IT RESOLVED BY THE TRUSTEES OF THE VILLAGE BOARD OF LAKE GEORGE, THAT:

The Village Board of the Village of Lake George adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 22 day of January, 2024.

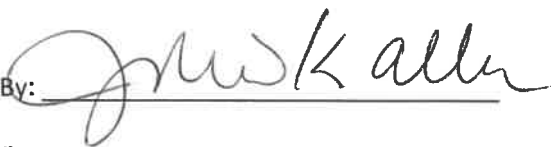
SIGNED BY:



Ray Perry

Mayor, Village of Lake George

ATTEST: By:



Julie Allen

Clerk, Village of Lake George



Resolution No. 126 of 2023  
A Resolution of the Town Board of the Town of Lake Luzerne  
Authorizing the Adoption of the  
2023 Warren County, NY  
Hazard Mitigation Plan Update

**WHEREAS** the Town Board of Lake Luzerne recognizes the threat that natural hazards pose to people and property within the Town; and

**WHEREAS** the Town has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS** the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town from the impact of future hazards and disasters; and

**WHEREAS** adoption by the Town Board of Lake Luzerne demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2023 Warren County, NY Hazard Mitigation Plan.

**NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF LAKE LUZERNE, NY THAT:**

Section 1. In accordance with Resolution No. 126 of 2023, the Town of Lake Luzerne adopts the 2023 Warren County Hazard Mitigation Plan. This plan, approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

**Introduced by** Councilman Hanlon, **Seconded by** Councilman Lewandowski

Adopted by a vote of 5 In Favor, 0 against this 27<sup>th</sup> day of November 2023.

By: Eugene J. Merlino  
Eugene J. Merlino, Supervisor Town of Lake Luzerne

This is to certify that this is a true copy of a record on file in the office of the Town Clerk.

Signed Lorrie Holcomb  
Town Clerk, Town of Lake Luzerne  
County of Warren, State of New York  
Date February 6, 2024



**RESOLUTION AUTHORIZING ADOPTION OF  
2023 WARREN COUNTY, NY HAZARD MITIGATION PLAN UPDATE**

**RESOLUTION NO.: 398, 2023**

**INTRODUCED BY: Mr. Timothy McNulty  
WHO MOVED ITS ADOPTION**

**SECONDED BY: Mr. Anthony Metivier**

WHEREAS, the Queensbury Town Board recognizes the threat that natural hazards pose to people and property within the Town of Queensbury, and

WHEREAS, Warren County has prepared a multi-hazard mitigation plan, hereby known as the 2023 Warren County Hazard Mitigation Plan (Plan) in accordance with the Disaster Mitigation Act of 2000, and

WHEREAS, the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Queensbury from the impacts of future hazards and disasters, and

WHEREAS, the Town Board wishes to adopt the Plan to demonstrate the Town Board's commitment to hazard mitigation and achievement of the goals outlined in the Plan,

NOW, THEREFORE, BE IT

RESOLVED, that the Queensbury Town Board hereby authorizes adoption of the 2023 Warren County Hazard Mitigation Plan, which Plan may be edited or amended after submission for review by the New York State Division of Homeland Security and Emergency Services and the Federal Emergency Management Agency but will not require the Town to readopt the Plan should there be any further iterations and only applies to this specific Plan and does not absolve the Town from updating the Plan in five (5) years, and



BE IT FURTHER,

RESOLVED, that the Town Board further authorizes and directs the Town Supervisor and/or Town Clerk to take any actions needed to effectuate the terms of this Resolution.

Duly adopted this 20<sup>th</sup> day of November, 2023, by the following vote:

AYES : Mr. Freer, Mr. Ferone, Mr. McNulty, Mr. Strough, Mr. Metivier

NOES : None


ABSENT: None

I, Colleen Rathbun, Deputy Town Clerk of the Town of Queensbury, Warren County, New York, do hereby certify that I have compared the foregoing with the original resolution as listed above adopted at a regular meeting of the Town Board of the Town of Queensbury held on the 20<sup>th</sup> day of November, 2023 at which a quorum was present and that the same is a correct transcript therefrom and of the whole original thereof to date.

IN WITNESS THEREOF, I have hereto set my hand and the SEAL of said Town of Queensbury, this 19<sup>th</sup> day of December, 2023.

SEAL

SIGNED:

  
Colleen Rathbun  
Deputy Town Clerk  
Town of Queensbury



**RESOLUTION NO. 35**

**A RESOLUTION OF THE TOWN BOARD OF THE TOWN OF STONY CREEK  
AUTHORIZING THE ADOPTION OF  
THE 2023 WARREN COUNTY, NY  
HAZARD MITIGATION PLAN UPDATE.**

**WHEREAS** the Town Board recognizes the threat that natural hazards pose to people and property within the Town of Stony Creek; and  
Whereas the County has prepared a multi-hazard mitigation plan, hereby know as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS** the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Stony Creek from the impacts of future hazards and disasters; and

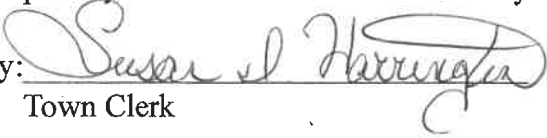
**WHEREAS** adoption by the Town Board demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2023 Warren County Hazard Mitigation Plan Update.

**NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF STONY CREEK, NEW YORK, THAT**

**Section 1** In accordance with a majority vote, the Twon Board adopts the 2023 Warren County Hazard Mitigation Plan. This Plan approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

Adopted by a vote of 5 in favor this 16<sup>th</sup> day of January, 2024

By:

  
Town Clerk



**TOWN OF STONY CREEK**

**YEAR** 2024

**RESOLUTION NO.** 035

**DATE:** January 16

**INTRODUCED BY:** Councilman John Thomas

**SECONDED BY:** Councilman Edward Lowell Jr.

**TEXT:** **A RESOLUTION OF THE TOWN BOARD OF THE TOWN OF STONY CREEK  
AUTHORIZING THE ADOPTION OF  
THE 2023 WARREN COUNTY, NY  
HAZARD MITIGATION PLAN UPDATE.**

**WHEREAS** the Town Board recognizes the threat that natural hazards pose to people and property within the Town of Stony Creek; and  
Whereas the County has prepared a multi-hazard mitigation plan, hereby know as the 2023 Warren County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS** the 2023 Warren County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Stony Creek from the impacts of future hazards and disasters; and

**WHEREAS** adoption by the Town Board demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2023 Warren County Hazard Mitigation Plan Update.

**NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF STONY CREEK, NEW YORK, THAT**

**Section 1** In accordance with a majority vote, the Twon Board adopts the 2023 Warren County Hazard Mitigation Plan. This Plan approved by the community, may be edited or amended after submission for review, but will not require the community to re-adopt any further iterations. This only applies to this specific plan and does not absolve the community from updating the plan in 5 years.

**ROLL CALL VOTE:**

<u>Supervisor Frank Thomas</u>	<u>Yes</u>
<u>Councilman Nathan Thomas</u>	<u>Yes</u>
<u>Councilman John Thomas</u>	<u>Yes</u>
<u>Councilman Edward Lowell Jr.</u>	<u>Yes</u>
<u>Councilwoman Melissa Bradley</u>	<u>Yes</u>

I HEREBY CERTIFY THAT THIS IS A TRUE AND EXACT COPY OF THE RESOLUTION AS PASSED BY THE TOWN BOARD OF THE TOWN OF STONY CREEK.

  
TOWN CLERK





# PARTICIPATION MATRIX

Appendix B includes the participation matrix for meetings convened during the development of the Warren County Hazard Mitigation Plan Update.





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Tammie DeLorenzo	Assistant to the County Administrator	Warren County Administrators Office	X	X		X	X			X				X		
Aaron Frankendorf	Staff Director. Adirondack/Glens Falls Transportation Council	ADK Glens Falls Transportation Council	X	X			X				X					
Sara Frankendorf	GIS Coordinator	Warren County	X	X			X			X	X		X			
Ethan Gaddy	WC Planner/Climate Smart	Warren County Planning Department	X	X			X		X	X	X			X		
Kevin Hajos	Superintendent	Warren County Department of Public Works	X	X											X	X
Sandy LeBarron	Director of Environmental Health and Safety	Finch Paper	X	X						X			X			X
Jim Lieberum, CPESC	District Manager/County Hazard Mitigation Coordinator	Warren County Soil and Water Conservation District (WCSWCD)	X	X		X	X	X	X	X	X	X	X	X	X	X
Ann Marie Mason	Director/Emergency Manager	Warren County	X	X		X	X	X	X		X		X	X		X





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Ashley Rivers	Emergency Services Coordinator	Warren County	X	X		X		X			X		X			X
Scott Royale	Sustainability Coordinator	SUNY	X	X												
Laura Stebbins	Director of Emergency Preparedness	Glens Falls Hospital	X	X			X	X	X				X	X		X
Bob Bradshaw	Managing Partner	Contingency Management Consulting Group			X	X										
Jennifer Ramsey	Public Safety Committee	Warren County		X		X			X		X					
John Gibb	Emergency Management	Contingency Management Consulting Group				X					X		X	X		X
Joshua Westfall, AICP	Planner	Bolton, Town		X				X	X			X			X	
Cheryl Bolton	Planning and Zoning Secretary	Bolton, Town													X	
Matt Coon	Dep. Highway Superintendent	Bolton, Town													X	
Marion Eagan	Deputy Supervisor	Chester, Town		X								X		X	X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Larry Turcotte	Councilman	Chester, Town		X												
Marion Eagan	Planning and Zoning	Chester, Town		X				X								
Jeremy Little	Zoning Administrator	Chester, Town		X				X							X	
Jessica Leerkes	Engineer	Chester, Town		X								X		X	X	
Craig Leggett	Supervisor	Chester, Town													X	
Mindy Conway	Town Clerk	Chester, Town		X										X		
James P. Schrammel	Fire Chief	City of Glens Falls	X	X						X						
Kris Vanderzee	Code Enforcement Officer	Glens Falls, City		X	X											
William Norton	Superintendent, Water & Sewer	Glens Falls, City		X				X	X			X				
Sheila Mender	Engineering Department	Glens Falls, City		X										X	X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Justin Reckner	Code Enforcement Officer, Building & Codes	Glens Falls, City													X	
Philip Cancelliere	Building Inspector	Glens Falls, City													X	
Edna A. Frasier	Town Supervisor	Hague, Town		X										X	X	
Matther Coffin	Deputy Highway Superintendent	Hague, Town		X												
Matthew Magee	Zoning Administrator	Hague, Town		X											X	
Cathy Clark	Zoning Enforcement Officer	Hague, Town		X										X	X	
Tim Fiallo	Highway Clerk	Hague, Town													X	
Michael N. Geraci	Supervisor	Horicon, Town		X				X	X			X		X	X	
Darian Granger	Highway Superintendent	Horicon, Town		X								X			X	
Matthew Magee	Zoning Administrator	Horicon, Town													X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Danae Tucker	Bookkeeper	Johnsburg, Town		X				X	X					X	X	
Fred Comstock	Highway Superintendent	Johnsburg, Town		X				X							X	
Mike Dunkley	Deputy Highway Superintendent	Johnsburg, Town		X				X				X			X	
Ernie Dunkley	Safety Officer	Johnsburg, Town		X				X				X		X	X	
Colin Mangan	Zoning Enforcement Officer	Johnsburg, Town													X	
Dan Barusch	Village and Town of George Planner	Village and Town of Lake George	X	X			X		X		X	X	X	X	X	
Rob Lanfear	Highway Department	Lake George, Town/Village		X				X						X	X	
Keith Lanfear	Superintendent Public Works	Lake George, Town/Village		X				X	X			X			X	
Doug Frost	Code Enforcement Officer	Lake George, Town													X	
Robert Blais	Mayor	Lake George, Village		X											X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
John Helms	DPW Foreman	Lake George, Village		X											X	
Eugene J. Merlino	Town Supervisor	Lake Luzerne, Town		X				X	X						X	
Ronnie Deuel	Highway Superintendent	Lake Luzerne, Town		X											X	
Karen Putney	Zoning Officer	Lake Luzerne, Town		X				X	X			X		X	X	
Khristopher Kassay	Deputy Zoning Enforcement Officer	Lake Luzerne, Town		X							X			X	X	
Frank E. Thomas	Supervisor	Stony Creek, Town		X					X			X			X	
Ed Lowell, Jr.	Councilman	Stony Creek, Town		X												
Deb Runyon	Supervisor	Thurman, Town		X				X	X			X			X	
Patrick Wood	Highway Superintendent	Thurman, Town		X												
James S. Hull	Code Enforcement Officer	Warrensburg, Town		X				X				X		X	X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Kevin B. Geraghty	Town Supervisor	Warrensburg, Town		X												
Patti Corlew	Floodplain Administrator	Warrensburg, Town													X	
John Strough	Supervisor	Queensbury, Town		X					X			X		X		
Laura Moore	Planner	Queensbury, Town	X	X			X			X	X		X	X		X
John O'Brien	Director of Building and Code Enforcement	Queensbury, Town		X				X								
Mike Palmer	Fire Marshal	Queensbury, Town		X				X								
Laura Moore	Planning and Zoning	Queensbury, Town		X				X				X				X
Dave Duell	Highway Superintendent	Queensbury, Town		X				X	X			X				
Mark DeMers	Deputy Highway Superintendent	Queensbury, Town		X								X				
Don Lehman	Public Information Officer	Warren County			X					X			X	X		





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Elizabeth O'Reilly	Planning Manager	NYSDHSES	X		X		X	X	X					X		X
Shannon Clarke	Planner	NYSDHSES	X		X		X									
Shelby Meyers	Planner	NYSDHSES	X		X		X	X								
Betsy Parmerter	Planner	NYSDHSES			X									X		
Kevin Clapp	Planner	NYSDHSES			X									X		
Roland Paperman	Planner	NYSDHSES			x									X		
John Wilkerson	Planner	NYSDHSES			X									X		
Paul Hoole	Mitigation Planner	FEMA			X		X	X	X					X		





## APPENDIX C. MEETING DOCUMENTATION

Appendix C includes meeting agendas, sign-in sheets, and minutes (where applicable and available) for meetings convened during the development of the Warren County Hazard Mitigation Plan Update.



**WARREN COUNTY HAZARD MITIGATION PLAN - 2023 UPDATE**  
**Project Management Team Meeting – Agenda**  
**9/9/2022 at 10:00 am**



- Scope and Schedule
  - Brief review of our approved proposal
  - Grand performance period (copy of Grant Agreement)
  - Project schedule
- Municipal Participation – Letters of Intent to Participate
  - Email to all municipal coordinators (Email and LOIP template)
  - Identify any group meetings to leverage for the mitigation planning process
- Review Steering Committee Composition - refer to 2011 Steering Committee members
- Information and Data Collection
  - GIS Point of Contact for spatial data
    - Previous (2017) critical facility list – PCII data
      - Arrange GIS collection meeting
      - Data Wish List
    - Lifelines – FEMA incorporating into mitigation
    - NFIP data request
    - CAV dates and list of floodplain administrators
    - CEPA
  - Point of Contact for reviewing Public Information (brochure/surveys/announcements)
    - Draft content for website update, newsletter, social media content, and public meeting announcements
- Meeting Logistics
  - Schedule first Steering Committee meeting
  - Schedule HMP Kick-Off (public?)
    - Date and Location
- Hazard of Concern Identification
- Plan Style Guide
- Communications Guide
- In-Kind Tracking
  - County can begin tracking all time with the development of RFP, reviews, meetings, this call etc.
  - Tetra Tech to track meeting attendance for all participants

Documents:

Municipal Letter of Participation Request

Project Schedule

Data Wish List

In-Kind Tracker

NFIP Request Letter/ISAA





**WARREN COUNTY HAZARD MITIGATION PLAN - 2023 UPDATE**  
**Project Management Team Meeting – Agenda**  
**9/16/2022 at 2:00 pm**



Attendees: Ashley Rivers, Ann Marie Mason, Jim Lieberum, Bob Bradshaw, Jennifer Ramsey, John Gibb, Tammy Delorenzo

- Scope and Schedule
  - Brief review of our approved proposal
  - Grand performance period (copy of Grant Agreement) PoP ending 12/2024.
  - Project schedule-hold for input from the state.
  - Project reporting milestones submitted to NYSDHSES: March 2023; T Bolton, and County Public Works have pending funding-must confirm funding mechanisms-County to with DHSES on the status and timing re: need for an approved HMP.
- Municipal Participation – Letters of Intent to Participate
  - Email to all 13 municipal coordinators (Email and LOIP template)-COMPLETE. Tt to create OneDrive to share information. Jim to post.
  - Identify any group meetings to leverage for the mitigation planning process. LEPC-October (10/21) and quarterly, board of supervisors monthly (and invite mayors?), subcommittee on environmental concerns, kick-off right after board of supervisor's meeting (in-person or hybrid?).
- Review Steering Committee Composition - refer to 2011 Steering Committee members
  - In 2011-six persons, 2 County, Town of Queensbury, City of Glens Falls fire chief.+, LEPC has reps from hospital and Finch  
Major businesses: Hospital, Price Chopper, Finch, Lake George Land Conservancy, Lake George Association; Champlain Watershed Improvement Coalition of NY (CWICNY); Upper Hudson River Watershed Coalition. Agency for SVAs, Tt to provide crosswalk and old SC and suggestions for new committee.
- Core working group: meet bi-weekly-half hour on Wednesdays, 9 am on 9/21, 9/28 and bi-weekly thereafter.
- Information and Data Collection
  - GIS Point of Contact for spatial data-Sarah Frankenfeld to provide GIS files. Last plan redacted municipal water supply; high hazard dam element for HMP has been approved. County to send to us.
    - Previous (2017) critical facility list – PCII data
      - Arrange GIS collection meeting
      - Data Wish List
    - Lifelines – FEMA incorporating into mitigation
    - NFIP data request-Tt to send email request for data to Ann.
    - CAV dates and list of floodplain administrators. Tt to send request email to Ann.
    - CEPA-County to provide CEPA
  - Point of Contact for reviewing Public Information (brochure/surveys/announcements)
    - Draft content for website update, newsletter, social media content, and public meeting announcements Tt to provide social media info and brochure for outreach. Don Lehman (public info officer and director of Public Affairs) to review and provide branding.





**WARREN COUNTY HAZARD MITIGATION PLAN - 2023 UPDATE**  
**Project Management Team Meeting – Agenda**  
**9/16/2022 at 2:00 pm**



- 
- Meeting Logistics-[discuss next week](#).
    - Schedule first Steering Committee meeting
    - Schedule HMP Kick-Off (public?)
      - Date and Location
  - Hazard of Concern Identification- [Tt to send survey prior to SC Kick-Off](#)
  - Plan Style Guide – [ask Don](#)
  - Communications Guide – [copy John Gibb in meetings](#).
  - In-Kind Tracking-[Jim tracking in-kind](#)
    - County can begin tracking all time with the development of RFP, reviews, meetings, this call etc.
    - Tetra Tech to track meeting attendance for all participants

Documents:

Municipal Letter of Participation Request

Project Schedule

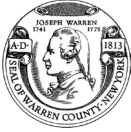
Data Wish List

In-Kind Tracker

NFIP Request Letter/ISAA







**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #1 – AGENDA**  
**MEETING DATE/TIME: October 27, 2022 – 9:00 am**



Remote – MS Teams Link [Click here to join the meeting](#) (preferred for screen sharing)

Remote – Dial-in by phone (audio only) - [+1 518-300-1367,,453227155#](#) United States, Albany; Phone Conference ID: 453 227 155#

- 1. Welcome and Introductions**
- 2. Hazard Mitigation Plan Overview**
- 3. Project Organization**
- 4. Steering Committee Composition and Ground Rules**
- 5. In-Kind Services Tracking**
- 6. Planning Process and Data Collection Status**
- 7. Hazards of Concern Identification**
- 8. Critical Facilities and Lifelines**
- 9. Mission Statement, Goals, and Objectives**
- 10. Conclusion and Next Steps**





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Hybrid In-person and Teleconference Teams Meeting
Date of Meeting:	October 27, 2022, 9:00 am – 10:15 am

## Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ethan Gaddy	Warren County Planning Department, CSC
Aaron Frankenfeld	ADK Glens Falls Transportation Council, Director
Tammie DeLorenzo	Warren County Administrators Office
Ann Marie Mason	Warren County, Director of Emergency Services
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Dan Barusch	Town/Village Lake George, Planner
Elizabeth O'Reilly	NYSDHSES, Planning Manager
Shannon Clarke	NYSDHSES, Planner
Shelby Meyers	NYSDHSES, Planner
Paul Hoole	FEMA, Mitigation Planning
Cynthia Addonizio-Bianco	Tetra Tech
Erika Corsi	Tetra Tech

## Agenda Summary:

Item No.	Description	Action item(s):
1	<b>Welcome and Opening Remarks</b> <ul style="list-style-type: none"> <li>Meeting started at 9:05 pm</li> <li>Jim Lieberum, Director of Warren County Soil and Water Conservation District gave opening remarks providing an overview of the importance of this planning process and thanking the participants for agreeing to serve on the Steering Committee.</li> <li>Cynthia Addonizio-Bianco, project manager from Tetra Tech (Tt), also thanked participants.</li> <li>Elizabeth O'Reilly of NYSDHSES noted that hazard mitigation is a diverse subject and can cross the line between recovery and response. The purpose of the mitigation plan is to reduce the amount of response potentially necessary against natural hazards. She indicated that NYSDHSES will provide support as needed throughout the mitigation planning process.</li> <li>Each participating member introduced themselves and provided input on their participation in the process: <ul style="list-style-type: none"> <li>Resiliency</li> </ul> </li> </ul>	Steering Committee to provide additional relevant plans to review and incorporation into the mitigation plan.





# Warren County Hazard Mitigation Plan Update Meeting Notes



	<ul style="list-style-type: none"><li>○ Intersection of hazard mitigation and climate adaptation mitigation through Climate Smart Communities program</li><li>○ Communication with other municipalities that has technical capacity restrictions</li><li>○ Help inform communities on their land use impacts to resiliency</li><li>○ Maintaining Queensbury codes. Queensbury identified as busiest community in terms of development and economic driver for the County</li><li>○ Bridge information throughout the County</li></ul>	
2	<p><b>Project Overview</b></p> <ul style="list-style-type: none"><li>● Ms. Addonizio-Bianco provided the following information:<ul style="list-style-type: none"><li>○ An overview of hazard mitigation, what it is and how it can provide increase resilience through the development of a FEMA-approved Hazard Mitigation Plan. She also noted the need to track time spent working on the plan outside of meetings through in-kind tracking to provide match for federal funding support for the planning effort. An online tracker will be sent out to all plan participants.</li><li>○ An overview of the phases of the hazard mitigation planning process including description of the project organization:<ul style="list-style-type: none"><li>■ Core Planning Team (CPT)</li><li>■ Warren County Emergency Services</li><li>■ Warren County Soil and Water Conservation District</li><li>■ Tetra Tech</li></ul></li><li>○ Steering Committee (SC)<ul style="list-style-type: none"><li>■ Numerous County Departments, Major Businesses, Outside Agencies, 1 municipal representatives</li></ul></li><li>○ Planning Partnership (PP)<ul style="list-style-type: none"><li>■ All participating municipalities and Steering Committee members.</li></ul></li><li>○ FEMA</li><li>○ Stakeholders</li></ul></li><li>● Steering Committee roles and responsibilities:<ul style="list-style-type: none"><li>○ Provide guidance and leadership</li><li>○ Oversee the planning process</li><li>○ Act as point of contact for partners and stakeholders</li></ul></li><li>● Focus on updating the 2017 critical facilities inventory to ensure completeness and identify lifeline facilities. The County and planning partners will provide input to update the list of critical facilities and lifelines via an online survey. Once updated, the information will be used during the risk assessment and mitigation strategy development.</li><li>● DHSES will notify the County when the draft plan has been submitted to FEMA for review.</li><li>● FEMA will notify the County and jurisdictions to let them know the submitted plan is approvable.</li><li>● Request for relevant plans and studies. (Post meeting note: The attached presentation has been updated to reflect the list of plans</li></ul>	<ul style="list-style-type: none"><li>● Tt to provide SC member access to the project OneDrive site and Steering Committee members to confirm access to OneDrive – access to be provided in separate email</li><li>● Critical facility inventory survey to be distributed by Tt to the County and municipal representatives.</li></ul>





# Warren County Hazard Mitigation Plan Update Meeting Notes



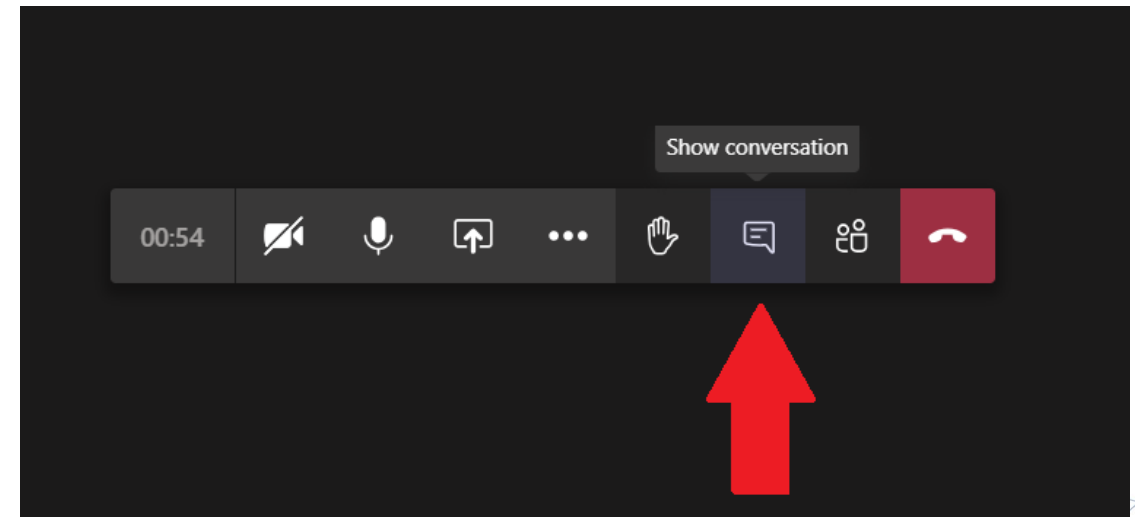
	<p>collected to date.) The committee members are requested to review the list and forward links to additional plans that may be relevant to the planning process.</p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco noted that participants will be given access to OneDrive to share documents and information.</li> </ul>	
3	<p><b>Risk Assessment and Hazards of Concern</b></p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco discussed the process of the risk assessment and reviewed the hazards of concern identified in the last HMP. These hazards of concern will need to be reviewed and updated as necessary. A survey will be sent out to the Steering Committee.</li> <li>One action is needed for every hazard of concern that impacts a municipality.</li> </ul>	<ul style="list-style-type: none"> <li>Steering Committee to provide input to update Hazards of Concern– to be distributed by and returned to Tt via email.</li> </ul>
4	<p><b>Goals and Objectives</b></p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco introduced the goals and objectives from the last HMP and provided suggestions to update them to align with current priorities. The Steering Committee as tasked with reviewing the mission statement, goals and objectives to provide feedback to guide the plan update.</li> <li>The Steering Committee recommending creating a goal and objective that addresses daily and long-term activities</li> </ul>	<ul style="list-style-type: none"> <li>Steering Committee to provide input – to be distributed by and returned to Tt via email.</li> <li>Steering Committee to clarify definition of ‘daily and long-term activities’</li> </ul>
5	<p><b>Upcoming Meetings</b></p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco reviewed upcoming meetings: <ul style="list-style-type: none"> <li>Steering Committee Meeting – October 27<sup>th</sup>, 2022*</li> <li>Planning Partnership – November 2<sup>nd</sup>, 2022</li> <li>Risk Assessment Meeting – February, 2023 (<i>tentative</i>)</li> <li><i>Planning Partnership Risk Assessment Meeting – February, 2023 (tentative)</i></li> <li>Mitigation Strategy Workshop – March, 2023 (<i>tentative</i>)</li> </ul> </li> </ul>	
6	<p><b>Next Steps</b></p> <ul style="list-style-type: none"> <li>Attend Planning Partnership Meeting</li> <li>Determine Hazards of Concern to include in the HMP</li> <li>Strengths, Weaknesses, Obstacles and Opportunities (SWOO)</li> <li>Review Hazard Profiles</li> <li>Review Risk Assessment Results</li> <li>Identify Problems and Problem Areas</li> <li>Develop Mitigation Strategy</li> <li>Review Draft Plan</li> <li>Submit Draft Plan for NYSDHSES/FEMA Review</li> <li>Adopt FEMA-Approved Plan</li> <li>Implement Projects and Maintain the Plan and Increase Resilience</li> </ul>	
7	<p><b>Conclusion</b> - The meeting concluded at 10:15 am.</p>	





# Welcome!

- If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.
  - Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.
  - Click “Show Conversation.”





# **Warren County, New York Hazard Mitigation Plan – 2023 Update**

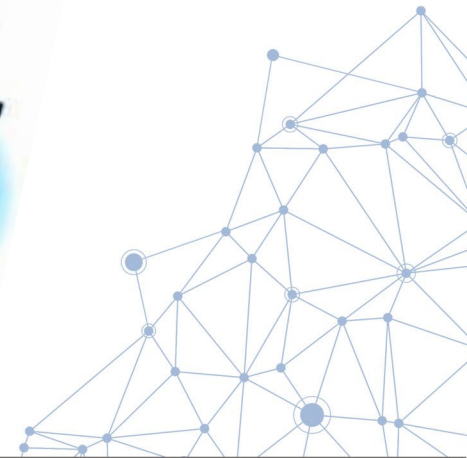
**Steering Committee Kick-Off Meeting | October 27,  
2022**





# Agenda

- Welcome and Introductions
- In-Kind Services Tracking
- Benefits of Hazard Mitigation
- Hazard Mitigation Planning Overview
- Project Organization
- Steering Committee Responsibilities
- Public and Stakeholder Outreach
- Update Hazards of Concern and Risk Assessment
- Critical Facilities and Lifelines
- Goals and Objectives
- Schedule
- Questions/Next Steps/Wrap Up







# Introductions

- Tell us...
  - What's your name?
  - Where you are from?
  - What is your mitigation experience?
  - What do you want to focus on during this process or what is your area of expertise?
  - What are your resilience concerns for Warren County?







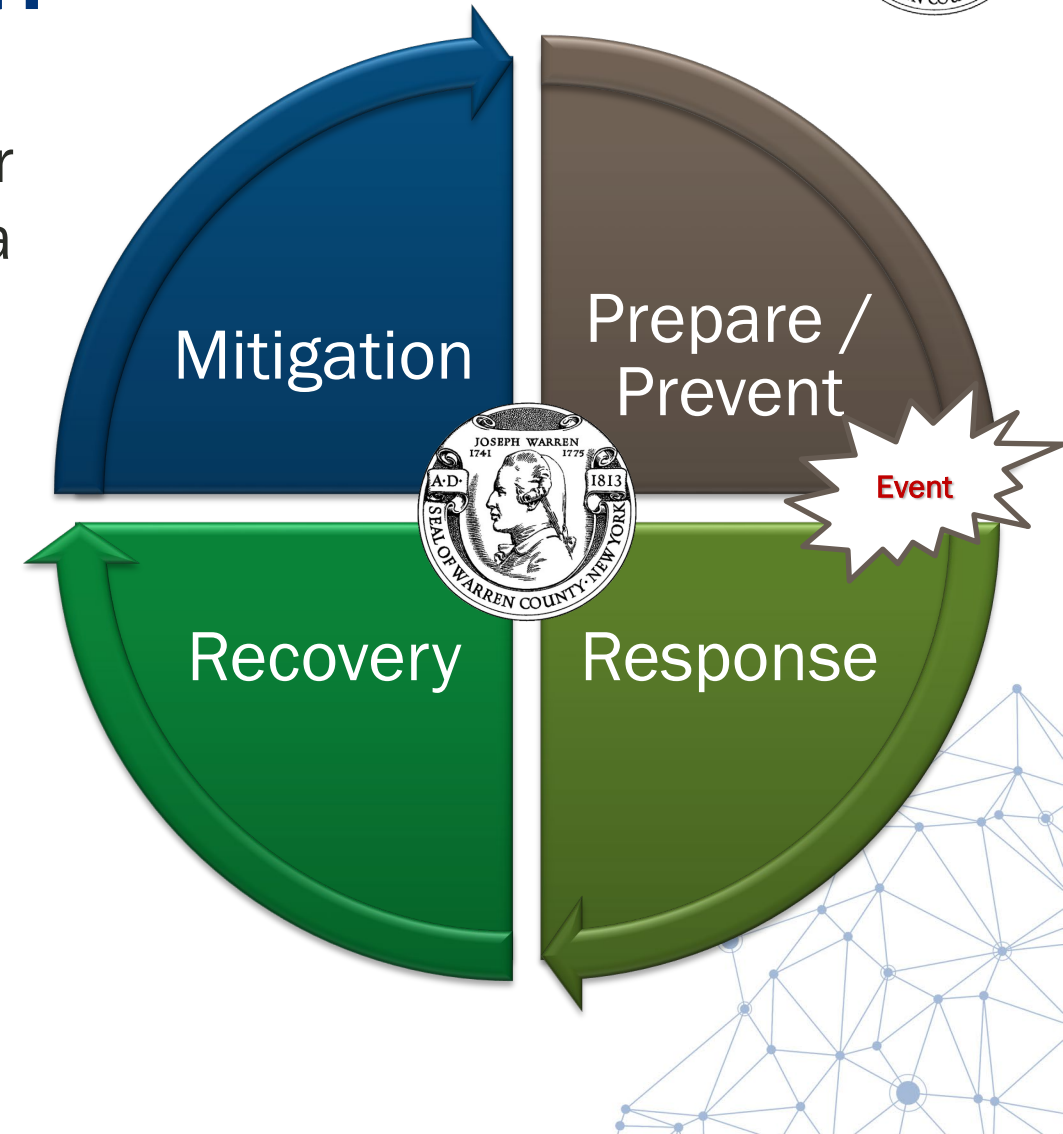
# Hazard Mitigation – What is it?

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses

“provides the blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and local ability...” (CFR).










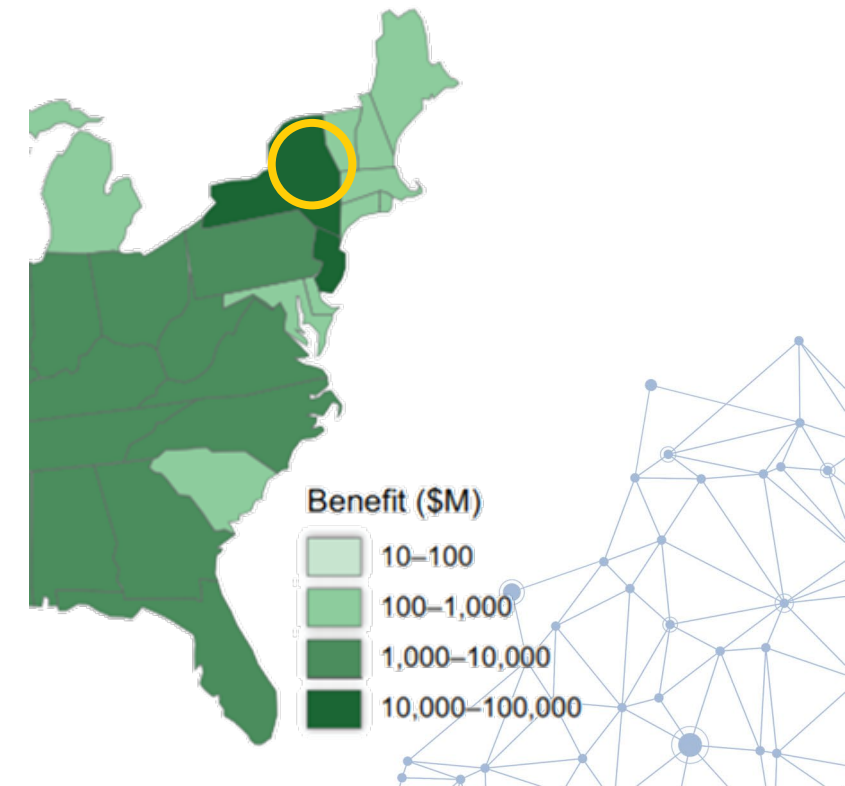


# Hazard Mitigation Works!

- According to the January 2019 National Institute of Building Sciences Natural Hazard Mitigation Saves: 2018 Interim Report, federal mitigation grants save \$6 for every \$1 spent!

Mitigation saves in every in state! New York has saved up to \$100 million in benefits.

National Benefit-Cost Ratio Per Peril <small>*BCR numbers in this study have been rounded</small>		Federally Funded
Overall Hazard Benefit-Cost Ratio		6:1
 Riverine Flood		7:1
 Hurricane Surge		Too few grants
 Wind		5:1
 Earthquake		3:1
 Wildland-Urban Interface Fire		3:1



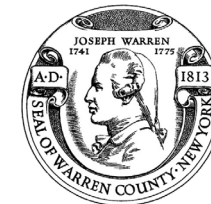


# Why Update?

- The mitigation plan update will:
  - Help the County prepare for and mitigate the effects of disasters
  - Continue to allow the County and participating partners to be eligible for pre- and post-disaster mitigation funding
  - Support CRS participation/rating of municipalities

Hazard	Losses (\$)
Blizzard	Losses not reported
Drought	Losses not reported
Excessive Temperature	Losses not reported
Flash Flood	\$22.36 million
Flood	\$6.24 million
Hail	\$13,000
Heavy Rain	Losses not reported
Heavy Snow	\$35,000
High Wind	\$731,000
Hurricane/Tropical Storm	Losses not reported
Lightning	\$77,000
Strong Wind	\$193,000
Thunderstorm Wind	\$10.62 million
Tornado/Funnel Cloud	\$252,500
Winter Storm	\$182,300
Winter Weather	\$1,000
Total	\$42.345 million

Source: NOAA-NCEI 2022







# What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480



4 Flood



4 Hurricane



4 Severe Storm(s)



2 Biological



2 Other



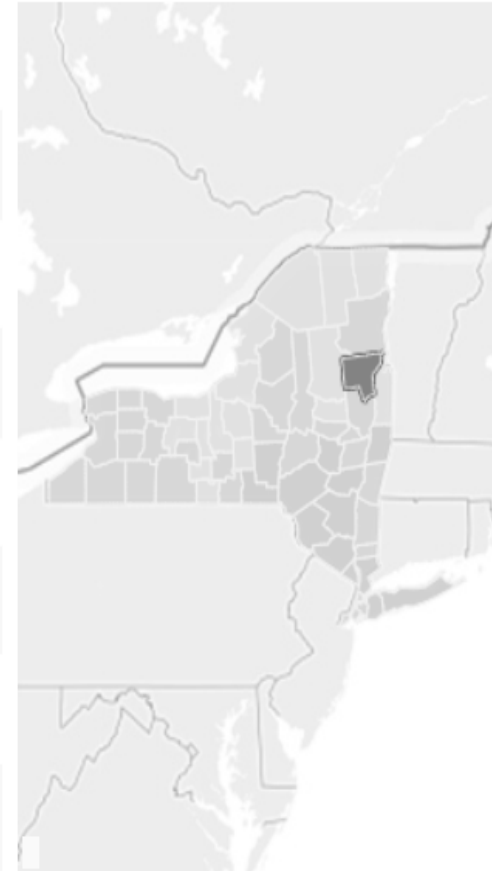
1 Earthquake



1 Fire



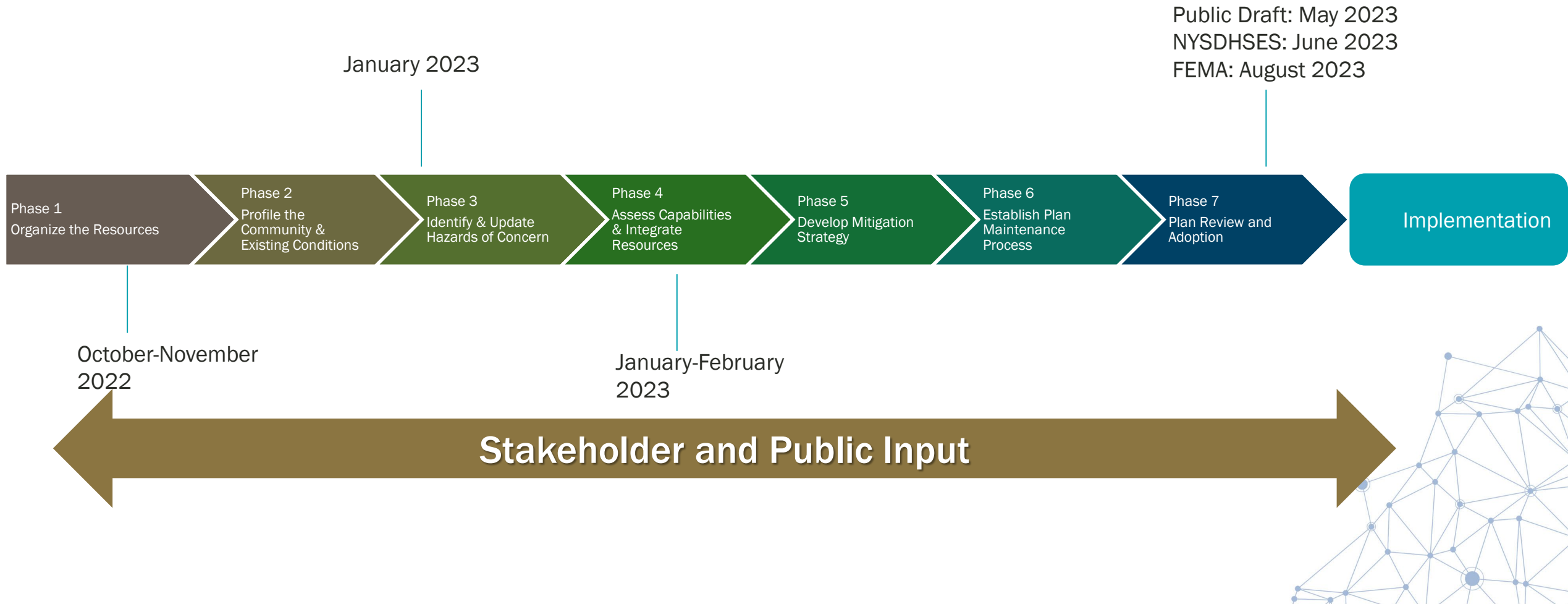
1 Snow





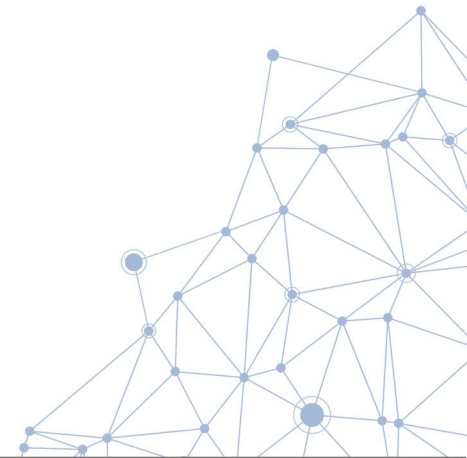
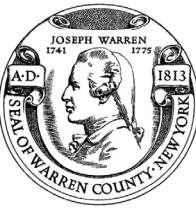


# Planning Process Overview





# Project Organization







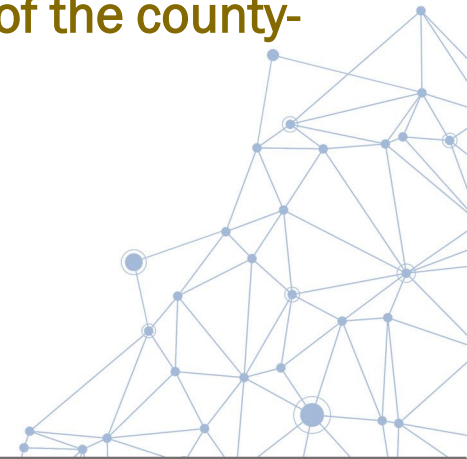
# Hazard Mitigation Committee Composition

## Steering Committee Members

Warren County Soil and Water Conservation District	Adirondack / Glens Falls Transportation Council
Warren County Office of Emergency Services	City of Glens Falls
Warren County Department of Planning and Community Development	Village of Lake George
Warren County Department of Public Works	SUNY Adirondack
Town of Queensbury – Planning Department	Glens Falls Hospital
	Finch Pryne
	Board of Supervisors

## Role

- ✓ Guide the Planning Partnership through the planning process
- ✓ Identify the natural hazards of concern
- ✓ Develop mitigation goals and objectives
- ✓ Develop public and stakeholder outreach strategy
- ✓ Support the development of the county-level mitigation strategy
- ✓ Review plan documents







# Steering Committee Roles and Responsibilities



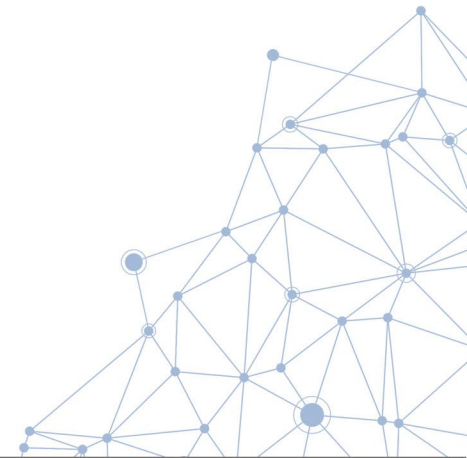
PROVIDE GUIDANCE AND  
LEADERSHIP THROUGHOUT  
THE PLANNING PROCESS



OVERSEE THE PLANNING  
PROCESS



ACT AS THE POINT OF CONTACT FOR  
ALL PARTNERS AND STAKEHOLDERS

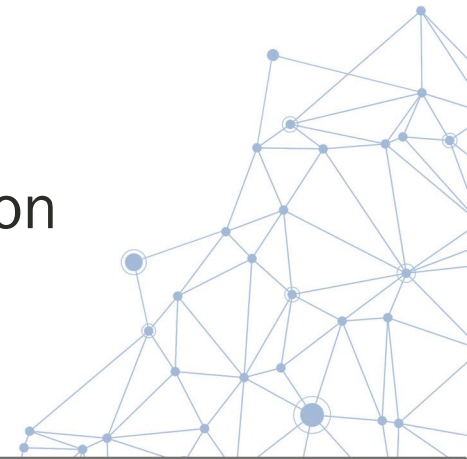




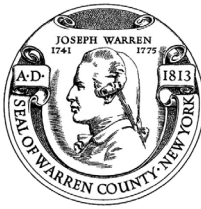


# Early Progress

- Requested/Received NFIP Community Assistance Visit Data
- Requested NFIP Data
- GIS Data Collection
- Review of Hazards of Concern/Distributed Worksheet to Steering Committee
- HMP website – In development
- HMP Fact Sheet, Citizen Survey, Agency Surveys - in progress
- County-Level/Regional Plan Collection
- Planning Partnership Outreach/Letter of Intent to Participate Distribution
- Planning Partnership Kick-Off Meeting Scheduled (November 2<sup>nd</sup> at 9am)







# In-Kind Services

Name of Team Member: \_\_\_\_\_

Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes – sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	





# Data Collection Status

- Letters of Intent to Municipalities
- Critical Facility Inventory (County providing initial data)
- Reports and Plans – Initial collection of reports, plans, and codes available online
- Capability Assessments
- Mitigation Strategy Updates

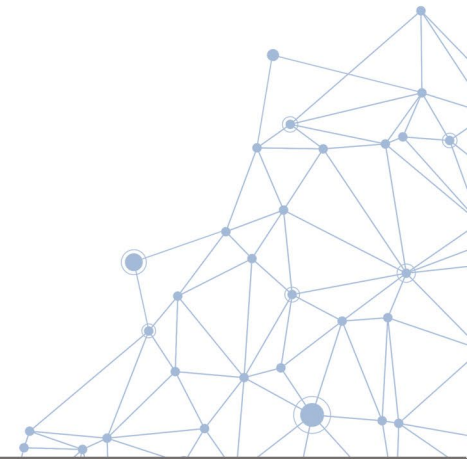






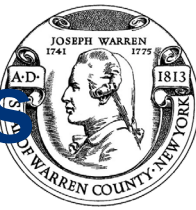
# Public and Stakeholder Outreach

- HMP is in development-  
<https://www.warrencountynyhmp.com>
- Social Media
- Stakeholder Survey
- Public Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey





# Relevant County and Regional Plans and Studies



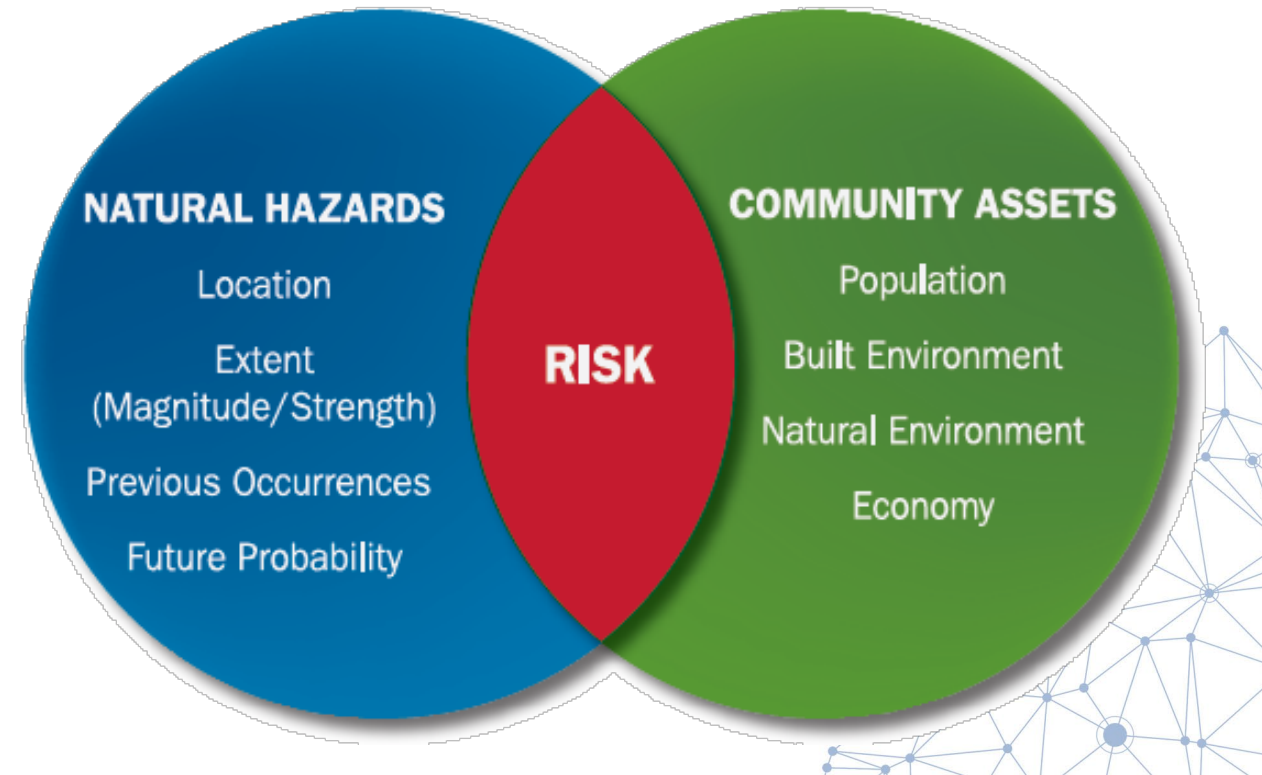
Name of Plan/Document	Date of Plan	Jurisdiction
Excessive Heat Plan	2022	Countywide
Schroon Lake Watershed Management Plan Addendum	2019	Chester (T)
Lake Champlain Watershed Roadside Erosion Assessment	-	Bolton (T), Hague (T), Lake George (T), Queensbury (T)
Upper Hudson River Watershed Management Plan	2020	Countywide
Friends Lake Watershed Assessment	2017	Chester (T)
LC Nonpoint Source Pollution Watershed Assessment and Management Plan	2018	Countywide
LG HAB Plan 2022 Update	2022	Lake George (T), Bolton (T)
Loon Lake Watershed Report	2021	Loon Lake, Chester (T)
Warren County - Dam Risk into Local HMG Plans	2021	Countywide

- Others?

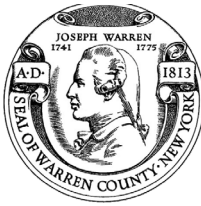


# Update Risk Assessment

- Update assets
- Examine previous impacts
- Analyze risks
- Review with Steering Committee
- Risk assessment meeting





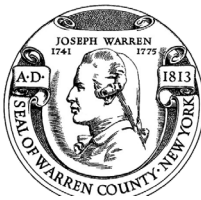


# NYS DHSES Requirements



- Establish Jurisdictional Teams
- Assess Critical Facilities
- Plan for Displaced Residents
  - Intermediate (Temporary Housing) and Long-Term (Permanent Housing)
- Plan for Evacuation and Sheltering
- Document Past Mitigation Accomplishments
- Include Jurisdictional Annexes
- Develop Mitigation Actions (minimum of 2 projects)
- Plan for Climate Change





# EXERCISE – Identifying Hazards of Concern

Thinking back over the last few years...

- The 2017 plan included:
  - Disease Outbreak
  - Earthquake
  - Flood
  - Infestation
  - Landslide
  - Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
  - Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
  - Wildfire
- In review...
  - Have additional hazards impacted the County since 2017?
  - Have hazard been mitigated and no longer cause damage?
  - Should hazards be regrouped to minimize number or required actions?
  - Should additional hazards be included?

- Have additional hazards impacted Warren County since 2017?
- Have hazards been mitigated and no longer cause damage or put the County at risk?
- Should hazards be regrouped to align with the 2019 State HMP?

2019 NY State HMP	Identified Hazard in the 2017 Warren HMP	2017 Warren HMP Ranking	2021 CEPA Ranking**	Has the frequency, severity, or location of the hazard changed in your community?  NC = No Change; I = <u>Increase</u> ; D = Decrease  (Please provide an explanation for any hazards marked I or D in this column)	2023 Warren HMP* (indicate 'keep', combine with other hazard, or provide comments for any changes)
<b>Natural Hazards</b>					
Avalanche	-	-			
Coastal Hazards					
<del>Coldwave</del>	-	-			
Drought	-	-	Low		
Earthquake	X	High	Low		Keep
Flooding	X	Medium	Very High		Keep
Hail	X	Severe Storm: High			Keep

Please identify any other hazards that you believe should be considered in the 2023 update of the Warren County Hazard Mitigation Plan (e.g. landslides, wildfires, invasive species, etc.)

What are the natural hazards that present the most risk to your jurisdiction today?

- |                                                                    |                                                                                  |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <input type="checkbox"/> Climate Change                            | <input type="checkbox"/> Severe Weather (high wind, tornado, thunderstorm, hail) |
| <input type="checkbox"/> Dam Failure                               | <input type="checkbox"/> Severe Winter Weather (heavy snow, blizzard, ice)       |
| <input type="checkbox"/> Drought                                   | <input type="checkbox"/> Wildfire                                                |
| <input type="checkbox"/> Earthquake                                | <input type="checkbox"/> Hazardous Materials (fixed site, in-transit)            |
| <input type="checkbox"/> Extreme Temperature (heat and cold)       | <input type="checkbox"/> Disease Outbreak                                        |
| <input type="checkbox"/> Flood (riverine, dam failure, beaver dam) | <input type="checkbox"/> Invasive Species                                        |
| <input type="checkbox"/> Geologic (landslide, subsidence/sinkhole) | <input type="checkbox"/> Other: _____                                            |



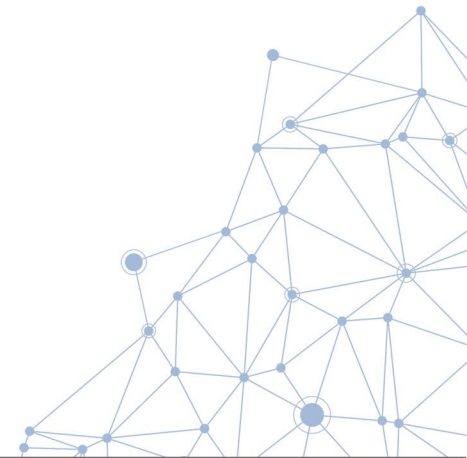


# Community Lifelines

- Review 2017 critical facility inventory to ensure complete
- Crosswalk and identify lifelines

***Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security*

***Essential facilities** are a subset of lifelines that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category includes police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.*

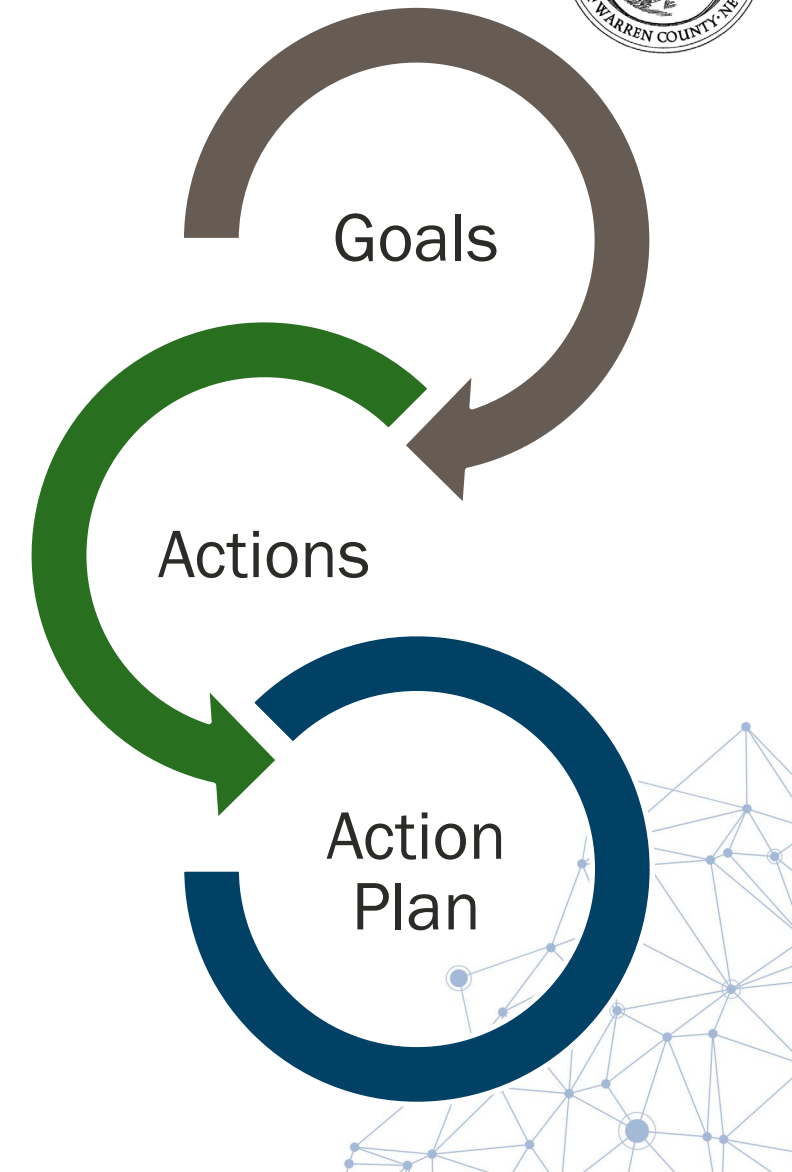






# Mitigation Strategy

- Goals
  - What outcomes do you want to achieve?
- Actions
  - What specific actions will be taken to reduce risk from hazards?
- Action Plan
  - How will the actions be prioritized and implemented?





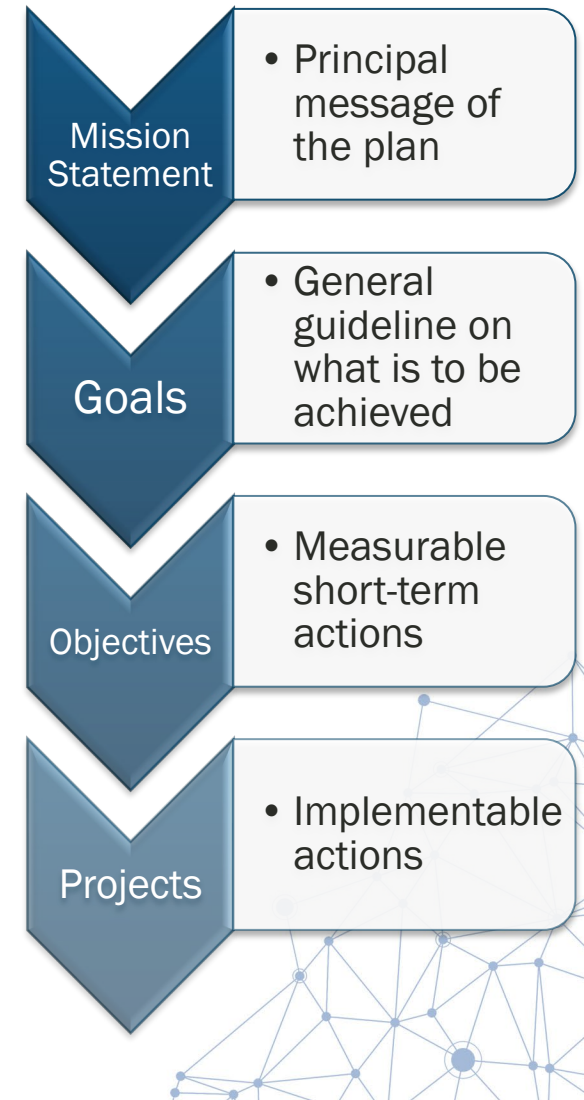


# Update Mission Statement?

As part the of the 2017 update process, the Steering Committee reviewed the mission statement and elected to maintain it without edit or amendment, as noted below. At this time, the committee is requested to review the Mission Statement to update to align with current County, state, and local policy. The committee is requested to consider adding the concept of equity and inclusiveness of socially vulnerable populations to the mission statement and the goals and objectives as well as additional adjustments to align with count, state, and local policy.

## *2017 HMP Mission Statement*

*To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations and the public to eliminate or reduce risks and adverse impacts from natural, technological and human-caused hazards .*







# Goals and Objectives Review and Update

Goal	Objective
<b><u>Goal 1:</u></b> <b>Protect Life and Property.</b>	1.1: Introduce mitigation activities that will make homes, businesses and critical facilities and infrastructure more hazard resistant and to increase resilience.
	1.2: In areas vulnerable to hazards, encourage businesses and homeowners to take preventive actions when possible .
	1.3: Periodically review existing building codes, safety procedures, municipal and county ordinances to update recent standards for building protection.
	1.4: Immediately enforce existing building codes within the jurisdiction.
	1.5: Encourage owners of home and businesses and renters to purchase appropriate insurance coverage for potential damages from hazards.
<b><u>Goal 2:</u></b> <b>Increase Public Awareness</b>	2.1: Continue developing and integrating education and outreach programs in an effort to enhance public awareness of the hazards, providing information on specific activities for individuals in anticipation of a hazard event .
	2.2: Provide information on current government programs and funding resources to assist with mitigation and resilience.
	2.3: Strengthen communication and cooperation between public agencies, citizens, non-profit groups, and businesses to implement mitigation activities effectively.





# Goals and Objectives Review and Update

## Goal 3: Provide for Emergency Services

3.1: Coordinate hazard mitigation activities with existing local emergency plans.

3.2: Identify and plan for acquiring any specific emergency services and equipment needed to improve response capabilities for specific hazards.

3.3: Review emergency traffic routes, making changes as needed, and educating the public as to the routes .

## Goal 4:

Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related state, regional, county and local plans and programs.

4.1: Promote land use planning to encourage resilient and sustainable efforts throughout statewide and regional programs that address zoning, building codes, capital improvement programs, open space preservation, nature-based solutions, and storm water management regulations.

4.2: Continue to participate in state, regional and local programs and efforts that focus on practices that support or enhance resiliency.

4.3: Improve hazard data through participation in studies, research, and mapping to enhance information related to the impacts of hazards and related risks, vulnerability, and losses.

## Goal 5:

Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.

5.1: Encourage the use of green and natural infrastructure and nature based solutions.

5.2: Provide technical assistance to communities and stakeholders in the application and implementation of mitigation projects that preserve or restore natural systems.

5.3: Maintain and encourage ongoing relationships between state agencies and partners to play an active and vital role in preservation and restoration of vulnerable natural systems.

5.4: Promote climate change adaption strategies that protect against long-term effects on the environment.

## Goal 5: Address Long-Term Vulnerabilities from High Hazard Dams

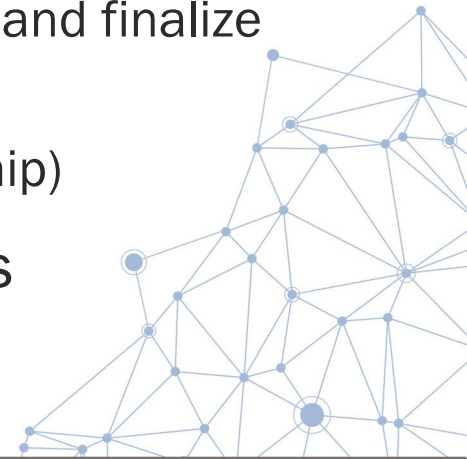
5.1: Ensure dam infrastructure is maintained





# Schedule

- Planning Process
  - Steering Committee Kick-Off – TODAY!
  - Planning Partnership Kick-Off – November 2<sup>nd</sup> at 9 am (Steering committee will be invited)
- Update Risk Assessment
  - Data collection is underway; confirm local critical facilities inventory by December 2023
  - Begin vulnerability assessment
  - Steering Committee Meeting: November, to identify hazards of concern for County and finalize goals
  - Risk Assessment Meetings: February (Steering Committee and Planning Partnership)
- Public Involvement Strategy – ongoing throughout the planning process

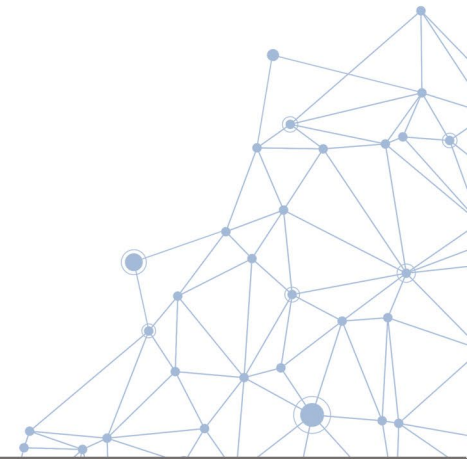






# Schedule

- Mitigation Strategy
  - Begin working with the municipalities in **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 2023**
- Draft Plan to Steering Committee in **May-June 2023** *(as sections are ready)*
- Public Review Period (30 days) – **June 2023**
- Final draft plan to NYSDHSES by June 2023 and FEMA by **August 2023**

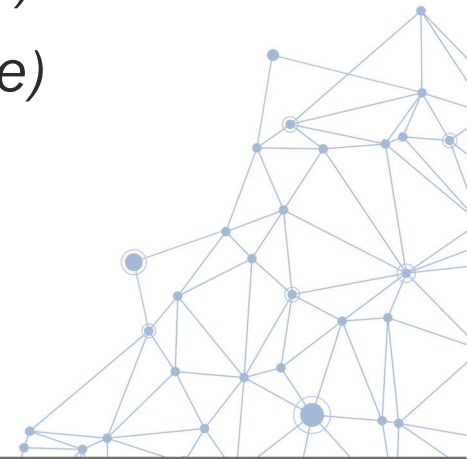






# Next Steps – Key Dates

- Complete Hazards of Concern & Goals and Objectives worksheets and return by November 1<sup>st</sup>.
- Confirm access to OneDrive – *access to be provided in separate email*
- Planning Partnership Kick-Off\* (Steering Committee and Municipalities) on **November 2<sup>nd</sup>, 2023**
- Steering Committee Meeting\* – October 27<sup>th</sup>, 2022
- Steering Committee Risk Assessment Meeting – February, 2023 (*tentative*)
- Planning Partnership Risk Assessment Meeting – February, 2021(*tentative*)
- Mitigation Strategy Workshop – March 2023 (*tentative*)

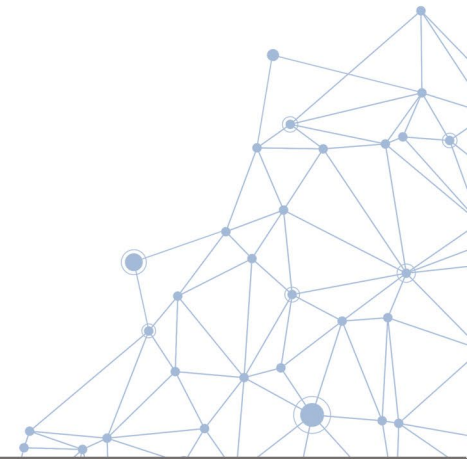






# Next Steps

1. Attend Planning Partnership Meeting
  2. Determine Hazards of Concern to include in the HMP
  3. Strengths, Weaknesses, Obstacles and Opportunities (SWOO)
  4. Review Hazard Profiles
  5. Review Risk Assessment Results
  6. Identify Problems and Problem Areas
  7. Develop Mitigation Strategy
  8. Review Draft Plan
  9. Submit Draft Plan for NYSDHSES/FEMA Review
  10. Adopt FEMA-Approved Plan
  11. Implement Projects and Maintain the Plan
- ➡ Increase Resilience!





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

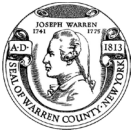
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #1 – AGENDA**  
**MEETING DATE/TIME: November 2, 2022 – 10:00 am**



Virtual: Microsoft Teams Meeting - ***Click here to join the meeting*** or use this link:

[https://teams.microsoft.com/l/meetup-](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGE2NDNIYWYtYWU3Ny00NGU4LWJkMWQtNmY0NGRhOTNiMTQ0%40thread.v2/0?context=%7b%22id%22%3a%22a40fe4ba-abc7-48fe-8792-b43889936400%22%2c%22oid%22%3a%22e2c51125-ed2c-4397-a8d5-53494e2597a5%22%7d)

[join/19%3ameeting\\_MGE2NDNIYWYtYWU3Ny00NGU4LWJkMWQtNmY0NGRhOTNiMTQ0%40thread.v2/0?context=%7b%22id%22%3a%22a40fe4ba-abc7-48fe-8792-b43889936400%22%2c%22oid%22%3a%22e2c51125-ed2c-4397-a8d5-53494e2597a5%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGE2NDNIYWYtYWU3Ny00NGU4LWJkMWQtNmY0NGRhOTNiMTQ0%40thread.v2/0?context=%7b%22id%22%3a%22a40fe4ba-abc7-48fe-8792-b43889936400%22%2c%22oid%22%3a%22e2c51125-ed2c-4397-a8d5-53494e2597a5%22%7d)

Dial in by phone (audio only), +1 518-300-1367,,776526083# United States, Albany, NY , Phone Conference ID: 776 526 083#

1. Welcome and Introductions
2. Benefits of Hazard Mitigation
3. Hazard Mitigation Planning Overview
4. Project Organization
5. Public and Stakeholder Outreach
6. In-Kind Services Tracking
7. Planning Partnership Responsibilities
8. Community Lifelines/Critical Facilities
9. Update Hazards of Concern and Risk Assessment
10. Goals and Objectives
11. Schedule
12. Questions/Next Steps/Wrap Up





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Purpose of Meeting:	Planning Partnership Meeting
Location of Meeting:	Hybrid In-person and Teleconference Teams Meeting
Date of Meeting:	November 2, 2022, 9:00 am – 10:05 am

Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ann Marie Mason	Warren County, Director Emergency Services
Ashley Rivers	Warren County OEM, Emergency Services Coordinator
Josh Westfall	Town of Bolton, Planner
Marion Eagan	Town of Chester, Planning and Zoning
Jeremy Little	Town of Chester, Zoning Administrator
Bill Norton	City of Glens Falls, Superintendent Water and Sewer
Michael N. Geraci	Town of Horicon, Supervisor
Danae Tucker	Town of Johnsbury, Bookkeeper
Fred Comstock	Town of Johnsbury, Highway Superintendent
Ernie Dunkley	Town of Johnsbury, Safety Officer
Mike Dunkley	Town of Johnsbury, Assistant Highway Superintendent
Laura Moore	Town of Queensbury, Land Use Planner
John O'Brien	Town of Queensbury, Director of Building and Code Enforcement
Mike Palmer	Town of Queensbury, Fire Marshal
Dave Duell	Town of Queensbury, Highway Superintendent
Deb Runyon	Town of Thurman, Supervisor
Dan Barusch	Town/Village Lake George, Planner
Rob Lanfear	Town/Village Lake George, Highway Department
Keith Lanfear	Town/Village Lake George, Superintendent Public Works
Eugene J. Merlino	Town of Lake Luzerne, Town Supervisor
Karen Putney	Town of Lake Luzerne, Zoning Enforcement Officer
James S. Hull	Town of Warrensburg, Code Enforcement Officer
Elizabeth O'Reilly	NYSDHSES, Planning Manager
Shelby Meyers	NYSDHSES, Planner
Paul Hoole	FEMA, Mitigation Planning
Cynthia Addonizio-Bianco	Tetra Tech, Inc.
Erika Corsi	Tetra Tech, Inc.





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Agenda Summary:		
Item No.	Description	Action item(s):
1	<b>Welcome and Opening Remarks</b> <ul style="list-style-type: none"><li>Meeting started at 9:05 pm</li><li>Cynthia Addonizio-Bianco, project manager from Tetra Tech (Tt), facilitated introductions, gave opening remarks providing an overview of the importance of this planning process and thanked participants for supporting the hazard mitigation update. Jim Lieberum, Director of Warren County Soil and Water Conservation District introduced the County team.</li><li>Elizabeth O'Reilly of NYSDHSES indicated that NYSDHSES will provide support as needed throughout the mitigation planning process.</li></ul>	N/A
2	<b>Project Overview</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco provided the following information:<ul style="list-style-type: none"><li>An overview of hazard mitigation, what it is and how it can provide increase resilience through the development of a FEMA-approved Hazard Mitigation Plan. She also noted the need to track time spent working on the plan outside of meetings through in-kind tracking to provide match for federal funding support for the planning effort. An online tracker will be sent out to all plan participants.</li><li>An overview of the phases of the hazard mitigation planning process including description of the project organization:<ul style="list-style-type: none"><li>Core Planning Team (CPT)</li><li>Warren County Emergency Services</li><li>Warren County Soil and Water Conservation District</li><li>Tetra Tech</li></ul></li><li>Steering Committee (SC)<ul style="list-style-type: none"><li>Numerous County Departments, Major Businesses, Outside Agencies, municipal representatives</li></ul></li><li><b>Planning Partnership (PP)</b><ul style="list-style-type: none"><li>All participating municipalities and Steering Committee members.</li></ul></li><li>FEMA/NYSDHSES</li><li>Stakeholders</li></ul></li><li>Planning Partnership roles and responsibilities:<ul style="list-style-type: none"><li>Provide guidance and leadership</li><li>Identify hazards of concern</li><li>Develop mitigation goals and objectives</li></ul></li><li>Develop public and stakeholder outreach</li><li>Assist with the development of their jurisdictional annex. Each municipality will be provided a version of their jurisdictional annex. The municipal mitigation team will edit and make changes to the annex as needed and return to Tt.</li></ul>	<ul style="list-style-type: none"><li>Critical facility inventory survey to be distributed by Tt to the County and municipal representatives.</li></ul>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



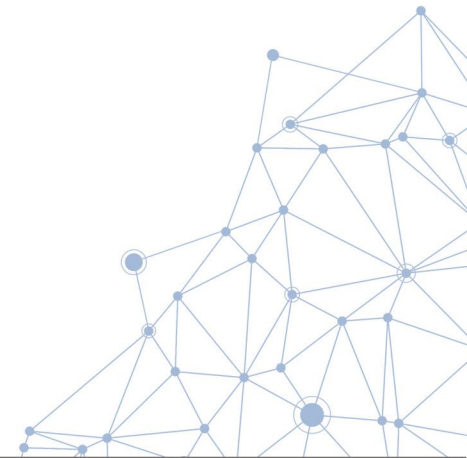
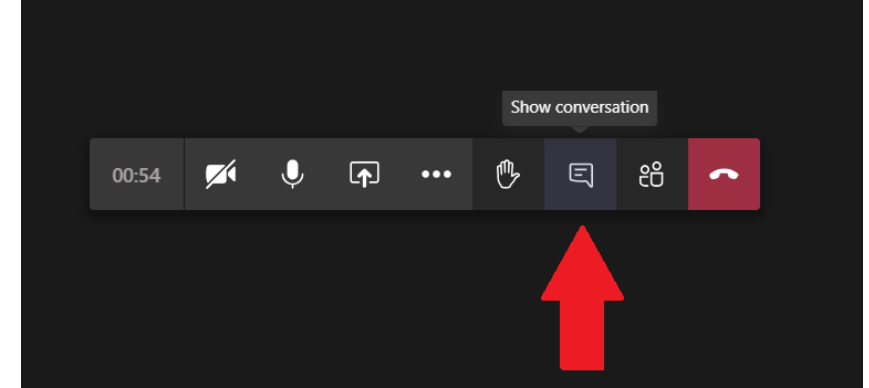
3	<b>Risk Assessment and Hazards of Concern</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco discussed the process of the risk assessment and reviewed the hazards of concern identified in the last HMP. These hazards of concern will need to be reviewed and updated as necessary.</li><li>One action is needed for every hazard of concern that impacts a municipality.</li></ul>	<ul style="list-style-type: none"><li>Planning Partnership to provide input to update Hazards of Concerns in associated worksheets.</li></ul>
4	<b>Goals and Objectives</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco introduced the goals and objectives from the last HMP.</li><li>Community lifelines and critical facilities were introduced from the previous HMP.</li><li>The jurisdictional representative should review the goals and objectives and the community lifelines to identify changes in their communities.</li></ul>	<ul style="list-style-type: none"><li>Planning Partnership to provide critical facilities inventory by December 9th using the survey sent via email</li><li>Tt to send critical facilities inventory survey</li></ul>
5	<b>Upcoming Meetings</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco reviewed upcoming meetings:<ul style="list-style-type: none"><li>Confirm critical facilities/lifeline inventory by December 9<sup>th</sup> 2022</li><li>Worksheet workshop – November 16<sup>th</sup>, 2022, at 10am</li><li>All Annex worksheets due November 23<sup>rd</sup>, 2022</li><li>Risk assessment meeting – February 2023</li></ul></li></ul>	<ul style="list-style-type: none"><li>Tt to send out jurisdictional annexes</li></ul>
6	<b>Next Steps</b> <ul style="list-style-type: none"><li>Determine Hazards of Concern to include in the HMP</li><li>Review Hazard Profiles</li><li>Review Risk Assessment Results</li><li>Identify Problems and Problem Areas</li><li>Develop Mitigation Strategy</li><li>Review Draft Plan</li><li>Submit Draft Plan for NYSDHSES/FEMA Review</li><li>Adopt FEMA-Approved Plan</li><li>Implement Projects and Maintain the Plan and Increase Resilience</li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 10:05 am.	



# Welcome!



- If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.
  - Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.
  - Click “Show Conversation.”







# Warren County, New York Hazard Mitigation Plan – 2023 Update

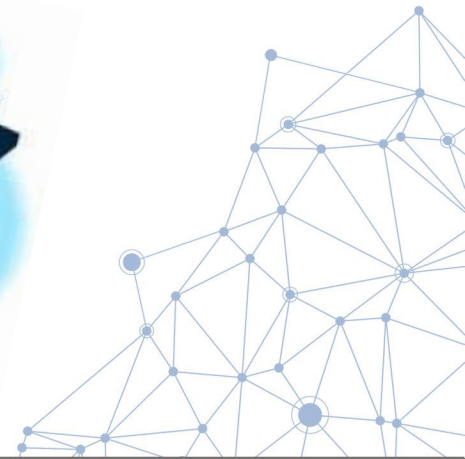
Planning Partnership Kick-Off Meeting | November 2, 2022  
9:00am





# Agenda

- Welcome and Introductions
- Benefits of Hazard Mitigation
- Hazard Mitigation Planning Overview
- Project Organization
- Public and Stakeholder Outreach
- In-Kind Services Tracking
- Planning Partnership Responsibilities
- Community Lifelines/Critical Facilities
- Update Hazards of Concern and Risk Assessment
- Goals and Objectives
- Schedule
- Questions/Next Steps/Wrap Up







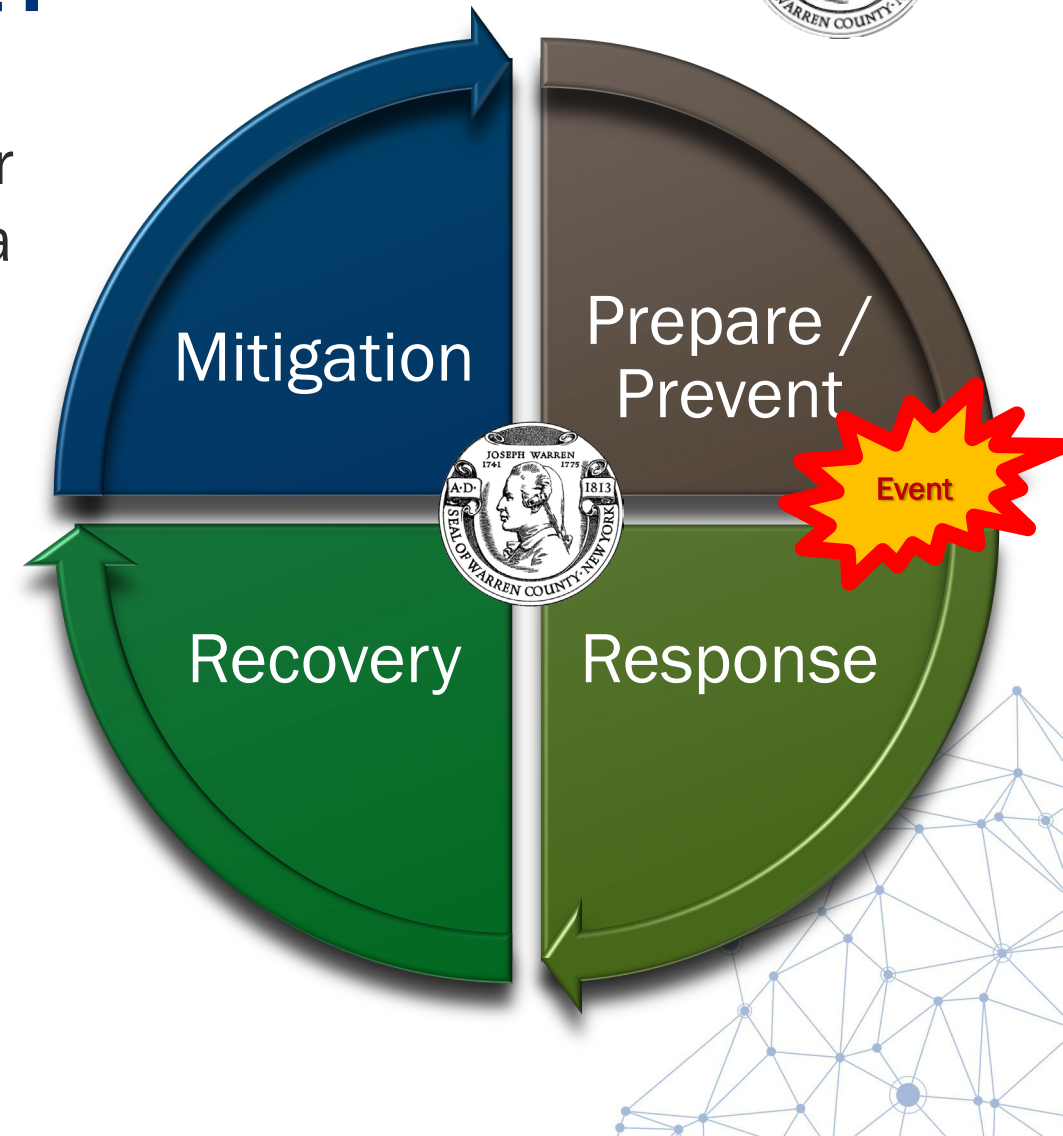
# Hazard Mitigation – What is it?

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses

“provides the blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and local ability...” (CFR).



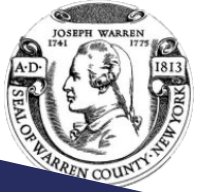


# Hazard Mitigation Works!

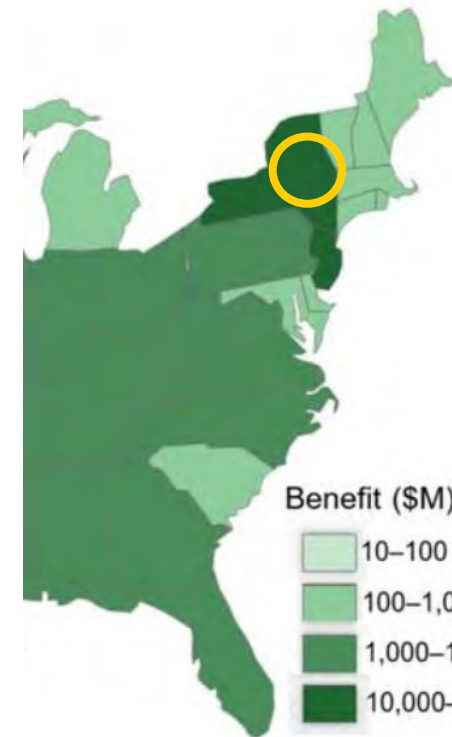
- According to the January 2019 National Institute of Building Sciences Natural Hazard Mitigation Saves: 2019 Report, federal mitigation grants save \$6 for every \$1 spent!

	ADOPT CODE	ABOVE CODE	BUILDING RETROFIT	LIFELINE RETROFIT	FEDERAL GRANTS
<b>Overall Benefit-Cost Ratio</b>	<b>11:1</b>	<b>4:1</b>	<b>4:1</b>	<b>4:1</b>	<b>6:1</b>
<b>Cost (\$ billion)</b>	<b>\$1/year</b>	<b>\$4/year</b>	<b>\$520</b>	<b>\$0.6</b>	<b>\$27</b>
<b>Benefit (\$ billion)</b>	<b>\$13/year</b>	<b>\$16/year</b>	<b>\$2200</b>	<b>\$2.5</b>	<b>\$160</b>
 <b>Riverine Flood</b>	<b>6:1</b>	<b>5:1</b>	<b>6:1</b>	<b>8:1</b>	<b>7:1</b>
 <b>Hurricane Surge</b>	not applicable	<b>7:1</b>	not applicable	not applicable	not applicable
 <b>Wind</b>	<b>10:1</b>	<b>5:1</b>	<b>6:1</b>	<b>7:1</b>	<b>5:1</b>
 <b>Earthquake</b>	<b>12:1</b>	<b>4:1</b>	<b>13:1</b>	<b>3:1</b>	<b>3:1</b>
 <b>Wildland-Urban Interface Fire</b>	not applicable	<b>4:1</b>	<b>2:1</b>	not applicable	<b>3:1</b>

Copyright © 2019 The National Institute of Building Sciences



Mitigation saves in every in state! New York State has benefited in over \$100 million from federal grants for flood, wind, earthquake, and fire mitigation.



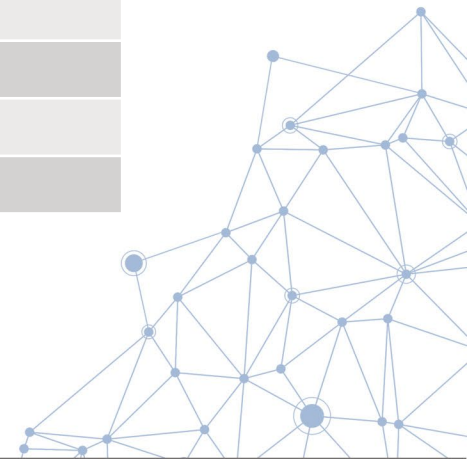


# Why Update?

- The mitigation plan update will:
  - Help the County prepare for and mitigate the effects of disasters
  - Continue to allow the County and participating partners to be eligible for pre- and post-disaster mitigation funding
  - Support CRS participation/rating of municipalities

Hazard	Losses (\$)
Blizzard	Losses not reported
Drought	Losses not reported
Excessive Temperature	Losses not reported
Flash Flood	\$22.36 million
Flood	\$6.24 million
Hail	\$13,000
Heavy Rain	Losses not reported
Heavy Snow	\$35,000
High Wind	\$731,000
Hurricane/Tropical Storm	Losses not reported
Lightning	\$77,000
Strong Wind	\$193,000
Thunderstorm Wind	\$10.62 million
Tornado/Funnel Cloud	\$252,500
Winter Storm	\$182,300
Winter Weather	\$1,000
<b>TOTAL</b>	<b>\$42.345 million</b>

Source: NOAA-NCEI 2022





# What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480



4 Flood



4 Hurricane



4 Severe Storm(s)



2 Biological



2 Other



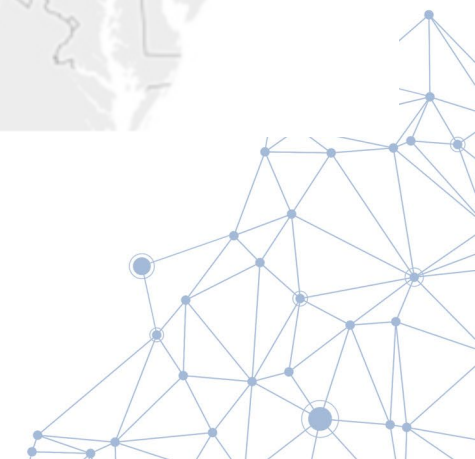
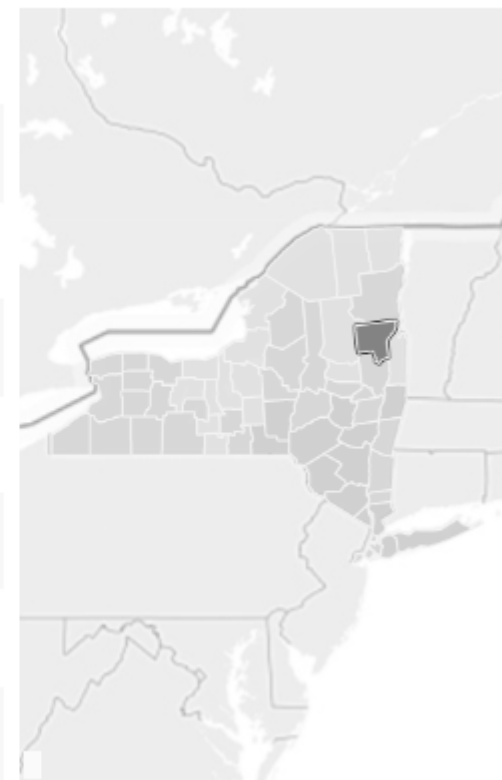
1 Earthquake



1 Fire



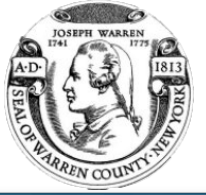
1 Snow





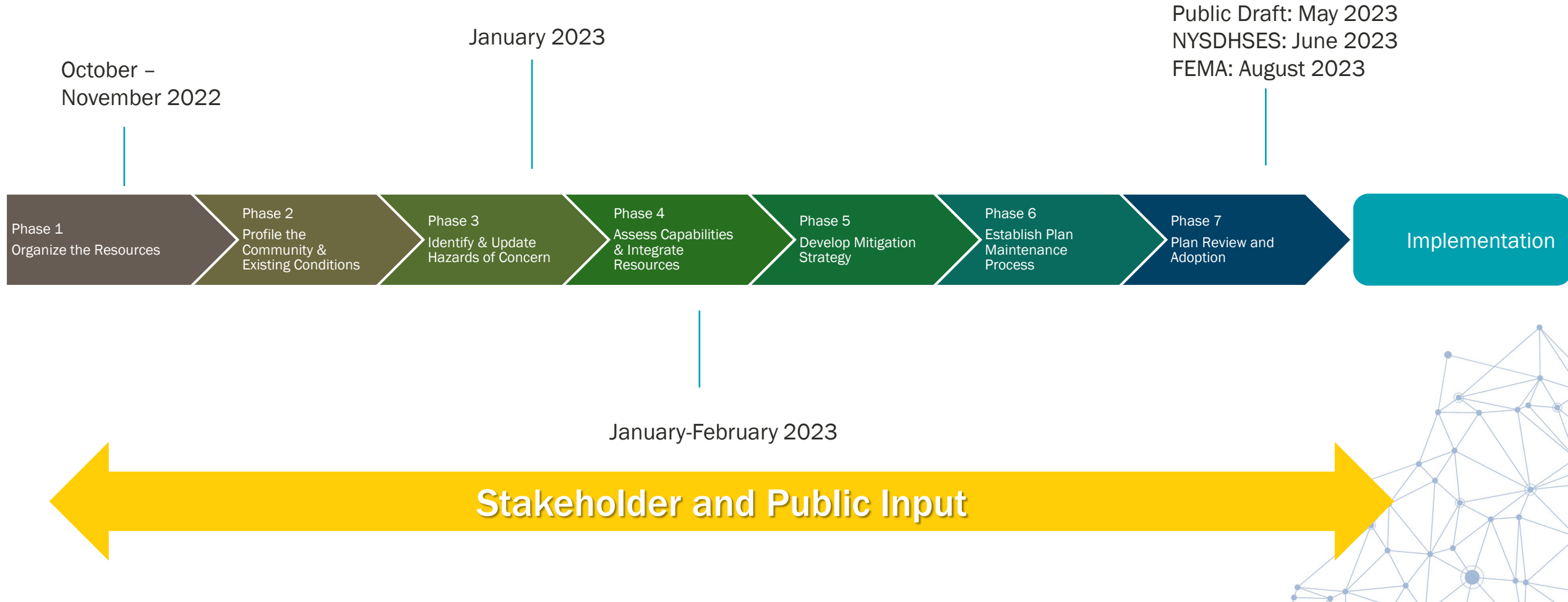
# What is our Vision?

*The **mission** of the Warren County Hazard Mitigation Plan is to create communities whose daily activities reflect a comprehensive **commitment** by government, business, non-profit organizations and the public to eliminate or **reduce risks** and adverse impacts from natural, technological and human-caused hazards.*



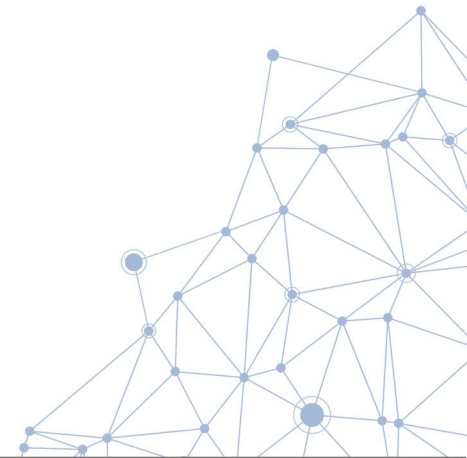


# Planning Process Overview





# Project Organization







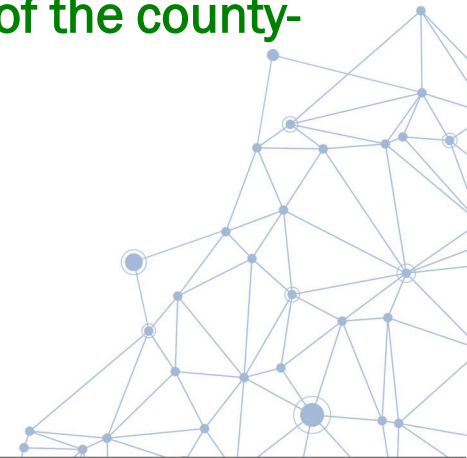
# Who is Leading the Planning Process?

## Steering Committee Members

Warren County Soil and Water Conservation District	Adirondack / Glens Falls Transportation Council
Warren County Office of Emergency Services	City of Glens Falls
Warren County Department of Planning and Community Development	Village of Lake George
Warren County Public Works	SUNY Adirondack
Town of Queensbury Planning Department	Glens Falls Hospital
	Finch Pryne
	Board of Supervisors

## Role

- ✓ Guide the Planning Partnership through the planning process
- ✓ Identify the natural hazards of concern
- ✓ Develop mitigation goals and objectives
- ✓ Develop public and stakeholder outreach strategy
- ✓ Support the development of the county-level mitigation strategy
- ✓ Review plan documents







# How are we Engaging the Public?

- HMP website underdevelopment – <https://www.warrencountynewyorkhmp.com>
- Social Media Blasts – content and graphics will be sent out
- Surveys – public, stakeholder, and neighbors
- Local announcements of HMP update – local papers, municipal newsletters, etc.
- Local public meetings
- Draft plan review
- Document each and every time this is done!

## Why conduct outreach?

- ✓ Informs and educates about hazards and risks
- ✓ Invites interested parties to contribute their views and ideas for mitigation
- ✓ Identifies conflicts and incorporates different perspectives and priorities early in the process
- ✓ Provides data and information that improves overall quality and accuracy of the plan
- ✓ Ensures transparency and builds trust
- ✓ Maximizes opportunities for implementation through greater consensus and acceptance



# How to Document your Public and Stakeholder Outreach and In-Kind Hours?



- Track hours spent working on the HMP (outside of meetings with Tetra Tech)
- Track type of outreach you provide to inform residents and stakeholders about the Hazard Mitigation Plan.
- A survey will be emailed to you your input.

Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Press Release	Countywide						Press release issued to several local newspapers



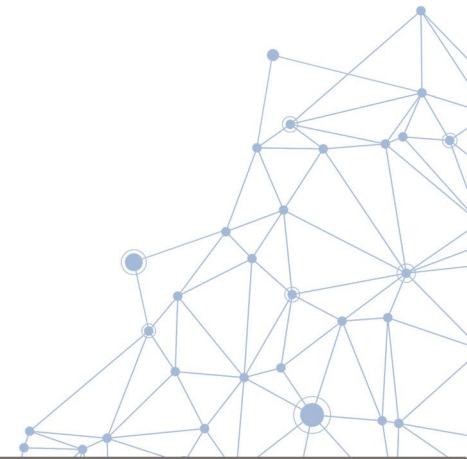


# What are the Benefits for Municipal Participation?

- All municipalities are encouraged to actively participate (and continue to be covered by the countywide HMP).

**Participating = you remain eligible for pre- and post-disaster mitigation funding!**

- FEMA has greatly expanded their scrutiny of ‘participation’ since your last plan update...

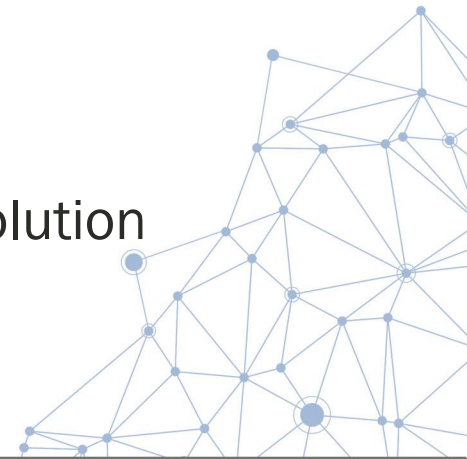






# How Do You Participate?

- Submit Letter of Intent to Participate (LOIP)
  - LOIPs are required from each municipality
  - It outlines expectations and responsibilities for participating jurisdictions and identifies points of contact
- Assist with the development of your jurisdictional annex
- Attend planning partnership meetings/workshops – like this one!
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – governing body must pass an Adoption Resolution
- Implement and Maintain the Plan







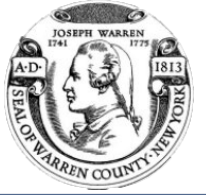
# Who Should be on Your Team?

If you not fully decided who should be on your municipal mitigation team, the following could provide you a better idea on who to invite:

- NFIP Floodplain Administrator
- Building Code Official
- Engineer
- Land Use Planner
- Clerk
- Mayor/Administrator/Supervisor
- Municipal CFO/Fiscal Representative
- Public Works Superintendent/Director
- Police/Fire Official







# List of Worksheets

- Worksheet A - Hazard Event History
- Worksheet B – Capability Assessment
- Worksheet C – National Flood Insurance Program (NFIP) Questionnaire
- Worksheet D – 2017 Mitigation Project Status (Action Plan) Review
- Worksheet E – Development, Building Permits (last 5 years)

	Jurisdiction has <u>this</u> ? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>			State and Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Zoning/Land Use Code</b>			Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
Consider the following:				
<ul style="list-style-type: none"><li>• Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?</li><li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li><li>• Does it contain natural overlay zones that set conditions?</li><li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li><li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li></ul>				
<b>Subdivision Ordinance</b>			Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
Consider the following:				
<ul style="list-style-type: none"><li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li><li>• Do the regulations provide for conservation subdivisions or cluster subdivisions <u>in order to</u> conserve environmental resources?</li><li>• Do the regulations allow density transfers where hazard areas exist?</li></ul>				
<b>Site Plan Ordinance</b>			Local and County	
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Stormwater Management Ordinance</b>			Local	
How has or will this be integrated with the HMP and how does this reduce risk?				





# Update Annexes with Your Mitigation Team

- Attend the Worksheet Workshop to review each worksheet:
  - November 16 at 10 am
- Complete worksheets
  - Each worksheet has a suggested department lead
  - Critical asset review by December 9th
  - All worksheets due November 23rd





# Who Should Conduct Your Capability Assessment?



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet B – Capability Assessment

- Planning and Regulatory Capability
- Building Code
- Administrative and Technical Capability
- Fiscal Capability
- Education and Outreach
- Community Classifications
- Adaptive Capacity

This will be reflected in your municipal annex



Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to Cynthia Bianco (Tetra Tech) by November 23, 2022  
Email: [cynthia.bianco@tetratech.com](mailto:cynthia.bianco@tetratech.com)

Municipality: \_\_\_\_\_

Name and Title of  
Individual Completing  
Worksheet: \_\_\_\_\_

Who can assist with completing these tables: Municipal Planner, Clerk, Code Official, Administrator, Chief Fiscal Officer

## Planning and Regulatory Capability

Please complete the following table to summarize the regulatory tools that are available to your community, what is present in the jurisdiction, and code citation and date. For existing regulatory tools, note how it reduces risk to hazards or how it could be updated to better integrate hazard mitigation concepts to reduce risk.

Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration

Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>			
<b>Building Code</b>		State and Local	
How has or will this be integrated with the HMP and how does this reduce risk?			
<b>Zoning/Land Use Code</b>		Local	
How has or will this be integrated with the HMP and how does this reduce risk?			
Consider the following:			
<ul style="list-style-type: none"> <li>Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li> <li>Does it contain natural overlay zones that set conditions?</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li> </ul>			
<b>Subdivision Ordinance</b>		Local	
How has or will this be integrated with the HMP and how does this reduce risk?			
Consider the following:			
<ul style="list-style-type: none"> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</li> <li>Do the regulations allow density transfers where hazard areas exist?</li> </ul>			
<b>Site Plan Ordinance</b>		Local and County	
How has or will this be integrated with the HMP and how does this reduce risk?			



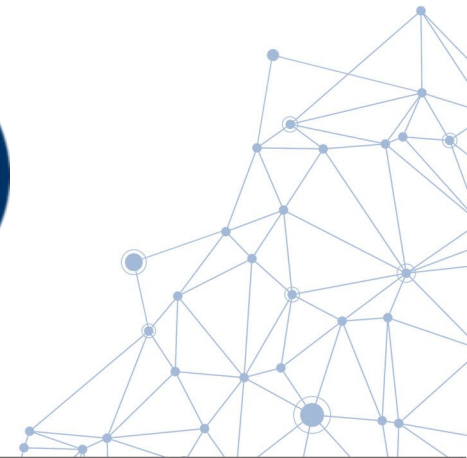


# How to Update Municipal Community Lifelines?



- Review 2017 critical facility inventory to ensure complete using the Survey provided by email.
- Identify your lifelines

***Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security*



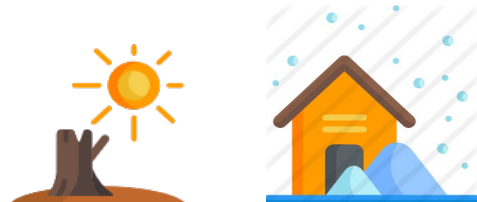




# 2017 Hazards of Concern

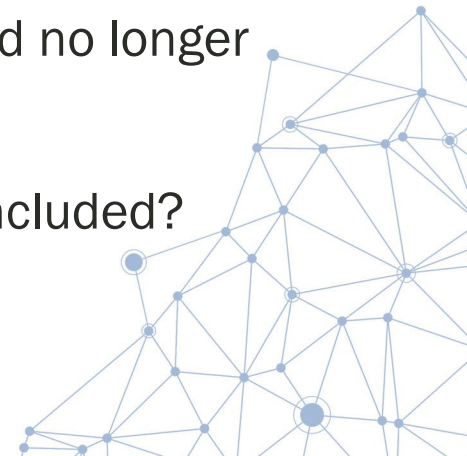
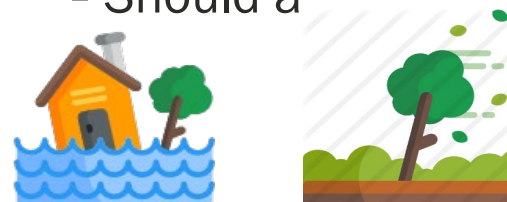
## Natural Hazard of Concern:

- Disease Outbreak
- Earthquake
- Flood (riverine, ice jam, flash)
- Infestation
- Landslide
- Severe Storm (windstorm, thunderstorms, hail, tornados)
- Severe Winter Storm (heavy snow, blizzards, ice storms)
- Wildfire



## Non-Natural Hazards of Concern:

- Cyber Security
- Haz-Mat
- In review...
  - Have additional hazards impacted the County since 2017?
  - Have hazard been mitigated and no longer cause damage?
  - Should hazards be regrouped?
  - Should additional hazards be included?





# Update Risk Assessment

- Update Assets
- Examine Previous Impacts
- Analyze Risks
- Review with Steering Committee
- Risk Assessment Meeting - open to the public








# Review Your Previous Mitigation Strategy

- Determine status of 2017 Mitigation Actions
- The updated mitigation strategy will build on this as well as additional identified issues
- What progress has been made on the 2017 HMP actions?
  - Completed?
    - If yes, describe funding source, funding amount, and details on the project and how it was completed.
  - No progress?
    - Describe why.
    - Is this project still a priority? If yes, we will include in the 2023 Update.
    - If no, we will remove.

 **WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
Worksheet D - Mitigation Action Review  
MUNICIPALITY \_\_\_\_\_

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (If project status is complete)	1. Next Steps Project to be Included in 2023 HMP or Discontinue
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.

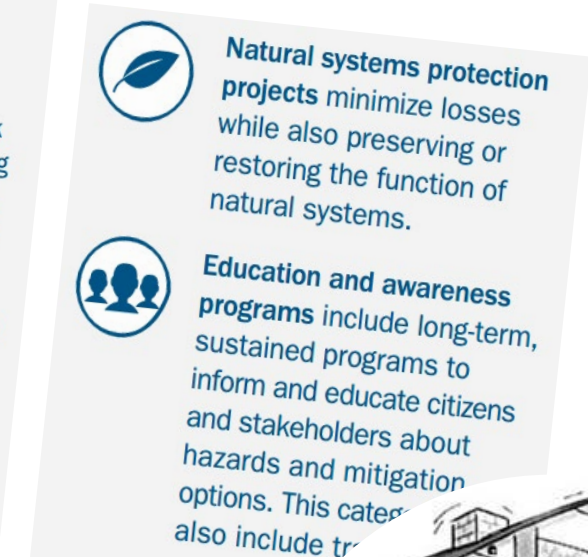
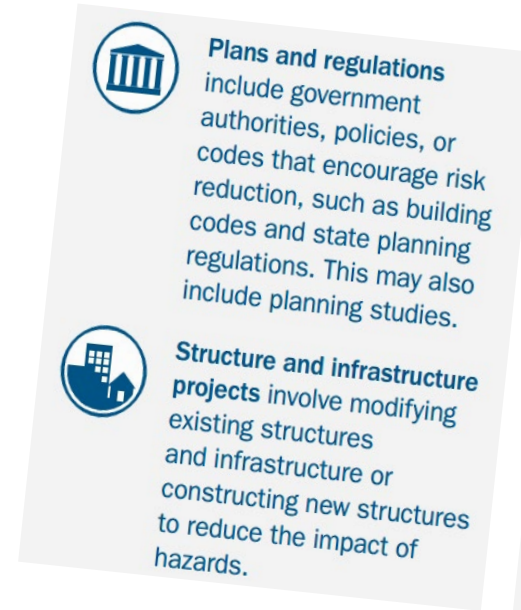
This will be included in your municipal annex





# New Mitigation Actions for the 2023 Update

- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (HMGP generators, CDBG acquisitions, etc.)
- Tips for the 2023 update:
  - Quality NOT quantity
  - Specific not general
  - What can realistically be accomplished in 5 years?
  - Action for every hazard of concern

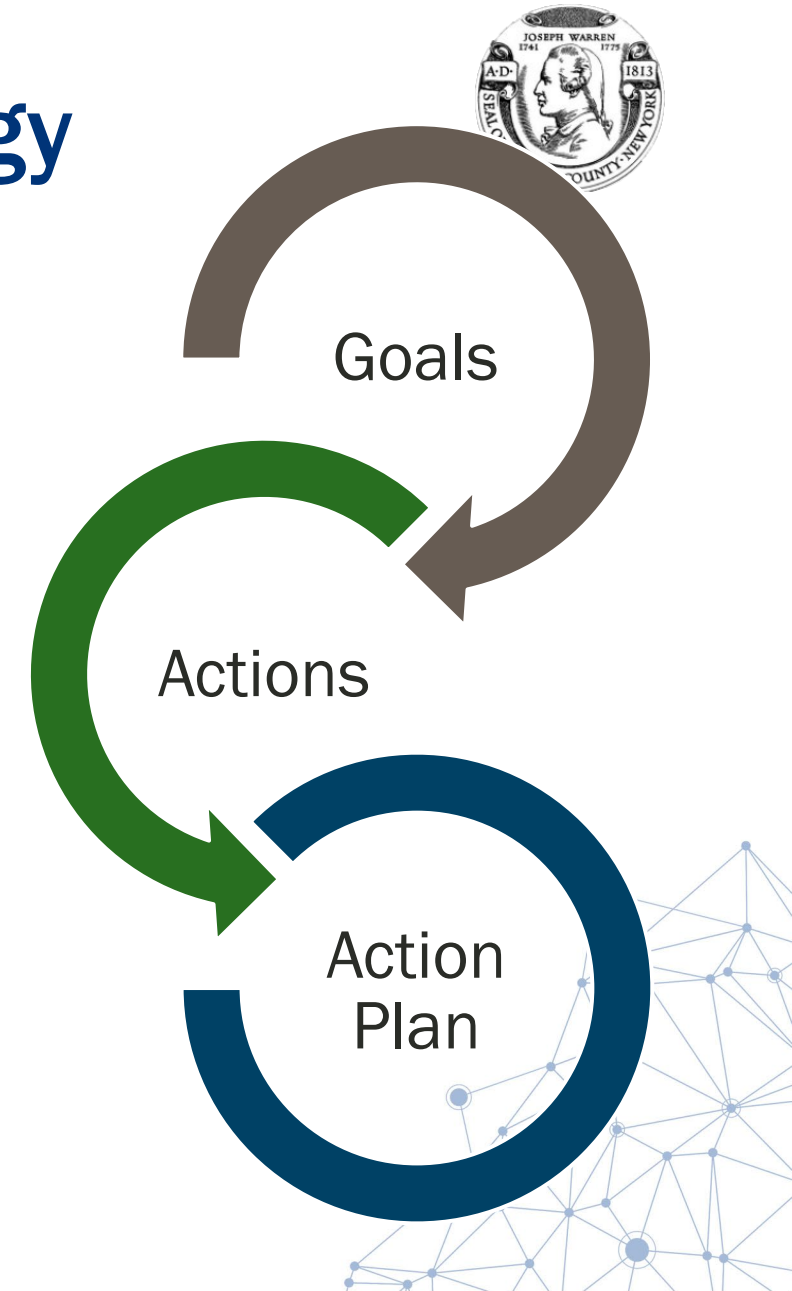


*"At the first sign of a flood, you just push this little button."*



# Connection to the Mitigation Strategy

- Need a clear connection between vulnerability and proposed mitigation actions.
- Use the capability assessment to provide insight into challenges/opportunities for the mitigation strategy as well.
- Provide a factual basis for activities proposed in the mitigation strategy.

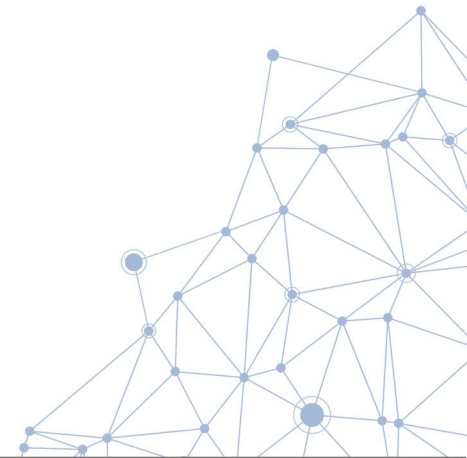






# What We Need From You

- Attend the upcoming worksheet workshop
  - Worksheet Workshop – November 16 at 10 am
- Review and submit your critical facilities by December 9th
- Complete and return your worksheets
- Start thinking about what new mitigation actions you would like to add to your mitigation strategy.



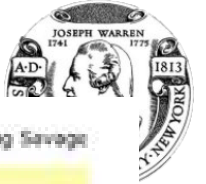


# Schedule

- Planning Process
  - Planning Partnership Kick-Off – TODAY!
  - Confirm critical facility/lifeline inventory by December 9th
  - Worksheets due November 23rd
  - Worksheet Workshop – November 16 at 10 am
  - Update Risk Assessment
  - Begin vulnerability assessment
  - Risk Assessment Meeting – February 2023
- Public Involvement Strategy – ongoing throughout the planning process

*Savage Chickens*

by Doug Savage




[www.savagechickens.com](http://www.savagechickens.com)





# Next Steps

- Determine Hazards of Concern to include in the HMP
- Review Hazard Profiles
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for DHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan  Increase Resilience!





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC, District Manager  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason, Emergency Services Director  
[masona@warrencountyny.gov](mailto:masona@warrencountyny.gov)

## Tetra Tech Project Contacts

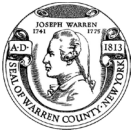
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Homework Workshop – AGENDA**  
**MEETING DATE/TIME: November 16, 2022 – 10:00 am**



*In-Person/Hybrid Meeting:*

Human Services Building  
3rd floor conference room  
1340 State Route 9, Warren, Lake George, NY

*Virtual: Microsoft Teams Meeting:*  
*Join on your computer or mobile app*

[Click here to join the meeting](#)

Meeting ID: 211 930 051 572

Passcode: 89z58L

Agenda Items

1. Welcome and Introductions
2. Benefits of Hazard Mitigation
3. Hazard Mitigation Planning Overview
4. Project Organization
5. Public and Stakeholder Outreach
6. In-Kind Services Tracking
7. Planning Partnership Responsibilities
8. Community Lifelines/Critical Facilities
9. Update Hazards of Concern and Risk Assessment
10. Goals and Objectives
11. Schedule
12. Questions/Next Steps/Wrap Up





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Purpose of Meeting:	Planning Partnership Meeting
Location of Meeting:	Hybrid In-person and Teleconference Teams Meeting
Date of Meeting:	November 16, 2022, 10:00 am – 11:00 am

Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ann Marie Mason	Warren County, Director Emergency Services
Ethan Gaddy	Warren County Planner/Climate Smart
Josh Westfall	Town of Bolton, Planner
Jennifer Ramsey	Warren County Office of Emergency Services
Jessica Leerkes	Town of Chester
Bill Norton	City of Glens Falls, Superintendent Water and Sewer
Michael N. Geraci	Town of Horicon, Supervisor
Danae Tucker	Town of Johnsbury, Bookkeeper
John Strough	Town of Queensbury
John O'Brien	Town of Queensbury, Director of Building and Code Enforcement
Dave Duell	Town of Queensbury, Highway Superintendent
Deb Runyon	Town of Thurman, Supervisor
Dan Barusch	Town/Village Lake George, Planner
Keith Lanfear	Town/Village Lake George, Superintendent Public Works
Eugene J. Merlino	Town of Lake Luzerne, Town Supervisor
Karen Putney	Town of Lake Luzerne, Zoning Enforcement Officer
Frank E. Thomas	Town of Stoney Creek, Supervisor
Elizabeth O'Reilly	NYSDHSES, Planning Manager
Paul Hoole	FEMA, Mitigation Planning
Cynthia Addonizio-Bianco	Tetra Tech, Inc. (Tt)





# Warren County Hazard Mitigation Plan Update Meeting Notes



**Agenda Summary:** The purpose of the meeting was to provide an overview of information needed to update the local information for the Warren County Hazard Mitigation Plan (HMP) update.

Item No.	Description	Action item(s):
1	<p><b>Overview/Agenda:</b></p> <p>Tetra Tech welcomed the attendees and provided an overview of the agenda which included the following topics:</p> <p>Benefits of hazard mitigation, Planning Partnership responsibilities, Worksheet review and data input, community lifelines and critical facilities, and next steps. Refer to the attached copy of the presentation for details.</p>	
2	<p>Discussion items:</p> <ul style="list-style-type: none"> <li>Worksheet information will be included in the community section or annex of the mitigation plan.</li> <li>Worksheet A: Hazard Event History - it is important to document local natural hazard events that have resulted in damages <i>not limited to named or declared events</i>. For example, if a community has experience localized flooding, note the date, location, and any damages or road closures. This information will help inform the development of projects to reduce future risk and damages.</li> <li>Worksheet B: Capability Assessment – Basic information such as whether or not the planning mechanism, code, or ordinance is in place. Additional information includes the adoption date of the item and a description of how it reduces risk or integrates hazard mitigation into the community activities.</li> <li>Worksheet C: NFIP Questionnaire – This should be completed by the community National Flood Insurance Program Administrator.</li> <li>Worksheet D: Action Review - This has been populated with the mitigation actions from the current plan. Information on the progress of the project is required (is it complete, in progress, no longer relevant?). Also indicate whether the project should be included in the plan update.</li> <li>Worksheet E: Building Permits - A listing of permits for new development since 2017 is required. This will provide an understanding of where development is occurring and if it is occurring in hazard areas. A description of the county permitting activities on behalf of local government will be included in the plan. A potential mitigation action may be to ensure that permits in floodplains are tracked going forward.</li> <li>Mr. Gaddy noted that it may be worthwhile to understand if the NYDEC Unit Management Process addresses elements of mitigation in state owned property management.</li> </ul>	<ul style="list-style-type: none"> <li>Tt to check HMP integration with NYDEC for Unit Management Process</li> </ul>
3	<p><b>Submittal date:</b></p> <p>All municipalities were requested to submit the completed worksheets to <a href="mailto:Cynthia.bianco@tetrattech.com">Cynthia.bianco@tetrattech.com</a> on or before November 23<sup>rd</sup>.</p>	<p>Municipalities to submit worksheets to Tt on or before 11/23/22.</p>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



4	Questions/Support: Questions should be directed to Cynthia Bianco of Tetra Tech at <a href="mailto:Cynthia.bianco@tetrattech.com">Cynthia.bianco@tetrattech.com</a> or Jim Lieberum of Warren County Soil & Water Conservation district at <a href="mailto:jiml@warrenswcd.org">jiml@warrenswcd.org</a> .	<ul style="list-style-type: none"><li>• Tt to post recording on OneDrive and share the link.</li><li>• Tt to send Presentation to invitees</li></ul>
7	<b>Conclusion</b> - The meeting concluded at 10:55 am.	





# Warren County, New York Hazard Mitigation Plan – 2023 Update

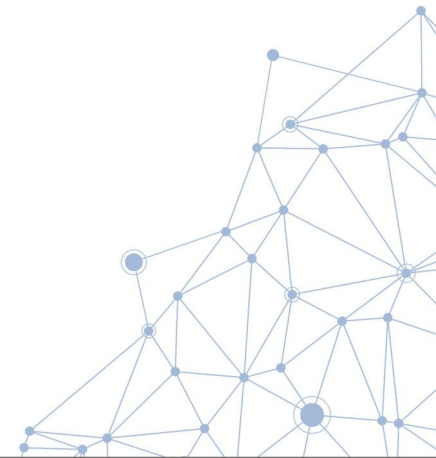
Homework Workshop | November 16, 2022 10:00am



# Agenda



- 1 Welcome
- 2 Benefits of Hazard Mitigation
- 3 Hazard Mitigation Planning Overview
- 4 Planning Partnership Responsibilities
- 5 Worksheet Review/Data Input
- 6 Community Lifelines/Critical Facilities
- 7 Questions/Next Steps/Wrap Up







# This is the Benefit of Participating in the Plan

By participating AND adopting the hazard mitigation plan:

1. Your community remains eligible for pre-disaster mitigation funding!
2. Your plan will help reduce future damages in your community

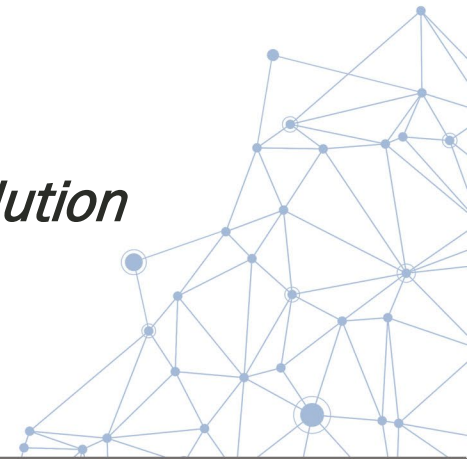






# How Do You Participate?

- Submit Letter of Intent to Participate
  - If you haven't returned it yet, please do so ASAP!
- ***Provide information about your town or village.***  
(This will be included in your chapter of the plan.)
- Attend planning partnership meetings/workshops
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – ***governing body must pass an Adoption Resolution***
- Implement and maintain the Plan



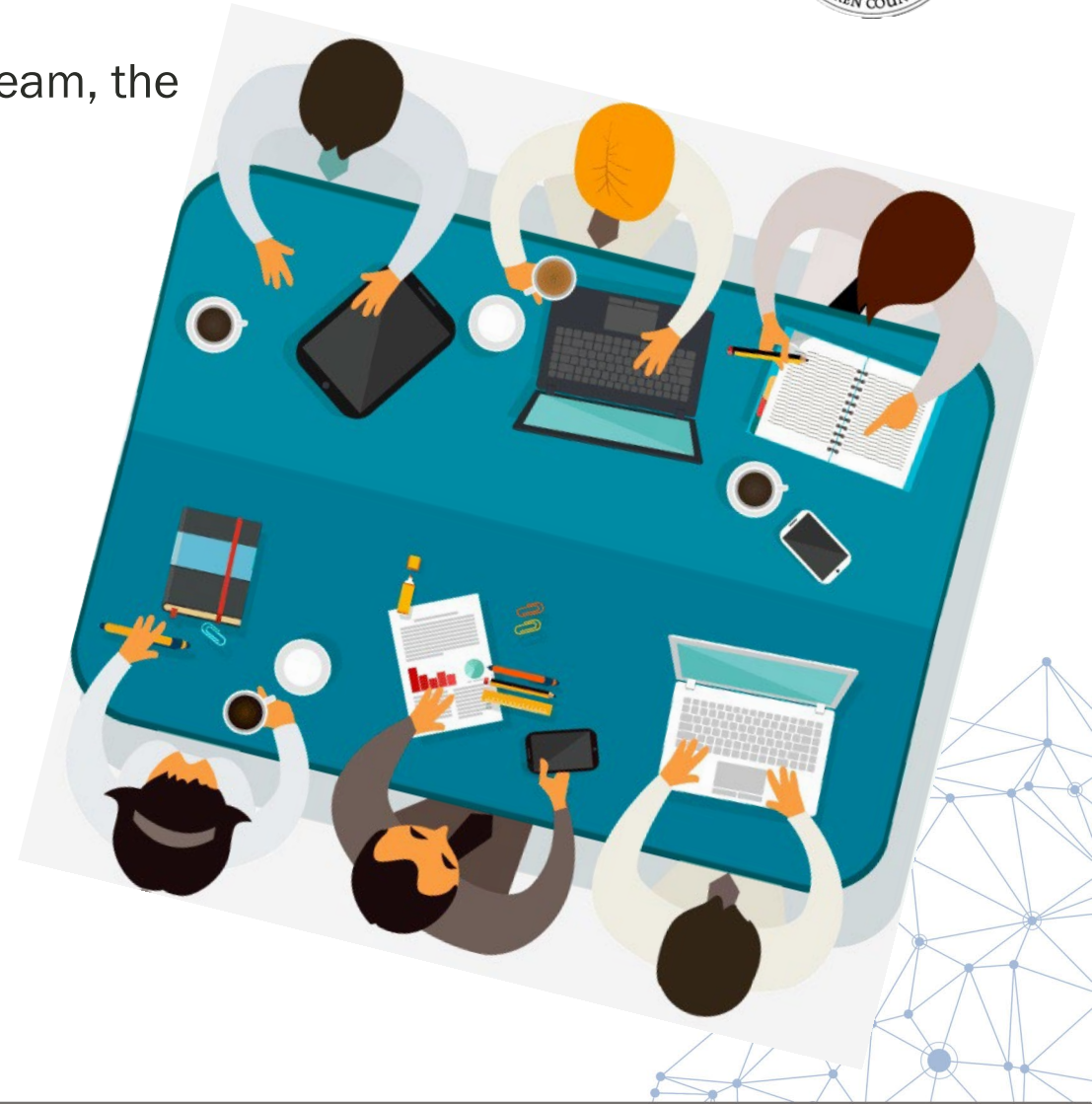




# Assemble Your Mitigation Team!

If you have not fully decided who should be on your municipal team, the following can provide you a better idea on who to invite:

- NFIP Floodplain Administrator
- Building Code Official
- Engineer
- Land Use Planner
- Clerk
- Mayor/Administrator
- Municipal CFO/Fiscal Representative
- Public Works Superintendent/Director
- Police/Fire Official






# What We Your Input!

- Tetra Tech has provided you with worksheets
- Information from the last plan has been pre-populated in your worksheets, as available.
- Your Mitigation Team is responsible for
  - providing updated information
  - reviewing the information from the 2017 plan.
- *This information will be included in your town or village annex*



SECTION 9.2. Town of Bolton

## SECTION 9.

### 9.2 TOWN OF BOLTON

This section presents the jurisdictional annex for the Town of Bolton that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the TOWN participated in the planning process, an assessment of the Town of Bolton's risk and vulnerability, the different capabilities used in the TOWN, and an action plan that will be implemented to achieve a more resilient community.


#### 9.2.1 Hazard Mitigation Planning Team

The Town of Bolton identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many TOWN departments, including XXXX. The XXXX represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume I, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

**Table 9.1-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Joshua Westfall, AICP Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Westfall.J@Town.Bolton.NY.US	Name/Title: Richard Miller, PE Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Miller.R@Town.Bolton.NY.US
<b>NFIP Floodplain Administrator</b>	
Name/Title: Richard Miller, PE Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Miller.R@Town.Bolton.NY.US	
<b>Additional Contributors</b>	
Name/Title: Method of Participation: Name/Title:	

2023 | HAZARD MITIGATION PLAN – WARREN COUNTY, NEW YORK

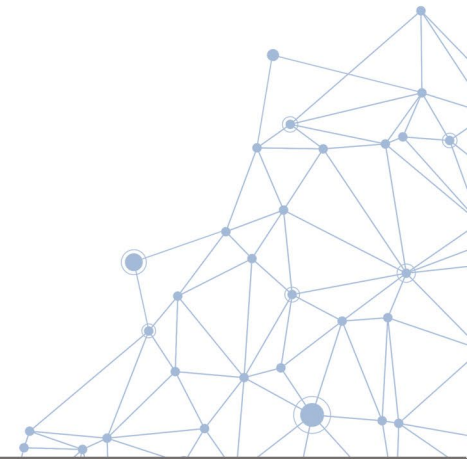




# Hazard Event History Specific to Your Town or Village



- Describe impactful hazard events that have occurred since 2017
  - When did the event occur?
  - What type of event was it?
  - What are the details of how the event unfolded?
  - How was the community impacted?
    - Damages
    - Closures
    - Injuries/deaths

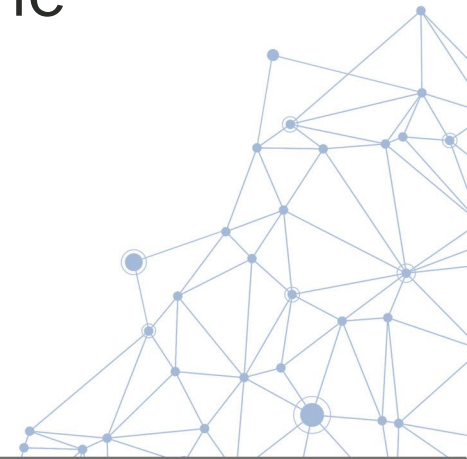






# HAZARD EVENT HISTORY

- ✓ Fill out contact information.
- ✓ Provide a summary of damages/impacts to the listed events AND note other local hazard events that resulted in damages, closures, or other impacts.
- ✓ Identify other hazard events that have caused damage/losses in your community. Refer to FEMA project worksheets (PWs), overtime records, police/fire reports, repair costs (invoices), etc





# WORKSHEET A – HAZARD EVENT HISTORY



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet A – Hazard Event History

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to Cynthia Bianco (Tetra Tech) by November 23<sup>rd</sup>, 2022.  
Email: cynthia.bianco@tetratech.com

Municipality: Town of Bolton

Name and Title of  
Individual  
Completing  
Worksheet:

Warren County has frequently experienced natural hazard events. Please complete the table below to summarize specific loss and damages experienced during hazard events since the last hazard mitigation plan update (January 1, 2017). Information already populated in the table below is based on County-wide events that resulted in significant damages and losses.

Please update the table to provide a summary of local impacts to the listed events AND note other local hazard events that resulted in damages, closures, or other impacts.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
April 27-28, 2011	Severe Storms, Flooding, Tornadoes and Straight-Line Winds (DR-1993)	Yes	Flooding occurred along the Hudson River in Warren County from North River southward to the Saratoga County line. Numerous reports of flooding. The County had approximately \$676,000 in damages. Nearly two-thirds of the County was damaged. In the Town of Bolton, River Rd. and <del>Highway</del> Roads were closed from flooding. The Town brought in six loads of #4 fill to fix both roads. In addition, there was one washout on <del>Highway</del> Rd., which the Town used two loads of #4 fill to fix.	
May 27 – June 2, 2011	Flooding "Memorial Day Storm"	N/A	Flooding occurred in the County and there was severe damage along a thin line through the County (Stony Creek, Thurman, Warrensburg, <del>Highway</del> and Bolton) that resulted in \$13.125 million in damages. Extensive flood damage to transportation infrastructure occurred throughout the Town of Bolton, including Combs Road Bridge which was washed out. A 30' deep x 50' wide segment of Hendricks Road washed out. Snye Farm Road was completely washed out, along with sections of Trout Falls and <del>Highway</del> Roads. A 4" x 60' culvert on River Rd. was also washed out.	
August 27-29, 2011	Hurricane Irene (DR-4020)	Yes	There was severe wind and flooding damage throughout the County. Very little damage occurred in the Town of Bolton. A few trees came down. The Town Highway Crew worked 15 overtime hours. Highway and Parks Departments kept all the culverts cleaned out.	



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet A – Hazard Event History

May 29, 2012	Hail and Wind	N/A	Debris removal occurred in the County as a result of this event. A generator at a fire station, a patrol car, and the canopy of a patrol boat were all damaged. Very little damage occurred in the Town of Bolton. Clean up was needed for a few downed trees. Highway crews swept debris from roadways.	
October 29, 2012	Hurricane Sandy (EM-9351)	Yes	Heavy rain fell throughout the County. In the Town of Bolton, trees came down in Cotton Point. Highway crews swept debris from roadways.	
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening <del>low-pressure</del> system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front resulting in sporadic wind damage and scattered power outages over eastern New York.	A large swath of rainfall totaling 2-5 inches, with isolated areas as high as 7 inches, occurred over the Mohawk Valley and southern Adirondacks, resulting in reports of flash flooding. The runoff caused rapid rises on area creeks and streams, with river gauges reaching record levels along the Mohawk River at Little Falls, the West Canada Creek at Hinckley and Kaat Bridge, and the Sacandaga River at Hope.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	

Please identify other hazard events that have caused damage/losses in your community. Refer to FEMA project worksheets (PWs), overtime records, police/fire reports, repair costs (invoices), etc.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses

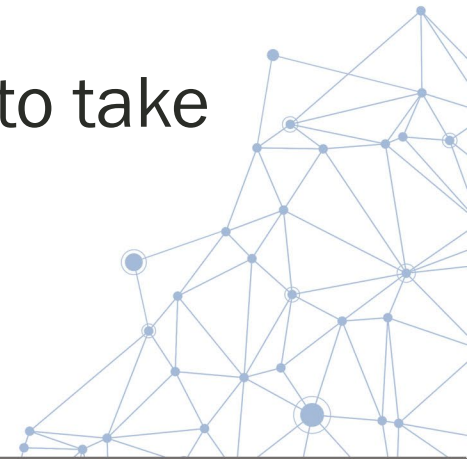
- ✓ Fill out contact information.
- ✓ Provide a summary of local impacts to the listed events AND note other local hazard events that resulted in damages, closures, or other impacts.
- ✓ Identify other hazard events that have caused damage/losses in your community. Refer to FEMA project worksheets (PWs), overtime records, police/fire reports, repair costs (invoices), etc.





# Recent and Expected Future Development

- List the number of building permits for **NEW construction** issued since 2017
  - Do not include redevelopments or improvements
- List and describe recent **MAJOR DEVELOPMENT** (housing developments, hotels, commercial or industrial development, etc.) that has taken place since 2017
- List and describe **ANTICIPATED MAJOR DEVELOPMENT** likely to take place in the next 5 years.





# WORKSHEET E – RECENT DEVELOPMENT (BUILDING PERMITS)



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet E – Building Permits

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by November 23<sup>rd</sup>, 2022 to:  
Cynthia Bianco, Tetra Tech | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

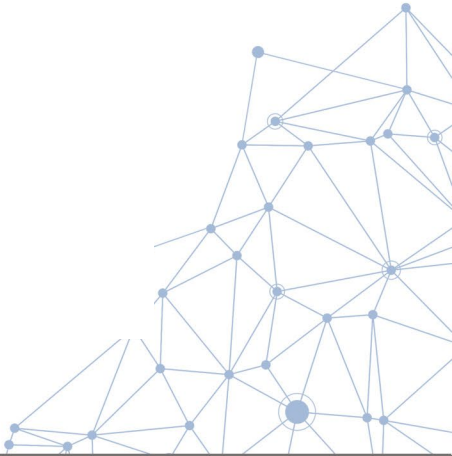
Municipality: Town of Bolton

Name and Title of Individual Completing Worksheet: \_\_\_\_\_

Who can assist with completing these tables: The Building Department, Planning Department, and NFIP Floodplain Administrator

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family												
Multi-Family												
Other (commercial, mixed-use, etc.)												
Total New Construction Permits Issued												

SFHA Special Flood Hazard Area (1% annual chance flood event)  
\* Only location-specific hazard zones or vulnerabilities identified.

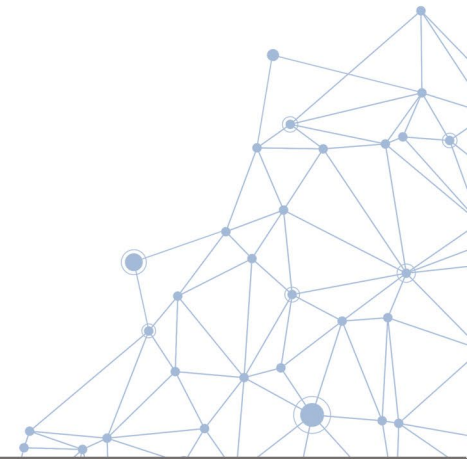






# National Flood Insurance Program

- This section should worksheet to be filled Floodplain Administrator for your community.
- Answer the questions regarding NFIP participation and implementation of floodplain administration.
- Provide details where necessary





# WORKSHEET C – FLOODPLAIN ADMINISTRATION QUESTIONNAIRE



Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to  
Cynthia Bianco by November 23<sup>rd</sup>, 2022  
Email: [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)



Municipality: Town of Bolton

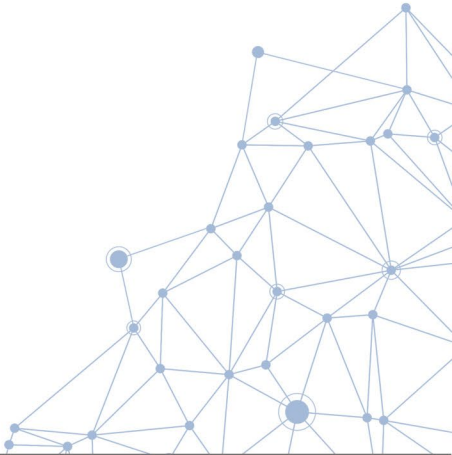
NFIP Floodplain Administrator Name/Title: \_\_\_\_\_



Who can assist with completing this table: NFIP Floodplain Administrator – as identified in your role/title in your Flood Damage Prevention Ordinance.



NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	No
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	-
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	No
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	

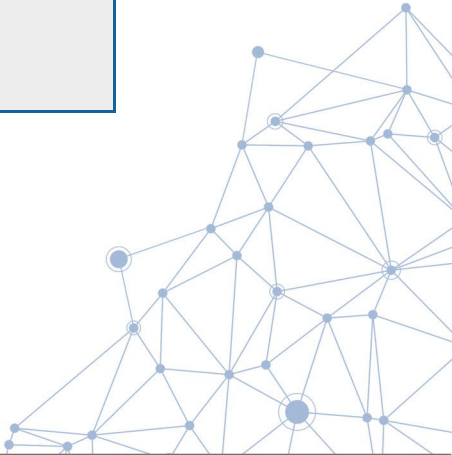




# WORKSHEET C – FLOODPLAIN ADMINISTRATION QUESTIONNAIRE



If not, state why.	
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	
Are any certified floodplain managers on staff in your jurisdiction?	Yes – Floodplain Administrator
Do you have access to resources to determine possible future flooding conditions from climate change?	Unknown
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	

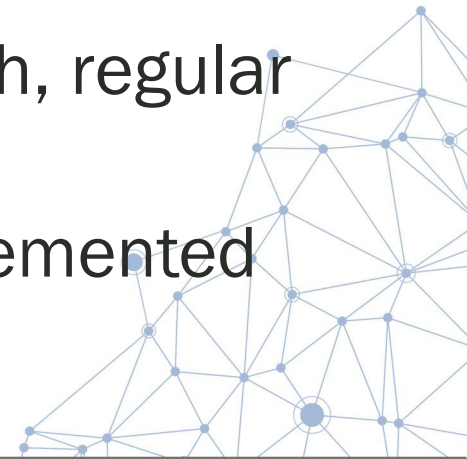






# Status of Previous HMP Mitigation Actions

- Report on the status of previous mitigation actions from the 2017 plan.
  - **In Progress:** The action has been started but has not been completed to date.
  - **No Progress:** The action has not been started
  - **Ongoing Capability:** The action has been started and is now part of the municipality's regular or annual operations
    - Examples: Regular stormwater cleaning, annual outreach, regular trainings for staff
  - **Complete:** The action has been 100% completed and implemented

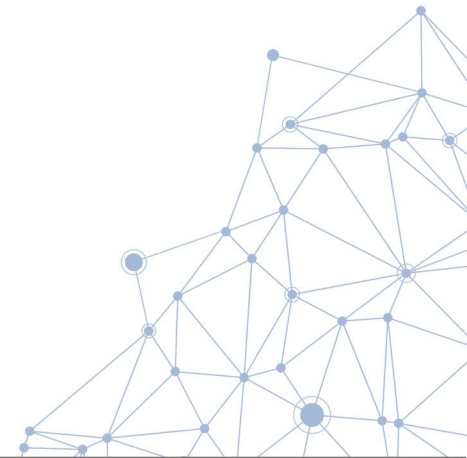






# Status of Previous HMP Mitigation Actions

- Indicate if this action should be included in the 2023
  - In progress actions should be carried over
  - If identified as an ongoing capability, we will include it in the integration section of the annex but not as a 2023 action
  - Completed actions will not be carried over as actions in the 2023 HMP update





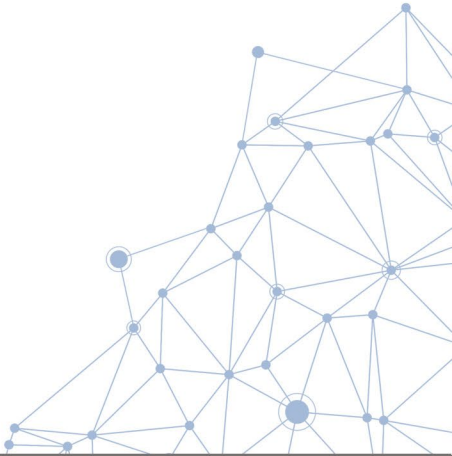
# WORKSHEET D – 2017 MITIGATION ACTION OR PROJECT REVIEW



## WARREN COUNTY HAZARD MITIGATION PLAN UPDATE Worksheet D - Mitigation Action Review Town of Bolton



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)			Next Steps 1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Level of Protection	Damages Avoided; Evidence of Success	
1	Develop a Hamlet-wide Stormwater Drainage System plan for the Hamlet of Bolton	Flood		Planning, Town Board	Choose an item.				Choose an item.
2	Adopt and implement the Local Waterfront Revitalization Plan (draft released in <a href="#">July</a> , 2014).	All Hazards		Town Board	Choose an item.				Choose an item.
3	Edgecomb Pond Dam Auxiliary Spillway Development Project: Install an auxiliary spillway for the dam which provides water to hamlet (built-up) area. Drainage easements have been acquired in area where new spillway would be built.	Flood		Bolton Water District, Town Board	Choose an item.				Choose an item.
4	Edgecomb Pond Dam Upgrades: Make structural upgrades and improvements of the existing Edgecomb Pond Dam as called for by the upcoming structural evaluation. The Dam (owned by Bolton Water District) is in need of some improvements. The Town is in the process of contracting for a	Flood		Bolton Water District, Town Board	Choose an item.				Choose an item.







# Status of Previous Mitigation Actions

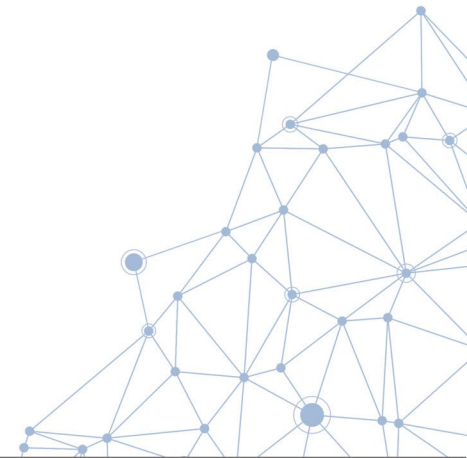
- List any mitigation actions or measures taken since the 2017 plan that were not part of the 2017 mitigation strategy
  - Did you install generators at critical facilities?
  - Upsize culverts or drainage pipes to reduce flooding?



## WARREN COUNTY HAZARD MITIGATION PLAN UPDATE Worksheet D - Mitigation Action Review Town of Bolton



Have you completed, or are there any in-progress or proposed mitigation or resilience projects that are not included in the table above since 2017? If yes, please provide the project details, what the project is mitigating and who is implementing below.

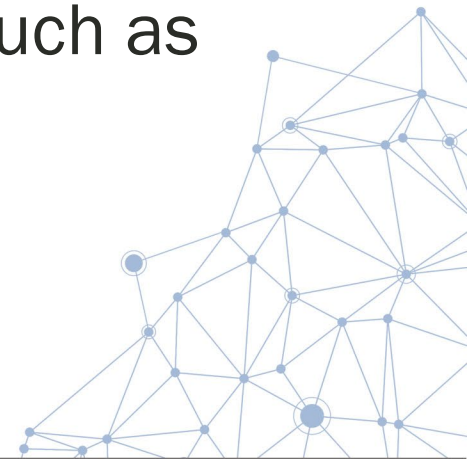






# Identified Issues

- Where are the problem areas in your community related to damages due to natural hazards?
  - What problems need solving?
  - What solutions need implementation?
  - What projects need funding?
- Tell us about floodprone locations outside of the floodplain such as stormwater/urban flooding areas
- Tell us about areas that experience damages.

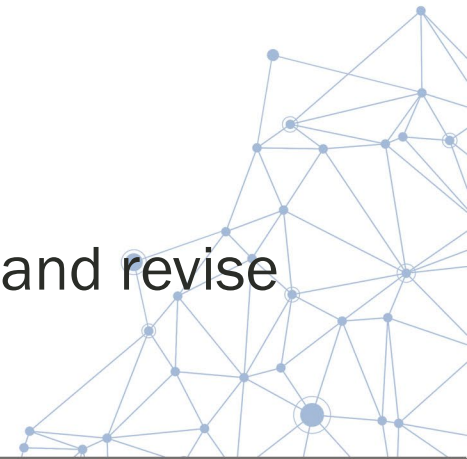






# Planning, Legal, and Regulatory Capability

- This table reviews our codes, ordinances, & requirements; planning documents; and response/recovery planning
- Indicate if you have the plan/ordinance/requirement
- Indicate if it already integrates hazard mitigation
  - Tetra Tech has reviewed a majority of your plans, codes and ordinances and updated this section. Please review and revise accordingly.
- Describe the plan/ordinance/requirement
  - Who is in charge of implementation?
  - When was it adopted/updated?
  - How does it integrate hazard mitigation/emergency response?
    - Again, Tetra Tech addressed this during our review. Please review and revise accordingly.

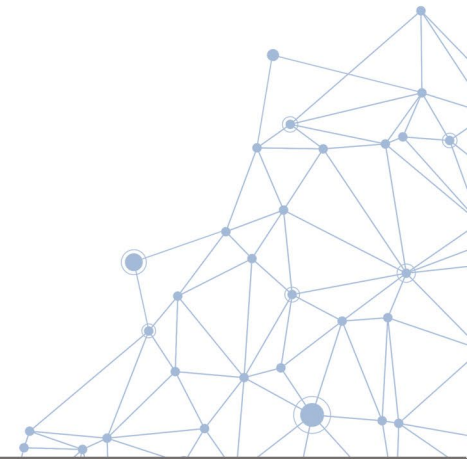






# Hazard Mitigation Planning Team

- Update contact information if necessary
  - Primary Point of Contact
  - Alternate Point of Contact
  - NFIP Floodplain Administrator
- **Remember**, this is a public document so your contact information will also be public.





# WORKSHEET B – CAPABILITY ASSESSMENT



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet B – Capability Assessment

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to Cynthia Bianco (Tetra Tech) by November 23, 2022  
Email: [cynthia.bianco@tetratech.com](mailto:cynthia.bianco@tetratech.com)



Municipality: Town of Bolton  
Name and Title of  
Individual Completing  
Worksheet: \_\_\_\_\_

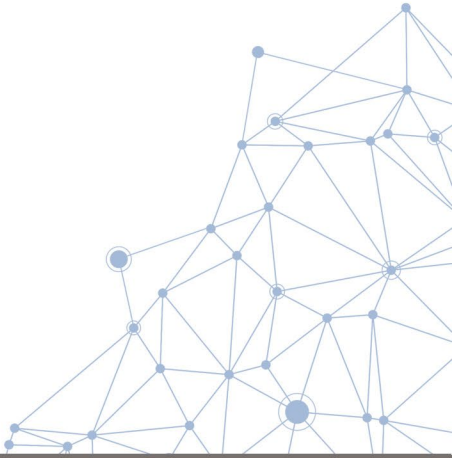
Who can assist with completing these tables: Municipal Planner, Clerk, Code Official, Administrator, Chief Fiscal Officer

## Planning and Regulatory Capability

Please complete the following table to summarize the regulatory tools that are available to your community, what is present in the jurisdiction, and code citation and date. For existing regulatory tools, note how it reduces risk to hazards or how it could be updated to better integrate hazard mitigation concepts to reduce risk.

Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	NYS Property Maintenance Code	State and Local	Town Building Inspector
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Bolton adopted the New York State Property Maintenance Code in December 2021.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 200 – Zoning	Local	Zoning and Planning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Zoning Ordinance is in place to promote the health, safety, and general welfare of the community and to protect the property values and aesthetics of the community by channeling and directing growth and by regulating and restricting the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yard, courts and other open spaces, the density of population and the location and use of buildings, structures and land for trade, industry, residence and other purposes, to the maximum extent permissible within the proper exercise of the police power as delegated by the Town Law.  Consider the following: <ul style="list-style-type: none"><li>• Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?</li><li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li><li>• Does it contain natural overlay zones that set conditions?</li><li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li><li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li></ul>				
<b>Subdivision Ordinance</b>	Yes	Chapter 150 – Subdivision of Land	Local	Zoning and Planning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





# Brainstorm New Mitigation Actions for the 2023 HMP Update

- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (HMGP generators, CDBG acquisitions, etc.)
- Tips for the 2023 update:
  - One action for each hazard of concern
  - Quality NOT quantity
  - Specific not general
  - What can realistically be accomplished in 5 years?



**Plans and regulations** include government authorities, policies, or codes that encourage risk reduction, such as building codes and state planning regulations. This may also include planning studies.



**Structure and infrastructure projects** involve modifying existing structures and infrastructure or constructing new structures to reduce the impact of hazards.



**Natural systems protection projects** minimize losses while also preserving or restoring the function of natural systems.



**Education and awareness programs** include long-term, sustained programs to inform and educate citizens and stakeholders about hazards and mitigation options. This category could also include training.



*"At the first sign of a flood, you just push this little button."*

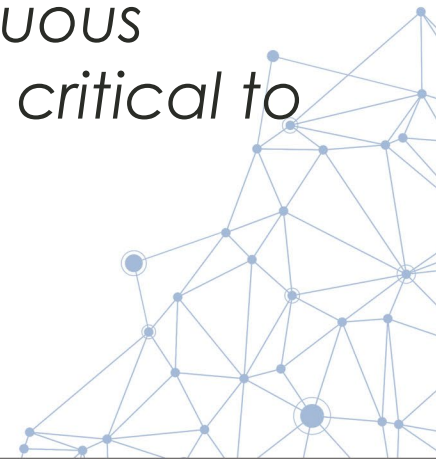






# Critical Facilities and Lifelines

- ✓ **Critical Facilities** are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard
  - ✓ Include essential facilities to ensure a full recovery following the occurrence of a hazard event, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.
- ✓ **Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security

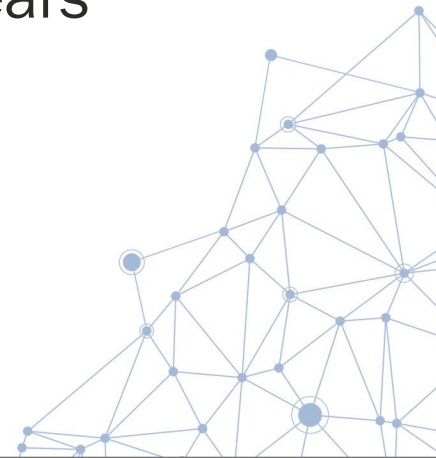






# Critical Facilities and Lifelines

- Tetra Tech will send out the Critical Facilities list to your community for your review – we push back the deadline as necessary (originally October 14<sup>th</sup>)
- Ensure the list is complete
  - Add new critical facilities that have been built/established in the last 5 years
  - Omit critical facilities that have been decommissioned in the last 5 years








# We Need YOU Engaged and Involved!

- *Update your Municipal webpage and link to County's HMP webpage at <https://www.warrencountynewyorkhmp.com>*
  - Social Media Blasts – Tetra Tech will provide you with content and graphics
  - Local Announcements of HMP Update – local papers, newsletters, etc.
  - Local public meetings
  - Draft Plan Review
  - Document *each and every time* you share and engage!
- **Why conduct outreach?**
    - Informs and educates about hazards and risks
    - Invites interested parties to contribute their views and ideas for mitigation
    - Identifies conflicts and incorporates different perspectives and priorities early in the process
    - Provides data and information that improves overall quality and accuracy of the plan
    - Ensures transparency and builds trust
    - Maximizes opportunities for implementation through greater consensus and acceptance



# Remember to Document Your In-Kind Services!



**Warren County HMP - In-Kind Tracker**

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco (cynthia.bianco@tetratech.com | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

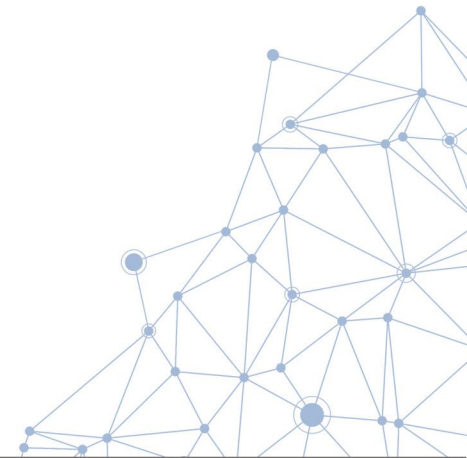
Please document your time spent working on the HMP:

Date	<input type="text"/>
# Hours	<input type="text"/>
Task Description	<input type="text"/>
Comments	<input type="text"/>

Please document your time spent working on the HMP:

Date	<input type="text"/>
# Hours	<input type="text"/>

- Use the on-line survey to document your in-kind hours worked on the hazard mitigation plan:  
<https://www.surveymonkey.com/r/WarrenNYHMPInKind>





# Schedule

- Planning Process
  - Confirm critical facility/lifeline inventory by December 9th
  - Worksheets due November 23rd
  - Worksheet Workshop – today!
  - Update Risk Assessment
  - Begin vulnerability assessment
  - Risk Assessment Meeting – February 2023
- Public Involvement Strategy – ongoing throughout the planning process
  - Mitigation Strategy
    - Mitigation Strategy Workshop
    - Draft Plan to Steering Committee by May 2023
  - Final draft plan to NYSDHSES and FEMA by August 2023



## Savage Chickens

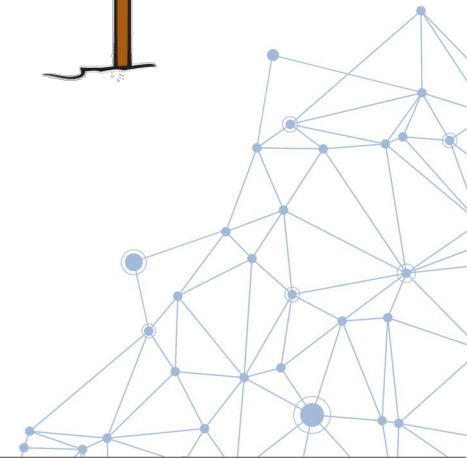
by Doug Savage





# Next Steps

- COMPLETE THE WORKSHEETS
  - Use Tetra Tech to answer any questions you may have!
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for NYSDHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan ➡ Increase Resilience!





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC, District Manager  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason, Emergency Services Director  
[masona@warrencountyny.gov](mailto:masona@warrencountyny.gov)

## Tetra Tech Project Contacts

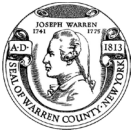
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #2 – AGENDA**  
**MEETING DATE/TIME: December 14, 2022 – 10:00 am**



Remote – MS Teams Link [Click here to join the meeting](#) (preferred for screen sharing)

Remote – Dial-in by phone (audio only) - [+1 518-300-1367,,503640440#](#) United States, Albany; Phone Conference ID: 503 640 440#

- Welcome
- Committee Responsibilities
- Progress Report
- Public and Stakeholder Outreach
- Data Collection - Plans and Reports
- Critical Facilities and Lifelines Review
- Confirmation of Hazards of Concern
- Goals and Objectives Updates
- SWOO (Strengths, Weaknesses, Obstacles, Opportunities)
- In-Kind Services Tracking
- Schedule
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Teleconference Teams Meeting
Date of Meeting:	December 14, 2022, 10:00 am

## Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ethan Gaddy	Warren County Planning Department, CSC
Sandy LeBarron	Finch Pruyn, Director of Environmental Health, and Safety
Tammie DeLorenzo	Warren County Administrators Office
James Schrammel	City of Glens Falls, Fire Chief
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Don Lehman	Warren County Public Information Officer
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to confirm Hazards of Concern, Update Mission Statement, Goals and Objectives, and facilitate a SWOO.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation. The process is on track for plan submittal to FEMA in August 2023. Tetra Tech will begin the vulnerability analysis once the final municipal critical facility input is received from the local jurisdictions. Steering committee responsibilities include guiding the planning process and confirming the hazards of concern to include in the plan as well as the updated goals and objectives. GIS data collection is complete with support from the County GIS staff. The steering committee was provided with a list of plans gathered to date and requested to provide any additional relevant plans.</li> </ul>	Committee to review the list of plans collected to date and provide any additional relevant plans.
2	<b>Outreach</b> <ul style="list-style-type: none"> <li>The HMP website is now live at <a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a> and public outreach materials are available for distribution. All communities in the county have confirmed their intent to participate in the planning process.</li> <li>The county sent out a press release this month and a couple of local weekly newspapers published articles regarding the mitigation plan and provided access to the public survey.</li> </ul>	<ul style="list-style-type: none"> <li>Tt to provide a social media package to municipalities to enable further online outreach.</li> <li>Tt to contact Warren County (WC) Chamber of Commerce for business email distribution lists.</li> </ul>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>One citizen has contacted Warren County Soil &amp; Water Conservation District (WCSWCD) to discuss concerns related to hazard mitigation and will meet with Mr. Lieberum to discuss.</li><li>Tt requested email lists to support the stakeholder outreach and distribution of surveys to agencies including health services, police, fire, EMS, etc. WC Emergency Services, Glens Falls Hospital will provide available information. Tt to contact the Chamber of Commerce to distribute surveys to county businesses.</li></ul>	
3	<b>Hazards of Concern</b> <ul style="list-style-type: none"><li>The committee confirmed that the following hazard of concern pose significant risk to the county and its communities:<ul style="list-style-type: none"><li>Disease Outbreak (including Covid-19, influenza, and tick-borne illnesses)</li><li>Earthquake</li><li>Extreme Temperatures</li><li>Flood</li><li>High Hazard Potential Dams</li><li>Infestation</li><li>Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)</li><li>Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)</li><li>Wildfire</li></ul></li></ul> <p>These hazards will be profiled for the plan to provide a basis for the vulnerability assessment and the development of mitigation actions.</p>	
4	<b>Goals and Objectives</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco shared the goals and objectives from the last HMP noting updates to include changes identified in the last committee meeting as well as additional edits to align with current priorities. During the discussion additional edits were made and are available in the attached document. The updated mission statement, goals and objectives will guide the plan update.</li></ul>	
5	<b>Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)</b> <ul style="list-style-type: none"><li>Tt provided an overview of the purpose of the SWOO which is to review the hazards of concern to identify areas that the county and communities do well and can improve upon, and to further understand obstacles to implementing policy, actions, and projects to mitigate the effects of the hazards – all with the intent of identifying actions or projects to support resilience. The committee reviewed examples related to the flood hazard and participated in a discussion of county-specific issues. The committee members were requested to access and respond to the SWOO survey to document their input. Attached is the SWOO survey input received as of the date of this meeting.</li></ul>	<ul style="list-style-type: none"><li>The committee is requested to provide input to the SWOO survey to assist in identifying problem areas and mitigation actions.</li></ul>
6	<b>Upcoming Meetings</b>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>• Dates for the following meetings will be confirmed and shared with the committee in January:<ul style="list-style-type: none"><li>○ Risk Assessment Meeting – February 2023</li><li>○ Planning Partnership Risk Assessment Meeting – February 2023 (tentative)</li><li>○ Mitigation Strategy Workshop – March 2023</li></ul></li></ul>	
7	<b>Next Steps</b> <ul style="list-style-type: none"><li>• Provide input via Strengths, Weaknesses, Obstacles and Opportunities (SWOO) survey</li><li>• Review Hazard Profiles</li><li>• Review Risk Assessment Results</li><li>• Identify Problems and Problem Areas</li><li>• Develop Mitigation Strategy</li><li>• Review Draft Plan</li><li>• Submit Draft Plan for NYSDHSES/FEMA Review</li><li>• Adopt FEMA-Approved Plan</li><li>• Implement Projects and Maintain the Plan and Increase Resilience</li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 11:25 am.	



# Warren County, New York Hazard Mitigation Plan – 2023 Update

**Steering Committee #2 Meeting | December 14, 2022 | 10:00 – 11:30 AM**

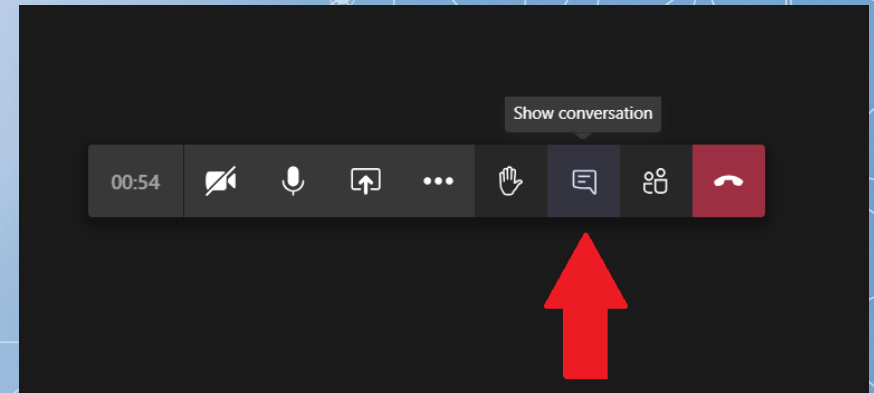
## ***WELCOME!***

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.

Click “Show Conversation” and type in your information.

This will assist in our attendance documentation.

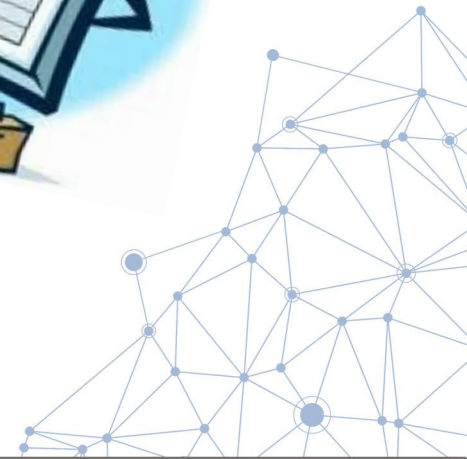






# Agenda

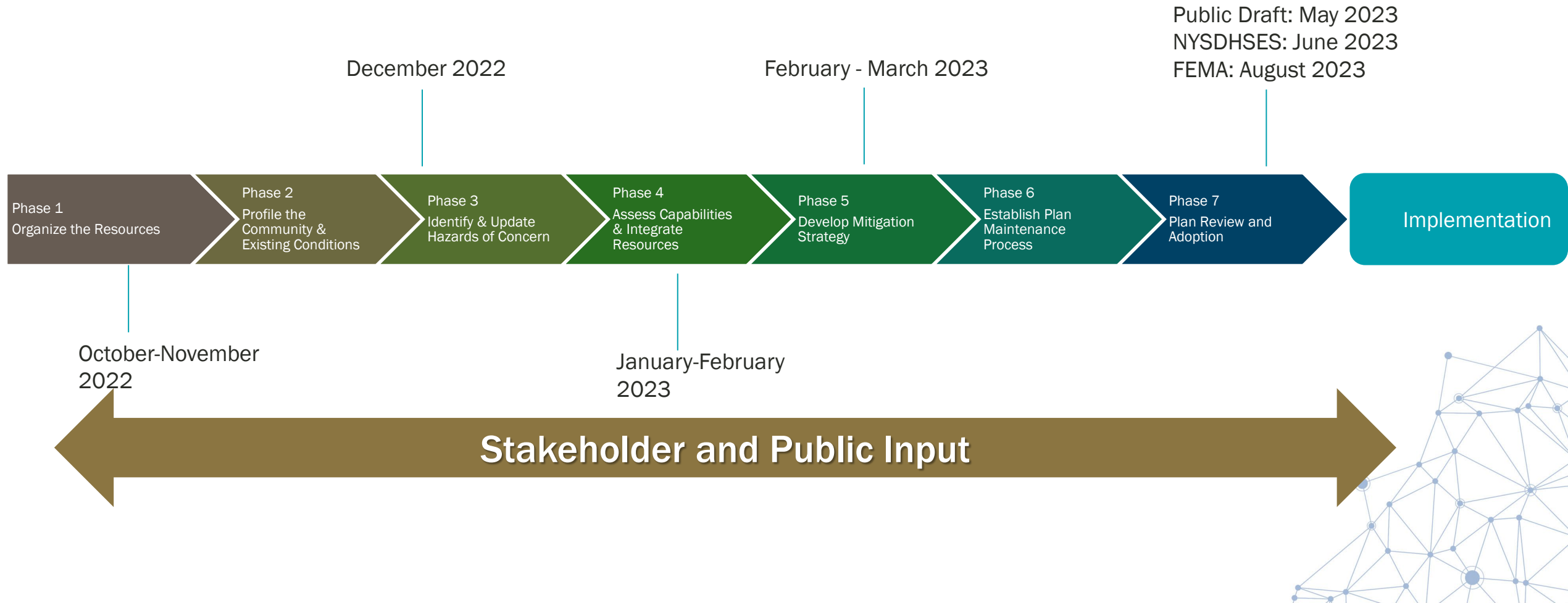
- Welcome
- Committee Responsibilities
- Progress Report
- Data Collection - Plans and Reports
- Critical Facilities and Lifelines Review
- Confirmation of Hazards of Concern
- Goals and Objectives Updates
- Public and Stakeholder Outreach
- SWOO (Strengths, Weaknesses, Obstacles, Opportunities)
- In-Kind Services Tracking
- Schedule
- Next Steps/ Questions/ Wrap Up







# Where are we in the Process?

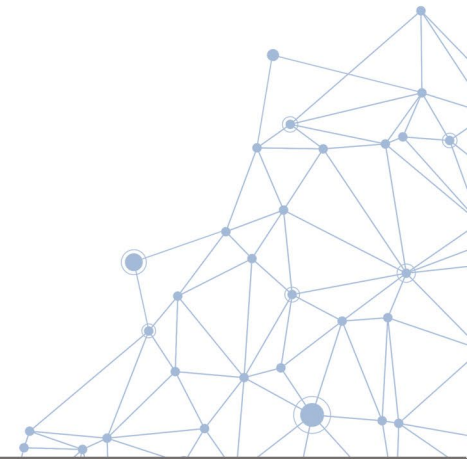






# Steering Committee Responsibilities

- ✓ Guide the Planning Partnership through the planning process
- ✓ Identify the natural hazards of concern
- ✓ Develop mitigation goals and objectives
- ✓ Develop public and stakeholder outreach strategy
- ✓ Support the development of the county-level mitigation strategy
- ✓ Review plan documents

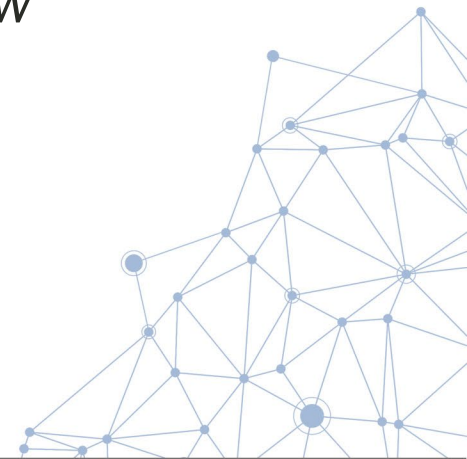






# Progress

- Requested NFIP Data
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *In progress*
- Review of Hazards of Concern/Input by Steering Committee – *Today*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *For Steering Committee Review*
- Planning Partnership Participation – 100%





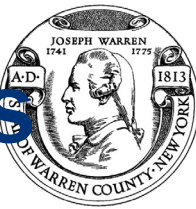


# Data Collection Status

Jurisdiction	Worksheet A - Hazard Event History	Worksheet B - Capability Assessment	Worksheet C - NFIP	Worksheet D - Action Review	Worksheet E - Building Permits
Warren County	X	X	N/A	X	X
Town of Bolton	X	X	X	X	
Town of Chester	X	X	X	X	X
City of Glens Falls					
Town of Hague	X	X	X	X	X
Town of Horicon					
Town of Johnsbury	X	X	X	X	X
Town of Lake George	X	X	X	X	X
Village of Lake George	X	X	X	X	X
Town of Lake Luzerne	X	X	X	X	X
Town of Queensbury	X	X	X	X	X
Town of Stony Creek	X	X	X	X	X
Town of Thurman	X	X	X	X	X
Town of Warrensburg	X	X	X	X	X



# Relevant County and Regional Plans and Studies



Name of Plan/Document	Date of Plan	Jurisdiction
Excessive Heat Plan	2022	Countywide
Schroon Lake Watershed Management Plan Addendum	2019	Chester (T)
Lake Champlain Watershed Roadside Erosion Assessment	-	Bolton (T), Hague (T), Lake George (T), Queensbury (T)
Upper Hudson River Watershed Management Plan	2020	Countywide
Friends Lake Watershed Assessment	2017	Chester (T)
LC Nonpoint Source Pollution Watershed Assessment and Management Plan	2018	Countywide
LG HAB Plan 2022 Update	2022	Lake George (T), Bolton (T)
Loon Lake Watershed Report	2021	Loon Lake, Chester (T)
Warren County - Dam Risk into Local HMG Plans	2021	Countywide

- *Summary matrix including local plans sent to committee for review .*





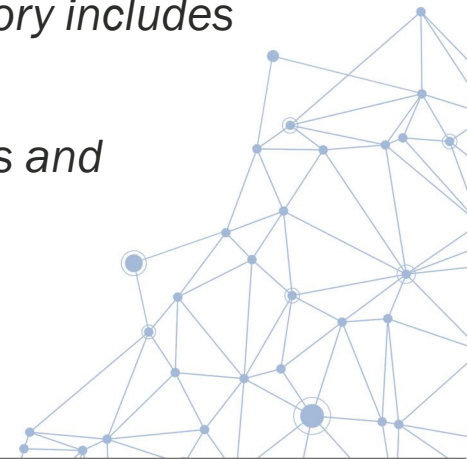
# Critical Facilities and Community Lifelines

- Municipalities to review the updated critical facility inventory to ensure complete
- Critical facility survey distributed to communities on 12/8 with input due on or before 12/21/22.

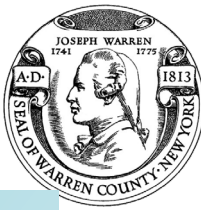
***Critical Facilities** are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include **essential facilities**, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.*

***Essential facilities** are a subset of lifelines that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category includes police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.*

***Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security*







# Identifying Hazards of Concern

- The 2017 plan included:
  - Disease Outbreak (Influenza, Ebola, Zika)
  - Earthquake
  - Flood
  - Infestation
  - **Landslide**
  - Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
  - Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
  - Wildfire
- In review...
  - Have additional hazards impacted the County since 2017?
  - Have hazard been mitigated and no longer cause damage?
  - Should hazards be regrouped to minimize number or required actions?
  - Should additional hazards be included?

## 2023 Hazards to Consider

- **Disease Outbreak**
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire

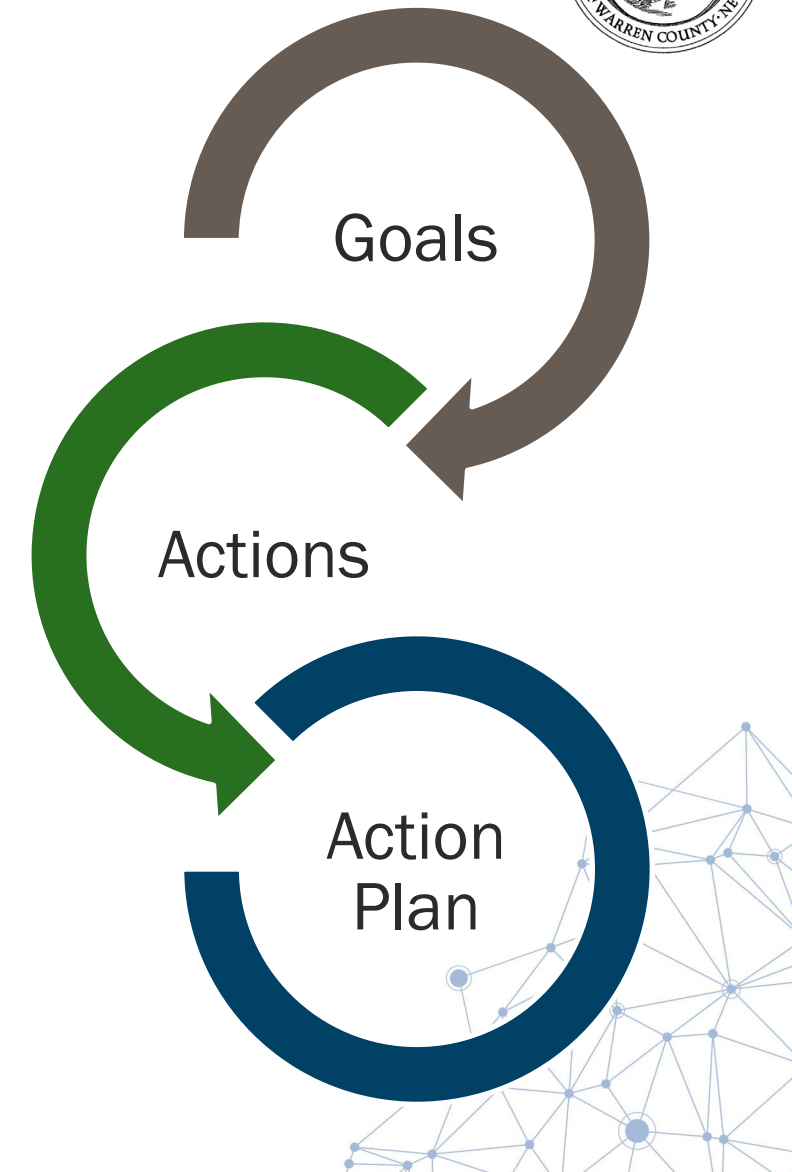






# Mitigation Strategy

- Goals
  - What outcomes do you want to achieve?
- Actions
  - What specific actions will be taken to reduce risk from hazards?
- Action Plan
  - How will the actions be prioritized and implemented?





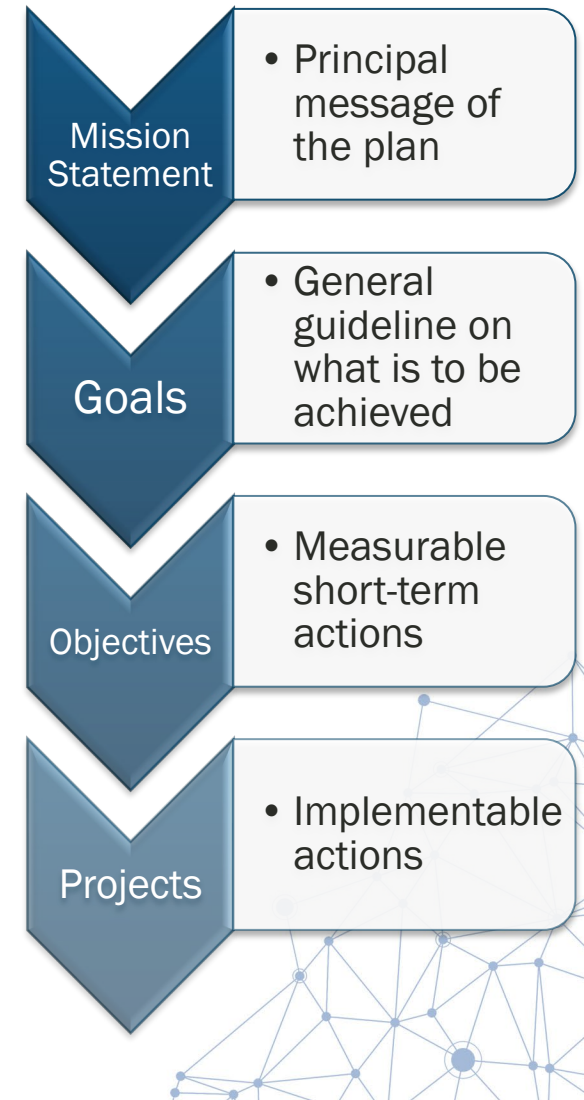


# Update Mission Statement?

As part the of the 2017 update process, the Steering Committee reviewed the mission statement and elected to maintain it without edit or amendment, as noted below. At this time, the committee is requested to review the Mission Statement to update to align with current County, state, and local policy. The committee is requested to consider adding the concept of equity and inclusiveness of socially vulnerable populations to the mission statement and the goals and objectives as well as additional adjustments to align with count, state, and local policy.

## *HMP Mission Statement*

*To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, **socially vulnerable populations** and the public to eliminate or reduce risks and adverse impacts from natural, **technological** and human-caused hazards .*







# Goals and Objectives Review and Update

Goal	Objective
<u>Goal 1:</u>  Protect Life and Property.	1.1: Introduce mitigation and adaptation activities that will make homes, businesses and critical facilities and infrastructure more hazard resistant and to increase resilience.
	1.2: In areas vulnerable to hazards, encourage businesses and homeowners to take preventive actions when possible and in an equitable manner.
	1.3: Periodically review existing building codes, safety procedures, municipal and county ordinances to update recent standards for building protection.
	1.4: Immediately enforce existing building codes, zoning ordinances, and floodplain development review and permitting within the jurisdictions.
	1.5: Encourage owners of home and businesses and renters to purchase appropriate insurance coverage for potential damages from hazards.
<u>Goal 2:</u>  Increase Public Awareness	2.1: Continue developing and integrating education and outreach programs in an effort to enhance public awareness of the hazards, and availability of information on specific activities for individuals in anticipation of a hazard event.
	2.2: Provide information on current government programs and funding resources to assist with mitigation and resilience.
	2.3: Strengthen communication and cooperation between public agencies, citizens, non-profit groups, and businesses to implement mitigation activities effectively.





# Goals and Objectives Review and Update

Goal	Objective
<u>Goal 3:</u> Provide for Emergency Services	3.1: Coordinate hazard mitigation activities with existing local emergency plans.
	3.2: Identify and plan for acquiring any specific emergency services and equipment needed to improve response capabilities for specific hazards.
	3.3: Review emergency traffic routes, making changes as needed, and educating the public as to the routes <b>including use of mass notification systems and real-time storm and problem area reporting.</b>
<u>Goal 4:</u>  Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related state, regional, county and local plans and programs.	4.1: Promote land use planning to encourage resilient and sustainable efforts throughout statewide and regional programs that address zoning, building codes, capital improvement programs, open space preservation, nature-based solutions, and storm water management regulations. <b>Encourage integration of mitigation via review and update of local planning documents to be consistent with and relevant to the Hazard Mitigation Plan.</b>
	4.2: Continue to participate in state, regional and local programs and efforts that focus on practices that support or enhance resiliency.
	4.3: Improve hazard data through participation in studies, research, and mapping to enhance information related to the impacts of hazards and related risks, vulnerability, and losses.





# Goals and Objectives Review and Update

Goal	Objective
<u>Goal 5:</u>  Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.	5.1: Encourage the use of green and natural infrastructure, <b>low impact development, and</b> nature-based solutions.
	5.2: Provide technical assistance to communities and stakeholders in the application and implementation of mitigation projects that preserve or restore natural systems.
	5.3: Maintain and encourage ongoing relationships between state agencies and partners to play an active and vital role in preservation and restoration of vulnerable natural systems.
	5.4: Promote climate change adaption strategies that protect against long-term effects on the environment <b>and incorporate into a county-wide climate action plan.</b>
<u>Goal 6:</u>  <b>Address Long-Term Vulnerabilities from High Hazard Dams</b>	<b>6.1: Ensure dam infrastructure is maintained</b>
	<b>6.2: Ensure Emergency Action Plans are developed and updated</b>
	<b>6.3: Support the identification and access to funding to repair/replace dams</b>





# Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynewyorkhmp.com>




- Social Media
- Stakeholder Survey
- Public Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey

**NORTH COUNTRY**

## Input needed on natural disasters in Warren County

by: Jay Petreaula  
Posted: Dec 9, 2022 / 11:54 AM EST  
Updated: Dec 9, 2022 / 12:03 PM EST

Severe damage to the driveway of Fairview Association, along Lake

SHARE    ...

WARREN COUNTY, N.Y. (NEWS10) – It's important to know and understand what potential hazards could come with where one lives, and what different weather conditions can bring to those areas. Warren County is looking for public input as it makes updates to its plan to curb natural disaster danger for county residents.

[Get the latest news, weather, sports and community events delivered right to your inbox!](#)

The county's Multi-Jurisdictional Hazard Mitigation Plan is up for revision – and a survey gives residents a chance to weigh in on it. The plan is a document that can be used by the county to reduce the impact and damage from natural disasters, especially targeted at prevention and

[NY Weather](#) [Traffic](#) [Watch Live News](#) [Sports](#) [Jobs](#)

"Public participation and feedback are a vital part of the hazard mitigation planning process," said Warren County Emergency Services Director Ann Marie Mason. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."

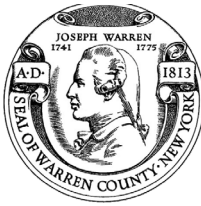
The survey asks for residents to report what types of natural disasters they have seen and experienced in Warren County over the last decade, such as flooding, drought and climate change impacts. It also seeks information such as concern for future disasters, and how residents get their disaster information.

[ARPA lets Glens Falls Hospital's crisis unit grow](#)

The Hazard Mitigation Plan is updated every five years. The plan is used for communities to make risk-based decisions that can lead to fewer lives being lost, or less property being damaged, in the event of a disaster. The process going forward will also involve voices from nonprofits, community partners and the private sector. The plan will analyze how best to protect essential community facilities, transportation systems, lifeline utilities and hazardous material facilities.







# Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)

*The purpose of the SWOO is to identify mitigation strategies and capabilities that will meet the goals and objectives of the plan update. It is also used to develop potential mitigation actions for the participating jurisdictions.*

- Strengths – what we do well
- Weaknesses – what could we do better
- Obstacles – things that stand in the way, and either prevents you from doing something or something that need to be overcome
- Opportunities – used to develop mitigation strategies



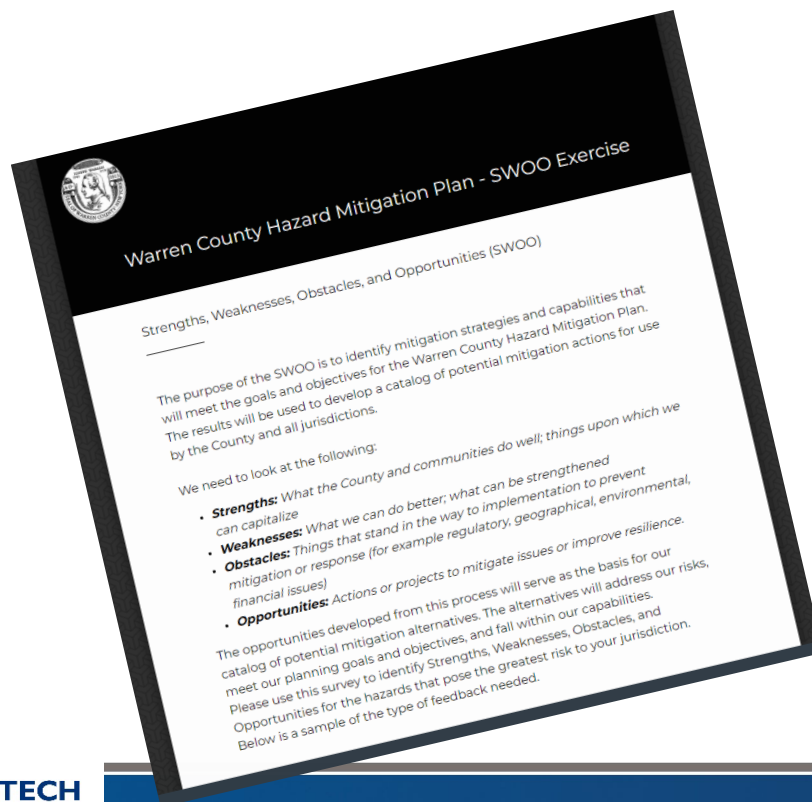


# SWOO EXERCISE

## Strengths, Weaknesses, Obstacles and Opportunities

Thinking about hazards of concern and any new hazards for this update...what are some strengths, weaknesses, obstacles and opportunities the County has for each? Complete the form.

*Here are some examples to help brainstorm:*



Hazard: Flood	
S	Minimal exposure to flood risk
W	Silt and debris buildup in streams can lead to localized flooding
Ob	Funding for culvert and catch basin maintenance
Opps	Installing stream gages

Hazard: Severe Storms	
S	Tree trimming programs are in place
W	Aging infrastructure; lack of underground utilities
Ob	Cost to retrofit existing utility infrastructure
Opps	Underground utilities; enhance public outreach program

Hazard: Severe Winter Storm	
S	Municipalities have the resources and experience to deal with winter weather
W	Aging equipment
Ob	Funding; limited staff for prolonged events
Opps	Shared services





# 2020 SW00 Discussion/Example

Flood	
Strengths	Weaknesses
<p>What do the County/Communities do well in terms of:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>	<p>What can the County/Communities do better or what are identified gaps in terms of:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>

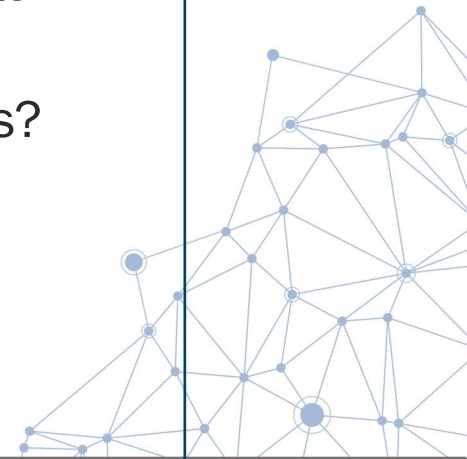






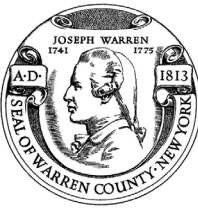
# 2020 SW00 Discussion/Example

Flood	
Obstacles	Opportunities
<p>What is preventing the County/Communities to implement:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>	<p>What can the County/Communities implement terms of:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>



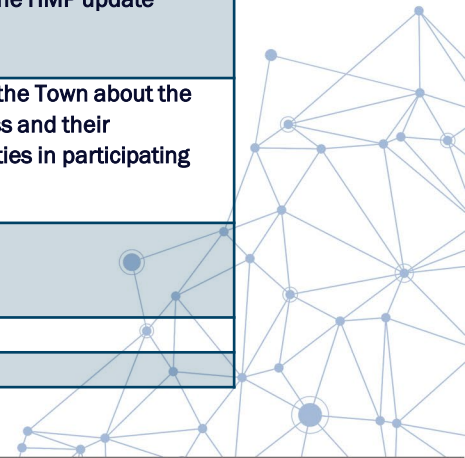


# In-Kind Services



- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at jim1@warrenswcd.org

Name of Team Member: _____							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes – sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	

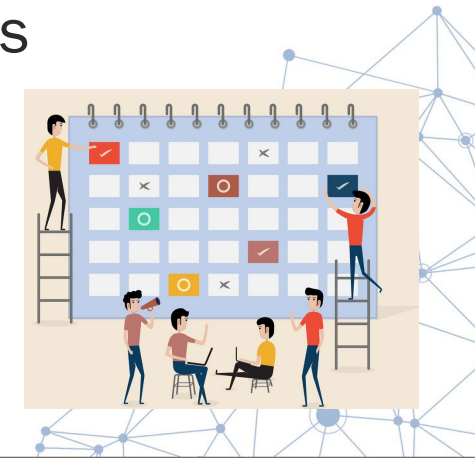






# Schedule

- Planning Process
  - Steering Committee #2 to identify hazards of concern for County and finalize goals– TODAY!
- Update Risk Assessment
  - Data collection is underway; confirm local critical facilities inventory by December 21, 2022
  - Begin vulnerability assessment
  - Risk Assessment Meetings: February (Steering Committee and Planning Partnership)
- Public Involvement Strategy – ongoing throughout the planning process

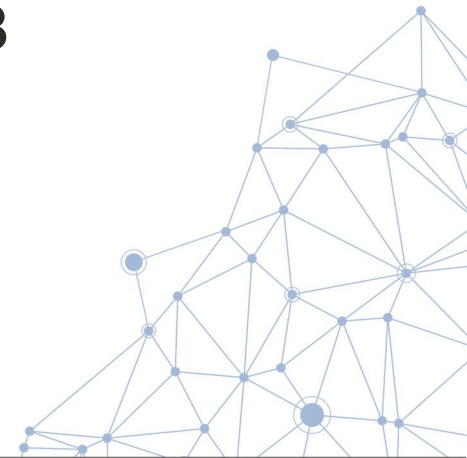






# Schedule

- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 2023**
- Draft Plan to Steering Committee in **May-June 2023** *(as sections are ready)*
- Public Review Period (30 days) – **June 2023**
- Final draft plan to NYSDHSES by June 2023 and FEMA by **August 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

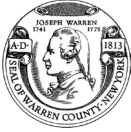
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #3 – AGENDA**  
**MEETING DATE/TIME: February 10, 2023 – 10:00 am**



- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	February 8, 2023, 10:00 am

## Attendees:

Ann Marie Mason	Director, Warren County Office of Emergency Services
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ethan Gaddy	Warren County Planning Department, CSC
Aaron Frankenfeld	Director, Adirondack/Glens Falls Transportation Council
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Dan Barusch	Town/Village Lake George, Planner
Ashley Rivers	Warren County Office of Emergency Services
John Gibb	Contingency Management Consulting Group
Jennifer Ramsey	Warren County Office of Emergency Services
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to provide a project status update and the preliminary county level hazards of concern relative risk rankings; to obtain input or adjustments of the rankings to incorporate local data.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation.</li> <li>The process continues to be on track for plan submittal to FEMA in August 2023.</li> <li>The majority of data to support the hazard mitigation plan (HMP) development has been received, with the receipt of the National Flood Insurance Program (NFIP) data pending processing by FEMA.</li> <li>The table of contents and draft sections of the plan are being posted as available on the project Teams site to enable steering committee members to access and review to enable input prior to sharing the drafts with the public. Tt requested the steering committee to review the documents and provide comments via 'track changes'.</li> </ul>	
2	<b>In-Kind Services Tracking/Outreach</b> <ul style="list-style-type: none"> <li>Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information</li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<p>to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</p> <ul style="list-style-type: none"><li>• The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>• Surveys to target the public, neighboring counties, agencies, and businesses have been distributed and will be used to provide additional input to the plan to support the identification of mitigation actions.</li></ul>	
3	<p><b>Risk Assessment Overview</b></p> <ul style="list-style-type: none"><li>• It reviewed the methodology to calculate the relative risk of the county's identified hazards of concern and shared the preliminary risk rankings. The ranks of Low, Medium, and High for each hazard will serve as a guide in identifying impactful mitigation actions to reduce damages and increase resilience. After review and adjustment by the core group, the preliminary county level ranks are as follows:<ul style="list-style-type: none"><li>○ Disease Outbreak (including Covid-19, influenza, and tick-borne illnesses) - <b>Medium</b></li><li>○ Earthquake - <b>Medium</b></li><li>○ Extreme Temperatures - <b>Medium</b></li><li>○ Flood - <b>High</b></li><li>○ Dams Failure - <b>High</b></li><li>○ Infestation - <b>Medium</b></li><li>○ Severe Storm (Windstorm, Thunderstorm, Hail, Tornado) – <b>High</b></li><li>○ Severe Winter Storm (Heavy Snow, Blizzards, Ice Storms) - <b>High</b></li><li>○ Wildfire - <b>High</b></li></ul></li></ul> <p>The county ranks indicate the highest municipal risk rather than the calculated regional risk. The Steering Committee was tasked to review the information provided in the presentation (see attached) to provide any additional input to revisit and potentially further adjust the rankings.</p> <p>Discussion included clarification that vulnerability assessment included only projected damages to general building stock and not potential infrastructure damages which are not modeled in Hazus-MH. These damages are an example of why the rankings should be adjusted, in particular, the flood ranking as it should include the risk posed by unmapped, localized flood areas evidenced by washouts and culvert failures. Capturing these floodprone areas was suggested as county and local level mitigation actions and could be documented in part using the ReadyWarren app.</p> <p>The public sharing of dam inundation areas was also discussed and will be addressed by Emergency Services staff.</p>	<p>Steering Committee members to email any input regarding adjusted risk ranking on or before 2/14/23.</p> <p>Emergency Services to review the level of detail provided to the public regarding dam inundation areas.</p> <p>Emergency Services, County GIS and SWCD to consider options to collect and map localized flood areas.</p>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>These rankings will be presented to the Planning Partnership during a meeting on February 15<sup>th</sup>.</li></ul>	
6	<b>Upcoming Meetings</b> <ul style="list-style-type: none"><li>Planning Partnership Risk Assessment Meeting – February 15, 2023 <i>(Optional for Steering Committee members not affiliated with a municipality.)</i></li><li>Mitigation Strategy Workshop – March 15, 2023 <i>(Optional for Steering Committee members not affiliated with a municipality.)</i></li></ul>	
7	<b>Next Steps</b> <ul style="list-style-type: none"><li>Update Risk Assessment including adjustments as noted by Steering Committee</li><li>Present to planning partners</li><li>Populate adjusted results municipal annexes</li><li>Planning Partnership Risk Assessment Meeting: February 15, 2023</li><li>Continue to engage the public</li><li>Begin working with the municipalities to develop mitigation strategy/actions: <b>February 2023</b></li><li>Mitigation Strategy Workshop with FEMA and NYSDHSES – <b>March 15, 2023</b></li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 11:15 am.	





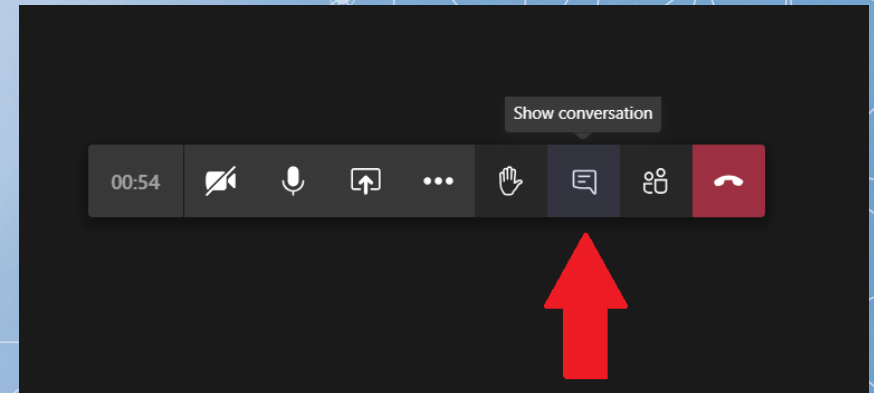
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Steering Committee #3 Meeting | February 10, 2023 | 10:00 – 11:30 AM

## ***WELCOME!***

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*





# Agenda

- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up

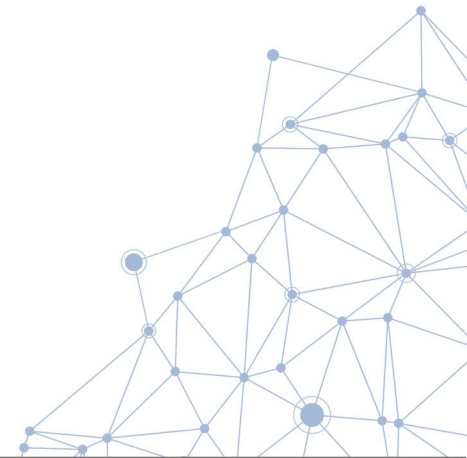






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ☐ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | May 2023                | Review draft plan                                    |
| ☐ | July/August 2023        | Submit plan to NYSDHSES and FEMA                     |

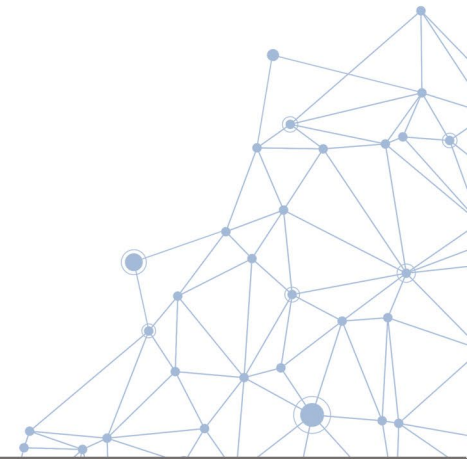






# Progress

- Requested NFIP Data – *Data pending*
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *Complete*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *Complete*
- Planning Partnership Participation – 100%







# Document Review on Sharepoint

- Access for document review
- Review in “desktop app” in track changes

OneDrive interface showing the 'Warren County (NY) HMP' folder. The 'Steering Committee' folder is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size	Sharing
GIS	November 14, 2022	frankenfelds@warrencoun	4 items	Shared
Letters of Intent to Participate	September 16, 2022	Bianco, Cynthia	14 items	Shared
Outreach Materials	November 30, 2022	Bianco, Cynthia	10 items	Shared
<b>Steering Committee</b>	January 24	Bianco, Cynthia	1 item	Shared
Survey				
SWCD				

OneDrive interface showing the 'Documents for Review' folder. The file '5.2 - HOC ID\_Warren\_rev.docx' is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size
Old	January 31	Bianco, Cynthia	6 items
Warren_TOC.docx	January 25	Bianco, Cynthia	205 KB
<b>5.2 - HOC ID_Warren_rev.docx</b>	6 days ago	Bianco, Cynthia	422 KB
Section 1-Introduction_rev.docx	6 days ago	Bianco, Cynthia	1.05 MB
Section 2-Plan Adoption.docx	January 25	masona@warrencountyny	360 KB
Section 5.1_Methodology_rev.docx	6 days ago	Bianco, Cynthia	517 KB

OneDrive interface showing the 'Steering Committee' folder. The 'Documents for Review' folder is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size	Sharing
<b>Documents for Review</b>	January 24	Bianco, Cynthia	6 items	Shared






# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes – sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours





# Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynynewyorkhmp.com>

- Social Media
- Public Survey
- Stakeholder Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey

**WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE**

Home About What is Mitigation Meetings Calendar Explore the Plan Additional Information

Warren County Hazard Mitigation Plan 2023 Update

Welcome to the Warren County Hazard Mitigation Plan (HMP) Website. This website provides project updates, resources, and links to hazard mitigation in support of the HMP update.

The goal of the project is to save lives and property through the reduction of hazard vulnerability for Warren County and its municipalities. During the course of this planning project, county and local leaders and the community will work in tandem to identify risks, assess capabilities, and formulate a strategy to reduce disaster vulnerability.

Public participation and feedback are vital parts of the hazard mitigation planning process. The Warren County HMP Steering Committee has developed a mitigation survey to assist in providing the public an outlet to contribute to the Warren County HMP update. This survey will be used to develop portions of the HMP.

If you have any questions or comments regarding the HMP or planning process, please complete this form, and someone from the Planning Partnership will be in touch.

**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
LIVE OR WORK IN THE COUNTY? WE NEED YOUR HELP!  
CLICK HERE TO TAKE THE PUBLIC SURVEY

Events in February 2023

List Month Week Day February 2023 Go < Today >



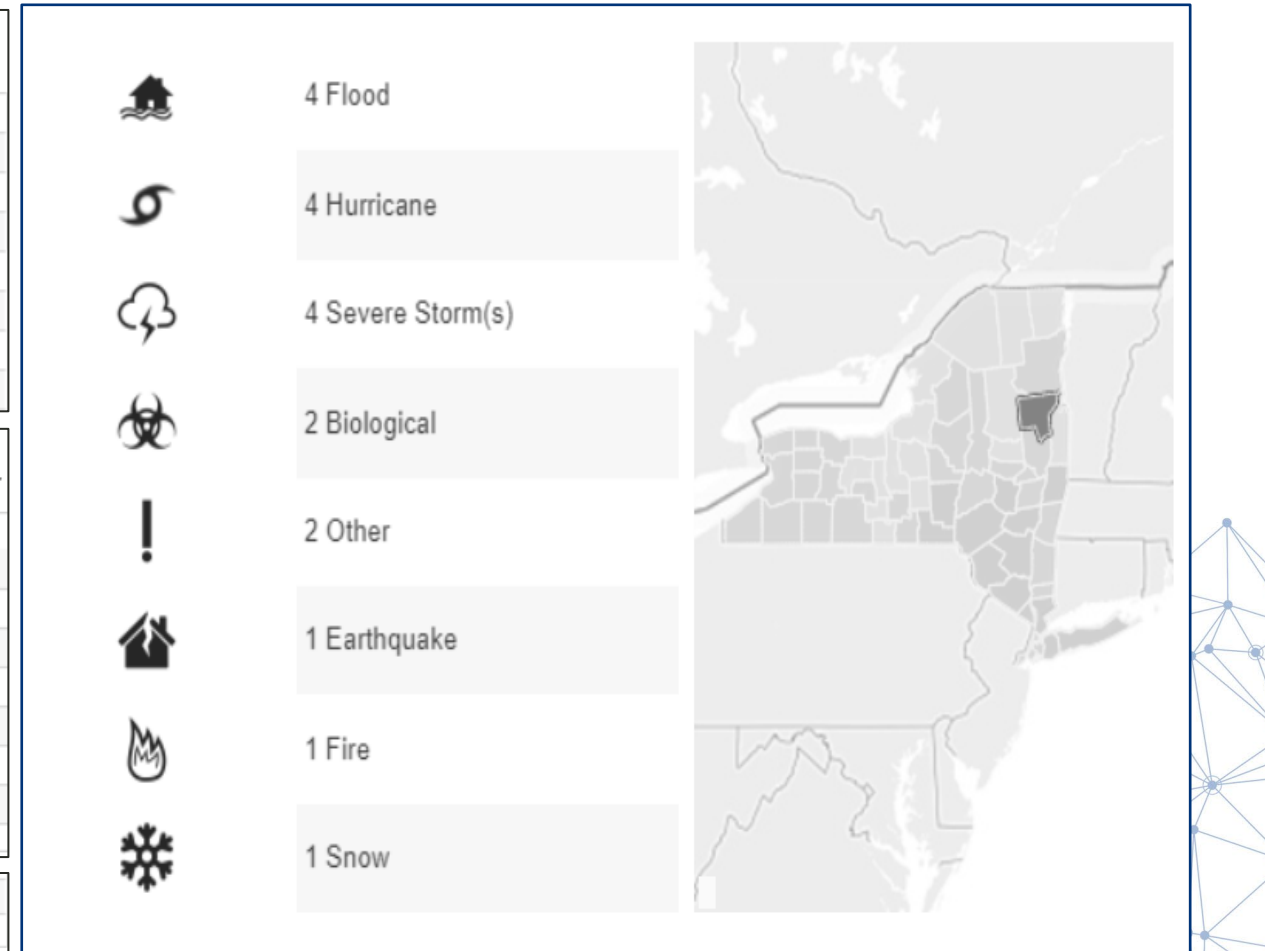


# Hazard Mitigation – What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480







# 2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire





# What is Risk?

## ✓ Hazard

- Source of potential danger or adverse condition

## ✓ Exposure

- Manmade or natural features that are exposed to the hazard

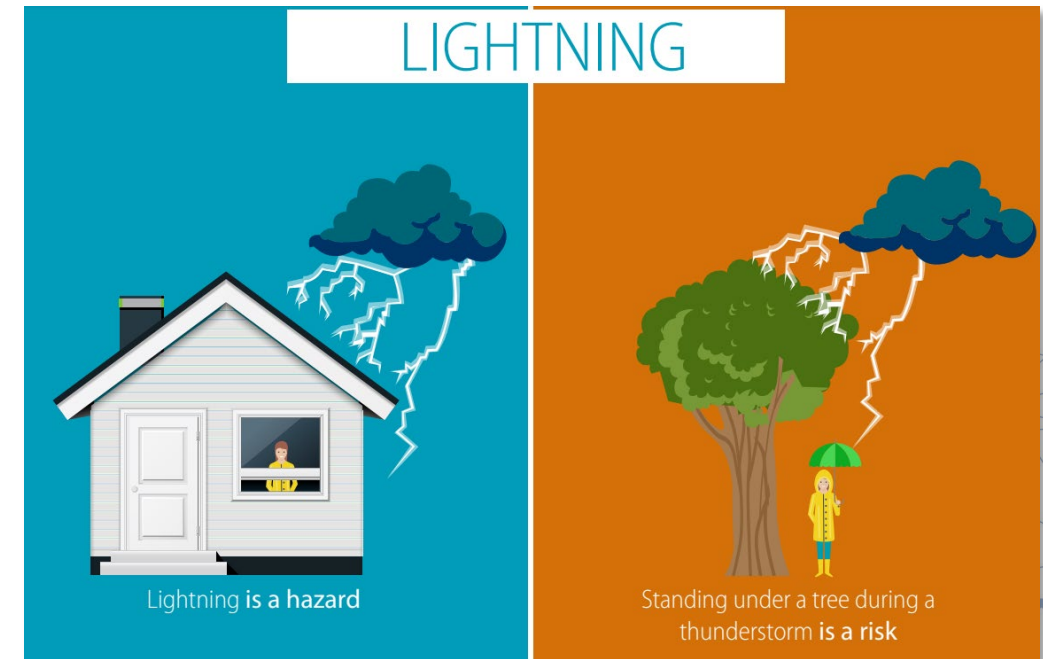
## ✓ Vulnerability

- Damage susceptibility of the exposed features

## ✓ Adaptive Capacity (or capability)

- Plans/policies
- Response/recovery
- Financial resources

## ✓ Climate Change

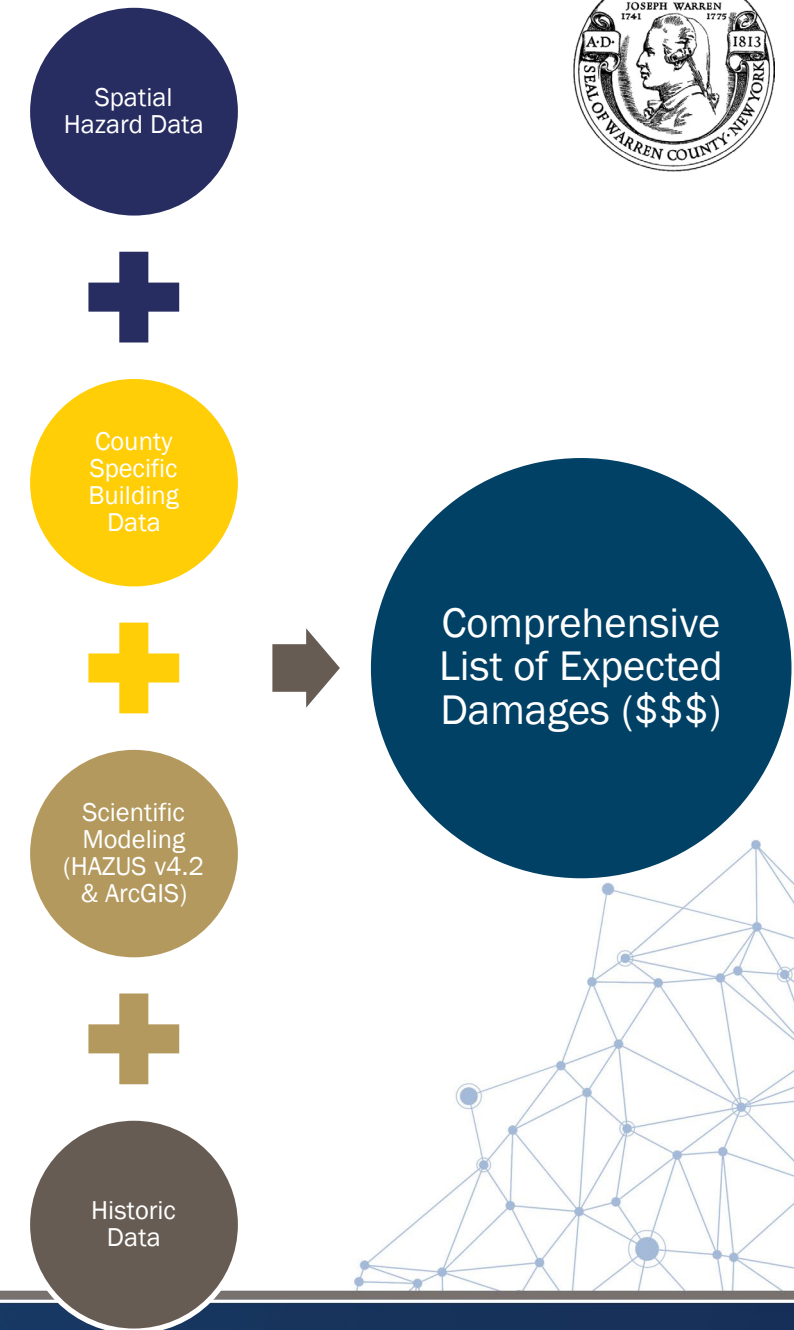






# Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings





# Preliminary Hazard Ranking

How are the rankings calculated?



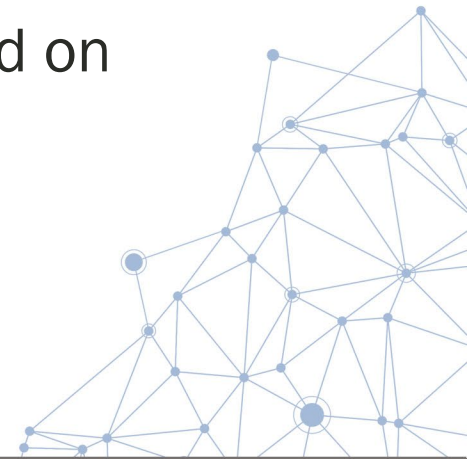




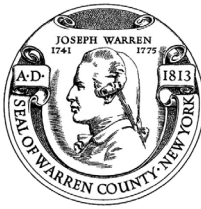
# Preliminary Hazard Ranking Methodology

Hazard Ranking is determined by quantitative and qualitative factors including:

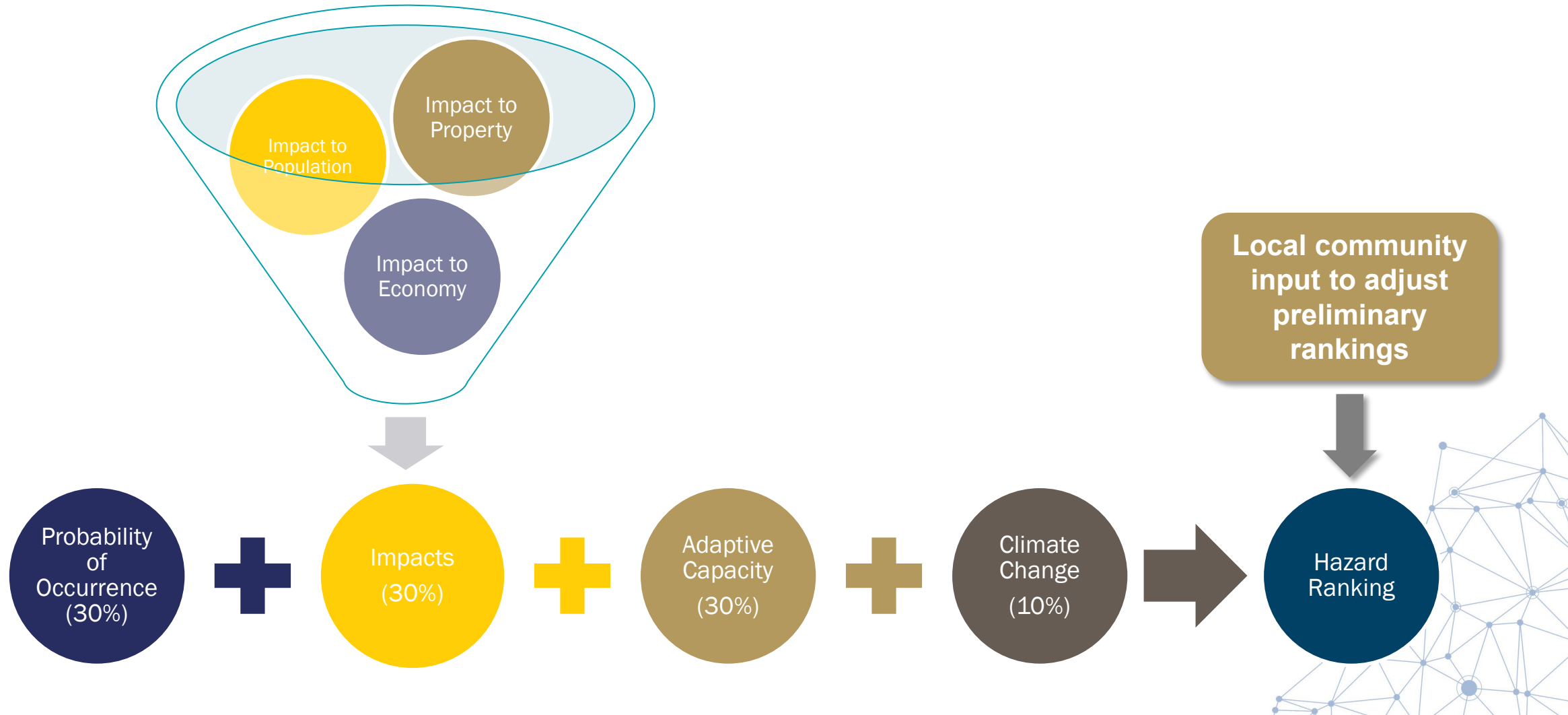
- The calculated probability of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which climate change will affect future occurrences based on best available data.
- Capability- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.







# Hazard Ranking Formula





# Ranking the Hazards of Concern

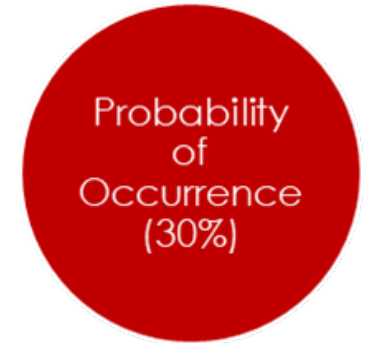
What information plays a role in determining the risk rankings?



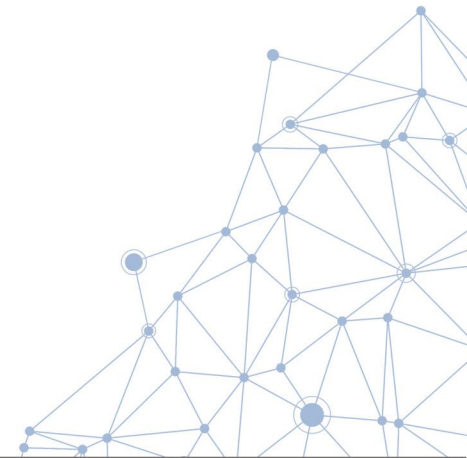




# Probability Of Occurrence



- **Unlikely**
  - Not likely to occur or less than 1% annual chance of occurring
- **Rare**
  - Between 1 and 10% annual chance of occurring
- **Occasional**
  - Between 10 and 100% annual chance of occurring
- **Frequent**
  - 100% chance occurring; occurs multiple times a year







# Hazard Ranking Input

## Impact on Population – Function of population exposed

- ✓ Low – 14% or less population exposed
- ✓ Medium – 15%-29% population exposed
- ✓ High – 30%+ population exposed

## Impact on property – Function of structures exposed

- ✓ Low – 14% or less structures exposed
- ✓ Medium – 15%-29% structures exposed
- ✓ High – 30%+ structures exposed

## Impact on economy – Function of damages to building stock

- ✓ Low – 9% or less loss estimate of total replacement cost
- ✓ Medium – 10%-19% loss estimate of total replacement cost
- ✓ High – 19%+ loss estimate of total replacement cost

## Capability – Function of level of planning, policies, enforcement

- ✓ Weak – outdated policies; limited to no deployable resources; limited capabilities to respond; long recovery
- ✓ Moderate – minimum requirements; mitigation strategies identified but not implemented; moderate county capabilities
- ✓ Strong – exceed requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high

## Climate Change – Function of climate predictions

- ✓ Low - No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)
- ✓ Medium - Studies and modeling projections indicate a potential for exacerbated conditions due to climate change
- ✓ High - Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change







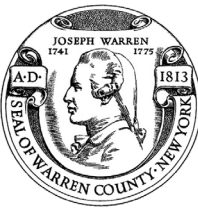
# Preliminary Overall Risk Ranking

Hazard of Concern	2021 CEPA Ranking	2023 Calculated Risk Ranking	2017 Risk Ranking	2023 Adjusted Ranking
Earthquake	Low	Low	High	Medium
Extreme Temperature	-	Medium	-	Medium
Flood	Very High	Low	Medium	High
Severe Storm	Medium	High	High	High
Severe Winter Storm	High	High	High	High
Wildfire	Medium	High	High	High
Infestation	-	Medium	Medium	Medium
Dam Failure	-	High	-	High
Disease Outbreak/Pandemic	Medium	Low	Medium	Medium

\* Potential adjustments



# Municipal Level Risk Ranking (Preliminary)



Hazard Ranking									
Municipality	Earthquake	Extreme Temps	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation	Dam Failure	Disease Outbreak
Bolton (T)	Low	Medium	Low	High	High	Medium	Medium	High	Medium
Chester (T)	Low	Medium	Low	High	High	Low	Medium	High	Low
Glens Falls (C)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Hague (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Horicon (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Johnsburg (T)	Low	Medium	Low	High	High	Low	Medium	High	Medium
Lake George (T)	Low	Medium	Low	High	High	High	Medium	Medium	Medium
Lake George (V)	Low	Medium	Low	High	High	High	Medium	Low	Low
Lake Luzerne (T)	Medium	Medium	Low	High	High	Medium	Medium	Medium	Low
Queensbury (T)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Stony Creek (T)	Medium	Low	Low	High	High	Low	Medium	Medium	Low
Thurman (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Warrensburg (T)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Warren County	Medium	Medium	Low	High	High	High	Medium	High	Low

\* To be adjusted





# Sample Risk Analysis Input (Flood)

Warren County Municipality	Probability		Impact on Population				
	Impact	Index	Population (2020 Decennial)	1-Percent Annual Chance Flood Event Population Exposed	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Impact	Numeric Value x3
Bolton (T)	Frequent	3	2,012	132	6.5%	L	3
Chester (T)	Frequent	3	3,086	262	8.5%	L	3
Glens Falls (C)	Frequent	3	14,830	0	0.0%	L	3
Hague (T)	Frequent	3	633	45	7.1%	L	3
Horicon (T)	Frequent	3	1,471	77	5.2%	L	3
Johnsburg (T)	Frequent	3	2,143	49	2.3%	L	3
Lake George (T)	Frequent	3	2,494	65	2.6%	L	3
Lake George (V)	Frequent	3	1,008	2	0.2%	L	3
Lake Luzerne (T)	Frequent	3	3,079	200	6.5%	L	3
Queensbury (T)	Frequent	3	29,169	376	1.3%	L	3
Stony Creek (T)	Frequent	3	758	23	3.0%	L	3
Thurman (T)	Frequent	3	1,095	8	0.7%	L	3
Warrensburg (T)	Frequent	3	3,959	147	3.7%	L	3
Warren County	Frequent	3	65,737	1,385	2.1%	L	3

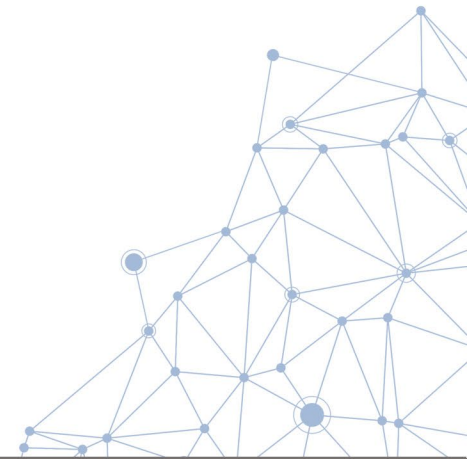




# Earthquake

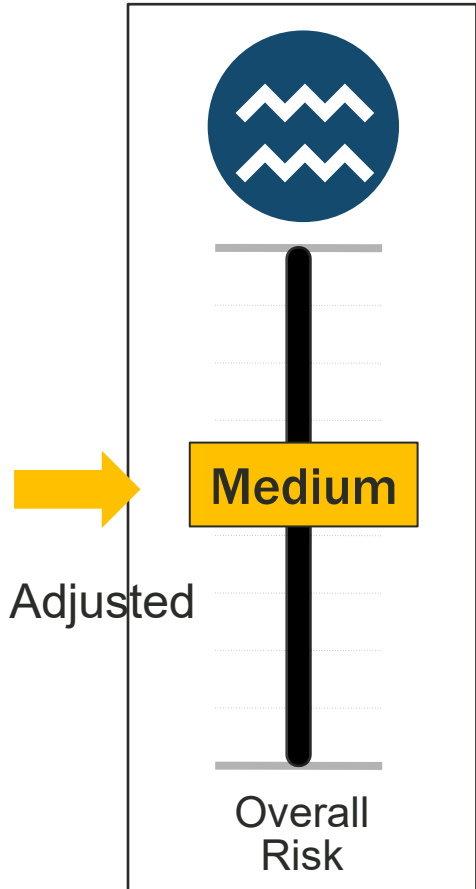
- Number of Events
  - 189 earthquakes epicentered in NYS with 4 epicentered in Warren County, per 2015 NYS HMP, between 1973 and 2014
  - Faults are located within the County
  - Individual Assistance (IA) declared for EMA declarations DR-1415 in Warren County (5/16/2002)
  - Impacts
    - 2 earthquake scenarios: 500-yr and 2500-yr events
    - People and structures located in areas with soils more susceptible to earthquakes

Warren County  
Ranking  
**MEDIUM**





# Countywide Preliminary Risk Ranking: Earthquake



**Probability of Occurrence: Rare**



**Impact on Population: Medium**

65.6% of population is exposed and vulnerable (NEHRP D & E soils)



**Impact on Property: High**

48.7% of County building stock is exposed and vulnerable (NEHRP D & E soils)



**Impact on Economy: Low**

\$1.9% of Structural Replacement Cost Value damaged



**Adaptive Capacity: Medium for all municipalities**

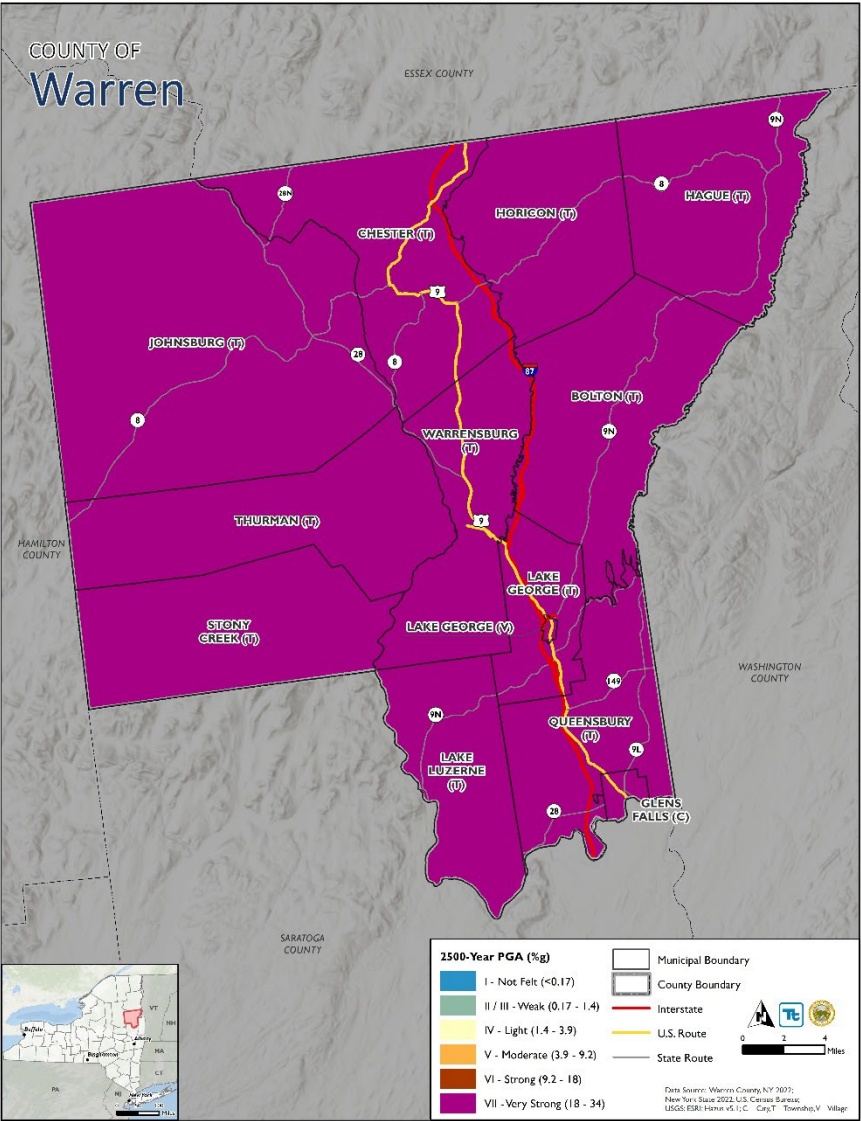


**Climate Change: Low for all municipalities**

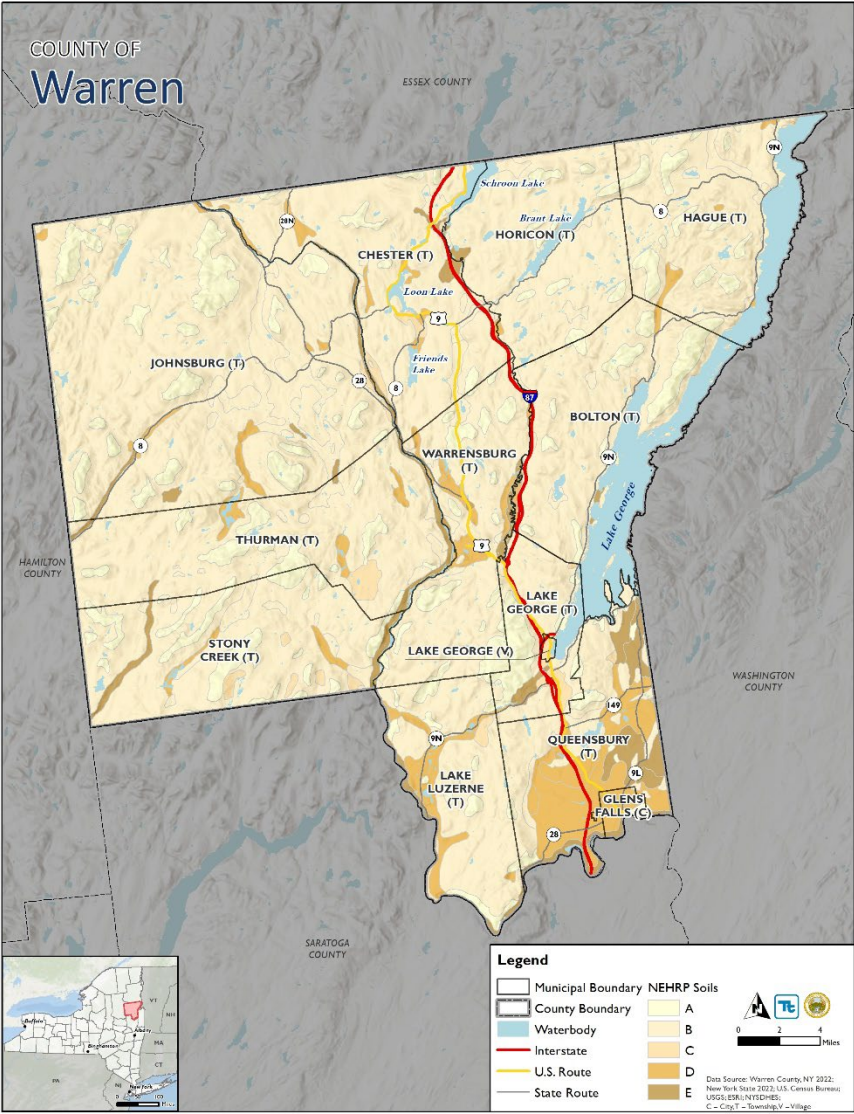




# Peak Ground Acceleration



# NEHRP Soil Class



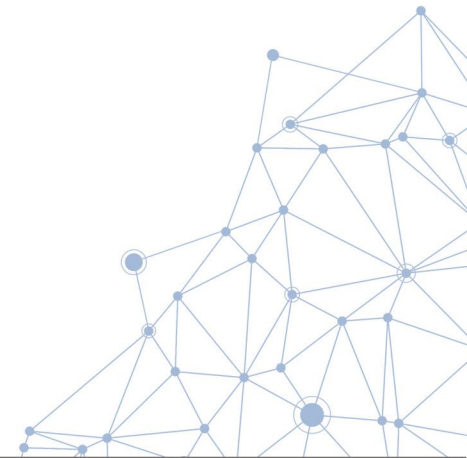




# Flood

- Previous Events
  - Riverine, flash, and stormwater flooding
    - Between 2000 and 2022, Warren County included in 2 FEMA flood-related declarations.
      - FEMA-DR-1993 (Severe Storms Tornadoes, Winds and Flooding) – April 26, 2011
      - FEMA-DR-4129 (Severe Storms, and Flooding) – July 2013
- Exposure
  - People and property located in the 1% annual chance flood area

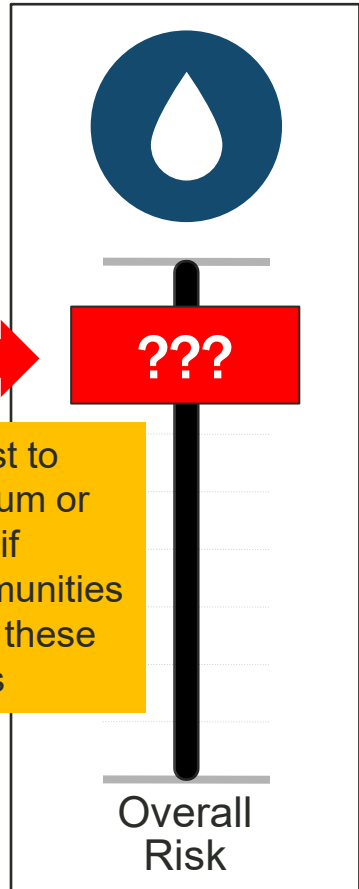
Warren County  
Ranking  
**LOW**







# Countywide Preliminary Risk Ranking: Flood



**Probability of Occurrence: Frequent**



**Impact on Population: Low**

1,385 people (2.1% of the population) in the SFHA



**Impact on Property: Low**

1,252 buildings (3.1% of total County buildings) in the SFHA; 1 Rep Loss



**Impact on Economy: Low**

\$721 M Replacement Cost Value (RCV) (3% of County total RCV) located in the Regulatory Floodplain



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



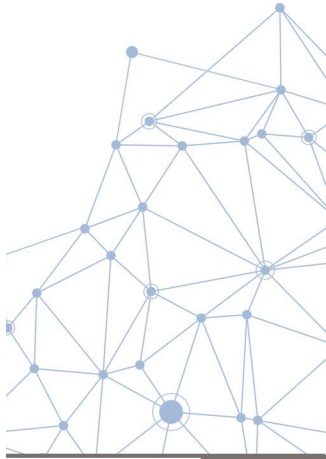
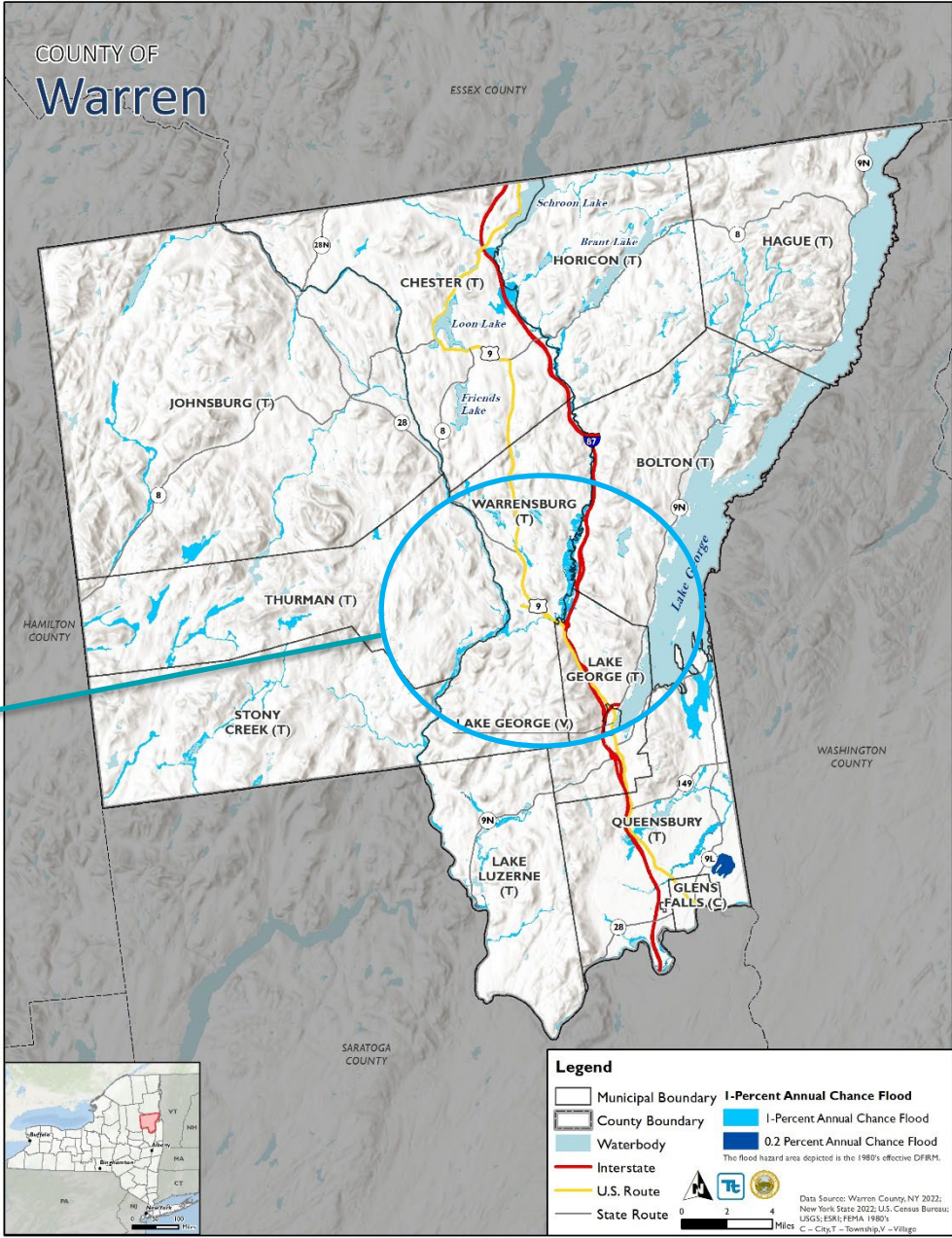
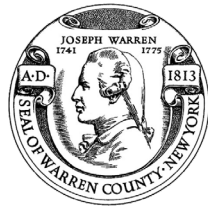


# 2023 vs. 2017 Rankings (Flood)

Warren County Municipality	IMPACT ON POPULATION	IMPACT ON PROPERTY	IMPACT ON ECONOMY	RISK RANKING	RISK RANKING
	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Percent of Total Buildings in 1% Flood Area	Percent of Total GBS RCV	2023 Estimated	2017
Bolton (T)	6.5%	6.6%	6.5%	Low	Medium
Chester (T)	8.5%	8.2%	7.6%	Low	Medium
Glens Falls (C)	0.0%	0.1%	1.0%	Low	Medium
Hague (T)	7.1%	7.0%	3.2%	Low	Medium
Horicon (T)	5.2%	5.2%	7.2%	Low	Medium
Johnsburg (T)	2.3%	2.4%	3.8%	Low	Medium
Lake George (T)	2.6%	2.5%	1.0%	Low	Medium
Lake George (V)	0.2%	1.1%	1.2%	Low	Medium
Lake Luzerne (T)	6.5%	6.3%	3.6%	Low	Medium
Queensbury (T)	1.3%	1.4%	2.1%	Low	Medium
Stony Creek (T)	3.0%	3.2%	3.8%	Low	Medium
Thurman (T)	0.7%	0.8%	0.5%	Low	Medium
Warrensburg (T)	3.7%	3.9%	2.7%	Low	High
Warren County	2.1%	3.1%	3.0%	Low	Medium



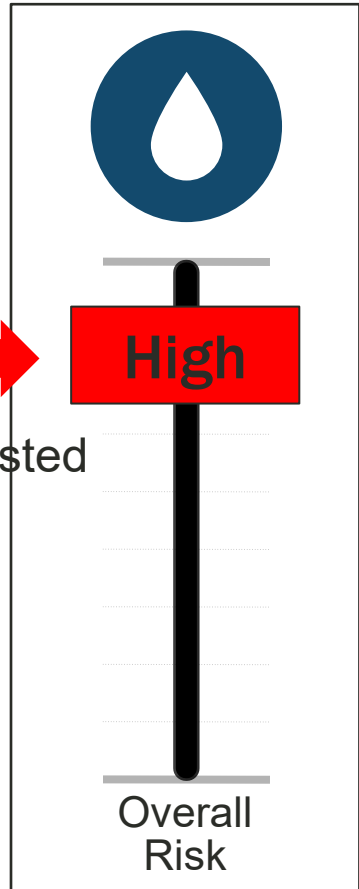
# Flood Hazard Areas







# Countywide Preliminary Risk Ranking: Dam Failure



**Probability of Occurrence: Rare**



**Impact on Population: High**

216 people in inundation areas



**Impact on Property: High**

254 buildings (0.6% of total County buildings) located in inundation areas



**Impact on Economy: High**

\$130 M Replacement Cost Value (RCV) (0.5% of County total RCV) in inundation areas



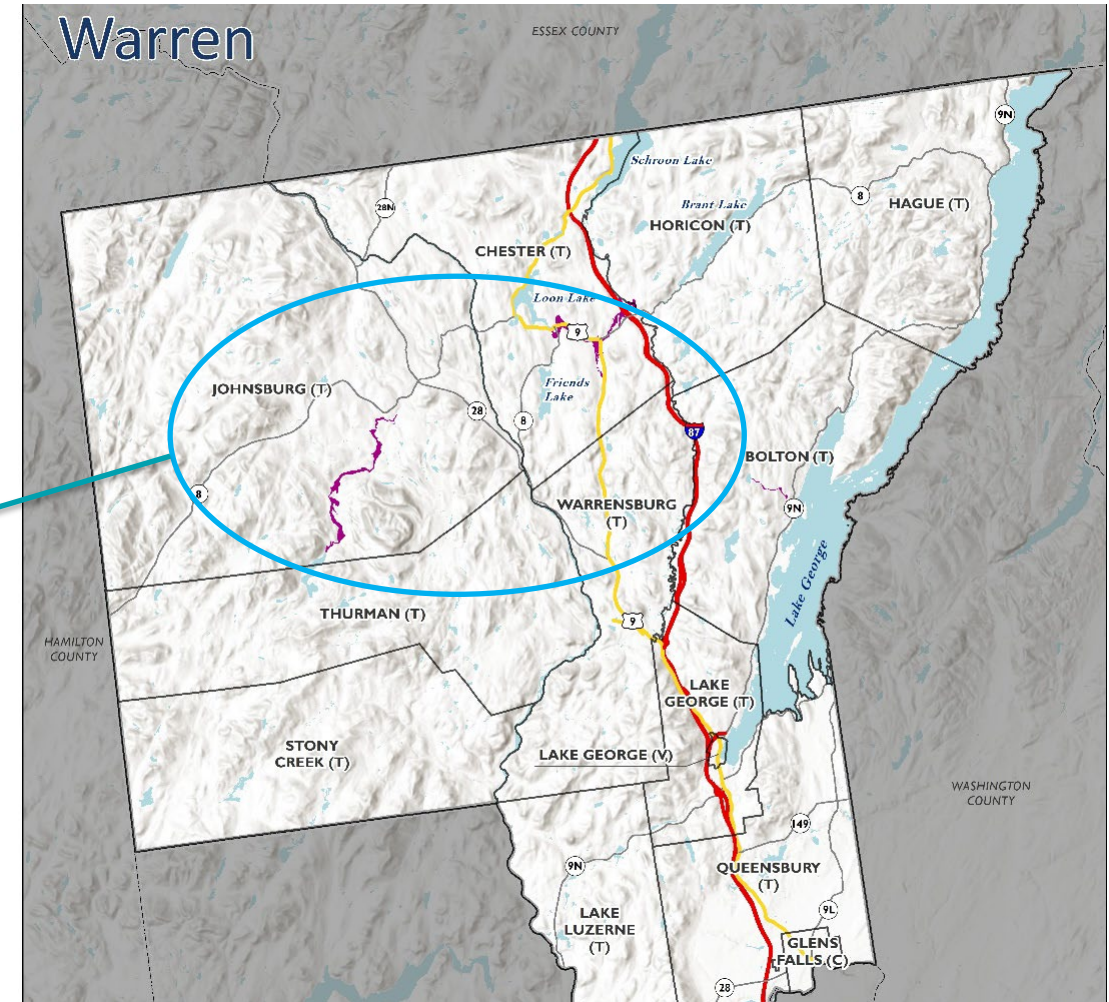
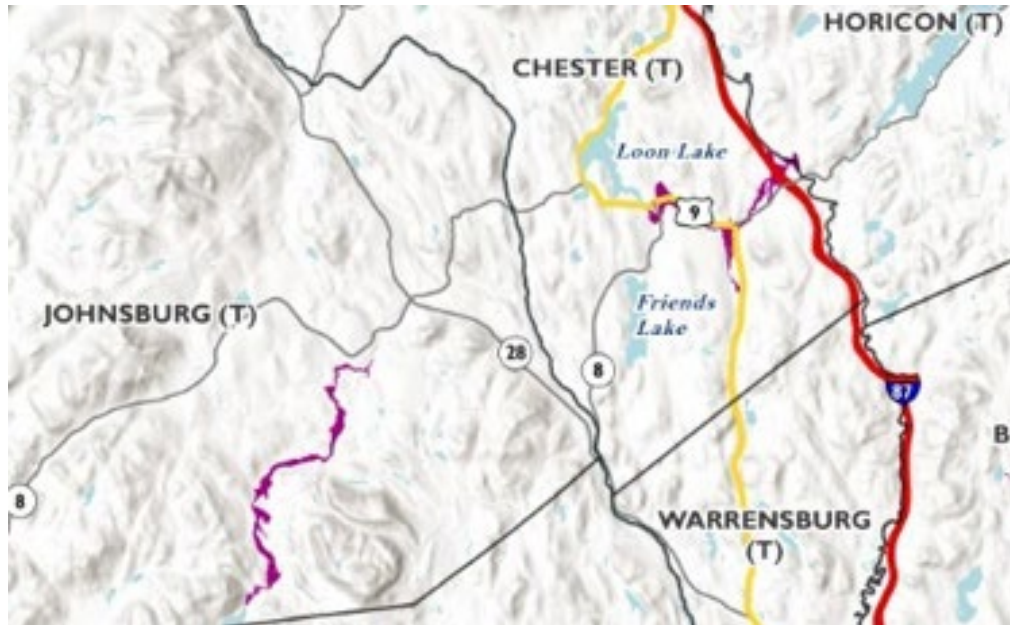
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Dam Inundation Areas







# Severe Storm

- Previous Events

- Hazard includes lightning, hail, and windstorms
- FEMA-DR-4472 (Severe Storms, Straight-line Winds and Flooding) – October 2019
- Between 2016 and 2022, Warren County was included in 1 FEMA severe storm-related declaration.
- According to the NOAA, 5 tornado events took place in Warren County between 1950 and 2022

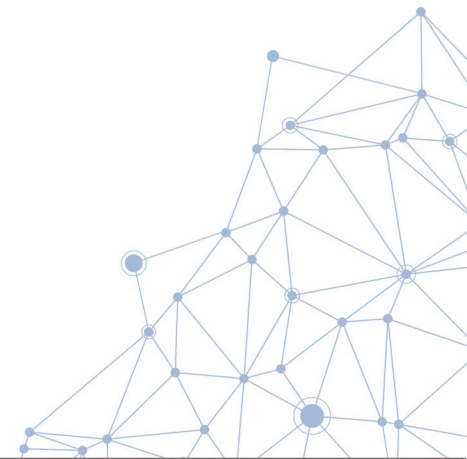
Warren County  
Ranking  
**HIGH**

- Exposure

- Population and property exposed to 100-year peak wind gusts (Tropical Storm-39 to 73 mph) and 500-year (Tropical Storm speeds)
- All people and property exposed and vulnerable

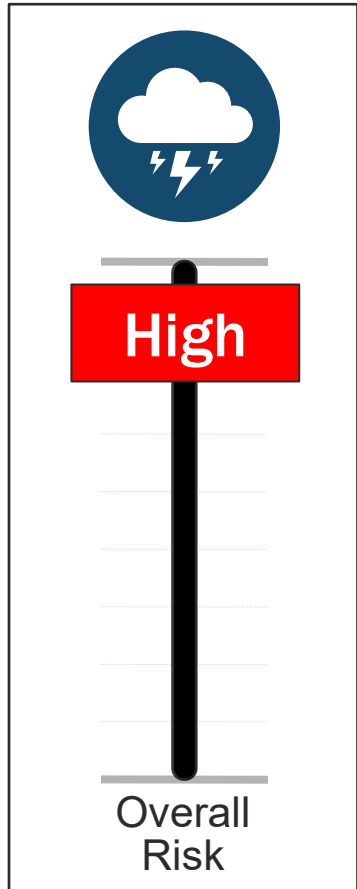
- Potential Impacts

- Power outages
- Critical facility and infrastructure damage





# Countywide Preliminary Risk Ranking: Severe Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable



**Impact on Economy: Low**

\$4.8 M (less than 1%) general building stock loss for a 500-year event



**Adaptive Capacity: High for all municipalities**



**Climate Change: High for all municipalities**



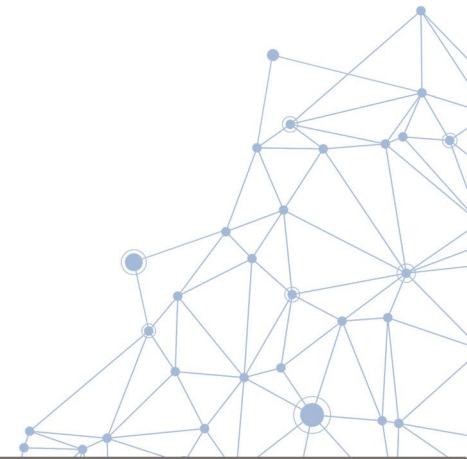


# Wildfire

- Previous Events

- The NYS HMP identified wildfire as a hazard of concern for New York State, however the daily probability of a wildfire event for the state is .09 percent.
- Warren County was included in one FEMA fire declaration; however, it was a manmade terrorist attack.
- According to the 2020 Warren County CEPA, the wildfire hazard is ranked medium.
- Exposure
  - People and property located in Wildfire Urban Interface WUI.

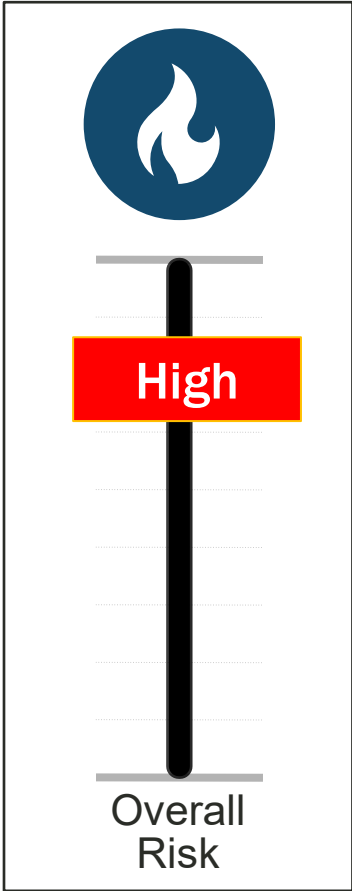
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Wildfire



Probability of Occurrence: Occasional



Impact on Population: High

44.4% of population exposed to the WUI Interface



Impact on Property: High

14,488 buildings (35.9 % of County total) exposed to WUI Interface



Impact on Economy: High

\$8.6M in RCV 35.4% of County total) exposed to WUI Interface



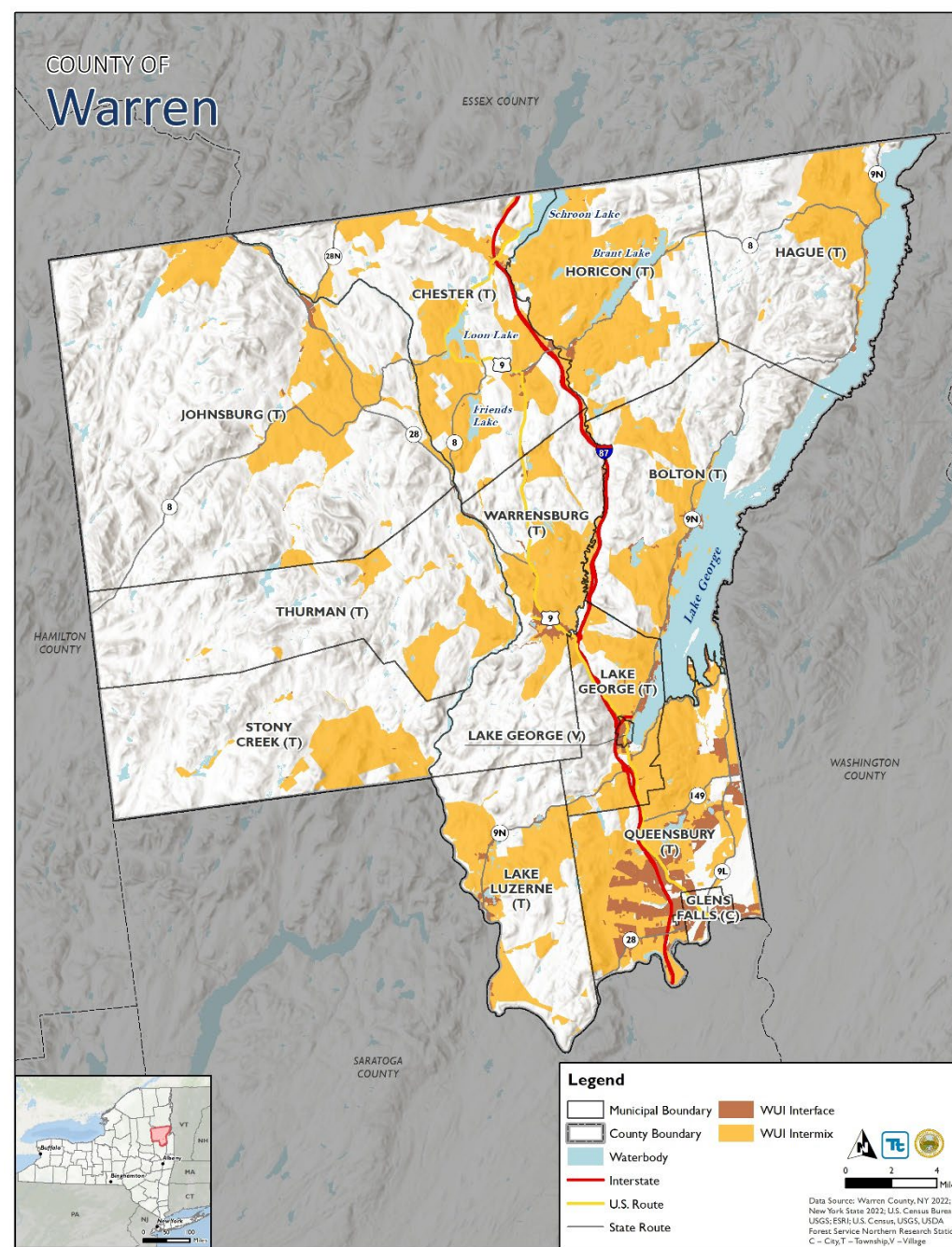
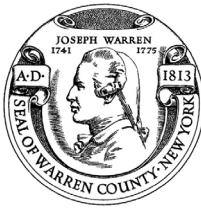
Adaptive Capacity: Medium for all municipalities



Climate Change: High for all municipalities



# Wildland Urban Interface/ Intermix Area



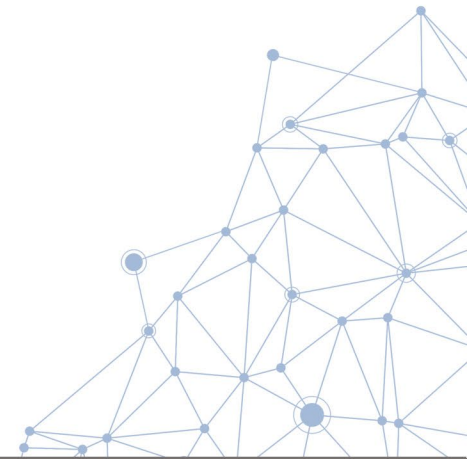




# Severe Winter Storm

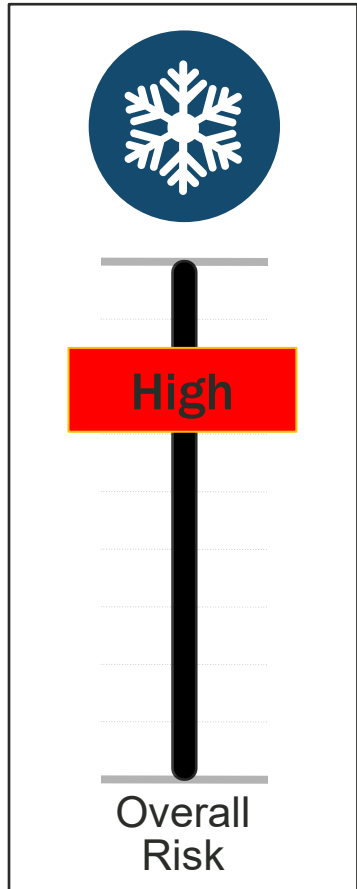
- Hazard includes heavy snow, blizzards, ice storms
- Previous Events
  - FEMA included Warren County in one winter storm-related disaster declaration
    - FEMA-EM-3107 (Severe Blizzard) – March 1993
- Exposure
  - All people and property exposed and vulnerable
- Potential Impacts
  - Power outages
  - Critical facility and infrastructure damage
  - Transportation interruptions/accidents

Warren County  
Ranking  
**HIGH**





# Countywide Preliminary Risk Ranking: Severe Winter Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable; however, impacts are minimal



**Impact on Economy: Low**

\$1.2M (5%) potential losses to building stock



**Adaptive Capacity: High for all municipalities**



**Climate Change: Medium for all municipalities**



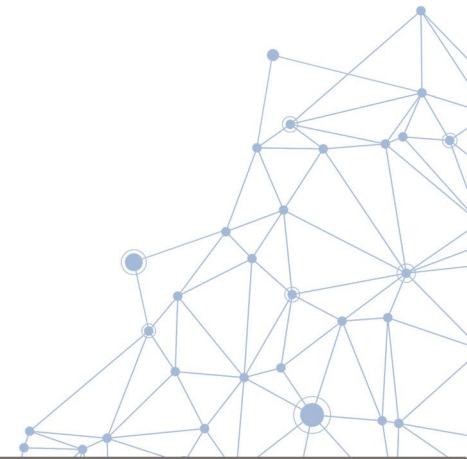


# Disease Outbreak/Pandemic

- Previous Events

- According to the 2020 Warren County CEPA, the pandemic hazard is ranked medium.
- The County has been impacted by the COVID-19 pandemic (DR-4480).
- The County has been impacted by various diseases (COVID-19, West Nile Virus, Lyme disease)
- Exposure
  - Entire County is exposed and vulnerable; however, not occurring multiple times a year with significant impacts
  - Severe events can lead to staffing and bed shortages in hospitals

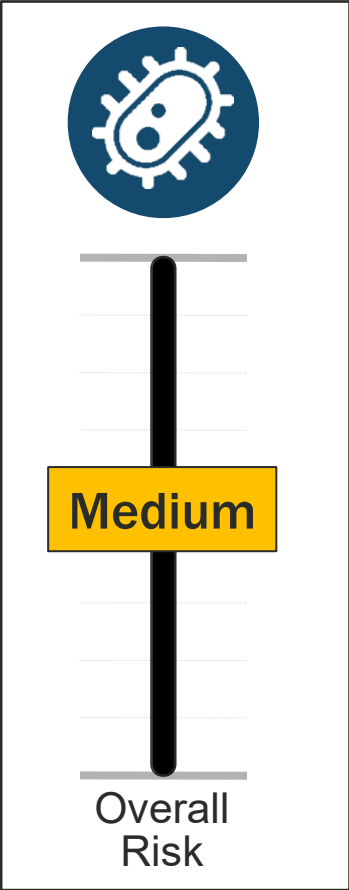
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Disease Outbreak



**Probability of Occurrence: Occasional**

**Impact on Population: Medium**  
(14,754 County residents are 65+ years and 2,850 >5 years (26.8 % of County population))

**Impact on Property: Low**

**Impact on Economy: Medium**

**Adaptive Capacity: Medium for all municipalities**

**Climate Change: Medium for all municipalities**



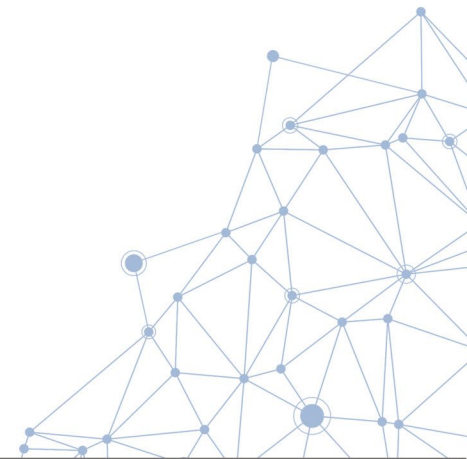




# Extreme Temperature

- Previous Events
  - Hot and cold events
- Exposure
  - Entire County is vulnerable
  - Increased vulnerability to populations at higher risk (65+ / <5 years old)
- Potential impacts:
  - Increased wildfire/brush fire risk
  - Impacts to agriculture/farms
  - Long-periods of warm temperatures can lead to drought conditions

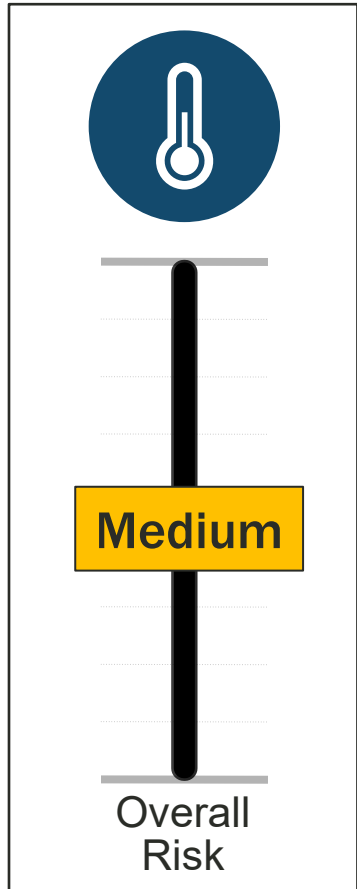
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Extreme Temps



**Probability of Occurrence: Occasional**



**Impact on Population: Medium**

17,604 County residents are 65+ years old or >5 years (26.8% of County population)



**Impact on Property: Low**



**Impact on Economy: Medium**



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**





# Infestation and Invasive Species

- Previous Events

- Beaver Dam Failure, March 2022
- Hemlock Woolly Adelgid, Lake George, 2017
- Emerald Ash Borer (EAB), Shroon River, 2022

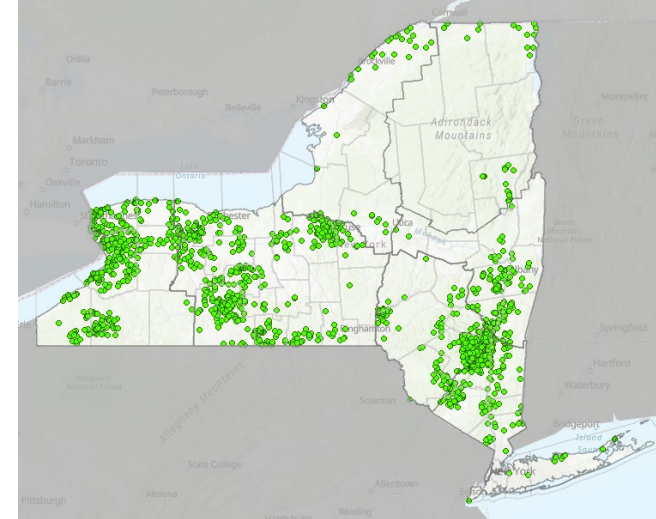
- Exposure

- Entire County is vulnerable

- Potential impacts:

- Soil destabilization
- Increased wildfire risk
- Impacts to agriculture/farms

Warren County  
Ranking  
**MEDIUM**

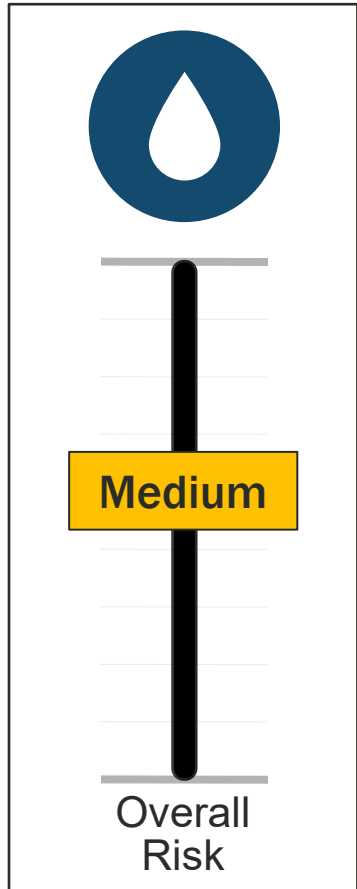


EAB – Source: New York Invasive Species Network 2019





# Countywide Preliminary Risk Ranking: Infestation



**Probability of Occurrence: Occasional**



**Impact on Population: Medium**



**Impact on Property: Medium**



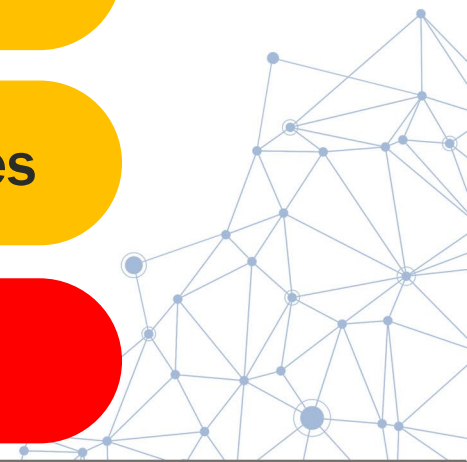
**Impact on Economy: Medium**



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**





# Next Steps

- Update Risk Assessment
  - Prepare results to present to planning partners
  - Populate adjusted results municipal annexes
  - Planning Partnership Risk Assessment Meeting: February 15, 2023
  - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

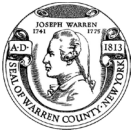
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #3 – AGENDA**  
**MEETING DATE/TIME: February 15, 2023 – 10:00 am**



- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Planning Partnership Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	February 15, 2023, 10:00 am

## Attendees:

Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Jessica Leerkes*	Engineer, Town of Chester
Dan Barusch*	Town/Village Lake George, Planner
Dave Duell*	Town of Queensbury Highway Superintendent
Mark DeMers	Deputy Highway Superintendent
Craig Leggett*	Supervisor, Town of Chester
Debra Runyan*	Town of Thurman Supervisor
Tammie DeLorenzo*	Assistant to the County Administrator, Warren County
Michael Geraci*	Supervisor, Town of Horicon
Frank E. Thomas*	Supervisor, Town of Stoney Creek
Khristopher Kassay	Town of Lake Luzerne
Erin Putney	Town of Lake Luzerne, Zoning Officer
Laura Moore*	Planner, Town of Queensbury
Westfall, Josh*	Planner, Town of Bolton
James Hull	Code Enforcement Officer, Town of Warrensburg
Mike Dunkley	Deputy Highway Superintendent, Town of Johnsbury
Ernie Dunkley	Safety Officer, Town of Johnsbury
Keith Lanfear	Superintendent of Public Works, Village of Lake George
William Norton	Superintendent, Water & Sewer, City of Glens Falls
John Strough	Supervisor, Town of Queensbury
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to provide a project status update and the preliminary municipal level hazards of concern relative risk rankings; to prepare the Planning Partners to review municipal rankings and adjust as necessary to take into account local data or undocumented issues.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation.</li> <li>Warren County (Jim Lieberum, Warren County Soil &amp; Water Conservation District) provided an overview of the importance of the plan in identifying projects to reduce risk and encouraged municipal</li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<p>teams supporting the plan to include public works, fire department, emergency management, and law enforcement staff to provide information on past events and problem areas to support the development mitigation projects.</p> <ul style="list-style-type: none"><li>• The process continues to be on track for plan submittal to FEMA in August 2023.</li><li>• The majority of data to support the hazard mitigation plan (HMP) development has been received, with the receipt of the National Flood Insurance Program (NFIP) data pending processing by FEMA.</li></ul>	
2	<p>In-Kind Services Tracking/Outreach</p> <ul style="list-style-type: none"><li>• Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>• Warren County reminded municipalities to submit documentation of in-kind hours to support the obligations related to the planning grant funding.</li><li>• The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>• Surveys to target the public, neighboring counties, agencies, and businesses have been distributed and will be used to provide additional input to the plan to support the identification of mitigation actions.</li></ul>	<p>Action: All staff to submit documentation of hours spent supporting the mitigation planning process, including hours spent to provide data, review documents, provide updates to communities.</p>
3	<p><b>Risk Assessment Overview</b></p> <ul style="list-style-type: none"><li>• Tt reviewed the methodology to calculate the relative risk of the county's identified hazards of concern and shared the preliminary risk rankings. The ranks of Low, Medium, and High for each hazard will serve as a guide in identifying impactful mitigation actions to reduce damages and increase resilience. After review and adjustment by the core group, the preliminary county level ranks are as follows:<ul style="list-style-type: none"><li>○ Disease Outbreak (including Covid-19, influenza, and tick-borne illnesses) - <b>Medium</b></li><li>○ Earthquake - <b>Medium</b></li><li>○ Extreme Temperatures - <b>Medium</b></li><li>○ Flood - <b>High</b></li><li>○ Dams Failure - <b>High</b></li><li>○ Infestation - <b>Medium</b></li><li>○ Severe Storm (Windstorm, Thunderstorm, Hail, Tornado) – <b>High</b></li><li>○ Severe Winter Storm (Heavy Snow, Blizzards, Ice Storms) - <b>High</b></li><li>○ Wildfire - <b>High</b></li></ul></li></ul> <p>The county ranks indicate the highest municipal risk rather than the calculated regional risk. The Steering Committee was tasked to review the information provided in the presentation (see attached) to provide</p>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<p>any additional input to revisit and potentially further adjust the rankings.</p> <p>Discussion included clarification that vulnerability assessment included only projected damages to general building stock and not potential infrastructure damages which are not modeled in Hazus-MH. These damages are an example of why the rankings should be adjusted, in particular, the flood ranking as it should include the risk posed by unmapped, localized flood areas evidenced by washouts and culvert failures.</p> <p>The public sharing of dam inundation areas was also discussed and will be addressed by Emergency Services staff.</p> <ul style="list-style-type: none"><li>• Tt will distribute municipal specific rankings of the hazard of concern to the Planning Partnership the week of 2/20/23. The Planning Partnership to review and adjust ranks for the hazards of concern to incorporate local hazard history and undocumented data, if necessary.</li></ul>	
6	<p><b>Upcoming Meeting</b></p> <ul style="list-style-type: none"><li>• Mitigation Strategy Workshop – March 15, 2023.</li></ul>	
7	<p><b>Next Steps</b></p> <ul style="list-style-type: none"><li>• Update municipal level risk ranking as necessary</li><li>• Address data gaps in municipal annexes</li><li>• Continue to engage the public</li><li>• Develop mitigation strategy/actions: <b>February 2023</b></li><li>• Mitigation Strategy Workshop with FEMA and NYSDHSES – <b>March 15, 2023</b></li></ul>	
7	<p><b>Conclusion</b> - The meeting concluded at 10:55 am.</p>	





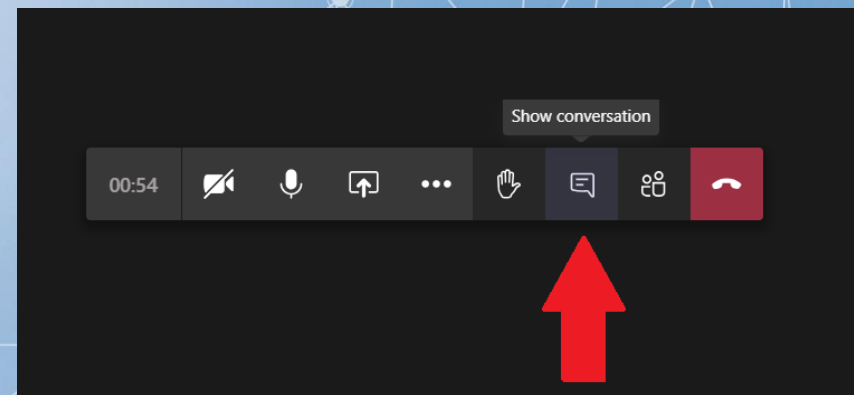
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Planning Partnership #2 Meeting | February 15, 2023 | 10:00 – 11:00 AM

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*





# Agenda

- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up

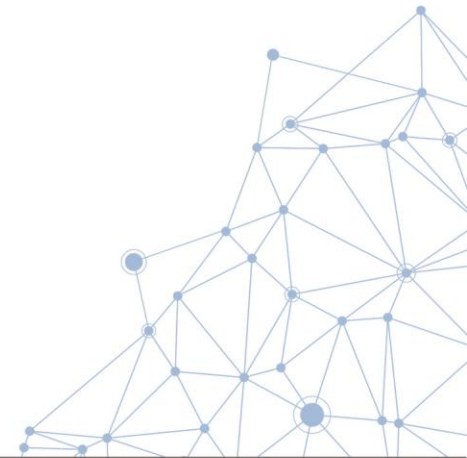






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ☐ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | May 2023                | Review draft plan                                    |
| ☐ | July/August 2023        | Submit plan to NYSDHSES and FEMA                     |

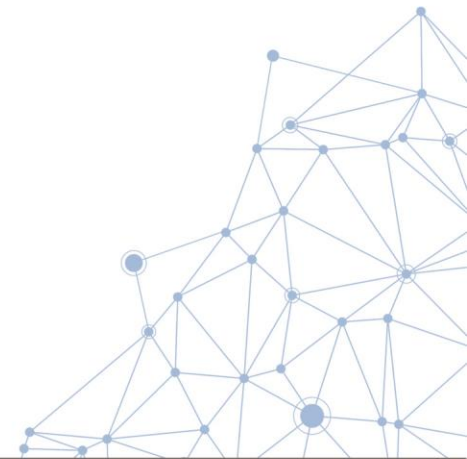




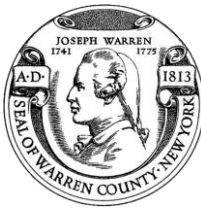


# Progress

- Requested NFIP Data – *Data pending*
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *Complete*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *Complete*
- Planning Partnership Participation – 100%








# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/ Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours





# Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynynewyorkhmp.com>

- Social Media
- Public Survey
- Stakeholder Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey

The screenshot shows the homepage of the Warren County Hazard Mitigation Plan 2023 Update website. The header is dark blue with the Warren County seal and the title 'WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE'. Below the header is a navigation menu with links: Home, About, What is Mitigation, Meetings, Calendar, Explore the Plan, and Additional Information. The main content area has a white background. It starts with the title 'Warren County Hazard Mitigation Plan 2023 Update' and a welcome message. It then describes the project's goal to save lives and property by reducing hazard vulnerability. A call to action for a public survey is prominently displayed, with a button that says 'CLICK HERE TO TAKE THE PUBLIC SURVEY'. Below this, there is a section for public participation and feedback, explaining that the survey will be used to develop portions of the HMP. At the bottom, there is a calendar view for February 2023, showing a list of events.





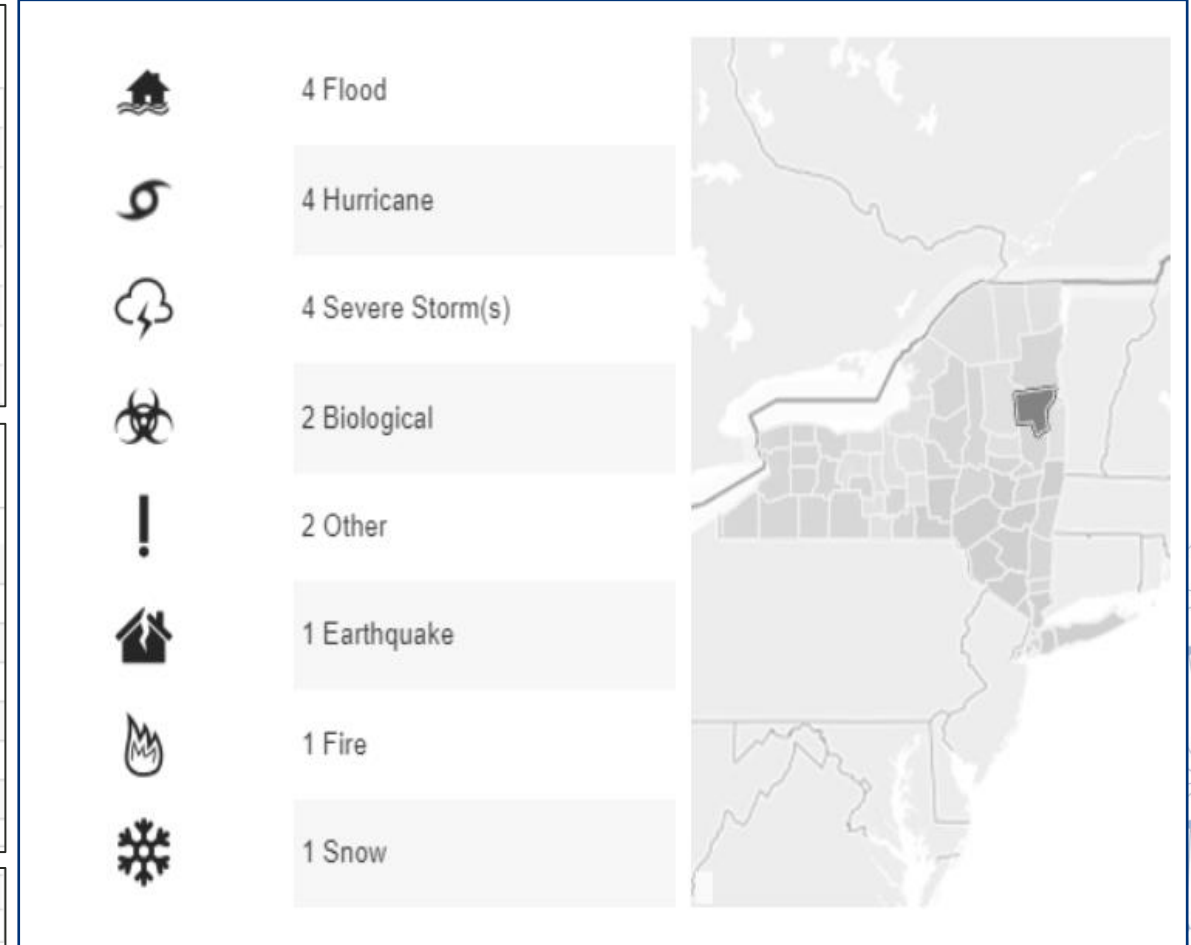
# Hazard Mitigation – What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472

2020	COVID-19	3434
	COVID-19 PANDEMIC	4480

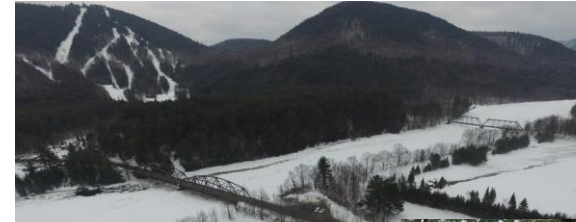






# 2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire





# What is Risk?

## ✓ Hazard

- Source of potential danger or adverse condition

## ✓ Exposure

- Manmade or natural features that are exposed to the hazard

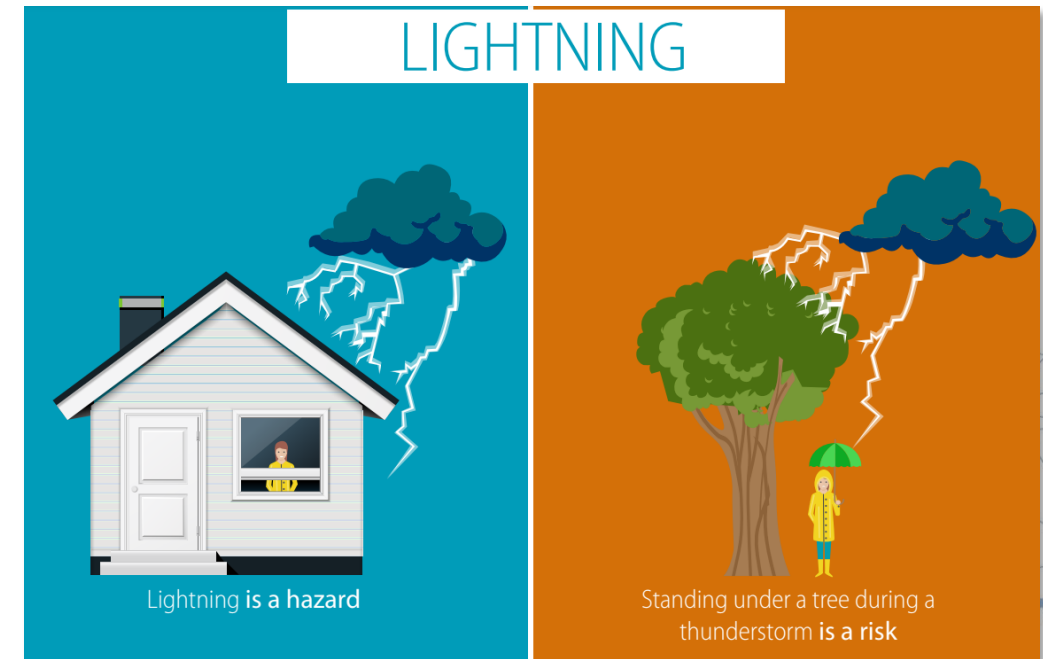
## ✓ Vulnerability

- Damage susceptibility of the exposed features

## ✓ Adaptive Capacity (or capability)

- Plans/policies
- Response/recovery
- Financial resources

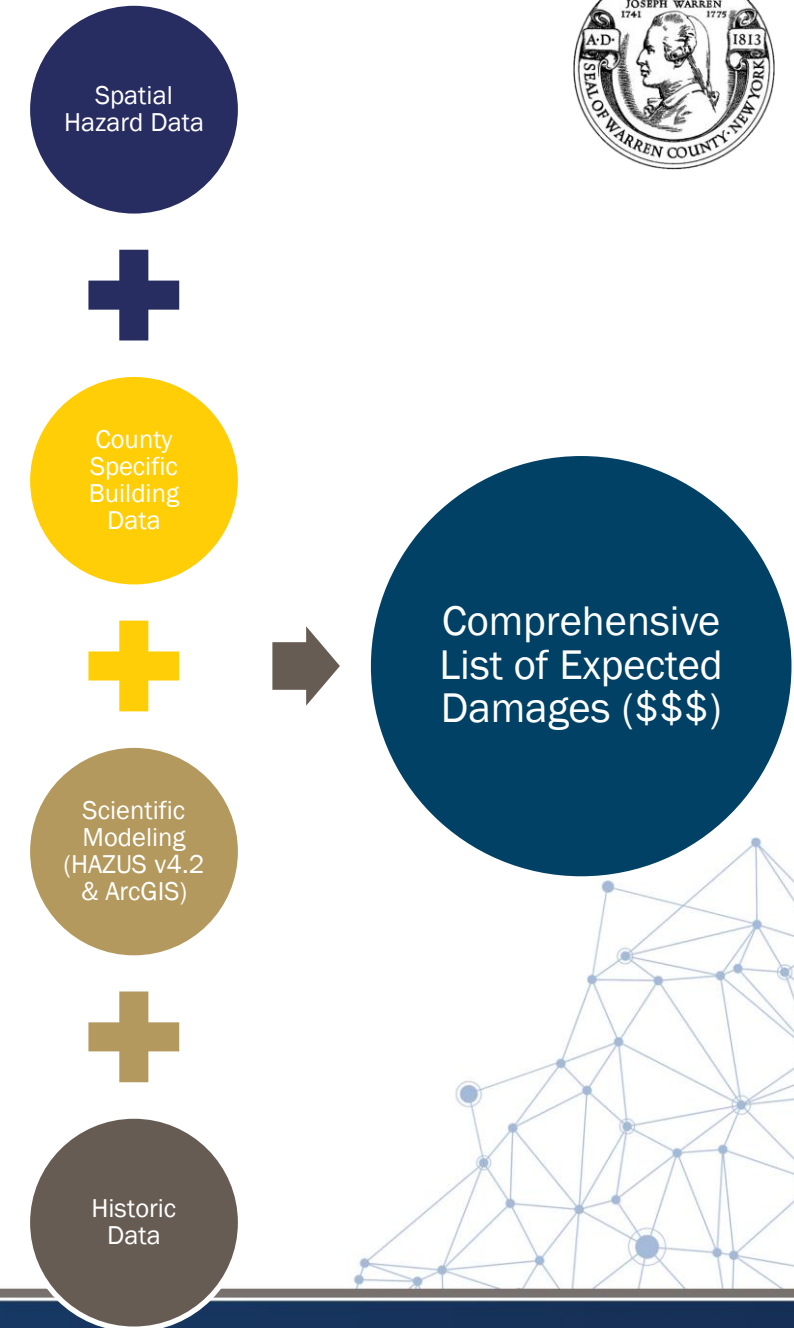
## ✓ Climate Change





# Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings





# Preliminary Hazard Ranking

How are the rankings calculated?



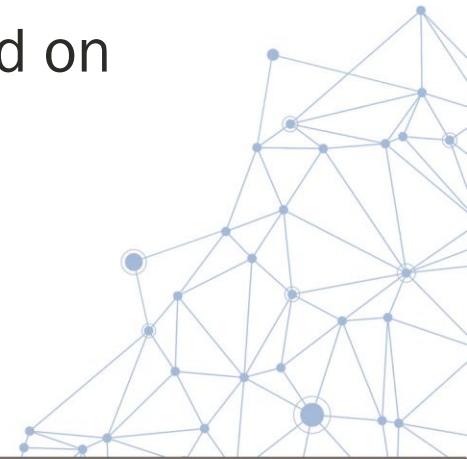




# Preliminary Hazard Ranking Methodology

Hazard Ranking is determined by quantitative and qualitative factors including:

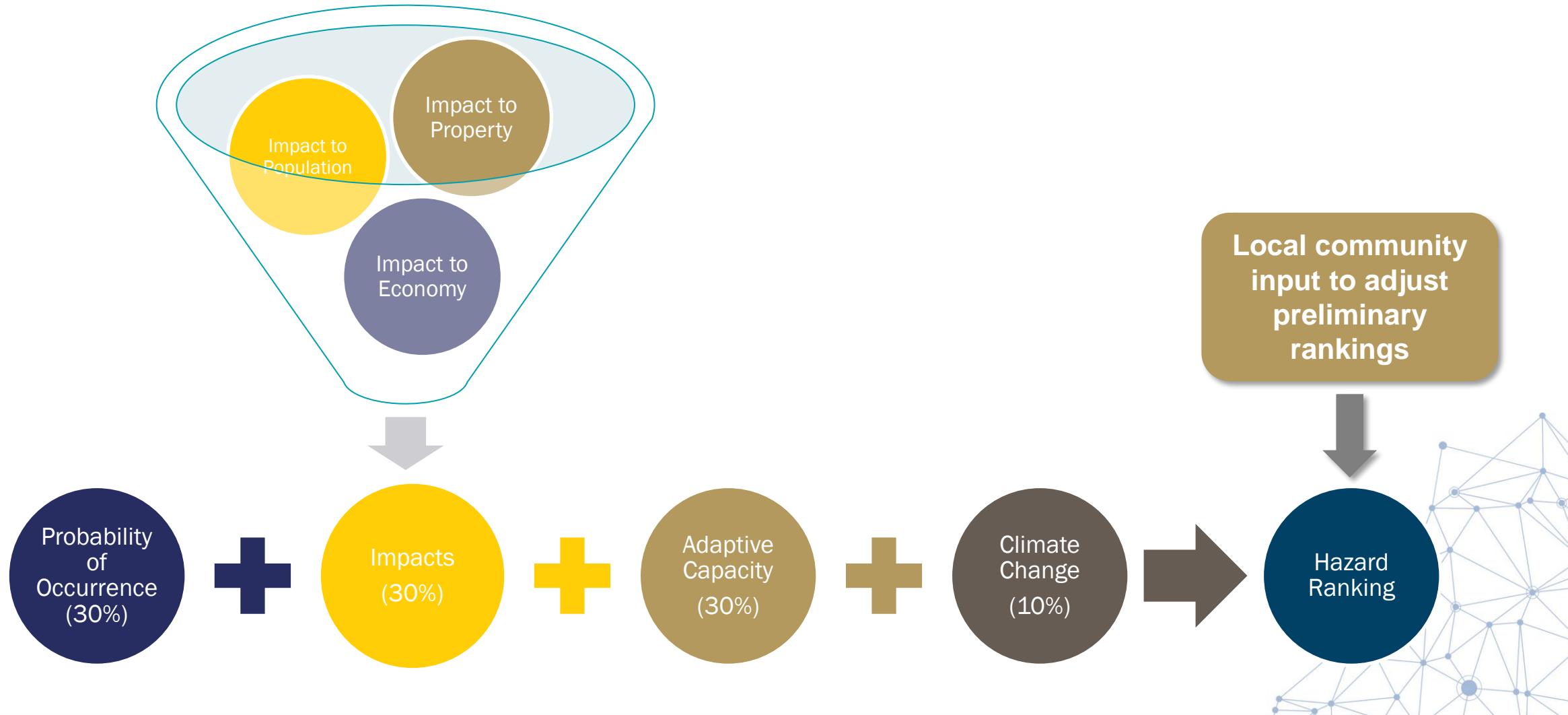
- The calculated probability of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which climate change will affect future occurrences based on best available data.
- Capability- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.







# Hazard Ranking Formula





# Ranking the Hazards of Concern

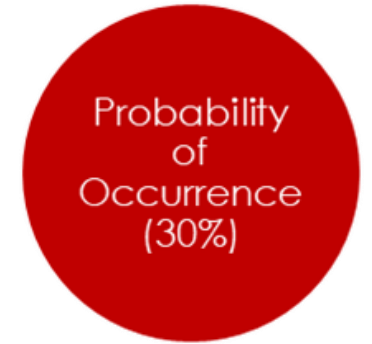
What information plays a role in determining the risk rankings?



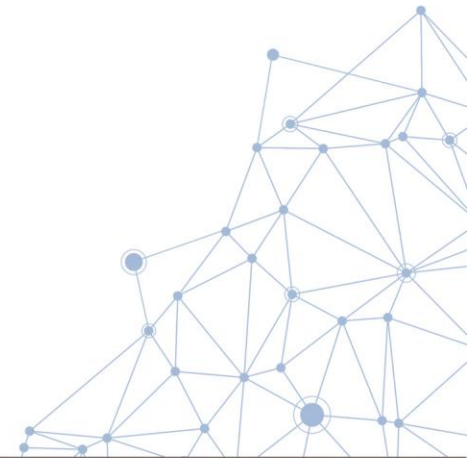




# Probability Of Occurrence



- **Unlikely**
  - Not likely to occur or less than 1% annual chance of occurring
- **Rare**
  - Between 1 and 10% annual chance of occurring
- **Occasional**
  - Between 10 and 100% annual chance of occurring
- **Frequent**
  - 100% chance occurring; occurs multiple times a year







# Hazard Ranking Input

## Impact on Population – Function of population exposed

- ✓ Low – 14% or less population exposed
- ✓ Medium – 15%-29% population exposed
- ✓ High – 30%+ population exposed

## Impact on property – Function of structures exposed

- ✓ Low – 14% or less structures exposed
- ✓ Medium – 15%-29% structures exposed
- ✓ High – 30%+ structures exposed

## Impact on economy – Function of damages to building stock

- ✓ Low – 9% or less loss estimate of total replacement cost
- ✓ Medium – 10%-19% loss estimate of total replacement cost
- ✓ High – 19%+ loss estimate of total replacement cost

## Capability – Function of level of planning, policies, enforcement

- ✓ Weak – outdated policies; limited to no deployable resources; limited capabilities to respond; long recovery
- ✓ Moderate – minimum requirements; mitigation strategies identified but not implemented; moderate county capabilities
- ✓ Strong – exceed requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high

## Climate Change – Function of climate predictions

- ✓ Low - No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)
- ✓ Medium - Studies and modeling projections indicate a potential for exacerbated conditions due to climate change
- ✓ High - Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change

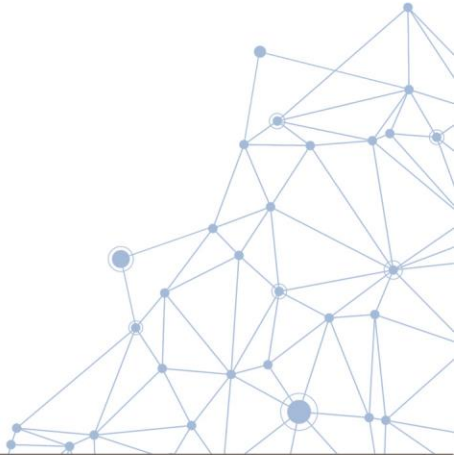
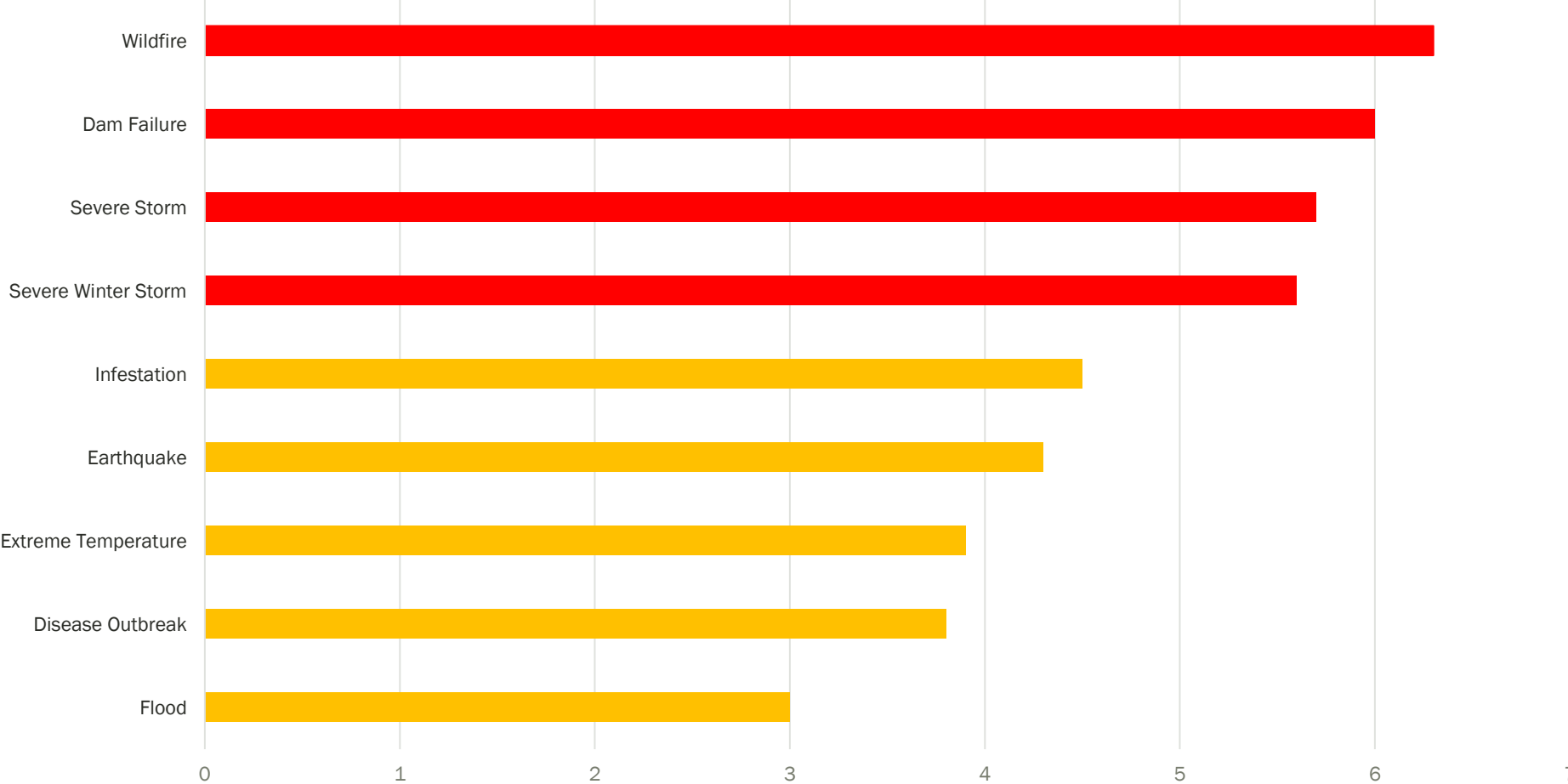






# Preliminary County Overall Risk Ranking

County Preliminary Relative Risk Rankings







# Preliminary County Overall Risk Ranking

Hazard of Concern	2021 CEPA Ranking	2023 Calculated Risk Ranking	2017 Risk Ranking	2023 Adjusted Ranking
Earthquake	Low	Low	High	Medium
Extreme Temperature	-	Medium	-	Medium
Flood	Very High	Low	Medium	Medium
Severe Storm	Medium	High	High	High
Severe Winter Storm	High	High	High	High
Wildfire	Medium	High	High	High
Infestation	-	Medium	Medium	Medium
Dam Failure	-	High	-	High
Disease Outbreak/Pandemic	Medium	Low	Medium	Medium

\* Potential adjustments



# Municipal Level Risk Ranking (Preliminary)



Municipality	Hazard Ranking								
	Earthquake	Extreme Temps	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation	Dam Failure	Disease Outbreak
Bolton (T)	Low	Medium	Low	High	High	Medium	Medium	High	Medium
Chester (T)	Low	Medium	Medium	High	High	Low	Medium	High	Low
Glens Falls (C)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Hague (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Horicon (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Johnsburg (T)	Low	Medium	Low	High	High	Low	Medium	High	Medium
Lake George (T)	Low	Medium	Low	High	High	High	Medium	Medium	Medium
Lake George (V)	Low	Medium	Low	High	High	High	Medium	Low	Low
Lake Luzerne (T)	Medium	Medium	Medium	High	High	Medium	Medium	Medium	Low
Queensbury (T)	Medium	Medium	Medium	High	High	High	Medium	Medium	Low
Stony Creek (T)	Medium	Low	Low	High	High	Low	Medium	Medium	Low
Thurman (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Warrensburg (T)	Medium	Medium	Medium	High	High	High	Medium	Medium	Low
Warren County	Medium	Medium	Medium	High	High	High	Medium	High	Medium

\* adjusted





# Public Input: Flood Hazard Events

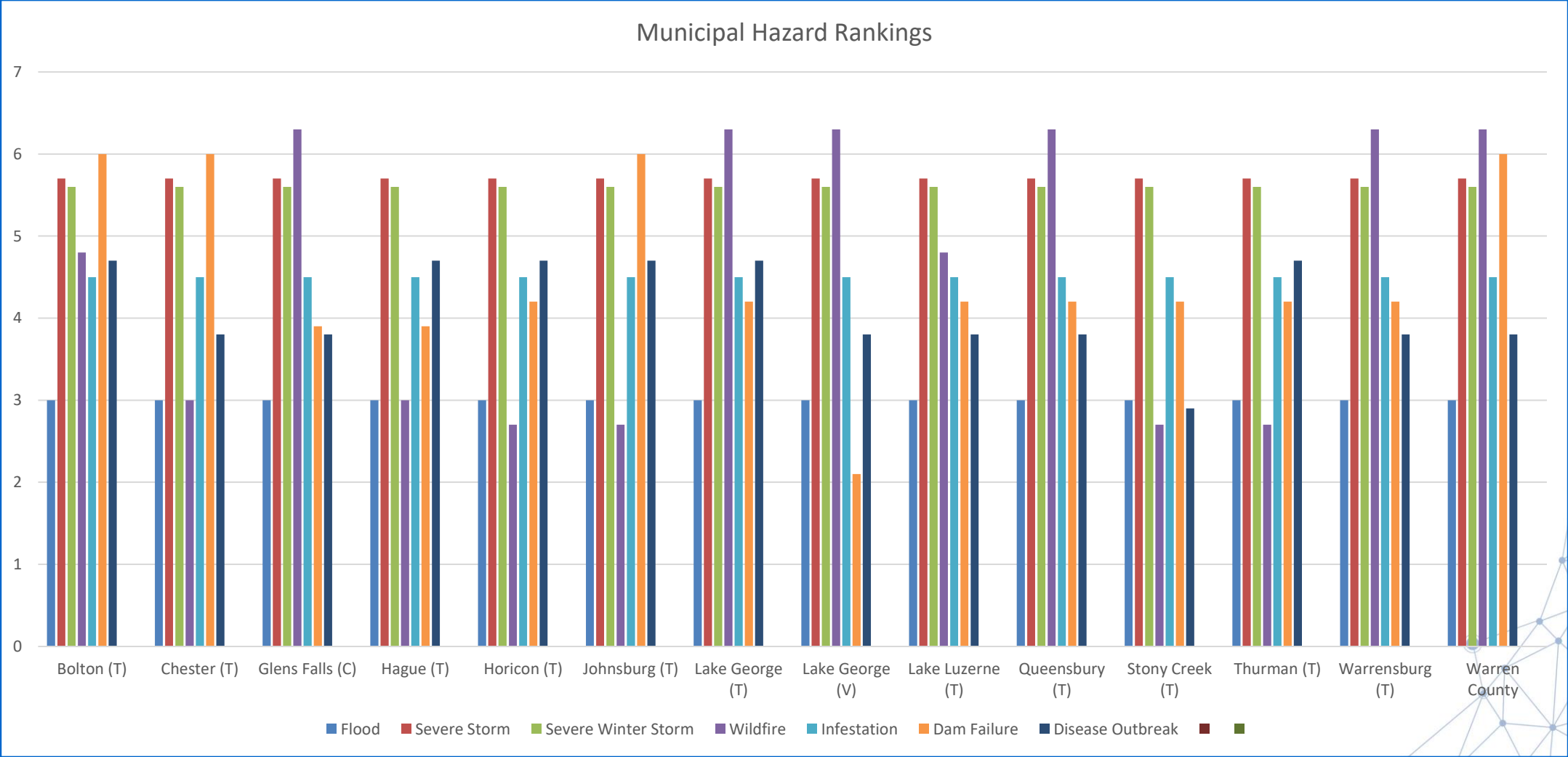
In the past 10 years, which of the following hazard events have you experienced in Warren County? Check all that apply.







# Preliminary Hazard Ranking – Warren County



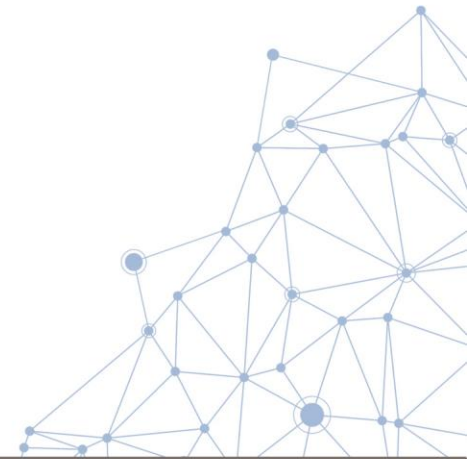




# Earthquake

- Number of Events
  - 189 earthquakes epicentered in NYS with 4 epicentered in Warren County, per 2015 NYS HMP, between 1973 and 2014
  - Faults are located within the County
  - Individual Assistance (IA) declared for EMA declarations DR-1415 in Warren County (5/16/2002)
  - Impacts
    - 2 earthquake scenarios: 500-yr and 2500-yr events
    - People and structures located in areas with soils more susceptible to earthquakes

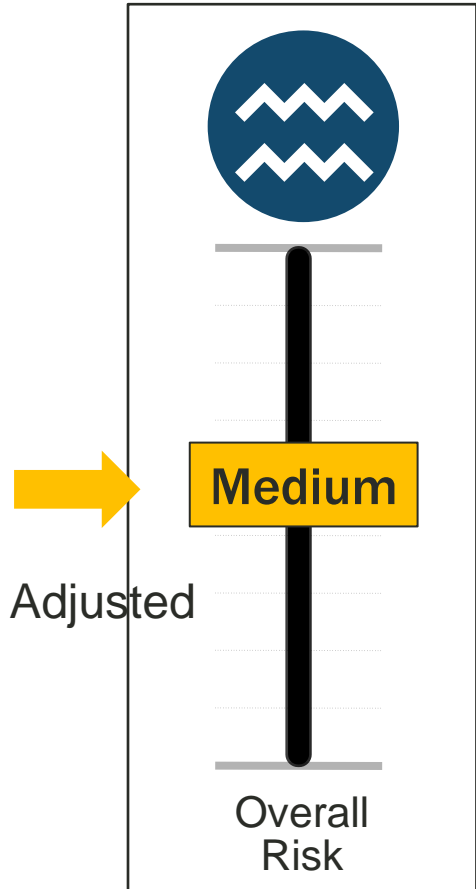
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Earthquake



**Probability of Occurrence: Rare**



**Impact on Population: Medium**

65.6% of population is exposed and vulnerable (NEHRP D & E soils)



**Impact on Property: High**

48.7% of County building stock is exposed and vulnerable (NEHRP D & E soils)



**Impact on Economy: Low**

\$1.9% of Structural Replacement Cost Value damaged



**Adaptive Capacity: Medium for all municipalities**

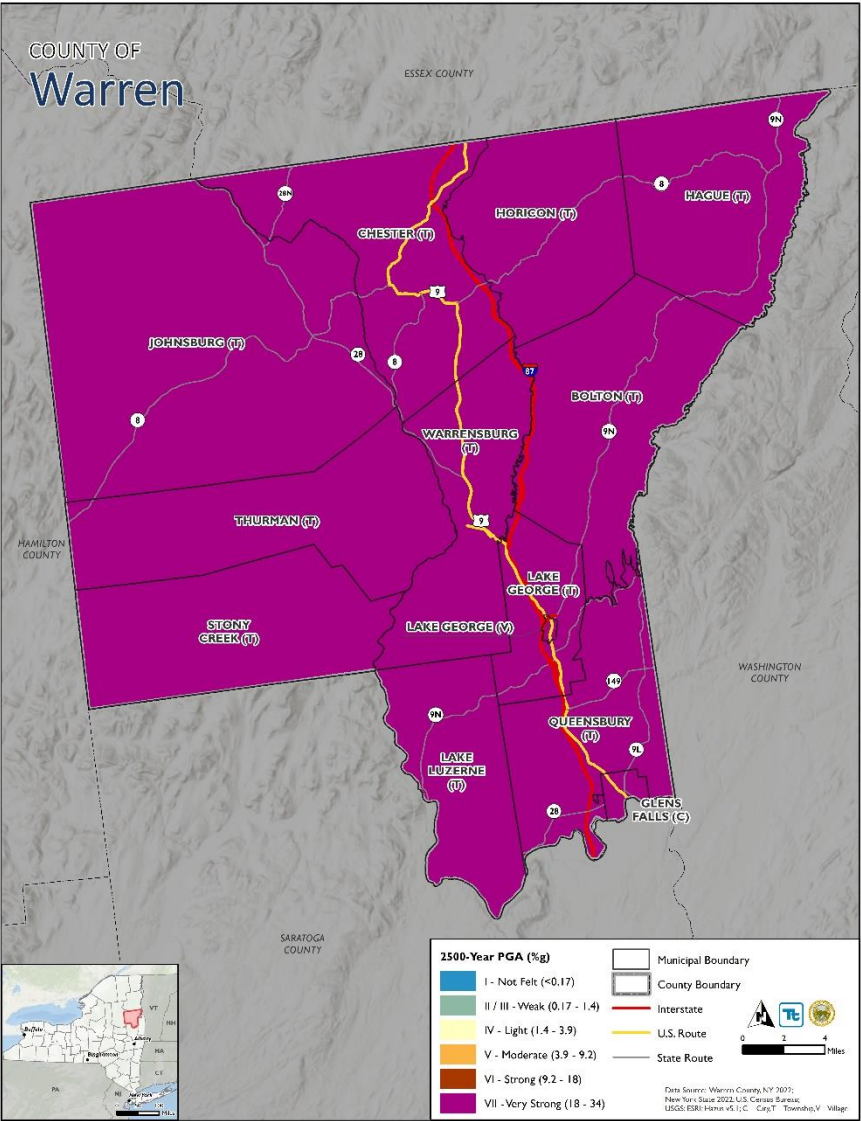


**Climate Change: Low for all municipalities**

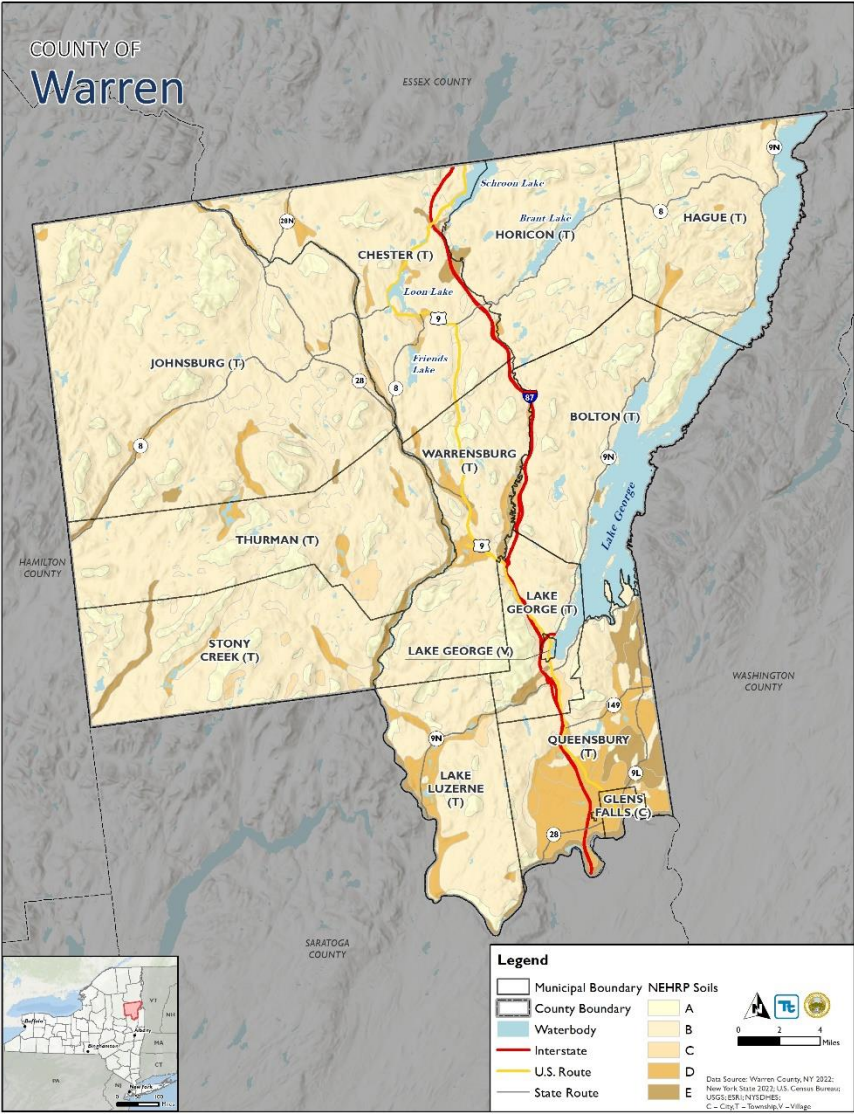




# Peak Ground Acceleration



# NEHRP Soil Class



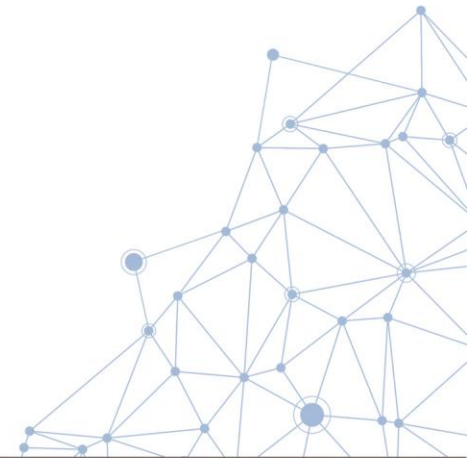




# Flood

- Previous Events
  - Riverine, flash, and stormwater flooding
    - Between 2000 and 2022, Warren County included in 2 FEMA flood-related declarations.
      - FEMA-DR-1993 (Severe Storms Tornadoes, Winds and Flooding) – April 26, 2011
      - FEMA-DR-4129 (Severe Storms, and Flooding) – July 2013
- Exposure
  - People and property located in the 1% annual chance flood area

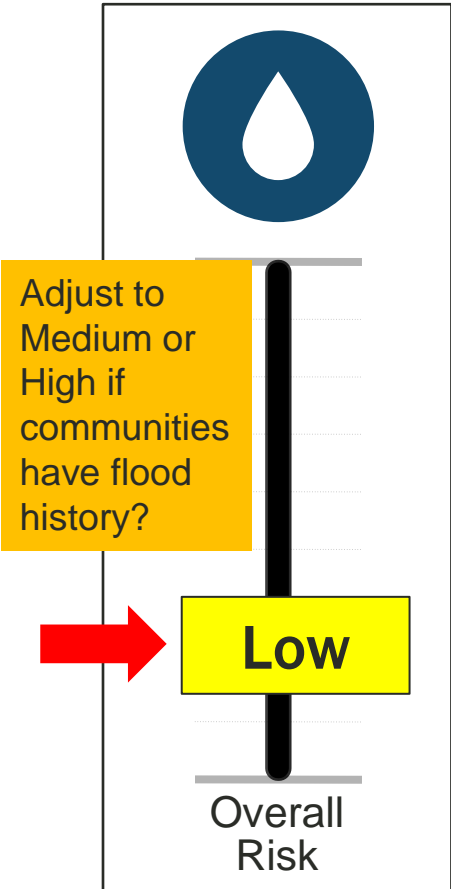
Warren County  
Ranking  
**LOW**







# Countywide Preliminary Risk Ranking: Flood



**Probability of Occurrence: Occasional or Frequent**



**Impact on Population: Low**

1,385 people (2.1% of the population) in the SFHA



**Impact on Property: Low**

1,252 buildings (3.1% of total County buildings) in the SFHA; 1 Rep Loss



**Impact on Economy: Low**

\$721 M Replacement Cost Value (RCV) (3% of County total RCV) located in the Regulatory Floodplain



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



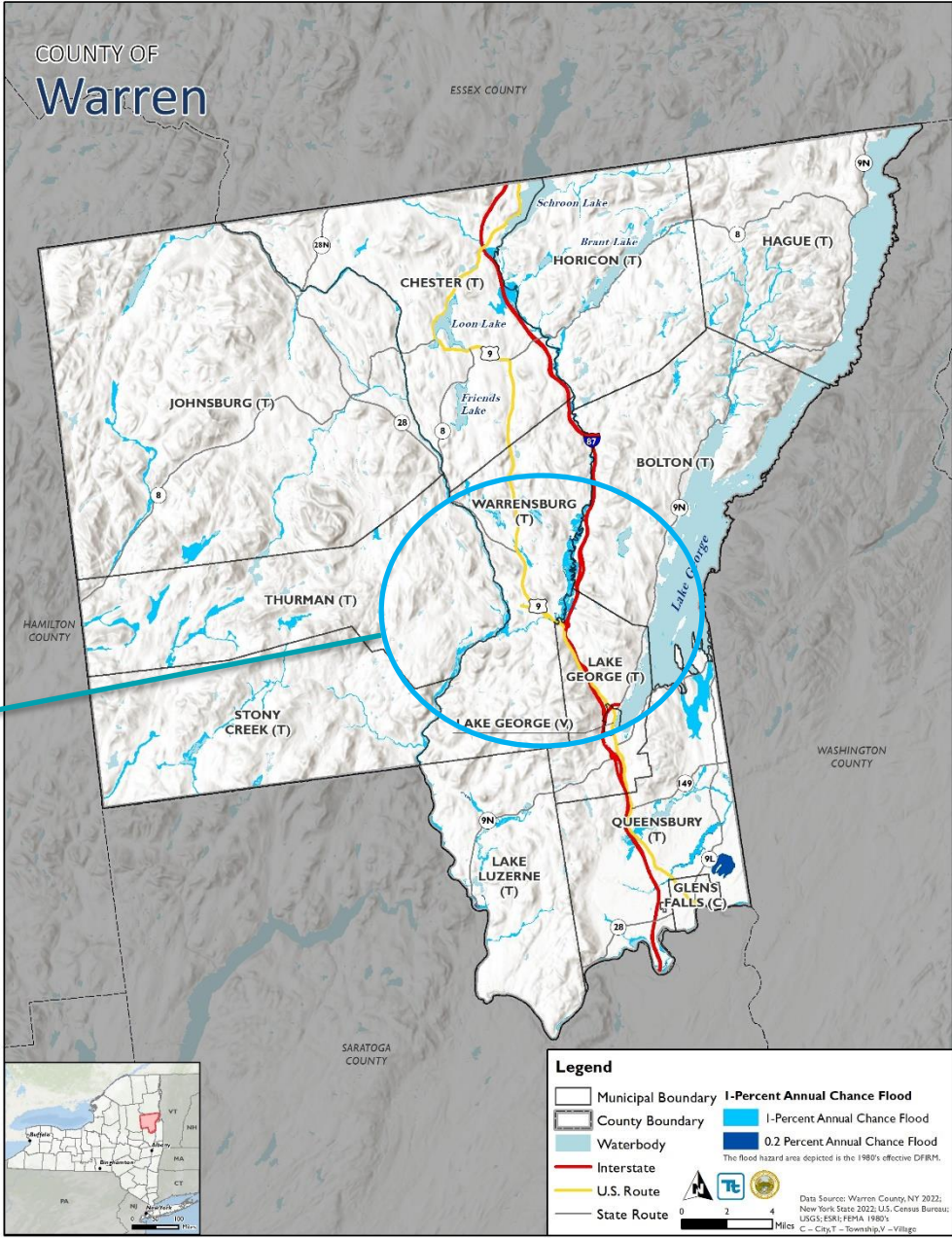
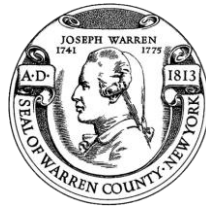


# Preliminary 2023 vs. 2017 Rankings (Flood)

Warren County Municipality	IMPACT ON POPULATION	IMPACT ON PROPERTY	IMPACT ON ECONOMY	RISK RANKING	RISK RANKING
	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Percent of Total Buildings in 1% Flood Area	Percent of Total GBS RCV	2023 Estimated	2017
Bolton (T)	6.5%	6.6%	6.5%	Low	Medium
Chester (T)	8.5%	8.2%	7.6%	Low	Medium
Glens Falls (C)	0.0%	0.1%	1.0%	Low	Medium
Hague (T)	7.1%	7.0%	3.2%	Low	Medium
Horicon (T)	5.2%	5.2%	7.2%	Low	Medium
Johnsburg (T)	2.3%	2.4%	3.8%	Low	Medium
Lake George (T)	2.6%	2.5%	1.0%	Low	Medium
Lake George (V)	0.2%	1.1%	1.2%	Low	Medium
Lake Luzerne (T)	6.5%	6.3%	3.6%	Low	Medium
Queensbury (T)	1.3%	1.4%	2.1%	Low	Medium
Stony Creek (T)	3.0%	3.2%	3.8%	Low	Medium
Thurman (T)	0.7%	0.8%	0.5%	Low	Medium
Warrensburg (T)	3.7%	3.9%	2.7%	Low	High
Warren County	2.1%	3.1%	3.0%	Low	Medium



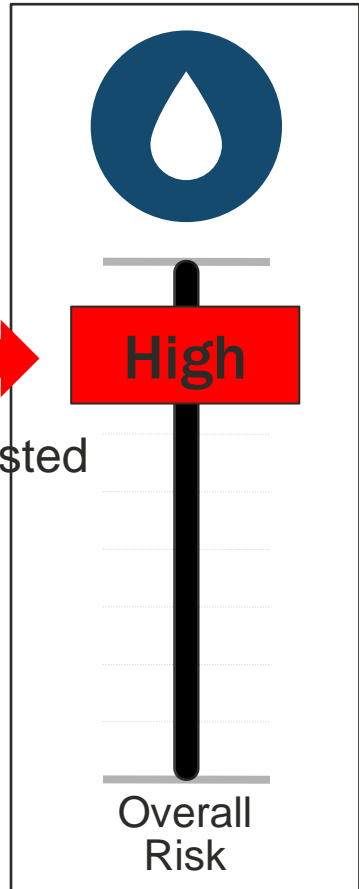
# Flood Hazard Areas







# Countywide Preliminary Risk Ranking: Dam Failure



**Probability of Occurrence: Rare**



**Impact on Population: High**

216 people in inundation areas



**Impact on Property: High**

254 buildings (0.6% of total County buildings) located in inundation areas



**Impact on Economy: High**

\$130 M Replacement Cost Value (RCV) (0.5% of County total RCV) in inundation areas



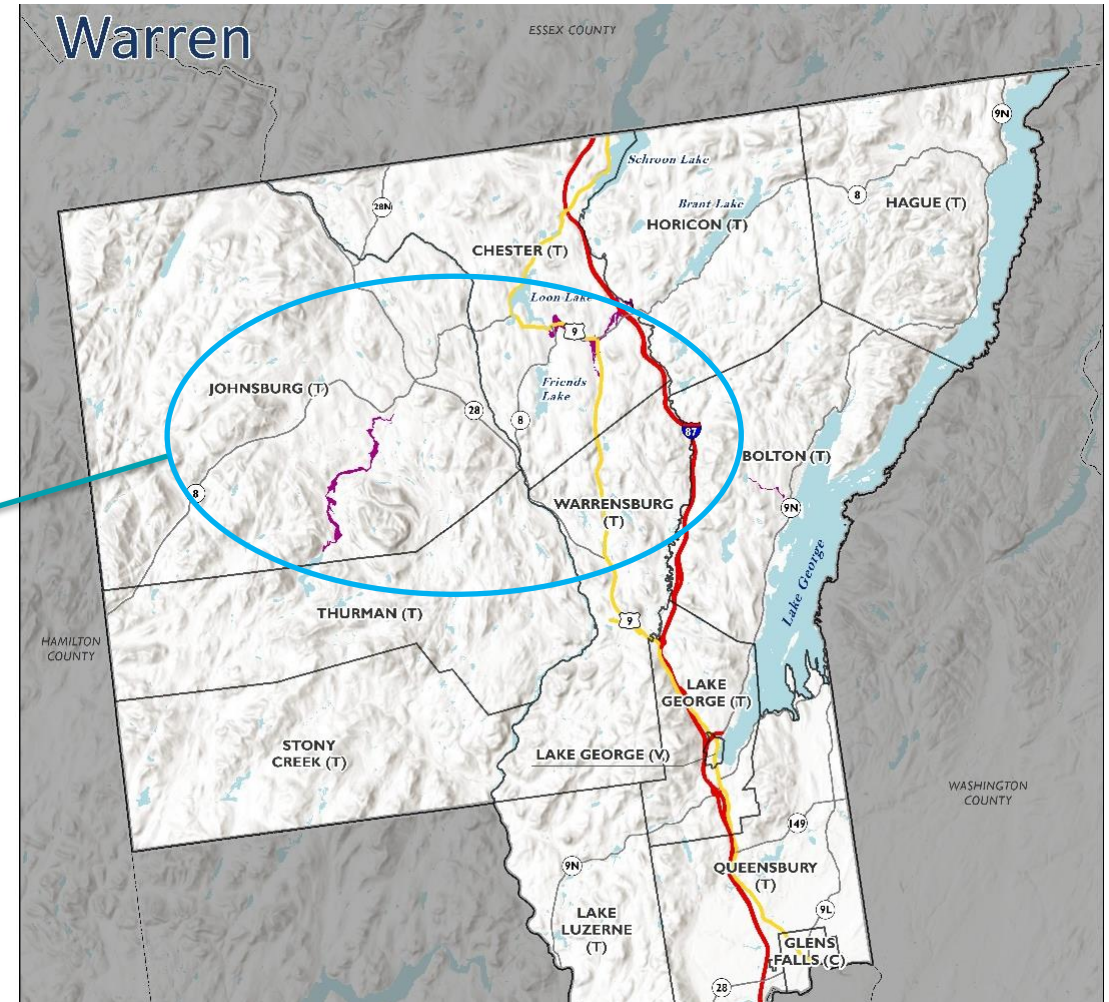
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Dam Inundation Areas







# Severe Storm

- Previous Events

- Hazard includes lightning, hail, and windstorms
- FEMA-DR-4472 (Severe Storms, Straight-line Winds and Flooding) – October 2019
- Between 2016 and 2022, Warren County was included in 1 FEMA severe storm-related declaration.
- According to the NOAA, 5 tornado events took place in Warren County between 1950 and 2022

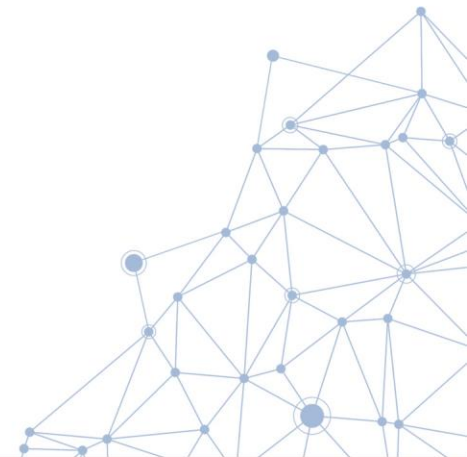
Warren County  
Ranking  
**HIGH**

- Exposure

- Population and property exposed to 100-year peak wind gusts (Tropical Storm-39 to 73 mph) and 500-year (Tropical Storm speeds)
- All people and property exposed and vulnerable

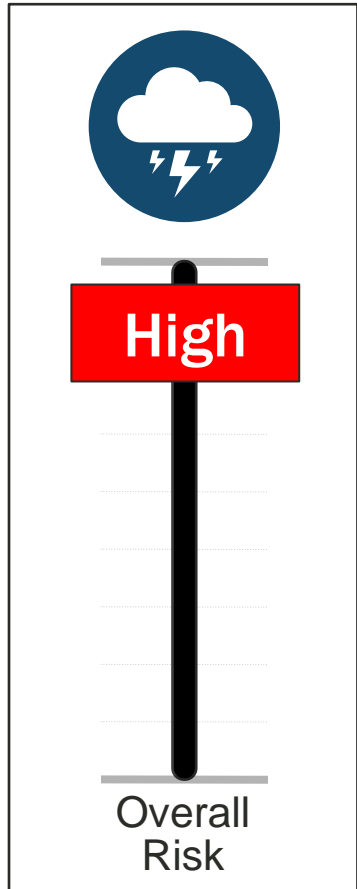
- Potential Impacts

- Power outages
- Critical facility and infrastructure damage





# Countywide Preliminary Risk Ranking: Severe Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable



**Impact on Economy: Low**

\$4.8 M (less than 1%) general building stock loss for a 500-year event



**Adaptive Capacity: High for all municipalities**



**Climate Change: High for all municipalities**



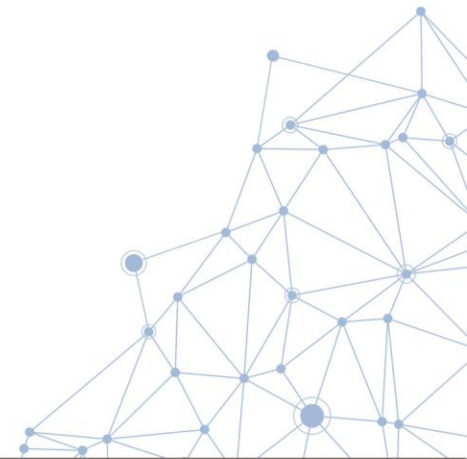


# Wildfire

- Previous Events

- The NYS HMP identified wildfire as a hazard of concern for New York State, however the daily probability of a wildfire event for the state is .09 percent.
- Warren County was included in one FEMA fire declaration; however, it was a manmade terrorist attack.
- According to the 2020 Warren County CEPA, the wildfire hazard is ranked medium.
- Exposure
  - People and property located in Wildfire Urban Interface WUI.

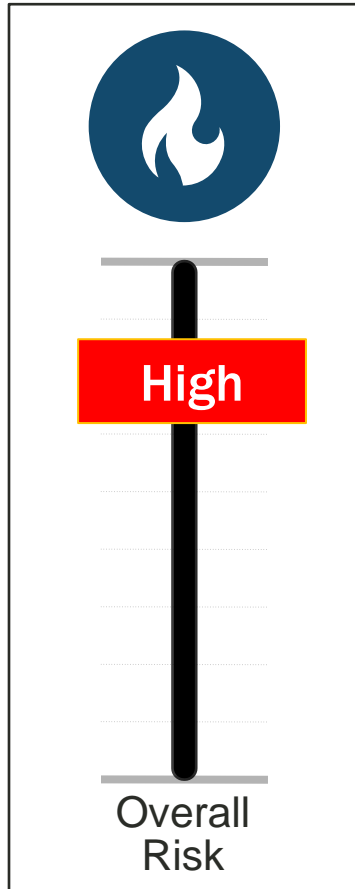
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Wildfire



**Probability of Occurrence: Occasional**



**Impact on Population: High**

44.4% of population exposed to the WUI Interface



**Impact on Property: High**

14,488 buildings (35.9 % of County total) exposed to WUI Interface



**Impact on Economy: High**

\$8.6M in RCV 35.4% of County total) exposed to WUI Interface



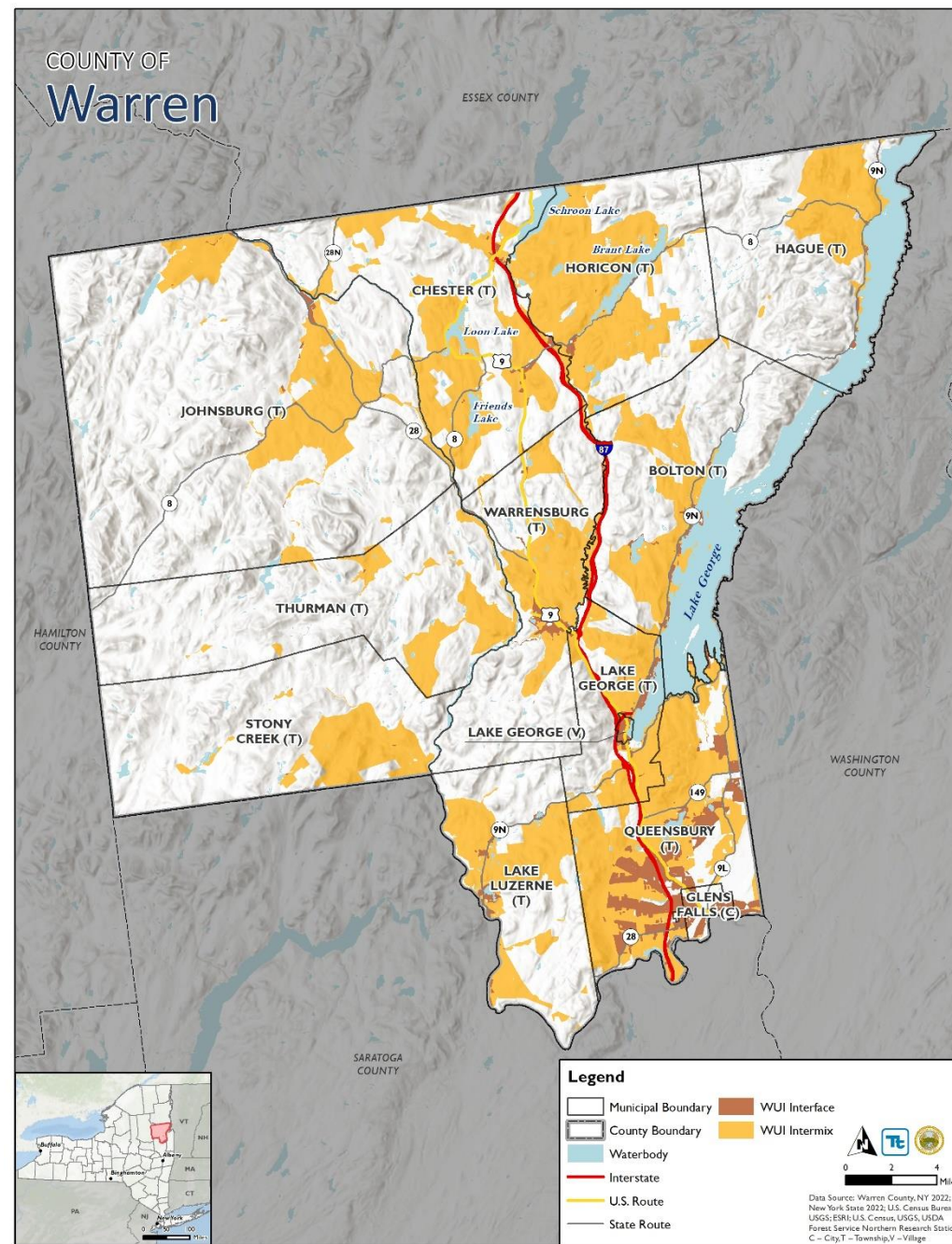
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Wildland Urban Interface/Intermix Area



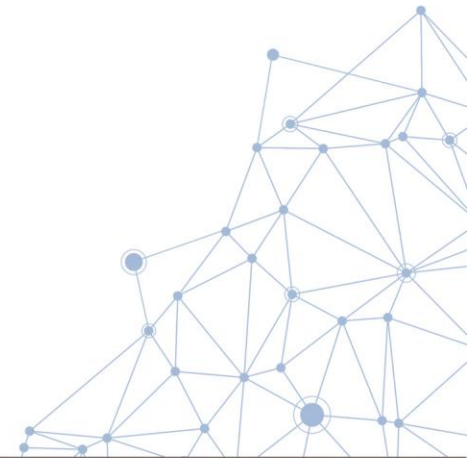




# Severe Winter Storm

- Hazard includes heavy snow, blizzards, ice storms
- Previous Events
  - FEMA included Warren County in one winter storm-related disaster declaration
    - FEMA-EM-3107 (Severe Blizzard) – March 1993
- Exposure
  - All people and property exposed and vulnerable
- Potential Impacts
  - Power outages
  - Critical facility and infrastructure damage
  - Transportation interruptions/accidents

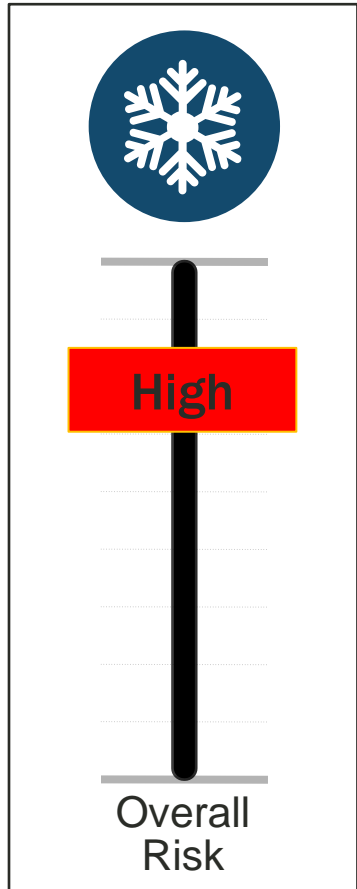
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Severe Winter Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable; however, impacts are minimal



**Impact on Economy: Low**

\$1.2M (5%) potential losses to building stock



**Adaptive Capacity: High for all municipalities**



**Climate Change: Medium for all municipalities**



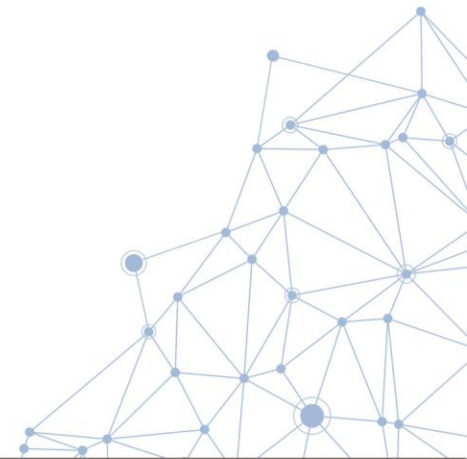


# Disease Outbreak/Pandemic

- Previous Events

- According to the 2020 Warren County CEPA, the pandemic hazard is ranked medium.
- The County has been impacted by the COVID-19 pandemic (DR-4480).
- The County has been impacted by various diseases (COVID-19, West Nile Virus, Lyme disease)
- Exposure
  - Entire County is exposed and vulnerable; however, not occurring multiple times a year with significant impacts
  - Severe events can lead to staffing and bed shortages in hospitals

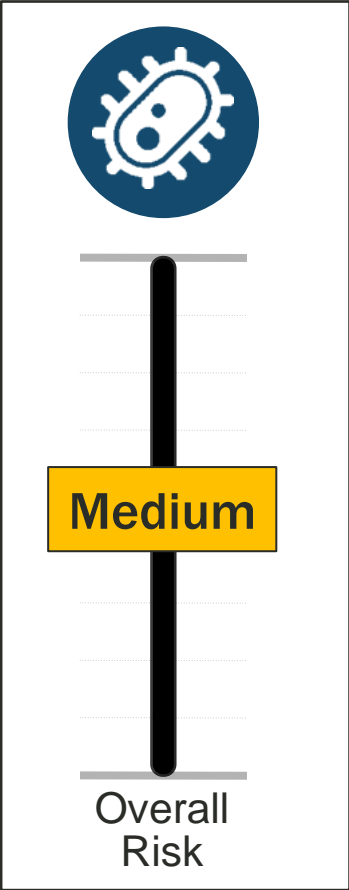
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Disease Outbreak



Probability of Occurrence: Occasional



Impact on Population: Medium

(14,754 County residents are 65+ years and 2,850 >5 years (26.8 % of County population)



Impact on Property: Low



Impact on Economy: Medium



Adaptive Capacity: Medium for all municipalities



Climate Change: Medium for all municipalities



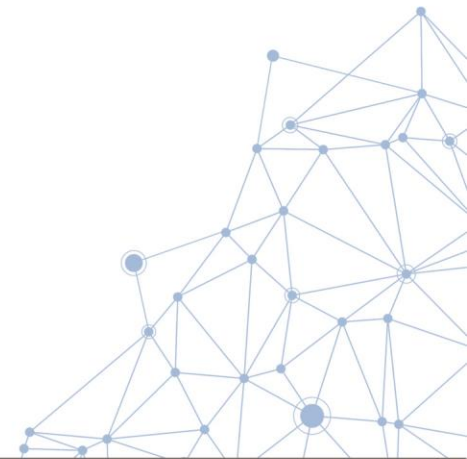




# Extreme Temperature

- Previous Events
  - Hot and cold events
- Exposure
  - Entire County is vulnerable
  - Increased vulnerability to populations at higher risk (65+ / <5 years old)
- Potential impacts:
  - Increased wildfire/brush fire risk
  - Impacts to agriculture/farms
  - Long-periods of warm temperatures can lead to drought conditions

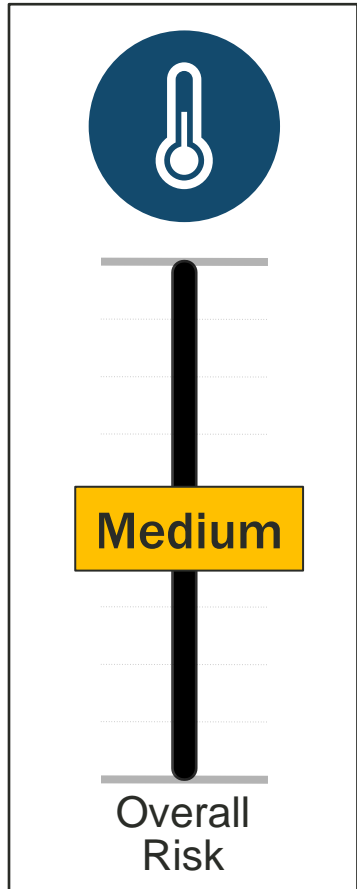
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Extreme Temps



**Probability of Occurrence: Occasional**



**Impact on Population: Medium**

17,604 County residents are 65+ years old or >5 years (26.8% of County population)



**Impact on Property: Low**



**Impact on Economy: Medium**



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**





# Infestation and Invasive Species

- Previous Events

- Beaver Dam Failure, March 2022
- Hemlock Woolly Adelgid, Lake George, 2017
- Emerald Ash Borer (EAB), Shroon River, 2022

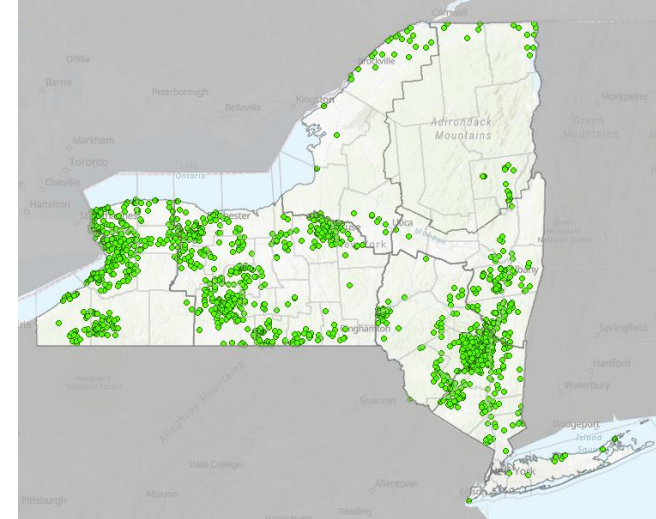
- Exposure

- Entire County is vulnerable

- Potential impacts:

- Soil destabilization
- Increased wildfire risk
- Impacts to agriculture/farms

Warren County  
Ranking  
**MEDIUM**

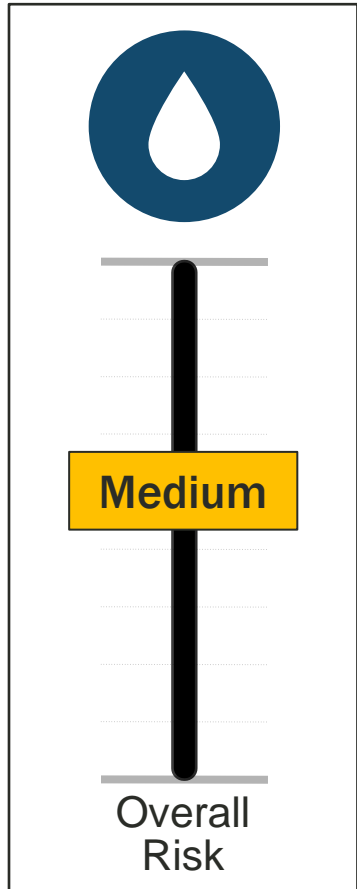


EAB – Source: New York Invasive Species Network 2019





# Countywide Preliminary Risk Ranking: Infestation



Probability of Occurrence: Occasional



Impact on Population: Medium



Impact on Property: Medium



Impact on Economy: Medium



Adaptive Capacity: Medium for all municipalities



Climate Change: High for all municipalities







# Next Steps

- Update Risk Assessment
  - Prepare results to present to planning partners
  - Populate adjusted results municipal annexes
  - Planning Partnership Risk Assessment Meeting: February 15, 2023
  - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

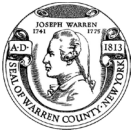
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #4 – AGENDA**  
**MEETING DATE/TIME: March 8, 2023 – 10:00 am**



- Welcome
- Progress Report
- Pending Action Items
- Public and Stakeholder Outreach
- Other Items
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	March 8, 2023, 10:00 am

## Attendees:

Ann Marie Mason	Director, Warren County Office of Emergency Services (OES)
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Dan Barusch	Town/Village Lake George, Planner
Ashley Rivers	Warren County Office of Emergency Services
John Gibb	Contingency Management Consulting Group
Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Don Lehman	Warren County Public Information Officer
Sandra LeBarron	Director of Environmental Health and Safety, Finch Pruyn
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to provide a brief progress report and address pending action items.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation.</li> <li>The process continues to be on track for plan submittal to FEMA in August 2023.</li> <li>The majority of data to support the hazard mitigation plan (HMP) development has been received, with the receipt of the National Flood Insurance Program (NFIP) data pending processing by FEMA.</li> </ul>	
2	<b>Progress Report</b> <ul style="list-style-type: none"> <li>Risk Ranking worksheets due today. To date the communities that have submitted include: <ul style="list-style-type: none"> <li>Town of Lake George</li> <li>Village of Lake George <ul style="list-style-type: none"> <li>Town of Hague - In progress</li> <li>Town of Lake Luzerne - Requested clarification and noted worksheets in progress</li> <li>Town of Chester - Complete and awaiting supervisor review</li> <li>Town of Queensbury - In progress</li> </ul> </li> </ul> </li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>• Assistance offered to the following communities via Mr. John Gibb:<ul style="list-style-type: none"><li>○ Town of Chester</li><li>○ Town of Glens Falls</li><li>○ Town of Horicon</li><li>○ Town of Johnsburg</li><li>○ Town of Queensbury.</li></ul></li></ul>	
3	<p><b>Pending Action Items</b></p> <ul style="list-style-type: none"><li>• High Hazard Dam Information. Warren County OEs confirmed that dam inundation areas will be deemed confidential information and available at the Office of Emergency Services on an as needed basis.</li><li>• Collection of localized flooding information. Warren County SWCD, OES, and GIS affirmed that the collection of localized flood impacts will be a collaborative mitigation action to be included in the hazard mitigation plan.</li><li>• Receipt of National Flood Insurance information. Warren County OES confirmed that FEMA has provided this information. This will be incorporated into the hazard mitigation plan to assist with the identification of mitigation strategies.</li><li>• Surveys targeting the public, neighboring counties, agencies, and businesses are live and will be used to provide additional input to the plan to support the identification of mitigation actions. Warren County PIO will perform another media blast to support a robust response to the surveys. To date sixty-nine responses have been received for the public survey. This represents an 87% completion rate with an average of 9 minutes to complete the survey. Respondents identified thirty areas vulnerable to hazard of concern.</li><li>• Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>• The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>• Tetra Tech reminded steering committee members to access the project OneDrive site to review draft plan sections and to provide input, as necessary.</li></ul>	<p>Warren County Public Information Officer to</p> <p>Tetra Tech to analyze NFIP data for inclusion in the HMP process and plan.</p>
6	<p><b>Upcoming Meeting</b></p> <ul style="list-style-type: none"><li>• Mitigation Strategy Workshop – March 15, 2023 (<i>Optional for Steering Committee members not affiliated with a municipality.</i>)</li></ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



7	<b>Next Steps</b> <ul style="list-style-type: none"><li>• Populate adjusted results municipal annexes</li><li>• Planning Partnership Risk Assessment Meeting: February 15, 2023</li><li>• Continue to engage the public</li><li>• Work with the municipalities to develop mitigation strategy/actions</li><li>• Mitigation Strategy Workshop with FEMA and NYSDHSES – <b>March 15, 2023</b></li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 10:38 am.	





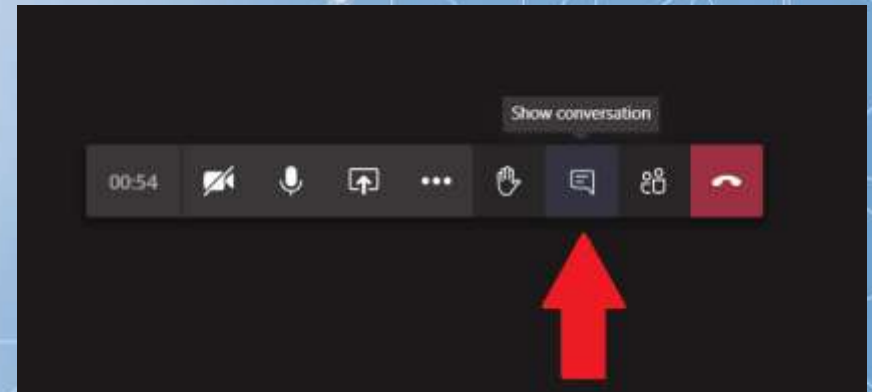
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Steering Committee #4 Meeting | March 8, 2023 | 10:00 – 11:00 AM

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*





# Agenda

- Welcome
- Progress Report
- Pending Action Items
- Public and Stakeholder Outreach
- Other Items
- Next Steps/ Questions/ Wrap Up

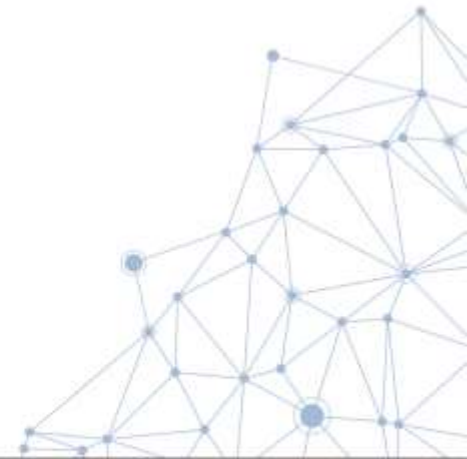






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ✓ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | May 2023                | Review draft plan                                    |
| ☐ | July/August 2023        | Submit plan to NYSDHSES and FEMA                     |

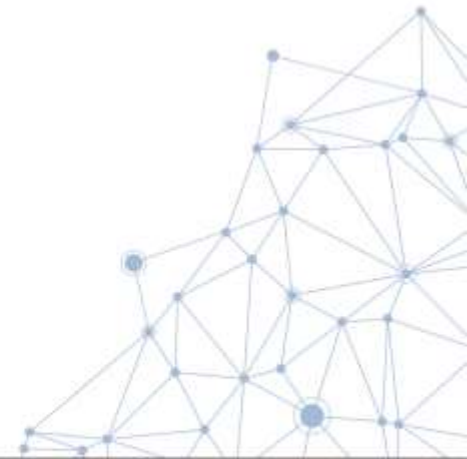






# Progress Report

- Requested NFIP Data – *Data pending*
- Risk Ranking Worksheets due today.
  - To date these communities have submitted:
    - Town of Lake George
    - Village of Lake George
    - Town of Hague
  - In progress
    - Town of Lake Luzerne asked for clarification and noted worksheets in progress
    - Town of Chester, complete and awaiting supervisor review
    - Town of Queensbury, in progress
  - Assistance offered via Mr. John Gibb to:
    - Town of Chester
    - Town of Glens Falls
    - Town of Horicon
    - Town of Johnsbury
    - Town of Queensbury

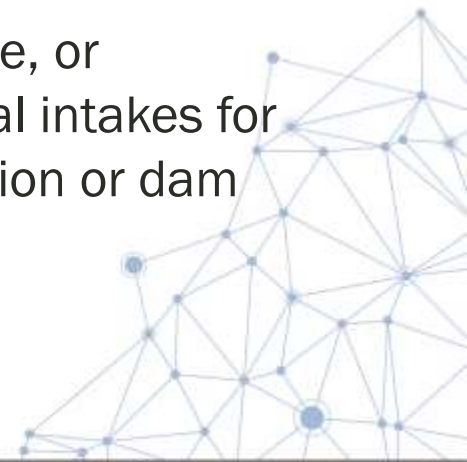






# Pending Action Items

- Pending action items:
  - Emergency Services to review the level of detail provided to the public regarding dam inundation areas.
  - Emergency Services, County GIS and SWCD to consider options to collect and map localized flood areas.
  - NFIP information receipt
- Information Request
  - Input regarding history of damages for disease outbreak, extreme heat, dam failure, or infestation hazards is requested. Examples include data/metrics regarding hospital intakes for related illnesses, impacts on workforce, or localized information regarding infestation or dam failure.



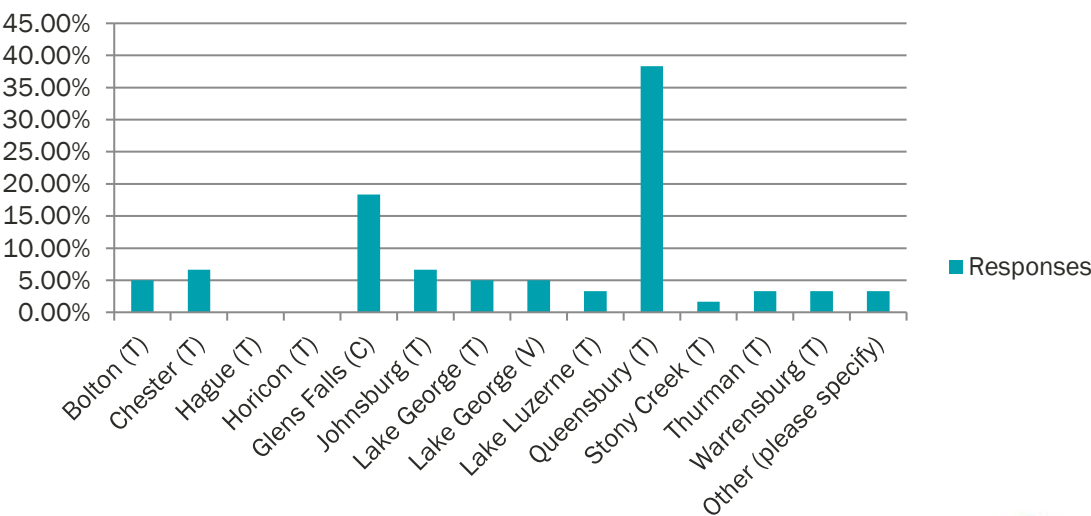




# Public Survey Results

- 69 Responses
- 87% Completion Rate
- 9 Minutes to Complete (Avg)
- ~30 identified vulnerable areas/items

Please indicate the municipality in which you live:



County streets Lake property Glens Falls Rd water due Road River  
flood drainage trees Hudson River None ice

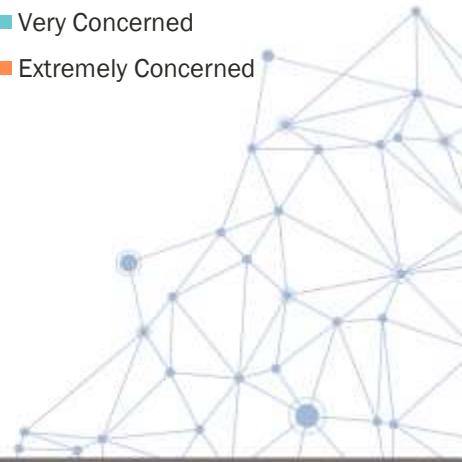
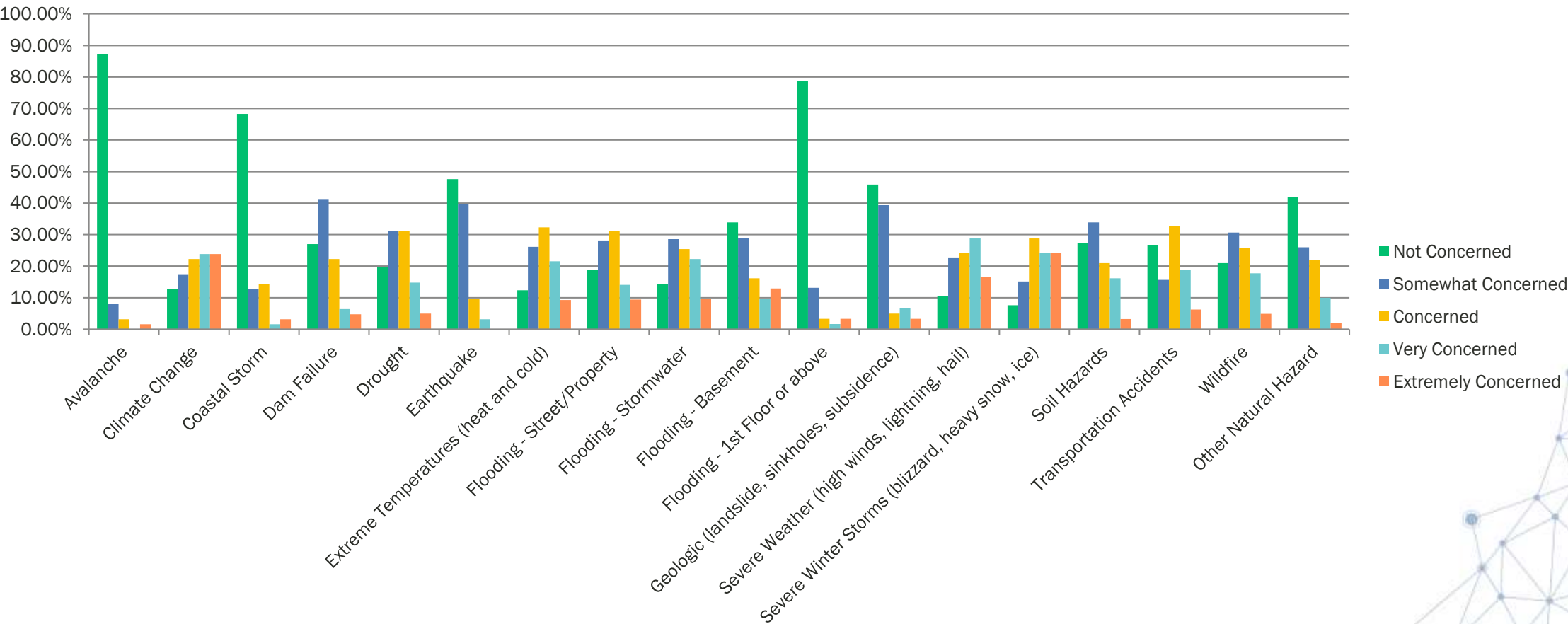






# Public Survey Results - Hazard Concerns

How concerned are you about the following hazards in Warren County? Please check one for each hazard.







# Problem Areas

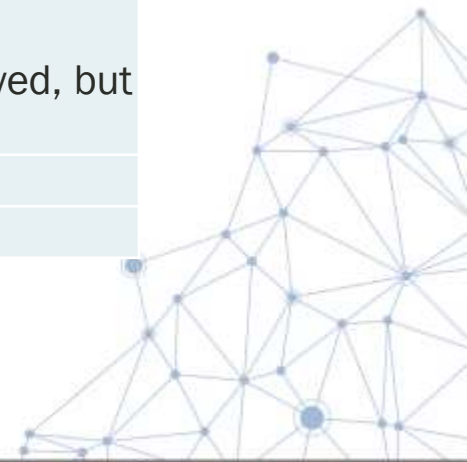
- Prone to power outages from trees on lines
- General back-up power, snow/ice blockage on highways
- Floodprone area on Meadowbrook Road @ Halfway Brook
- Low water levels in Kattskill Bay Lake George due to water management practices
- Apartment building for disabled and retired with all electric heat. No on demand generator. Located at 10 Manor Rd.
- 13th Lake Road, North River. The gabion walls are pushed out and look like they will give at any time. Also rocks fall in the middle of the road all the time.
- Flooding - 9N S/Hidden Valley Drive (Tubby Tubes-Lake Luzerne, NY 12846), due to a sewer drain that doesn't handle all the water, causing back up and ice/danger in winter. Trees down in my property from recent high winds (1275 Lake Avenue, Lake Luzerne, 12846)
- Water Tank control panel without power backup
- Ice jamming on Hudson River at 418 Bridge. Flooding on River Road
- Lake George sewage treatment plant has minimal security and is vulnerable to walk up attacks on infrastructure.
- Numerous roads and stream crossings could be subject to flood/storm damage.
- East End in Glens Falls is known for being a high water table area
- North Bolton Road at the foot of Church Hill Road is continually flooded due to the road having been raised several years ago. Raising the road removed all drainage possibilities and County officials refuse to do anything to correct the problem.
- Storm Drainage system that runs down the Lakeview Circle drive in the town of lake George and crosses Lake Shore Dr in the town of lake George and continues down to the lakefront between the Fairview Improvement association property and the lake view terrace property.
- Lack of municipal sewer and water
- Poor drainage for city streets (most streets in Glens Falls); raw sewage releases into the Hudson River (sometimes even if it only rains briefly); Poor tree maintenance causes downed branches in the high winds we now get for many months of the year.
- My road is collapsing into a stream. Many dead trees along the road. So called protected land around the watershed is not protected or monitored
- C/Glens Falls flood prone streets. Warren St, Mohican St, CR 19 T/Chester. SR 418 bridge & River Rd, Barton Mines RD Johnsburg
- Loon Lake Dam, Rt 8/9, Chestertown
- ZERO fragrance-free emergency shelters! Acute respiratory response / reactive airways when exposed for perfumes, scented products (ubiquitous), etc. ALSO: FEMA Flood Map makes ZERO sense! Unable to determine if my address is - or is not - in a flood plain: Fredella Avenue, Glens Falls, NY.
- Hudson River Basin Lake Luzerne to Corinth
- We have experienced power outages for as lengthy as 5 days. being on a deep well, the outage not only effects our lights and heat, but water as well.





# Problem Areas

- Queensbury - Halfway Brook Area/flooding  
Warrensburg - Schroon River Area/flooding  
Chester & Horicon - Schroon River Area/flooding
- Meadowbrook rd, Qby - Flooding
- Lakeview Circle Drive Town of Lake George
- GFWWTP releasing sewage into Hudson after every heavy rainstorm.  
Inadequate storm drainage on streets
- Still ZERO fragrance-free emergency shelters - I would not be able to survive in an emergency shelter due to respiratory distress when exposed to fragranced / scented products (body, laundry, cleaning, etc.)
- Power cybersecurity concern
- Flooding of the Hudson River in the spring occasionally that affects the State rt. 28 between North Creek and North River, and includes part of the town North Creek at the train station where Teddy Roosevelt learned McKinley had died from his wound, and he was now President. The historic Train station has been preserved, but flooding of the Hudson in the spring has caused concern a number of years in the past ten.
- Thurman bridge
- Downtown Warrensburg from Schroon River flooding








# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/ Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours

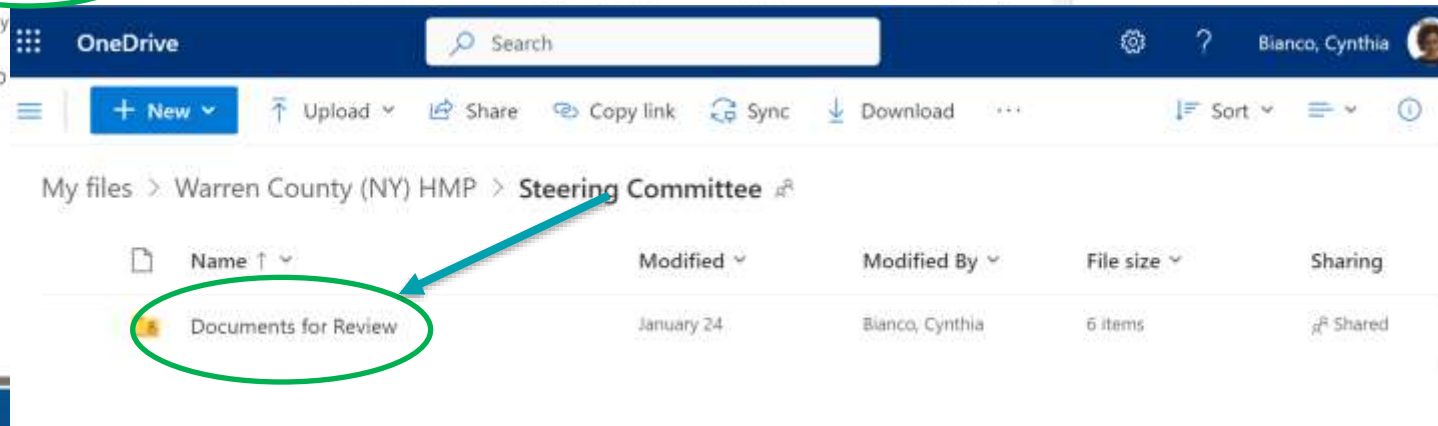
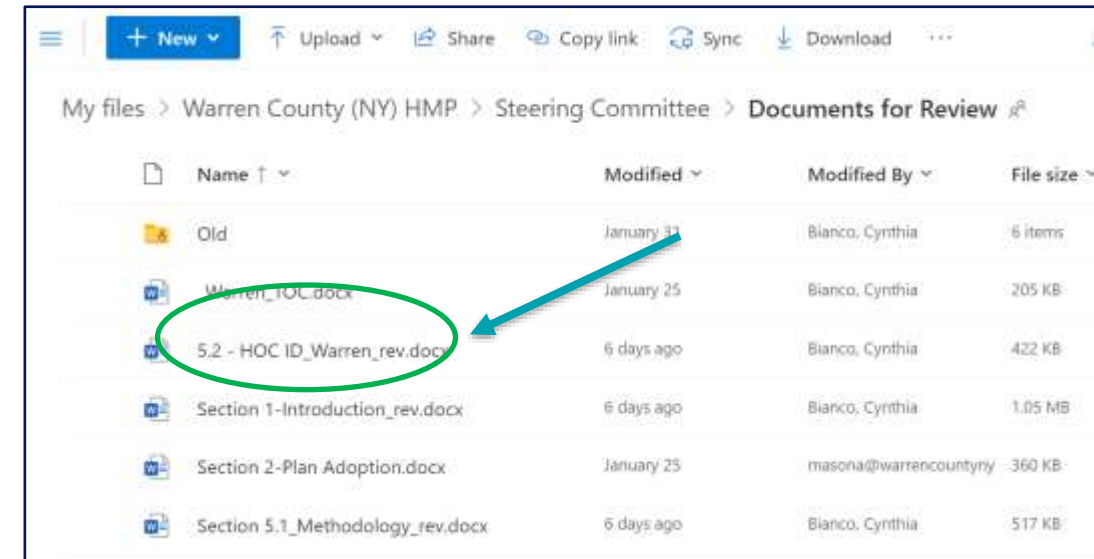
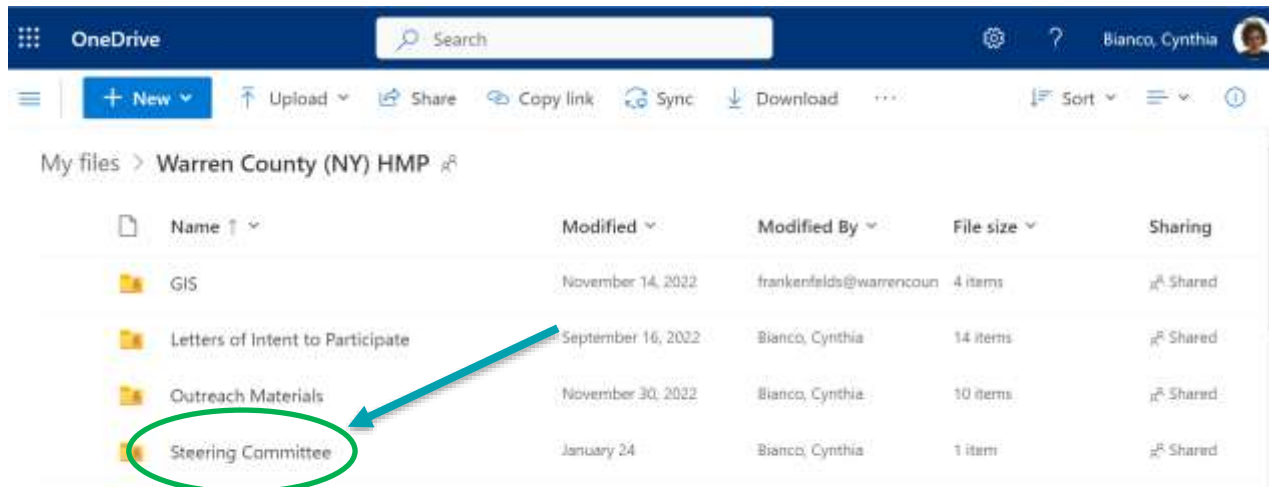






# Document Review on Sharepoint

- Access for document review
- Review in “desktop app” in track changes







# Next Steps

- Update Risk Assessment
  - Populate adjusted results municipal annexes to support project identification
  - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Purpose of Meeting:	Mitigation Strategy Workshop
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	March 15, 2023, 10:00 am
Attendees:	
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ann Marie Mason	Director, Warren County Emergency Services
Jessica Leerkes	Engineer, Town of Chester
Dan Barusch	Town/Village Lake George, Planner
Keith Lanfear	Village of Lake George
Craig Leggett	Supervisor, Town of Chester
Tammie DeLorenzo	Assistant to the County Administrator, Warren County
Michael Geraci	Supervisor, Town of Horicon
Khristopher Kassay	Town of Lake Luzerne
Karen Putney	Town of Lake Luzerne, Zoning Officer
James Hull	Code Enforcement Officer, Town of Warrensburg
Ernie Dunkley	Safety Officer, Town of Johnsbury
Danae Tucker	Town of Johnsbury
John Strough	Supervisor, Town of Queensbury
Laura Moore	Planner, Town of Queensbury
Mindy Conway	Town Clerk, Town of Chester
Betsy Parmerter	NYSDHSES
Elizabeth O'Reilly	NYSDHSES
Edna Frasier	Supervisor, Town of Hague
Cathy Clark	Town of Hague
Sheila Mender	City of Glens Falls
Don Lehman	Warren County Public Information
Kevin Clapp	NYSDHSES
John Gibb	CMCG
Roland Paperman	NYSDHSES
Laura Stebbins	Glens Falls
John Wilkerson	NYSDHSES
Paul Hoole	FEMA
Ethan Gaddy	Warren County
Chris Huch	Tetra Tech, Inc.
Cynthia Addonizio-Bianco	Tetra Tech, Inc.





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Agenda Summary: Purpose to provide guidance on identifying mitigation actions and developing a mitigation strategy		
Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"><li>Meeting started at 10:05 am</li><li></li></ul>	
2	<b>In-Kind Services Tracking/Outreach</b> <ul style="list-style-type: none"><li>Mr. Lieberum reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>Warren County reminded municipalities to submit documentation of in-kind hours to support the obligations related to the planning grant funding.</li><li>The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li></ul>	Action: Submit documentation of hours spent supporting the mitigation planning process, including hours spent to provide data, review documents, provide updates to communities.
3	<b>Developing Mitigation Strategies</b> <ul style="list-style-type: none"><li>Tetra Tech reviewed risk reduction strategies as included in the presentation (attached).</li><li>Regarding mitigation project details, in addition to the mitigation project matrix, Tetra Tech recommends at least two action worksheets for grant eligible projects. If a community has repetitive or severe repetitive loss properties, these should be addressed with an action worksheet.</li><li>Tetra Tech distributed brainstorming worksheets to kick-start the development of problem statements. In addition, they provided all communities with pre-populated Action Worksheets for some initial projects.</li></ul>	
4	<b>Development of Actions and Action Worksheets.</b> Tetra Tech reviewed the following guidelines for the content of Action Worksheets: <ul style="list-style-type: none"><li>Projects should have a strong connection to the risk assessment</li><li>Projects should be specific in time, place, and location</li><li>Projects should be diverse in nature</li><li>Communities have been provided a Mitigation Catalog</li><li>Project descriptions to include consideration of priorities, integration with existing programs, timelines, benefits, and costs•</li></ul>	
5	<b>Next Steps</b>	Schedule a support meeting with Tetra Tech to complete your community annex.





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>• To enable those who could not participate, a video of the presentation is available online for review here: <a href="#">Warren County Mitigation Workshop Video</a></li><li>• Continue to engage the public</li><li>• Develop mitigation strategy/actions: <b>March 2023</b></li><li>• Email <a href="mailto:chris.huch@ttratech.com">chris.huch@ttratech.com</a> to schedule a support meeting with Tetra Tech to complete your community annex.</li></ul>	
6	<b>Conclusion</b> - The meeting concluded at 11:14 am.	





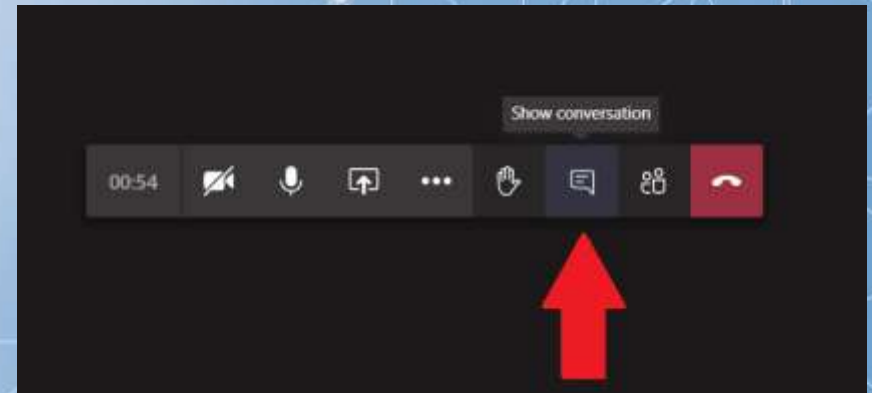
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Mitigation Workshop | March 15, 2023 | 10:00 – 11:30 AM

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*







# Agenda

1. Introductions
2. In-Kind Tracking Reminder
3. Hazard Mitigation Refresher
4. Project Status
5. Developing Mitigation Strategies – NYS DHSES, FEMA
6. Updating Previous Actions
7. Using Mitigation Development Worksheets to Select Your Actions
8. Action Worksheets
9. Next Steps







# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/ Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

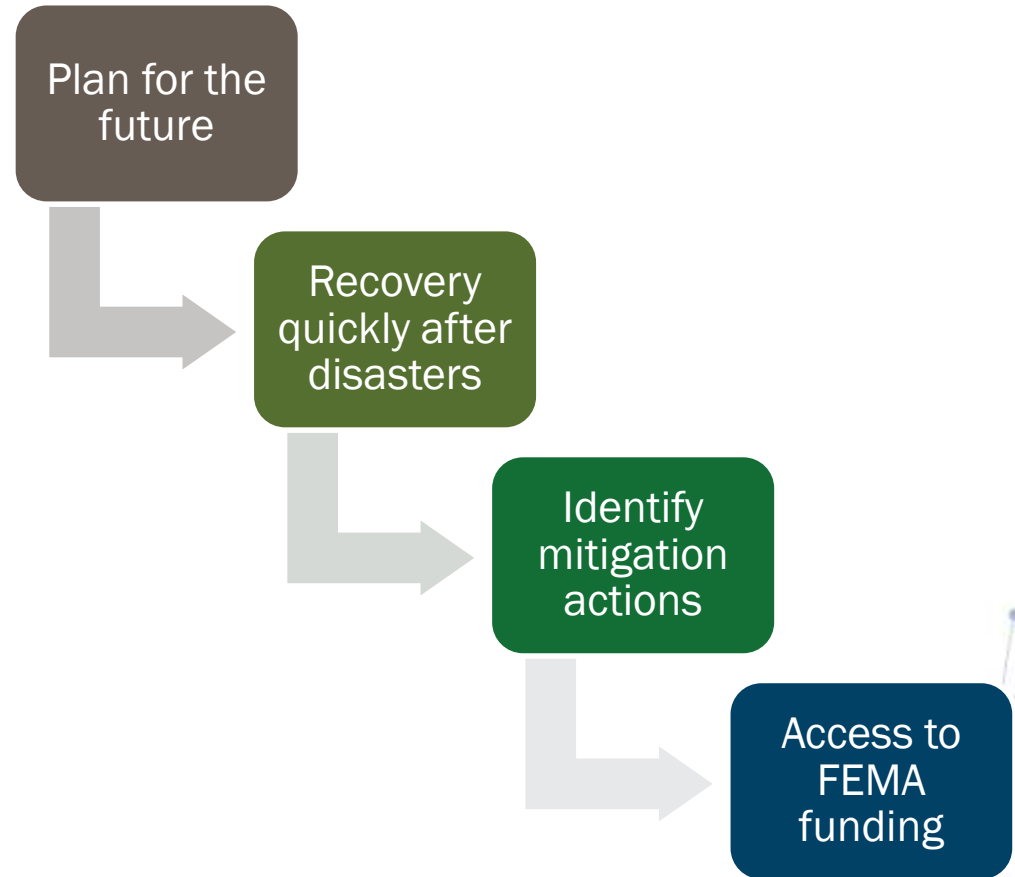
Date

# Hours





# Hazard Mitigation – What is it?







# Why are we spending valuable time on this?

## Hazard Mitigation Works!

- For every \$1 spent on hazard mitigation, saves the U.S. \$6 in future disaster costs!
- More than just money – it could prevent 600 deaths and 1 million non-fatal injuries!

**More Mitigation Measures,  
More Savings**



**One dollar invested in mitigation =  
six dollars U.S. saves in future costs**

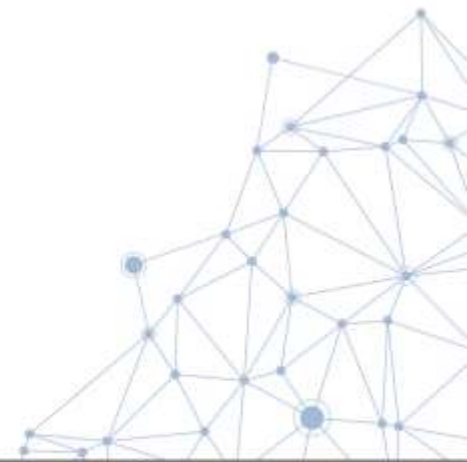






# Our Schedule

Task	Date
Data Collection	Complete
Update Hazard Profiles	Complete
Risk Assessment	Complete
Risk Results Presentation	Complete
Mitigation Strategy Workshop	March 15, 2023– TODAY!
Review Draft Plan	May 2023
Public Review of Plan	June/July
Submit to NYSDHSES	July/August
Submit to FEMA	September/October 2023

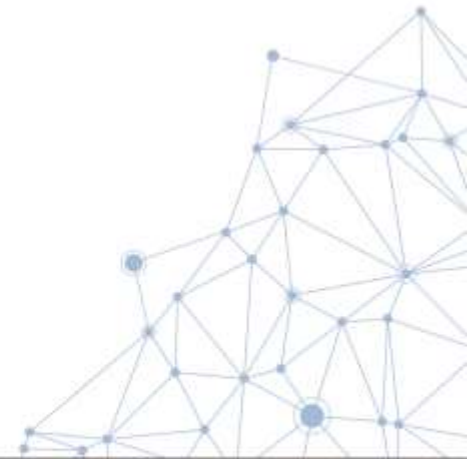
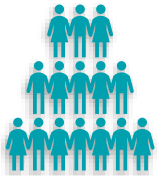






# Public Outreach and Engagement

- Check out the HMP website - <https://www.warrencountynewyorkhmp.com/>
- Post links on social media and department/agency websites
- Citizen, stakeholder and neighboring county surveys distributed, as of 3/10/23:
  - Citizen Survey: 71 responses
  - Stakeholder Survey: 9 responses
  - Neighboring County Survey: 1 response
  - *All responses relating to your jurisdiction are included in your updated Annex*





# Mitigation Strategy







# 2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- Dam Failure
- Infestation and Invasive Species
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire

*A community must include at least one mitigation action for each hazard that is deemed to have a significant impact on the community.*

*For hazards with minimal or no perceived impact to a community, a statement must be included in the annex to indicate why the community has not address any hazards with a mitigation action.*



# Risk Reduction Examples

## To Reduce Risk:

- *Manipulate the Hazard:*
  - Structural flood control
- *Reduce/Eliminate Exposure:*
  - Property acquisition
- *Reduce Vulnerability:*
  - Retrofit existing structures
- *Increase Capability:*
  - Preparation, technical assistance, planning, enforcement







# Using your Mitigation Strategy to Reduce Risk

- What is a *Mitigation Strategy*?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
- Terms to describe the *Mitigation Strategy* include:
  - *Mitigation Action Plan or Action Plan*
  - *Mitigation Projects or Initiatives or Actions*

Your Mitigation Strategy table is included in your annex of the plan.  
**TWO of your actions must be detailed on Action Worksheets**





# FEMA Mitigation Action Types



**Plans and regulations** include government authorities, policies, or codes that encourage risk reduction, such as building codes and state planning regulations. This may also include planning studies.



**Structure and infrastructure projects** involve modifying existing structures and infrastructure or constructing new structures to reduce the impact of hazards.



**Natural systems protection projects** minimize losses while also preserving or restoring the function of natural systems.



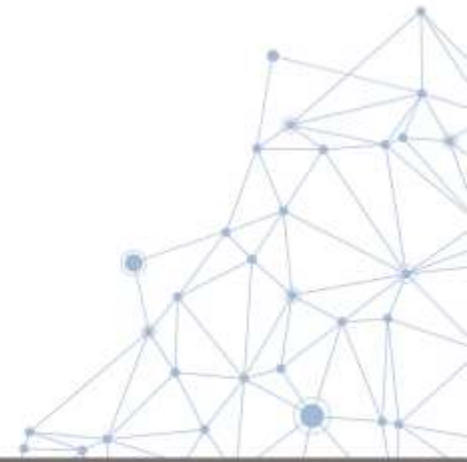
**Education and awareness programs** include long-term, sustained programs to inform and educate citizens and stakeholders about hazards and mitigation options. This category could also include training.





# NYS Requirements for Mitigation Strategy Update

- Need to develop at least 2 Action Worksheets
- If jurisdiction has a regulatory floodplain then one worksheet must address flooding
  - [if the jurisdiction has Repetitive and Severe Repetitive Loss Properties - it is good practice to include action with details (street or neighborhood names)]
- Critical facilities in the 100-year floodplain – must be protected to the 500-year flood event
  - If already protected, we must note how
  - If not protected, a mitigation action must be developed
- Plan for Climate Change and propose actions to address

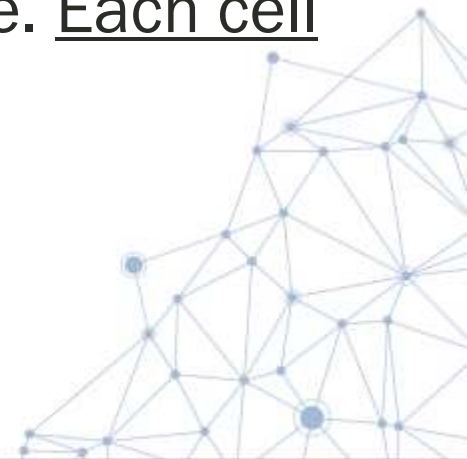






# NYS Requirements for Mitigation Strategy Update

- Proposed actions MUST have specific information identified including:
  - Project lead
  - Estimated cost
  - Timeline
  - Whether the action involves a critical facility
- All required items are identified within the proposed action table. Each cell of the table MUST be filled out!

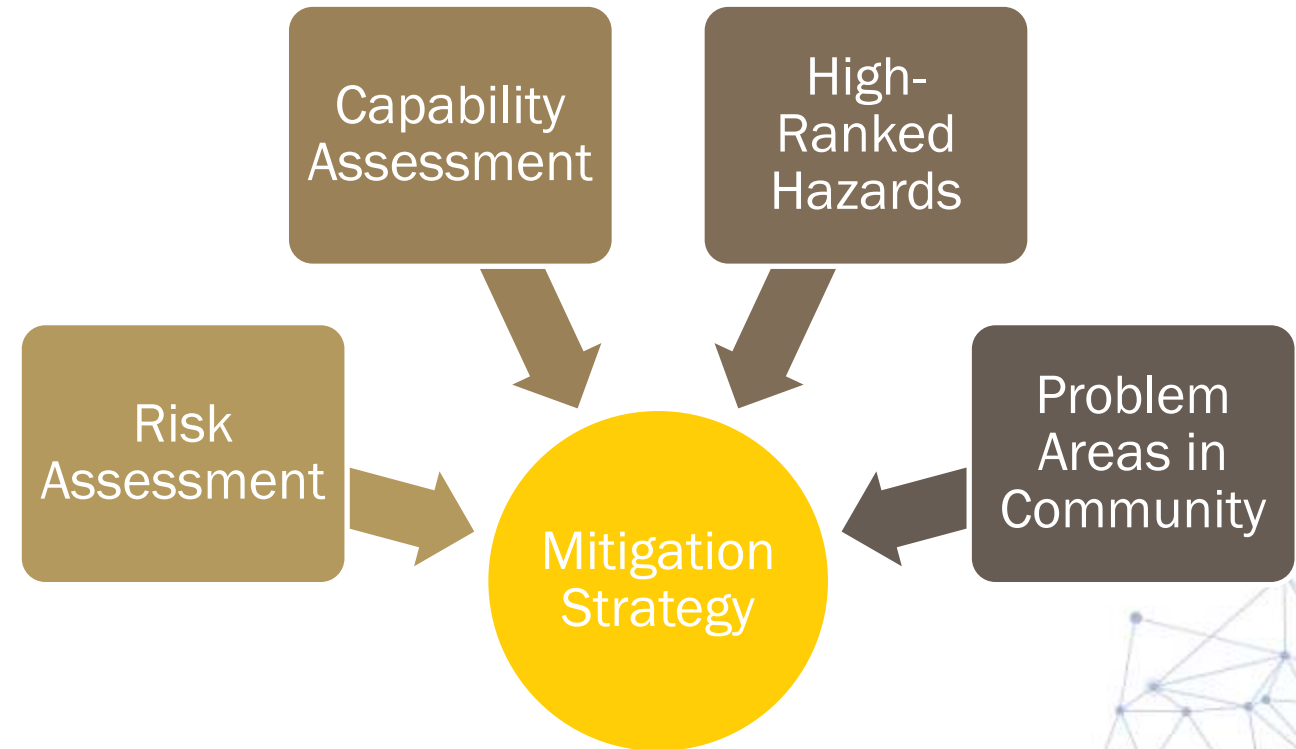






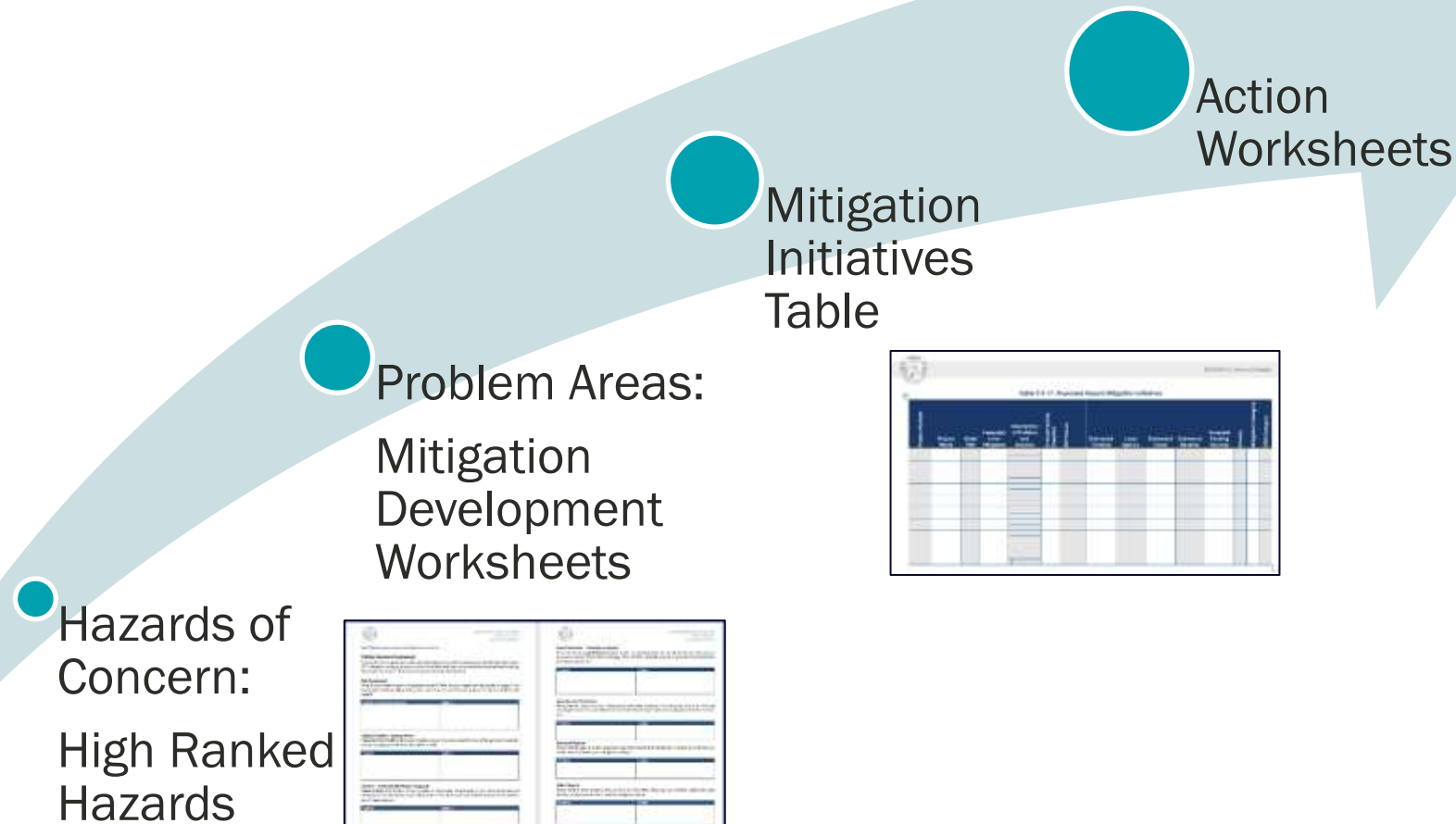
# Connecting to the Mitigation Strategy

- Need a clear connection between vulnerability and proposed mitigation actions.
- Capability assessment provides insight into challenges/opportunities for the mitigation strategy as well.
- Provides the factual basis for activities proposed in the mitigation strategy.





# The roadmap to a strong mitigation strategy



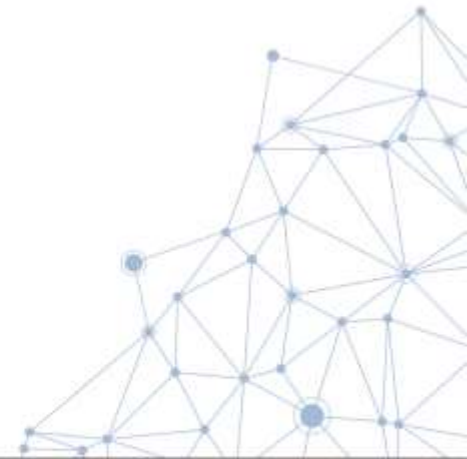
Action Worksheet			
Project Name:			
Project Number:			
Hazard(s) of Concern:		Risk / Vulnerability	
Description of the Problem:			
Description of the Solution:		Action or Project Intended for Implementation	
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	Estimated Benefits	(Issues avoided):	
Useful Life:	Goals Met:		
Estimated Cost:	Mitigation Action Type:		
Prioritization:	Desired Timeframe for Implementation:		
Estimated Time Required for Project Implementation:	Potential Funding Source:		
Responsible Organization:	Local Planning Mechanisms to be Used in Implementation if any:		
Three Alternatives Considered (Including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# What are we focusing on for our mitigation strategy?

- Stronger connection between the risk assessment and mitigation strategy
  - At least one action is needed to address each hazard of concern
- More specific actions
  - Specific projects, in specific locations, in a specific timeframe
- Diverse actions
  - Include a variety in the types of actions

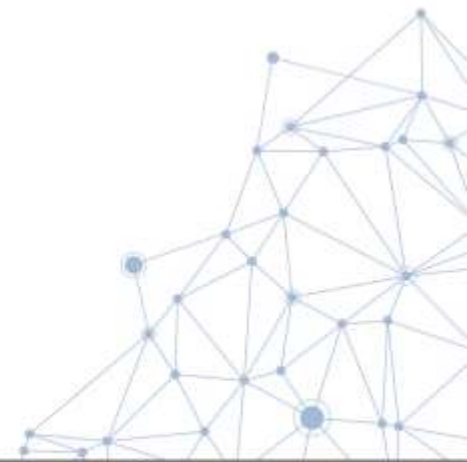






# Update the Mitigation Strategy

- Review our Goals and Objectives
- Start with Problems (many identified on your Worksheets)
  - Areas that have been impacted by hazard events
  - Recurring issues
  - Critical/Lifeline facilities in the floodplain
  - RL/SRL properties need mitigating
  - Evacuation routes and sheltering needs



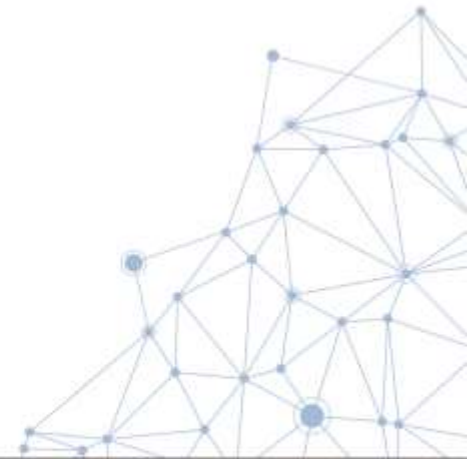




# Update the Mitigation Strategy

- Identify New Mitigation Actions/Projects
- Modify 'Carry-Over' projects from the previous HMP -more specific or address different aspect of original problem

## Quality Over Quantity!!





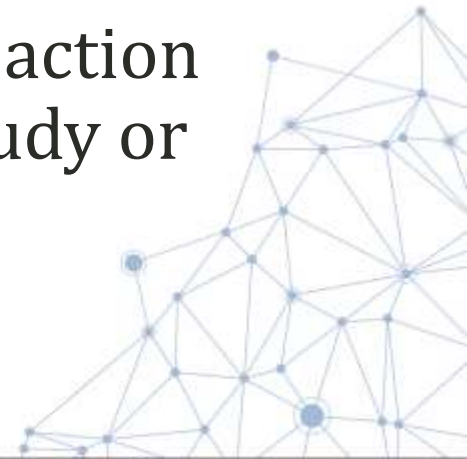
# Making Previous Actions More Specific





# Why we must update our actions...

- Actions in the previous plan often were general and did not include detailed information.
- Detailed information is needed to support FEMA grant applications for funding support.
- Focus on updating previous actions to include the necessary level of detailed information.
- If detailed information is not available, note a phase in the action that will gather this information such as an engineering study or feasibility assessment.
- Use the same level of detail for new actions as well!

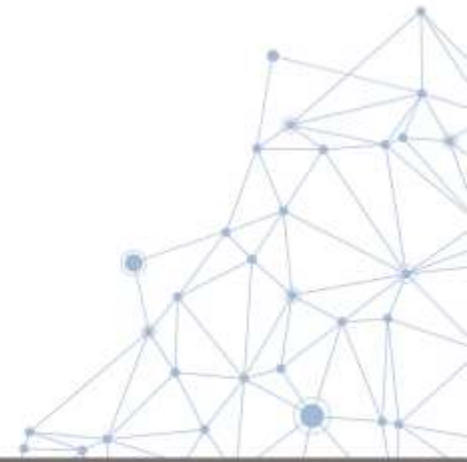






## Example: Previous problem and action

- **Problem:** Critical facilities require backup power.
- **Solution:** Acquire backup power for critical facilities.







## Example: Improved problem and action

- **Problem:** Town Hall lacks a backup power source. The Town Hall houses the Emergency Operations Center and also can serve as a backup shelter. Lack of power results in a breakdown of continuity of operations and prevents the Town Hall from providing critical services during a hazard event.
- **Solution:** The Town Engineer will work with the Office of Emergency Management to research and purchase the appropriately sized backup generator for the Town Hall. The Town DPW will install the backup generator and necessary electrical components and will be responsible for testing and upkeep of the generator after installation.





## Example: EVEN MORE Improved problem and action

- **Problem:** Town Hall lacks a backup power source. The Town Hall houses the Emergency Operations Center and also can serve as a backup shelter **for approximately 100 people**. Lack of power results in a breakdown of continuity of operations and prevents the Town Hall from providing critical services during a hazard event.
- **Solution:** The Town Engineer will work with the Office of Emergency Management to research and purchase **a 75 kW** generator for the Town Hall. The Town DPW will install the backup generator **on the roof of the Town Hall** and necessary electrical components and will be responsible for testing and upkeep of the generator after installation.




# Mitigation Development Worksheet







# Use Your Worksheet to Identify Mitigation Actions



Hazard Mitigation Plan 2023 Update  
Warren County, NY  
Hazard Ranking Review

Note: \*Adaptive capacity was assumed Moderate for all hazards.

**Problem Statement Development**  
Utilizing the results gathered to date (i.e., risk assessment, capability assessment, identified problem areas, 2017 mitigation strategy), please review the identified problems and potential solutions and add anything that may be missing to inform your mitigation strategy development.

**Risk Assessment**  
What is your hazard concern of greatest concern? Refer to your hazard ranking results on page 1 (ex: stormwater flooding, falling trees, power loss, etc.). Do you have any projects in mind to address that hazard?


Problem / High-Ranked Hazards	Solution

**Critical Facilities - Backup Power**  
Please list critical facilities that require backup power. If you have specifics (size of the generator, potential cost, etc.), please provide that information as well.


Problem	Solution

**Culverts - Undersized/In Need of Upgrade**  
Please indicate the location of any culverts or stormwater components in your community that are undersized or are damaged from past flood events. Then note if you would like to add a project to address any of these locations.

Problem	Solution

TETRA TECH

Warren County, NY Hazard Mitigation Action Plan | 2023 Update  
Page 3 of 5



Hazard Mitigation Plan 2023 Update  
Warren County, NY  
Hazard Ranking Review

**Flood Protection – Elevation or Buyout**  
Please identify any **repetitive loss areas**, homes, or neighborhoods that would benefit from elevation or buyout to prevent future flood damages. Then identify potential projects to provide flood protection (elevation, buyout, etc.)

Problem	Solution

**Infrastructure Protection**  
Please identify roads and other infrastructure that needs protection from flooding, storms, etc. Provide any projects where you would like to include protection measures (elevate roadway, harden infrastructure, etc.)


Problem	Solution

**Outreach Projects**  
Please identify gaps in public awareness regarding hazards and identify any outreach projects that you would like to include in your mitigation strategy.

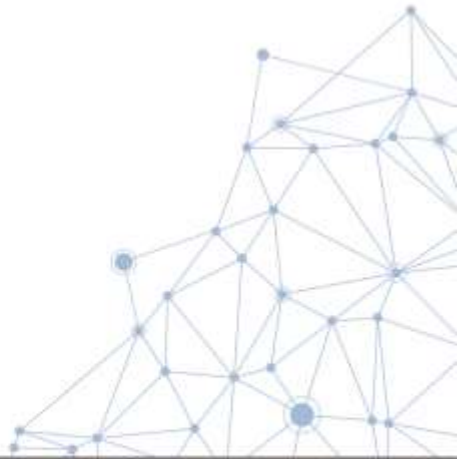
Problem	Solution

**Other Projects**  
Please identify other projects that you have in mind after reviewing your problem statements, past actions, risk assessment results, and the mitigation catalog.

Problem	Solution

TETRA TECH

Warren County, NY Hazard Mitigation Action Plan | 2023 Update  
Page 4 of 5



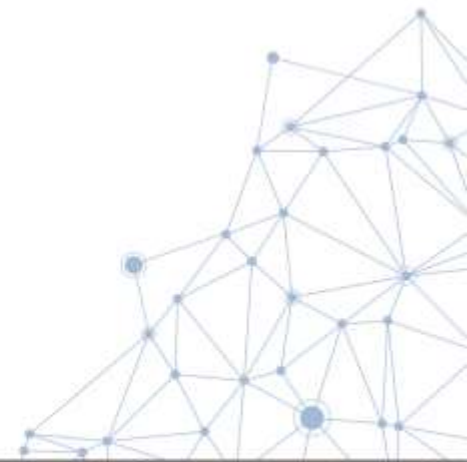




# How do you fill in the Worksheet?

The worksheet asks a series of questions to help you think about vulnerabilities within your community.

- Critical Facilities/Lifelines – backup power
- Critical Facilities/Lifelines – flood protection
- Culverts – undersized/in need of upgrades
- Flood Protection – elevations/buyouts; think about the RL/SRL properties – if you have RL/SRLs you need an action related to this
- Infrastructure Protection – what needs protection from flooding, storms, etc.?
- Anything else?



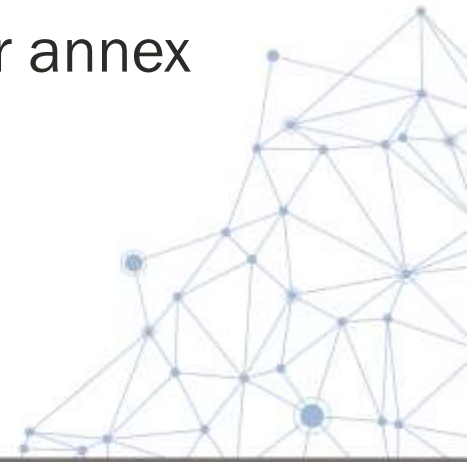




# How do you fill in the Worksheet?

- Review the pre-populated information on your worksheet
  - Information from worksheets submitted to date
  - Input from public/stakeholder surveys
  - Risk assessment results
- Determine the problems that you will pursue solutions for
- Add as much detail as possible to the problems and develop detailed solutions
- Return worksheet to your Tetra Tech planner for discussion during your annex development meeting

**Schedule your meeting with your Tetra Tech planner ASAP!**





# Proposed Action Table







# Proposed Action Table

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2020-Muni-001				Problem:										
				Solution:										
2020-Muni-002				Problem:										
				Solution:										
2020-Muni-003				Problem:										
				Solution:										
2020-Muni-004				Problem:										
				Solution:										
2020-Muni-005				Problem:										
				Solution:										



# Action Worksheets







# Action Worksheets

- Each jurisdiction must develop at least 2 Action Worksheets
- Should also develop additional Action Worksheets for projects you plan to apply for FEMA funding support for within the next 5 years
- Not every action requires an Action Worksheet to be developed but the same sort of information about those actions are still needed in the Proposed Actions table of the annex
- If jurisdiction has a regulatory floodplain then one worksheet must address flooding
- Critical facilities in the 100-year floodplain – must be protected to the 500-year flood event
- Plan for Climate Change and propose actions to address





# Action Worksheet

- Description of the Problem
  - What is the problem?
  - What is the risk?
  - Where is the problem occurring?
  - Who is the problem impacting?
  - Have there been past damages?
  - How frequently does the problem occur?

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



# Action Worksheet

## ➤ Description of the Solution

- How do you propose to solve or mitigate the problem?
- What are the design specifications?
  - Height and length of a floodwall
  - kW for backup generators
  - Number of structures to be bought out or elevated
  - Etc.
- Who is responsible for what aspects of the project?



Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



# Action Worksheet

## ➤ Level of Protection

- What level event is the project being designed to protect to?
  - For flood protection: 100-year flood, 500-year flood
  - For stormwater improvements: 5 year, 10 year rain events
- If not a specific level, include brief description of what protections are
  - For generators: Prevents power loss

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



# Action Worksheet

- Estimated cost
- What will the project cost?
- If project includes phases or components, what will each phase or component cost?
  - New generator: \$25K, elevation platform for generator: \$1K

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



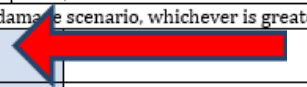


# Action Worksheet

- Estimated Benefits
- Provide a description of the estimated benefits, either quantitative and/or qualitative
- Identify the benefits that implementation of this project will provide. If dollar amounts are known, include them. If dollar amounts are unknown or are unquantifiable, describe the losses that will be avoided.



Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Prioritization
- High, Medium, or Low
- Use the second page of Action Worksheet to evaluate each action and assist in the determination of priority (to be discussed shortly)

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Responsible Organization
- Identify the lead organization/department/individual for the project
- Identify any supporting organizations/departments/ individuals for the project.

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Estimated Time Required for Project Implementation
- Provide the estimated time required to complete the project from start to finish.

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Alternatives
- Three alternatives are needed for each action worksheet.
  - 1<sup>st</sup> alternative can be no action
  - 2<sup>nd</sup> and 3<sup>rd</sup> alternatives – include estimate cost and a description of the pros/cons of the alternatives

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			







# Evaluation of Actions

- Consider the benefits and costs
- Consider the implementation timeline
- Consider the areas/problems of greatest need
- Consider the funding sources
- High/Medium/Low priority

**1 = highlight effective or feasible**

**0 = neutral**

**-1 = ineffective or not feasible**

Evaluation and Prioritization		
Project Name:		
Project Number:		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety		
Property Protection		
Cost-Effectiveness		
Technical		
Political		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		
Timeline		
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		





# Important Actions

- **Municipalities with high hazard potential dams with a condition rating of unsafe or unsound** should include an action to address the deficiencies, using the High Hazard Potential Dam (HHPD) grant program for funding.
- **Municipalities with repetitive loss properties** need to include an action to address repetitive loss (elevation and/or acquisition). Tetra Tech has emailed the communities that have repetitive loss properties.

## High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans<sup>1</sup>

Complete a Separate Worksheet for each<sup>2</sup> state regulated HHPD in your community.

Name of the Mitigation Plan:	Point of Contact for this Worksheet Name:
	Email:
Municipality where dam is located:	Name of Dam:
Name of the Dam Owner:	NYS Dam ID #:

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

<sup>1</sup> Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

<sup>2</sup> This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.





# Schedule

- Complete Mitigation Development Worksheet and Schedule Meeting with your Tetra Tech Planner **Before March 31<sup>st</sup>**
- Work with Tetra Tech Planner to Complete Actions and Annex following meeting
- Draft Plan to Steering Committee by middle of May
- Final draft plan to NYS DHSES and FEMA – August/September 2023





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	June 7, 2023, 10:00 am

## Attendees:

Ann Marie Mason	Director, Warren County Office of Emergency Services (OES)
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Laura Moore	Town of Queensbury, Land Use Planner
Kevin Hajos	Warren County Department of Public Works
Ashley Rivers	Warren County Office of Emergency Services
John Gibb	Contingency Management Consulting Group
Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Sandra LeBarron	Director of Environmental Health and Safety, Finch Pruyn
Elizabeth O'Reilly	NYSDHSES

**Agenda Summary:** Purpose to provide a brief progress report and address pending action items. To re-convene the Steering Committee meeting to review the plan status and agenda items below.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:00 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items as summarized in the attached PowerPoint presentation.</li> <li>The Steering Committee is requested to access the draft plan documents on the project OneDrive to review and provide any comments or feedback to be incorporated into the plan before posting for public review.</li> </ul>	
2	<b>Progress Report</b> <ul style="list-style-type: none"> <li>The process continues to be on track for plan submittal to FEMA in August 2023.</li> <li>Upcoming milestones <ul style="list-style-type: none"> <li>Steering Committee Review of Draft Plan (through July 12<sup>th</sup>)</li> <li>Draft plan posted for public comment (August 1<sup>st</sup> – August 31<sup>st</sup>)</li> <li>Plan submittal to NYSDHSES/FEMA (September)</li> </ul> </li> </ul>	
3	<b>Draft Plan Review</b> (refer to attached presentation for details) <ul style="list-style-type: none"> <li>Survey Results</li> <li>Section-by-section content review</li> <li>Maintenance procedure review</li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>Steering Committee Review guidelines</li></ul>	
4	<b>Discussion</b> <ul style="list-style-type: none"><li>Mr. Hajos reviewed and discussed mitigation actions included in the draft county annex to support finalization of the mitigation strategy. This input will be included in the draft annex.</li></ul>	
5	<b>Pending Action Items</b> <ul style="list-style-type: none"><li>Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>Tetra Tech reminded steering committee members to access the project OneDrive site to review draft plan sections and to provide input, as necessary.</li></ul>	<p>Steering Committee members to access plan on project OneDrive and provide comments as needed by July 12<sup>th</sup>.</p> <p>Tt to send OneDrive access links and review guidance to committee members.</p>
6	<b>Next Steps</b> <ul style="list-style-type: none"><li>Steering Committee members to access plan on project OneDrive and provide comments as needed by July 12<sup>th</sup>.</li><li>Tt to update draft plan to include committee feedback and post plan for public review in August.</li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 11:07 am.	





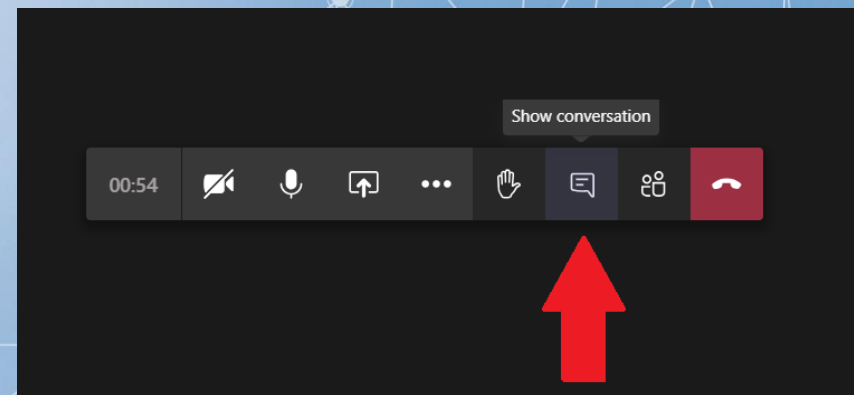
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Steering Committee #5 Meeting | June 7, 2023 | 10:00 – 11:00 AM  
Draft Plan Review

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*

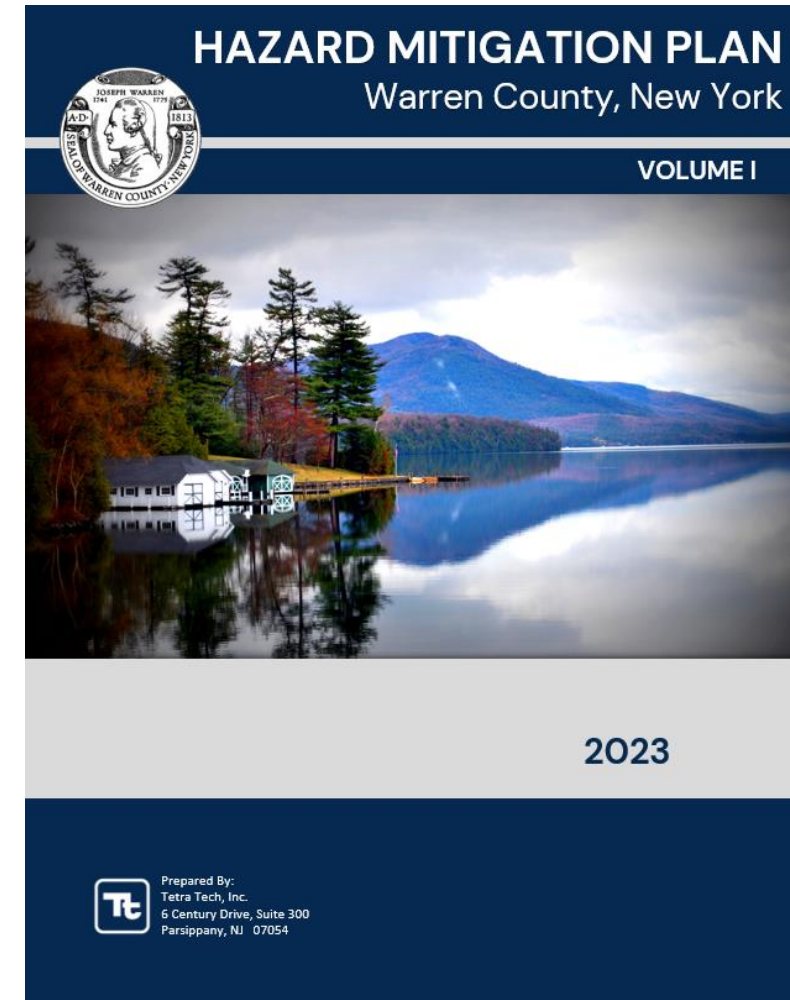






# Agenda

1. Introductions
2. Project Schedule
3. Draft Plan Review
  - What is New?
  - Survey Results
  - Section-by-Section Content Overview
  - Review Guidelines
  - Finalizing the Plan
  - County Mitigation Actions Discussion
4. Next Steps
5. Q&A

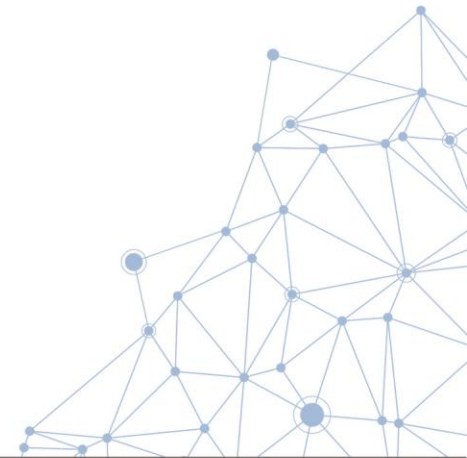






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ✓ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ✓ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | June/July 2023          | Review draft plan                                    |
| ☐ | September 2023          | Submit plan to NYSDHSES and FEMA                     |

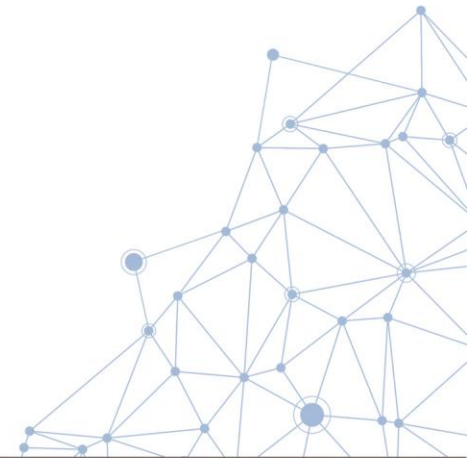






# What is new in the 2023 Update?

- Review of hazard impacts since last plan.
- Updated critical facility inventory, including Community Lifelines
- Updated annexes to align with new FEMA and NYSDHSES Guidance
- Supplementary information appendix to support policy and planning
- Climate Change impacts and Adaptive Capacity to reduce vulnerability used in hazard ranking







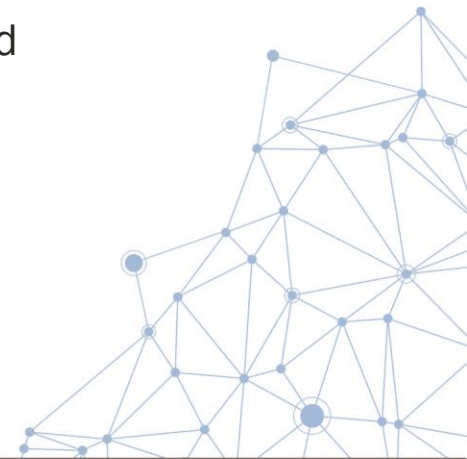
# Neighboring County Survey Results

- **Saratoga (2 responses)**

- Indicated mutual agreements to deploy staff for emergency evacuations/disaster response
- Warren County was instrumental in helping us to develop many of our plans. They are a partner that could be asked for assistance in a variety of disasters.
- Emergency Managers work together to respond to incidents and may work together to mitigate against incidents along shared vulnerabilities.
- Shared hazards of concern: Flooding along the Hudson - which serves as the boundary between a good portion our counties. Additionally, various incidents along the Northway. Also, large scale incidents (e.g .brush fire) along our rural border; All dams/flooding along common county borders.
- Information shared with Saratoga communities by the hazard mitigation plan, intercommunity communication often by the highway department leadership.
- Multi-county evacuations would require collaboration. Historically we have collaborated on shared hazards/events

- **No response**

- Essex accessed survey (No data-will contact to discuss)
- Hamilton County
- Washington County

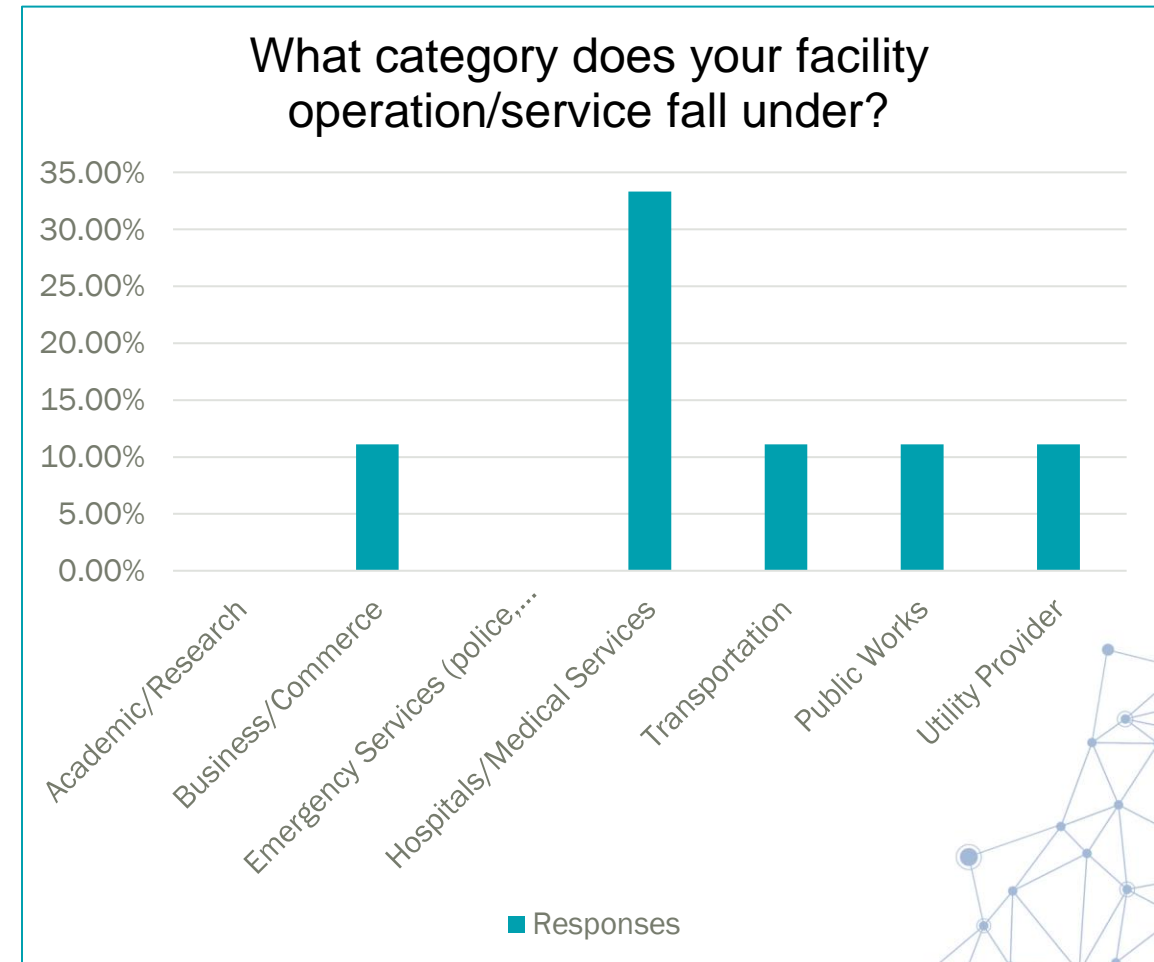






# Agency Survey Results

- 9 Respondents
  - National Grid
  - Warren County Health Services
  - SAIL
  - NYS Department of Health Glens Falls District Office
  - Lake George Regional Chamber of Commerce & CVB
  - Southern Adirondack Independent Living
  - Glens Falls Hospital
  - Greater Glens Falls Transit
  - Glens Falls Common Council

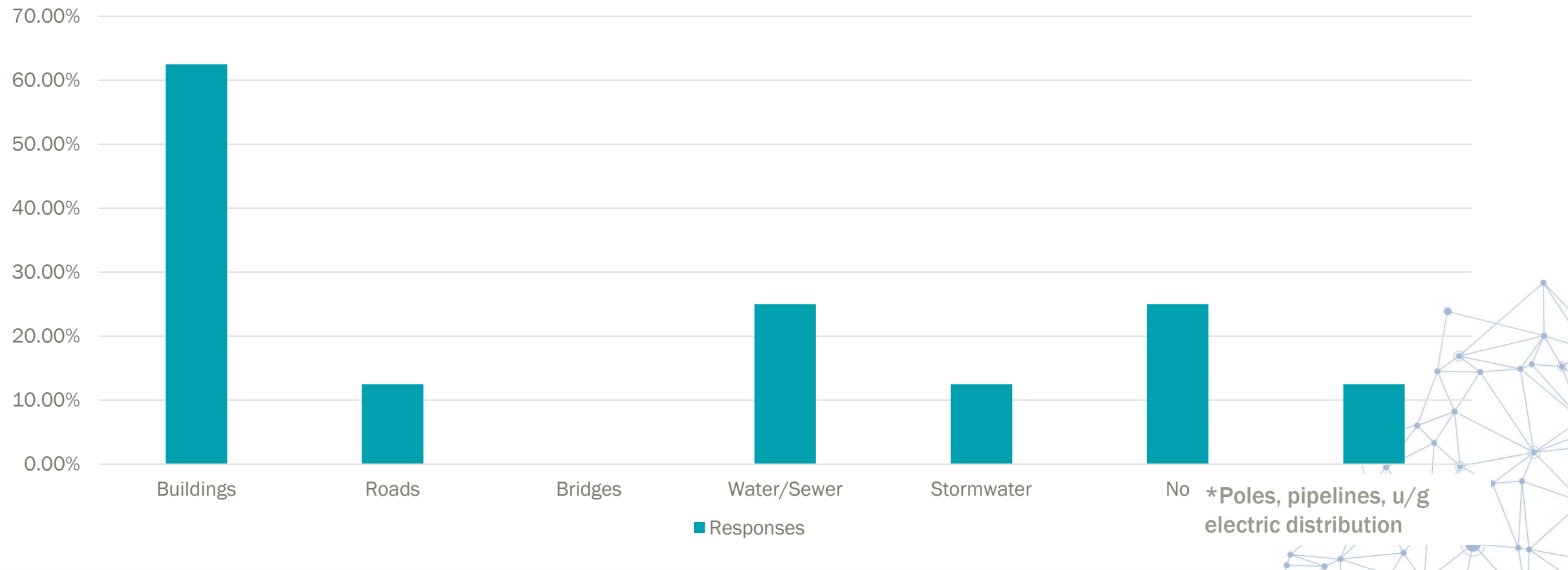






# Agency Survey Results

Does your organization maintain or manage any of the following within your designated service area?





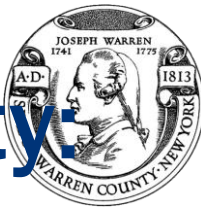
# Agency Survey - Hazard Vulnerability:



- Electric Substations and gas regulating stations. As we've all seen in the news with the recent vandalism with electric utility equipment, it is high on the priority list for our security teams.
- Salt mitigation to protect the lake. We currently use sand on the backside of our building/parking area and salt/sand mixture on the front. No other hazards as of this writing.
- Reliance on pre-identified municipal buildings and locations that are owned and maintained by City/Town municipalities for many of our activities.
- Our hub is the County Municipal Center. Vulnerabilities include fire, severe weather impacting the facility, loss of internet and utilities caused by weather or man-made factors"
- Road hazards - downed trees, winter driving conditions
- Industry along the river and watershed

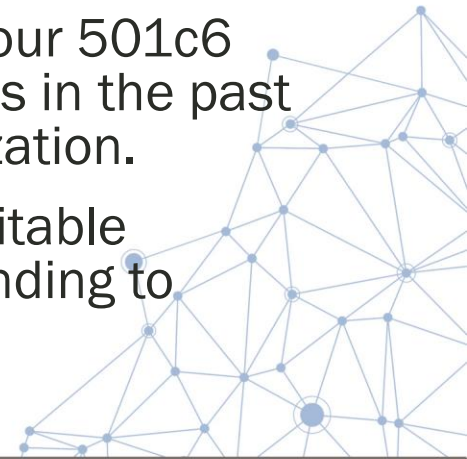




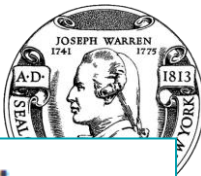


# Agency Survey - Programs to Reduce Vulnerability

- Tree Trimming program - each of our circuits are trimmed on 5-year cycles, that means every 5 years ""Main St in Queensbury"" will be inspected for danger trees and trimmed by one of our tree contractors.
- **"Computapole"** program. This is a program that has us inspect and get eyes on every piece of National Grid electric infrastructure throughout our territory. We identify potential hazards like rotting poles, broken or unbonded guy wires, blown lightening arrestors, or broken cross arms. Once they are reported, the issues are then sent to the field workers for repairs. This is also done in 5-year cycles for each of our circuits.
- We have a similar program for our gas distribution system regarding our Leak Prone Pipe program where we are replacing old cast iron mains and services with plastic. We have a gas corrosion team that inspects our pipelines to make sure they are still in spec.
- We were able to take advantage of the second round of PPP funding because of our 501c6 corporate status that helped us through the pandemic financially. Other strategies in the past have been to cut programs and not people to stay financially stable as an organization.
- Upgrading work from home opportunities if the facility is unusable, ensuring a suitable secondary location is available for staff that have to be in the office, providing funding to ensure IT and other equipment necessary to maintain operations is provided
- Sewage treatment plant power project







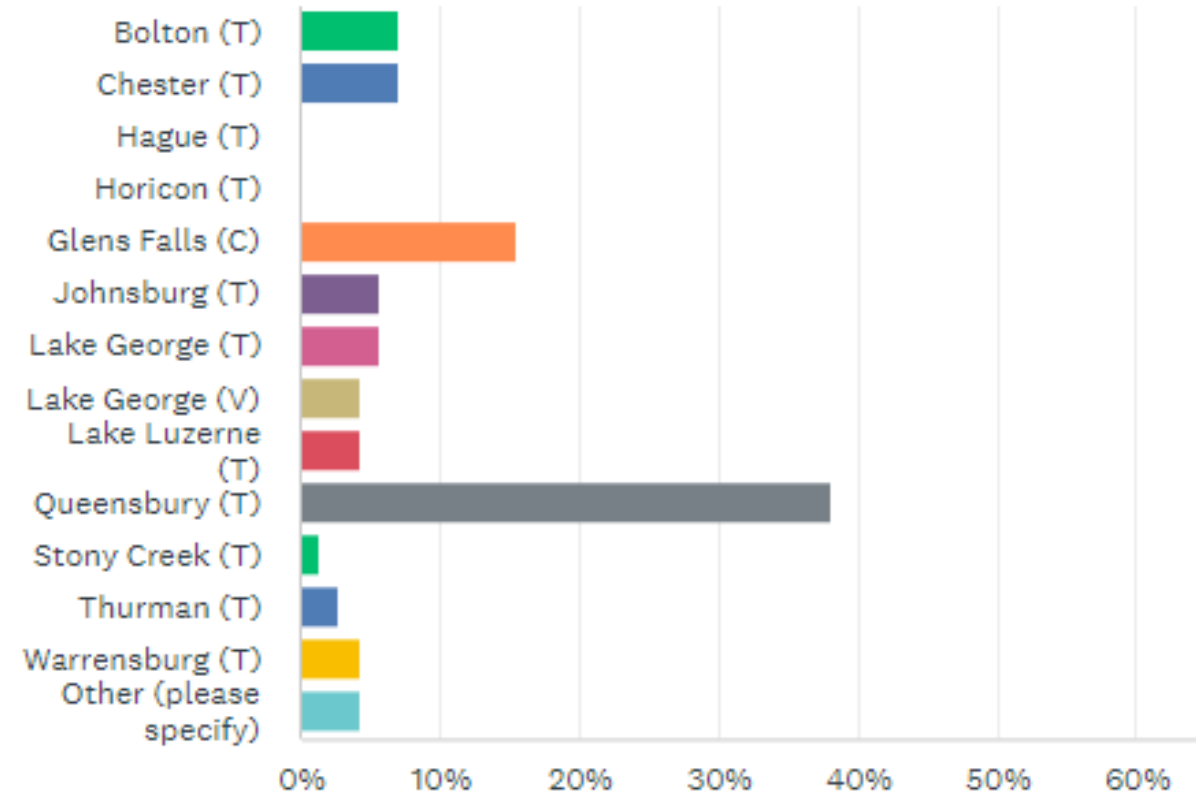
# Public Survey Results

- 81 Responses
- 64% Completion Rate
- 8 Minutes to Complete (Avg)
- ~39 identified vulnerable areas/items

County streets Lake property Glens Falls Rd water due Road River  
flood drainage trees Hudson River None ice

Please indicate the municipality in which you live:

Answered: 71 Skipped: 10

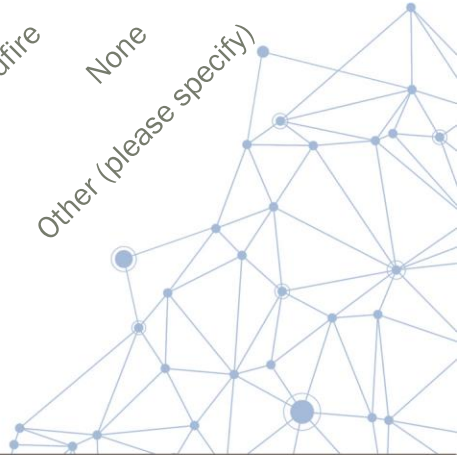
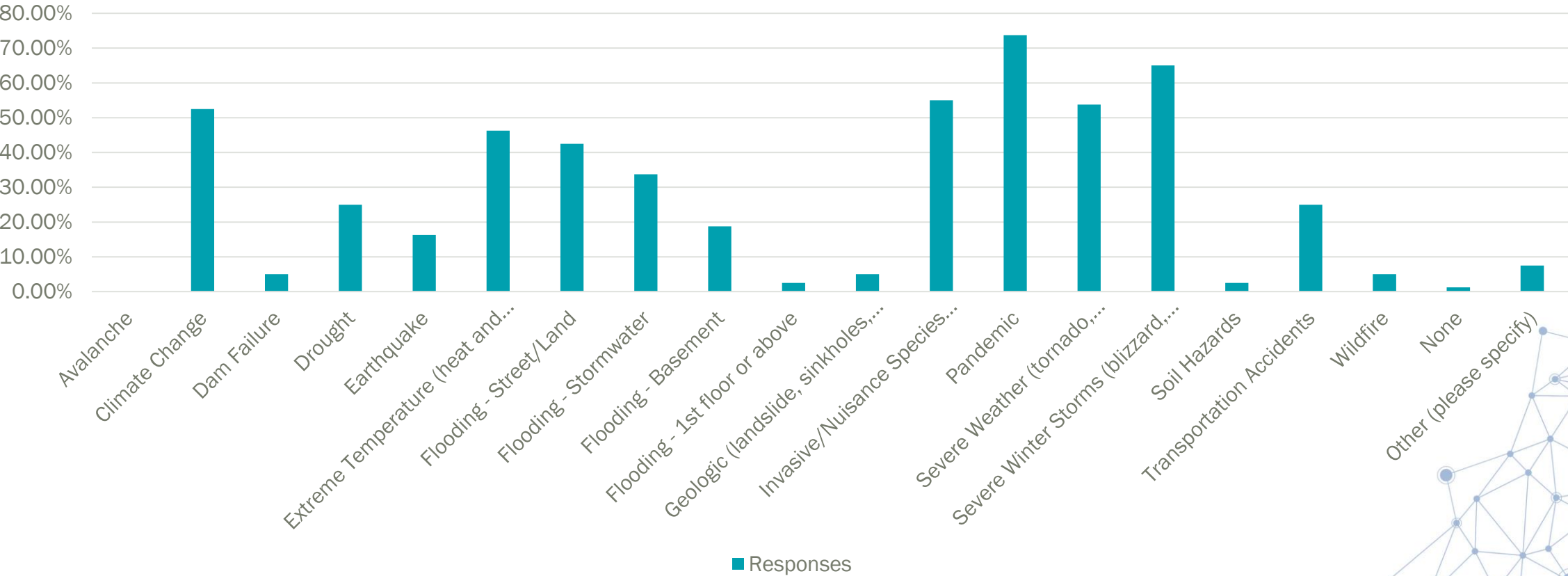






# Public Survey Results: Hazards Experienced

In the past 10 years, which of the following hazard events have you experienced in Warren County?

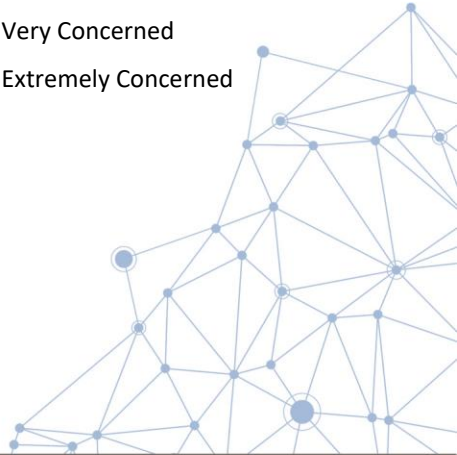
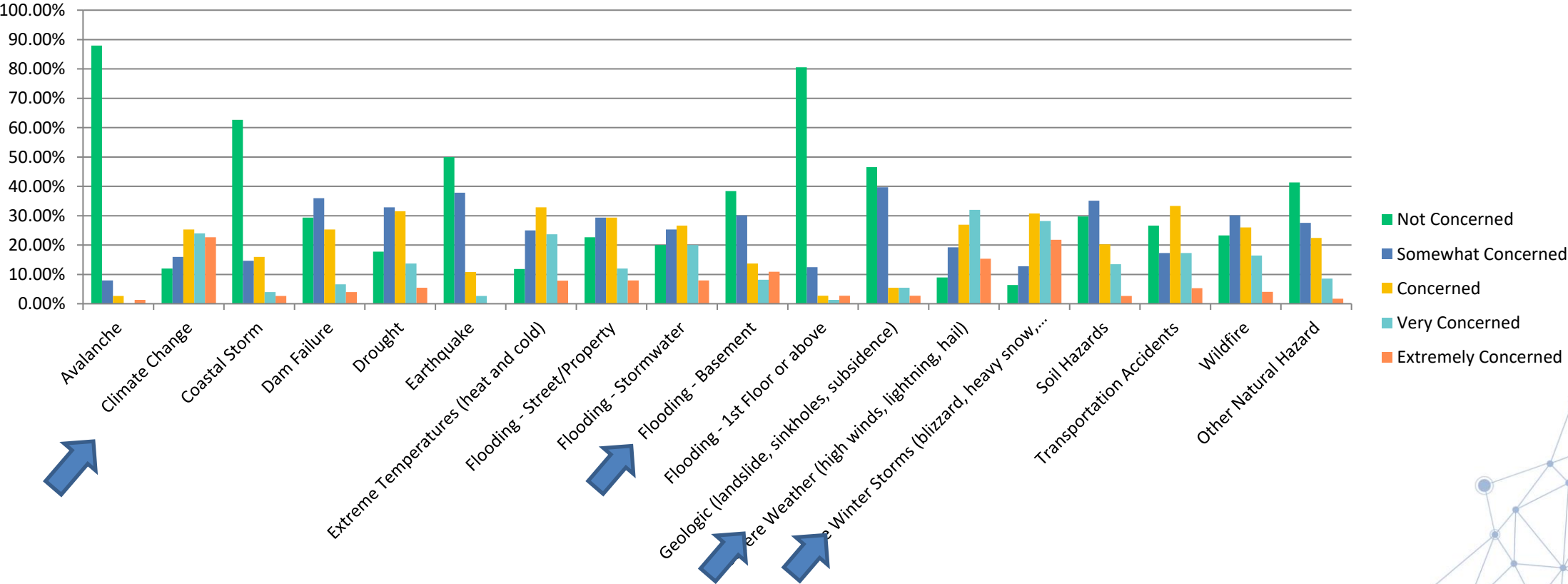






# Public Survey Results - Hazard Concerns

How concerned are you about the following hazards in Warren County? Please check one for each hazard.

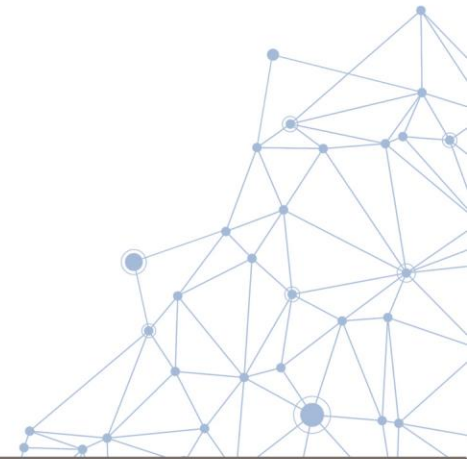






# Problem Areas

- Pine Tree Lane Diamond Point
- Always having power outages when others don't. They can last up to four days.
- Lack of back up power
- Loon Lake Dam Failure.
- Power outages due to lack of appropriate tree removal along power lines.
- Poor cell service. Lake Luzerne
- Queensbury boat launch, Glen Lake, Lake George, Hudson
- Susceptibility to flooding, poorly maintained dams owned by city of Glens Falls.
- Schools lack of back up power in the event power goes out and lack heating elements. Trees along residential roads that aren't cut back. Power drainage on roadways.
- Prone to power outages from trees on lines
- General back-up power, snow/ice blockage on highways
- Floodprone area on Meadowbrook Road @ Halfway Brook
- Low water levels in Kattskill by Lake George due to water management practices
- Apartment building for disabled and retired with all electric heat. No on demand generator.
- Located at 10 Manor Rd.

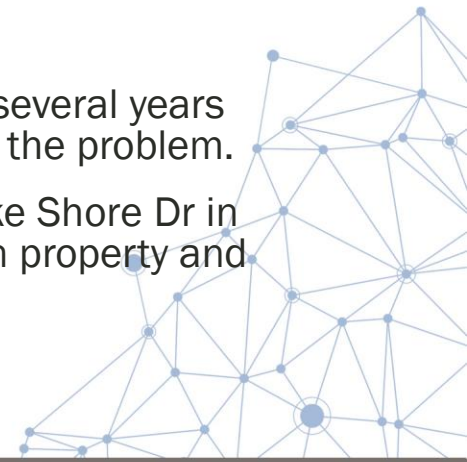






# Problem Areas, continued

- 13th Lake Road, North River. The gabion walls are pushed out and look like they will give at any time. Also rocks fall in the middle of the road all the time.
- Flooding - 9N S/Hidden Valley Drive (Tubby Tubes-Lake Luzerne, NY 12846), due to a sewer drain that doesn't handle all the water, causing back up and ice/danger in winter. Trees down in my property from recent high winds (1275 Lake Avenue, Lake Luzerne, 12846)
- Water Tank control panel without power backup
- Ice jamming on Hudson River at 418 Bridge.
- Flooding on River Road
- Lake George sewage treatment plant has minimal security and is vulnerable to walk up attacks on infrastructure.
- Numerous roads and stream crossings could be subject to flood/storm damage.
- East End in Glens Falls is known for being a high water table area
- North Bolton Road at the foot of Church Hill Road is continually flooded due to the road having been raised several years ago. Raising the road removed all drainage possibilities and County officials refuse to do anything to correct the problem.
- Storm Drainage system that runs down the Lakeview Circle drive in the town of lake George and crosses Lake Shore Dr in the town of lake George and continues down to the lakefront between the Fairview Improvement association property and the lake view terrace property.

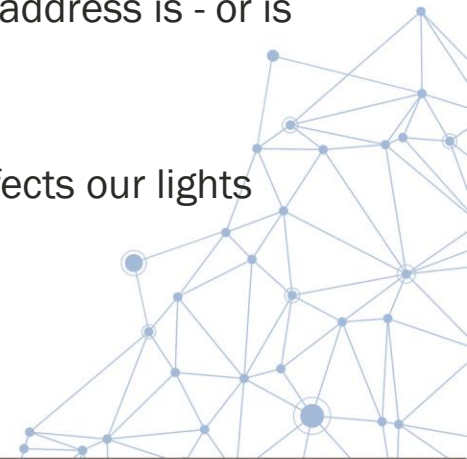






# Problem Areas, continued

- Lack of municipal sewer and water
- Poor drainage for city streets (most streets in Glens Falls); raw sewage releases into the Hudson River (sometimes even if it only rains briefly); Poor tree maintenance causes downed branches in the high winds we now get for many months of the year.
- My road is collapsing into a stream. Many dead trees along the road. So called protected land around the watershed is not protected or monitored
- C/Glens Falls flood prone streets. Warren St, Mohican St, CR 19 T/Chester. SR 418 bridge & River Rd, Barton Mines RD  
Johnsburg
- Loon Lake Dam, Rt 8/9, Chestertown
- ZERO fragrance-free emergency shelters! Acute respiratory response / reactive airways when exposed for perfumes, scented products (ubiquitous), etc. ALSO: FEMA Flood Map makes ZERO sense! Unable to determine if my address is - or is not - in a flood plain: Fredella Avenue, Glens Falls, NY.
- Hudson River Basin Lake Luzerne to Corinth
- We have experienced power outages for as lengthy as 5 days. being on a deep well, the outage not only effects our lights and heat, but water as well.
- Electric
- Glens Falls dams on West Mountain

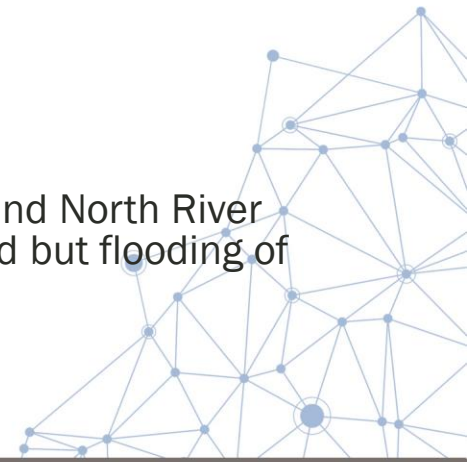




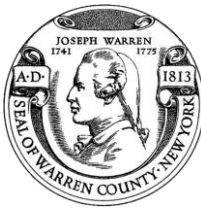


# Problem Areas, continued

- Federal Hill Rd
- Areas along Hudson River and Schroon River are flooded frequently
- Lack of internet service in rural areas.
- Queensbury - Halfway Brook Area/flooding
- Warrensburg - Schroon River Area/flooding
- Chester & Horicon - Schroon River Area/flooding
- Meadowbrook Road, Queensbury - Flooding
- Lakeview Circle Drive Town of Lake George
- GFWWTP releasing sewage into Hudson after every heavy rainstorm.
- Inadequate storm drainage on streets
- Power cybersecurity concerns
- Flooding of the Hudson River in the spring occasionally that affects the State rt. 28 between North Creek and North River and includes part of the town North Creek at the train station. The historic Train station has been preserved but flooding of the Hudson in the spring has caused concern a number of years in the past ten.
- Thurman bridge
- Downtown Warrensburg from Schroon River flooding

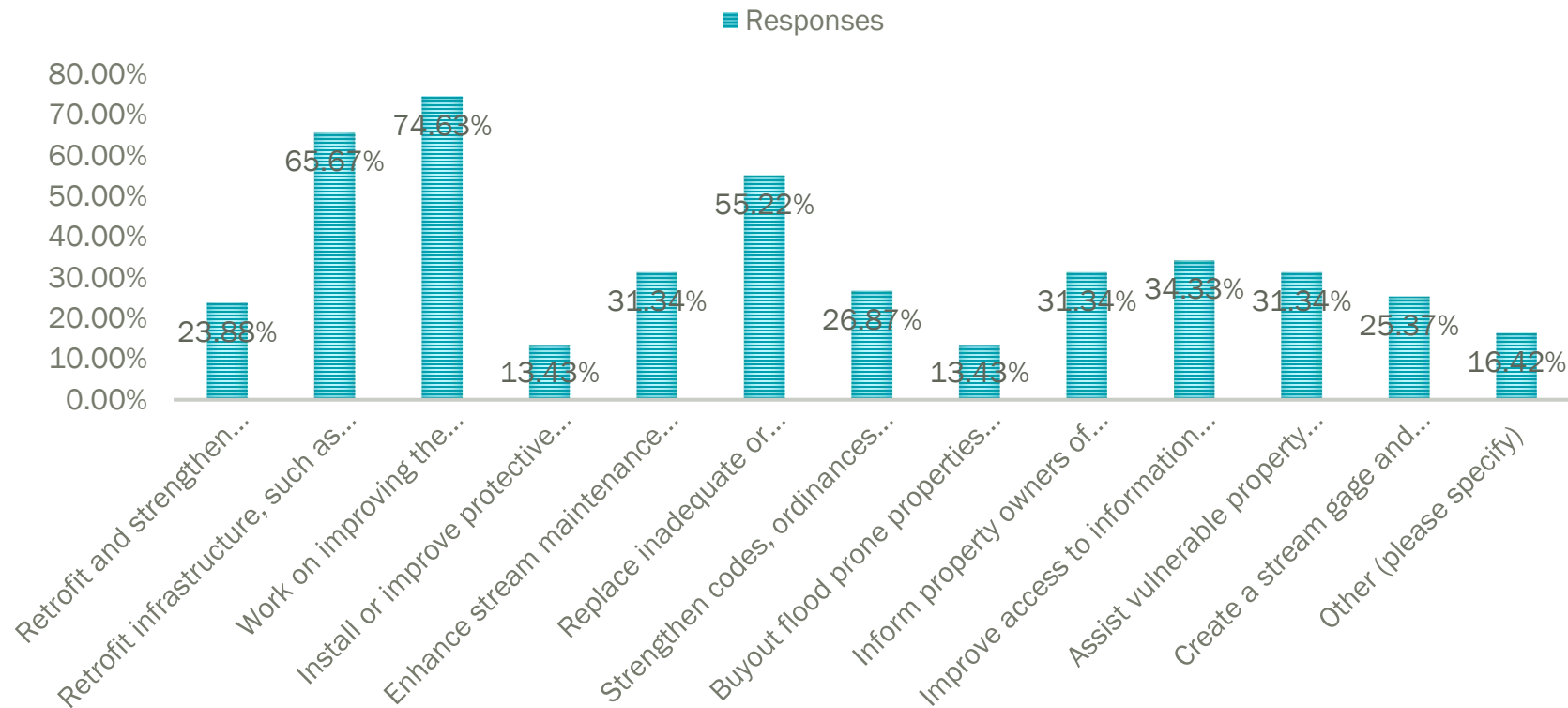






# Priority Projects

What types of projects do you believe local, county, state, or federal government agencies could be doing to reduce the damage and disruption of disasters in Warren County?



## Top 3 project types to fund:

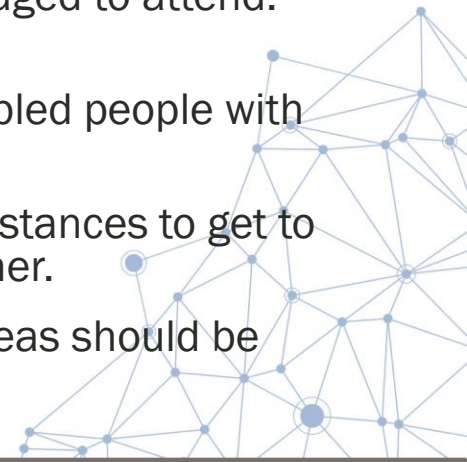
- 74.8% - Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)
- 65.6% - Retrofit infrastructure, such as elevating roadways and improving drainage systems
- 55.2% - Replace inadequate or vulnerable bridges and causeways





# Concerns

- Inadequate shelters in case of emergencies
- Remove tree limbs that hang over the 9L road before someone gets seriously injured
- I would appreciate receiving real time alerts from Warren County similarly to FEMA
- Each municipal government should be required to participate in this process. They should assess their community for potential hazards and develop a mitigation plan.
- Warren County needs to fix the drainage issue it CAUSED.
- I see that climate change is affecting us. One problem that we never experienced until recent years is algae blooms.
- I see climate change as one of the biggest concerns now and in the future that could and would impact a lot of weather -related hazard events. I think more projects that focus on taking care of our environment, like adopt a highway and stream clean up days, as a good thing to consider.
- Annual preparedness training at senior centers, at schools and in locations that citizens are encouraged to attend. create a citizen team to work with Emergency Management for Warren County
- Vastly improve ACCESSIBILITY for disabled people and Disaster Planning to include INPUT from disabled people with various disabilities; including respiratory
- During severe winter storms, county buildings need to close or open late as employees travel long distances to get to Warren County Municipal Center and should not have to use personal time in case of extreme weather.
- Extreme weather (heavy downpours and sudden storms) have increased greatly. Review of runoff areas should be reviewed.

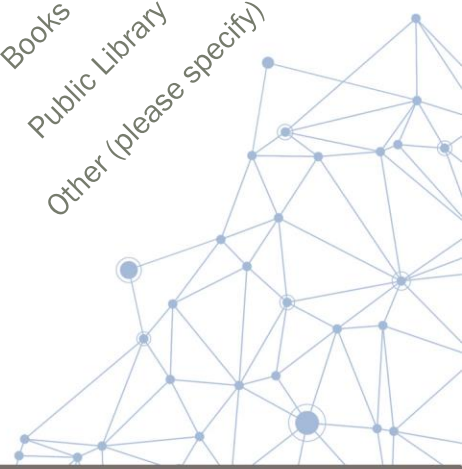
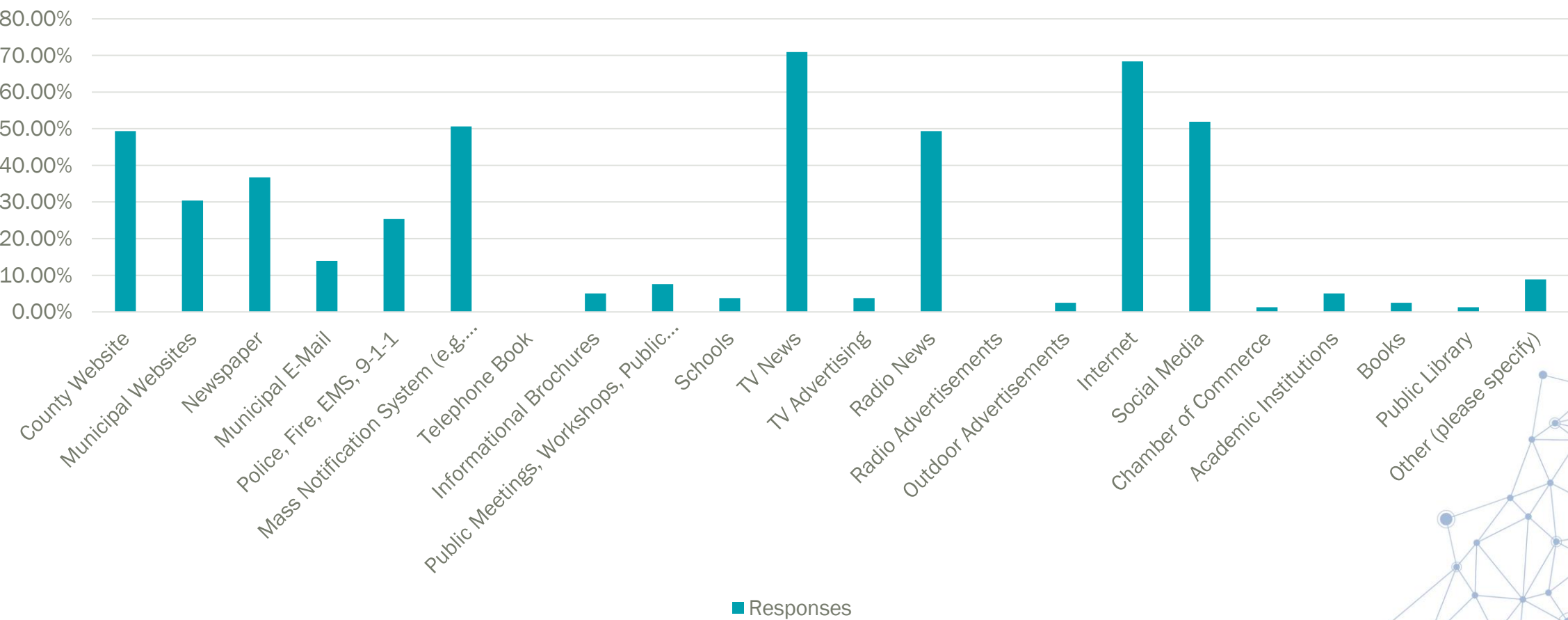






# Effective Messaging Resources

How do you receive your information concerning a disaster? Check all that apply.







# Document Review on Sharepoint

- Access for document review
- Review in “desktop app” in track changes

OneDrive interface showing the 'Warren County (NY) HMP' folder. The 'Steering Committee' folder is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size	Sharing
GIS	November 14, 2022	frankenfelds@warrencoun	4 items	Shared
Letters of Intent to Participate	September 16, 2022	Bianco, Cynthia	14 items	Shared
Outreach Materials	November 30, 2022	Bianco, Cynthia	10 items	Shared
<b>Steering Committee</b>	January 24	Bianco, Cynthia	1 item	Shared
Survey				
SWCD				

OneDrive interface showing the 'Documents for Review' folder. The '5.2 - HOC ID\_Warren\_rev.docx' file is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size
Old	January 31	Bianco, Cynthia	6 items
Warren_TOC.docx	January 25	Bianco, Cynthia	205 KB
<b>5.2 - HOC ID_Warren_rev.docx</b>	6 days ago	Bianco, Cynthia	422 KB
Section 1-Introduction_rev.docx	6 days ago	Bianco, Cynthia	1.05 MB
Section 2-Plan Adoption.docx	January 25	masona@warrencountyny	360 KB
Section 5.1_Methodology_rev.docx	6 days ago	Bianco, Cynthia	517 KB

OneDrive interface showing the 'Steering Committee' folder. The 'Documents for Review' folder is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size	Sharing
<b>Documents for Review</b>	January 24	Bianco, Cynthia	6 items	Shared





# Draft Plan Review – Section Contents

## Volume I

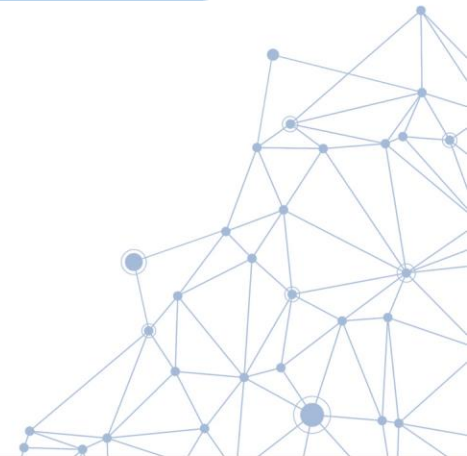
- **Section 1 – Introduction**
  - Mitigation Planning Overview
  - Participating Jurisdictions
  - 2023 Updates
- **Section 2 – Plan Adoption**
  - Adoption Process
- **Section 3 – Planning Process**
  - Participants
  - Activities
  - Ongoing Process



HAZUS-MH was applied to

- Identify Hazards (Phase 2)
- Profile Hazards (Phase 2)
- Perform a Vulnerability Assessment (Phase 2) including:
  - Inventory Assets
  - Estimate Losses
  - Evaluate Development Trends
  - Present Results of Risk Assessment

These results provide an input to Phase 3.





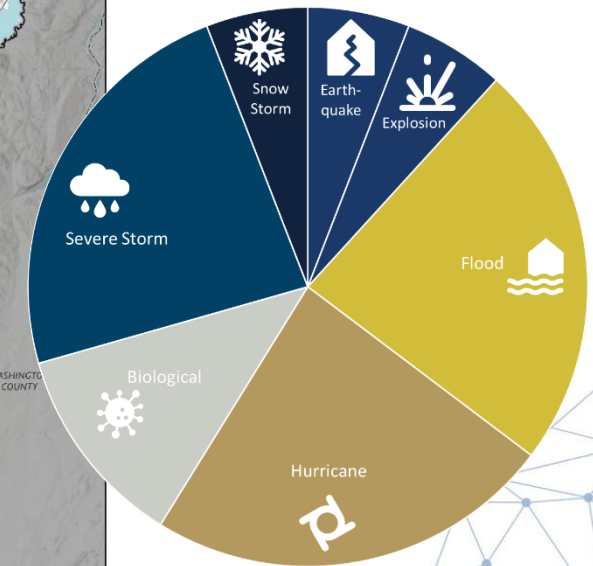


# Draft Plan Review – Section Contents

- **Section 4 – County Profile**
  - History & Physical Setting
  - Population and Demographics
  - Major Hazard Event History
  - General Building Stock
  - Land Use and Population Trends
  - Critical Facilities & Lifelines
- **Section 5 – Risk Assessment**
  - Hazards of Concern
  - Hazard Ranking
  - Hazard Profiles



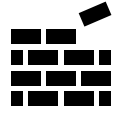
Warren County Hazard Events







# Hazards Profiles – Section 5.4



- Dam Failure



- Disease Outbreak



- Earthquake



- Extreme Temperature



- Flood



- Infestation and Invasive Species



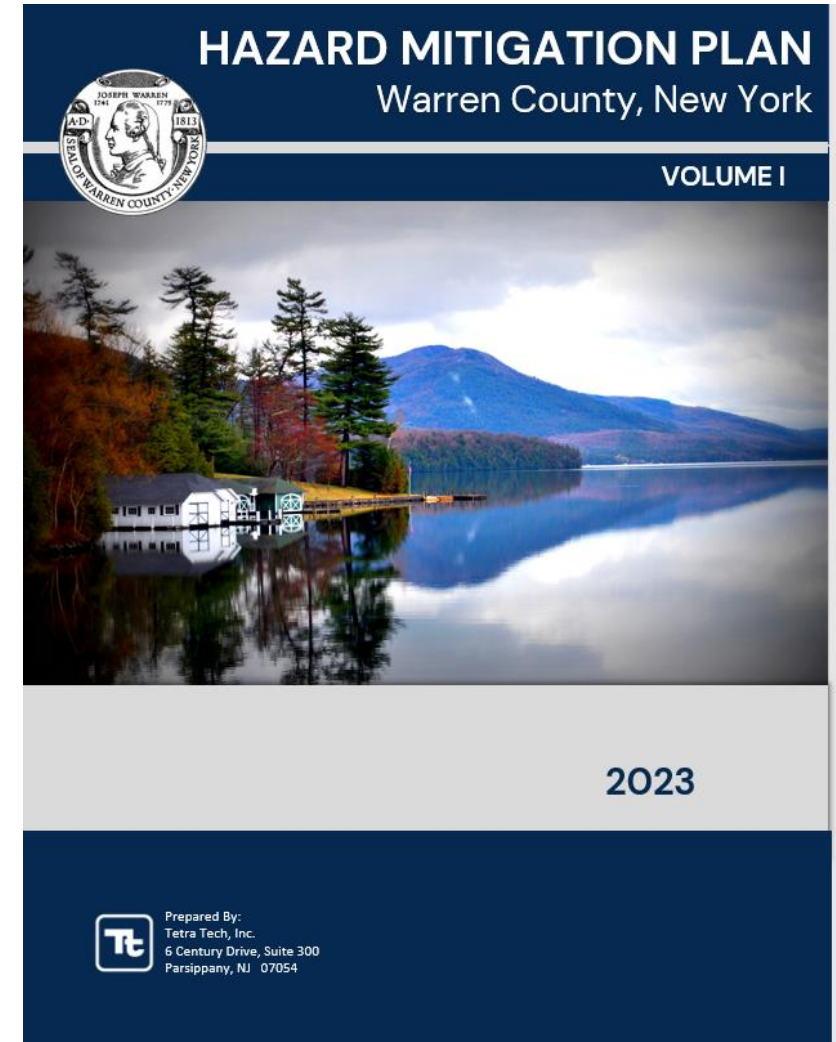
- Severe Storm



- Severe Winter Storm



- Wildfire







# Draft Plan Review – Section Contents

- Section 6 – Mitigation Strategies
  - Past accomplishments
  - Goals and Objectives
  - Capability Assessment
    - Available plans, programs, & resources
    - Administrative and technical capabilities
    - Fiscal capabilities
  - Mitigation strategy development and update
    - Action identification
    - Evaluation and prioritization
    - Benefit/cost review

*To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, socially vulnerable populations, and the public to eliminate or reduce risks and adverse impacts from natural, **and human-caused** hazards.*

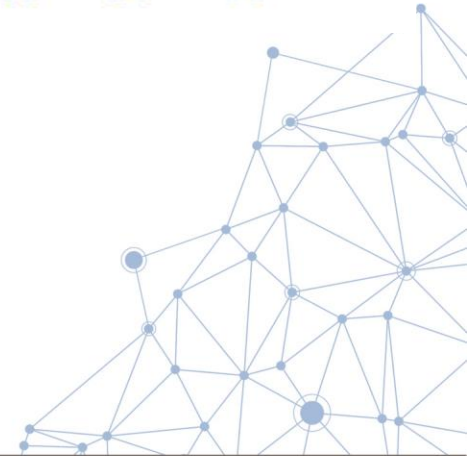
Discussion item: Omit human-caused hazards to align with FEMA HMP focus.





# Draft Plan Review – Section Contents

- Section 7 – Plan Maintenance
  - HMP Coordinator
  - Ongoing Planning Committee
  - Monitoring
  - Continuous evaluation and progress reports
    - FEMA Worksheets and BATool<sup>SM</sup>
  - Updating
  - Integration of hazard mitigation with existing and future programs
  - Continued public involvement







# BATool<sup>SM</sup>

- Online progress reporting for individual mitigation actions – pre-populated by Tetra Tech

[Prev Action](#) \* Action ID: TPQ - 1 [Next Action](#)

*Review of this Action has not started* [Add New Action](#)

[View Update History](#)

Please review and update this action by following the steps below and updating any/all fields (as needed).

*Step 1: Enter your name as the 'Reviewer' (then step 2 will be enabled for selection).*

\* Reviewer:

*Step 2: Update the 'Action Status' field. Please continue to review and update all other fields, as needed.*

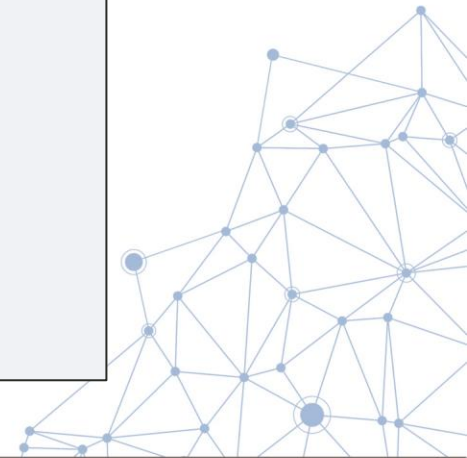
\* Action Status:

Previous Action Status:

Project/Action Status Comments:

\* Description of the Action:

Specific Problem Mitigated:







# Plan Maintenance Matrix

Task	Approach	Timeline	Lead Responsibility	Support Responsibility
Monitoring	Preparation of status updates and action implementation tracking as part of submission <b>for Annual Progress Report.</b>	January or upon major update to Comprehensive Plan or major disaster	Jurisdictional points of contact identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)	Jurisdictional implementation lead identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)
Integration	In order for integration of mitigation principles action to become an organic part of the ongoing county and municipal activities, <b>the county will incorporate the distribution of the safe growth worksheet (see 7.1.2 below) for annual review</b> and update by all participating jurisdictions.	January each year with interim email reminders to address integration in county and municipal activities.	HMP Coordinator and jurisdictional points of contact identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)	HMP Coordinator
Evaluation	Review the status of previous actions as submitted by the monitoring task lead and support to assess the effectiveness of the plan; compile and finalize the Annual Progress Report	Finalized progress report completed by January 15 of each year	Steering Committee; Plan Maintenance element	Jurisdictional points of contacts identified in Section 9 (Jurisdictional Annexes)
Update	<b>Reconvene the planning partners</b> , at a minimum, every 5 years to guide a comprehensive update to review and revise the plan.	Every 5 years or upon major update to Comprehensive Plan or major disaster	Warren County HMP Coordinator	Jurisdictional points of contacts identified in Section 9 (Jurisdictional Annexes)

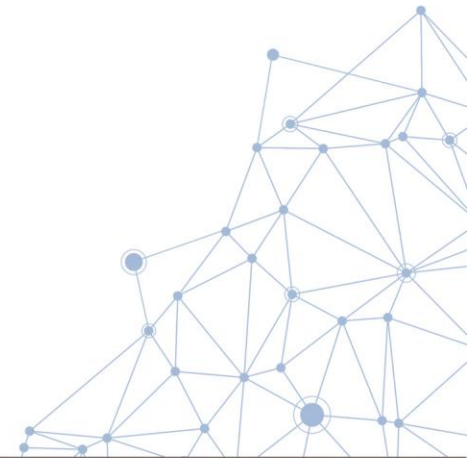




# Draft Plan Review – Section Contents

## Volume II

- **Section 8 – Planning Partnership**
  - Participating jurisdictions
  - Introduce jurisdictional annexes
- **Section 9 – Municipal Annexes**
  - Point of Contact
  - Municipal Profile
  - Capabilities
  - NFIP Participation
  - Risk Assessment
  - Critical Facilities
  - Status of Past Mitigation Actions
  - Current Mitigation Actions
  - Future Needs

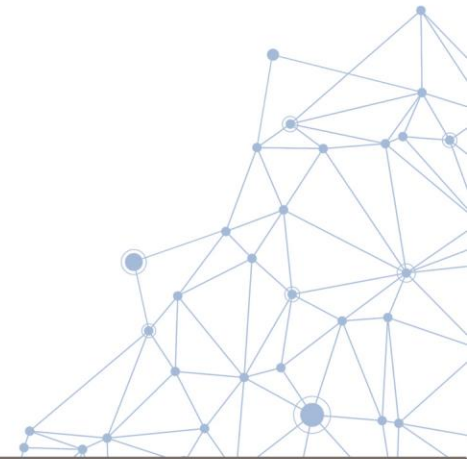






# Draft Plan Review – Section Contents

- Appendices
  - Appendix A – Plan Adoption
  - Appendix B – Participation Matrix
  - Appendix C – Meeting Documentation
  - Appendix D – Public and Stakeholder Outreach Documentation
  - Appendix E – County Profile and Risk Assessment Supplementary Data
  - Appendix F – Critical Facilities
  - Appendix G – FEMA Plan Review Tools
  - Appendix H – NYS DHSES 2017 Mitigation Planning Standards







# Steering Committee Review Guidance

- Documents posted on OneDrive for collaborative review
  - OneDrive guidance will provide direction on how to edit/comment
- Input requested
  - Provide additional or specific information
  - Correct errors or omissions
- All feedback requested on or before July 12<sup>th</sup>
  - Feedback will be incorporated as appropriate before Public Review
- Plan sections to be posted on the Warren HMP website for a 30-day review period
- Public feedback to be incorporated as appropriate prior to submittal to NYSDHSES/FEMA for agency review







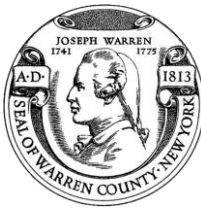
# Plan Adoption and Timeline

- Information on the planning process is available here: (<https://www.warrencountynyorkhmp.com>)
- Draft plan sections will be posted for public review and comment beginning August 1st for 30 days
- The plan will be submitted for review and approval by NYSDHSES and FEMA in November
- Adoption of the plan by the community is required to be deemed **APPROVED** by FEMA.

The screenshot shows the website for the Warren County Hazard Mitigation Plan 2023 Update. The header is dark blue with the Warren County seal and the title 'WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE'. Below the header is a navigation bar with links: Home, About, What Is Mitigation, Meetings, Calendar, Explore the Plan, and Additional Information. The main content area is white and features the heading 'Explore the Plan'. Below this, it says '2023 Warren County Hazard Mitigation Plan Update' and 'Sections of the 2023 Warren County HMP update will be posted as available.' There is a section titled 'Municipal Annexes' with a list of annexes and a 'Download' link for each:

Municipal Annexes	Download
• 9.02_Town of Bolton	Download
• 9.03_Town of Chester	Download
• 9.04_City of Glens Falls	Download
• 9.05_Town of Hague	Download
• 9.06_Town of Horicon	Download
• 9.07_Town of Johnsbury	Download
• 9.08_Town of Lake George	Download
• 9.09_Village of Lake George	Download
• 9.10_Town of Lake Luzerne	Download






# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours

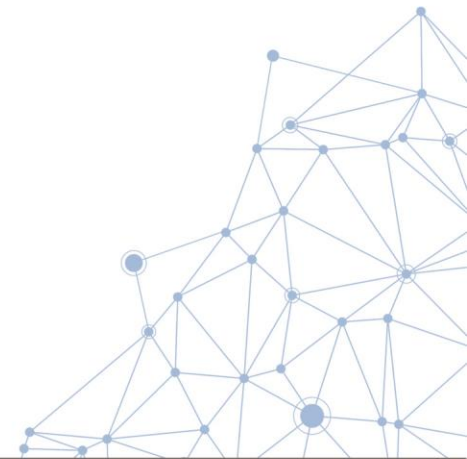






# Next Steps

- Finalize Jurisdictional Annexes – in progress, drafts posted on OneDrive and [www.warren](http://www.warren)
- Steering Committee Plan Review – Now through July 12th
- Update Plan Based on Steering Committee Feedback
- Draft Posted for Public Review and Comment – August 1<sup>st</sup> – 30 Days
- Submit to NYS DHSES and FEMA – September 2023
  - Estimated 45-day review period
- BATool<sup>SM</sup> Webinar to Review Plan Maintenance
- Plan Adoption by County and Participating Municipalities





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





## APPENDIX D. PUBLIC AND STAKEHOLDER OUTREACH

This appendix provides documentation of public and stakeholder outreach. Stakeholder involvement in this planning process was broad and productive as discussed and further documented in Section 3 (Planning Process). Public and stakeholder input has been incorporated throughout this HMP as appropriate, as identified in Section 3 and the References section, as well as within specific mitigation initiatives identified within the jurisdictional annexes (Section 9). Respondent feedback filtered by jurisdiction is included in each jurisdictional annex as available to provide an indication of community resident concerns related to natural hazards.

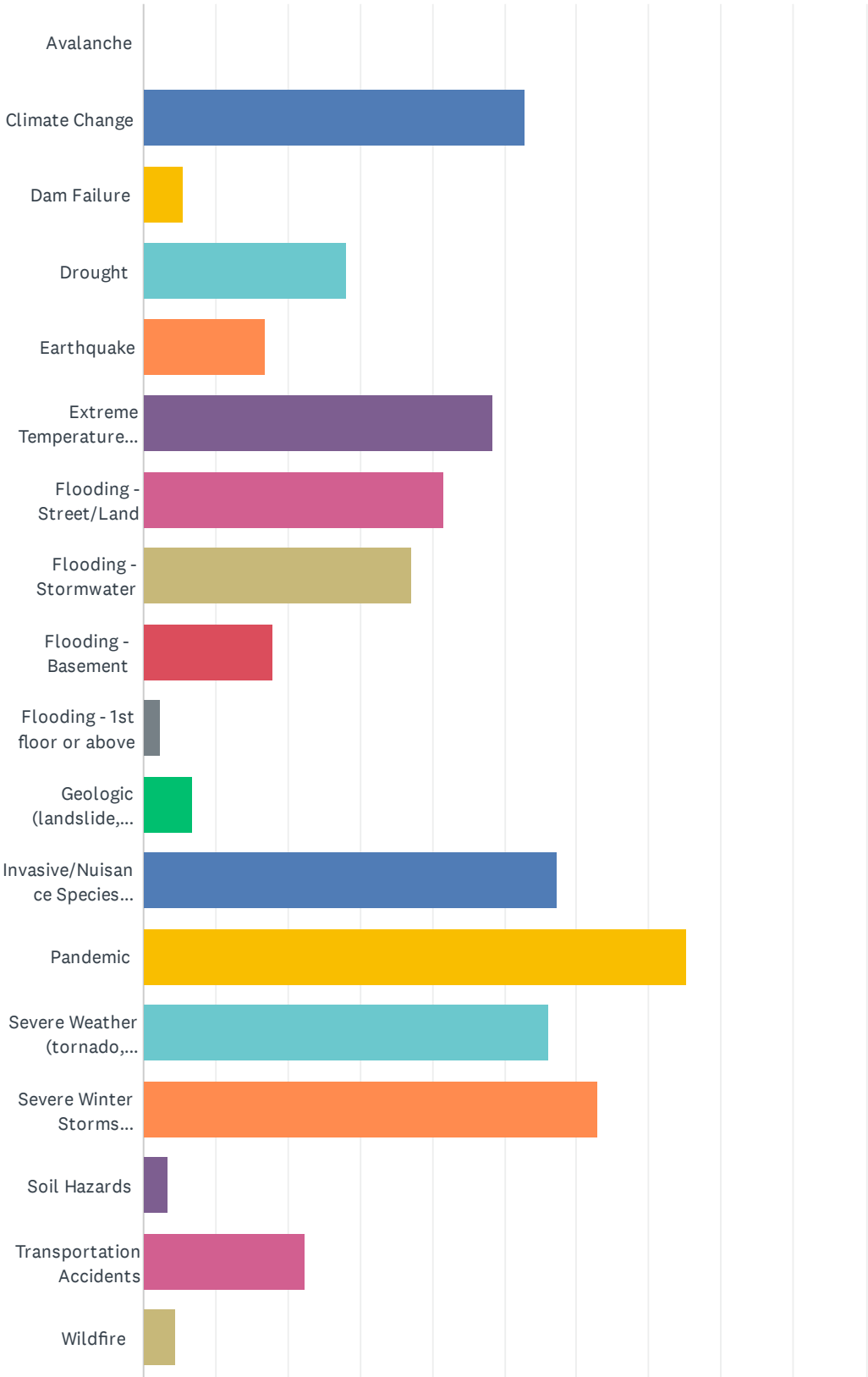
### D.1 WARREN COUNTY CITIZEN SURVEY RESULTS

This section contains information and results gathered from the Warren County Citizen Survey. The main objective of this survey was to gather information from citizens regarding their level of knowledge regarding hazard vulnerability and knowledge of hazard mitigation information for their local communities. Over 90 respondents completed this survey over a period of 12 months during the planning process. The survey was available on Warren County website and the HMP website at: <https://www.warrencountynewyorkhmp.com>. The survey results are provided in the following pages, with personal information redacted.



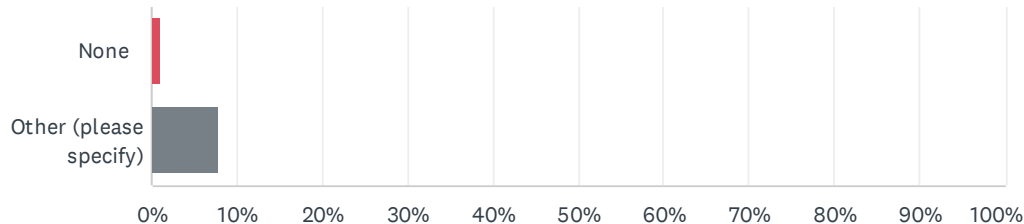
Q1 In the past 10 years, which of the following hazard events have you experienced in Warren County? Check all that apply.

Answered: 89    Skipped: 1





# Warren County Hazard Mitigation Plan Update - Public Survey



ANSWER CHOICES	RESPONSES	
Avalanche	0.00%	0
Climate Change	52.81%	47
Dam Failure	5.62%	5
Drought	28.09%	25
Earthquake	16.85%	15
Extreme Temperature (heat and cold)	48.31%	43
Flooding - Street/Land	41.57%	37
Flooding - Stormwater	37.08%	33
Flooding - Basement	17.98%	16
Flooding - 1st floor or above	2.25%	2
Geologic (landslide, sinkholes, subsidence)	6.74%	6
Invasive/Nuisance Species (harmful algal bloom, spotted lanternfly, etc.)	57.30%	51
Pandemic	75.28%	67
Severe Weather (tornado, thunderstorm, hail)	56.18%	50
Severe Winter Storms (blizzard, heavy snow, ice)	62.92%	56
Soil Hazards	3.37%	3
Transportation Accidents	22.47%	20
Wildfire	4.49%	4
None	1.12%	1
Other (please specify)	7.87%	7
Total Respondents: 89		

#	OTHER (PLEASE SPECIFY)	DATE
1	Air Quality Danger from Canadian Wildfires	8/2/2023 8:24 AM
2	Spongy Moths	12/21/2022 10:17 AM
3	salt runoff into my private well near Church Hill Road in Bolton Landing	12/11/2022 10:06 AM
4	high winds; raw sewage releases into the Hudson River	12/10/2022 11:36 AM
5	Tree failures. Blocking the road	12/10/2022 8:19 AM



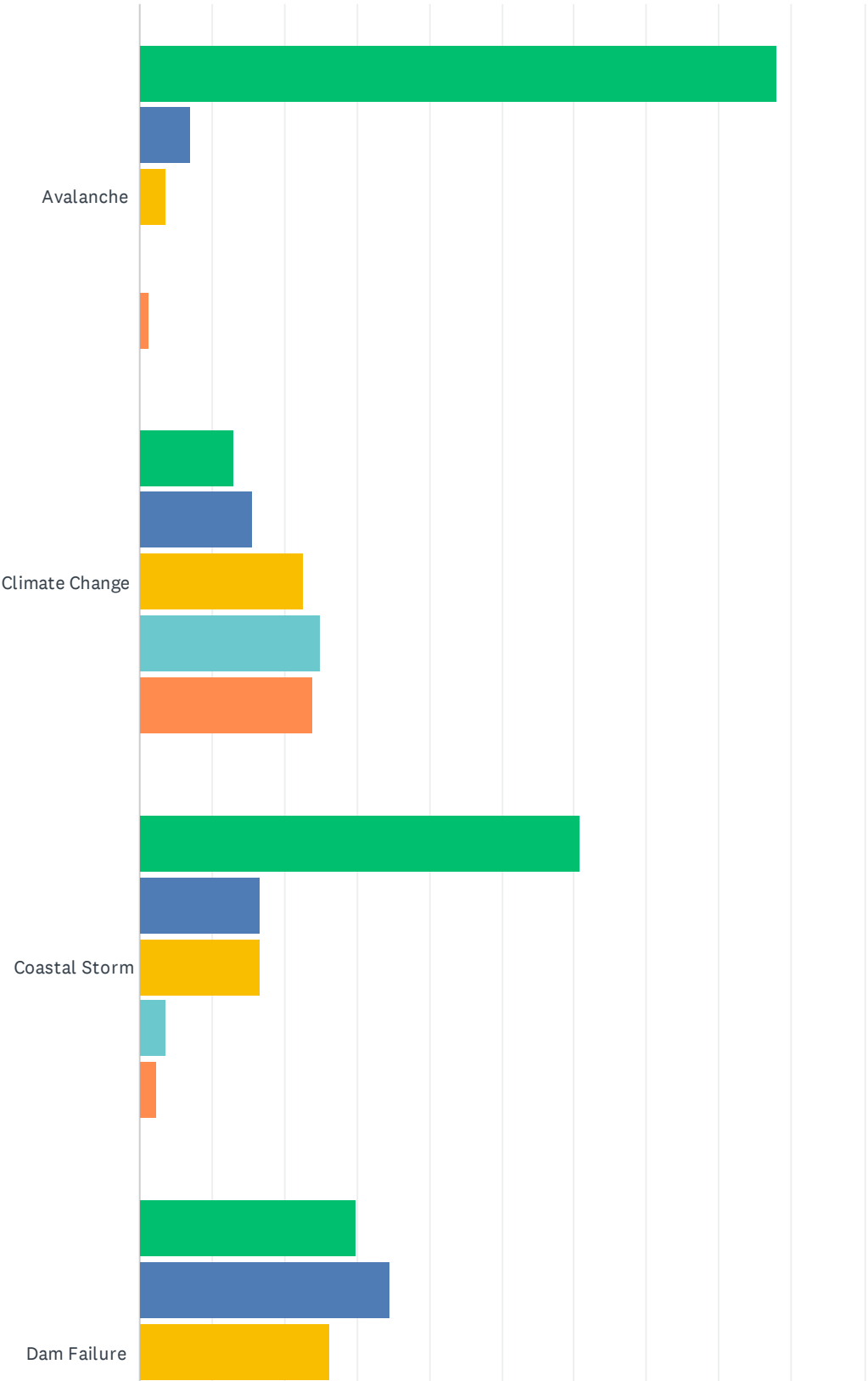
## Warren County Hazard Mitigation Plan Update - Public Survey

6	Sewage backup from street to basement, sewage gas fumes in HVAC floor vents	12/9/2022 9:35 PM
7	tree fell on house	12/9/2022 8:50 PM



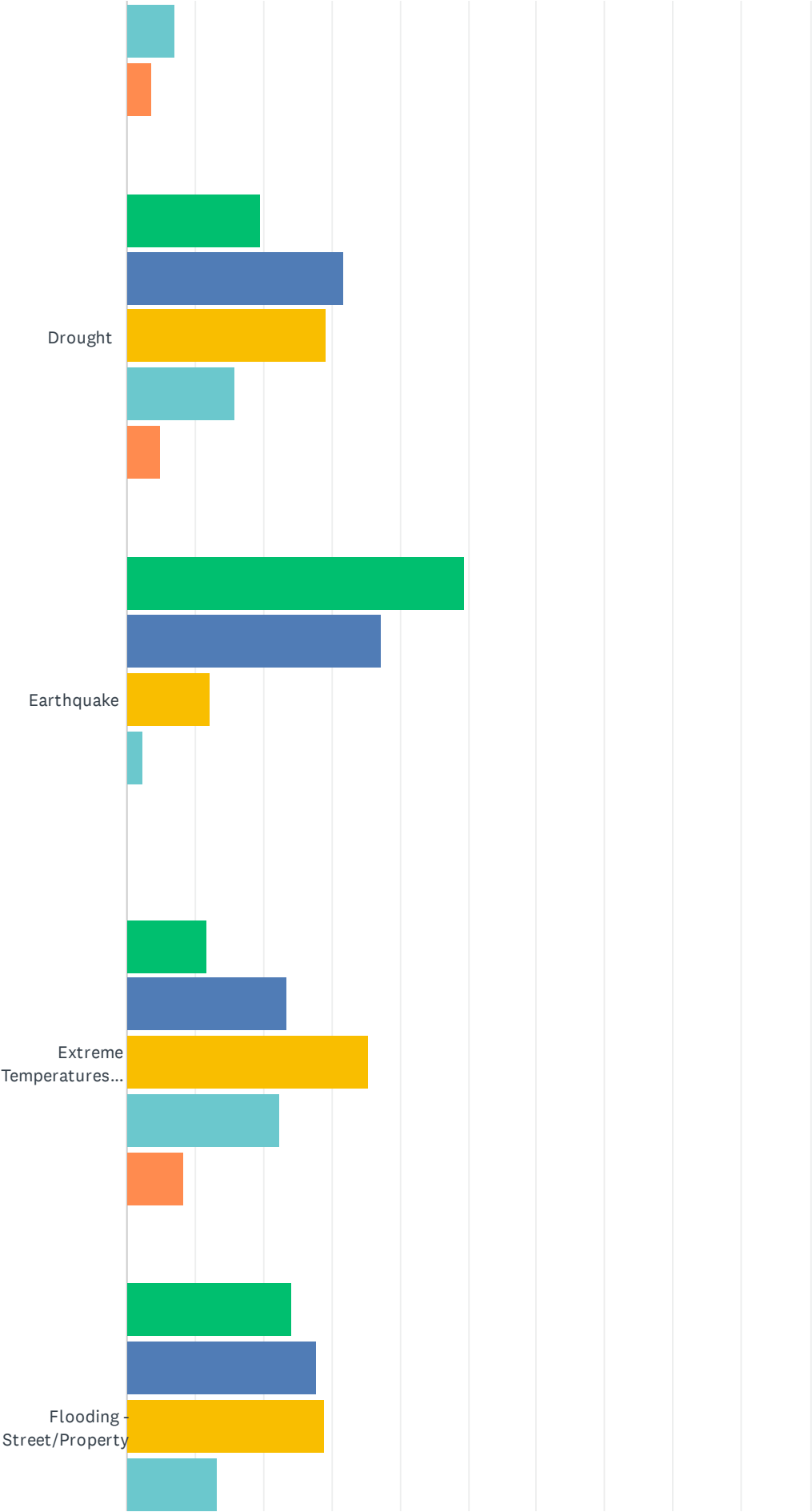
Q2 How concerned are you about the following hazards in Warren County?  
Please check one for each hazard.

Answered: 89    Skipped: 1



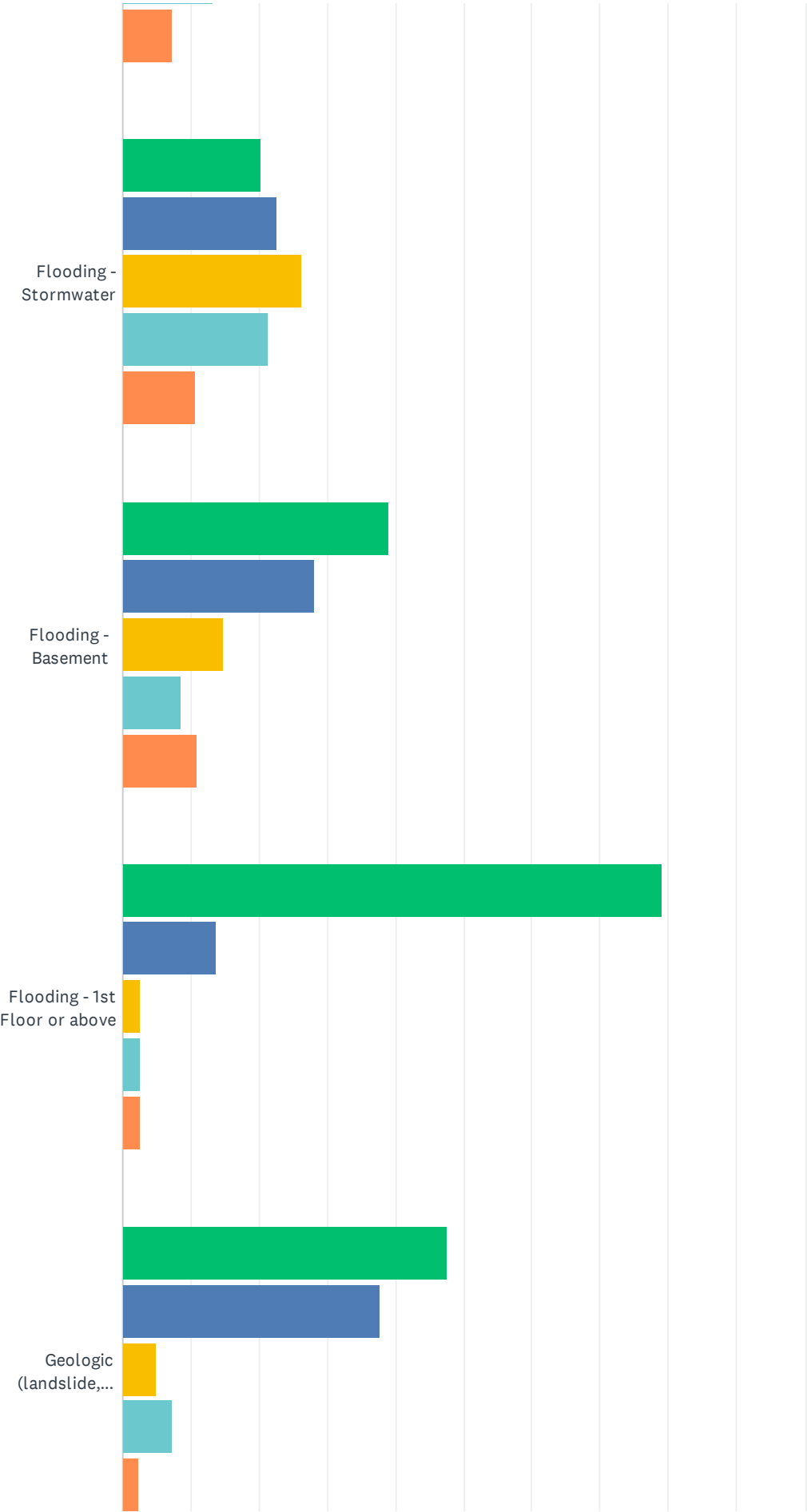


Warren County Hazard Mitigation Plan Update - Public Survey



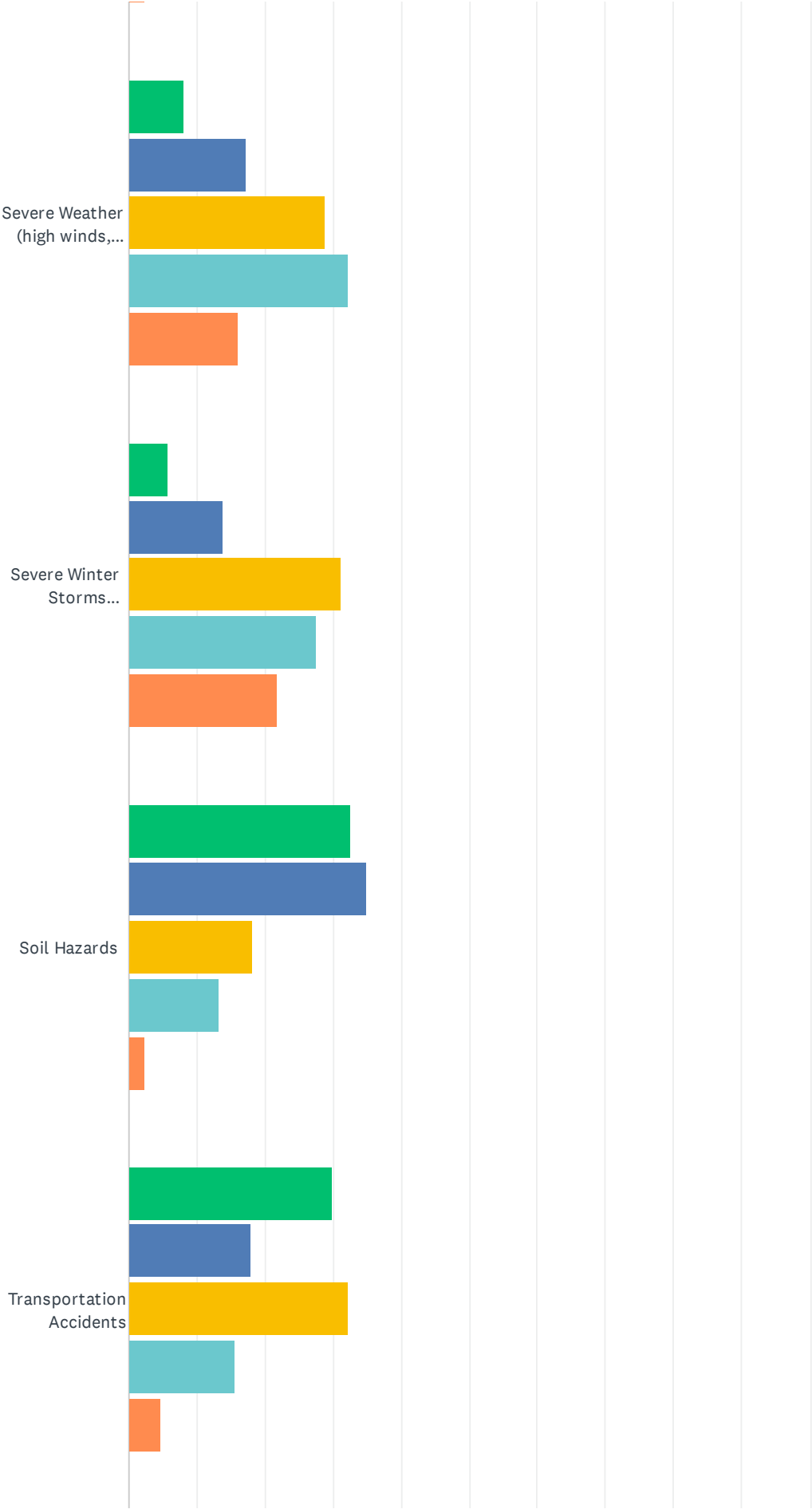


Warren County Hazard Mitigation Plan Update - Public Survey



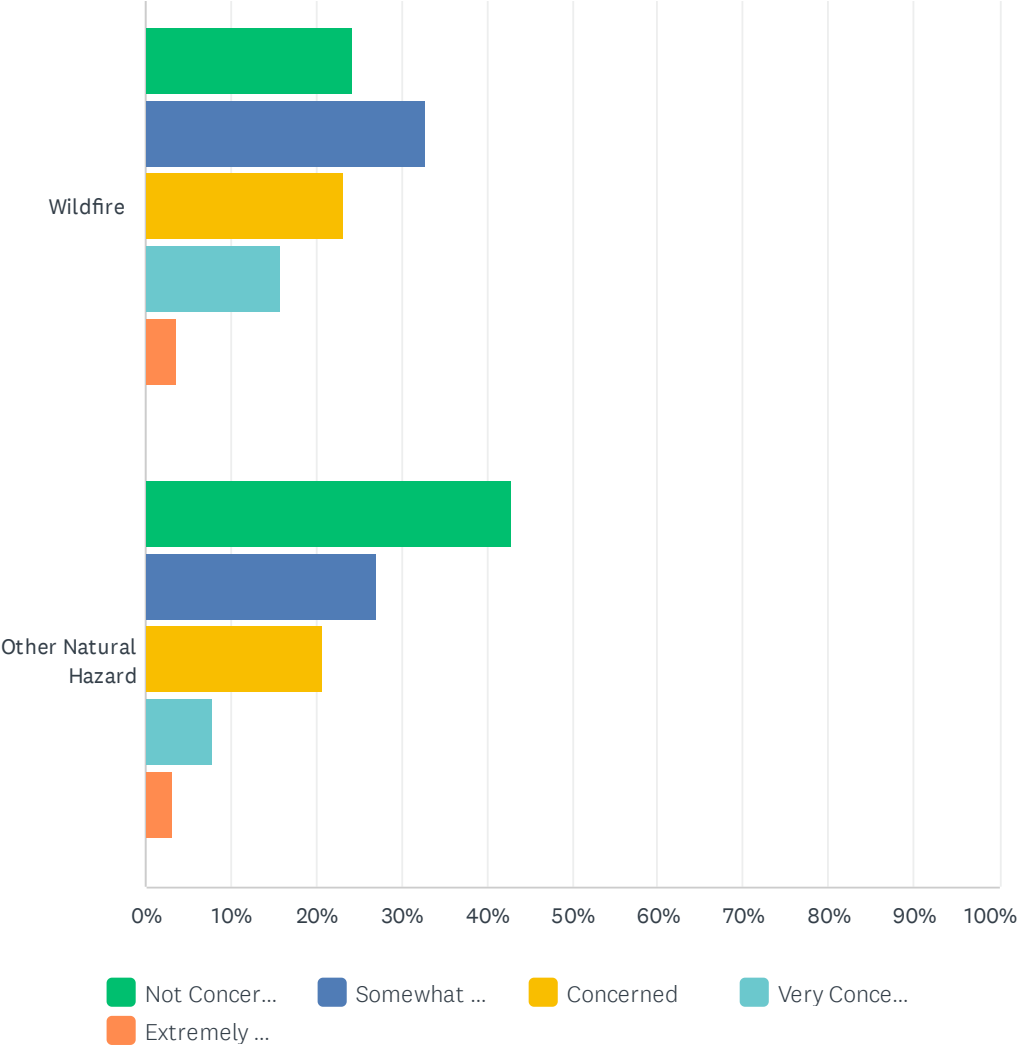


Warren County Hazard Mitigation Plan Update - Public Survey





Warren County Hazard Mitigation Plan Update - Public Survey





# Warren County Hazard Mitigation Plan Update - Public Survey

	NOT CONCERNED	SOMEWHAT CONCERNED	CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED	TOTAL RESPONDENTS
Avalanche	88.10% 74	7.14% 6	3.57% 3	0.00% 0	1.19% 1	84
Climate Change	13.10% 11	15.48% 13	22.62% 19	25.00% 21	23.81% 20	84
Coastal Storm	60.71% 51	16.67% 14	16.67% 14	3.57% 3	2.38% 2	84
Dam Failure	29.76% 25	34.52% 29	26.19% 22	7.14% 6	3.57% 3	84
Drought	19.51% 16	31.71% 26	29.27% 24	15.85% 13	4.88% 4	82
Earthquake	49.40% 41	37.35% 31	12.05% 10	2.41% 2	0.00% 0	83
Extreme Temperatures (heat and cold)	11.76% 10	23.53% 20	35.29% 30	22.35% 19	8.24% 7	85
Flooding - Street/Property	24.10% 20	27.71% 23	28.92% 24	13.25% 11	7.23% 6	83
Flooding - Stormwater	20.24% 17	22.62% 19	26.19% 22	21.43% 18	10.71% 9	84
Flooding - Basement	39.02% 32	28.05% 23	14.63% 12	8.54% 7	10.98% 9	82
Flooding - 1st Floor or above	79.01% 64	13.58% 11	2.47% 2	2.47% 2	2.47% 2	81
Geologic (landslide, sinkholes, subsidence)	47.56% 39	37.80% 31	4.88% 4	7.32% 6	2.44% 2	82
Severe Weather (high winds, lightning, hail)	8.05% 7	17.24% 15	28.74% 25	32.18% 28	16.09% 14	87
Severe Winter Storms (blizzard, heavy snow, ice)	5.75% 5	13.79% 12	31.03% 27	27.59% 24	21.84% 19	87
Soil Hazards	32.53% 27	34.94% 29	18.07% 15	13.25% 11	2.41% 2	83
Transportation Accidents	29.76% 25	17.86% 15	32.14% 27	15.48% 13	4.76% 4	84
Wildfire	24.39% 20	32.93% 27	23.17% 19	15.85% 13	3.66% 3	82
Other Natural Hazard	42.86% 27	26.98% 17	20.63% 13	7.94% 5	3.17% 2	63

#	OTHER (PLEASE SPECIFY)	DATE
1	Air Quality Dangers	8/2/2023 8:24 AM
2	invasive species ie ash borers	3/15/2023 8:40 AM
3	mass shootings	3/11/2023 6:56 AM
4	Invasive species	3/10/2023 9:13 PM
5	G E and Finch landfills, Hudson River	3/10/2023 7:41 PM
6	Invasive insect forest destruction, power grid failure	1/12/2023 1:43 PM



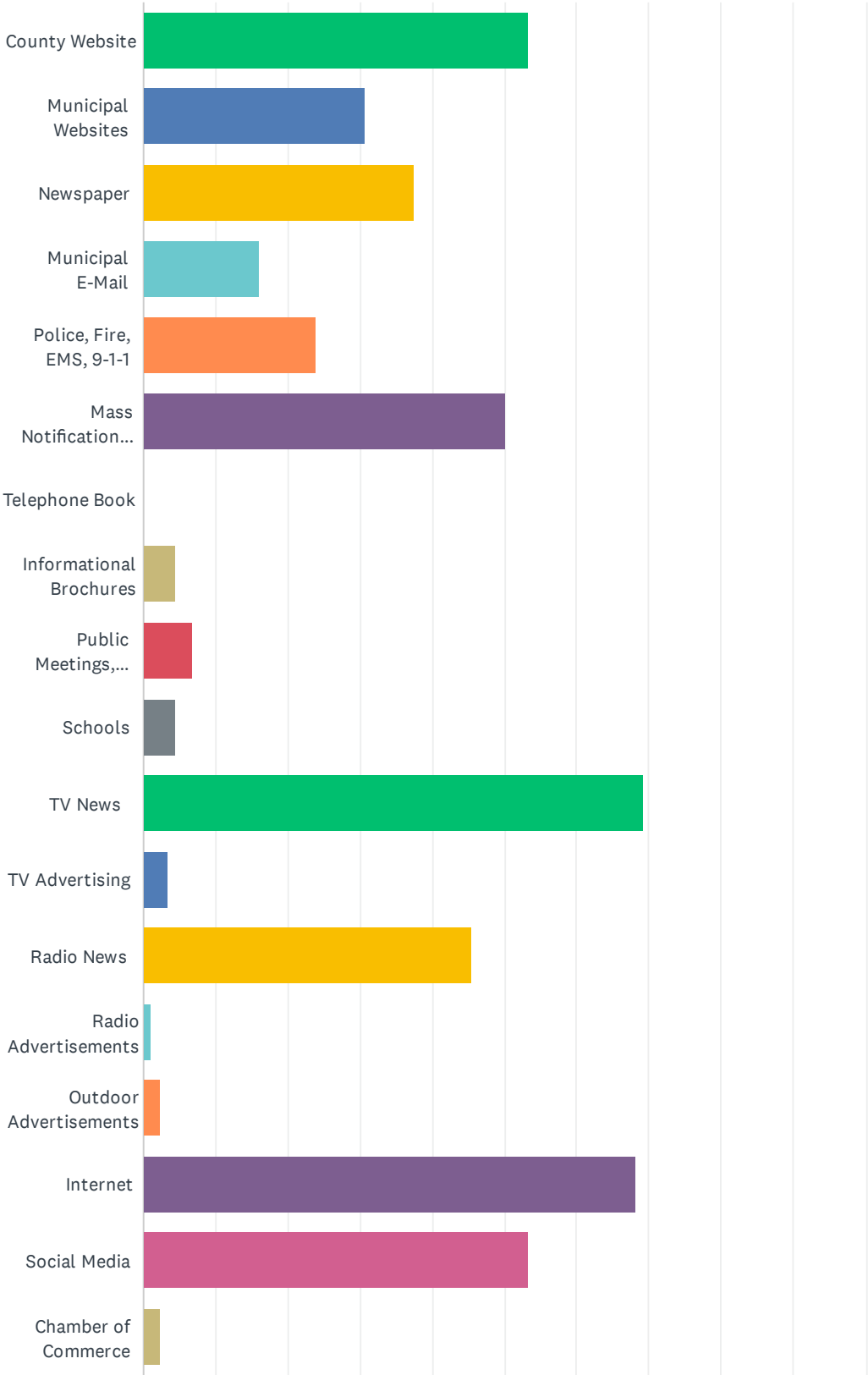
# Warren County Hazard Mitigation Plan Update - Public Survey

7	Aging Infrastructure	12/27/2022 7:03 AM
8	Invasive species impacts	12/21/2022 10:17 AM
9	Invasive insects	12/20/2022 1:35 PM
10	oil/gas/antifreeze seepage from dock storage at North Bolton Road/Church Hill Road into my pond/catch-basin	12/11/2022 10:06 AM
11	algae blooms	12/10/2022 11:45 AM
12	Power service interruptions should be on your list as they are a very big concern.	12/10/2022 6:52 AM
13	aquifer drainage by Just Water. Toxic air pollution by Finch Pruyn etc	12/9/2022 10:21 PM
14	Tornado	12/9/2022 9:35 PM
15	Invasive species	12/6/2022 10:16 AM



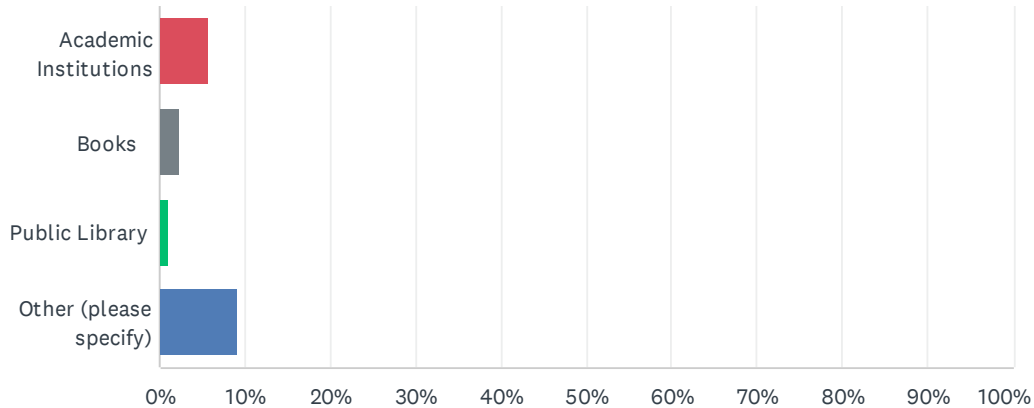
Q3 How do you receive your information concerning a disaster? Check all that apply.

Answered: 88 Skipped: 2





# Warren County Hazard Mitigation Plan Update - Public Survey



ANSWER CHOICES	RESPONSES	
County Website	53.41%	47
Municipal Websites	30.68%	27
Newspaper	37.50%	33
Municipal E-Mail	15.91%	14
Police, Fire, EMS, 9-1-1	23.86%	21
Mass Notification System (e.g. NYAlert)	50.00%	44
Telephone Book	0.00%	0
Informational Brochures	4.55%	4
Public Meetings, Workshops, Public Awareness Events	6.82%	6
Schools	4.55%	4
TV News	69.32%	61
TV Advertising	3.41%	3
Radio News	45.45%	40
Radio Advertisements	1.14%	1
Outdoor Advertisements	2.27%	2
Internet	68.18%	60
Social Media	53.41%	47
Chamber of Commerce	2.27%	2
Academic Institutions	5.68%	5
Books	2.27%	2
Public Library	1.14%	1
Other (please specify)	9.09%	8
Total Respondents: 88		



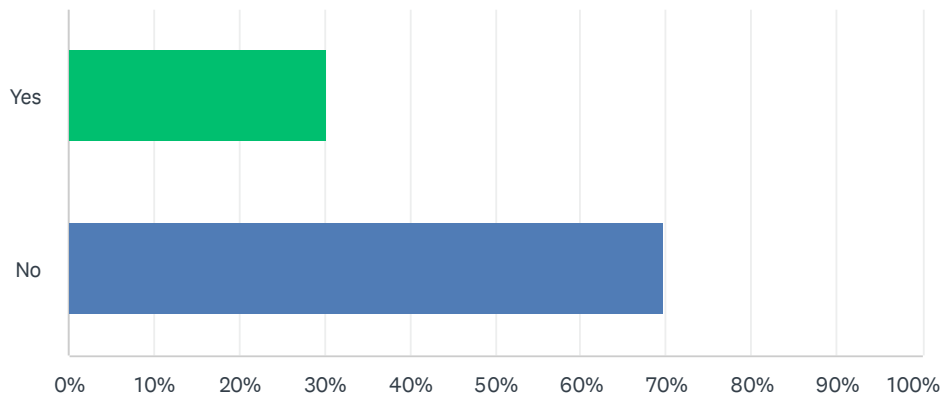
# Warren County Hazard Mitigation Plan Update - Public Survey

#	OTHER (PLEASE SPECIFY)	DATE
1	Google phone alerts	7/13/2023 9:20 AM
2	Word of mouth	3/9/2023 6:24 AM
3	Phone/text communication w/ colleagues, friends, family	1/12/2023 1:05 PM
4	Utility Company Alerts (National Grid/Spectrum)	1/8/2023 4:40 PM
5	I am responding	12/14/2022 8:12 AM
6	NY.gov text alerts	12/12/2022 12:02 PM
7	National Grid notifications (Town of Bolton & Warren County do not send emails)	12/11/2022 10:06 AM
8	Friends who work in the fields	12/9/2022 9:35 PM



## Q4 In the past, has your home been damaged by a hazard event? For example, the basement of your home flooded and damaged the hot water heater.

Answered: 86 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	30.23%	26
No	69.77%	60
TOTAL		86

#	PLEASE EXPLAIN THE TYPE OF DAMAGE SUSTAINED AND WHEN IT OCCURRED.	DATE
1	Severe storm with lightening damage. Furnace, Door Opener, Elec Damage.	7/24/2023 9:37 AM
2	Extreme cold, frozen water pipes	7/13/2023 7:58 AM
3	roof shingles torn off in wind event in summer 2022	7/12/2023 4:26 PM
4	Wind damage to roof, water damage to ceilings, ice damage, electric system damage from lightning strike	7/11/2023 2:16 PM
5	Tree fell on house	3/11/2023 3:55 AM
6	Wind damage to roof and eaves	3/10/2023 9:13 PM
7	Wind damaged roof, lightning hit tree and traveled into house, damaging electrical system	3/9/2023 1:37 PM
8	Trees falling, high winds	3/9/2023 6:24 AM
9	We had severe rain and driving winds and our basement floor had water soaked through the concrete foundation; this was in the past year. About 3-4 years ago, we had an earthquake which caused some cracking in our house walls and shifting so the interior doors didn't close correctly anymore.	2/15/2023 1:01 PM
10	Sewer backup flooded into basement after a storm event.	1/12/2023 1:05 PM
11	I did have some flooding from a recent severe rain storm and my contractor was able to fix the roof issue that happened due to severe rain and then immediate 40 mph winds.	1/8/2023 4:40 PM
12	Basement flooded	12/20/2022 1:35 PM
13	Basement flood caused furnace outage and resulted in frozen pipes	12/14/2022 7:24 AM



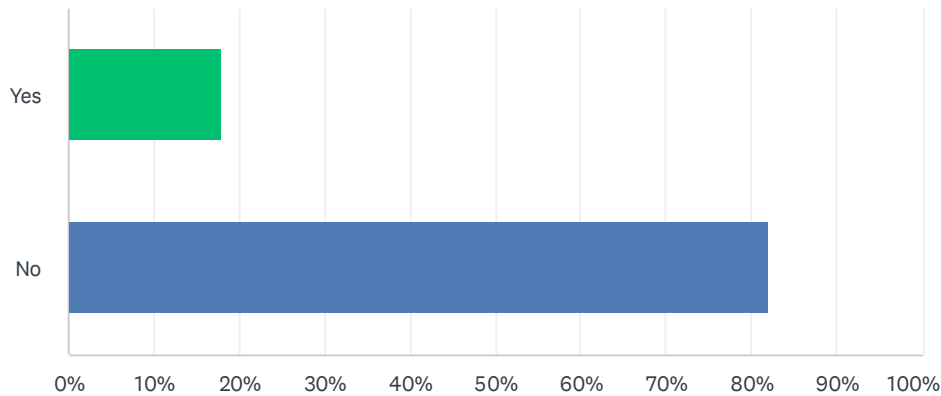
## Warren County Hazard Mitigation Plan Update - Public Survey

14	Basement in home flooded from ice storm causing flooring and walls needing to be replaced.	12/12/2022 12:02 PM
15	Due to the constant flooding from climate change and no longer just the spring thaw my basement floors have cracked and pieces of the concrete flooring are eroding/chipping and white mold has appeared	12/12/2022 9:31 AM
16	There's a county storm drain underneath Brook St, in the town of Bolton, that shoots huge volumes of water onto three other properties including mine, with it, we receive rocks, raw sewage, sand, glass, soil from upstream tributaries, and road debris. This is in addition to the widened culvert drain pipe running under Brook and Stewart Ave.	12/11/2022 5:05 PM
17	My garage is sinking because Warren County raised the road ~5 feet at the brook so my garage is now the lowest point on North Bolton Road at the foot of Church Hill Road. This resulted in NO drainage from the west side to east side of the road, almost no drainage north-to-south from garage to brook. This causes flooding in the road (as well as my former garden area and my garage foundation) all spring and summer AND ice all winter across North Bolton Road. Repeated requests for drainage solutions have been repulsed.	12/11/2022 10:06 AM
18	Storm drainage system failure in 30" CMP, caused wash out and beach failure. From the washout silts and stones washed into lake George causing a delta of sand and stone and asphalt	12/11/2022 7:50 AM
19	Basement flood	12/10/2022 2:31 PM
20	high winds have caused tree branches to come down and hit the house; roof shingle damage	12/10/2022 11:36 AM
21	Roof damage and leak from strong wind thunderstorm resulted in interior damage	12/10/2022 7:27 AM
22	Broken sewer line backed up into the basement with sewer gas fumes into my HVAC floor vents a few months ago. I developed both polycythemia and obstructive sleep apnea that may be related to previously diagnosed rare autoimmune neuromuscular disease OR the sewer line may have contributed	12/9/2022 9:35 PM
23	Tree fell on house in high wind - 2016 & 2022 Crawl space flooded - 2011	12/9/2022 8:50 PM
24	hot water heater	12/9/2022 4:50 PM
25	Hail storm. House roof had to be replaced. Additionally, car needed major (auto body) repair.	12/9/2022 2:14 PM
26	Severe thunderstorms, roof damage.	12/6/2022 10:16 AM



Q5 If you answered 'yes' above, did you report the damages to your local police or fire departments or to an emergency management agency?

Answered: 56    Skipped: 34

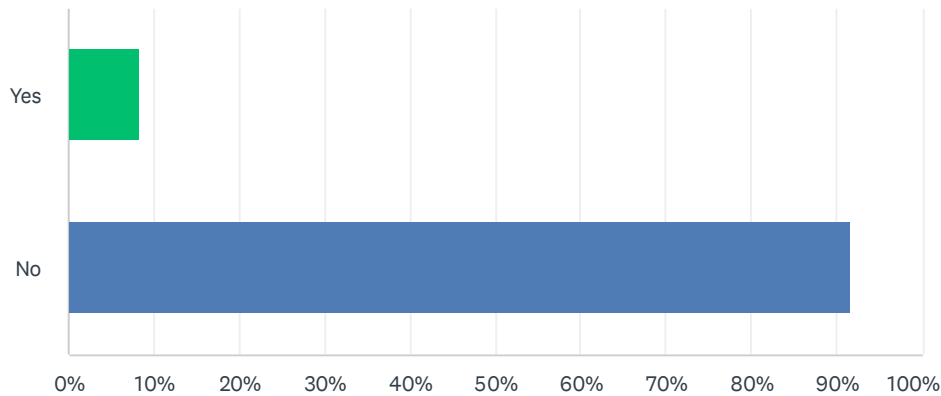


ANSWER CHOICES	RESPONSES	
Yes	17.86%	10
No	82.14%	46
TOTAL		56



Q6 To the best of your knowledge, is your property located in a designated floodplain? If you do not know, click here to find out.

Answered: 85    Skipped: 5

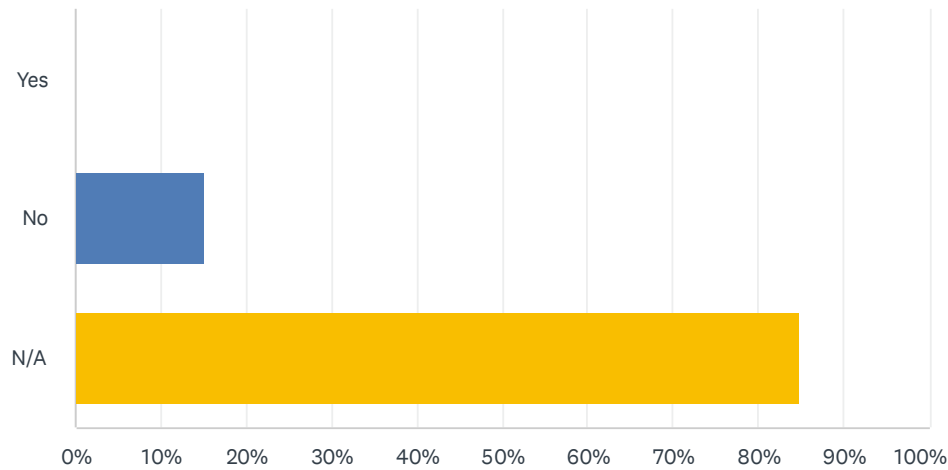


ANSWER CHOICES	RESPONSES	
Yes	8.24%	7
No	91.76%	78
TOTAL		85



Q7 If your property is in the floodplain, do you have flood insurance?

Answered: 79    Skipped: 11

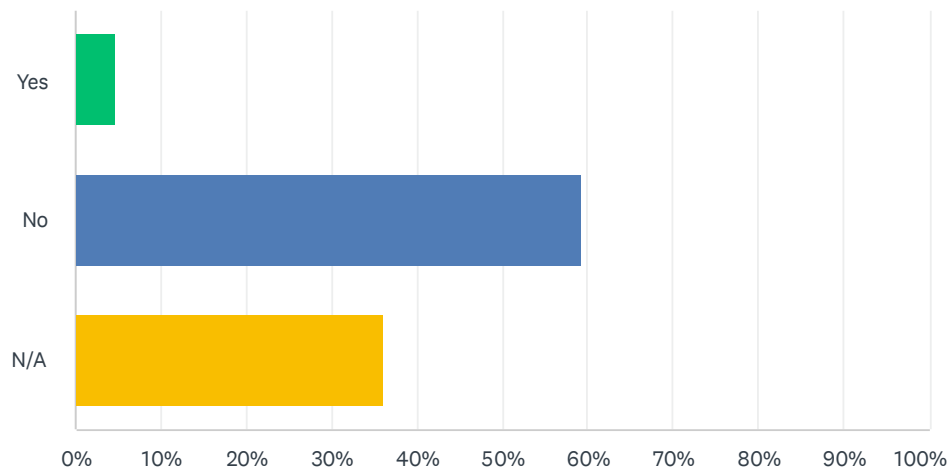


ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		15.19%	12
N/A		84.81%	67
TOTAL			79



Q8 If your property is located outside of the floodplain, do you have flood insurance?

Answered: 86    Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	4.65%	4
No	59.30%	51
N/A	36.05%	31
TOTAL		86



**Q9 Please identify any specific vulnerabilities that you are aware of in your city/town/village (e.g. floodprone areas or specific properties, critical facilities that lack backup power, etc.). Please list street names and other specific identifiers if possible.**

Answered: 45 Skipped: 45

#	RESPONSES	DATE
1	All of Warren County is susceptible to air quality dangers, as recently experienced from the Canadian Wildfires. The Hazard Mitigation plan is critically deficient regarding this danger.	8/2/2023 8:29 AM
2	13th Lake Road, North River, NY - 1st mile gabion wall.	7/14/2023 12:32 PM
3	The above-ground electric poles along Bloody Pond Road (and elsewhere in LG) are prone to outages due to wind and snow. Buried lines would be safer.	7/13/2023 9:23 AM
4	Thurman Bridge Spring Ice Jam 418	7/13/2023 8:02 AM
5	Stormwater washing out roads	7/12/2023 4:33 PM
6	Glens Falls watershed dams had concerns. Stormwater basins frequently overflow in Queensbury	7/11/2023 2:18 PM
7	Pine Tree Lane Diamond Point Always having power outages when others don't. They can last up to four days.	3/11/2023 10:56 AM
8	lack of back up power	3/11/2023 8:36 AM
9	Loon Lake Dam Failure. Power outages due to lack of appropriate tree removal along power lines.	3/11/2023 7:01 AM
10	Poor cell service. Lake Luzerne	3/10/2023 8:44 PM
11	Queensbury boat launch, Glen Lake, Lake George, Hudson	3/10/2023 7:45 PM
12	Susceptibility to flooding, poorly maintained dams owned by city of Glens Falls.	3/9/2023 1:38 PM
13	Schools lack of back up power in the event power goes out and lack heating elements. Trees along residential roads that aren't cut back. Power drainage on road ways.	3/9/2023 6:32 AM
14	I only work in Warren County; I live in Saratoga County. I don't believe this question is applicable to me.	2/24/2023 8:55 AM
15	prone to power outages from trees on lines	2/16/2023 2:05 PM
16	general back-up power, snow/ice blockage on highways	2/15/2023 1:58 PM
17	Floodprone area on Meadowbrook Road @ Halfway Brook	2/15/2023 1:34 PM
18	low water levels in kattskill bay lake george due to water management practices	2/15/2023 1:33 PM
19	None that I'm	2/15/2023 12:41 PM
20	n/a	2/15/2023 12:40 PM
21	None known	1/15/2023 10:53 PM
22	Apartment building for disabled and retired with all electric heat. No on demand generator. Located at 10 Manor Rd.	1/13/2023 2:03 PM
23	13th Lake Road, North River. The gabion walls are pushed out and look like they will give at any time. Also rocks fall in the middle of the road all the time.	1/12/2023 3:57 PM
24	Flooding - 9N S/Hidden Valley Drive (Tubby Tubes-Lake Luzerne, NY 12846), due to a sewer	1/8/2023 4:44 PM



## Warren County Hazard Mitigation Plan Update - Public Survey

drain that doesn't handle all the water, causing back up and ice/danger in winter. Trees down in my property from recent high winds (1275 Lake Avenue, Lake Luzerne, 12846)

25	Water Tank control panel without power backup	12/27/2022 7:07 AM
26	None	12/23/2022 3:24 PM
27	Ice jamming on Hudson River at 418 Bridge. Flooding on River Road	12/21/2022 10:22 AM
28	See initial list of environmental threats experienced in this region	12/14/2022 3:47 PM
29	Lake George sewage treatment plant has minimal security and is vulnerable to walk up attacks on infrastructure.	12/14/2022 7:27 AM
30	None	12/14/2022 6:49 AM
31	Numerous roads and stream crossings could be subject to flood/storm damage.	12/14/2022 6:03 AM
32	East End in Glens Falls is known for being a high water table area	12/12/2022 9:33 AM
33	North Bolton Road at the foot of Church Hill Road is continually flooded due to the road having been raised several years ago. Raising the road removed all drainage possibilities and County officials refuse to do anything to correct the problem.	12/11/2022 10:09 AM
34	Storm Drainage system that runs down the Lakeview Circle drive in the town of lake George and crosses Lake Shore Dr in the town of lake George and continues down to the lakefront between the Fairview Improvement association property and the lake view terrace property.	12/11/2022 8:00 AM
35	Lack of municipal sewer and water	12/10/2022 2:32 PM
36	na	12/10/2022 11:49 AM
37	poor drainage for city streets (most streets in Glens Falls); raw sewage releases into the Hudson River (sometimes even if it only rains briefly); Poor tree maintenance causes downed branches in the high winds we now get for many months of the year.	12/10/2022 11:44 AM
38	My road is collapsing into a stream. Many dead trees along the road. So called protected land around the watershed is not protected or monitored	12/10/2022 8:22 AM
39	C/Glens Falls flood prone streets. Warren St, Mohican St, CR 19 T/Chester. SR 418 bridge & River Rd, Barton Mines RD Johnsburg	12/10/2022 7:39 AM
40	Loon Lake Dam, Rt 8/9, Chestertown	12/10/2022 6:57 AM
41	ZERO fragrance-free emergency shelters! Acute respiratory response / reactive airways when exposed for perfumes, scented products (ubiquitous), etc. ALSO: FEMA Flood Map makes ZERO sense! Unable to determine if my address is - or is not - in a flood plain: Fredella Avenue, Glens Falls, NY.	12/9/2022 9:47 PM
42	Hudson River Basin Lake Luzerne to Corinth	12/9/2022 8:54 PM
43	We have experienced power outages for as lengthy as 5 days. being on a deep well, the outage not only effects our lights and heat, but water as well.	12/9/2022 7:25 PM
44	Electric	12/9/2022 12:13 PM
45	Glens Falls dams on West Mountain	12/9/2022 9:03 AM



**Q10 Please identify any specific vulnerable areas outside of your city/town/village (e.g. flood-prone areas or specific properties, critical facilities that lack backup power, etc.). Please list the city/town/village, street names, and other specific identifiers if possible.**

Answered: 33    Skipped: 57

#	RESPONSES	DATE
1	n/a	8/2/2023 8:29 AM
2	n/a	7/13/2023 9:23 AM
3	Post office is located on Number 9 Brook.	7/13/2023 8:14 AM
4	Hague Brook flooding	7/12/2023 4:33 PM
5	Schroon and Hudson Rivers flooding	7/11/2023 2:18 PM
6	Federal Hill Rd	3/11/2023 8:36 AM
7	See above	3/10/2023 7:45 PM
8	Areas along Hudson River and Schroon River are flooded frequently	3/9/2023 1:38 PM
9	Lack of internet service in rural areas.	3/9/2023 6:32 AM
10	I only work in Warren County. I live in Saratoga County.	2/24/2023 8:55 AM
11	Queensbury - Halfway Brook Area/flooding Warrensburg - Schroon River Area/flooding Chester&Horicon - Schroon River Area/flooding	2/16/2023 2:05 PM
12	same	2/15/2023 1:58 PM
13	na	2/15/2023 1:33 PM
14	None that I'm aware of	2/15/2023 12:41 PM
15	n/a	2/15/2023 12:40 PM
16	Unknown	1/15/2023 10:53 PM
17	None I can think of	1/13/2023 2:03 PM
18	Meadowbrook rd, Qby - Flooding	1/12/2023 1:24 PM
19	Unsure.	1/8/2023 4:44 PM
20	None	12/23/2022 3:24 PM
21	Unaware	12/14/2022 3:47 PM
22	None.	12/14/2022 7:27 AM
23	None	12/14/2022 6:49 AM
24	None known of	12/11/2022 10:09 AM
25	Lakeview Circle Drive Town of Lake George	12/11/2022 8:00 AM
26	na	12/10/2022 11:49 AM
27	don't know.	12/10/2022 11:44 AM
28	GFWWTP releasing sewage into Hudson after every heavy rainstorm. Inadequate storm drainage on streets	12/9/2022 10:31 PM



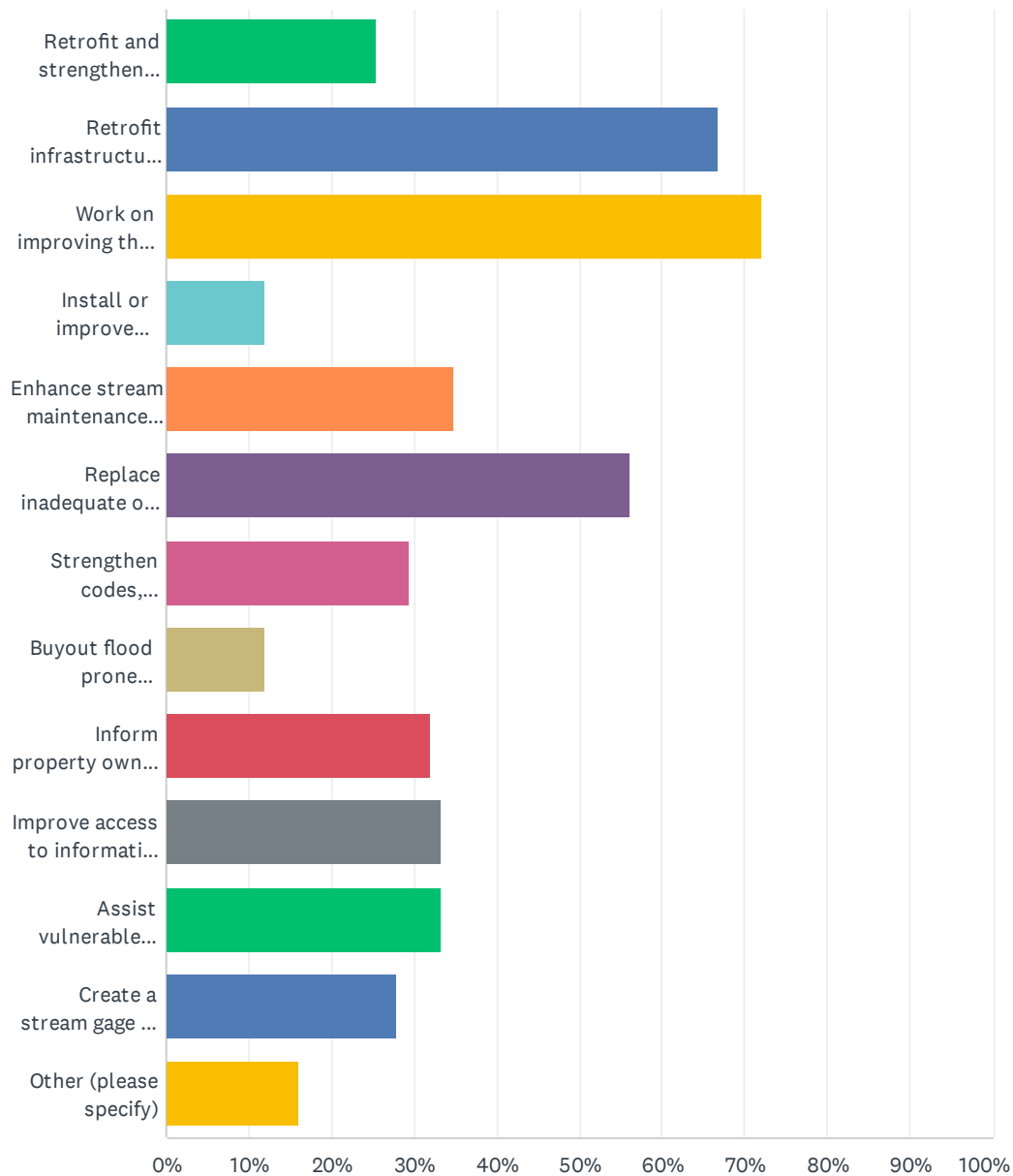
## Warren County Hazard Mitigation Plan Update - Public Survey

29	Still ZERO fragrance-free emergency shelters - I would not be able to survive in an emergency shelter due to respiratory distress when exposed to fragranced / scented products (body, laundry, cleaning, etc.)	12/9/2022 9:47 PM
30	Power cybersecurity concern	12/9/2022 8:10 PM
31	Flooding of the Hudson River in the spring occasionally that affects the State rt. 28 between North Creek and North River, and includes part of the town North Creek at the train station where Teddy Roosevelt learned McKinley had died from his wound, and he was now President. The historic Train station has been preserved, but flooding of the Hudson in the spring has caused concern a number of years in the past ten.	12/9/2022 7:25 PM
32	Thurman bridge	12/9/2022 12:13 PM
33	Downtown Warrensburg from Schroon River flooding	12/9/2022 9:03 AM



# Q11 What types of projects do you believe local, county, state, or federal government agencies could be doing to reduce the damage and disruption of disasters in Warren County? Select your top three choices.

Answered: 75 Skipped: 15





# Warren County Hazard Mitigation Plan Update - Public Survey

ANSWER CHOICES	RESPONSES	
Retrofit and strengthen essential facilities such as police, schools, and hospitals	25.33%	19
Retrofit infrastructure, such as elevating roadways and improving drainage systems	66.67%	50
Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)	72.00%	54
Install or improve protective structures, such as floodwalls, levees, bulkheads, and firebreaks	12.00%	9
Enhance stream maintenance programs/projects	34.67%	26
Replace inadequate or vulnerable bridges and causeways	56.00%	42
Strengthen codes, ordinances and plans to require higher hazard risk management standards and/or provide greater control over development in high hazard areas	29.33%	22
Buyout flood prone properties and maintain as open space	12.00%	9
Inform property owners of ways they can mitigate damage to their properties	32.00%	24
Improve access to information about hazard risks and high-hazard areas	33.33%	25
Assist vulnerable property owners with securing funding to mitigate their properties	33.33%	25
Create a stream gage and weather monitoring program to provide more accurate data and warnings	28.00%	21
Other (please specify)	16.00%	12
Total Respondents: 75		

#	OTHER (PLEASE SPECIFY)	DATE
1	Install PurpleAir air monitoring sensors in the Northern & Western areas of Warren County to improve the Air Quality Forecasts provided by the EPA and NYS DEC.	8/2/2023 8:29 AM
2	Require power companies to be more proactive in maintain power lines from tree damage, put power source lines underground	3/11/2023 8:36 AM
3	Underground utilities!	3/10/2023 7:45 PM
4	Burying utilities and power lines to prevent damage from storms, and accidents	3/9/2023 6:32 AM
5	Encourage all property owners to assist with capturing & infiltrating stormwater.	1/12/2023 1:24 PM
6	I think some of the projects listed here are already being mitigated/worked on.	1/8/2023 4:44 PM
7	None	12/14/2022 6:49 AM
8	Retrofit infrastructure by LOWERING North Bolton Road at the foot of Church Hill Road to where it was years ago when drainage was NEVER A PROBLEM.	12/11/2022 10:09 AM
9	Infrastructure improvements drainage	12/11/2022 8:00 AM
10	Assist utilities in ROW acquisition on bridge projects and to support new critical ethic redundancy projects	12/10/2022 7:39 AM
11	emergency preparedness training for natural disasters for citizens, and in schools	12/9/2022 10:31 PM
12	Ensure town's have emergency plans and backup or mobile power	12/9/2022 2:25 PM



## Q12 Do you have any other comments, questions, or concerns regarding hazard mitigation in Warren County?

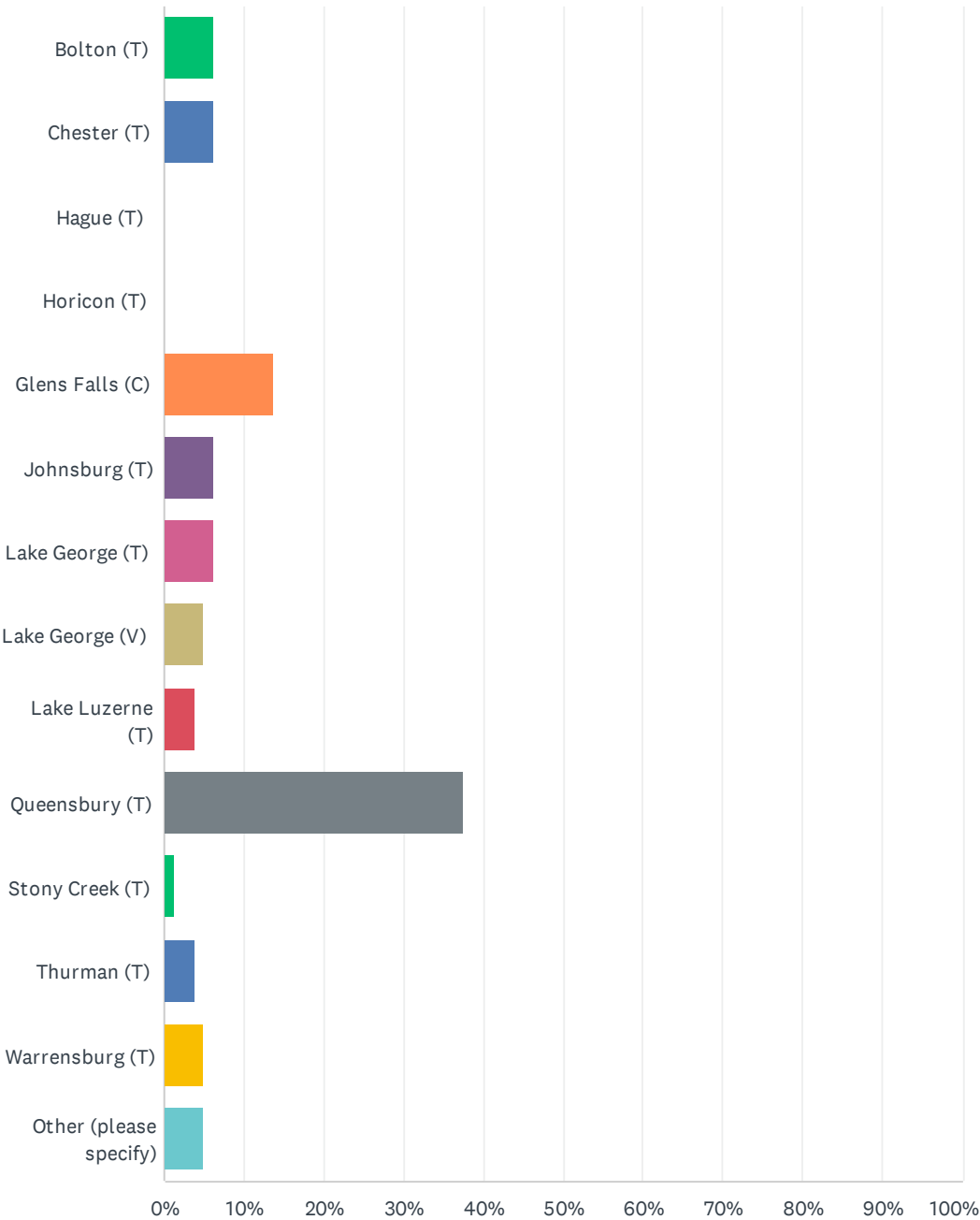
Answered: 23    Skipped: 67

#	RESPONSES	DATE
1	Air Quality emergencies must be incorporated into this hazard mitigation plan. This plan is critically deficient without this obvious hazard.	8/2/2023 8:29 AM
2	Inadequate shelters in case of emergencies	3/11/2023 7:01 AM
3	Use the health Dept	3/10/2023 7:45 PM
4	no	3/9/2023 1:38 PM
5	no	2/24/2023 8:55 AM
6	no, thanks	2/15/2023 1:58 PM
7	remove tree limbs that hang over the 9L road before someone gets seriously injured	2/15/2023 1:33 PM
8	I see climate change as one of the biggest concerns now and in the future that could and would impact a lot of weather related hazard events. I think more projects that focus on taking care of our environment, like adopt a highway and stream clean up days, as a good thing to consider.	2/15/2023 12:41 PM
9	No	1/13/2023 2:03 PM
10	Looking forward to the outcomes of these surveys.	1/8/2023 4:44 PM
11	Nope	12/23/2022 3:24 PM
12	I would appreciate receiving real time alerts from Warren County similarly to FEMA	12/14/2022 3:47 PM
13	The area looks pretty safe to me!!!....JMO	12/14/2022 6:49 AM
14	Each municipal government should be required to participate in this process. They should assess their community for potential hazards and develop a mitigation plan.	12/14/2022 6:03 AM
15	Warren County needs to fix the drainage issue it CAUSED.	12/11/2022 10:09 AM
16	Funding	12/11/2022 8:00 AM
17	I see that climate change is affecting us. One problem that we never experienced until recent years is algae blooms.	12/10/2022 11:49 AM
18	Until now, I've never heard of it.	12/10/2022 8:22 AM
19	No	12/10/2022 6:57 AM
20	Annual preparedness training at senior centers, at schools and in locations that citizens are encouraged to attend. create a citizen team to work with Emergency Management for Warren County	12/9/2022 10:31 PM
21	Vastly improve ACCESSIBILITY for disabled people and Disaster Planning to include INPUT from disabled people with various disabilities; including respiratory	12/9/2022 9:47 PM
22	during severe winter storms, county buildings need to close or open late as employees travel long distances to get to Warren County Municipal Center and should not have to use personal time in case of extreme weather.	12/9/2022 4:54 PM
23	Extreme weather (heavy downpours and sudden storms) have increased greatly. Review of runoff areas should be reviewed.	12/9/2022 2:25 PM



Q13 Please indicate the municipality in which you live:

Answered: 80    Skipped: 10





# Warren County Hazard Mitigation Plan Update - Public Survey

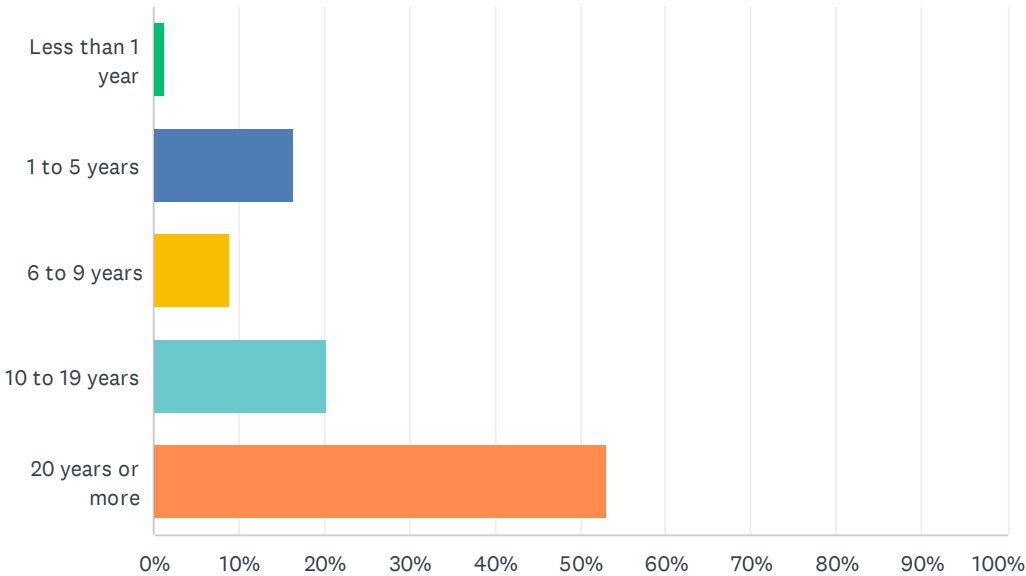
ANSWER CHOICES	RESPONSES	
Bolton (T)	6.25%	5
Chester (T)	6.25%	5
Hague (T)	0.00%	0
Horicon (T)	0.00%	0
Glens Falls (C)	13.75%	11
Johnsburg (T)	6.25%	5
Lake George (T)	6.25%	5
Lake George (V)	5.00%	4
Lake Luzerne (T)	3.75%	3
Queensbury (T)	37.50%	30
Stony Creek (T)	1.25%	1
Thurman (T)	3.75%	3
Warrensburg (T)	5.00%	4
Other (please specify)	5.00%	4
Total Respondents: 80		

#	OTHER (PLEASE SPECIFY)	DATE
1	live outside Warren County in Ticonderoga but work in Hague	7/12/2023 4:35 PM
2	Hadley	3/15/2023 8:42 AM
3	Corinth	2/24/2023 8:56 AM
4	Ticonderoga, but work in Queensbury	2/15/2023 1:34 PM



Q14 How long have you lived here?

Answered: 79    Skipped: 11

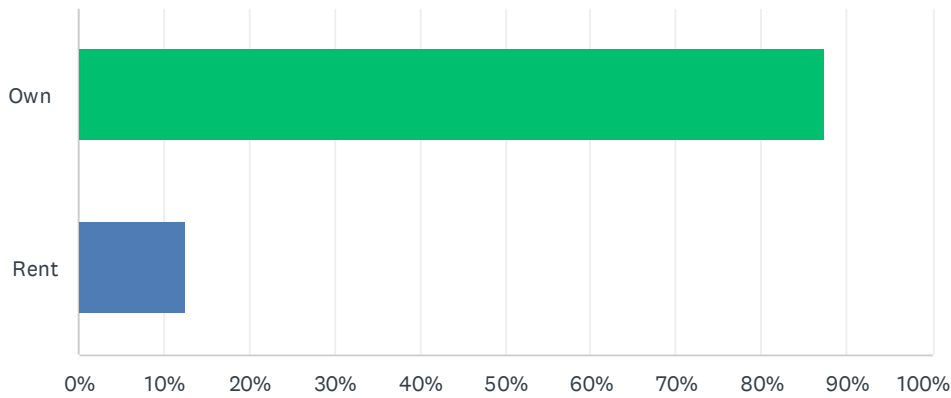


ANSWER CHOICES		RESPONSES	
Less than 1 year		1.27%	1
1 to 5 years		16.46%	13
6 to 9 years		8.86%	7
10 to 19 years		20.25%	16
20 years or more		53.16%	42
TOTAL			79



Q15 Do you own or rent your place of residence?

Answered: 80    Skipped: 10

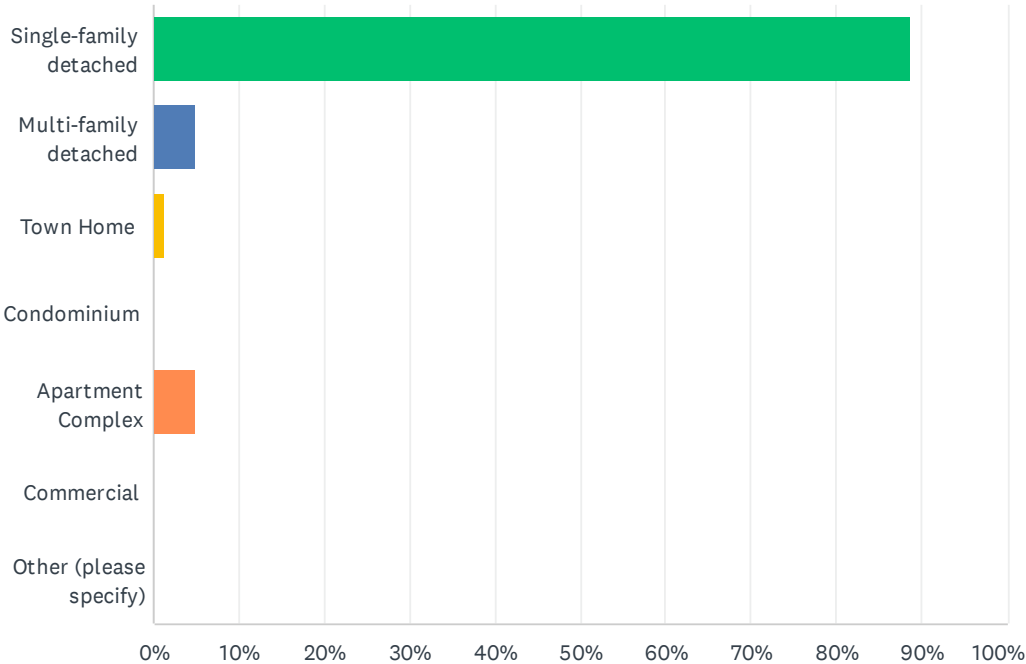


ANSWER CHOICES	RESPONSES	
Own	87.50%	70
Rent	12.50%	10
TOTAL		80



Q16 What type of residence do you live in?

Answered: 80    Skipped: 10



ANSWER CHOICES	RESPONSES	
Single-family detached	88.75%	71
Multi-family detached	5.00%	4
Town Home	1.25%	1
Condominium	0.00%	0
Apartment Complex	5.00%	4
Commercial	0.00%	0
Other (please specify)	0.00%	0
TOTAL		80

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



Q17 What is the address of your property? (optional, will be kept confidential - only used to identify hazard areas such as flooding)

Answered: 40    Skipped: 50

#	RESPONSES	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

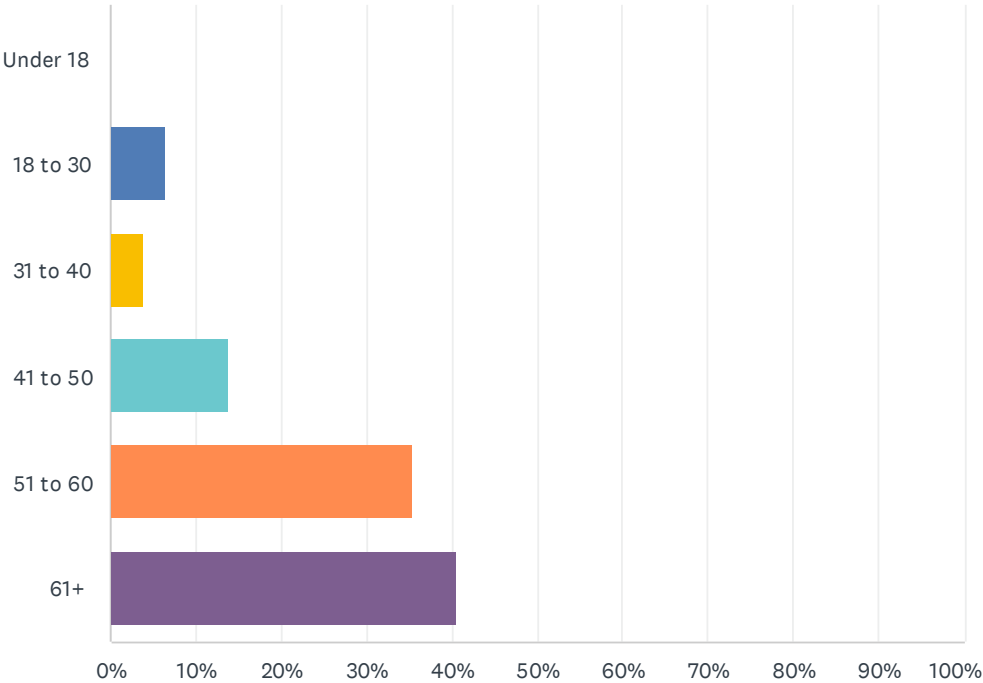


32		
33		
34		
35		
36		
37		
38		
39		
40		



Q18 Please indicate your age range:

Answered: 79    Skipped: 11



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18 to 30	6.33%	5
31 to 40	3.80%	3
41 to 50	13.92%	11
51 to 60	35.44%	28
61+	40.51%	32
TOTAL		79





## D.2 STAKEHOLDER SURVEYS

In addition to collecting information from residents of Warren County, surveys were developed for the agencies and stakeholders in the county. Unlike steering committee or planning partnership members, stakeholders may not be involved in all stages of the planning process, but they may have information or input to provide. In order to gather that information, the surveys were sent to the following stakeholders: law enforcement, firefighters, emergency medical services, highway and public works, business and commerce, hospitals and health care providers, and utilities. Results of the surveys are provided in the following pages, with personal information redacted.



## Q1 Name of your department/office/institution

Answered: 15 Skipped: 0

#	RESPONSES	DATE
1	Glens Falls City School District	7/24/2023 2:55 PM
2	Warren/Hamilton Counties OFA	7/13/2023 3:09 PM
3	Silver Bay YMCA	7/13/2023 1:18 PM
4	Glens Falls Police Department	7/13/2023 11:05 AM
5	Center for Disability Services , Prospect School	7/13/2023 7:36 AM
6	Warren County Parks Recreation & Railroad	7/13/2023 7:22 AM
7	National Grid	1/18/2023 8:39 AM
8	WARREN COUNTY HEALTH SERVICES	1/9/2023 10:39 AM
9	NYS Department of Health Glens Falls District Office	1/9/2023 9:28 AM
10	Lake George Regional Chamber of Commerce & CVB	1/8/2023 4:26 PM
11	Southern Adirondack Independent Living	1/6/2023 8:13 AM
12	Health Services	1/6/2023 8:08 AM
13	Glens Falls Hospital	1/5/2023 4:55 PM
14	Greater Glens Falls Transit	1/5/2023 4:26 PM
15	Glens Falls common council	12/14/2022 7:26 PM



## Q2 Name of Respondent

Answered: 15   Skipped: 0

#	RESPONSES	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



### Q3 What is your position/title/role with your department/office/institution?

Answered: 15 Skipped: 0

#	RESPONSES	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



## Q4 Please provide your contact information.

Answered: 15 Skipped: 0

ANSWER CHOICES	RESPONSES	
Name	0.00%	0
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	15
Phone Number	93.33%	14

#	NAME	DATE
---	------	------

There are no responses.

#	COMPANY	DATE
---	---------	------

There are no responses.

#	ADDRESS	DATE
---	---------	------

There are no responses.

#	ADDRESS 2	DATE
---	-----------	------

There are no responses.

#	CITY/TOWN	DATE
---	-----------	------

There are no responses.

#	STATE/PROVINCE	DATE
---	----------------	------

There are no responses.

#	ZIP/POSTAL CODE	DATE
---	-----------------	------

There are no responses.

#	COUNTRY	DATE
---	---------	------

There are no responses.

#	EMAIL ADDRESS	DATE
---	---------------	------

1

2

3

4

5



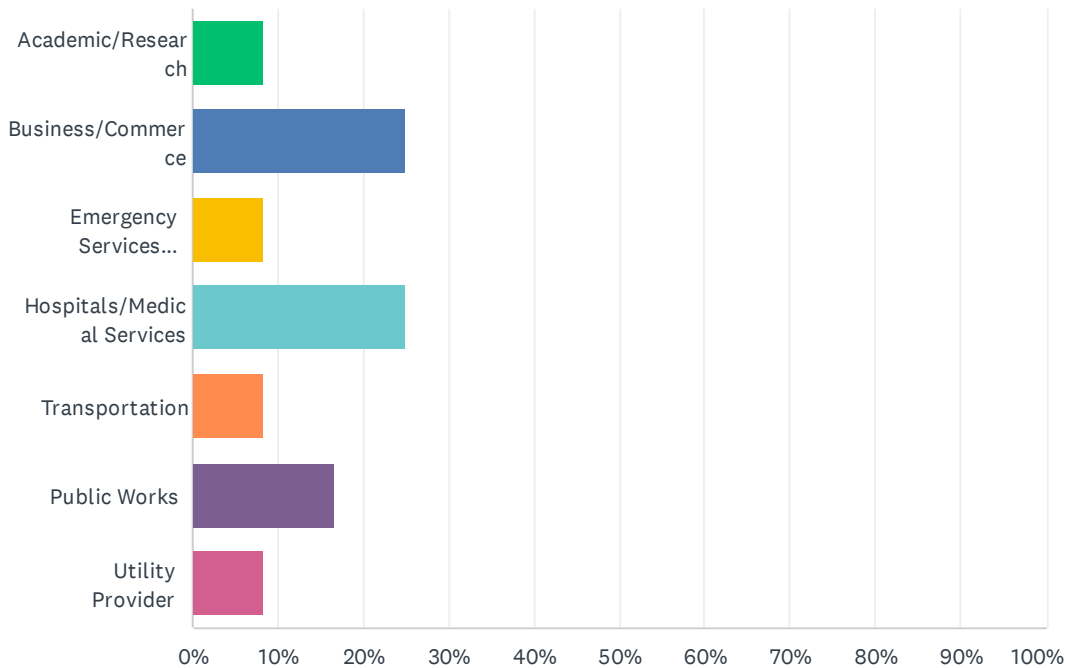
## Warren County Hazard Mitigation Plan - Stakeholder Survey

6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
#	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	



## Q5 What category does your facility operation/service fall under?

Answered: 12 Skipped: 3



ANSWER CHOICES	RESPONSES	
Academic/Research	8.33%	1
Business/Commerce	25.00%	3
Emergency Services (police, fire, EMS)	8.33%	1
Hospitals/Medical Services	25.00%	3
Transportation	8.33%	1
Public Works	16.67%	2
Utility Provider	8.33%	1
<b>TOTAL</b>		<b>12</b>

#	OTHER (PLEASE SPECIFY)	DATE
1	School	7/13/2023 7:38 AM
2	Environmental Health	1/9/2023 9:32 AM
3	We work with more than 460 hospitality focused businesses to ensure our economic vitality throughout Warren County and beyond. We also promote Warren County as the destination of choice for group (business/association/bus tours/reunions/weddings) business. Lastly, we operate the Adirondacks Welcome Center TasteNY / Tourism programs.	1/8/2023 4:30 PM
4	Local Health Department	1/6/2023 8:18 AM



## Q6 Based on the above category, please provide additional description and information as to what your organization does or offers (please explain)

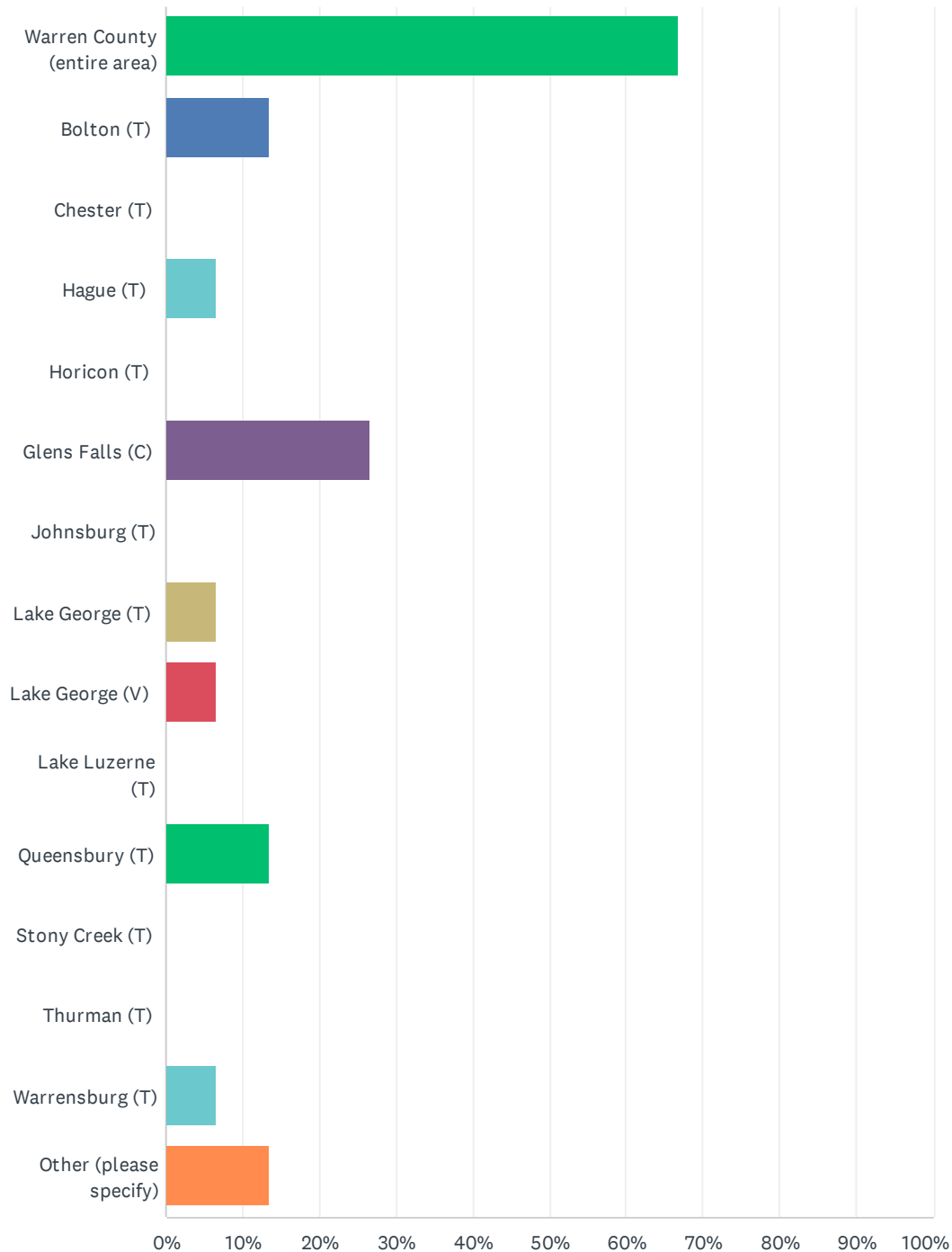
Answered: 14 Skipped: 1

#	RESPONSES	DATE
1	Public School	7/24/2023 2:58 PM
2	Office for the Aging - provide assistance to seniors	7/13/2023 3:11 PM
3	YMCA Family Retreat and Conference Center offers lodging, hospitality services, meals, programs and indoor and outdoor recreation to visitors and community members.	7/13/2023 1:21 PM
4	Police	7/13/2023 11:06 AM
5	We provide educational services for school age children	7/13/2023 7:38 AM
6	We manage and maintain the Warren County Fish Hatchery, Bikeway, Fairgrounds, Canoe access sites and Up Yonda Farm Environmental Education Center	7/13/2023 7:27 AM
7	Electricity and Natural Gas Utility.	1/18/2023 8:41 AM
8	MEDICAL ASSITANCE TO THE ILL AND ELDERLY, VACCINATIONS, RABIES CLINICS	1/9/2023 10:40 AM
9	Provide environmental health oversight of facilities permitted and regulated by our office.	1/9/2023 9:32 AM
10	We offer information outreach, tourism marketing/promotional activities, direct contact with visitors and community partners.	1/8/2023 4:30 PM
11	we are responsible for completing the requirements of NYSDOH Article 6 General Public Health Work Program which includes completing a Community Health Assessment & Improvement Plann every 3 years, chronic disease prevention (CVD, cancer, diabetes, obesity, tobacco prevention), communicable disease surveillance and control, vector borne disease monitoring and control, rabies control, lead poisoning prevention, and family health. In addition to the Article 6 programs we are also responsible for public health emergency preparedness planning which includes pandemic planning and response, isolation and quarantine protocols, medical countermeasures distribution and dispensing, participation in mass shelter/casualty/fatality planning and more.	1/6/2023 8:18 AM
12	SAIL is a non-profit organization that helps people live more independently through an array of programs and services.	1/6/2023 8:14 AM
13	Operates public transportation services in Glens Falls, Queensbury, Lake George (T & V), Bolton	1/5/2023 4:28 PM
14	Legislative	12/14/2022 7:27 PM



**Q7 Please identify the location of your facility(ies) and/ or primary service area. You may choose more than one if your service area covers multiple communities, or “Warren County (entire area) ” if your service area is county-wide:**

Answered: 15 Skipped: 0





# Warren County Hazard Mitigation Plan - Stakeholder Survey

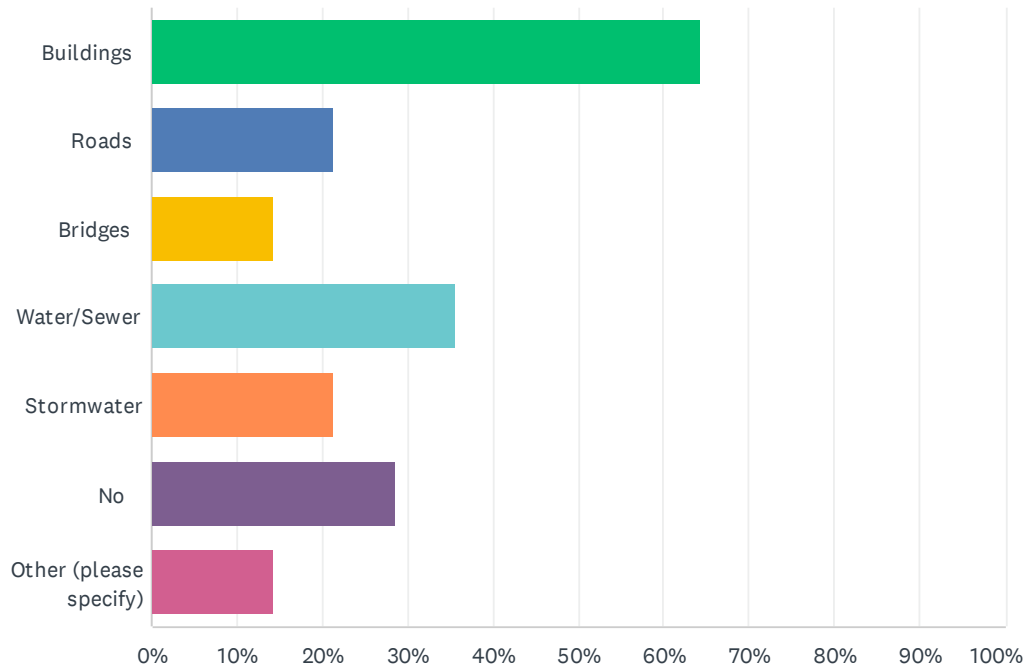
ANSWER CHOICES	RESPONSES	
Warren County (entire area)	66.67%	10
Bolton (T)	13.33%	2
Chester (T)	0.00%	0
Hague (T)	6.67%	1
Horicon (T)	0.00%	0
Glens Falls (C)	26.67%	4
Johnsburg (T)	0.00%	0
Lake George (T)	6.67%	1
Lake George (V)	6.67%	1
Lake Luzerne (T)	0.00%	0
Queensbury (T)	13.33%	2
Stony Creek (T)	0.00%	0
Thurman (T)	0.00%	0
Warrensburg (T)	6.67%	1
Other (please specify)	13.33%	2
Total Respondents: 15		

#	OTHER (PLEASE SPECIFY)	DATE
1	Hamilton County	7/13/2023 3:11 PM
2	Other partners throughout the Adirondacks as well as statewide.	1/8/2023 4:30 PM



**Q8 Does your organization maintain or manage any of the following within your designated service area? If not, answer “No” at the bottom, otherwise check all that apply.**

Answered: 14 Skipped: 1



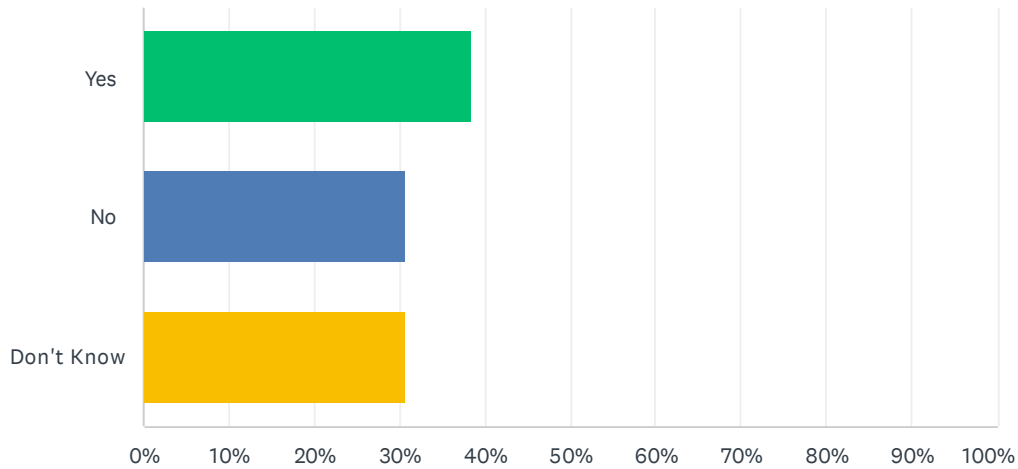
ANSWER CHOICES	RESPONSES
Buildings	64.29% 9
Roads	21.43% 3
Bridges	14.29% 2
Water/Sewer	35.71% 5
Stormwater	21.43% 3
No	28.57% 4
Other (please specify)	14.29% 2
Total Respondents: 14	

#	OTHER (PLEASE SPECIFY)	DATE
1	Bikeway path	7/13/2023 7:27 AM
2	Utility Poles, pipelines, underground electric distribution facilities.	1/18/2023 8:41 AM



**Q9 Looking back at previous hazard events, have buildings/facilities/structures you have worked in and/ or are responsible for been impacted by a hazard (ex. damage/closures/etc.)?**

Answered: 13 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	38.46%	5
No	30.77%	4
Don't Know	30.77%	4
TOTAL		13



**Q10** If you answered “Yes” to the above question, please describe the event that caused or is causing (if recurring) damage and loss of service/property. If quantifiable data is available, please provide that as well (number of damaged structures, monetary loss, etc.) (please explain)

Answered: 7   Skipped: 8

#	RESPONSES	DATE
1	Sewage back up in Middle School when storm water was visible in the streets (not draining).	7/24/2023 3:08 PM
2	Road Closure; Power Outages; Telephone Outages	7/13/2023 3:13 PM
3	Significant rain event washed out road	7/13/2023 1:25 PM
4	Flooding and tree hazards along bikeway. Power outages at Up Yonda Farm, flooding at the Fish Hatchery. Blocked culverts on railroad, due to beaver activity.	7/13/2023 7:35 AM
5	N/A	1/9/2023 9:32 AM
6	Fire in the municipal center	1/6/2023 8:22 AM
7	NA	1/5/2023 4:30 PM



**Q11 Looking at where your facilities or services are located in Warren County, what areas do you believe to be the most vulnerable to hazards? What are these hazards? (please explain).**

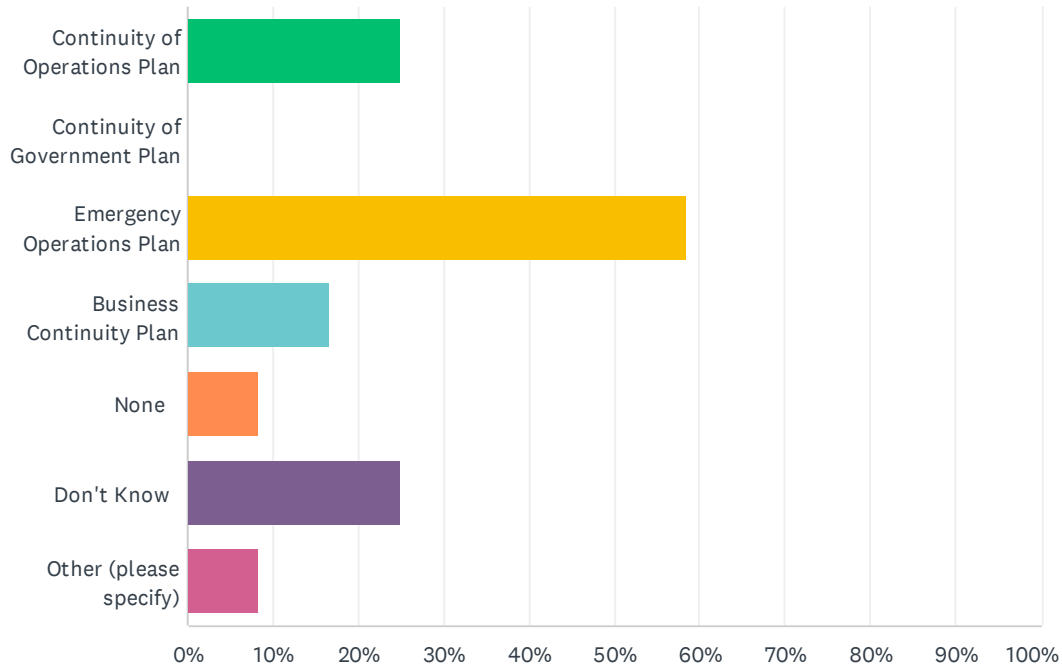
Answered: 12 Skipped: 3

#	RESPONSES	DATE
1	The streets around the Middle and High Schools, Administrative Offices on Quade St, West Notre Dame, and Shippey Ave regularly have standing storm water.	7/24/2023 3:08 PM
2	North Country near bodies of water; Areas with significant snow storms, wind storms; Rainfall	7/13/2023 3:13 PM
3	Power outages, fallen trees, stormwater washing out roads, water supply (Lake George)	7/13/2023 1:25 PM
4	City Hall/Police Station Possible Fire	7/13/2023 11:07 AM
5	severe storms	7/13/2023 7:39 AM
6	The bikeway constantly has issues with trees down or blocking the bikeway. At the Fish Hatchery, every spring we need to be prepared for ice jams and flooding.	7/13/2023 7:35 AM
7	Electric Substations and gas regulating stations. As we've all seen in the news with the recent vandalism with electric utility equipment, it is high on the priority list for our security teams.	1/18/2023 9:13 AM
8	N/A	1/9/2023 9:32 AM
9	Salt mitigation to protect the lake. We currently use sand on the backside of our building/parking area and salt/sand mixture on the front. No other hazards as of this writing.	1/8/2023 4:31 PM
10	We rely on pre-identified municipal buildings and locations that are owned and maintained by City/Town municipalities for many of our activities. Our hub is the County Municipal Center. Vulnerabilities include fire, severe weather impacting the facility, loss of internet and utilities caused by weather or man made factors	1/6/2023 8:22 AM
11	Road hazards - downed trees, winter driving conditions	1/5/2023 4:30 PM
12	Industry along the river and watershed	12/14/2022 7:28 PM



## Q12 Is your organization covered by any of the following plans? Check all that apply

Answered: 12 Skipped: 3



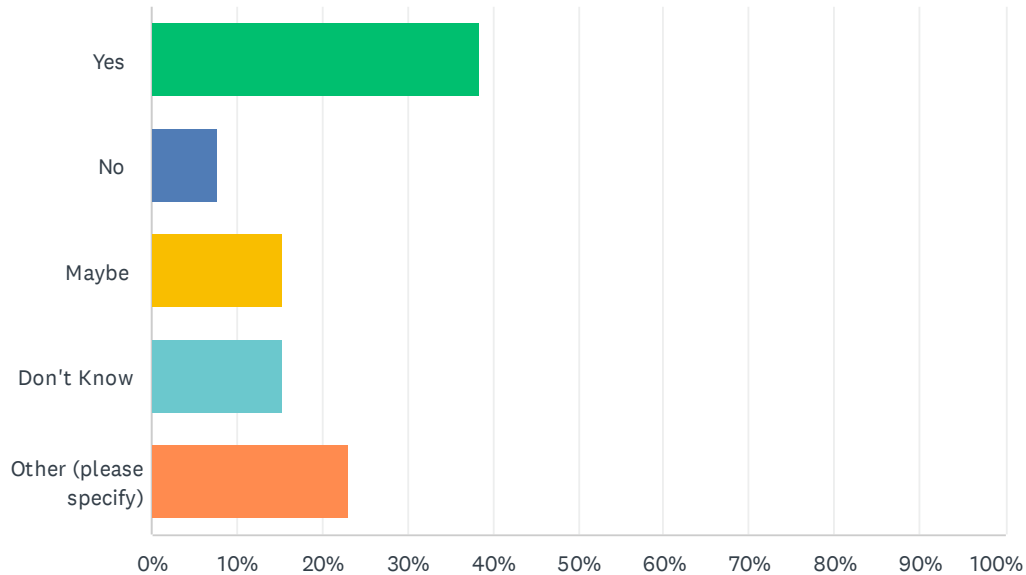
ANSWER CHOICES	RESPONSES
Continuity of Operations Plan	25.00% 3
Continuity of Government Plan	0.00% 0
Emergency Operations Plan	58.33% 7
Business Continuity Plan	16.67% 2
None	8.33% 1
Don't Know	25.00% 3
Other (please specify)	8.33% 1
Total Respondents: 12	

#	OTHER (PLEASE SPECIFY)	DATE
1	GFSD Safety Plan	7/24/2023 3:08 PM



### Q13 Do you believe the facilities and infrastructure for your organization are equipped to handle a disaster and/or resilient to damages?

Answered: 13 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	38.46%	5
No	7.69%	1
Maybe	15.38%	2
Don't Know	15.38%	2
Other (please specify)	23.08%	3
TOTAL		13

#	OTHER (PLEASE SPECIFY)	DATE
1	Some are and some not as well	7/13/2023 7:39 AM
2	We have systems in place to maintain our infrastructure while also performing continuous improvement projects for storm hardening/reliability on our networks.	1/18/2023 9:13 AM
3	We were able to operate successfully throughout the pandemic shutdown and help our community overcome the challenges for economic success. Unsure about other potential disasters as we haven't had them other than economic downturns (2008-2010, 1990's).	1/8/2023 4:33 PM



## Q14 Can you identify projects or programs that will reduce your facility/organization's vulnerability to damages and losses, including loss of operation/service, to hazard events? (Please explain)

Answered: 9 Skipped: 6

#	RESPONSES	DATE
1	No	7/24/2023 3:11 PM
2	Improved stormwater management, additional power generators,	7/13/2023 1:33 PM
3	Frequent inspections of facilities and regular maintenance	7/13/2023 7:52 AM
4	We have an emergency plan in place for fire, natural disasters and man made disasters and we conduct drills	7/13/2023 7:41 AM
5	Tree Trimming program - each of our circuits are trimmed on 5 year cycles, that means every 5 years "Main St in Queensbury" will be inspected for danger trees and trimmed by one of our tree contractors. "Computapole" program. This is a program that has us inspect and get eyes on every piece of National Grid electric infrastructure throughout our territory. We identify potential hazards like rotting poles, broken or unbonded guy wires, blown lightening arrestors, or broken cross arms. Once they are reported, the issues are then sent to the field workers for repairs. This is also done in 5 year cycles for each of our circuits. We have a similar program for our gas distribution system in regards to our Leak Prone Pipe program where we are replacing old cast iron mains and services with plastic. We have a gas corrosion team that inspects our pipe lines to make sure they are still in spec.	1/18/2023 9:13 AM
6	N/A	1/9/2023 9:33 AM
7	We were able to take advantage of the second round of PPP funding because of our 501c6 corporate status that helped us through the pandemic financially. Other strategies in the past have been to cut programs and not people to stay financially stable as an organization.	1/8/2023 4:36 PM
8	Upgrading work from home opportunities if the facility is unusable, ensuring a suitable secondary location is available for staff that have to be in the office, providing funding to ensure IT and other equipment necessary to maintain operations is provided	1/6/2023 8:32 AM
9	Sewage treatment plant power project	12/14/2022 7:29 PM



**Q15 Can you identify projects or programs that have been recently been implemented to reduce your facility's/organization's vulnerability, damage and losses, including loss of operation/service, to hazard events? (please explain)**

Answered: 12 Skipped: 3

#	RESPONSES	DATE
1	No	7/24/2023 3:11 PM
2	Warren County Continuity of Operations Plan implemented by Amy Hirsch; Response to COVID	7/13/2023 3:14 PM
3	Installed manmade wetland to help manage stormwater, installed limited number of generators to offset power losses	7/13/2023 1:33 PM
4	Frequent inspections of facilities and regular maintenance	7/13/2023 7:52 AM
5	Drilling our disaster plan	7/13/2023 7:41 AM
6	See Above.	1/18/2023 9:13 AM
7	N/A	1/9/2023 9:33 AM
8	We are reworking our strategic plan and have begun a five year financial look-back and a five year forecast CAGR - (compound annual growth rate).	1/8/2023 4:36 PM
9	none at a County level. Public Health initiatives to mitigate the impacts of a disaster have been undertaken as a requirement of the NYSDOH Office of Health Emergency Preparedness annual core deliverables which must be completed to receive funding from NYSDOH for the Warren County Public Health Emergency Preparedness program	1/6/2023 8:32 AM
10	SAIL has an internal emergency preparedness plan that we will exercise in the event of an emergency.	1/6/2023 8:16 AM
11	Installation of an emergency back-up generator	1/5/2023 4:31 PM
12	Storm water and sewage decoupling projects	12/14/2022 7:29 PM



## Q16 Do you have any questions or comments for Warren County?

Answered: 8   Skipped: 7

#	RESPONSES	DATE
1	No	7/24/2023 3:12 PM
2	NO	7/13/2023 7:52 AM
3	no	7/13/2023 7:41 AM
4	Warren County has been a great partner in National Grid's restoration and community efforts. I look forward to working with you for years to come.	1/18/2023 9:13 AM
5	No	1/9/2023 9:33 AM
6	None as of this writing.	1/8/2023 4:36 PM
7	What steps are being taken to prepare for the impacts of climate change? NYSDOH is making that a priority in Public Health Emergency Preparedness Planning? Also what steps are being taken to identify populations within Warren County with access and functional needs so planning considerations can be made and gaps can be filled as funding becomes available. Is there a plan to create or does one exist for a work pool for County workers if a department temporarily needs extra help to respond to and recovery from a disaster? Are the elected leaders in Warren County required to attend emergency preparedness trainings and participate in the hazard mitigation planning process?	1/6/2023 8:38 AM
8	None	1/6/2023 8:16 AM





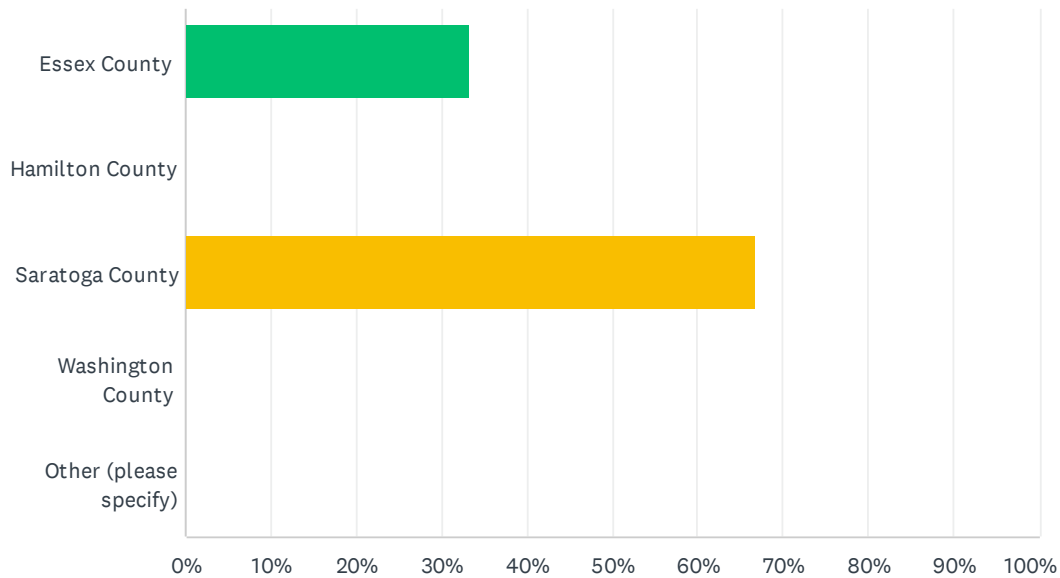
## D.3 NEIGHBORING COUNTY SURVEY

A neighboring county survey was sent to the surrounding counties of Warren due to their proximity to the County and because the effects of hazard events that impact Warren County would be similar to that of their neighbors. A summary of the results are included on the following pages.



## Q1 Please indicate the community in which you represent

Answered: 3   Skipped: 0



ANSWER CHOICES		RESPONSES	
Essex County		33.33%	1
Hamilton County		0.00%	0
Saratoga County		66.67%	2
Washington County		0.00%	0
Other (please specify)		0.00%	0
TOTAL			3

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



## Q2 Name and Title of Respondent

Answered: 3    Skipped: 0

#	RESPONSES	DATE
1		
2		
3		



### Q3 What department do you represent?

Answered: 3   Skipped: 0

#	RESPONSES	DATE
1	Saratoga County Emergency Management	5/1/2023 10:28 AM
2	Essex County Emergency Services	5/1/2023 8:14 AM
3	OEM	1/9/2023 2:35 PM



Q4 Please provide your contact information.

Answered: 3    Skipped: 0

ANSWER CHOICES	RESPONSES	
Name	0.00%	0
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	3
Phone Number	100.00%	3

#	NAME	DATE
	There are no responses.	
#	COMPANY	DATE
	There are no responses.	
#	ADDRESS	DATE
	There are no responses.	
#	ADDRESS 2	DATE
	There are no responses.	
#	CITY/TOWN	DATE
	There are no responses.	
#	STATE/PROVINCE	DATE
	There are no responses.	
#	ZIP/POSTAL CODE	DATE
	There are no responses.	
#	COUNTRY	DATE
	There are no responses.	
#	EMAIL ADDRESS	DATE
1		
2		
3		
#		
1		



## Warren County Hazard Mitigation Plan - Neighboring Community Survey

2

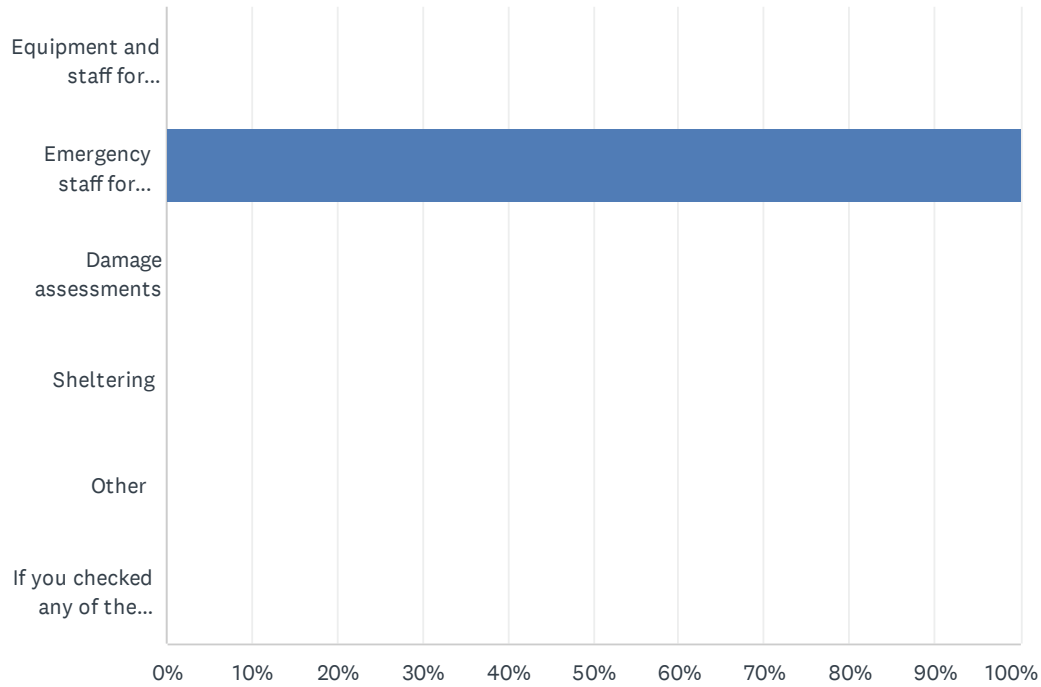
3

--



## Q5 Do you have any shared service agreements or mutual aid agreements in place with Warren County for the following?

Answered: 1 Skipped: 2



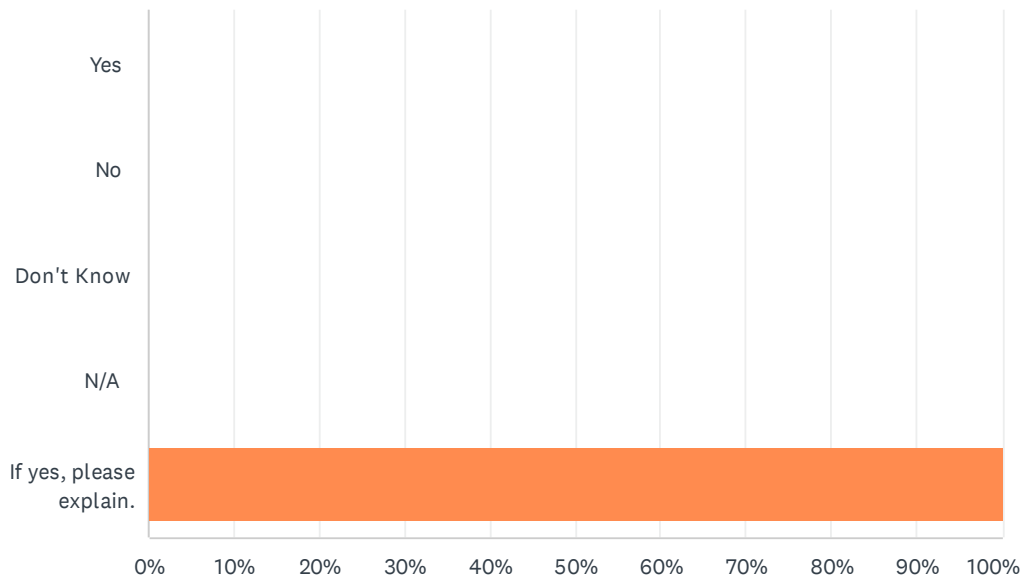
ANSWER CHOICES	RESPONSES	
Equipment and staff for debris cleanup and removal	0.00%	0
Emergency staff for evacuations/disaster response	100.00%	1
Damage assessments	0.00%	0
Sheltering	0.00%	0
Other	0.00%	0
If you checked any of the above, please explain.	0.00%	0
Total Respondents: 1		

#	IF YOU CHECKED ANY OF THE ABOVE, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q6 Is Warren County involved in your community's comprehensive emergency operations planning, such as by participating on a planning team, or providing resources during an emergency?

Answered: 2   Skipped: 1



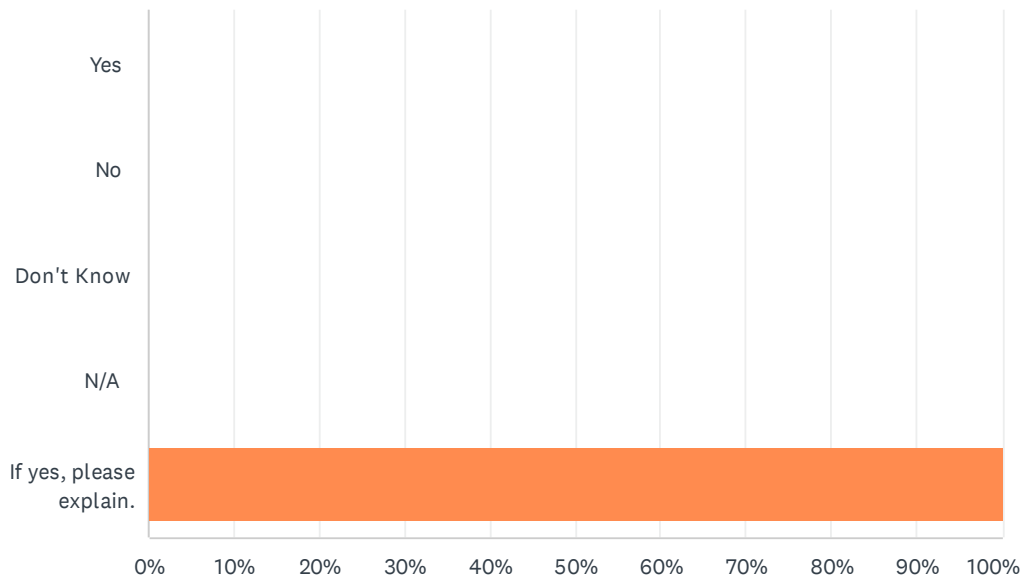
ANSWER CHOICES	RESPONSES
Yes	0.00% 0
No	0.00% 0
Don't Know	0.00% 0
N/A	0.00% 0
If yes, please explain.	100.00% 2
<b>TOTAL</b>	<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Fire/EMS mutual aid plans	5/1/2023 3:10 PM
2	Warren County was instrumental in helping us to develop many of our plans. They are a partner that could be asked for assistance in a variety of disasters	1/9/2023 2:38 PM



## Q7 Is your community involved in Warren County's comprehensive emergency operations planning, such as by participating on a planning team, or providing resources during an emergency?

Answered: 2   Skipped: 1



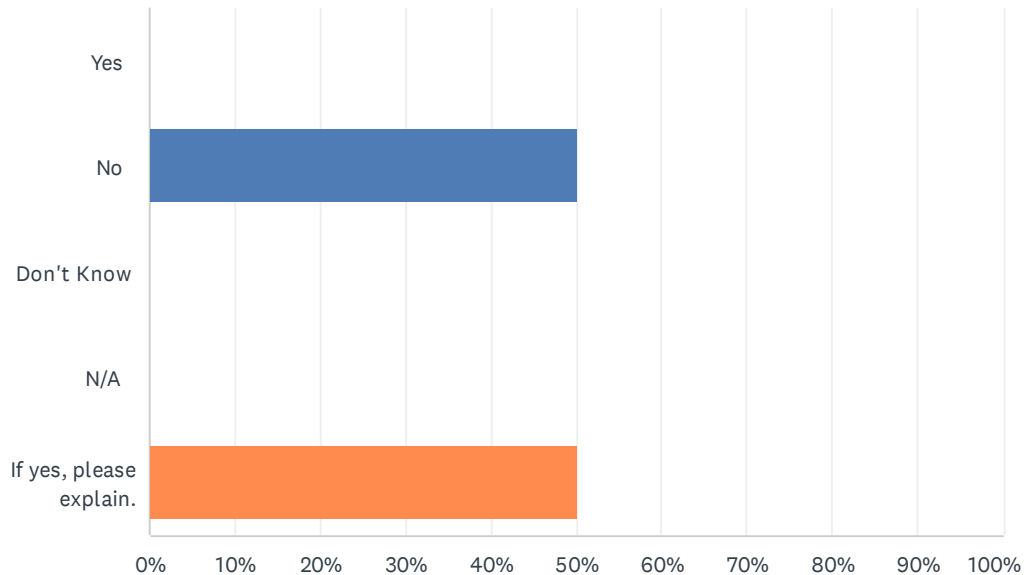
ANSWER CHOICES	RESPONSES
Yes	0.00% 0
No	0.00% 0
Don't Know	0.00% 0
N/A	0.00% 0
If yes, please explain.	100.00% 2
<b>TOTAL</b>	<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Fire/EMS mutual aid plans	5/1/2023 3:10 PM
2	Same as above	1/9/2023 2:38 PM



**Q8 Is Warren County involved in your community's Continuity of Operations planning, such as by participating on a planning team, providing resources during an emergency, or carrying out some of your community's essential functions for a period of time?**

Answered: 2   Skipped: 1



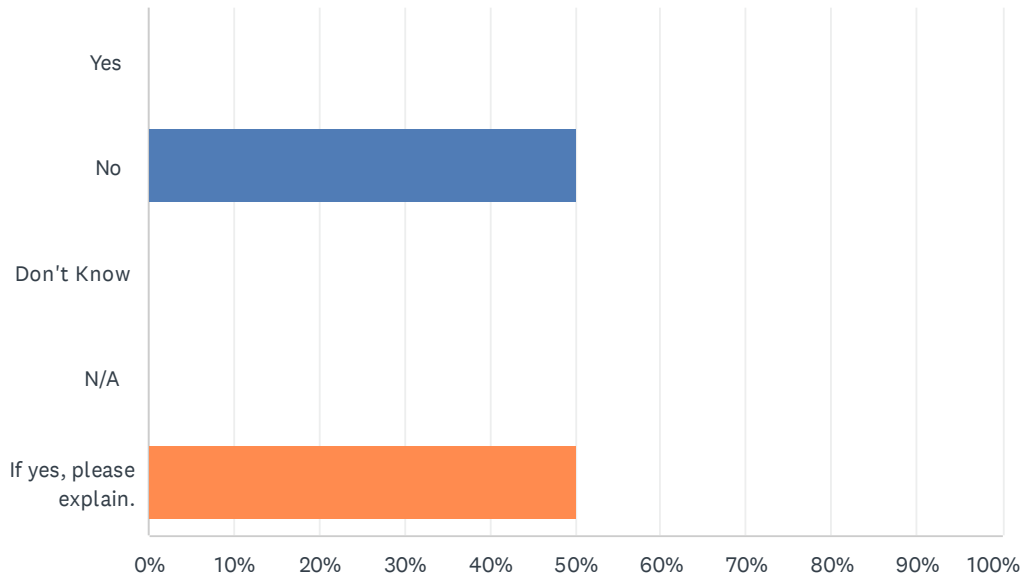
ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
<b>TOTAL</b>		<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Mutual aid plans Fire/EMS/Law	1/9/2023 2:38 PM



**Q9 Is your community involved in Warren County's Continuity of Operations planning, such as by participating on a planning team, providing resources during an emergency, or carrying out some of Warren County's essential functions for a period of time?**

Answered: 2   Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
<b>TOTAL</b>		<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Mutual aid plans Fire/EMS/Law	1/9/2023 2:38 PM



## Q10 Thinking about emergency operations and disaster response, please explain how these actions are communicated between communities.

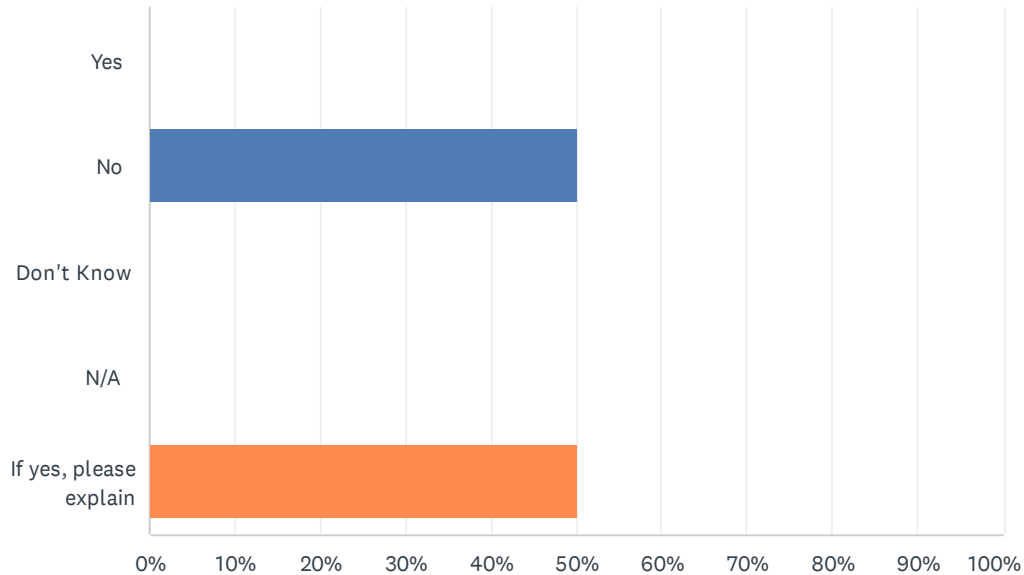
Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	Phone, email, NY Responds	5/1/2023 3:10 PM
2	Emergency Managers work together to respond to incidents and may work together to mitigate against incidents along shared vulnerabilities.	1/9/2023 2:38 PM



## Q11 Does your community share risk and vulnerability assessments (flood mapping, HAZUS, etc.) with Warren County?

Answered: 2   Skipped: 1



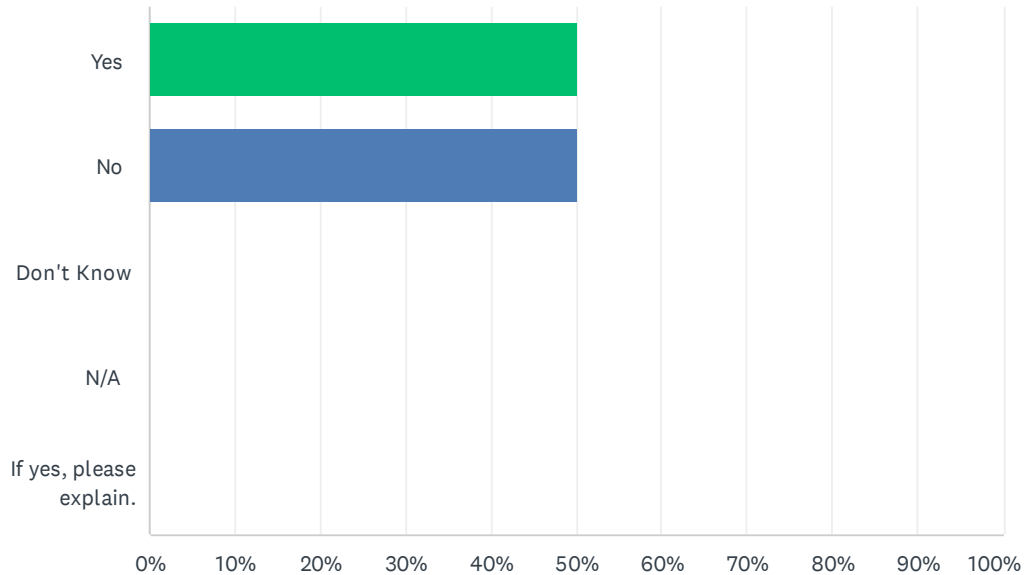
ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		50.00%	1
Don't Know		0.00%	0
N/A		0.00%	0
If yes, please explain		50.00%	1
TOTAL			2

#	IF YES, PLEASE EXPLAIN	DATE
1	Flood mapping	5/1/2023 3:11 PM



## Q12 Do you collaborate with Warren County on establishing evacuation routes and alternate evacuation routes?

Answered: 2 Skipped: 1



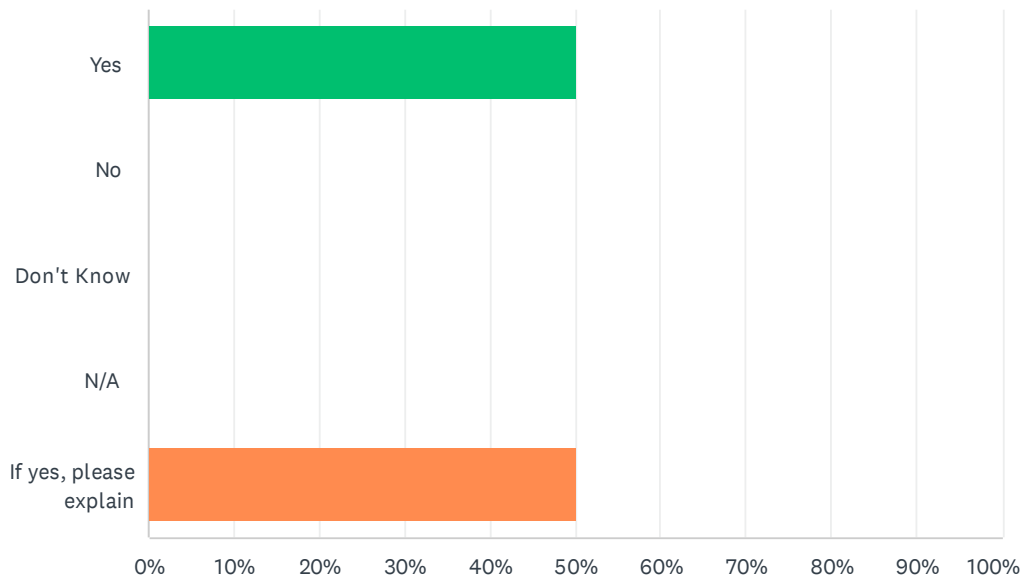
ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	0.00%	0
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



### Q13 Do you and Warren County consult with one another before making evacuation decisions that would impact one another (recommending evacuation routes into neighboring jurisdictions)?

Answered: 2   Skipped: 1



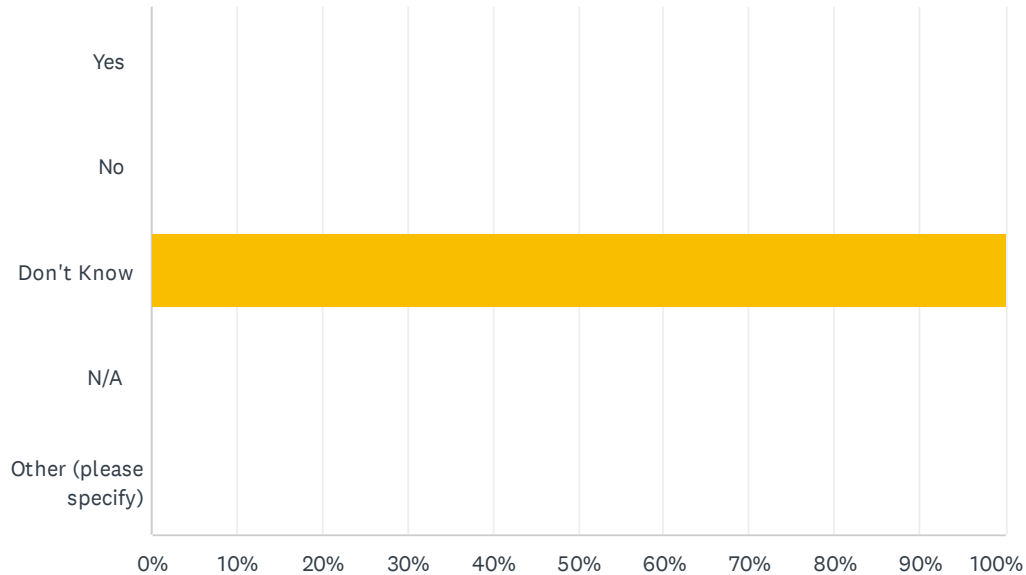
ANSWER CHOICES	RESPONSES
Yes	50.00% 1
No	0.00% 0
Don't Know	0.00% 0
N/A	0.00% 0
If yes, please explain	50.00% 1
<b>TOTAL</b>	<b>2</b>

#	IF YES, PLEASE EXPLAIN	DATE
1	Multi-county evacuations would require collaboration	5/1/2023 3:14 PM



## Q14 Are evacuation routes maintained to the same level of protection across jurisdictional lines?

Answered: 2 Skipped: 1



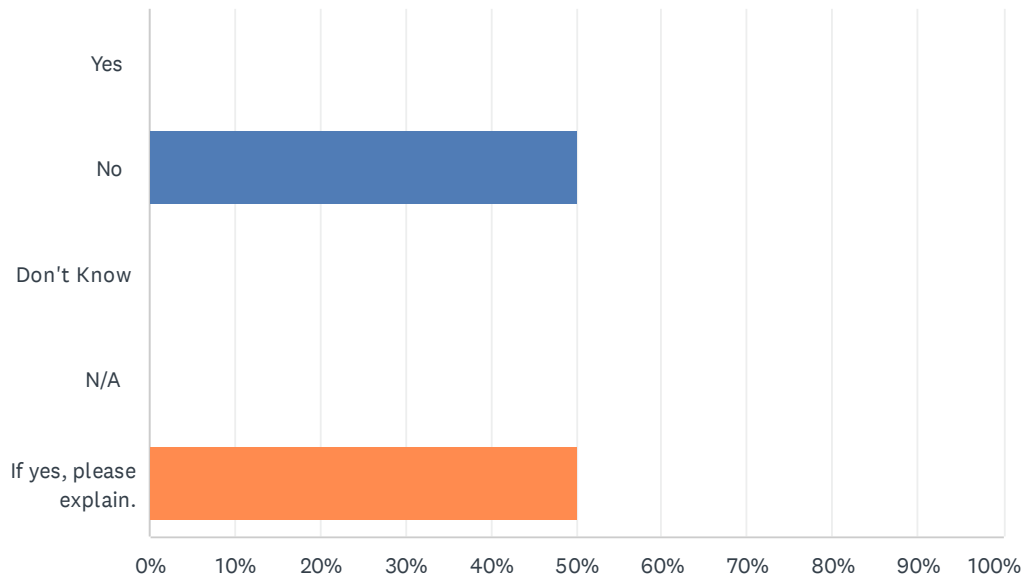
ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		0.00%	0
Don't Know		100.00%	2
N/A		0.00%	0
Other (please specify)		0.00%	0
TOTAL			2

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



## Q15 Do you collaborate with Warren County on establishing shelters?

Answered: 2   Skipped: 1



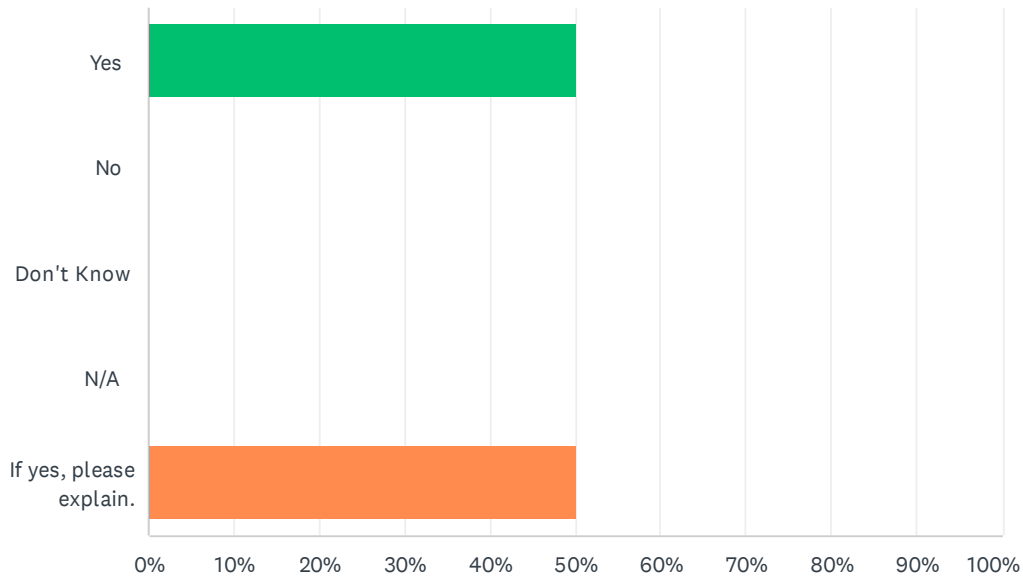
ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		50.00%	1
Don't Know		0.00%	0
N/A		0.00%	0
If yes, please explain.		50.00%	1
TOTAL			2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Historically we have collaborated on shared hazards/events	5/1/2023 3:14 PM



## Q16 Do you and Warren County consult with one another before making sheltering decisions that would impact one another (recommending shelters in neighboring communities)?

Answered: 2 Skipped: 1



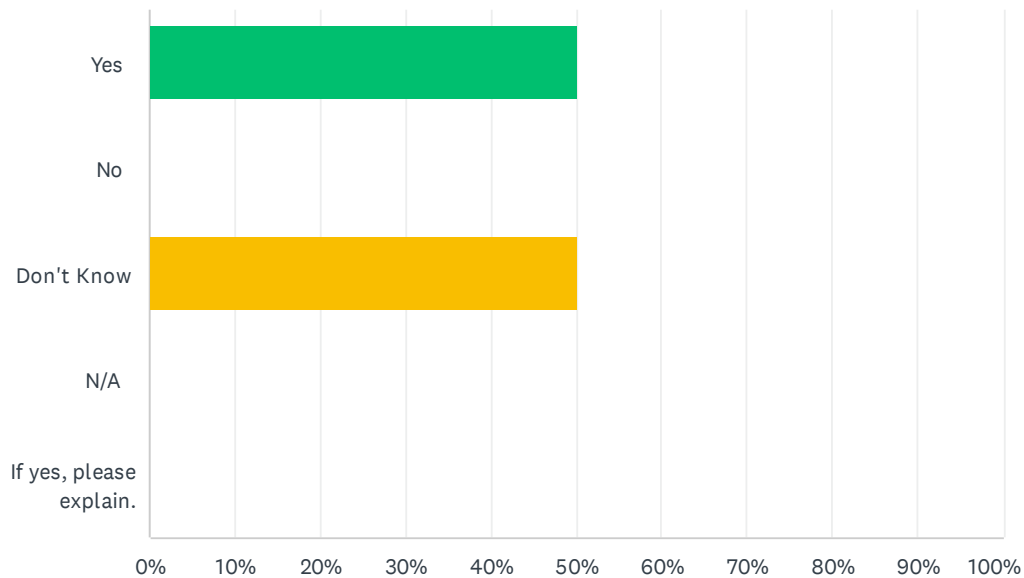
ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	0.00%	0
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
<b>TOTAL</b>		<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	By phone/email	5/1/2023 3:14 PM



**Q17 Do you and Warren County share any spaces suitable for temporary housing? This includes locations suitable to place temporary housing units to house residents displaced by a disaster.**

Answered: 2 Skipped: 1



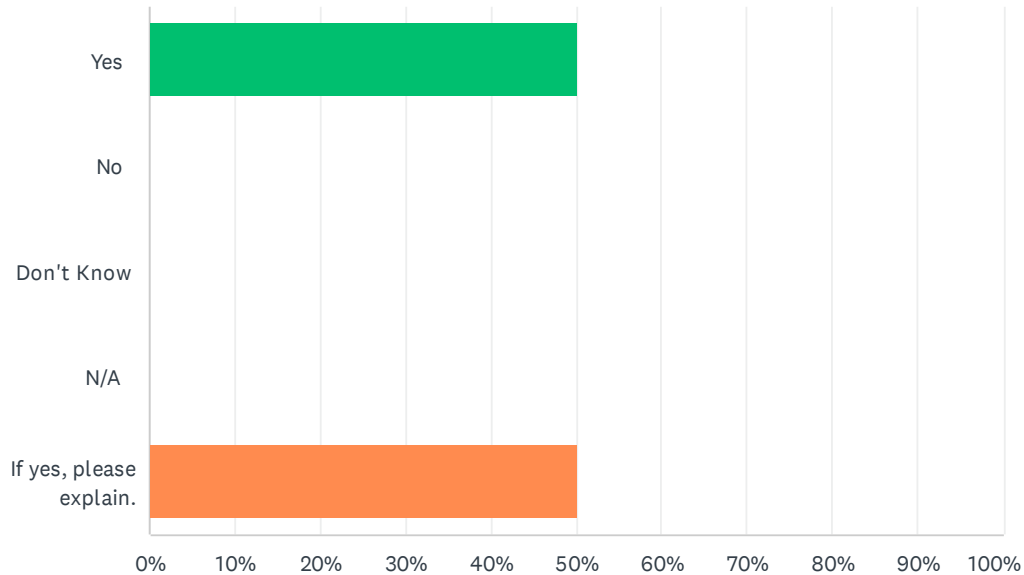
ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	0.00%	0
Don't Know	50.00%	1
N/A	0.00%	0
If yes, please explain.	0.00%	0
<b>TOTAL</b>		<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q18 Does your community have access to contact information for Warren County's emergency operation centers?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	0.00%	0
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Phone/email	5/1/2023 3:22 PM



Q19 Please describe any situations or hazards that are of concern to both your community and Warren County. For example, would flooding along a particular waterway impact both jurisdictions, or are there any facilities or infrastructure that would affect both jurisdictions if it/they failed?

Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	All dams/flooding along common county borders	5/1/2023 3:22 PM
2	Flooding along the Hudson - which serves as the boundary between a good portion our counties. Additionally, various incidents along the northway. Also, large scale incidents (eg brush fire) along our rural border.	1/9/2023 2:51 PM



## Q20 Please explain how information is shared between communities regarding mitigation projects.

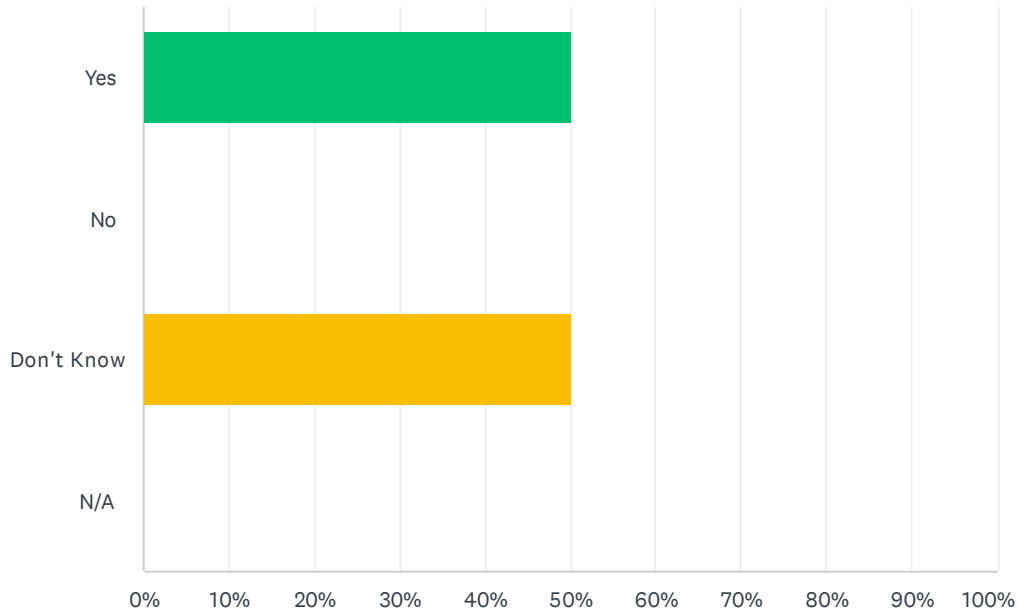
Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	Phone/email	5/1/2023 3:22 PM
2	The hazard mitigation plan, intercommunity communication often by the highway department leadership	1/9/2023 2:51 PM



## Q21 Is information regarding mitigation shared during the planning and implementation phases of the projects?

Answered: 2 Skipped: 1



ANSWER CHOICES		RESPONSES	
Yes		50.00%	1
No		0.00%	0
Don't Know		50.00%	1
N/A		0.00%	0
TOTAL			2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q22 Are you aware of any projects for the following that requires cross-collaboration between jurisdictional boundaries?

Answered: 0   Skipped: 3

 No matching responses.

ANSWER CHOICES	RESPONSES	
Stormwater projects	0.00%	0
Watershed projects or planning	0.00%	0
Floodplain projects or planning	0.00%	0
Connected roadway improvements	0.00%	0
Natural infrastructure restoration	0.00%	0
Outreach (education and outreach campaigns, programs for public information, etc.)	0.00%	0
Other (please specify)	0.00%	0
Total Respondents: 0		

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



## Q23 If you selected anything above, please explain.

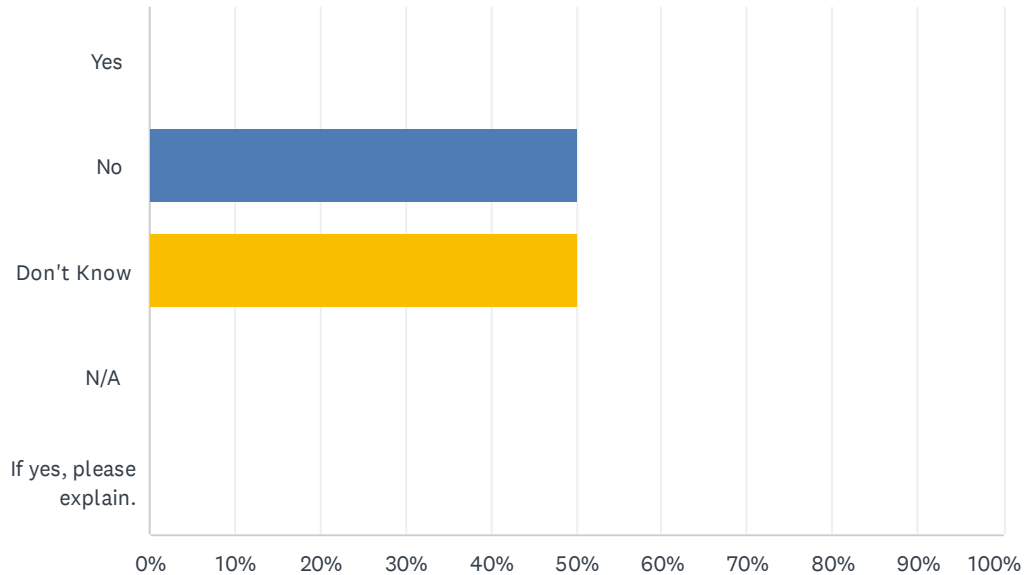
Answered: 0   Skipped: 3

#	RESPONSES	DATE
	There are no responses.	



## Q24 Have your community and Warren County collaborated on grant applications?

Answered: 2   Skipped: 1



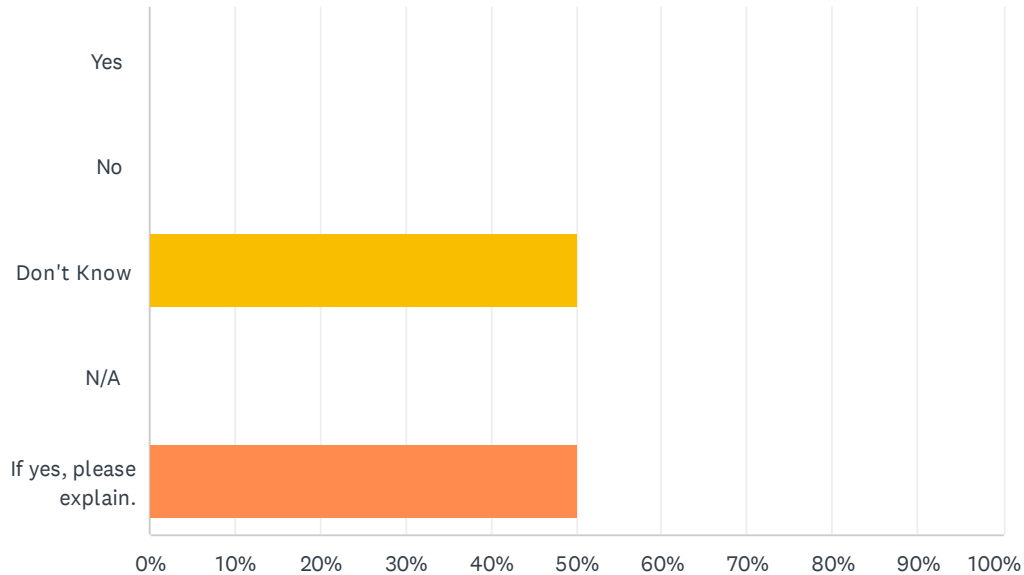
ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		50.00%	1
Don't Know		50.00%	1
N/A		0.00%	0
If yes, please explain.		0.00%	0
TOTAL			2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q25 Are you aware of any organizations that carry out education and outreach regarding hazards in both your community and Warren County?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	0.00%	0
Don't Know	50.00%	1
N/A	0.00%	0
If yes, please explain.	50.00%	1
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Dam operators	5/1/2023 3:24 PM



## Q26 What are opportunities or ideas to optimize cooperation with Warren County on emergency management operations and hazard mitigation projects?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	Open communication when planning cross-jurisdictional projects	5/1/2023 3:24 PM
2	Corresponding HAZMIT Plans/Projects	1/9/2023 2:52 PM



## Q27 Do you have any relevant questions or comments for Warren County?

Answered: 1   Skipped: 2

#	RESPONSES	DATE
1	We will be going through a HAZMIT plan update later this year as well	1/9/2023 2:52 PM





## D.4 WEBSITE AND SOCIAL MEDIA POSTS

The following provides screenshots of the informational fact sheet, website, news articles, and social media posts.





# WARREN COUNTY HAZARD MITIGATION PLAN

2023 Update

## What is a Hazard Mitigation?

Hazard mitigation is an action to help reduce long-term risks caused by hazards or disasters, such as flooding, earthquakes, or wildfires. The purpose of hazard mitigation is to protect people and structures, and minimize the costs of disaster response and recovery. Hazard mitigation can take many forms: capital projects, policies, education, and environmental protection.

Proactive mitigation leads to more cost-effective projects. By contrast, reactive mitigation, tends to lead to severe damage and often more costly fixes; it simply costs too much to address the effects of disasters only after they happen. A surprising amount of damage can be prevented if we can anticipate where and how disasters occur, and take steps to prevent those damages.

## What is a Hazard Mitigation Plan?

Hazard Mitigation Plans (HMP) are prepared and adopted by counties and municipalities with the primary purpose of identifying, assessing, and reducing the long-term risk to life and property from hazard events. HMPs are most effective when they are based on a comprehensive, long-term plans developed before a disaster occurs.

Effective mitigation planning can break the cycle of disaster damage, reconstruction, and repeated damage. There are four key elements of an HMP: 1) a risk assessment, 2) capability assessment, 3) mitigation strategy, and 4) plan maintenance procedures.

The purpose of mitigation planning is to identify local policies and actions that can be implemented over the long term to reduce risk and future losses from hazards. These mitigation policies and actions are identified based on an assessment of hazards, vulnerabilities, and risks and the participation of a wide range of stakeholders and the public in the planning process.

## Purpose

The Warren County Soil and Water Conservation District is leading the update of the Warren County HMP. This plan is an opportunity to detail a variety of potential hazards that could affect some or all of the residents and will also allow the county and participating municipalities to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA).

The goal of the plan is to identify projects that can reduce damages from future hazards. The plan will include a risk assessment and a hazard mitigation strategy. The primary hazards of concern in the counties include: Dam Failure, Disease Outbreak, Earthquake, Flood, Infestation, Severe Storm, Severe Winter Storm, and Wildfire.

The study will focus on existing buildings and potential future development, infrastructure, and lifelines that might be impacted.

Lifelines include but are not limited to municipal buildings and infrastructure such as power-generation facilities, water utilities, roadways, railroads and communication systems.





## What are the benefits of Hazard Mitigation?

Mitigation planning will help the county and the participating jurisdictions prepare for disasters, before they happen, to reduce impacts when a disaster occurs.

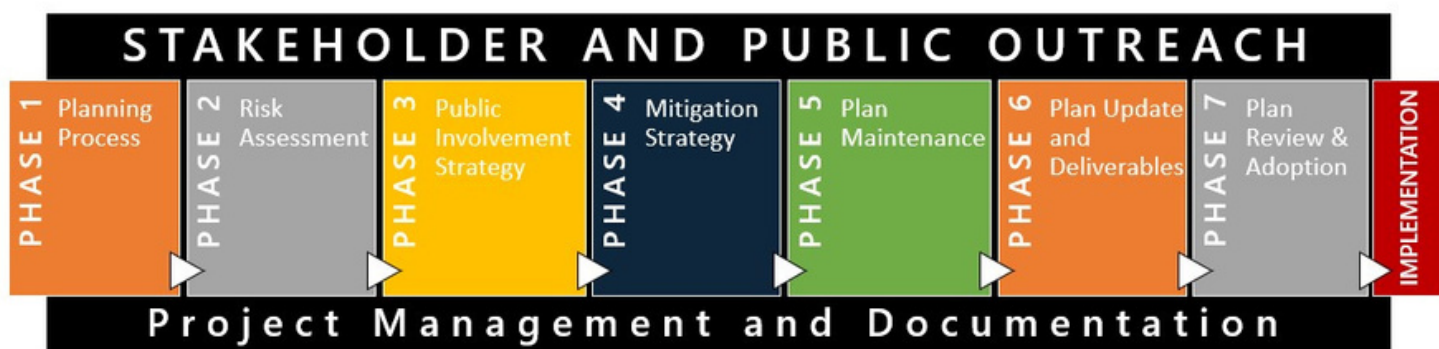
Benefits include:

- Identifying actions for risk reduction that are agreed upon by stakeholders and the public,
- Focusing resources on the greatest risks and vulnerabilities,
- Building partnerships by involving citizens, organizations, and businesses,
- Increasing education and awareness of threats and hazards, as well as their risks,
- Communicating priorities to state and federal officials, and
- Aligning risk reduction with other community objectives.

## What is required in a Hazard Mitigation Plan?

FEMA regulations require that the public must be engaged in all phases of the plan's development. The HMP should review and incorporate existing plans and programs that can support or enhance hazard mitigation. The plan must assess the risk to natural hazards that may impact the planning area and identify and prioritize mitigation actions that can be taken. The HMP must also include a strategy for maintaining the plan, which must be updated every 5 years.

## Planning Process



## FAQs

**What is mitigation?** Any sustained action taken to reduce/ eliminate long-term risk to life and property from a hazard event.

**How can you reduce/eliminate risk?** Identify mitigation actions/ projects/activities or processes that can include 1) Local plans and regulations; 2) Structure and infrastructure projects; 3) Natural systems protection; 4) Education and awareness programs.

**What grant funding is available?** FEMA Hazard Mitigation Assistance grant funding is available with a FEMA-approved Hazard Mitigation Plan (annual and post-disaster opportunities).

**How can I support the plan?** Take the public survey! This will help us obtain input and get a better understanding of public preparedness for hazard events.

**Where can I see the 2023 plan?** Sections of the draft plan will be available late-2022 for download, review and comment on the Warren County HMP website at: <https://www.warrencountynewyorkhmp.com/>

For more information, please visit our website:

<https://www.warrencountynewyorkhmp.com/>

For more information about this process, please contact:



Warren County Soil and Water Conservation District  
518-623-3119

Live or work in Warren County? Take our survey!  
<https://www.surveymonkey.com/r/WarrenNYHMPPublic>

-or-

scan the QR code to complete the survey







# WARREN COUNTY HAZARD MITIGATION PLAN

## 2023 UPDATE

[Home](#)[About](#)[What is Mitigation](#)[Meetings](#)[Calendar](#)[Explore the Plan](#)[Additional Information](#)

### Warren County Hazard Mitigation Plan 2023 Update

The draft Warren County Hazard Mitigation Plan is available for public review. This plan will be available for public review through September 2<sup>nd</sup>, 2023.

Welcome to the Warren County Hazard Mitigation Plan (HMP) Website. This website provides project updates, resources, and links to hazard mitigation in support of the HMP update.

The goal of the project is to save lives and property through the reduction of hazard vulnerability for Warren County and its municipalities. During the course of this planning project, county and local leaders and the community will work in tandem to identify risks, assess capabilities, and formulate a strategy to reduce disaster vulnerability.

Public participation and feedback are vital parts of the hazard mitigation planning process. The Warren County HMP Steering Committee developed a mitigation survey to assist in providing the public an outlet to contribute to the Warren County HMP update which was active through June 8, 2023. The results of the survey will be used to develop portions of the HMP.

If you have any questions or comments regarding the HMP or planning process, please complete this form, and someone from the Planning Partnership will be in touch.

Events in August 2023–July 2024



# **WARREN COUNTY**

## **2023 HAZARD MITIGATION PLAN UPDATE**

**When natural hazards occur, how are you prepared?  
Let us know in this survey as part of Warren County's  
Hazard Mitigation Plan update.**

**<https://www.warrencountynewyorkhmp.com/>**



For more information, please contact Warren County Soil  
and Water Conservation District:  
(518) 623-3119





Boost post



# HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note this ...

March 9, 2023 at 6:11 AM

ID: 555241586795063

## Interactions

0 reactions

0 comments

5 shares

- Overview
- Performance
- Feed preview

## Performance

**Reach**

Total

964

Organic	964 (100%)
Paid	0 (0%)

**Engagements**

Reactions

0

Comments	0
Shares	5

View details

**Negative interactions**

Total

0

Unique	0
--------	---

## Feed preview

Warren County, New York

March 9

HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note





Boost post



# HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note this ...

January 12, 2023 at 6:21 AM  
ID: 519354607050428

## Interactions

2 reactions

0 comments

2 shares

- Overview
- Performance
- Feed preview

## Performance

**Reach ⓘ**

Total

928

Organic	928 (100%)
Paid	0 (0%)

**Engagements ⓘ**

Reactions

2

Comments	0
Shares	2

View details

**Negative interactions ⓘ**

Total

0

Unique	0
--------	---





























## Feed preview

Warren County, New York

January 12 · 🌐

HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note



	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Thu Mar 9, 6:11am	 	--					0:00
							Distribution				video views	<a href="#">Average minutes</a>
	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Thu Jan 12, 6:21am	 	--					0:00
							Distribution				video views	<a href="#">Average minutes</a>
	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Sat Jan 7, 10:19am	 	--					0:00
							Distribution				video views	<a href="#">Average minutes</a>
	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Dec 22, 2022	 	--					0:00
							Distribution	0	0	0		<a href="#">Average minutes</a>
								Minutes viewed	<a href="#">3-second video views</a>	1-Minute video views		
	Good advice from Warren Coun...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Dec 20, 2022	 	--	0	0	0		0:00
							Distribution	Minutes viewed	<a href="#">3-second video views</a>	1-Minute video views		<a href="#">Average minutes</a>
	Warren County is looking for p...	 warrencountynynewyork	<a href="#">View insights</a>	<a href="#">...</a>	Dec 9, 2022	 	--	--	--	--		--
	Warren County and its partners...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Dec 9, 2022	 	--	0	0	0		0:00
							Distribution	Minutes viewed	<a href="#">3-second video views</a>	1-Minute video views		<a href="#">Average minutes</a>

-- your other posts within 21+ days of publishing.

↓ 399,999,999.0x less Impressions

↓ 399,999,999.0x less Link clicks

↓ 399,999,999.0x less Reactions

Understand your Distribution

Impressions is the metric that's likely having the biggest effect on the distribution of this post.





[https://poststar.com/news/local/warren-county-seeks-input-to-update-hazard-mitigation-plan/article\\_beb98a44-7b21-11ed-a710-b7a678f9a3f7.html](https://poststar.com/news/local/warren-county-seeks-input-to-update-hazard-mitigation-plan/article_beb98a44-7b21-11ed-a710-b7a678f9a3f7.html)

# Warren County seeks input to update hazard mitigation plan

**Post-Star staff report**

Dec 13, 2022

**W**arren County is looking for public input as it updates its Multi-Jurisdictional Hazard Mitigation Plan, a document that details the potential hazards, such as storm-related conditions, that could affect residents and visitors.

The plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Ann Marie Mason, Warren County's director of emergency services, said that updating the plan allows the county and participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency.

"Public participation and feedback are a vital part of the hazard mitigation planning process," Mason said in a news release. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."

---

## People are also reading...

- 1 **South Glens Falls may sue to have electrical box fixed**
  - 2 **Mr. Shatner goes to Ticonderoga**
  - 3 **Glens Falls Windy Hill residents react to possible Quaker Road development**
  - 4 **Reminder: New print edition, schedule this week**
-



The survey can be found here:

**<https://www.surveymonkey.com/r/WarrenNYHMPPublic>**.

The plan identifies projects that can reduce damages from future natural hazards. It also creates a framework for risk-based decision making to reduce damages to lives, property and the economy from future disasters.

The county will involve the private sector, nonprofit organizations and other community partners in the planning process.

The approach is consistent with a “Whole Community Approach” that seeks to involve the entire community in disaster and hazard planning, according to Jim Lieberum, district manager of Warren County Soil and Water Conservation District, one of the planning partners.

The plan will include a risk assessment and a hazard mitigation strategy. It will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard, and include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities and hazardous material facilities.

The update of the plan allows the county and participating jurisdictions to continue to be eligible for grant-funded projects such as home acquisitions or elevations to either remove houses located in the floodplain to generate open space and increase flood storage or to raise their first floor above the FEMA base flood elevation and local flood control measures.

For more information or to get involved in this project, contact Lieberum at 518.623.3119 or **[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)**.

To stay informed about the project, visit:

**<https://www.warrencountynewyorkhmp.com>**.



# Input needed on natural disasters in Warren County

by: [Jay Petrequin](#)

Posted: Dec 9, 2022 / 11:54 AM EST

Updated: Dec 9, 2022 / 12:03 PM EST



Severe damage to the driveway and parking lot of the Lakeview Terrace Hotel and the Fairview Association, along Lake George, N.Y. (Photo: Jay Petrequin)

SHARE



WARREN COUNTY, N.Y. (NEWS10) – It's important to know and understand what potential hazards could come with where one lives, and what different weather conditions can bring to those areas. Warren County is looking for public input as it makes updates to its plan to curb natural disaster danger for county residents.

[Get the latest news, weather, sports and community events delivered right to your inbox!](#)

The county's Multi-Jurisdictional Hazard Mitigation Plan is up for revision – and [a survey](#) gives residents a chance to weigh in on it. The plan is a document that can be used by the county to reduce the impact and damage from natural disasters, especially targeted at preventing and

any NY Weather ▾

Traffic

Watch Live News ▾

Sports ▾

Jobs ▾

Community ▾

Video Center

“Public participation and feedback are a vital part of the hazard mitigation planning process,” said Warren County Emergency Services Director Ann Marie Mason. “We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made.”

[The survey asks for residents](#) to report what types of natural disasters they have seen and experienced in Warren County over the last decade, such as flooding, drought and climate change impacts. It also seeks information such as concern for future disasters, and how residents get their disaster information.

[ARPA lets Glens Falls Hospital's crisis unit grow](#)

The Hazard Mitigation Plan is updated every five years. The plan is used for communities to make risk-based decisions that can lead to fewer lives being lost, or less property being damaged, in the event of a disaster. The process going forward will also involve voices from nonprofits, community partners and the private sector. The plan will analyze how best to protect essential community facilities, transportation systems, lifeline utilities and hazardous material facilities.



## CLEARANCE

Women's sneaker



~~\$23.00~~  
**\$2.88**  
**SHOP NOW**

**BESTREVIEWS.COM - HOLIDAY SHOPPING DEALS**



**The best Secret Santa gifts for someone you don't ...**

Holiday • 3 hours ago



**Get ready to hibernate for the holidays with these ...**

Holiday • 3 hours ago



**Best Christmas sweater**

Shirts & Tops • 4 hours ago



**Best New Year's Eve decoration**

Holiday • 5 hours ago





# Warren County seeks input to update hazard mitigation plan

Post-Star staff report Dec 13, 2022 0



Listen to this article now

Powered by Trinity Audio

00:00

1.0x

02:46

**W**arren County is looking for public input as it updates its Multi-Jurisdictional Hazard Mitigation Plan, a document that details the potential hazards, such as storm-related conditions, that could affect residents and visitors.

The plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Ann Marie Mason, Warren County's director of emergency services, said that updating the plan allows the county and participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency.

"Public participation and feedback are a vital part of the hazard mitigation planning process," Mason said in a news release. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."



WARREN COUNTY, NY -- Warren County is looking for public input as it updates its **Multi-Jurisdictional Hazard Mitigation Plan**, a document that details the potential hazards, such as storm-related conditions, that could affect Warren County's residents and visitors.

This updated plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Updating the plan allows the county and participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA), explained **Ann Marie Mason, Warren County Director of Emergency Services**.

"Public participation and feedback are a vital part of the hazard mitigation planning process," Mason said. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."

The survey can be found here: <https://www.surveymonkey.com/r/WarrenNYHMPPublic>.

What is a Hazard Mitigation Plan (HMP)?

A Hazard Mitigation Plan is a document that communities use to identify projects that can reduce damages from future natural hazards. HMPs form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The plan is updated every 5 years.

HMPs also create a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters. During the planning process, organizations in the Warren County HMP Planning Partnership will actively involve private sector, non-profit, and other community partners in the planning process.

The approach is consistent with a "Whole Community Approach," that seeks to involve the entire community in disaster and hazard planning, said **Jim Lieberum, District Manager of [Warren County Soil and Water Conservation District](#)**, one of the planning partners.

The plan will include a risk assessment and a hazard mitigation strategy. It will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard, and include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

The update of the plan allows the county and participating jurisdictions to continue to be eligible for grant-funded projects such as home acquisitions or elevations – to either remove houses located in the floodplain to generate open space and increase flood storage or to raise their first floor above the FEMA base flood elevation – and local flood control measures. Ultimately, these actions reduce vulnerability, and communities are able to recover more quickly from disasters.

If you would like more information on how to get involved in this project, contact Lieberum at 518.623.3119 or [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org).

To stay informed about the project, visit: <https://www.warrencountynewyorkhmp.com>.





## APPENDIX E SUPPLEMENTARY DATA

This appendix contains information and details to support information provided in Section 5 (Risk Assessment).

### E.1 HISTORY OF HAZARD EVENTS WITHIN THE COUNTY

To supplement the information provided in this plan, events prior to the update of this plan are included below by hazard of concern type. Many sources provided historical information regarding previous occurrences and losses associated with hazards throughout New York and Warren County. It is noted that, with a number of sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the sources.

For more information on past events and impacts, refer to the 2017 Warren County Hazard Mitigation Plan.

#### E.1.1 Earthquake

Known earthquake events that have impacted New York State and Warren County between 1916 and 2023 are identified in Table E.1. Many sources were researched for historical information regarding earthquake events in Warren County; therefore, Table E.1 may not include all earthquake events that have impacted the County.

*Table E.1. Earthquake History in New York State, 1916-2023*

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
February 3, 1916	Earthquake 4.1	Galway, NY	N/A	N/A	No reference and/or no damage reported.
March 18, 1928	Earthquake 4.1	Paul Smiths, NY	N/A	N/A	No reference and/or no damage reported.
August 12, 1929	Earthquake 4.7	Corfu, NY	N/A	N/A	No reference and/or no damage reported.
April 20, 1931	Earthquake 4.7	Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
April 15, 1934	Earthquake 4.5	Dannemora, NY	N/A	N/A	No reference and/or no damage reported.
January 1, 1966	Earthquake 4.3	Attica, NY	N/A	N/A	No reference and/or no damage reported.
June 13, 1967	Earthquake 4.1	Attica, NY	N/A	N/A	No reference and/or no damage reported.
July 15, 1973	Earthquake 3.4	Long Lake, NY	N/A	N/A	No reference and/or no damage reported.
June 7, 1974	Earthquake 3.3	Wappingers Falls, NY	N/A	N/A	No reference and/or no damage reported.
June 9, 1975	Earthquake 4.2	Altona, NY	N/A	N/A	No reference and/or no damage reported.
November 3, 1975	Earthquake 4.0	Long Lake, NY	N/A	N/A	No reference and/or no damage reported.

**Commented [MM1]:** Reference Hazard Event History from the 2016/17 plan does not have events prior to 2002. Highlighted events may need to be removed, but I wanted to confirm if events prior to 2002 need to be added.

**Commented [BC2R1]:** are those events included in an appendix of the old plan?

**Commented [MM3R1]:** I reviewed the other sections and appendices for the old plan and did not find any additional detail on past events.





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
September 28, 1977	Earthquake 3.1	Wilmington, NY	N/A	N/A	No reference and/or no damage reported.
April 5, 1978	Earthquake 2.6	Newcomb, NY	N/A	N/A	No reference and/or no damage reported.
August 21, 1978	Earthquake 3.1	Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
December 30, 1979	Earthquake 2.5	North Castle, NY	N/A	N/A	No reference and/or no damage reported.
June 6, 1980	Earthquake 3.5	Port Leyden, NY	N/A	N/A	No reference and/or no damage reported.
August 31, 1982	Earthquake 2.7	Northville, NY	N/A	N/A	No reference and/or no damage reported.
February 26, 1983	Earthquake 3.0	Pawling, NY	N/A	N/A	No reference and/or no damage reported.
October 7, 1983	Earthquake 5.1	Newcomb, NY	N/A	N/A	At Blue Mountain Lake, one old chimney collapsed, about 20 tombstones slid or rotated, and some minor cracks formed in plaster walls. Several landslides were reported. Light damage also occurred at several other towns in the area, but the most common effects were cracked chimneys, broken dishes or glassware and overturned or fallen objects. Although this earthquake caused only minor damage, it was felt over a wide region, including two Provinces in Canada and 12 States.
August 20, 1984	Earthquake 3.2	Chazy, NY	N/A	N/A	No reference and/or no damage reported.
October 19, 1985	Earthquake 3.6	Greenville, NY	N/A	N/A	No reference and/or no damage reported.
September 26, 1987	Earthquake 3.8	Tupper Lake, NY	N/A	N/A	No reference and/or no damage reported.
August 9, 1988	Earthquake 3.5	Massena, NY	N/A	N/A	No reference and/or no damage reported.
June 17, 1991	Earthquake 4.0	Worcester, NY	N/A	N/A	Felt (V) at Carlisle, Charlottesville, Cobleskill, Fly Creek, Fultonham, Herkimer, Howes Cave, Ilion, Morris, New Kingston, New York Mills, Portlandville, Rensselaerville, Seward and Worcester. Felt throughout much of New York from Rochester to Rockland and Westchester Counties. Also felt in northern New Jersey, western Connecticut, western Massachusetts and in parts of New Hampshire, Pennsylvania and Vermont.
March 2, 1995	Earthquake 3.0	Tupper Lake, NY	N/A	N/A	No reference and/or no damage reported.
July 31, 1997	Earthquake 3.2	Lyons Falls, NY	N/A	N/A	No reference and/or no damage reported.
April 20, 2000	Earthquake 3.8	Newcomb, NY	N/A	N/A	Felt at Clifton Park, Crown Point, Greenwich, Ilion, Indian Lake, Lake Bonaparte, Newcomb, Northville, Queensbury, Saranac Lake, Tupper Lake, Vermontville and Wells. Felt at Keene and Swanzey, New Hampshire; Addison, Moretown, Montpelier and Northfield, Vermont. Also felt at Brigham and Sherbrooke, Quebec, Canada.





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
February 3, 2001	Earthquake 3.2	Bath, NY	N/A	N/A	No reference and/or no damage reported.
April 20, 2002	Earthquake 5.1	Au Sable Forks, NY	DR-1415	Yes	Approximately 12 residents throughout the County reported specific damage to WCDCR, including cracked foundations and walls, structural damage, broken doors and windows, and septic system and other utility damage.
July 24, 2007	Earthquake 3.1	East Berne, NY	N/A	N/A	No reference and/or no damage reported.
February 27, 2008	Earthquake 2.7	Howes Cave, NY	N/A	N/A	No reference and/or no damage reported.
February 18, 2009	Earthquake 2.7	East Berne, NY	N/A	N/A	No reference and/or no damage reported.
February 20, 2009	Earthquake 2.7	Berne, NY	N/A	N/A	No reference and/or no damage reported.
February 23, 2009	Earthquake 2.1	Berne, NY	N/A	N/A	No reference and/or no damage reported.
March 22, 2009	Earthquake 2.8	Berne, NY	N/A	N/A	No reference and/or no damage reported.
May 18, 2009	Earthquake 3.0	Berne, NY	N/A	N/A	No reference and/or no damage reported.
October 21, 2009	Earthquake 2.9	East Berne, NY	N/A	N/A	No reference and/or no damage reported.
December 13, 2009	Earthquake 3.1	Berne, NY	N/A	N/A	No reference and/or no damage reported.
June 24, 2010	Earthquake	Ottawa, Canada	N/A	N/A	An earthquake centered north of Ottawa, Canada was felt in the Hudson Valley and elsewhere in New York State and across a wide swath of the northeast United States. There were reports of people having felt the event in Warren County, New York. Chestertown residents reported having felt it. There were no reports of injuries or damages in the County.
August 23, 2011	Earthquake 5.8	Mineral, Virginia	DR-4044 (Washington D.C.) DR-4022 (Virginia)	No	A 5.8 earthquake occurred during the afternoon of August 23 <sup>rd</sup> when a fault near Mineral, VA ruptured. It damaged older buildings, shut down much of Washington D.C. and impacted people from New England to the Carolinas. Many buildings in Virginia and Washington D.C. were damaged as a result of this event.
January 23, 2012	Earthquake 2.3	New York	N/A	N/A	No reference and/or no damage reported.
August 25, 2013	Earthquake 2.7	6 miles S/SE of Warrensburg, NY	N/A	N/A	The USGS confirmed a minor earthquake occurred in the Glens Falls area on the morning of August 25 <sup>th</sup> . The 2.7 earthquake was centered approximately 6 miles south/southeast of Warrensburg. Residents of Glens Falls, Queensbury, Lake George, and Lake





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
					Luzerne area all reported having felt the earthquake.
July 24, 2014	Earthquake 1.6	9 miles NW of Hadley, NY	N/A	N/A	No reference and/or no damage reported.
November 13, 2014	Earthquake 1.6	13 miles NW of Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
February 2, 2015	Earthquake 1.9	19 miles NW of Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
May 25, 2015	Earthquake 1.3	19 miles NW of Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
July 11, 2017	Earthquake 2.5	7 miles NW of Barker, NY	N/A	N/A	No reference and/or no damage reported.
March 21, 2018	Earthquake 2.7	6 miles NW of Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
May 31, 2019	Earthquake 2.6	4 miles NW of Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
March 11, 2020	Earthquake 3.1	South Glens Falls, NY	N/A	N/A	No reference and/or no damage reported.
March 29, 2020	Earthquake 2.6	7 miles N of Lyndonville, NY	N/A	N/A	No reference and/or no damage reported.
July 14, 2021	Earthquake 2.8	5 miles NW of Massena, NY	N/A	N/A	No reference and/or no damage reported.
March 15, 2022	Earthquake 2.6	3 miles SW of Warsaw, NY	N/A	N/A	No reference and/or no damage reported.
July 27, 2022	Earthquake 2.5	1 mile SW of Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
February 6, 2023	Earthquake 3.8	0.5 miles NE of West Seneca, NY	N/A	N/A	No reference and/or no damage reported.

Source(s): NYS DHSES 2014; USGS 2023; FEMA 2016

DR Major Disaster Declaration (FEMA)  
 FEMA Federal Emergency Management Agency  
 N/A Not Applicable  
 NY New York  
 USGS U.S. Geological Survey





### E.1.2 Extreme Temperature

Information regarding specific details of temperature extremes in Warren County is scarce; therefore, previous occurrences and losses associated with extreme temperature events are limited. Table H.2 summarizes the extreme temperature events in the County from 2000 through 2023.

**Table E.2. Extreme Temperature Events between 2000 and 2023**

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 8, 2000	Excessive Heat	N/A	N/A	The season's first Bermuda type high pumped unseasonably warm air into eastern New York on March 8 and March 9. Temperatures soared well into the 60s at most locations, and touched 70 in a few spots. Even across the Adirondacks, readings climbed well into the 50s to near 60. At the Albany International Airport, the high on March 8 of 66 degrees, eclipsed the old record of 64 set in 1942. On March 9, the high reached 68 degrees, replacing the old record of 66 established in 1977.
January 28-29, 2009	Winter Storm	N/A	N/A	A winter storm spread a significant wintry mix of precipitation across eastern New York State, with heavy snow and sleet across much of the southern Adirondacks into the Lake George Saratoga region. Snow and sleet amounts ranged from 8 to 12 inches across the southern Adirondacks and the Lake George Saratoga region. This wintry mix resulted in the closure of numerous schools and businesses across east central New York for both Wednesday and Thursday mornings, and also created treacherous travel conditions. Snowfall totals in Warren County ranged from 8 to 9 inches in the city of Glens Falls.
February 18, 2009	Winter Weather	N/A	N/A	Winter storm system swept northeast across eastern New York State early Thursday morning, preceded and accompanied by moderate to locally heavy wet snow. The snow began Wednesday afternoon and tapered off early Thursday morning. The heaviest snowfall amounts occurred across the Lake George Saratoga region, where 6 to 10 inches fell.
February 23, 2010	Heavy Snow	N/A	N/A	<p>A powerful storm impacted the region, the second in just a couple of days bringing heavy rainfall and a heavy wet snow to the local area. The heavy wet snow resulted in additional and continued widespread power outages across east central New York, downed trees and power lines, treacherous travel, road closures, train delays, building collapses and snow emergencies.</p> <p>In Warren County, up to 2 feet of snow fell in the west portion of the county in the higher elevations. Route 9N at Pinewoods Road in the Town of Lake Luzerne was reported closed for a couple of hours late Tuesday evening, February 23rd, due to downed power lines. No property damages were reported. Snowfall totals in Warren County ranged from 10.5 inches in</p>

**Commented [MM4]:** Reference Hazard Event History from the 2016/17 plan includes information on Severe Winter Weather, but information on extreme heat events was not located.

**Commented [MM5R4]:** NOAA data on excessive heat added.





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				the City of Glens Falls to 21.3 inches at the Town of Lake Luzerne.
February 25, 2010	Winter Storm	N/A	N/A	<p>This storm system produced a widespread swath of heavy wet snow across the greater Capital District and surrounding area, the Lake George Saratoga region, the Mohawk River Valley, Schoharie Valley and southern Adirondacks during the day Friday. Snowfall rates of 1 to 2 inches per hour occurred, beginning during the early morning hours, and persisting until late afternoon.</p> <p>Snowfall amounts reached 12 to 15 inches across northern portions of the Capital Region extending into the east central Mohawk River Valley and Lake George Saratoga region. The heavy snow created treacherous travel conditions for the morning and evening commutes on Friday, with numerous accidents reported, including along portions of the Adirondack Northway, as well as Interstate 90. The heavy wet snow also led to numerous school and business closings across much of eastern New York on Friday.</p> <p>Snowfall totals in Warren County ranged from 4 inches at Warrensburg to 24 inches at Garnet Hill in North River hamlet.</p>
July 21, 2011	Excessive Heat	N/A	N/A	<p>Bermuda high pressure dominated the region with broad southwest flow aloft. This flow ushered in hot and humid air. Temperatures across much of east central New York warmed well into the 90s with some locations reaching the century mark in the mid Hudson Valley. On Friday July 22nd in Dutchess County, Rhinebeck reached 104 degrees, Dutchess County Airport in Poughkeepsie reached 102 degrees and Mills Norre State Park came in with 100 degrees. In Columbia County, 101 degrees was reported in Hudson at the Columbia County Airport. The most oppressive day was Thursday, July 21st, due to very high dew points in the 70s. The high humidity, combined with temperatures in the 90s, resulted in heat indices of 105 to 110 degrees up the Hudson River Valley. The New York Independent System Operator (NYISO) reported that New York State's power consumption on the 21st peaked between 4 pm and 5 pm EDT and was the third highest peak on record. A weak boundary marked by a shift in winds and lower dew points moved southward across east central New York on Friday, July 22nd. Dew points dropped into the 50s in the wake of the boundary. However, the boundary did not reach the mid Hudson Valley until late in the day, and this was too late to bring any relief to the oppressive heat and humidity. The boundary dissipated across the area Friday evening. On Saturday July 23rd, temperatures warmed in the 90s, and with dew points in the upper 60s and lower 70s, resulted in heat indices of 100 to 104 degrees across the</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Capital District, mid Hudson Valley, southern Taconics and southeastern Catskills.
December 10-11, 2013	Winter Weather	N/A	N/A	As very cold air passed over the relatively warm water of Lake Ontario, a heavy, long-lasting band of lake effect snow developed on the evening of the 10 <sup>th</sup> , extending east across the entire western and southern Adirondacks. By the time the band ended late in the evening of December 11th, over one foot of snow was common across the western Adirondacks. Snowfall totals included 4.5 inches at Gore Mountain in Warren County.
December 14-15, 2013	Winter Storm	N/A	N/A	A light snow slowly spread across New York State from southwest to northeast during the day on December 14 <sup>th</sup> , followed by a steadier and heavier snowfall moved across the region during the evening hours and into the overnight. Snow fell at rates in excess of one inch per hour over much of the region and snow rates locally were as high as up to three inches per hour at times. The bulk of the accumulating snow was finished by the late overnight hours, but light snow showers and flurries continued into the mid-morning hours, especially across the Adirondacks and Capital Region. By the end of the storm, many places around the eastern Catskills, Capital Region and Lake George Saratoga Region received around a foot of snowfall. Snowfall totals in Warren County ranged from 9 inches at Brant Lake hamlet to 12.2 inches at the Town of Lake Luzerne.
February 13-14, 2014	Heavy Snow	N/A	N/A	<p>An exceptional winter storm impacted all of eastern New York between Thursday, February 13th and the morning of Friday, February 14th. The snow began falling in the morning hours at rates of up to three inches per hour, causing significant travel issues across the region. After a late afternoon break in the snowfall, heavy precipitation returned in the late evening hours. Once again, the snow fell at significant rates of up to 3 inches per hour. In addition, lightning and thunder accompanied the snow across far southern and eastern areas at times as well. By the time snow ended, between one and two feet of snow fell across much of the Lake George Saratoga Region, with lower amounts of 4 to 10 inches across the Adirondacks. Very strong winds, gusting as high as 40 mph, occurred as the storm pulled away. This led to significant blowing and drifting of the snowfall through the entire day on February 14th.</p> <p>As a result of the storm, Governor Andrew M. Cuomo declared a state of emergency for the Mid-Hudson as well other counties, including Warren, across east central New York. Restrictions were put on travel. Many towns and cities had difficulty with snow removal, as much of the snowfall also remained from a recent early February snowstorm as well. The</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				weight of snow caused a few roof collapses and power outages across the region. Snowfall totals in Warren County ranged from 6 inches at North Creek hamlet to 12 inches at the Town of Lake Luzerne.
November 26-27, 2014	Nor'Easter / Snowstorm	DR-4204	No	An early season winter storm impacted eastern New York State during Thanksgiving. The storm began the morning of the 26 <sup>th</sup> and once the snow began, it increased in intensity, falling at rates at or greater than one inch per hour. Temperatures dropped to or below freezing across the entire region. There were heavy bands of snow occurring in some locations, especially across the Taconics, Mohawk Valley and southeastern Adirondacks. Snowfall totals ranged from six to 12 inches, with up to 15 inches in the southeastern Adirondacks. The weight of the snow caused power outages in the area, especially across the mid-Hudson Valley. Warren County DPW reported numerous damages, including automobile damages from falling trees and icy conditions, transportation blockages, and phone wires falling on and entangling a truck. Snowfall totals in Warren County ranged from 10 inches at the City of Glens Falls to 14.5 inches at North Creek hamlet.
January 7, 2015	Extreme Cold/Wind Chill	N/A	N/A	Behind an arctic cold front, bitter cold air moved into the region for the night of Wednesday, January 7th. Overnight lows were below zero in most areas, with temperatures as low as -10 to -30 degrees over the Adirondacks and the Lake George and Saratoga Region. With strong northwesterly winds in place, this allowed for winds chill values to be as low as -40 degrees during the late-night hours into the morning hours on Thursday, January 8th. Due to the dangerously cold temperatures, many towns and cities opened shelters and warming stations for residents who needed a place to stay overnight. Many school districts also delayed the start of school due to the extremely cold temperatures and low wind chill values.
February 15, 2015	Extreme Cold/Wind Chill	N/A	N/A	Behind a rapidly developing coastal storm, an extremely frigid Arctic air mass pour into the region from the north, beginning during the late morning hours on Sunday, February 15th. With the developing storm just east of the region, a strong pressure gradient allowed for very strong winds. Northwest winds frequently gusted over 30 MPH, with some gusts as high as 46 MPH through the evening hours. Temperatures fell quickly through the day and dropped below zero for Sunday night into the morning of Monday, February 16th. Some temperatures were as cold as 30 degrees below zero. With winds continuing to be gusty during the overnight and morning hours, wind chill values dropped as low as 15 to 45 degrees below zero.





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				With much of the month experiencing cold temperatures, many towns and cities continued to keep warming shelters open.
February 13, 2016	Extreme Cold/Wind Chill	N/A	N/A	<p>Behind an Arctic cold front, very cold temperatures poured into the region upon brisk northwesterly winds. Temperatures dropped through the day on Saturday, February 13th, reaching lows of 8 to 33 degrees below zero across eastern New York on Saturday night. Along with winds gusting 20 to 40 MPH, wind chill values reached 15 to 45 degrees below zero for Saturday night into Sunday morning.</p> <p>The cold temperatures and low wind chills resulted in several water main breaks across the region. About 60 residents of an elderly care facility in Hoosick had to spend the night at a fire station as a result of a burst water pipe. In addition, the Red Cross responded to 17 emergency calls over the weekend, including for house fires in Albany, Schodack and Gilboa. Around \$3000 of aid was given to families affected by these fires.</p>
February 12, 2017	Extreme Cold/Wind Chill	N/A	N/A	<p>Two low pressure systems approached the northeastern US on Sunday, February 12, with snowfall breaking out over the local area around sunrise. The snow was heavy during the morning and early afternoon, with accumulation rates of 1 to locally 2 inches per hour at times. The snow was wet and dense and readily clung to trees.</p> <p>In total, 7 to 12 inches of snowfall occurred through most of the local area, with lesser totals over southern portions of the region where sleet occurred. Car accidents were reported, and snow emergencies were in effect throughout the region, and Route 28 in Herkimer County was closed for a time due to several accidents. On February 13, strong winds developed on the back side of the system. The strongest winds targeted the Catskills and Mid-Hudson Valley, where several trees were downed and over 14,000 power outages were reported. Dutchess County Airport in Poughkeepsie recorded a 59 mph wind gust.</p>
December 22, 2017	Winter Storm	N/A	N/A	A complex storm system brought snow and a wintry mix to the region on Friday, December 22nd through Saturday, December 23rd, 2017. The precipitation started out as snow on Friday, but transitioned to a wintry mix by Friday night. Freezing rain lingered through the day Saturday as a warm front lifted through the region, especially for sheltered mountain valley areas. Snowfall totals ranged from a trace in the Mid-Hudson Valley up to 8.5 inches in the Adirondacks (Hamilton county) along with light icing as well. A few spots in the Mohawk Valley and Saratoga Region saw up to two tenths of an inch of ice.
February 7, 2018	Winter Storm	N/A	N/A	A winter storm brought mixed wintry precipitation to the region. Precipitation began as snow during the morning hours but changed to a mix of sleet, freezing rain and snow during





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				the afternoon hours, mixing as far north as the town of Schenectady. Precipitation transitioned back to snow during the evening hours before exiting the region northwest to southeast. Snowfall and sleet totals ranged from 1 inch to 12 inches, with the higher totals generally north and west of the Greater Capital District.
July 1, 2018	Excessive Heat	N/A	N/A	A hot and humid airmass brought excessively high heat indices to eastern New York from the beginning of July through the Independence Day holiday. Temperatures soared as high as 99 degrees on July 1st, the hottest day of the stretch. Combined with dewpoints in the mid-70s, heat indices reached near 110 degrees in the warmest valleys. July 5th marked the sixth consecutive day reaching a temperature of 90 degrees at Albany and Glens Falls, and a seventh consecutive day at Poughkeepsie. In addition to the hot daytime temperatures, overnight low temperatures only falling into the 70s was common, which exacerbated heat-related problems. The extensive heat prompted the opening of many cooling centers across the region.
November 15, 2018	Winter Storm	N/A	N/A	A strengthening coastal low pressure system moved along the Atlantic shoreline November 15th and 16th, bringing accumulating snow and mixed precipitation to eastern New York. The Mid-Hudson Valley and eastern Catskills were hit hardest with 8 to 14 inches of snow, most of which occurred during the evening hours. The snow spread in during the evening rush hour with one to three inches per hour accumulation, snarling traffic and resulting in numerous accidents. The southern Adirondacks also saw 6 to 12 inches of snowfall, while totals for the remainder of eastern New York generally ranged from 4 to 8 inches. The snow changed to sleet and freezing rain overnight in many areas with minimal ice accretion. It changed back to snow during the morning hours of the 16th before ending.
January 19, 2019	Winter Storm	N/A	N/A	The largest snowstorm to date in the 2018-19 winter occurred on January 19th and 20th across eastern New York. Low pressure formed over the lower Mississippi Valley and lifted northeast across the Tennessee Valley during the night of the 19th before moving along the Mason-Dixon line on the 20th. Strong rising motion occurred as southerly winds aloft transported moist air northward, which was lifted over the cold airmass in place over eastern New York. Snowfall broke out during the afternoon of the 19th, continuing heavy at times into the evening and overnight hours before ending during the morning of the 20th. The strong southerly flow brought above-freezing air aloft into the region, causing the snow to turn to sleet as far north as the Capital District and northern Catskills for a time before turning back to snow. Further south, the air aloft was warm enough to turn the





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				precipitation to freezing rain with ice accretion of one to three tenths of an inch over portions of the southeast Catskills, Mid-Hudson Valley, and southern Taconics.
July 20, 2019	Excessive Heat	N/A	N/A	<p>A heat wave gripped eastern New York from July 19th through the 21st. Temperatures soared into the low to mid-90s with dewpoints in the low to mid-70s. This resulted in heat index values in the 100 to 110 range in the warmest spots of the Hudson Valley. Saturday, July 20th was the hottest day for most areas. Due to the excessive heat, area cities extended hours for pools and cooling centers, and Saturday's races at the Saratoga Race Course were cancelled due to the heat for the first time since August 2006.</p> <p>The hot and humid airmass provided fuel for thunderstorms that formed along the Lake Ontario shoreline during the late afternoon of the 20th. Two clusters of storms moved from the Mohawk Valley through the Capital District and into the Taconics during the evening, resulting in several reports of wind damage. The storms knocked out power to over 1,700 customers in Schenectady and Saratoga Counties.</p>
December 29, 2019	Winter Storm	N/A	N/A	A complex winter storm brought a mix of rain, snow, sleet and freezing rain to the region from the evening of Sunday, December 29th, lingering through the morning of Tuesday, December 31st, 2019. Heavy accumulations of ice impacted portions of the eastern Catskills, Mohawk Valley and the southern Adirondacks during this time frame. There were approximately 10,000 people without power across the state due to a combination of icy conditions and strong winds bringing down trees and power lines.
March 23, 2020	Winter Storm	N/A	N/A	A late season snowfall impacted the region on Monday, March 23rd, 2020. This was brought on by an anomalously cold air mass interacting with a coastal low pressure system. Snowfall totals ranged from an inch in the Mid-Hudson valley up to almost 10 inches in the southern Adirondacks and northern Lake George Saratoga region. The lower amounts were mainly confined to the Lower Hudson Valley due to a rain and snow mix throughout much of the day. Snow intensity increased during the late afternoon and early evening hours impacting the evening commute. As a result, a tractor trailer crashed on Interstate 87 South prompting portions of the interstate to be closed.
February 3, 2022	Winter Storm	N/A	N/A	A prolific winter storm began on Thursday, February 3 and continued into Friday, February 4. Precipitation began as rain for most areas on February 3 with the exception of the Adirondacks which began as a mix of rain and snow. Colder air gradually pushed southward into the overnight and early morning hours of February 4 resulting in a changeover to a wintry mix of sleet, freezing rain and snow. Most locations picked up 1 to 2 inches of liquid equivalent precipitation from





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				this event with the majority of it falling as one or multiple types of frozen precipitation. Precipitation ended during the afternoon hours on February 4. Utility companies noted that more than 50,000 customers lost power from the storm across the Hudson Valley, most of them in eastern Ulster County. At least 44 utility poles broke and more than 900 power lines came down as a result of the snow and ice with more than 500 individual damage locations.
November 18, 2022	Severe Winter Storm	EM-3589	N/A	Following the passage of a strong cold front, bands of lake effect snow developed off Lake Ontario impacting portions of the Adirondacks and Mohawk Valley and also extending into the Hudson Valley. This resulted in multiple car accidents across the Hudson Valley with one occurring Sunday morning and the others Sunday evening. Additionally, the band of lake effect snow over Herkimer County resulted in several inches of accumulation over parts of the county. In addition to the snows, it was also blustery with winds gusting between 25-45 mph over the area.
December 23, 2022	Severe Winter Storm	EM-3590	N/A	Two separate frontal systems merged to form a powerful winter storm over the Great Lakes from December 22 to December 24 bringing multiple hazards to the region including heavy rain, snow, strong winds and a very cold air mass in its wake. Widespread rainfall amounts of 1 to 3 inches were observed with some localized amounts of 4 inches. The combination of the rain and snowmelt in some places resulted in some flooding and some creeks to overflow their banks. Strong pre-frontal and post-frontal winds occurred with this event with widespread wind gusts of 40 to 55 mph. Such winds resulted in some downed trees and power lines as well as minor damage to some structures. A few power outages occurred as a result. Snow showers in the wake of the cold front brought mainly light accumulations. However, a pocket of more moderate snow occurred across the northern and central Taconics with snowfall amounts in the 4-to-8-inch range. Much colder air built into the region in the wake of the front which, combined with the strong winds, led to wind chill values as low as 15 to 25 degrees below zero in some areas.
January 22, 2023	Winter Storm	N/A	N/A	With eastern New York in the cold sector of a coastal low pressure system, a swath of moderate to heavy snow fell across a good portion of the area Sunday evening/night into Monday before ending Monday afternoon. The winter storm proved impactful resulting in car crashes and power outages. Some schools and businesses also closed as a result of the storm.
March 13, 2023	Winter Storm	N/A	N/A	A powerful Nor'Easter resulted in widespread moderate to heavy wet snow and gusty winds across eastern New York March 13-March 15, 2023. Anywhere from 15 to 30 inches of snow with locally higher amounts in excess of 30 inches fell





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				over the SW Adirondacks and eastern Catskills. Valley locations received lesser amounts with totals generally ranging between 7 to 15 inches. A few locations across the western Mohawk Valley and mid-Hudson Valley received less than 6 inches of snow. Numerous downed trees and powerlines resulted in widespread power outages. According to the National Grid, approximately 141,000 customers lost power within the state of New York with most occurring within our county warning area. Some locations were without power for at least 1 or 2 days.

Sources: NYS DHSES 2014; USGS 2023; FEMA 2016  
NOAA-NCDC National Oceanic Atmospheric Administration – National Climatic Data Center  
NWS National Weather Service  
NYS New York State

### E.1.3 Flood

Known flooding events that occurred from 1996 to 2022 are identified in Table E.3. With flooding documentation for New York State and Warren County being so extensive, not all sources have been identified or researched. Therefore, Table E.3 may not include all events that have occurred in the County.

*Table E.3. Flooding Events in Warren County Between 1996 and 2022*

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 19, 1996	Flooding	N/A	N/A	In Lake George Village widespread flooding occurred and seven families had to be evacuated. Many roads were closed throughout the county due to flooding including 16 county roads. Significant damage was also incurred to many state roads. Routes 9 and 9N were closed from Lake George north. Route 418 was closed at the Hudson River Bridge and along route 8 a 150 foot section was washed out between Brant Lake and Hague.
January 8, 1998	Flooding	N/A	N/A	From January 8 to January 12, the Hudson River flooded from its headwaters to where it crosses into Greene and Columbia Counties, due to a combination of significant rain and snowmelt. In Hamilton and Warren Counties, the river rose to heights that came close to the flood of record. Flood damage in this area was kept to a minimum due to its flow through undeveloped areas and vacation property which was secured for the winter.
April 1, 1998	Flooding	N/A	N/A	Due to rapid snowmelt at the end of March and beginning of April, rather severe flooding continued along the Schroon River in Warren County. The flood waters affected river front homes, State Highway 418 between Warrensburg and Thurman Station and forced the closure of a bridge at Starbuckville. The river at Riverbank crested at 9.3 feet during the afternoon of April 2.
February 28, 2000	Flooding	N/A	N/A	A warmup at the end of February, began melting the winter snowpack fairly quickly and helped break up an extensive ice pack on the upper Hudson and Mohawk Rivers. As a result, ice jams developed on the Mohawk and Hudson rivers. During the night of February 27 and 28, rainfall accumulated between one half and one inch and a half across eastern New York. The rains





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				exacerbated the runoff, which resulted in the flooding of the Mohawk and Hudson rivers, as well as some smaller streams. Most of the flooding was minor. There were no casualties directly related to this flooding, reported to the National Weather Service.
April 16, 2001	Flooding	N/A	N/A	he runoff from rapid snowmelt, caused the Schroon River in Warren County to rise out of its banks around midday, on April 16th. The gage at Riverbank reached the flood stage of 7.0 feet at that time. The river continued to swell, and did not crest until the gauge reached 10.1 feet, early on April 24. This was the highest level recorded in 50 years. Portions of Route 413 became inundated, as did many homes in the towns of Chester, Pottersville, Horicon and Warrensburg. A number of residents had to be evacuated and a few bridges were closed.
March 30, 2003	Flooding	N/A	N/A	An area of low pressure, moving along a slow moving cold front on March 29 and 30, produce 1 to 2 inches of rainfall across eastern New York. The rain, combined with seasonably mild temperatures, melted most of the remaining snow pack across much of eastern New York. The combination of the rain and mild temperatures, produced another significant runoff which caused some additional minor flooding.
April 2, 2004	Flooding	N/A	N/A	As much as three inches of rain fell between March 31 through April 2 across eastern New York. This rain combined with the last of the snow melt to produce an excessive runoff of water. As a result, the Schroon River in Warren County briefly reached above flood stage on the evening of April 2. No problems were reported to the National Weather Service as a result of this flooding.
May 1, 2006	Flooding	N/A	N/A	On May 1, at Riverbank, the Schroon River had some lingering flooding from heavy rainfall during the last week in April. The water level dropped below the 7-foot Riverbank flood stage at 18:45 EST.
April 20, 2007	Flooding	N/A	N/A	Warm temperatures from April 19th to April 24th led to rapid melting of a deep snowpack across much of the Adirondacks. Antecedent water equivalent in the snow pack ranged from 6 to 16 inches. This rapid melting led to flooding of many rivers that drain the Adirondacks. In addition, releases from Sacandaga Lake perpetuated the flooding on some rivers through the end of the month.
March 5, 2008	Flooding	N/A	N/A	A low-pressure system tracked northeast from the lower Ohio Valley on Tuesday March 4th, into south central New York State by Wednesday morning on March 5th. Abundant moisture was associated with this system, which led to widespread heavy rainfall across much of east central New York and western New England, which began late Tuesday night, and persisted into early Wednesday afternoon. Rainfall amounts of 1 to 3 inches fell during this event. This heavy rainfall, in combination with frozen ground and snowmelt led to flooding in many areas within the Capital Region, as well as within the Lake George and Saratoga region, the Schoharie Valley, the eastern Catskills and mid Hudson Valley.
April 9, 2008	Flooding	N/A	N/A	he melting of a deep snowpack led to moderate or higher river flooding across portions of the upper Hudson River basin, including the Schroon River, Lake Champlain, and the Great Sacandaga Lake. Snow water equivalents of nearly one foot began to melt during a warm period beginning around April 10th,





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				and led to river flooding which persisted through the end of April. Along the Schroon River, at least one permanent home, along with a few summer camps were flooded. On the Hudson River near Schuylerville, a sod farm suffered estimated losses of \$225,000 due to prolonged submersion of sod in Hudson River flood waters. In addition, the New York State Canal Corporation was unable to open the Hudson-Champlain Canal in April due to high water levels.
March 13-31, 2010	Severe Storms and Flooding	DR-1899	Yes	Moderate to heavy rain fell across east-central New York State. The ground was already nearly saturated from recent snow melt, causing rivers and streams to run high. Flooding from this event caused damage to numerous roads in the northern section of Warren County. In the Town of Johnsbury, a bridge was reported washed out on Harrington Road due to a possible beaver dam break along Johnson Brook. Overall, the County had approximately \$25,000 in property damage from this event.
October 1, 2010	Flooding (Remnants of Tropical Storm Nicole)	N/A	N/A	The remnants of Tropical Storm Nicole brought very heavy rains to east-central New York State. Rainfall totals from this storm ranged from three to nine inches, resulting in widespread river and small stream and urban flooding, including water in basements. In Warren County, there was standing water reported in the City of Glens Falls at the intersection of Sherman Avenue and Elm Street due to the heavy rains.
March 8-12, 2011	Ice Jam	N/A	N/A	An ice jam began to form on March 7 <sup>th</sup> near the Route 28N bridge in the hamlet of North Creek (Town of Johnsbury). The water that backed up from the ice jam began flooding Old River Road on March 10 <sup>th</sup> , prompting the evacuation of some residents and forced the closing of the road. The water began to recede on March 13 <sup>th</sup> when the ice jam release and moved downstream. As the ice jam moved down the river, it ripped trees from the river bank and then became lodged along the Route 418 bridge in the Town of Thurman on the evening of March 13 <sup>th</sup> . Overall, damage was reported at the County fish hatchery in the Town of Warrensburg and damage to a recreational property from North Creek downstream to Lake Luzerne.
April 28-30, 2011	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds	DR-1993	Yes	Heavy showers and thunderstorms impacted the western and central Mohawk Valley, Adirondack region, and the Upper Hudson River Valley, including the Lake George Region (Warren County). Thunderstorms produced severe weather and very heavy rainfall. The combination of the rainfall and rapid snowmelt due to warm temperatures led to increased runoff and rapid river rises. In Warren County, flooding from this event covered nearly two-thirds of the County. Flooding occurred along the Hudson River in the County from North River southward to the Saratoga County line. Numerous municipalities reported flooding of roadways, houses, and riverside camps. Some properties had several feet of water in them. Many major roadways were closed





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>in the County due to flooding. The North Creek Trailer Park on Route 28 in the Town of Johnsbury was evacuated because water from the Hudson River entered the park. A mudslide in excess of 200 feet occurred on 13<sup>th</sup> Lake Road in North River/North Creek. In the hamlet of North Creek (Town of Johnsbury), a couple hundred feet of railway tracks were reported under two to five feet of water with several buildings at the train station being flooded as well. In the Town of Stony Creek, the 1,000 Acres Golf Course was flooded with the 9<sup>th</sup> green under eight feet of water. Flood water receded through April 30<sup>th</sup>. The County had approximately \$676,000 in property damage from this event.</p>
May 27 – June 2, 2011	Flooding	N/A	N/A	<p>Flooding caused severe damage along a thin line through the County and impacted the Towns of Stony Creek, Thurman, Warrensburg, Horicon, and Bolton. The County had \$13.125 million in damages from this event.</p>
August 28-30, 2011	Hurricane Irene	DR-4020	Yes	<p>The greatest impact of Irene in eastern New York State was heavy to extreme rainfall which resulted in catastrophic flooding across portions of the region. Rainfall amounts averaged between four and eight inches with amounts of up to 12 inches falling in the eastern Catskills and Schoharie Valley. Three to six inches were common across the Lake George and Saratoga regions. The rainfall resulted in widespread flash flooding and river flooding across eastern New York State. Bridges were closed on major roadways in this area of the State.</p> <p>In Warren County, there was severe wind and flood damage throughout. In the Town of Lake George, Route 9N was flooded from the Route 9/9N split south to the ramp for Exit 21 for the Northway. Route 9L was also flooded between Route 9N and Bay Road. Two of the seven docks in the Village of Lake George floated off and were crushed.</p>
October 27 – November 8, 2012	Hurricane Sandy	EM-3351	Yes	<p>Hurricane Sandy moved up the east coast of the United States during the last week of October 2012. As the storm made landfall in southern New Jersey, bands of rain moved across eastern New York State. Rainfall totals in this part of the State were minimal and did not cause any flooding. The storm did bring strong and gusty winds to the area, bringing down trees and power lines across the region. Wind gusts ranged from 40 to 60 mph.</p> <p>In Warren County, wind gusts of 65 mph pushed down the length of Lake George, creating waves that threatened to spill over the shoreline. Some of the docks along the Lake were damaged but flooding did not occur. In Glens Falls, trees and wires were knocked down from the winds.</p>
February 1, 2013	Ice Jam	N/A	N/A	<p>Massive ice chunks of up to 10 feet thick in spots, broke off near North Creek in Warren County. This created an ice jam on the upper Hudson River near the Town of Thurman. As the ice</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				chunks became lodged, they caused the water behind them to jump the banks, with more than 100 yards of River Road in Thurman over 10 feet of ice chunks. The water receded by midday and the town highway department had to use loaders and backhoes to remove the ice from the roadway.
June 28, 2013	Severe Storms and Flooding	DR-4129	Yes	<p>Heavy rain fell across the Mohawk Valley and western Adirondacks with rates of one inch per hour with three to five inches of rain falling in total. This event, with the combination of a previous rainfall event, led to significant flash flooding across both the Mohawk Valley and Adirondacks. Many roads were washed out and closed. Urbanized areas along the Mohawk River experienced flooding as well. Many communities declared state of emergencies and President Obama signed a major disaster declaration for New York State which included Herkimer, Montgomery and Warren Counties.</p> <p>In Warren County, the Town of Johnsburg experienced severe flooding from this event. Flash flooding occurred in the Bakers Mill section of the Town. Water rescue teams were deployed to several homes that were threatened by flooding. A state of emergency was declared for the Town as a result of flooding.</p>
January 12, 2014	Ice Jam	N/A	N/A	Harrington Road in the Town of Thurman had ice up to scraper banks in some locations and Glen Creek Road was closed due to flooding caused by an ice jam on the Hudson River.
April 13-21, 2014	Flooding	N/A	N/A	<p>Significant snow pack began to melt as a result of an extended period of warm weather. Up to 10 inches of liquid equivalent started melting between April 8<sup>th</sup> and April 15<sup>th</sup>. The snow melt caused many rivers and streams in and around the Adirondacks to become very high with a few reaching flood stages just from the snow melt.</p> <p>Heavy rain began to fall in the region on April 15<sup>th</sup>, bringing up to two inches of rain in the area. The rainfall, combined with the snow melt, caused many rivers to reach moderate flood stage. By April 21<sup>st</sup>, all rivers in the area were below flood stages.</p> <p>In Warren County, the Schroon River reached major flood stage and remained at this stage for several days. The flooding caused several private roads of homes and vacation properties to be impacted by water. Roads were closed due to flooding in the County.</p>
May 13-22, 2014	Flooding	N/A	N/A	A culvert was washed out in the County.
January 13, 2018	Flooding	N/A	N/A	After a frigid end of December and beginning of January, an unseasonably warm airmass was pumped into New York on January 12th on southerly winds. The temperatures reached the 50s and 60s during the day. Showers also developed in the warm





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				airmass ahead of a cold front and were heavy at times, with some locations receiving one to three inches of rainfall. The combination of warm temperatures and heavy rainfall caused river ice to dislodge and resulted in ice jams in spots. Flooding occurred due to a combination of ice jam movement and heavy rainfall. Several roads were closed or damaged and a water rescue had to be performed near the Hoosic River in Rensselaer County. After the strong cold front passed, many ice jams and their associated flooding froze back in place, resulting in road closures continuing for several days in some areas.
February 22, 2018	Flood	N/A	N/A	<p>A large ice jam remained in place on the Mohawk River for much of the month of February and was one of the biggest ice jam seen in decades, according to Union College professor John Garver.</p> <p>The ice jam stretched up to 17 miles from Rexford to Crane Hollow throughout the month in February. The ice jam mainly remained in place into late February and received a large amount of media and government attention. Albany County was concerned about impacts downstream if the jam were to give way quickly. Temperatures skyrocketing into the 60s and 70s on February 20-21 coupled with around 0.50-1.00 rainfall on the 19th over the Mohawk basin allowed river levels to rise and flooding occurred by the 21st within the Stockade neighborhood of Schenectady and across the river in Scotia, as well as backwater flooding of the Alplaus Kill. A substantial portion of the ice jam gave way during the early morning hours of the 22nd, leading to concern for flooding in the downstream communities, but it turned out that impacts were minimal. There were some road closures in the Rotterdam Junction and Schenectady area due to the ice jam movement and breakage. The remainder of the jam gradually broke up over the next week or so with little impact.</p>
April 20, 2019	Flood	N/A	N/A	Heavy rain, combined with snow melt from the Adirondacks, caused the Schroon River at Riverbank to rise above flood stage for several days. River levels reached moderate flood stage on Saturday, April 20th and remained there through Thursday, April 25th. The high water levels resulted in water making its way into numerous homes and onto several roads across northern Warren county. No homes were evacuated.
November 1, 2019	Flood	N/A	N/A	The Hudson River at Hadley reached moderate flood stage at 1000EST 1 November, rising to a crest of 17.96 feet at 1545EST. It fell below moderate flood stage buy 0118EST 2 November. The floodwaters reached some riverside streets in the Lake Luzerne area, including Stephen Lane where residents were evacuated. A residence on East River Drive sustained damage to basement walls as a result of the flooding.
February 18, 2022	Flood	N/A	N/A	A storm system pushed across the region during February 17-18, 2022. Warm air pushed northward into the region along with periods of rainfall before a cold front brought the return of windy





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				and colder weather. A convective line of gusty showers also accompanied the cold frontal passage. Some locations picked up over 1 inch of rainfall which led to minor flooding in a few locations.
April 8, 2022	Flood	N/A	N/A	A slow-moving frontal system produced widespread heavy rainfall and flooding across eastern New York from April 7-8, 2022. Rainfall amounts between 1.50 and 3.00 inches were common, though a few localized areas received upwards of 4.50 inches. Periods of light to moderate rainfall began during the daytime hours on April 7 with the steadiest and heaviest rainfall arriving during the evening hours on April 7 into the overnight hours on April 8 before ending. This heavy rainfall led to over a dozen rivers to exceed minor flood stage with a few rivers reaching moderate flood stage. For some, it took days after the event for waters to recede. In addition to the heavy rainfall and widespread flooding, strong winds developed across portions of the Taconics with peak gusts in the 35-50 mph range. The combination of rain and wind led to only sporadic power outages.

Source: NYSDEC 2015; FEMA 2015; NOAA-NCDC 2015; NWS 2015

Note (1): Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of increased U.S. Inflation Rates.

DR	Federal Disaster Declaration
EM	Federal Emergency Declaration
FEMA	Federal Emergency Management Agency
IA	Individual Assistance
K	Thousand (\$)
M	Million (\$)
N/A	Not applicable
NCDC	National Climate Data Center
NOAA	National Oceanic Atmospheric Administration
NWS	National Weather Service
NYS DHSES	New York State Division of Homeland Security & Emergency Services
PA	Public Assistance
SHELDUS	Spatial Hazard Events and Losses Database for the U.S.
USACE	U.S. Army Corps of Engineer

### E.1.4 Severe Storm

Known severe storm events that occurred from 1978 to 2013 are identified in Table H.4. As severe storm documentation for New York State and Warren County is extensive, not all sources have been identified or researched. Therefore, Table H.7 may not include all events that have occurred in the County.

*Table E.4. Severe Storm Events between 1978 and 2013*

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 9, 1978	Tornado	N/A	N/A	F1 tornado traveled a distance of approximately 1.2 miles in an area between Lake Luzerne and Glens Falls





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 18, 1985	Tornado	N/A	N/A	F0 tornado was spotted between Route 149 and French Mountain Road. The total path of the storm was about 2 to 2.5 miles. Due to sparse population and hilly terrain, damage was limited. Some debris was found a mile or two from its original site.
July 19, 1989	Thunderstorm Wind	N/A	N/A	An early morning wave of thunderstorms produced hail and strong gusty winds. Wind damage caused downed trees, tree limbs, and power lines. Two persons were injured when a tree fell onto a vehicle during high thunderstorm winds.
July 6, 1999	Thunderstorm Wind	N/A	N/A	A cold front moved from the Great Lakes eastward across New York State on July 6. With sultry air in place, and favorable strong winds aloft, this front triggered the largest outbreak of severe weather in eastern New York since May 31st, 1998. A squall line developed around midday ahead of the front and produced the most damage. However, more thunderstorm cells continued developing and some of these became severe into the evening hours. Nearly every county in eastern New York experienced some wind damage. Rensselaer, Warren, Washington, Herkimer, Saratoga and Schenectady Counties were especially hard -hit. Powerful thunderstorms brought down trees and power lines in many localities. Unfortunately, a falling tree killed a camper located on Uncas Island on Lake George. Two other individuals were injured as they lost control of their car avoiding a falling tree at Diamond Point near Lake George.
August 9, 2001	Thunderstorm Wind	N/A	N/A	A lake breeze front off Lake Ontario, interacted with a hot and humid air mass, to trigger a thunderstorm cluster in western New York during the late afternoon of August 9. As the thunderstorm complex reached the Mohawk Valley, it evolved into a supercell. The supercell then developed into a mesoscale convective system (MCS) as it move into the Lake George / Saratoga region and into the northern Taconics. Wind damage then spread into Warren County, as power lines were blown down in both the villages of Lake Luzerne and Lake George.
June 6, 2005	Thunderstorm Wind	N/A	N/A	Trees and power lines down county-wide. A tree crashed through house in Queensbury. Part of Bay Road and Route 149 closed by downed trees or limbs. Additional trees fell on homes in Fort Edward, Granville, Queensbury and Argyle.
September 27, 2007	Thunderstorm Wind	N/A	N/A	A nearly stationary frontal boundary across central New York State gradually moved east during Thursday afternoon on September 27th. With a very warm, moist and unstable air mass in place to the east of this boundary, scattered strong to isolated severe thunderstorms developed across portions of eastern New York State Thursday afternoon and evening.
March 13 – 31, 2010	Severe Storms and Flooding	DR-1899	Yes	A low pressure system tracked northeast over northeastern United States on March 23rd, bringing a moderate to heavy rainfall to east central New York. The ground was already





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				nearly saturated from recent snow melt, causing rivers and streams to run high. In Warren County, a bridge was reported washed out on Harrington Road in the Town of Johnsbury due to a possible beaver dam break along Johnson Brook. The County reported a total of \$25,000 in property damage.
October 1, 2010	Flooding (Remnants of Tropical Storm Nicole)	N/A	N/A	The remnants of Tropical Storm Nicole brought very heavy rains to east-central New York State. Rainfall totals from this storm ranged from three to nine inches, resulting in widespread river and small stream and urban flooding, including water in basements. In Warren County, there was standing water reported in the City of Glens Falls at the intersection of Sherman Avenue and Elm Street due to the heavy rains.
April 28-30, 2011	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds	DR-1993	Yes	<p>Heavy showers and thunderstorms impacted the western and central Mohawk Valley, Adirondack region, and the Upper Hudson River Valley, including the Lake George Region (Warren County). Thunderstorms produced severe weather and very heavy rainfall. The combination of the rainfall and rapid snowmelt due to warm temperatures led to increased runoff and rapid river rises.</p> <p>In Warren County, flooding from this event covered nearly two-thirds of the County. Flooding occurred along the Hudson River in the County from North River southward to the Saratoga County line. Numerous municipalities reported flooding of roadways, houses, and riverside camps. Some properties had several feet of water in them. Many major roadways were closed in the County due to flooding. The North Creek Trailer Park on Route 28 in the Town of Johnsbury was evacuated because water from the Hudson River entered the park. A mudslide in excess of 200 feet occurred on 13<sup>th</sup> Lake Road in North River/North Creek. In the hamlet of North Creek (Town of Johnsbury), a couple hundred feet of railway tracks were reported under two to five feet of water with several buildings at the train station being flooded as well. In the Town of Stony Creek, the 1,000 Acres Golf Course was flooded with the 9<sup>th</sup> green under eight feet of water. Flood water receded through April 30<sup>th</sup>. The County had approximately \$676,000 in property damage from this event.</p>
May 27 – June 2, 2011	Flooding, Thunderstorm Wind, Hail (Memorial Day Storm)	N/A	N/A	A combination of individual storms caused severe damage along a thin line through the County and impacted the Towns of Stony Creek, Thurman, Warrensburg, Horicon, and Bolton. A swath of heavy rainfall which fell in just a few hours causing flash flooding, resulting in road closures with significant damage to many roadways, washed-out culverts and a least a couple of washed-out bridges. In addition, a few of the storms





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>were severe producing large hail up to the size of a golf ball and some trees were downed by strong thunderstorm winds. It was reported that seven area fire departments, three EMS crews, the Warren County Sheriff's Office, State Police, along with state, county and local highway departments all responded to the flooding.</p> <p>Numerous trees were reported down on wires in Chestertown, as well as in Thurman, and Warrensburg. Nickel size hail was reported in Chestertown and Stony Creek, quarter size hail was reported in Hague, ping-pong ball size hail was reported in Thurman, and golf ball size hail was reported in Warrensburg.</p> <p>The County had \$13.125 million in damages from this event.</p>
August 28-30, 2011	Hurricane Irene	DR-4020	Yes	<p>The greatest impact of Irene in eastern New York State was heavy to extreme rainfall which resulted in catastrophic flooding across portions of the region. Rainfall amounts averaged between four and eight inches with amounts of up to 12 inches falling in the eastern Catskills and Schoharie Valley. Three to six inches were common across the Lake George and Saratoga regions. The rainfall resulted in widespread flash flooding and river flooding across eastern New York State. Bridges were closed on major roadways in this area of the State.</p> <p>In Warren County, wind and flood damage occurred throughout the county. The most severe was limited to the Lake Champlain Watershed area, located on the eastern side of the County, and in the Lake George and West Mountain areas. In the Town of Lake George, Route 9N was flooded from the Route 9/9N split south to the ramp for Exit 21 for the Northway. Route 9L was also flooded between Route 9N and Bay Road. Two of the seven docks in the Village of Lake George floated off and were crushed.</p>
October 27 – November 8, 2012	Hurricane Sandy	EM-3351	Yes	<p>Hurricane Sandy moved up the east coast of the United States during the last week of October 2012. As the storm made landfall in southern New Jersey, bands of rain moved across eastern New York State. Rainfall totals in this part of the State were minimal and did not cause any flooding. The storm did bring strong and gusty winds to the area, bringing down trees and power lines across the region. Wind gusts ranged from 40 to 60 mph.</p> <p>In Warren County, wind gusts of 65 mph pushed down the length of Lake George, creating waves that threatened to spill over the shoreline. Some of the docks along the Lake were damaged but flooding did not occur. Numerous private boats were sunk or damaged. In Glens Falls, trees and wires were knocked down from the winds.</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 28, 2013	Severe Storms and Flooding	DR-4129	Yes	<p>Heavy rain fell across the Mohawk Valley and western Adirondacks with rates of one inch per hour with three to five inches of rain falling in total. This event, with the combination of a previous rainfall event, led to significant flash flooding across both the Mohawk Valley and Adirondacks. Many roads were washed out and closed. Urbanized areas along the Mohawk River experienced flooding as well. Many communities declared state of emergencies and President Obama signed a major disaster declaration for New York State which included Herkimer, Montgomery and Warren Counties.</p> <p>In Warren County, the Town of Johnsbury experienced severe flooding from this event. Flash flooding occurred in the Bakers Mill section of the Town. Water rescue teams were deployed to several homes that were threatened by flooding. A state of emergency was declared for the Town as a result of flooding.</p>
July 8, 2014	Tornado	N/A	N/A	<p>A very warm and humid air mass was in place over the region on Tuesday, July 8th. The region was ahead of a strong cold front that was moving eastward from the Great Lakes Region. Aided by a strong jet streak aloft and a potent upper-level shortwave trough, the cold front triggered a line of thunderstorms that produced damaging winds across western and central New York. It continued to produce strong winds, which caused damage across the Adirondacks and Mohawk Valley and eventually into the Saratoga area, Capital Region and Hudson Valley as well. In addition, a weak, brief tornado also occurred in the southeastern Adirondacks in North Creek. The line of thunderstorms moved eastward and weakened as they reached the border with New England by the late evening hours.</p>
May 29, 2020	Tornado	N/A	N/A	<p>A couple of rounds of strong to severe thunderstorms impacted eastern New York during the afternoon and evening of the 29th. The first was a couple of isolated cells that produced sporadic wind damage from portions of the Capital District into the Glens Falls area. The second was a broken line of storms that produced a more widespread swath of wind damage in the greater Saratoga-Glens Falls area. An EF1 tornado formed within this line, impacting the area from Lake Luzerne to Glens Falls. Low-hanging wires resulted in the closure of Interstate 87 between exits 17 and 19. More than 8,000 customers lost power in Warren and northern Saratoga Counties due to the storms.</p>
August 29, 2020	Tornado	N/A	N/A	<p>Thunderstorms developed over portions of eastern New York during the afternoon of the 29th. A couple of these storms produced hail up to ping pong ball size. They later spawned two EF1 tornadoes in the towns of Stillwater and Schaghticoke, with damage to a couple of residences and a</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				high school. An EFO tornado briefly touched down in southwestern Warren County. Sporadic wind damage was noted elsewhere.

Sources: FEMA 2015; NYSDEC; Robinson 1999

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

DR	Federal Disaster Declaration
EM	Federal Emergency Declaration
FEMA	Federal Emergency Management Agency
NCDC	National Climate Data Center
NOAA	National Oceanic Atmospheric Administration
NYS	New York State
NWS	National Weather Service
PA	Public Assistance
SHELDUS	Spatial Hazard Events and Losses Database for the U.S.
TSTM	Thunderstorms

### E.1.5 Severe Winter Storm

Known severe winter storm events that occurred in Warren County between 1996 and 2023 are identified in Table E.5. With severe winter storm documentation for New York State and Warren County being so extensive, not all sources have been identified or researched. Therefore, Table E.5 may not include all events that have occurred in the County.

Table E.5. Winter Storm Events Between 1996 and 2023

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
November 26, 1996	Winter Storm	N/A	N/A	On November 26, a low pressure system brought a combination of snow and freezing rain to parts of eastern New York. Over Warren and Washington Counties, snow and heavy freezing rain downed trees and power lines and caused numerous accidents. In Washington County, approximately 3,000 customers lost power.
January 24, 1997	Winter Storm	N/A	N/A	On January 24 and 25, low pressure moved from northern Indiana northeast to the Saint Lawrence Valley. The winter storm produced heavy snow over the southern Adirondacks, which occasionally mixed with sleet and freezing rain. Snowfall totals in Warren, Hamilton and northern Herkimer Counties ranged from 5 to 7 inches. Toward the end of the storm, the precipitation changed to a mix of freezing rain and sleet which caused icing on top of the snow pack.
March 14, 1997	Winter Storm	N/A	N/A	On March 14, a complex area of low pressure tracked from northern Ohio northeast to southern Ontario Canada. This system produced several hours of heavy snow across the southern Adirondacks, Catskills,





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				northern Saratoga County, Washington County and parts of the Mohawk Valley. The snow changed to sleet and eventually to freezing rain which caused significant icing. Snowfall totals generally ranged from 2 to 5 inches with up to 8 inches in Hamilton County. The icing resulted in treacherous driving conditions along with downed trees and power lines. Scattered power outages occurred across this region.
January 2, 1999	Winter Storm	N/A	N/A	<p>A deep area of low pressure moved from the Mississippi Valley into the central Great Lakes Region during the night of January 2 and January 3. With arctic air in place over New York State, a wintry mix of heavy sleet and freezing rain resulted. This mix of precipitation resulted in significant accumulations of ice across the region. Total melted precipitation exceeded an inch across the Mid-Hudson Valley.</p> <p>The storm resulted in hundreds of vehicular accidents or vehicles sliding off roadways. Two highways in Greene County (Route 23 and route 23A) were temporarily closed due to very slick conditions. Ice buildup downed power lines which caused 2,500 residents to be without power in the Mid-Hudson Valley and an additional 1200 customers without power in the Saratoga region.</p>
January 14, 1999	Winter Storm	N/A	N/A	<p>Extremely cold arctic air moved into Eastern New York on January 13 and January 14. At the same time an area of low pressure formed in Kentucky. This low tracked east into northern Virginia then turned north and moved through the Hudson Valley late on January 14 through January 15. The storm dumped heavy snow on the region followed by an extended period of sleet and freezing rain. The onset of the snow was accompanied by dangerously cold conditions with temperatures as low as 9 below zero. Snowfall amounts included 11 inches at both the Albany International Airport and Little Falls in Herkimer County. 15 inches of snow fell at Gloversville in Fulton County. In addition to the usual traffic disruptions, the weight of the snow and ice caused a roof to cave in at a bowling alley in Rotterdam in Schenectady county. A roof also collapsed at a farm in Mayfield Fulton county which killed a cow and injured several others. The Adirondack Northway was closed between Exits 17 and 23 from 10AM through 7PM on Friday the 15th due to very icy conditions.</p>
January 31, 2000	Winter Storm	N/A	N/A	<p>Low pressure formed in the Gulf States on January 29. There was a disparity of snowfall with this system. To the south, sleet and freezing rain mixed in, which held accumulations to the 4 to 7 inch range across the Mid Hudson Valley and southern Catskills. Six to 10 inch</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>snowfall accumulations were common in the immediate Capital District. However, in the Mohawk Valley, just west of Amsterdam, and throughout the Western Adirondacks as well as the Lake George region, snow accumulated a foot or more. Most of the snow fell during the overnight hours on Sunday into Monday morning. To the west of Albany, snow fell heavily, at times in excess of 3 inches per hour.</p> <p>Specific accumulations included 7 inches at Albany, while East Caroga Lake got buried with 21, and 18 inches fell at Gloversville, both located in Fulton county. 17 inches fell at Fort Plain, Montgomery county and 16 at North Creek, Warren county. The storm once again closed many schools and some businesses. The snow removal effort was made more difficult due to the large amount of snow still left from previous storms.</p>
February 14, 2000	Winter Storm	N/A	N/A	<p>A low-pressure area developed over the Oklahoma panhandle early on February 13. This storm tracked northeast, reaching the Ohio Valley early on February 14, then across Pennsylvania and off the coast of Long Island by late in the day.</p> <p>The storm brought a potpourri of wintry weather to eastern New York, including snow, sleet, rain and freezing rain. A swath of 6 to 14 inches of snow fell across the Western Adirondacks, including 13 inches at Stillwater, and 7.5 inches at Indian Lake, both located in Herkimer county. Lesser amounts of snow fell across the remainder of the area. However, significant ice accumulated across the Saratoga-Lake George area. In this area, up to 3/4 of an inch of ice accretion was noted. The ice brought down some power lines near Scotia and Duaneburg in western Schenectady county. There were spotty power outages reported as well as some school and business closings.</p>
April 9, 2000	Winter Storm	N/A	N/A	<p>A strong cold front moved across eastern New York, then stalled to the east, over the Connecticut River valley late on April 8. Low pressure developed along this front, off Cape Hatteras. This storm strengthened as it moved due north along the front during the early morning hours of the 9th. Ample moisture was supplied by the warm air mass over eastern New England. Enough cold air was both advected into the region as well as brought downward by heavy precipitation to change the rain over to snow, and produce an unusually late season snowstorm. Snow, falling at the rate of 2 inches per hour, was common at the height of the storm. Gusty winds to near 35 mph produced near blizzard conditions at times, including both some blowing and drifting of the</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>snow. A mantle of 8 to locally more than 16 inches of snow buried the Schoharie and Mohawk valleys, Greater Capital District, Western Adirondacks as well as the Lake George Saratoga region. Further south, 4 to 8 inches of snow covered portions of the Mid Hudson Valley. The official reading of 13.3 inches at Albany was the second heaviest April snowstorm on record, second only to a 17.7 inch storm during 1982.</p> <p>Since the storm happened on a Sunday, disruptions from it were minimized. However, some business were closed or delayed in opening. The biggest damage from the storm was due to the heavy wet nature of the snow, which resulted in many damaged or downed limbs and trees, especially north of the Mohawk River. Up to 35,000 customers in eastern New York were without power during the height of the storm.</p>
March 21, 2001				<p>Low pressure, from eastern Georgia, moved to eastern North Carolina by the morning of March 21. The storm then tracked off the Virginia coastline and up the eastern seaboard, to become the third nor'easter of the month. By the morning of March 23, the storm center had slowly progressed to the Gulf of Maine. Although not all that powerful, the storm had both Gulf and Atlantic moisture to work with. Heavy wet snow fell, accumulating 5 to 10 inches across the higher terrain of eastern New York, with most valley locations getting little or no slushy accumulation. This snow was heavy and wet enough to bring down limbs across the region. Wires and trees were reported down in Middelburgh, Schoharie county. Trees also fell across portions of Warren county. Specific snowfall amounts included 7 inches at Windham, Greene County, 10.5 inches at Indian Lake, Hamilton County, 8.7 inches at Summit, Schoharie County, 8.5 inches at Stillwater in Herkimer County and 7.6 inches in Warrensburg, Warren County.</p> <p>An estimated 1,500 homes over the higher terrain across eastern New York state, were without power. Service was disrupted to about 100 phone customers in Warren County.</p>
November 17, 2002	Winter Storm	N/A	N/A	<p>A strong nor'easter developed off Cape Hatteras on Saturday, November 16. The low pressure center then slowly moved north along the coast, reaching Cape Cod by late November 17. At the same time, a shallow layer of arctic air bled south from eastern Canada. The air was cold enough to produce a heavy wintery mix of precipitation during a good portion of the storm across eastern New York. Initially, the precipitation fell as snow, or snow and sleet mixed. A 1-3 inch swath of snow was</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				observed from about Albany southward. A 3-6 inch swath of snow fell north of Albany. As warmer air worked in aloft, the snow changed to sleet, then freezing rain. Freezing rain was more extensive south of Albany, where up to 58,000 customers lost power in the Mid Hudson Valley. Ice accretion was between one-half and one inch. Western Ulster County was especially hard hit where in addition to the ice, winds frequently gusted to 30 mph and, with lingering leaves on the trees, brought many trees and power lines down. Further north, the combination of snow, sleet and freezing rain still caused up to 1,000 customers in the Lake George Saratoga region to loose power, and spotty power losses elsewhere in the Capital District. In addition, there was a loss of significant limbs on trees and dangerous travel conditions.
December 14, 2003	Winter Storm	N/A	N/A	<p>A low pressure area formed in the Gulf States early on December 14. This storm hugged the coast line as it tracked northward to become the second nor'easter of the winter season. This storm moved a little quicker than its predecessor. Also different from the last storm, enough warm air moved in aloft to change the snow to sleet and freezing rain, especially from Albany south.</p> <p>Snow began falling during the morning hours to the south of Albany, into the Capital District around noon, and further north during the afternoon. The sleet and freezing rain began mixing in during the evening hours. Meanwhile, the precipitation stayed all snow from about Glens Falls northward. By the time the storm was east of Cape Cod, early on Monday, a swath of 4 to 8 inches of snow, mixed with sleet, had fallen from Albany southward. To the north, 8 to 16 inches of mostly snow fell with locally higher amounts across the Adirondacks. Officially, 7.2 inches of snow fell at Albany, while up to 20.8 inches of snow, the most in eastern New York, was reported at Old Forge in Herkimer County. The storm closed most school districts on Monday and resulted in some vehicular accidents.</p>
April 12, 2007	Winter Storm	N/A	N/A	<p>Low pressure moved from the mid Mississippi Valley on Wednesday April 11th into the southern Great Lakes by Thursday morning on April 12th, spreading a swath of heavy wet snow across the higher elevations of the southern Adirondacks and eastern Mohawk Valley from early Thursday morning into early Thursday afternoon.</p> <p>Snowfall amounts were greatest across the higher elevations above 1500 feet, where 6 to 12 inches fell. Some snowfall totals included 10.5 inches at Speculator, 10.3 inches at Wells, 8 inches at Caroga Lake and</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Stratford, 8 inches at Middle Grove, 12 inches at North Creek at an elevation of 3600 feet, and 10 inches at Bakers Mills. The heavy wet snowfall led to downed tree limbs and power lines, which led to numerous power outages across the affected region during Thursday afternoon.
February 6, 2008	Winter Storm	N/A	N/A	<p>A low-pressure system tracked east northeast from the lower Ohio Valley on Wednesday morning, February 6th, to just south of Cape Cod by Thursday morning on February 7th. This storm system spread a swath of moderate to locally heavy snow, sleet and freezing rain across portions of east central New York and adjacent western New England from Wednesday morning into Thursday morning.</p> <p>Snow and sleet amounts ranged from 6 to 12 inches across portions of the southern and western Adirondacks, with generally under 3 inches elsewhere. However, ice accretion from freezing rain ranged between one quarter, to just under one half of an inch, with the greatest amounts across the higher elevations of the central and southern Taconics, as well as across the Lake George and Saratoga region. The ice accretion led to scattered power outages as a result of downed tree limbs on power lines.</p>
January 28-29, 2009	Winter Storm	N/A	N/A	<p>A winter storm spread a significant wintry mix of precipitation across eastern New York State, with heavy snow and sleet across much of the southern Adirondacks into the Lake George Saratoga region. Snow and sleet amounts ranged from 8 to 12 inches across the southern Adirondacks and the Lake George Saratoga region. This wintry mix resulted in the closure of numerous schools and businesses across east central New York for both Wednesday and Thursday mornings, and also created treacherous travel conditions. Snowfall totals in Warren County ranged from 8 to 9 inches in the city of Glens Falls.</p>
February 18, 2009	Winter Weather	N/A	N/A	<p>Winter storm system swept northeast across eastern New York State early Thursday morning, preceded and accompanied by moderate to locally heavy wet snow. The snow began Wednesday afternoon, and tapered off early Thursday morning. The heaviest snowfall amounts occurred across the Lake George Saratoga region, where 6 to 10 inches fell.</p>
February 23, 2010	Heavy Snow	N/A	N/A	<p>A powerful storm impacted the region, the second in just a couple of days bringing heavy rainfall and a heavy wet snow to the local area. The heavy wet snow resulted in additional and continued widespread power outages across east central New York, downed trees and power</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>lines, treacherous travel, road closures, train delays, building collapses and snow emergencies.</p> <p>In Warren County, up to 2 feet of snow fell in the west portion of the county in the higher elevations. Route 9N at Pinewoods Road in the Town of Lake Luzerne was reported closed for a couple of hours late Tuesday evening, February 23rd, due to downed power lines. No property damages were reported. Snowfall totals in Warren County ranged from 10.5 inches in the City of Glens Falls to 21.3 inches at the Town of Lake Luzerne.</p>
February 25, 2010	Winter Storm	N/A	N/A	<p>This storm system produced a widespread swath of heavy wet snow across the greater Capital District and surrounding area, the Lake George Saratoga region, the Mohawk River Valley, Schoharie Valley and southern Adirondacks during the day Friday. Snowfall rates of 1 to 2 inches per hour occurred, beginning during the early morning hours, and persisting until late afternoon.</p> <p>Snowfall amounts reached 12 to 15 inches across northern portions of the Capital Region extending into the east central Mohawk River Valley and Lake George Saratoga region. The heavy snow created treacherous travel conditions for the morning and evening commutes on Friday, with numerous accidents reported, including along portions of the Adirondack Northway, as well as Interstate 90. The heavy wet snow also led to numerous school and business closings across much of eastern New York on Friday.</p> <p>Snowfall totals in Warren County ranged from 4 inches at Warrensburg to 24 inches at Garnet Hill in North River hamlet.</p>
December 10-11, 2013	Winter Weather	N/A	N/A	<p>As very cold air passed over the relatively warm water of Lake Ontario, a heavy, long-lasting band of lake effect snow developed on the evening of the 10<sup>th</sup>, extending east across the entire western and southern Adirondacks. By the time the band ended late in the evening of December 11th, over one foot of snow was common across the western Adirondacks. Snowfall totals included 4.5 inches at Gore Mountain in Warren County.</p>
December 14-15, 2013	Winter Storm	N/A	N/A	<p>A light snow slowly spread across New York State from southwest to northeast during the day on December 14<sup>th</sup>, followed by a steadier and heavier snowfall moved across the region during the evening hours and into the overnight. Snow fell at rates in excess of one inch per hour over much of the region and snow rates locally were as high as up to three inches per hour at times. The bulk of the accumulating snow was finished by the late overnight hours, but light snow showers and flurries</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				continued into the mid-morning hours, especially across the Adirondacks and Capital Region. By the end of the storm, many places around the eastern Catskills, Capital Region and Lake George Saratoga Region received around a foot of snowfall. Snowfall totals in Warren County ranged from 9 inches at Brant Lake hamlet to 12.2 inches at the Town of Lake Luzerne.
February 13-14, 2014	Heavy Snow	N/A	N/A	<p>An exceptional winter storm impacted all of eastern New York between Thursday, February 13th and the morning of Friday, February 14th. The snow began falling in the morning hours at rates of up to three inches per hour, causing significant travel issues across the region. After a late afternoon break in the snowfall, heavy precipitation returned in the late evening hours. Once again, the snow fell at significant rates of up to 3 inches per hour. In addition, lightning and thunder accompanied the snow across far southern and eastern areas at times as well. By the time snow ended, between one and two feet of snow fell across much of the Lake George Saratoga Region, with lower amounts of 4 to 10 inches across the Adirondacks. Very strong winds, gusting as high as 40 mph, occurred as the storm pulled away. This led to significant blowing and drifting of the snowfall through the entire day on February 14th.</p> <p>As a result of the storm, Governor Andrew M. Cuomo declared a state of emergency for the Mid-Hudson as well other counties, including Warren, across east central New York. Restrictions were put on travel. Many towns and cities had difficulty with snow removal, as much of the snowfall also remained from a recent early February snowstorm as well. The weight of snow caused a few roof collapses and power outages across the region.</p> <p>Snowfall totals in Warren County ranged from 6 inches at North Creek hamlet to 12 inches at the Town of Lake Luzerne.</p>
November 26-27, 2014	Nor'Easter / Snowstorm	DR-4204	No	<p>An early season winter storm impacted eastern New York State during Thanksgiving. The storm began the morning of the 26<sup>th</sup> and once the snow began, it increased in intensity, falling at rates at or greater than one inch per hour. Temperatures dropped to or below freezing across the entire region. There were heavy bands of snow occurring in some locations, especially across the Taconics, Mohawk Valley and southeastern Adirondacks. Snowfall totals ranged from six to 12 inches, with up to 15 inches in the southeastern Adirondacks. The weight of the snow caused power outages in the area, especially across the mid-Hudson</p>





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Valley. Warren County DPW reported numerous damages, including automobile damages from falling trees and icy conditions, transportation blockages, and phone wires falling on and entangling a truck. Snowfall totals in Warren County ranged from 10 inches at the City of Glens Falls to 14.5 inches at North Creek hamlet.
February 12, 2017	Winter Storm	N/A	N/A	Two low pressure systems approached the northeastern US on Sunday, February 12, with snowfall breaking out over the local area around sunrise. The snow was heavy during the morning and early afternoon, with accumulation rates of 1 to locally 2 inches per hour at times. The snow was wet and dense and readily clung to trees. During the afternoon, warmer air resulted in precipitation changing to sleet for portions of the mid-Hudson Valley and Catskills, which cut down snowfall totals in those locales. The snowfall diminished Sunday evening, except over the higher terrain areas of the Adirondacks as well as the Mohawk Valley. In those locations, accumulating snowfall persisted through the night and into Monday before diminishing Monday afternoon.
December 22, 2017	Winter Storm	N/A	N/A	A complex storm system brought snow and a wintry mix to the region on Friday, December 22nd through Saturday, December 23rd, 2017. The precipitation started out as snow on Friday but transitioned to a wintry mix by Friday night. Freezing rain lingered through the day Saturday as a warm front lifted through the region, especially for sheltered mountain valley areas. Snowfall totals ranged from a trace in the Mid-Hudson Valley up to 8.5 inches in the Adirondacks (Hamilton county) along with light icing as well. A few spots in the Mohawk Valley and Saratoga Region saw up to two tenths of an inch of ice.
January 19, 2019	Winter Storm	N/A	N/A	he largest snowstorm to date in the 2018-19 winter occurred on January 19th and 20th across eastern New York. Low pressure formed over the lower Mississippi Valley and lifted northeast across the Tennessee Valley during the night of the 19th before moving along the Mason-Dixon line on the 20th. Strong rising motion occurred as southerly winds aloft transported moist air northward, which was lifted over the cold airmass in place over eastern New York. Snowfall broke out during the afternoon of the 19th, continuing heavy at times into the evening and overnight hours before ending during the morning of the 20th. The strong southerly flow brought above-freezing air aloft into the region, causing the snow to turn to sleet as far north as the Capital District and northern Catskills for a time before turning





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				back to snow. Further south, the air aloft was warm enough to turn the precipitation to freezing rain with ice accretion of one to three tenths of an inch over portions of the southeast Catskills, Mid-Hudson Valley, and southern Taconics.
March 23, 2020	Winter Storm	N/A	N/A	A late season snowfall impacted the region on Monday, March 23rd, 2020. This was brought on by an anomalously cold air mass interacting with a coastal low pressure system. Snowfall totals ranged from an inch in the Mid-Hudson valley up to almost 10 inches in the southern Adirondacks and northern Lake George Saratoga region. The lower amounts were mainly confined to the Lower Hudson Valley due to a rain and snow mix throughout much of the day. Snow intensity increased during the late afternoon and early evening hours impacting the evening commute. As a result, a tractor trailer crashed on Interstate 87 South prompting portions of the interstate to be closed.
January 17, 2022	Winter Storm	N/A	N/A	A winter storm dumped 7-14 inches over eastern New York January 16-17. It was also windy with gusts generally between 30-45 mph. There were a few gusts that topped 50 and 60 mph. Snow emergencies were put in place in the Utica/Dolgeville area.
March 13, 2023	Winter Storm	N/A	N/A	A powerful Nor'Easter resulted in widespread moderate to heavy wet snow and gusty winds across eastern New York March 13-March 15, 2023.  Anywhere from 15 to 30 inches of snow with locally higher amounts in excess of 30 inches fell over the SW Adirondacks and eastern Catskills. Valley locations received lesser amounts with totals generally ranging between 7 to 15 inches. A few locations across the western Mohawk Valley and mid-Hudson Valley received less than 6 inches of snow.  Numerous downed trees and powerlines resulted in widespread power outages. According to the National Grid, approximately 141,000 customers lost power within the state of New York with most occurring within our county warning area. Some locations were without power for at least 1 or 2 days.

Sources: NYSDEC, NWS, NYS DHSES, NOAA-NCDC, FEMA

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

DR Disaster Declaration  
 EM Emergency Declaration  
 FEMA Federal Emergency Management Agency  
 HMP Hazard Mitigation Plan  
 N/A Not Applicable  
 NCDC National Climatic Data Center  
 NOAA National Oceanic and Atmospheric Administration  
 NWS National Weather Service





PA

Public Assistance

## Appendix E. SUPPLEMENTARY DATA

## E.1.6 Wildfire

Known wildfire events that have impacted Warren County from 2002 to 2015 are identified in Table E.6. Fire departments throughout the County respond to small brush fires each year. However, many of these fires are so small that little information is available. Therefore, Table E.6 may not include a complete record of all wildfire events that have occurred within the county.

Table E.6. Wildfire Events in Warren County, 2002 to 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 5, 2002	Wildfire	N/A	N/A	Smoke, from many forest fires across the Nemiscau region of northern Quebec, became trapped under a subsidence inversion, and was transported south across eastern New York from the evening hours of July 5, to the late evening of July 7. The forest fires were sparked by exceptionally hot and dry weather over that part of Canada followed by an unusual amount of thunderstorm activity, resulting in many lightning strikes. The circulation between high pressure over Hudsons Bay and a low pressure off the Canadian Maritimes transported the smoke southward. The smoke obscured the sky, and even reduced surface visibilities to as low as one mile, especially on the early morning of July 7. Advisories were issued warning people with respiratory problems to remain indoors and all individuals to curb outside activity. No major problems were reported to the National Weather Service as a result of this smoke.
April 30 – May 7, 2009	Wildfire - Tongue Mtn 1	N/A	NYS-2009-0133	A lightning strike started a forest fire in a forest preserve in the Town of Hague, resulting in 13 acres burned.
May 16 – 27, 2013	Wildfire - Pine Mountain Fire	N/A	NYS-2013-0099	A lightning strike started a forest fire in a forest preserve in the Town of Warrensburg, resulting in 16.8 acres burned.
November 4-10, 2014	Wildfire	N/A	NYS-2014-0139	In 2014, the largest wildfire to occur in New York State was the 173-acre Darling Mountain Fire in the Town of Queensbury that





## Appendix E. SUPPLEMENTARY DATA

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				began on November 4. This fire occurred on private land and spread quickly because of strong winds blowing fallen leaves. Smoke from the fire triggered automatic alarm systems six miles away in the City of Glens Falls. Little mop up was needed for this surface fire, and it was declared out three days later. This fire was caused by hunters leaving an unextinguished campfire.
May 8 – 17, 2015	Wildfire	N/A	NYS-2015-0105	A campfire in the Town of Queensbury was reported to spark forest fires on private property, resulting in 14 acres burned.

Sources: NYSDEC 2013; NYSDEC 2015; NOAA-NCDC

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or following the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

FEMA Federal Emergency Management Agency

K Thousand (\$)

M Million (\$)

N/A Not applicable





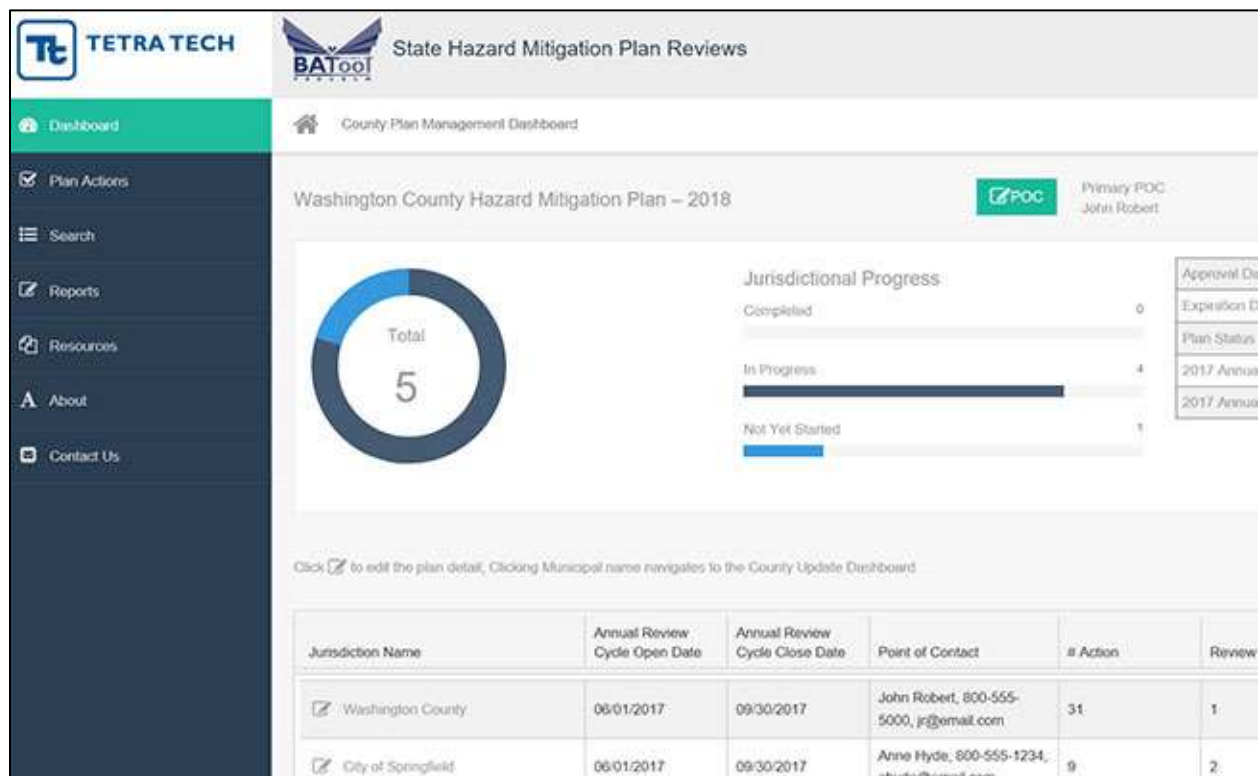
## APPENDIX F. PLAN MAINTENANCE TOOLS

This appendix includes tools and worksheets to facilitate plan maintenance and review by the Warren County Steering and Planning Committees.

In the first year of the performance period, an online performance progress reporting system, the BATool<sup>SM</sup> will provide municipal and county representatives direct access to their mitigation initiatives to easily update the status of each project, document successes or obstacles to implementation, add or delete projects to maintain mitigation project implementation. This online program will capture information and roll all input into a report to summarize mitigation strategy progress.



Figure G-1. BATool<sup>SM</sup> Screenshot



The FEMA 386-4 guidance worksheets are also available to assist with progress reporting. These worksheets are provided in this section for ease of access to the HMP Coordinator and Planning Partnership to maintain the 2023 HMP throughout its period of performance.



**Worksheet #1****Progress Report****step 2***Page 1 of 3*

Progress Report Period: \_\_\_\_\_ to \_\_\_\_\_  
(date) (date)

Project Title: \_\_\_\_\_ Project ID#: \_\_\_\_\_

Responsible Agency: \_\_\_\_\_

Address: \_\_\_\_\_

City/County: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

Phone #(s): \_\_\_\_\_ email address: \_\_\_\_\_

List Supporting Agencies and Contacts:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Project Cost: \_\_\_\_\_

Anticipated Cost Overrun/Underrun: \_\_\_\_\_

Date of Project Approval: \_\_\_\_\_ Start date of the project: \_\_\_\_\_

Anticipated completion date: \_\_\_\_\_

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Milestones	Complete	Projected Date of Completion



**Plan Goal(s)/Objective(s) Addressed:**

Goal: \_\_\_\_\_

Objective: \_\_\_\_\_

**Indicator of Success** (e.g., losses avoided as a result of the acquisition program):

*In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.*

**Status** (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

**Project Status**☐ Project on schedule☐ Project completed☐ Project delayed\*

\*explain: \_\_\_\_\_

☐ Project canceled**Project Cost Status**☐ Cost unchanged☐ Cost overrun\*

\*explain: \_\_\_\_\_

☐ Cost underrun\*

\*explain: \_\_\_\_\_

**Summary of progress on project for this report:**

A. What was accomplished during this reporting period?

---

---

---

---

B. What obstacles, problems, or delays did you encounter, if any?

---

---

---

C. How was each problem resolved?

---

---

---





**Next Steps:** What is/are the next step(s) to be accomplished over the next reporting period?

[illegible]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.





**Worksheet #2****Evaluate Your Planning Team****step 3**

*When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:*

	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?		
<b>Comments/Proposed Action:</b>		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?		
<b>Comments/Proposed Action:</b>		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?		
<b>Comments/Proposed Action:</b>		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?		
<b>Comments/Proposed Action:</b>		
Are there ways to gain more diverse and widespread cooperation?		
<b>Comments/Proposed Action:</b>		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		
<b>Comments/Proposed Action:</b>		

*If the planning team determines the answer to any of these questions is "yes," some changes may be necessary.*



**Worksheet #3 Evaluate Your Project Results****step 3**

page 1 of 2

Project Name and Number: \_\_\_\_\_

Project Budget: \_\_\_\_\_

Project Description: \_\_\_\_\_

Associated Goal and Objective(s): \_\_\_\_\_

Indicator of Success (e.g., losses avoided): \_\_\_\_\_

*Insert location map.  
Include before and after  
photos if appropriate.*

Was the action implemented? ☐ YES ☐ NOIF **NO**

Why not?

Was there political support for the action?

Were enough funds available?

Were workloads equitably or realistically distributed?

Was new information discovered about the risks or community that made implementation difficult or no longer sensible?

Was the estimated time of implementation reasonable?

Were sufficient resources (for example staff and technical assistance) available?

YES NO

☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐IF **YES**

What were the results of the implemented action? \_\_\_\_\_

---

---

---

---

---

---





page 2 of 2

	YES	NO
Were the outcomes as expected? If No, please explain:		
Did the results achieve the goal and objective(s)? Explain how:		
Was the action cost-effective? Explain how or how not:		
What were the losses avoided after having completed the project?		
If it was a structural project, how did it change the hazard profile?		
Additional comments or other outcomes:		

Date: \_\_\_\_\_

Prepared by: \_\_\_\_\_



**Worksheet #4 Revisit Your Risk Assessment step 4**

Risk Assessment Steps	Questions	YES	NO	COMMENTS
Identify hazards	Are there new hazards that can affect your community?			
Profile hazard events	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
Inventory assets	Have inventories of existing structures in hazard areas been updated?			
	Is future land development accounted for in the inventories?			
	Are there any new special high-risk populations?			
Estimate losses	Have loss estimates been updated to account for recent changes?			

*If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly.*



**Worksheet #5****Revise the Plan****step 4***page 1 of 4***Prepare to update the plan.***When preparing to update the plan:**Check the box when addressed:*

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.	<input type="checkbox"/>
Comments:	
2. Reconvene the planning team, making changes to the team composition as necessary (see results from Worksheet #2).	<input type="checkbox"/>
Comments:	

**Consider the results of the evaluation and new strategies for the future.***When examining the community consider:**Check the box when addressed:*

1. The results of the planning and outreach efforts.	<input type="checkbox"/>
Comments:	
2. The results of the mitigation efforts.	<input type="checkbox"/>
Comments:	





3. Shifts in development trends.	
Comments:	
4. Areas affected by recent disasters.	
Comments:	
5. The recent magnitude, location, and type of the most recent hazard or disaster.	
Comments:	
6. New studies or technologies.	
Comments:	
7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.	
Comments:	





page 3 of 4

8. Changes in the socioeconomic fabric of the community.	
Comments:	
9. Other changing conditions.	
Comments:	

**Incorporate your findings into the plan.***When examining the plan consider:**Check the box when addressed:*

1. Revisit the risk assessment. (See Worksheet #4)	
Comments:	
2. Update your goals and strategies.	
Comments:	
3. Recalculate benefit-cost analyses of projects to prioritize action items.	
Comments:	





Use the following criteria to evaluate the plan:

Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do existing actions need to be reprioritized for implementation?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented with available resources?			

Comments:

---

---

---

---

---

---

---

---

---

---





## APPENDIX G. CRITICAL FACILITY INVENTORY

### G.1 OVERVIEW

This section contains information and details to support information provided in Section 4 – County Profile which provides the distribution of critical facilities located within Warren County and its municipalities. Due to the sensitive nature of this information, details have been redacted. Contact the HMP Coordinator, for more information contact Ann Marie Mason Director, Warren County Office of Emergency Services at [masona@warrencountyny.gov](mailto:masona@warrencountyny.gov).





## APPENDIX J. PLANNING GUIDANCE

This appendix includes the 2022 NYS DHSES planning standards and guidelines for hazard mitigation planning, as well as FEMA guidance for classifying Lifelines within a community.





## 2022 New York State Hazard Mitigation Planning Standards (Supersedes the 2017 NYS Hazard Mitigation Planning Standards)

Congratulations on taking the first steps to update a multi-hazard mitigation plan for your community!

The goal of both the New York State Division of Homeland Security and Emergency Services (NYS DHSES) and FEMA is that all jurisdictions develop robust mitigation plans and tangible mitigation actions that will contribute to long-term risk reduction.

The 2022 NYS Hazard Mitigation Planning Standards reduce the 2017 Hazard Mitigation Planning Standards. Any plan currently in development, regardless of date funded, will be held *only* to these reduced standards.

---

### PLEASE NOTE:

On April 19, 2023, FEMA's new Local Mitigation Planning Policy will take effect. Plans approved on or after this date **must meet requirements** as outlined in the linked [Policy Guide](#).

[https://www.fema.gov/sites/default/files/documents/fema\\_local-mitigation-planning-policy-guide\\_042022.pdf](https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf)

---

The additional state requirements detailed below are intended to improve the quality of hazard mitigation plans and encourage the development of the most appropriate and effective mitigation projects for your community. It is recognized that many jurisdictions have inherent constraints and certain information may be difficult to provide. NYS DHSES and FEMA will work with you throughout the entire planning process to ensure the successful development of your community's hazard mitigation plan.

There are a multitude of resources that exist to provide guidance and support throughout the planning process, developed by Federal and State agencies, as well as private and research-based groups. We urge you to contact us so that we may direct you to additional resources and provide you with the most comprehensive technical assistance possible.

For questions and comments, please call our offices at 518-292-2304.

Additional contact information will be provided to sub-recipients for more direct assistance.





**Please note:**

*Jurisdiction* is used to describe all government entities within the boundaries set forth in the Multi-Jurisdictional Plan (typically County-wide), including the County itself, as well as cities, towns, villages and potentially tribes that choose to join a multi-jurisdictional plan.

*Special Flood Hazard Area (SFHA)* is defined as the area that will be inundated by the flood event having a 1-percent change of being equaled or exceeded in a given year (previously known as the 100-year flood event).

---

**1. Assess Critical Facilities**

*Critical facilities must remain accessible and functional before, during and after disasters to meet the jurisdictions Continuity of Government (COG) and Continuity of Operations (COOP) standards, and to support important emergency, government and sheltering functions.*

Jurisdictions must identify all critical facilities, assess their vulnerabilities, and evaluate and ensure they are protected to a 0.02% chance (500-year) flood event. Critical facilities that are located in an SFHA and/or have been previously flooded, must be protected against a repeat of that flood or to the 0.02% chance flood event, whichever provides the greater protection.

- The plan must document the name of facility, type of facility, jurisdictional location, and exposure to a 1% (100-year) and 0.02% chance event.
- The plan must document those critical facilities are protected to a 0.02% flood event, or previous worst case flood event. For those that do not meet this level of protection, the plan must include an action to meet or go beyond this criterion or explain why it is not feasible to do so. Going beyond this criterion is optional but may be wise to protect against a future worst case due to climate change.

**2. Include Jurisdictional Annexes**

*Jurisdictional annexes provide a unique, stand-alone guide to mitigation planning for each jurisdiction.*

The plan must be organized so that there is an annex for every jurisdiction within the county's borders, including the County.

- The plan must include a table in the Introduction section clearly identifying all jurisdictions and which are seeking FEMA approval.
- The annex for each jurisdiction seeking FEMA approval must include the following:
  - Contact Information;
  - Jurisdiction Profile;
  - Hazard Identification (specific to the jurisdiction);
  - Hazard Event History;
  - National Flood Insurance Program (NFIP) Summary (to meet Federal Standards);
  - Critical Facilities Information (to meet F1);
  - Jurisdiction/public identified vulnerabilities;
  - Additional public involvement;
  - Capabilities Assessment;
  - Mitigation Strategy:
    - All identified previous mitigation activities with current status;
    - All proposed mitigation activities (both new and carried forward, to meet F3)
- The annex for each non-participating jurisdiction (those not seeking FEMA approval at this time), must include a cover sheet and should include as much information as is available.



**3. Develop Mitigation Actions**

*Projects that are well developed and documented in one place are more quickly identifiable for selection when grants become available, making implementation that much more likely.*

Within each jurisdictional annex, jurisdictions must develop a minimum of two (2) new or carryover (not started) proposed mitigation actions that include all information requested in the NYS DHSES LHMP Proposed Action spreadsheet. For jurisdictions containing an SFHA, one (1) of these actions must be for a project that addresses flooding.

**4. Post Draft Plan Online**

*Allowing the public to comment on the draft plan increases awareness about how mitigation saves lives and reduces risk and allows a final opportunity for public input.*

The public must have an opportunity to view and comment on the draft plan prior to submittal.

- The draft plan must be posted in full (except for discretionary sensitive information) on an existing county/jurisdiction website, or one created for the purpose of soliciting comments, for 30 days or the time prescribed by local law, whichever is greater, and the plan must describe efforts made to solicit public comments from potentially underserved areas where residents may not have access to a computer to view the website. The website must clearly identify how the public can comment on the plan, to include either specific contact information to send comments or a user-friendly form or survey.

**After NYS DHSES and FEMA Approval**

- Once designated Approvable Pending Adoption (APA) or Approved by FEMA, the final plan must be placed on the same website (cited above) in its entirety (except for discretionary sensitive information).
- Final payment will occur only after 50% of the participating jurisdictions have adopted the plan and provided adoption resolutions to NYS DHSES. For county-led hazard mitigation planning efforts, the county must be one of the adopting jurisdictions.

The chart below shows the requirements as they appear on the plan review tool used by NYS DHSES and FEMA Region II to determine whether a submitted plan meets federal and state requirements.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b>		
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>		<b>(section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS – NYS HAZARD MITIGATION PLANNING STANDARDS</b>				
These are required actions for plans developed with NYS DHSES-administered funds.				
H1. Do jurisdictions identify critical facilities, assess vulnerabilities, and ensure protection to a 0.02% flood event or worst-case scenario?				
H2. Does the plan include an annex for every jurisdiction within the County's boundaries?				
H3. Within each jurisdictional annex, are projects developed in accordance with the NYS DHSES Proposed Projects Table?				
H4. Was the draft plan posted for public comment?				
<b>Note:</b> The applicant is required to address the 2022 NYS Hazard Mitigation Planning Standards as required actions for a hazard mitigation plan developed with funds administered by NYS DHSES.				
<b>ELEMENT H: REQUIRED REVISIONS</b>				
<i>Please see opportunities for improvement</i>				





## APPENDIX I. DAM FAILURE (CONFIDENTIAL)

This is a confidential appendix that summarizes the quantitative vulnerability assessment conducted for the dam failure hazard in Warren County. This section contains information and details to support information provided in Section 5.4.1 – Dam Failure Profile which provides the information regarding dam failure in Warren County. Due to the sensitive nature of this information, details have been redacted. Contact the HMP Coordinator, for more information contact Ann Marie Mason Director, Warren County Office of Emergency Services at [masona@warrencountyny.gov](mailto:masona@warrencountyny.gov).





## APPENDIX J. PUBLIC COMMENT

This appendix provides documentation of public comment received following public review of the draft Warren County Hazard Mitigation Plan. Public feedback on the draft plan is an important part of the hazard mitigation planning process. Public comments have been addressed throughout the HMP as appropriate.

### J.1 PUBLIC COMMENTS ON THE DRAFT PLAN

This section contains the public comment responses from the public review of the draft Warren County Hazard Mitigation plan. Comments were received from four residents for the entire plan and for specific sections. The public comments are provided in the following summary, with personal information removed.

#### J.1.1 Comments on the Entire Plan

- **Comment 1:** Request for a way to search the entire document for keywords.
  - **Response:** The final plan will be one searchable document.
- **Comment 2:** Expressed concern with recommending backup generators that use fossil fuels. Recommended using battery power backup systems, especially for powering facilities with vulnerable populations.
  - **Response:** Warren County will evaluate the use of power storage batteries to provide backup power instead of fuel powered generators, where possible.
- **Comment 3:** Recommended web based educational and outreach webinars to allow for remote participation for residents.
  - **Response:** Live Citizen Preparedness Training is available through NYSDHSES in conjunction with the National Guard and hosted by the County. Similar training is offered by the state offers and is available on YouTube in 13 languages at this link: <https://www.dhSES.ny.gov/citizen-preparedness-corps>.

#### J.1.2 Comments on Section 4

- **Comment 4.1:** Suggest adding a map showing the over 65 years old population in the county.
  - **Response:** The over 65 population group is discussed in detail in the vulnerability section of the plan.
- **Comment 4.2:** Recommend that the plan emphasize that seniors are more vulnerable to disease within the mitigation goals regarding public health guidance.





- **Response:** Information was added to the plan about vulnerability for seniors in Section 4 in order to emphasize the mitigation recommendations.

### J.1.3 Comments on Section 5

- **Comment 5.1:** Suggested that more needs to be done to coordinate the use of generators for senior citizens during winter power outages.
  - **Response:** The County action item #2 addresses backup power for critical facilities which includes those that support senior citizens.

### J.1.4 Comments on Section 9

- **Comment 9.1:** Recommend that the adaptive capacity for disease needs to be strong in Queensbury and elsewhere.
  - **Response:** The adaptive capacity ranks were developed through a stakeholder review by the Hazard Mitigation Plan Steering Committee and each participating community as part of the planning process. This is a factor in determining the relative risk presented by each hazard of concern. A higher adaptive capacity will result in a reduction in the relative hazard ranking and may be discussed with each community as needed to support the prioritization of projects.
- **Comment 9.2:** Highlighted that more needs to be done to control the Schroon River as it continues to flood more every year.

- **Response 9.2:**

The Schroon River in Warren County is impounded in the Town of Horicon by the Starbuckville Dam. The original dam was developed for the purpose of commerce of logs to paper and pulp mills in Glens Falls and further downstream on the Hudson River. The dam was rebuilt in 2005. This dam creates a pool elevation that has been established and is controlled by the dam. Dam sluices may be open, closed or in a combination of, to maintain the established water level.

The Schroon River in Warren County has a large watershed that begins in Essex County at Elk Lake. With such a large watershed, the Schroon is susceptible to flooding at any time of the year, but generally springtime during runoff and early-late summer with spring rains. As stated, flooding may occur at any time of the year based on existing hydrologic and meteorological conditions.

Floodplains associated with the Schroon River are often inundated during spring and high flow events. The vast majority of these areas are fields or forested areas. Development such as homes and commercial ventures have been established in existing floodplains or flood prone areas.





FEMA is currently redeveloping floodplain maps for Warren County and this updated and more accurate information will be used to determine what steps the county and its municipalities may take to reduce flooding impacts for landowners, while maintaining the ability of the river flow and utilize its floodplains when necessary.

- **Comment 9.3:** Recommend that the maps for Queensbury are revised to be easier to read.
  - **Response:** Users may zoom into digital maps to enable better readability.





# PARTICIPATION MATRIX

Appendix B includes the participation matrix for meetings convened during the development of the Warren County Hazard Mitigation Plan Update.





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Tammie DeLorenzo	Assistant to the County Administrator	Warren County Administrators Office	X	X		X	X			X				X		
Aaron Frankendorf	Staff Director. Adirondack/Glens Falls Transportation Council	ADK Glens Falls Transportation Council	X	X			X				X					
Sara Frankendorf	GIS Coordinator	Warren County	X	X			X			X	X		X			
Ethan Gaddy	WC Planner/Climate Smart	Warren County Planning Department	X	X			X		X	X	X			X		
Kevin Hajos	Superintendent	Warren County Department of Public Works	X	X											X	X
Sandy LeBarron	Director of Environmental Health and Safety	Finch Paper	X	X						X			X			X
Jim Lieberum, CPESC	District Manager/County Hazard Mitigation Coordinator	Warren County Soil and Water Conservation District (WCSWCD)	X	X		X	X	X	X	X	X	X	X	X	X	X
Ann Marie Mason	Director/Emergency Manager	Warren County	X	X		X	X	X	X		X		X	X		X





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Ashley Rivers	Emergency Services Coordinator	Warren County	X	X		X		X			X		X			X
Scott Royale	Sustainability Coordinator	SUNY	X	X												
Laura Stebbins	Director of Emergency Preparedness	Glens Falls Hospital	X	X			X	X	X				X	X		X
Bob Bradshaw	Managing Partner	Contingency Management Consulting Group			X	X										
Jennifer Ramsey	Public Safety Committee	Warren County		X		X			X		X					
John Gibb	Emergency Management	Contingency Management Consulting Group				X					X		X	X		X
Joshua Westfall, AICP	Planner	Bolton, Town		X				X	X			X			X	
Cheryl Bolton	Planning and Zoning Secretary	Bolton, Town													X	
Matt Coon	Dep. Highway Superintendent	Bolton, Town													X	
Marion Eagan	Deputy Supervisor	Chester, Town		X								X		X	X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Larry Turcotte	Councilman	Chester, Town		X												
Marion Eagan	Planning and Zoning	Chester, Town		X				X								
Jeremy Little	Zoning Administrator	Chester, Town		X				X							X	
Jessica Leerkes	Engineer	Chester, Town		X								X		X	X	
Craig Leggett	Supervisor	Chester, Town													X	
Mindy Conway	Town Clerk	Chester, Town		X										X		
James P. Schrammel	Fire Chief	City of Glens Falls	X	X						X						
Kris Vanderzee	Code Enforcement Officer	Glens Falls, City		X	X											
William Norton	Superintendent, Water & Sewer	Glens Falls, City		X				X	X			X				
Sheila Mender	Engineering Department	Glens Falls, City		X										X	X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Justin Reckner	Code Enforcement Officer, Building & Codes	Glens Falls, City													X	
Philip Cancelliere	Building Inspector	Glens Falls, City													X	
Edna A. Frasier	Town Supervisor	Hague, Town		X										X	X	
Matther Coffin	Deputy Highway Superintendent	Hague, Town		X												
Matthew Magee	Zoning Administrator	Hague, Town		X											X	
Cathy Clark	Zoning Enforcement Officer	Hague, Town		X										X	X	
Tim Fiallo	Highway Clerk	Hague, Town													X	
Michael N. Geraci	Supervisor	Horicon, Town		X				X	X			X		X	X	
Darian Granger	Highway Superintendent	Horicon, Town		X								X			X	
Matthew Magee	Zoning Administrator	Horicon, Town													X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Danae Tucker	Bookkeeper	Johnsburg, Town		X				X	X					X	X	
Fred Comstock	Highway Superintendent	Johnsburg, Town		X				X							X	
Mike Dunkley	Deputy Highway Superintendent	Johnsburg, Town		X				X				X			X	
Ernie Dunkley	Safety Officer	Johnsburg, Town		X				X				X		X	X	
Colin Mangan	Zoning Enforcement Officer	Johnsburg, Town													X	
Dan Barusch	Village and Town of George Planner	Village and Town of Lake George	X	X			X		X		X	X	X	X	X	
Rob Lanfear	Highway Department	Lake George, Town/Village		X				X						X	X	
Keith Lanfear	Superintendent Public Works	Lake George, Town/Village		X				X	X			X			X	
Doug Frost	Code Enforcement Officer	Lake George, Town													X	
Robert Blais	Mayor	Lake George, Village		X											X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
John Helms	DPW Foreman	Lake George, Village		X											X	
Eugene J. Merlino	Town Supervisor	Lake Luzerne, Town		X				X	X						X	
Ronnie Deuel	Highway Superintendent	Lake Luzerne, Town		X											X	
Karen Putney	Zoning Officer	Lake Luzerne, Town		X				X	X			X		X	X	
Khristopher Kassay	Deputy Zoning Enforcement Officer	Lake Luzerne, Town		X							X			X	X	
Frank E. Thomas	Supervisor	Stony Creek, Town		X					X			X			X	
Ed Lowell, Jr.	Councilman	Stony Creek, Town		X												
Deb Runyon	Supervisor	Thurman, Town		X				X	X			X			X	
Patrick Wood	Highway Superintendent	Thurman, Town		X												
James S. Hull	Code Enforcement Officer	Warrensburg, Town		X				X				X		X	X	





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Kevin B. Geraghty	Town Supervisor	Warrensburg, Town		X												
Patti Corlew	Floodplain Administrator	Warrensburg, Town													X	
John Strough	Supervisor	Queensbury, Town		X					X			X		X		
Laura Moore	Planner	Queensbury, Town	X	X			X			X	X		X	X		X
John O'Brien	Director of Building and Code Enforcement	Queensbury, Town		X				X								
Mike Palmer	Fire Marshal	Queensbury, Town		X				X								
Laura Moore	Planning and Zoning	Queensbury, Town		X				X				X				X
Dave Duell	Highway Superintendent	Queensbury, Town		X				X	X			X				
Mark DeMers	Deputy Highway Superintendent	Queensbury, Town		X								X				
Don Lehman	Public Information Officer	Warren County			X					X			X	X		





Name	Title	Department/Agency/Municipality	Steering Committee Member	Planning Partnership Member	Stakeholder/Other	Pre-Kick Off Meeting- 9/16/22	SC Meeting #1 - 9/27/22	PP Meeting #1 - 11/02/22	HW Support Meetings- 10/16/22	SC Meeting- 12/14/22	SC Meeting- 2/8/23	PP Meeting- 2/15/23	SC Meeting- 3/8/23	Strategy Workshop- 3/15/23	Local Annex Mtgs/Calls 3-6/23	Draft Plan Review-6/8/23
Elizabeth O'Reilly	Planning Manager	NYSDHSES	X		X		X	X	X					X		X
Shannon Clarke	Planner	NYSDHSES	X		X		X									
Shelby Meyers	Planner	NYSDHSES	X		X		X	X								
Betsy Parmerter	Planner	NYSDHSES			X									X		
Kevin Clapp	Planner	NYSDHSES			X									X		
Roland Paperman	Planner	NYSDHSES			x									X		
John Wilkerson	Planner	NYSDHSES			X									X		
Paul Hoole	Mitigation Planner	FEMA			X		X	X	X					X		





## APPENDIX C. MEETING DOCUMENTATION

Appendix C includes meeting agendas, sign-in sheets, and minutes (where applicable and available) for meetings convened during the development of the Warren County Hazard Mitigation Plan Update.



**WARREN COUNTY HAZARD MITIGATION PLAN - 2023 UPDATE**  
**Project Management Team Meeting – Agenda**  
**9/9/2022 at 10:00 am**



- Scope and Schedule
  - Brief review of our approved proposal
  - Grand performance period (copy of Grant Agreement)
  - Project schedule
- Municipal Participation – Letters of Intent to Participate
  - Email to all municipal coordinators (Email and LOIP template)
  - Identify any group meetings to leverage for the mitigation planning process
- Review Steering Committee Composition - refer to 2011 Steering Committee members
- Information and Data Collection
  - GIS Point of Contact for spatial data
    - Previous (2017) critical facility list – PCII data
      - Arrange GIS collection meeting
      - Data Wish List
    - Lifelines – FEMA incorporating into mitigation
    - NFIP data request
    - CAV dates and list of floodplain administrators
    - CEPA
  - Point of Contact for reviewing Public Information (brochure/surveys/announcements)
    - Draft content for website update, newsletter, social media content, and public meeting announcements
- Meeting Logistics
  - Schedule first Steering Committee meeting
  - Schedule HMP Kick-Off (public?)
    - Date and Location
- Hazard of Concern Identification
- Plan Style Guide
- Communications Guide
- In-Kind Tracking
  - County can begin tracking all time with the development of RFP, reviews, meetings, this call etc.
  - Tetra Tech to track meeting attendance for all participants

Documents:

Municipal Letter of Participation Request

Project Schedule

Data Wish List

In-Kind Tracker

NFIP Request Letter/ISAA





**WARREN COUNTY HAZARD MITIGATION PLAN - 2023 UPDATE**  
**Project Management Team Meeting – Agenda**  
**9/16/2022 at 2:00 pm**



Attendees: Ashley Rivers, Ann Marie Mason, Jim Lieberum, Bob Bradshaw, Jennifer Ramsey, John Gibb, Tammy Delorenzo

- Scope and Schedule
  - Brief review of our approved proposal
  - Grand performance period (copy of Grant Agreement) PoP ending 12/2024.
  - Project schedule-hold for input from the state.
  - Project reporting milestones submitted to NYSDHSES: March 2023; T Bolton, and County Public Works have pending funding-must confirm funding mechanisms-County to with DHSES on the status and timing re: need for an approved HMP.
- Municipal Participation – Letters of Intent to Participate
  - Email to all 13 municipal coordinators (Email and LOIP template)-COMPLETE. Tt to create OneDrive to share information. Jim to post.
  - Identify any group meetings to leverage for the mitigation planning process. LEPC-October (10/21) and quarterly, board of supervisors monthly (and invite mayors?), subcommittee on environmental concerns, kick-off right after board of supervisor's meeting (in-person or hybrid?).
- Review Steering Committee Composition - refer to 2011 Steering Committee members
  - In 2011-six persons, 2 County, Town of Queensbury, City of Glens Falls fire chief.+, LEPC has reps from hospital and Finch  
Major businesses: Hospital, Price Chopper, Finch, Lake George Land Conservancy, Lake George Association; Champlain Watershed Improvement Coalition of NY (CWICNY); Upper Hudson River Watershed Coalition. Agency for SVAs, Tt to provide crosswalk and old SC and suggestions for new committee.
- Core working group: meet bi-weekly-half hour on Wednesdays, 9 am on 9/21, 9/28 and bi-weekly thereafter.
- Information and Data Collection
  - GIS Point of Contact for spatial data-Sarah Frankenfeld to provide GIS files. Last plan redacted municipal water supply; high hazard dam element for HMP has been approved. County to send to us.
    - Previous (2017) critical facility list – PCII data
      - Arrange GIS collection meeting
      - Data Wish List
    - Lifelines – FEMA incorporating into mitigation
    - NFIP data request-Tt to send email request for data to Ann.
    - CAV dates and list of floodplain administrators. Tt to send request email to Ann.
    - CEPA-County to provide CEPA
  - Point of Contact for reviewing Public Information (brochure/surveys/announcements)
    - Draft content for website update, newsletter, social media content, and public meeting announcements Tt to provide social media info and brochure for outreach. Don Lehman (public info officer and director of Public Affairs) to review and provide branding.





**WARREN COUNTY HAZARD MITIGATION PLAN - 2023 UPDATE**  
**Project Management Team Meeting – Agenda**  
**9/16/2022 at 2:00 pm**



- 
- Meeting Logistics-[discuss next week](#).
    - Schedule first Steering Committee meeting
    - Schedule HMP Kick-Off (public?)
      - Date and Location
  - Hazard of Concern Identification- [Tt to send survey prior to SC Kick-Off](#)
  - Plan Style Guide – [ask Don](#)
  - Communications Guide – [copy John Gibb in meetings](#).
  - In-Kind Tracking-[Jim tracking in-kind](#)
    - County can begin tracking all time with the development of RFP, reviews, meetings, this call etc.
    - Tetra Tech to track meeting attendance for all participants

Documents:

Municipal Letter of Participation Request

Project Schedule

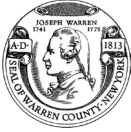
Data Wish List

In-Kind Tracker

NFIP Request Letter/ISAA







**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #1 – AGENDA**  
**MEETING DATE/TIME: October 27, 2022 – 9:00 am**



Remote – MS Teams Link [Click here to join the meeting](#) (preferred for screen sharing)

Remote – Dial-in by phone (audio only) - [+1 518-300-1367,,453227155#](#) United States, Albany; Phone Conference ID: 453 227 155#

- 1. Welcome and Introductions**
- 2. Hazard Mitigation Plan Overview**
- 3. Project Organization**
- 4. Steering Committee Composition and Ground Rules**
- 5. In-Kind Services Tracking**
- 6. Planning Process and Data Collection Status**
- 7. Hazards of Concern Identification**
- 8. Critical Facilities and Lifelines**
- 9. Mission Statement, Goals, and Objectives**
- 10. Conclusion and Next Steps**





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Hybrid In-person and Teleconference Teams Meeting
Date of Meeting:	October 27, 2022, 9:00 am – 10:15 am

## Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ethan Gaddy	Warren County Planning Department, CSC
Aaron Frankenfeld	ADK Glens Falls Transportation Council, Director
Tammie DeLorenzo	Warren County Administrators Office
Ann Marie Mason	Warren County, Director of Emergency Services
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Dan Barusch	Town/Village Lake George, Planner
Elizabeth O'Reilly	NYSDHSES, Planning Manager
Shannon Clarke	NYSDHSES, Planner
Shelby Meyers	NYSDHSES, Planner
Paul Hoole	FEMA, Mitigation Planning
Cynthia Addonizio-Bianco	Tetra Tech
Erika Corsi	Tetra Tech

## Agenda Summary:

Item No.	Description	Action item(s):
1	<b>Welcome and Opening Remarks</b> <ul style="list-style-type: none"> <li>Meeting started at 9:05 pm</li> <li>Jim Lieberum, Director of Warren County Soil and Water Conservation District gave opening remarks providing an overview of the importance of this planning process and thanking the participants for agreeing to serve on the Steering Committee.</li> <li>Cynthia Addonizio-Bianco, project manager from Tetra Tech (Tt), also thanked participants.</li> <li>Elizabeth O'Reilly of NYSDHSES noted that hazard mitigation is a diverse subject and can cross the line between recovery and response. The purpose of the mitigation plan is to reduce the amount of response potentially necessary against natural hazards. She indicated that NYSDHSES will provide support as needed throughout the mitigation planning process.</li> <li>Each participating member introduced themselves and provided input on their participation in the process: <ul style="list-style-type: none"> <li>Resiliency</li> </ul> </li> </ul>	Steering Committee to provide additional relevant plans to review and incorporation into the mitigation plan.





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>○ Intersection of hazard mitigation and climate adaptation mitigation through Climate Smart Communities program</li><li>○ Communication with other municipalities that has technical capacity restrictions</li><li>○ Help inform communities on their land use impacts to resiliency</li><li>○ Maintaining Queensbury codes. Queensbury identified as busiest community in terms of development and economic driver for the County</li><li>○ Bridge information throughout the County</li></ul>	
2	<p><b>Project Overview</b></p> <ul style="list-style-type: none"><li>● Ms. Addonizio-Bianco provided the following information:<ul style="list-style-type: none"><li>○ An overview of hazard mitigation, what it is and how it can provide increase resilience through the development of a FEMA-approved Hazard Mitigation Plan. She also noted the need to track time spent working on the plan outside of meetings through in-kind tracking to provide match for federal funding support for the planning effort. An online tracker will be sent out to all plan participants.</li><li>○ An overview of the phases of the hazard mitigation planning process including description of the project organization:<ul style="list-style-type: none"><li>■ Core Planning Team (CPT)</li><li>■ Warren County Emergency Services</li><li>■ Warren County Soil and Water Conservation District</li><li>■ Tetra Tech</li></ul></li><li>○ Steering Committee (SC)<ul style="list-style-type: none"><li>■ Numerous County Departments, Major Businesses, Outside Agencies, 1 municipal representatives</li></ul></li><li>○ Planning Partnership (PP)<ul style="list-style-type: none"><li>■ All participating municipalities and Steering Committee members.</li></ul></li><li>○ FEMA</li><li>○ Stakeholders</li></ul></li><li>● Steering Committee roles and responsibilities:<ul style="list-style-type: none"><li>○ Provide guidance and leadership</li><li>○ Oversee the planning process</li><li>○ Act as point of contact for partners and stakeholders</li></ul></li><li>● Focus on updating the 2017 critical facilities inventory to ensure completeness and identify lifeline facilities. The County and planning partners will provide input to update the list of critical facilities and lifelines via an online survey. Once updated, the information will be used during the risk assessment and mitigation strategy development.</li><li>● DHSES will notify the County when the draft plan has been submitted to FEMA for review.</li><li>● FEMA will notify the County and jurisdictions to let them know the submitted plan is approvable.</li><li>● Request for relevant plans and studies. (Post meeting note: The attached presentation has been updated to reflect the list of plans</li></ul>	<ul style="list-style-type: none"><li>● Tt to provide SC member access to the project OneDrive site and Steering Committee members to confirm access to OneDrive – access to be provided in separate email</li><li>● Critical facility inventory survey to be distributed by Tt to the County and municipal representatives.</li></ul>





# Warren County Hazard Mitigation Plan Update Meeting Notes



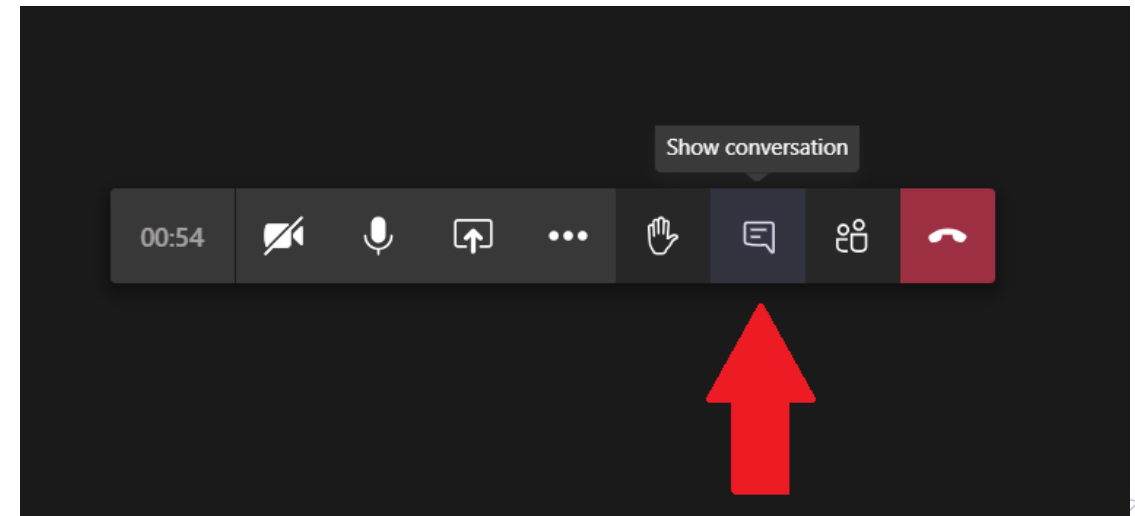
	<p>collected to date.) The committee members are requested to review the list and forward links to additional plans that may be relevant to the planning process.</p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco noted that participants will be given access to OneDrive to share documents and information.</li> </ul>	
3	<p><b>Risk Assessment and Hazards of Concern</b></p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco discussed the process of the risk assessment and reviewed the hazards of concern identified in the last HMP. These hazards of concern will need to be reviewed and updated as necessary. A survey will be sent out to the Steering Committee.</li> <li>One action is needed for every hazard of concern that impacts a municipality.</li> </ul>	<ul style="list-style-type: none"> <li>Steering Committee to provide input to update Hazards of Concern– to be distributed by and returned to Tt via email.</li> </ul>
4	<p><b>Goals and Objectives</b></p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco introduced the goals and objectives from the last HMP and provided suggestions to update them to align with current priorities. The Steering Committee as tasked with reviewing the mission statement, goals and objectives to provide feedback to guide the plan update.</li> <li>The Steering Committee recommending creating a goal and objective that addresses daily and long-term activities</li> </ul>	<ul style="list-style-type: none"> <li>Steering Committee to provide input – to be distributed by and returned to Tt via email.</li> <li>Steering Committee to clarify definition of ‘daily and long-term activities’</li> </ul>
5	<p><b>Upcoming Meetings</b></p> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco reviewed upcoming meetings: <ul style="list-style-type: none"> <li>Steering Committee Meeting – October 27<sup>th</sup>, 2022*</li> <li>Planning Partnership – November 2<sup>nd</sup>, 2022</li> <li>Risk Assessment Meeting – February, 2023 (<i>tentative</i>)</li> <li><i>Planning Partnership Risk Assessment Meeting – February, 2023 (tentative)</i></li> <li>Mitigation Strategy Workshop – March, 2023 (<i>tentative</i>)</li> </ul> </li> </ul>	
6	<p><b>Next Steps</b></p> <ul style="list-style-type: none"> <li>Attend Planning Partnership Meeting</li> <li>Determine Hazards of Concern to include in the HMP</li> <li>Strengths, Weaknesses, Obstacles and Opportunities (SWOO)</li> <li>Review Hazard Profiles</li> <li>Review Risk Assessment Results</li> <li>Identify Problems and Problem Areas</li> <li>Develop Mitigation Strategy</li> <li>Review Draft Plan</li> <li>Submit Draft Plan for NYSDHSES/FEMA Review</li> <li>Adopt FEMA-Approved Plan</li> <li>Implement Projects and Maintain the Plan and Increase Resilience</li> </ul>	
7	<p><b>Conclusion</b> - The meeting concluded at 10:15 am.</p>	





# Welcome!

- If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.
  - Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.
  - Click “Show Conversation.”





# **Warren County, New York Hazard Mitigation Plan – 2023 Update**

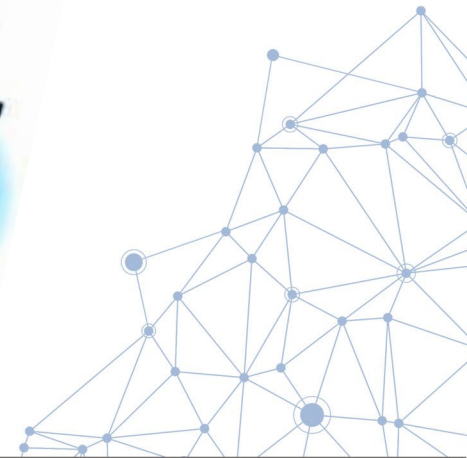
**Steering Committee Kick-Off Meeting | October 27,  
2022**





# Agenda

- Welcome and Introductions
- In-Kind Services Tracking
- Benefits of Hazard Mitigation
- Hazard Mitigation Planning Overview
- Project Organization
- Steering Committee Responsibilities
- Public and Stakeholder Outreach
- Update Hazards of Concern and Risk Assessment
- Critical Facilities and Lifelines
- Goals and Objectives
- Schedule
- Questions/Next Steps/Wrap Up







# Introductions

- Tell us...
  - What's your name?
  - Where you are from?
  - What is your mitigation experience?
  - What do you want to focus on during this process or what is your area of expertise?
  - What are your resilience concerns for Warren County?







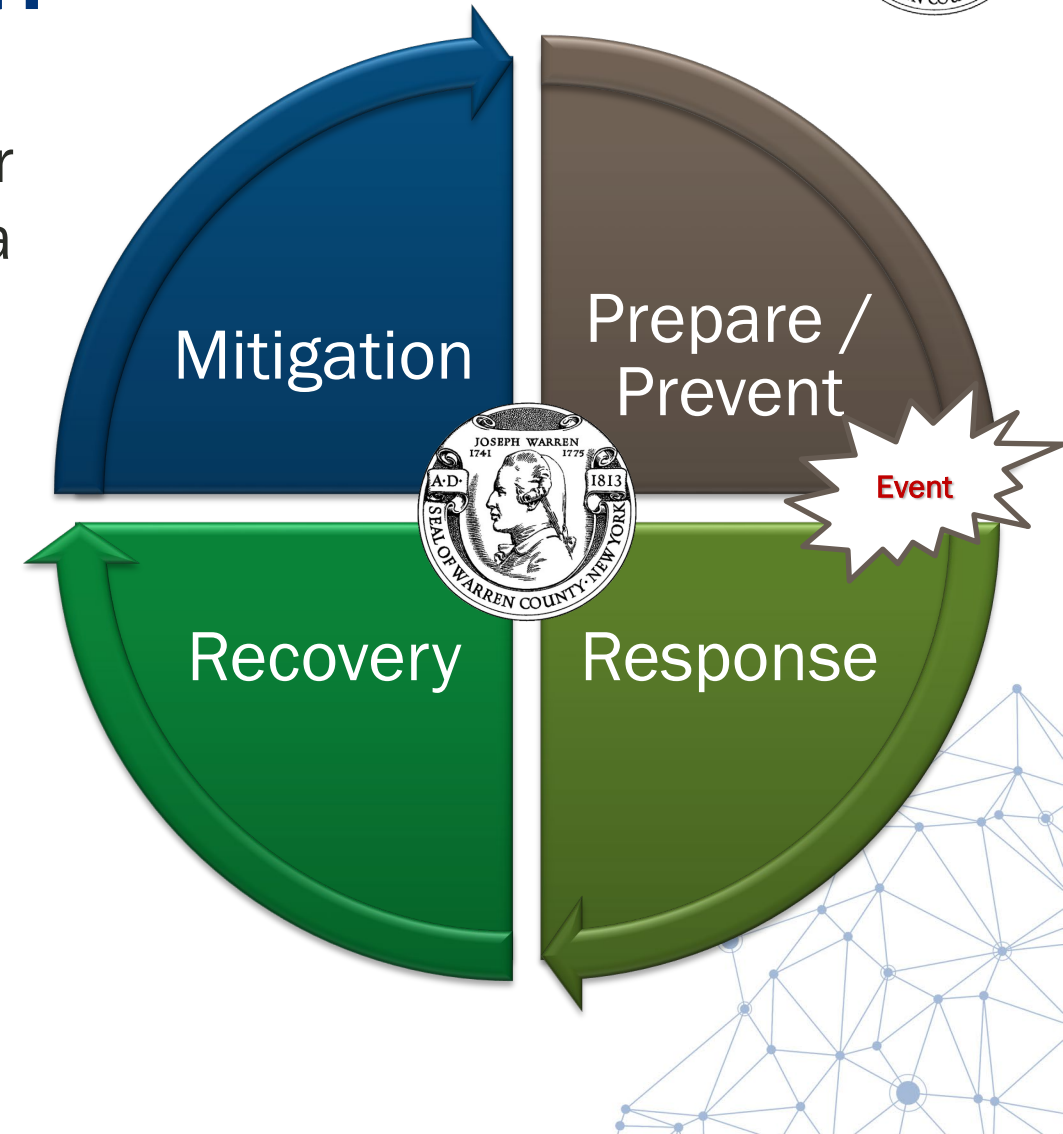
# Hazard Mitigation – What is it?

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses

“provides the blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and local ability...” (CFR).










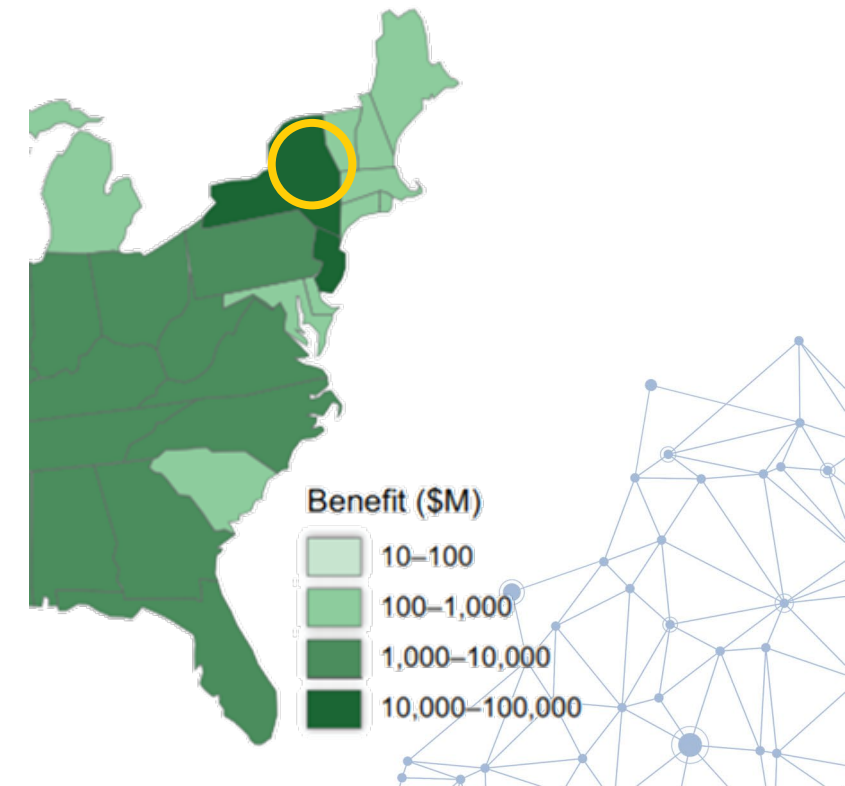


# Hazard Mitigation Works!

- According to the January 2019 National Institute of Building Sciences Natural Hazard Mitigation Saves: 2018 Interim Report, federal mitigation grants save \$6 for every \$1 spent!

Mitigation saves in every in state! New York has saved up to \$100 million in benefits.

National Benefit-Cost Ratio Per Peril <small>*BCR numbers in this study have been rounded</small>		Federally Funded
Overall Hazard Benefit-Cost Ratio		<b>6:1</b>
 <b>Riverine Flood</b>		<b>7:1</b>
 <b>Hurricane Surge</b>		Too few grants
 <b>Wind</b>		<b>5:1</b>
 <b>Earthquake</b>		<b>3:1</b>
 <b>Wildland-Urban Interface Fire</b>		<b>3:1</b>



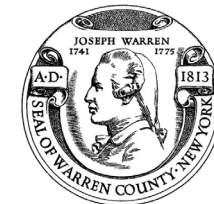


# Why Update?

- The mitigation plan update will:
  - Help the County prepare for and mitigate the effects of disasters
  - Continue to allow the County and participating partners to be eligible for pre- and post-disaster mitigation funding
  - Support CRS participation/rating of municipalities

Hazard	Losses (\$)
Blizzard	Losses not reported
Drought	Losses not reported
Excessive Temperature	Losses not reported
Flash Flood	\$22.36 million
Flood	\$6.24 million
Hail	\$13,000
Heavy Rain	Losses not reported
Heavy Snow	\$35,000
High Wind	\$731,000
Hurricane/Tropical Storm	Losses not reported
Lightning	\$77,000
Strong Wind	\$193,000
Thunderstorm Wind	\$10.62 million
Tornado/Funnel Cloud	\$252,500
Winter Storm	\$182,300
Winter Weather	\$1,000
<b>Total</b>	<b>\$42.345 million</b>

Source: NOAA-NCEI 2022







# What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480



4 Flood



4 Hurricane



4 Severe Storm(s)



2 Biological



2 Other



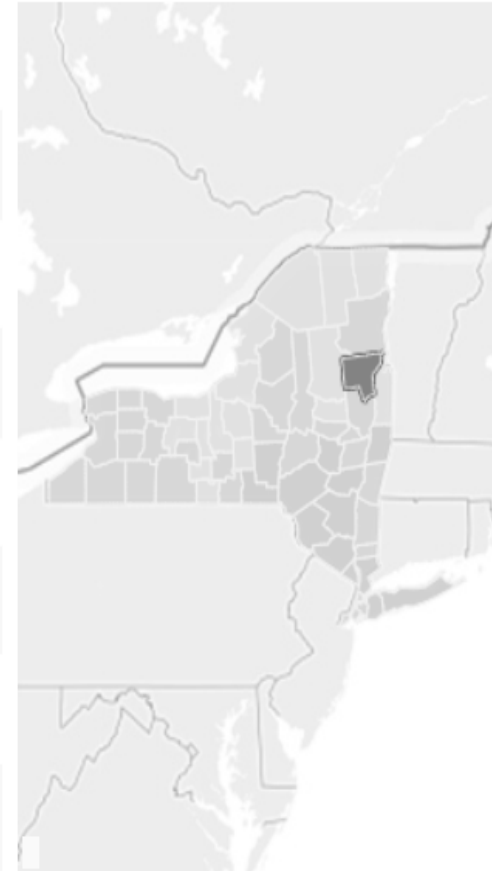
1 Earthquake



1 Fire



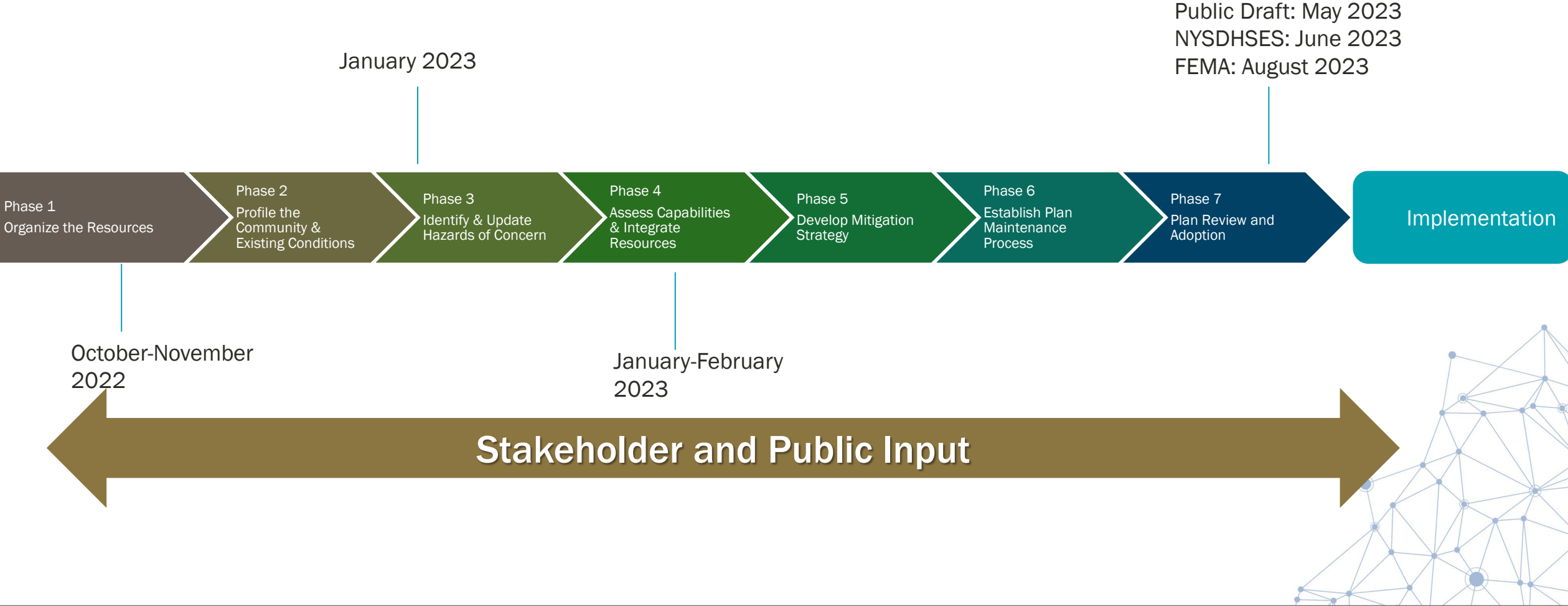
1 Snow





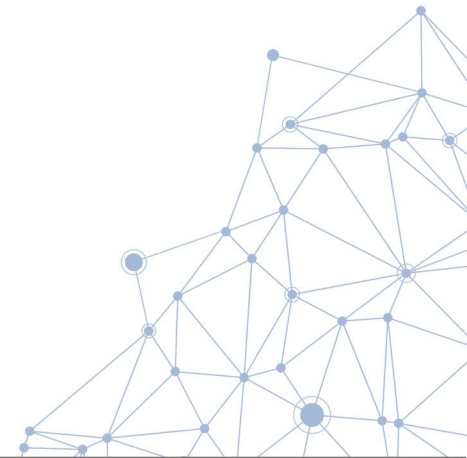
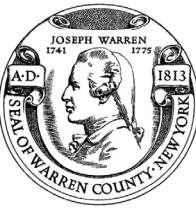


# Planning Process Overview





# Project Organization







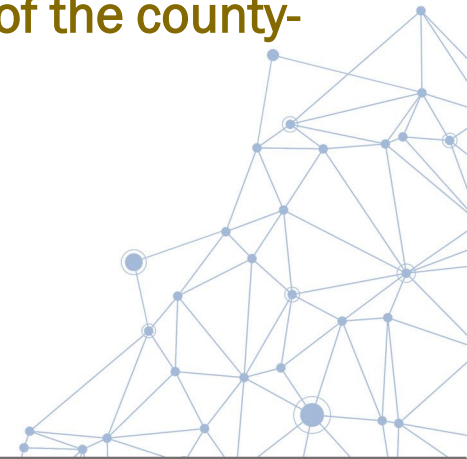
# Hazard Mitigation Committee Composition

## Steering Committee Members

Warren County Soil and Water Conservation District	Adirondack / Glens Falls Transportation Council
Warren County Office of Emergency Services	City of Glens Falls
Warren County Department of Planning and Community Development	Village of Lake George
Warren County Department of Public Works	SUNY Adirondack
Town of Queensbury – Planning Department	Glens Falls Hospital
	Finch Pryne
	Board of Supervisors

## Role

- ✓ Guide the Planning Partnership through the planning process
- ✓ Identify the natural hazards of concern
- ✓ Develop mitigation goals and objectives
- ✓ Develop public and stakeholder outreach strategy
- ✓ Support the development of the county-level mitigation strategy
- ✓ Review plan documents







# Steering Committee Roles and Responsibilities



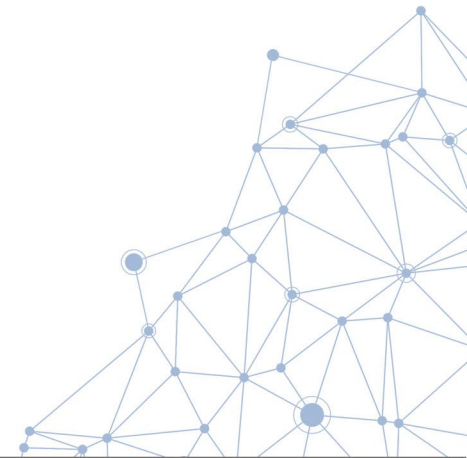
PROVIDE GUIDANCE AND  
LEADERSHIP THROUGHOUT  
THE PLANNING PROCESS



OVERSEE THE PLANNING  
PROCESS



ACT AS THE POINT OF CONTACT FOR  
ALL PARTNERS AND STAKEHOLDERS

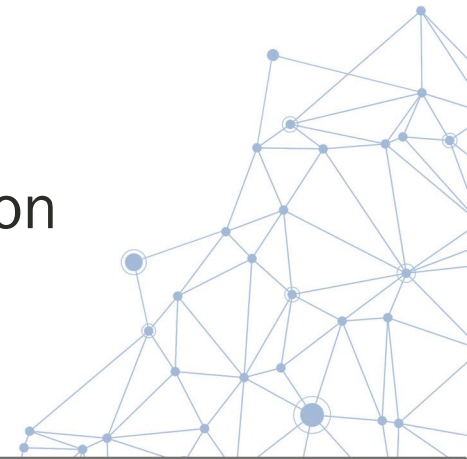




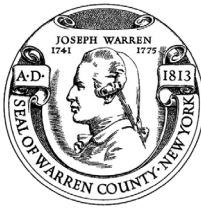


# Early Progress

- Requested/Received NFIP Community Assistance Visit Data
- Requested NFIP Data
- GIS Data Collection
- Review of Hazards of Concern/Distributed Worksheet to Steering Committee
- HMP website – In development
- HMP Fact Sheet, Citizen Survey, Agency Surveys - in progress
- County-Level/Regional Plan Collection
- Planning Partnership Outreach/Letter of Intent to Participate Distribution
- Planning Partnership Kick-Off Meeting Scheduled (November 2<sup>nd</sup> at 9am)







# In-Kind Services

Name of Team Member: \_\_\_\_\_

Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes – sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	





# Data Collection Status

- Letters of Intent to Municipalities
- Critical Facility Inventory (County providing initial data)
- Reports and Plans – Initial collection of reports, plans, and codes available online
- Capability Assessments
- Mitigation Strategy Updates

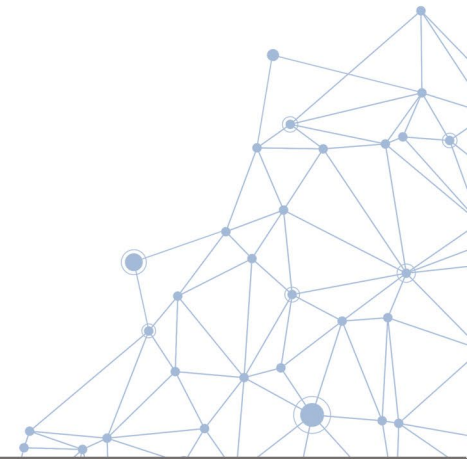






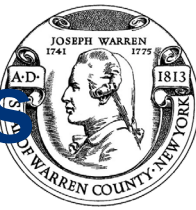
# Public and Stakeholder Outreach

- HMP is in development-  
<https://www.warrencountynyhmp.com>
- Social Media
- Stakeholder Survey
- Public Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey





# Relevant County and Regional Plans and Studies



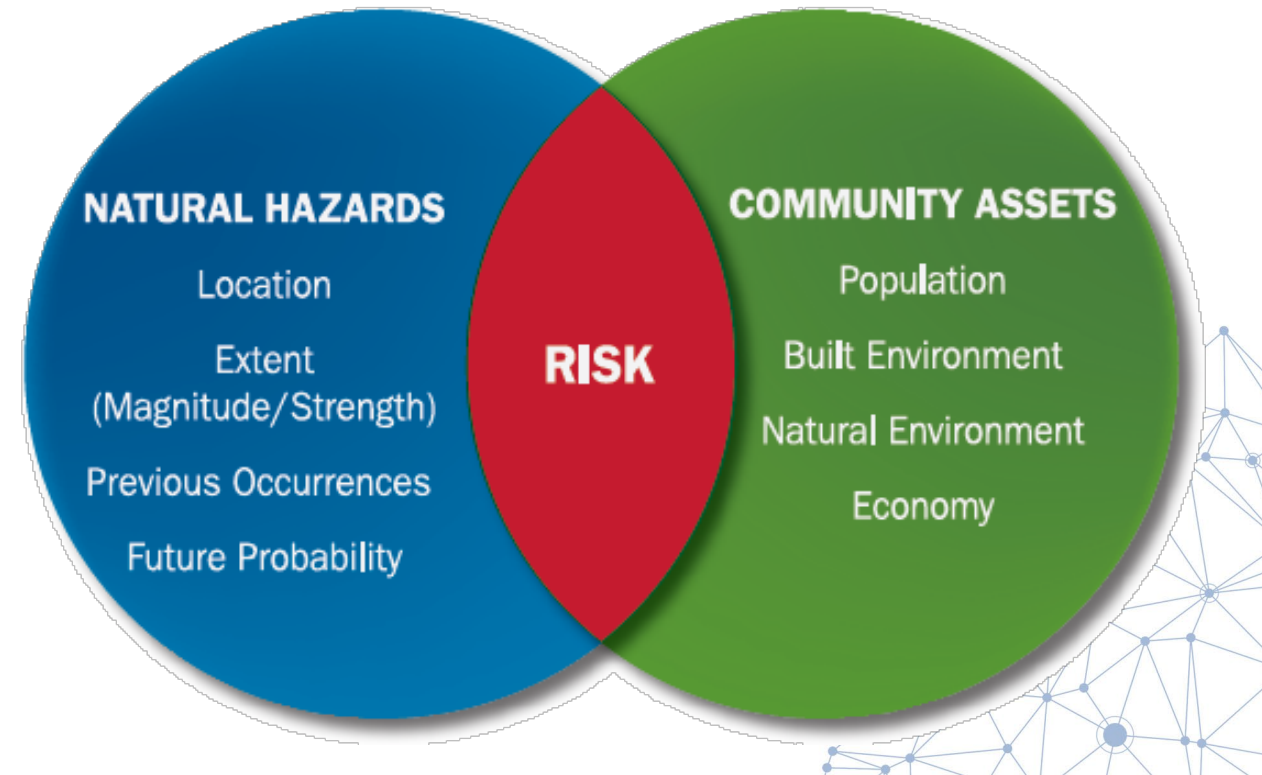
Name of Plan/Document	Date of Plan	Jurisdiction
Excessive Heat Plan	2022	Countywide
Schroon Lake Watershed Management Plan Addendum	2019	Chester (T)
Lake Champlain Watershed Roadside Erosion Assessment	-	Bolton (T), Hague (T), Lake George (T), Queensbury (T)
Upper Hudson River Watershed Management Plan	2020	Countywide
Friends Lake Watershed Assessment	2017	Chester (T)
LC Nonpoint Source Pollution Watershed Assessment and Management Plan	2018	Countywide
LG HAB Plan 2022 Update	2022	Lake George (T), Bolton (T)
Loon Lake Watershed Report	2021	Loon Lake, Chester (T)
Warren County - Dam Risk into Local HMG Plans	2021	Countywide

- Others?

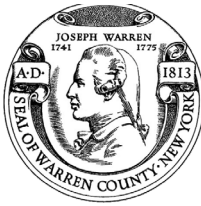


# Update Risk Assessment

- Update assets
- Examine previous impacts
- Analyze risks
- Review with Steering Committee
- Risk assessment meeting





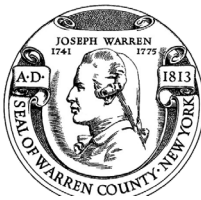


# NYS DHSES Requirements



- Establish Jurisdictional Teams
- Assess Critical Facilities
- Plan for Displaced Residents
  - Intermediate (Temporary Housing) and Long-Term (Permanent Housing)
- Plan for Evacuation and Sheltering
- Document Past Mitigation Accomplishments
- Include Jurisdictional Annexes
- Develop Mitigation Actions (minimum of 2 projects)
- Plan for Climate Change





# EXERCISE – Identifying Hazards of Concern

Thinking back over the last few years...

- The 2017 plan included:
  - Disease Outbreak
  - Earthquake
  - Flood
  - Infestation
  - Landslide
  - Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
  - Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
  - Wildfire
- In review...
  - Have additional hazards impacted the County since 2017?
  - Have hazard been mitigated and no longer cause damage?
  - Should hazards be regrouped to minimize number or required actions?
  - Should additional hazards be included?

- Have additional hazards impacted Warren County since 2017?
- Have hazards been mitigated and no longer cause damage or put the County at risk?
- Should hazards be regrouped to align with the 2019 State HMP?

2019 NY State HMP	Identified Hazard in the 2017 Warren HMP	2017 Warren HMP Ranking	2021 CEPA Ranking**	Has the frequency, severity, or location of the hazard changed in your community?  NC = No Change; I = <u>Increase</u> ; D = Decrease  (Please provide an explanation for any hazards marked I or D in this column)	2023 Warren HMP* (indicate 'keep', combine with other hazard, or provide comments for any changes)
<b>Natural Hazards</b>					
Avalanche	-	-			
Coastal Hazards					
<del>Coldwave</del>	-	-			
Drought	-	-	Low		
Earthquake	X	High	Low		Keep
Flooding	X	Medium	Very High		Keep
Hail	X	Severe Storm: High			Keep

Please identify any other hazards that you believe should be considered in the 2023 update of the Warren County Hazard Mitigation Plan (e.g. landslides, wildfires, invasive species, etc.)

What are the natural hazards that present the most risk to your jurisdiction today?

- ☐ Climate Change
- ☐ Dam Failure
- ☐ Drought
- ☐ Earthquake
- ☐ Extreme Temperature (heat and cold)
- ☐ Flood (riverine, dam failure, beaver dam)
- ☐ Geologic (landslide, subsidence/sinkhole)
- ☐ Severe Weather (high wind, tornado, thunderstorm, hail)
- ☐ Severe Winter Weather (heavy snow, blizzard, ice)
- ☐ Wildfire
- ☐ Hazardous Materials (fixed site, in-transit)
- ☐ Disease Outbreak
- ☐ Invasive Species
- ☐ Other: \_\_\_\_\_



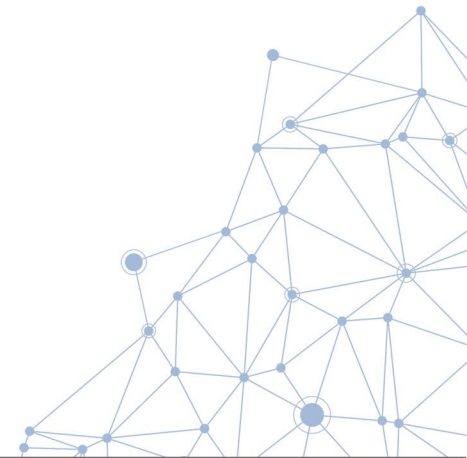


# Community Lifelines

- Review 2017 critical facility inventory to ensure complete
- Crosswalk and identify lifelines

***Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security*

***Essential facilities** are a subset of lifelines that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category includes police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.*

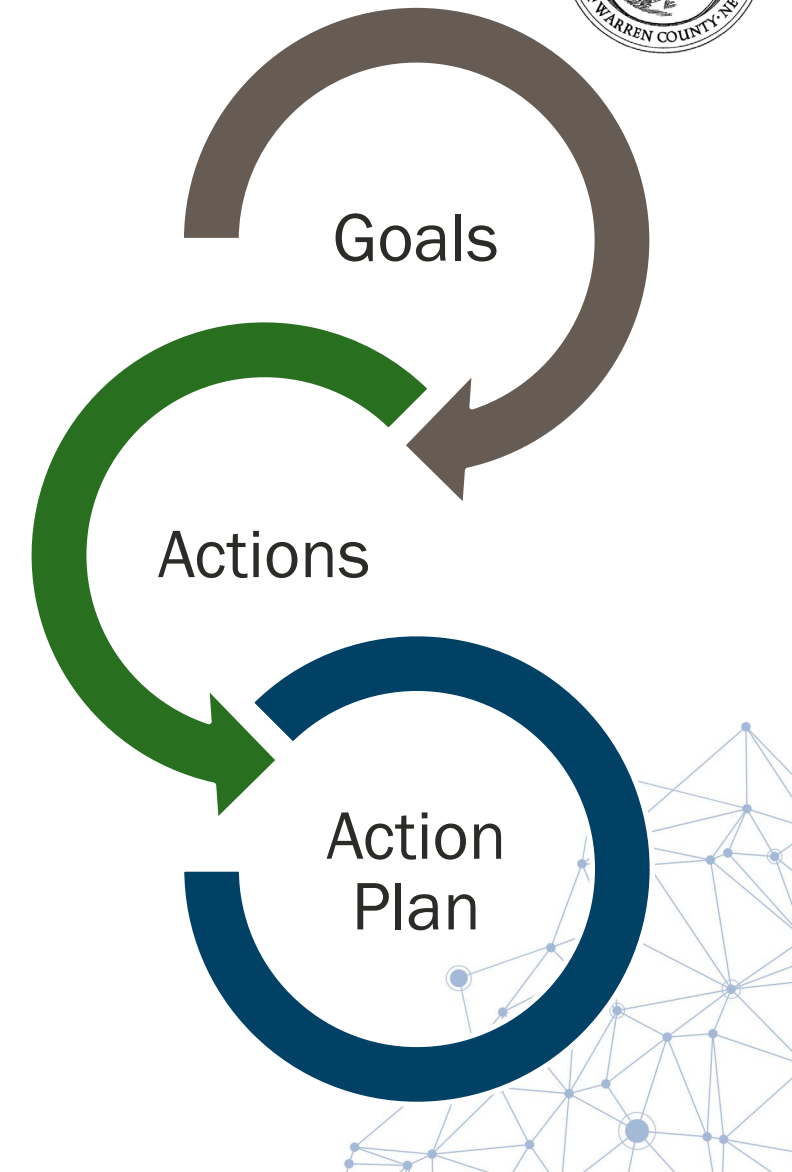






# Mitigation Strategy

- Goals
  - What outcomes do you want to achieve?
- Actions
  - What specific actions will be taken to reduce risk from hazards?
- Action Plan
  - How will the actions be prioritized and implemented?





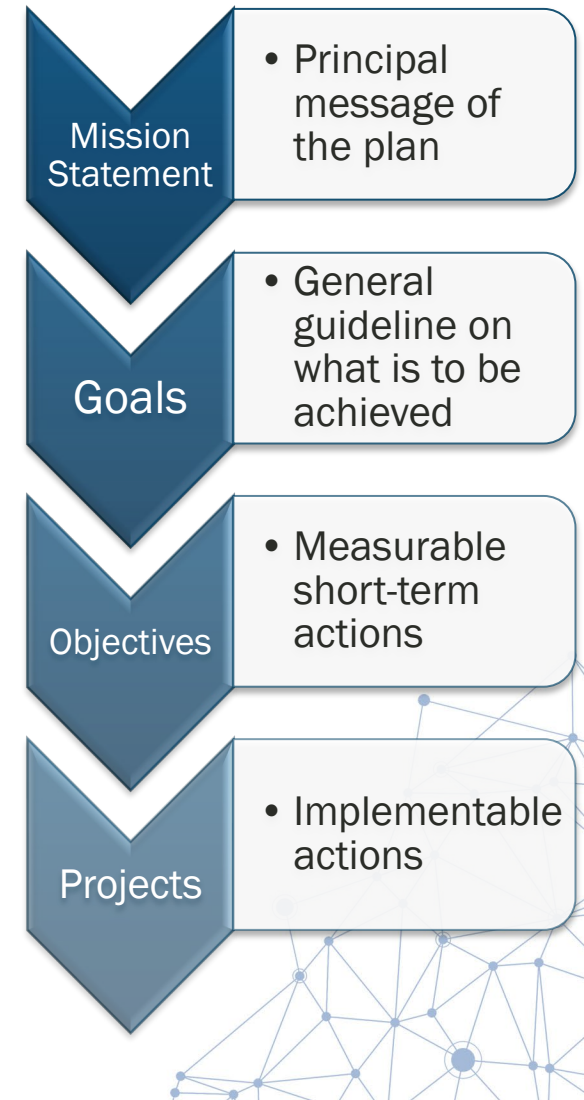


# Update Mission Statement?

As part the of the 2017 update process, the Steering Committee reviewed the mission statement and elected to maintain it without edit or amendment, as noted below. At this time, the committee is requested to review the Mission Statement to update to align with current County, state, and local policy. The committee is requested to consider adding the concept of equity and inclusiveness of socially vulnerable populations to the mission statement and the goals and objectives as well as additional adjustments to align with count, state, and local policy.

## *2017 HMP Mission Statement*

*To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations and the public to eliminate or reduce risks and adverse impacts from natural, technological and human-caused hazards .*







# Goals and Objectives Review and Update

Goal	Objective
<b><u>Goal 1:</u></b>  <b>Protect Life and Property.</b>	1.1: Introduce mitigation activities that will make homes, businesses and critical facilities and infrastructure more hazard resistant and to increase resilience.
	1.2: In areas vulnerable to hazards, encourage businesses and homeowners to take preventive actions when possible .
	1.3: Periodically review existing building codes, safety procedures, municipal and county ordinances to update recent standards for building protection.
	1.4: Immediately enforce existing building codes within the jurisdiction.
	1.5: Encourage owners of home and businesses and renters to purchase appropriate insurance coverage for potential damages from hazards.
<b><u>Goal 2:</u></b> <b>Increase Public Awareness</b>	2.1: Continue developing and integrating education and outreach programs in an effort to enhance public awareness of the hazards, providing information on specific activities for individuals in anticipation of a hazard event .
	2.2: Provide information on current government programs and funding resources to assist with mitigation and resilience.
	2.3: Strengthen communication and cooperation between public agencies, citizens, non-profit groups, and businesses to implement mitigation activities effectively.





# Goals and Objectives Review and Update

## Goal 3: Provide for Emergency Services

3.1: Coordinate hazard mitigation activities with existing local emergency plans.

3.2: Identify and plan for acquiring any specific emergency services and equipment needed to improve response capabilities for specific hazards.

3.3: Review emergency traffic routes, making changes as needed, and educating the public as to the routes .

## Goal 4:

Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related state, regional, county and local plans and programs.

4.1: Promote land use planning to encourage resilient and sustainable efforts throughout statewide and regional programs that address zoning, building codes, capital improvement programs, open space preservation, nature-based solutions, and storm water management regulations.

4.2: Continue to participate in state, regional and local programs and efforts that focus on practices that support or enhance resiliency.

4.3: Improve hazard data through participation in studies, research, and mapping to enhance information related to the impacts of hazards and related risks, vulnerability, and losses.

## Goal 5:

Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.

5.1: Encourage the use of green and natural infrastructure and nature based solutions.

5.2: Provide technical assistance to communities and stakeholders in the application and implementation of mitigation projects that preserve or restore natural systems.

5.3: Maintain and encourage ongoing relationships between state agencies and partners to play an active and vital role in preservation and restoration of vulnerable natural systems.

5.4: Promote climate change adaption strategies that protect against long-term effects on the environment.

## Goal 5: Address Long-Term Vulnerabilities from High Hazard Dams

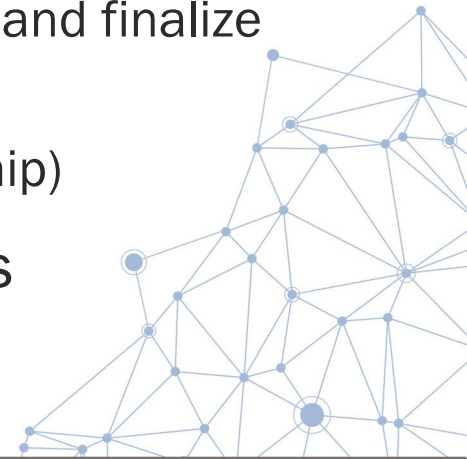
5.1: Ensure dam infrastructure is maintained





# Schedule

- Planning Process
  - Steering Committee Kick-Off – TODAY!
  - Planning Partnership Kick-Off – November 2<sup>nd</sup> at 9 am (Steering committee will be invited)
- Update Risk Assessment
  - Data collection is underway; confirm local critical facilities inventory by December 2023
  - Begin vulnerability assessment
  - Steering Committee Meeting: November, to identify hazards of concern for County and finalize goals
  - Risk Assessment Meetings: February (Steering Committee and Planning Partnership)
- Public Involvement Strategy – ongoing throughout the planning process

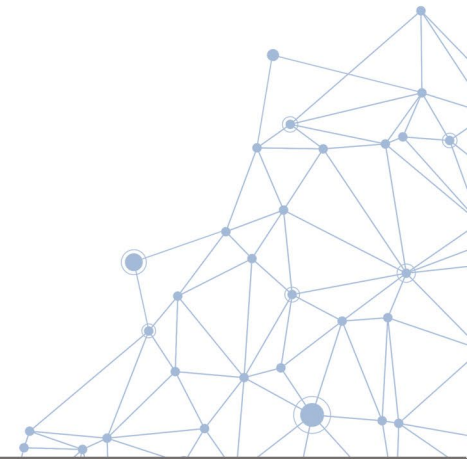






# Schedule

- Mitigation Strategy
  - Begin working with the municipalities in **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 2023**
- Draft Plan to Steering Committee in **May-June 2023** *(as sections are ready)*
- Public Review Period (30 days) – **June 2023**
- Final draft plan to NYSDHSES by June 2023 and FEMA by **August 2023**

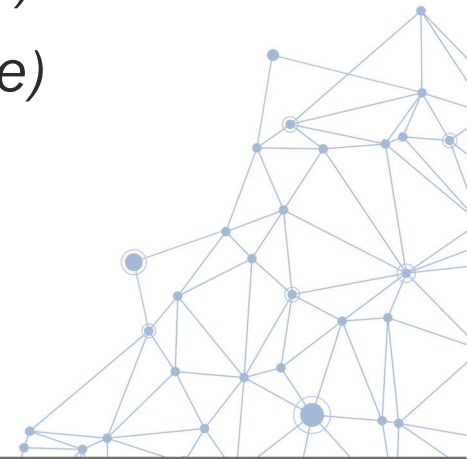






# Next Steps – Key Dates

- Complete Hazards of Concern & Goals and Objectives worksheets and return by November 1<sup>st</sup>.
- Confirm access to OneDrive – *access to be provided in separate email*
- Planning Partnership Kick-Off\* (Steering Committee and Municipalities) on **November 2<sup>nd</sup>, 2023**
- Steering Committee Meeting\* – October 27<sup>th</sup>, 2022
- Steering Committee Risk Assessment Meeting – February, 2023 (*tentative*)
- Planning Partnership Risk Assessment Meeting – February, 2021(*tentative*)
- Mitigation Strategy Workshop – March 2023 (*tentative*)

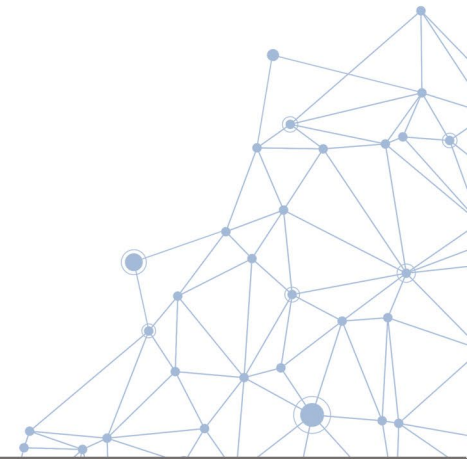






# Next Steps

1. Attend Planning Partnership Meeting
  2. Determine Hazards of Concern to include in the HMP
  3. Strengths, Weaknesses, Obstacles and Opportunities (SWOO)
  4. Review Hazard Profiles
  5. Review Risk Assessment Results
  6. Identify Problems and Problem Areas
  7. Develop Mitigation Strategy
  8. Review Draft Plan
  9. Submit Draft Plan for NYSDHSES/FEMA Review
  10. Adopt FEMA-Approved Plan
  11. Implement Projects and Maintain the Plan
- ➡ Increase Resilience!





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

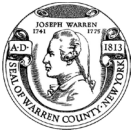
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #1 – AGENDA**  
**MEETING DATE/TIME: November 2, 2022 – 10:00 am**



Virtual: Microsoft Teams Meeting - ***Click here to join the meeting*** or use this link:

[https://teams.microsoft.com/l/meetup-](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGE2NDNIYWYtYWU3Ny00NGU4LWJkMWQtNmY0NGRhOTNiMTQ0%40thread.v2/0?context=%7b%22id%22%3a%22a40fe4ba-abc7-48fe-8792-b43889936400%22%2c%22oid%22%3a%22e2c51125-ed2c-4397-a8d5-53494e2597a5%22%7d)

[join/19%3ameeting\\_MGE2NDNIYWYtYWU3Ny00NGU4LWJkMWQtNmY0NGRhOTNiMTQ0%40thread.v2/0?context=%7b%22id%22%3a%22a40fe4ba-abc7-48fe-8792-b43889936400%22%2c%22oid%22%3a%22e2c51125-ed2c-4397-a8d5-53494e2597a5%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGE2NDNIYWYtYWU3Ny00NGU4LWJkMWQtNmY0NGRhOTNiMTQ0%40thread.v2/0?context=%7b%22id%22%3a%22a40fe4ba-abc7-48fe-8792-b43889936400%22%2c%22oid%22%3a%22e2c51125-ed2c-4397-a8d5-53494e2597a5%22%7d)

Dial in by phone (audio only), +1 518-300-1367,,776526083# United States, Albany, NY , Phone Conference ID: 776 526 083#

1. Welcome and Introductions
2. Benefits of Hazard Mitigation
3. Hazard Mitigation Planning Overview
4. Project Organization
5. Public and Stakeholder Outreach
6. In-Kind Services Tracking
7. Planning Partnership Responsibilities
8. Community Lifelines/Critical Facilities
9. Update Hazards of Concern and Risk Assessment
10. Goals and Objectives
11. Schedule
12. Questions/Next Steps/Wrap Up





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Purpose of Meeting:	Planning Partnership Meeting
Location of Meeting:	Hybrid In-person and Teleconference Teams Meeting
Date of Meeting:	November 2, 2022, 9:00 am – 10:05 am

Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ann Marie Mason	Warren County, Director Emergency Services
Ashley Rivers	Warren County OEM, Emergency Services Coordinator
Josh Westfall	Town of Bolton, Planner
Marion Eagan	Town of Chester, Planning and Zoning
Jeremy Little	Town of Chester, Zoning Administrator
Bill Norton	City of Glens Falls, Superintendent Water and Sewer
Michael N. Geraci	Town of Horicon, Supervisor
Danae Tucker	Town of Johnsbury, Bookkeeper
Fred Comstock	Town of Johnsbury, Highway Superintendent
Ernie Dunkley	Town of Johnsbury, Safety Officer
Mike Dunkley	Town of Johnsbury, Assistant Highway Superintendent
Laura Moore	Town of Queensbury, Land Use Planner
John O'Brien	Town of Queensbury, Director of Building and Code Enforcement
Mike Palmer	Town of Queensbury, Fire Marshal
Dave Duell	Town of Queensbury, Highway Superintendent
Deb Runyon	Town of Thurman, Supervisor
Dan Barusch	Town/Village Lake George, Planner
Rob Lanfear	Town/Village Lake George, Highway Department
Keith Lanfear	Town/Village Lake George, Superintendent Public Works
Eugene J. Merlino	Town of Lake Luzerne, Town Supervisor
Karen Putney	Town of Lake Luzerne, Zoning Enforcement Officer
James S. Hull	Town of Warrensburg, Code Enforcement Officer
Elizabeth O'Reilly	NYSDHSES, Planning Manager
Shelby Meyers	NYSDHSES, Planner
Paul Hoole	FEMA, Mitigation Planning
Cynthia Addonizio-Bianco	Tetra Tech, Inc.
Erika Corsi	Tetra Tech, Inc.





# Warren County Hazard Mitigation Plan Update Meeting Notes



## Agenda Summary:

Item No.	Description	Action item(s):
1	<b>Welcome and Opening Remarks</b> <ul style="list-style-type: none"> <li>Meeting started at 9:05 pm</li> <li>Cynthia Addonizio-Bianco, project manager from Tetra Tech (Tt), facilitated introductions, gave opening remarks providing an overview of the importance of this planning process and thanked participants for supporting the hazard mitigation update. Jim Lieberum, Director of Warren County Soil and Water Conservation District introduced the County team.</li> <li>Elizabeth O'Reilly of NYSDHSES indicated that NYSDHSES will provide support as needed throughout the mitigation planning process.</li> </ul>	N/A
2	<b>Project Overview</b> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco provided the following information: <ul style="list-style-type: none"> <li>An overview of hazard mitigation, what it is and how it can provide increase resilience through the development of a FEMA-approved Hazard Mitigation Plan. She also noted the need to track time spent working on the plan outside of meetings through in-kind tracking to provide match for federal funding support for the planning effort. An online tracker will be sent out to all plan participants.</li> <li>An overview of the phases of the hazard mitigation planning process including description of the project organization: <ul style="list-style-type: none"> <li>Core Planning Team (CPT)</li> <li>Warren County Emergency Services</li> <li>Warren County Soil and Water Conservation District</li> <li>Tetra Tech</li> </ul> </li> <li>Steering Committee (SC) <ul style="list-style-type: none"> <li>Numerous County Departments, Major Businesses, Outside Agencies, municipal representatives</li> </ul> </li> <li><b>Planning Partnership (PP)</b> <ul style="list-style-type: none"> <li>All participating municipalities and Steering Committee members.</li> </ul> </li> <li>FEMA/NYSDHSES</li> <li>Stakeholders</li> </ul> </li> <li>Planning Partnership roles and responsibilities: <ul style="list-style-type: none"> <li>Provide guidance and leadership</li> <li>Identify hazards of concern</li> <li>Develop mitigation goals and objectives</li> </ul> </li> <li>Develop public and stakeholder outreach</li> <li>Assist with the development of their jurisdictional annex. Each municipality will be provided a version of their jurisdictional annex. The municipal mitigation team will edit and make changes to the annex as needed and return to Tt.</li> </ul>	<ul style="list-style-type: none"> <li>Critical facility inventory survey to be distributed by Tt to the County and municipal representatives.</li> </ul>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



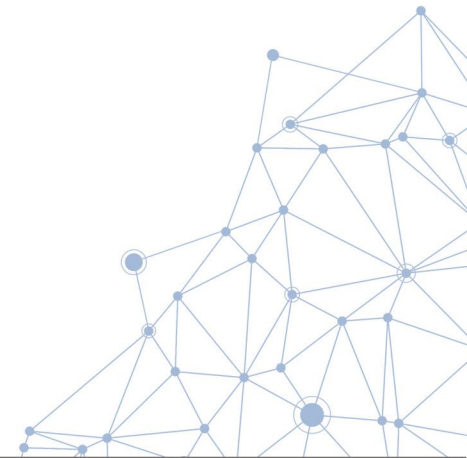
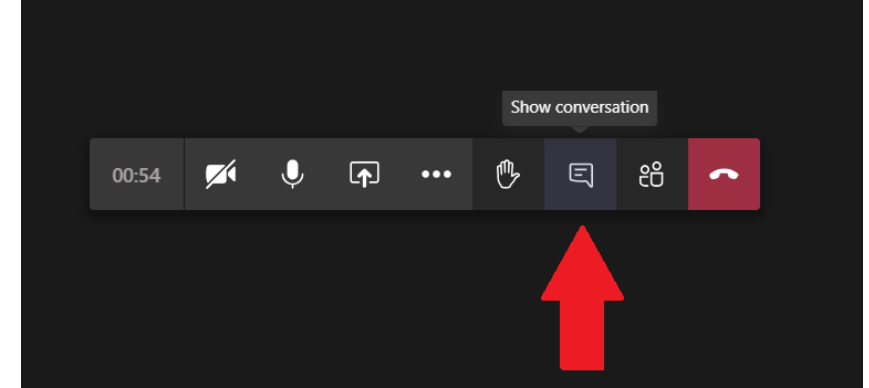
3	<b>Risk Assessment and Hazards of Concern</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco discussed the process of the risk assessment and reviewed the hazards of concern identified in the last HMP. These hazards of concern will need to be reviewed and updated as necessary.</li><li>One action is needed for every hazard of concern that impacts a municipality.</li></ul>	<ul style="list-style-type: none"><li>Planning Partnership to provide input to update Hazards of Concerns in associated worksheets.</li></ul>
4	<b>Goals and Objectives</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco introduced the goals and objectives from the last HMP.</li><li>Community lifelines and critical facilities were introduced from the previous HMP.</li><li>The jurisdictional representative should review the goals and objectives and the community lifelines to identify changes in their communities.</li></ul>	<ul style="list-style-type: none"><li>Planning Partnership to provide critical facilities inventory by December 9th using the survey sent via email</li><li>Tt to send critical facilities inventory survey</li></ul>
5	<b>Upcoming Meetings</b> <ul style="list-style-type: none"><li>Ms. Addonizio-Bianco reviewed upcoming meetings:<ul style="list-style-type: none"><li>Confirm critical facilities/lifeline inventory by December 9<sup>th</sup> 2022</li><li>Worksheet workshop – November 16<sup>th</sup>, 2022, at 10am</li><li>All Annex worksheets due November 23<sup>rd</sup>, 2022</li><li>Risk assessment meeting – February 2023</li></ul></li></ul>	<ul style="list-style-type: none"><li>Tt to send out jurisdictional annexes</li></ul>
6	<b>Next Steps</b> <ul style="list-style-type: none"><li>Determine Hazards of Concern to include in the HMP</li><li>Review Hazard Profiles</li><li>Review Risk Assessment Results</li><li>Identify Problems and Problem Areas</li><li>Develop Mitigation Strategy</li><li>Review Draft Plan</li><li>Submit Draft Plan for NYSDHSES/FEMA Review</li><li>Adopt FEMA-Approved Plan</li><li>Implement Projects and Maintain the Plan and Increase Resilience</li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 10:05 am.	



# Welcome!



- If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.
  - Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.
  - Click “Show Conversation.”







# Warren County, New York Hazard Mitigation Plan – 2023 Update

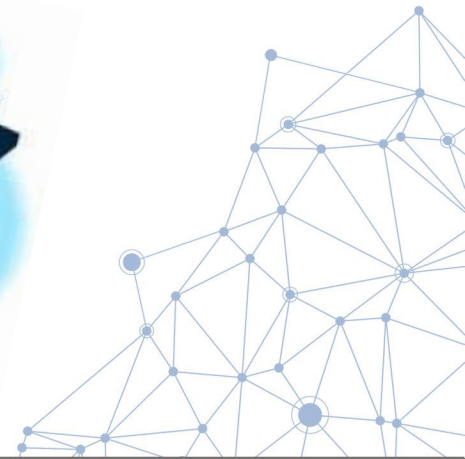
Planning Partnership Kick-Off Meeting | November 2, 2022  
9:00am





# Agenda

- Welcome and Introductions
- Benefits of Hazard Mitigation
- Hazard Mitigation Planning Overview
- Project Organization
- Public and Stakeholder Outreach
- In-Kind Services Tracking
- Planning Partnership Responsibilities
- Community Lifelines/Critical Facilities
- Update Hazards of Concern and Risk Assessment
- Goals and Objectives
- Schedule
- Questions/Next Steps/Wrap Up







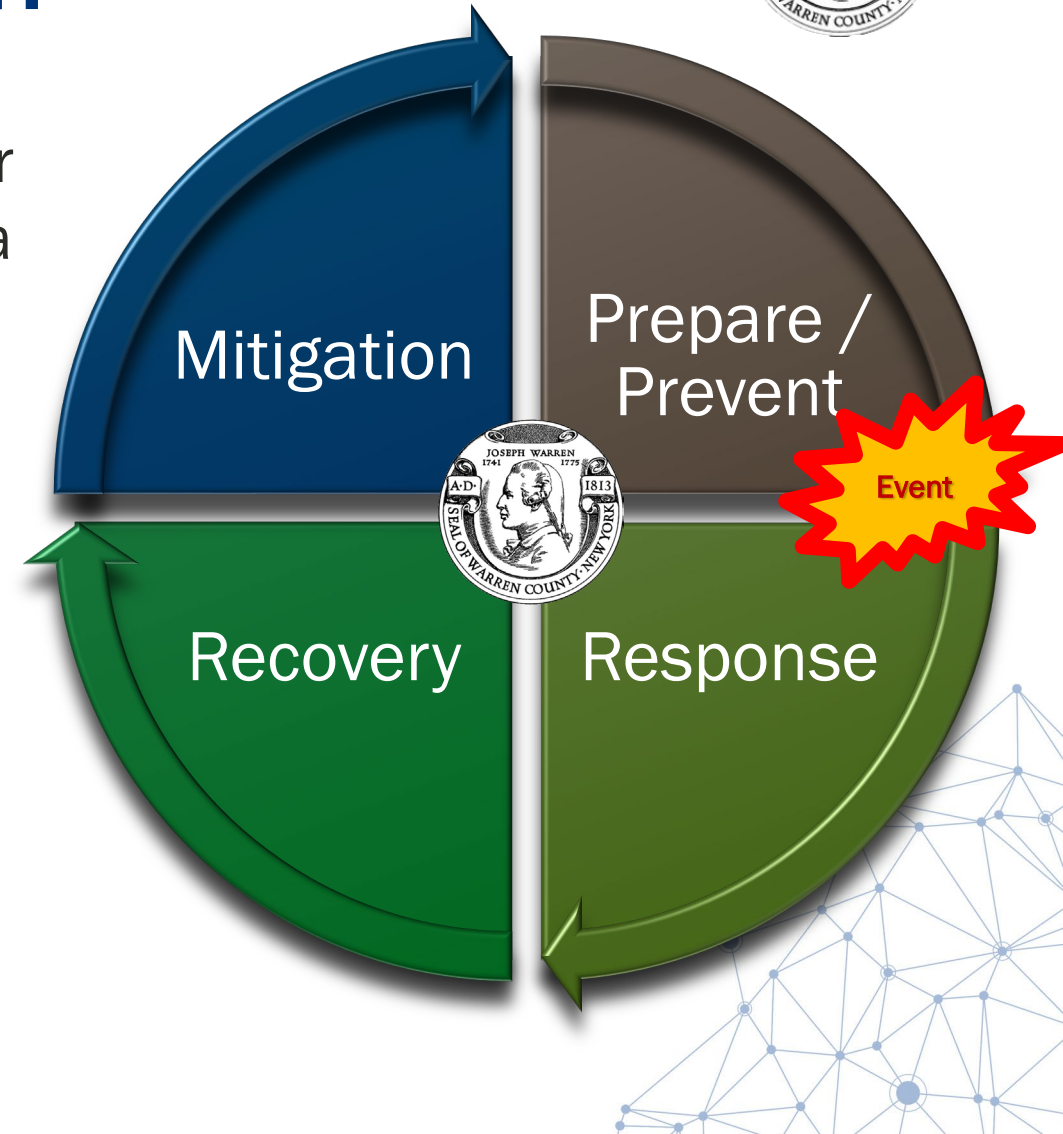
# Hazard Mitigation – What is it?

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses

“provides the blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and local ability...” (CFR).



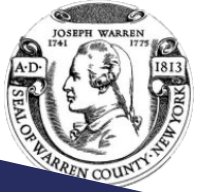


# Hazard Mitigation Works!

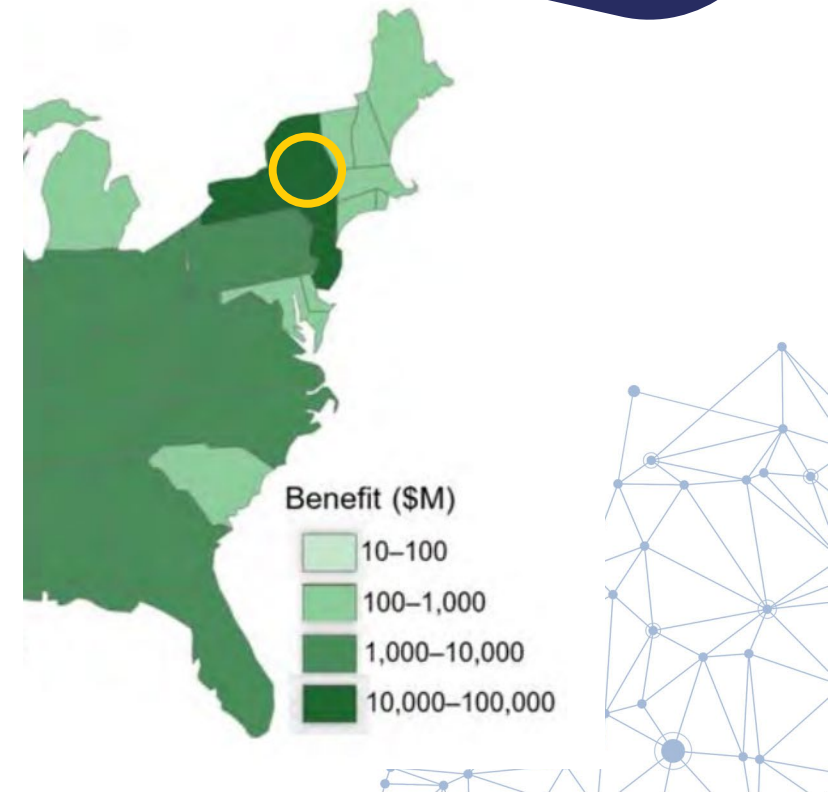
- According to the January 2019 National Institute of Building Sciences Natural Hazard Mitigation Saves: 2019 Report, federal mitigation grants save \$6 for every \$1 spent!

	ADOPT CODE	ABOVE CODE	BUILDING RETROFIT	LIFELINE RETROFIT	FEDERAL GRANTS
<b>Overall Benefit-Cost Ratio</b>	<b>11:1</b>	<b>4:1</b>	<b>4:1</b>	<b>4:1</b>	<b>6:1</b>
<b>Cost (\$ billion)</b>	<b>\$1/year</b>	<b>\$4/year</b>	<b>\$520</b>	<b>\$0.6</b>	<b>\$27</b>
<b>Benefit (\$ billion)</b>	<b>\$13/year</b>	<b>\$16/year</b>	<b>\$2200</b>	<b>\$2.5</b>	<b>\$160</b>
 <b>Riverine Flood</b>	<b>6:1</b>	<b>5:1</b>	<b>6:1</b>	<b>8:1</b>	<b>7:1</b>
 <b>Hurricane Surge</b>	not applicable	<b>7:1</b>	not applicable	not applicable	not applicable
 <b>Wind</b>	<b>10:1</b>	<b>5:1</b>	<b>6:1</b>	<b>7:1</b>	<b>5:1</b>
 <b>Earthquake</b>	<b>12:1</b>	<b>4:1</b>	<b>13:1</b>	<b>3:1</b>	<b>3:1</b>
 <b>Wildland-Urban Interface Fire</b>	not applicable	<b>4:1</b>	<b>2:1</b>	not applicable	<b>3:1</b>

Copyright © 2019 The National Institute of Building Sciences



Mitigation saves in every in state! New York State has benefited in over \$100 million from federal grants for flood, wind, earthquake, and fire mitigation.



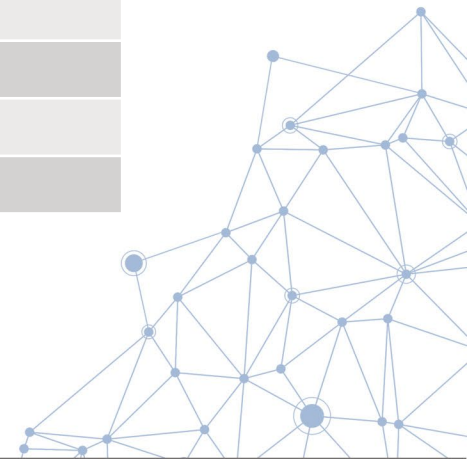


# Why Update?

- The mitigation plan update will:
  - Help the County prepare for and mitigate the effects of disasters
  - Continue to allow the County and participating partners to be eligible for pre- and post-disaster mitigation funding
  - Support CRS participation/rating of municipalities

Hazard	Losses (\$)
Blizzard	Losses not reported
Drought	Losses not reported
Excessive Temperature	Losses not reported
Flash Flood	\$22.36 million
Flood	\$6.24 million
Hail	\$13,000
Heavy Rain	Losses not reported
Heavy Snow	\$35,000
High Wind	\$731,000
Hurricane/Tropical Storm	Losses not reported
Lightning	\$77,000
Strong Wind	\$193,000
Thunderstorm Wind	\$10.62 million
Tornado/Funnel Cloud	\$252,500
Winter Storm	\$182,300
Winter Weather	\$1,000
<b>TOTAL</b>	<b>\$42.345 million</b>

Source: NOAA-NCEI 2022





# What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480



4 Flood



4 Hurricane



4 Severe Storm(s)



2 Biological



2 Other



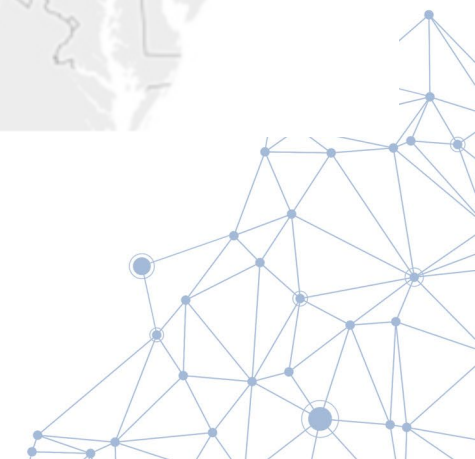
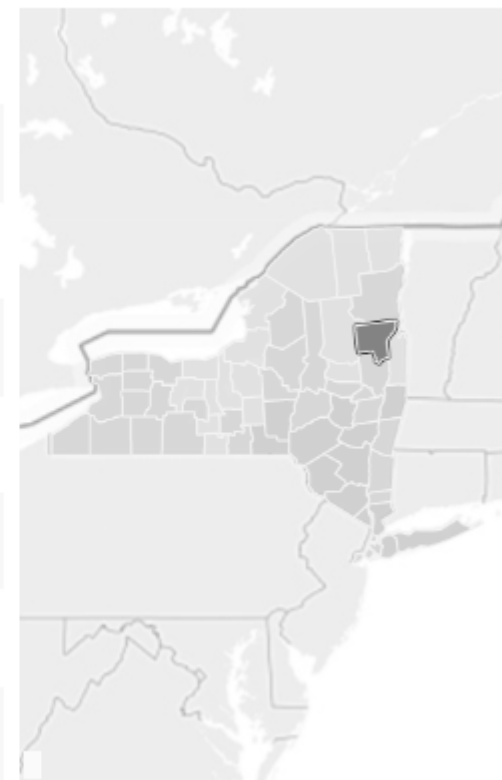
1 Earthquake



1 Fire



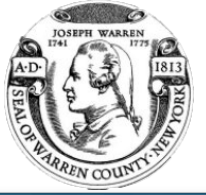
1 Snow





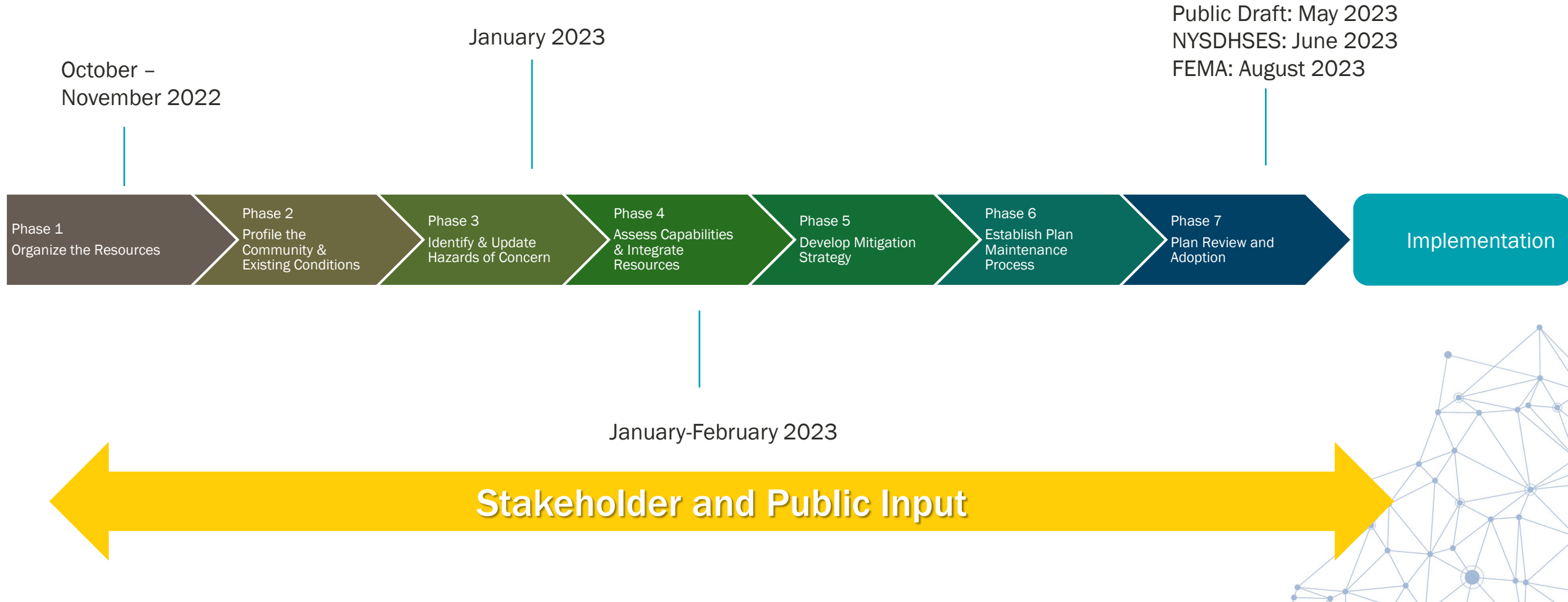
# What is our Vision?

*The **mission** of the Warren County Hazard Mitigation Plan is to create communities whose daily activities reflect a comprehensive **commitment** by government, business, non-profit organizations and the public to eliminate or **reduce risks** and adverse impacts from natural, technological and human-caused hazards.*



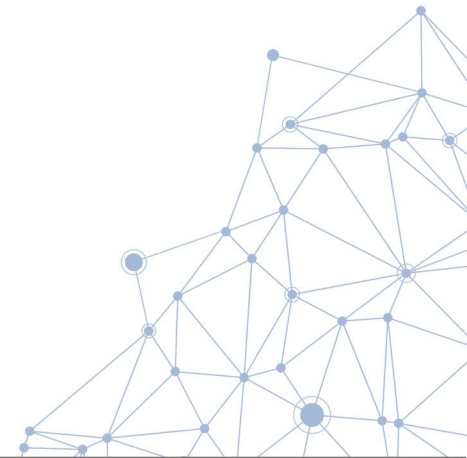


# Planning Process Overview





# Project Organization







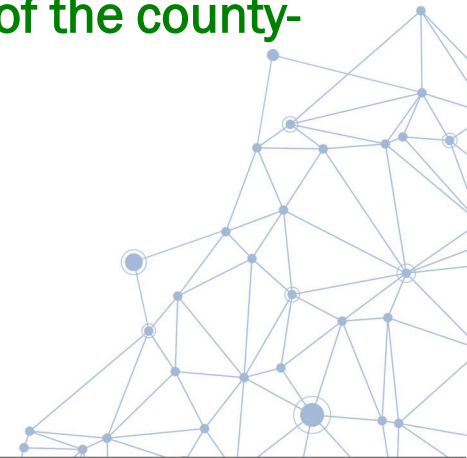
# Who is Leading the Planning Process?

## Steering Committee Members

Warren County Soil and Water Conservation District	Adirondack / Glens Falls Transportation Council
Warren County Office of Emergency Services	City of Glens Falls
Warren County Department of Planning and Community Development	Village of Lake George
Warren County Public Works	SUNY Adirondack
Town of Queensbury Planning Department	Glens Falls Hospital
	Finch Pryne
	Board of Supervisors

## Role

- ✓ Guide the Planning Partnership through the planning process
- ✓ Identify the natural hazards of concern
- ✓ Develop mitigation goals and objectives
- ✓ Develop public and stakeholder outreach strategy
- ✓ Support the development of the county-level mitigation strategy
- ✓ Review plan documents







# How are we Engaging the Public?

- HMP website underdevelopment – <https://www.warrencountynewyorkhmp.com>
- Social Media Blasts – content and graphics will be sent out
- Surveys – public, stakeholder, and neighbors
- Local announcements of HMP update – local papers, municipal newsletters, etc.
- Local public meetings
- Draft plan review
- Document each and every time this is done!

## Why conduct outreach?

- ✓ Informs and educates about hazards and risks
- ✓ Invites interested parties to contribute their views and ideas for mitigation
- ✓ Identifies conflicts and incorporates different perspectives and priorities early in the process
- ✓ Provides data and information that improves overall quality and accuracy of the plan
- ✓ Ensures transparency and builds trust
- ✓ Maximizes opportunities for implementation through greater consensus and acceptance



# How to Document your Public and Stakeholder Outreach and In-Kind Hours?



- Track hours spent working on the HMP (outside of meetings with Tetra Tech)
- Track type of outreach you provide to inform residents and stakeholders about the Hazard Mitigation Plan.
- A survey will be emailed to you your input.

Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Press Release	Countywide						Press release issued to several local newspapers



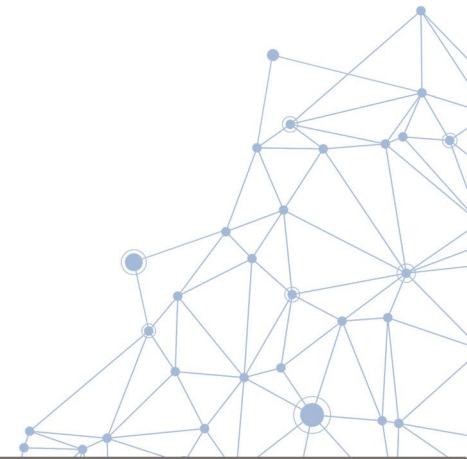


# What are the Benefits for Municipal Participation?

- All municipalities are encouraged to actively participate (and continue to be covered by the countywide HMP).

**Participating = you remain eligible for pre- and post-disaster mitigation funding!**

- FEMA has greatly expanded their scrutiny of ‘participation’ since your last plan update...

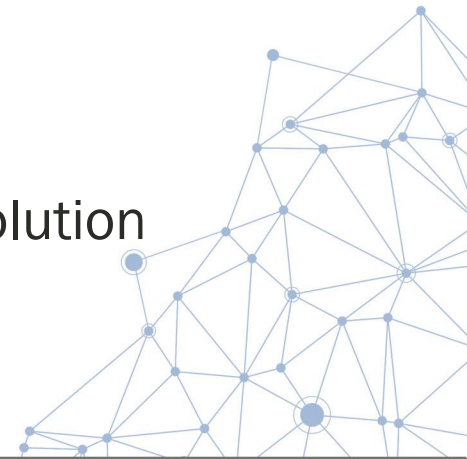






# How Do You Participate?

- Submit Letter of Intent to Participate (LOIP)
  - LOIPs are required from each municipality
  - It outlines expectations and responsibilities for participating jurisdictions and identifies points of contact
- Assist with the development of your jurisdictional annex
- Attend planning partnership meetings/workshops – like this one!
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – governing body must pass an Adoption Resolution
- Implement and Maintain the Plan







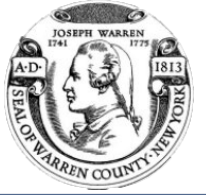
# Who Should be on Your Team?

If you not fully decided who should be on your municipal mitigation team, the following could provide you a better idea on who to invite:

- NFIP Floodplain Administrator
- Building Code Official
- Engineer
- Land Use Planner
- Clerk
- Mayor/Administrator/Supervisor
- Municipal CFO/Fiscal Representative
- Public Works Superintendent/Director
- Police/Fire Official







# List of Worksheets

- Worksheet A - Hazard Event History
- Worksheet B – Capability Assessment
- Worksheet C – National Flood Insurance Program (NFIP) Questionnaire
- Worksheet D – 2017 Mitigation Project Status (Action Plan) Review
- Worksheet E – Development, Building Permits (last 5 years)

	Jurisdiction has <u>this</u> ? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>			State and Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Zoning/Land Use Code</b>			Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
Consider the following:				
<ul style="list-style-type: none"><li>• Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?</li><li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li><li>• Does it contain natural overlay zones that set conditions?</li><li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li><li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li></ul>				
<b>Subdivision Ordinance</b>			Local	
How has or will this be integrated with the HMP and how does this reduce risk?				
Consider the following:				
<ul style="list-style-type: none"><li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li><li>• Do the regulations provide for conservation subdivisions or cluster subdivisions <u>in order to</u> conserve environmental resources?</li><li>• Do the regulations allow density transfers where hazard areas exist?</li></ul>				
<b>Site Plan Ordinance</b>			Local and County	
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Stormwater Management Ordinance</b>			Local	
How has or will this be integrated with the HMP and how does this reduce risk?				





# Update Annexes with Your Mitigation Team

- Attend the Worksheet Workshop to review each worksheet:
  - November 16 at 10 am
- Complete worksheets
  - Each worksheet has a suggested department lead
  - Critical asset review by December 9th
  - All worksheets due November 23rd





# Who Should Conduct Your Capability Assessment?



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet B – Capability Assessment

- Planning and Regulatory Capability
- Building Code
- Administrative and Technical Capability
- Fiscal Capability
- Education and Outreach
- Community Classifications
- Adaptive Capacity

This will be reflected in your municipal annex



Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to Cynthia Bianco (Tetra Tech) by November 23, 2022  
Email: [cynthia.bianco@tetratech.com](mailto:cynthia.bianco@tetratech.com)

Municipality: \_\_\_\_\_

Name and Title of  
Individual Completing  
Worksheet: \_\_\_\_\_

Who can assist with completing these tables: Municipal Planner, Clerk, Code Official, Administrator, Chief Fiscal Officer

## Planning and Regulatory Capability

Please complete the following table to summarize the regulatory tools that are available to your community, what is present in the jurisdiction, and code citation and date. For existing regulatory tools, note how it reduces risk to hazards or how it could be updated to better integrate hazard mitigation concepts to reduce risk.

Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration

Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>			
<b>Building Code</b>		State and Local	
How has or will this be integrated with the HMP and how does this reduce risk?			
<b>Zoning/Land Use Code</b>		Local	
How has or will this be integrated with the HMP and how does this reduce risk?			
Consider the following:			
<ul style="list-style-type: none"> <li>Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li> <li>Does it contain natural overlay zones that set conditions?</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li> </ul>			
<b>Subdivision Ordinance</b>		Local	
How has or will this be integrated with the HMP and how does this reduce risk?			
Consider the following:			
<ul style="list-style-type: none"> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</li> <li>Do the regulations allow density transfers where hazard areas exist?</li> </ul>			
<b>Site Plan Ordinance</b>		Local and County	
How has or will this be integrated with the HMP and how does this reduce risk?			



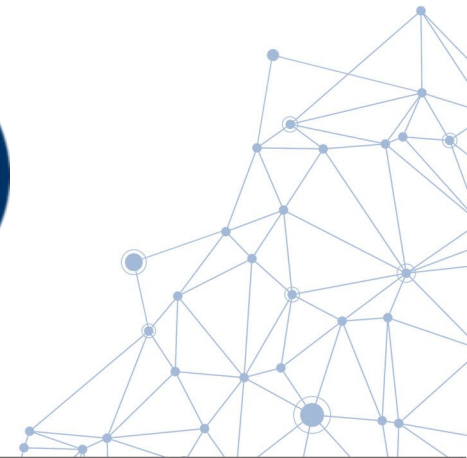


# How to Update Municipal Community Lifelines?



- Review 2017 critical facility inventory to ensure complete using the Survey provided by email.
- Identify your lifelines

***Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security*



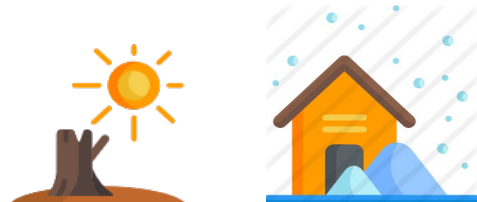




# 2017 Hazards of Concern

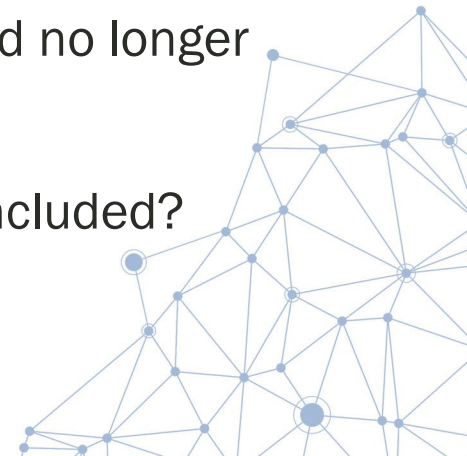
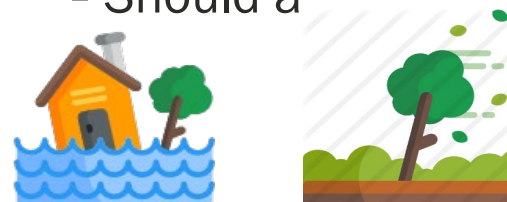
## Natural Hazard of Concern:

- Disease Outbreak
- Earthquake
- Flood (riverine, ice jam, flash)
- Infestation
- Landslide
- Severe Storm (windstorm, thunderstorms, hail, tornados)
- Severe Winter Storm (heavy snow, blizzards, ice storms)
- Wildfire



## Non-Natural Hazards of Concern:

- Cyber Security
- Haz-Mat
- In review...
  - Have additional hazards impacted the County since 2017?
  - Have hazard been mitigated and no longer cause damage?
  - Should hazards be regrouped?
  - Should additional hazards be included?





# Update Risk Assessment

- Update Assets
- Examine Previous Impacts
- Analyze Risks
- Review with Steering Committee
- Risk Assessment Meeting - open to the public








# Review Your Previous Mitigation Strategy

- Determine status of 2017 Mitigation Actions
- The updated mitigation strategy will build on this as well as additional identified issues
- What progress has been made on the 2017 HMP actions?
  - Completed?
    - If yes, describe funding source, funding amount, and details on the project and how it was completed.
  - No progress?
    - Describe why.
    - Is this project still a priority? If yes, we will include in the 2023 Update.
    - If no, we will remove.

 **WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
Worksheet D - Mitigation Action Review  
MUNICIPALITY \_\_\_\_\_

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (If project status is complete)	1. Next Steps Project to be Included in 2023 HMP or Discontinue
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
					Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.

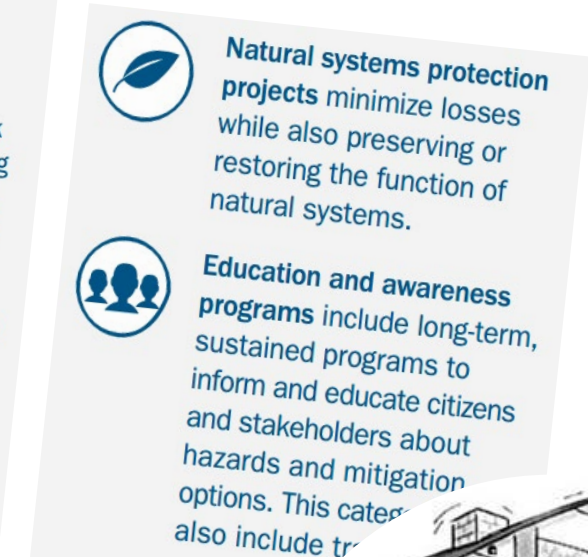
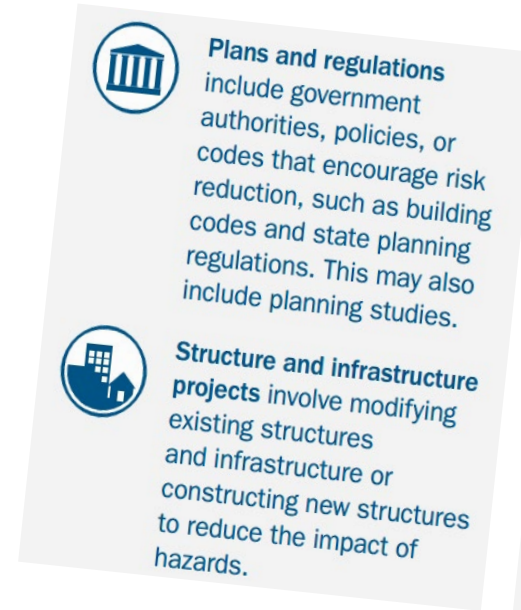
This will be included in your municipal annex





# New Mitigation Actions for the 2023 Update

- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (HMGP generators, CDBG acquisitions, etc.)
- Tips for the 2023 update:
  - Quality NOT quantity
  - Specific not general
  - What can realistically be accomplished in 5 years?
  - Action for every hazard of concern

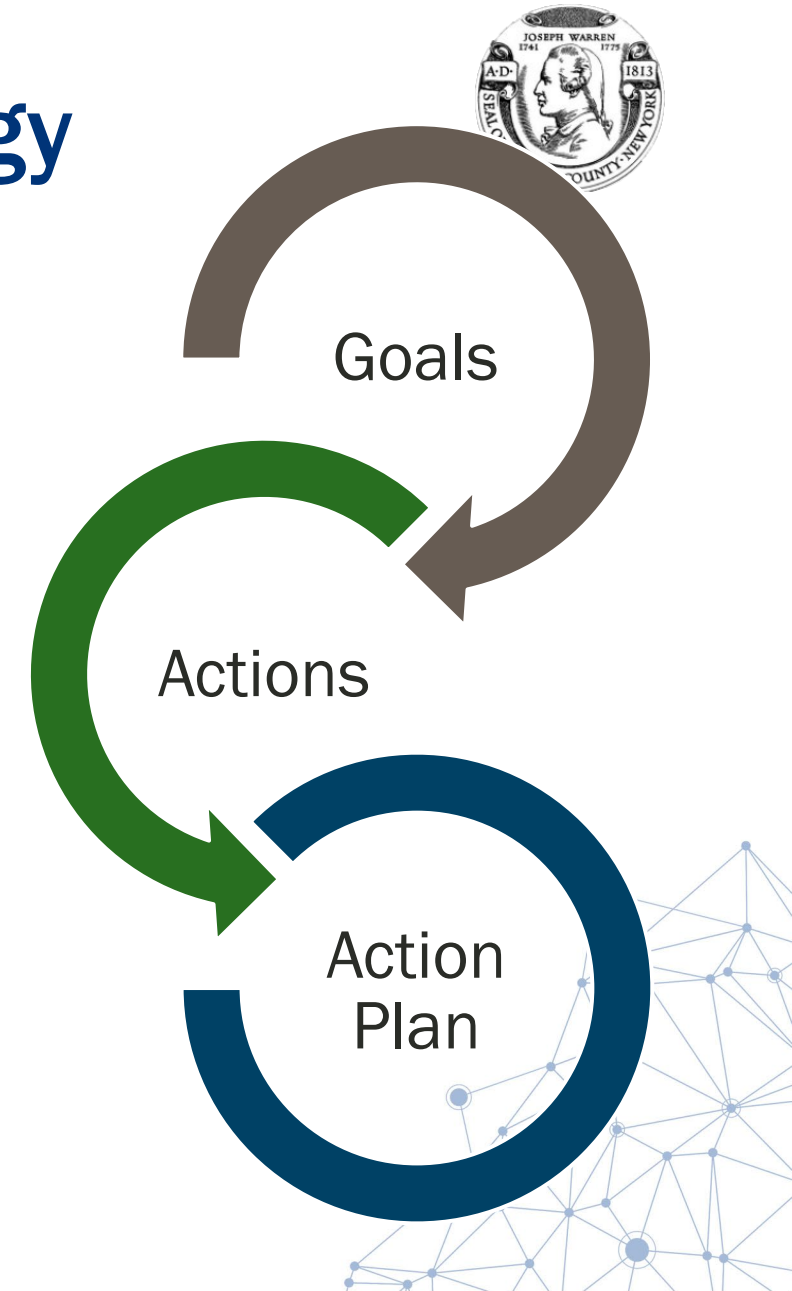


*"At the first sign of a flood, you just push this little button."*



# Connection to the Mitigation Strategy

- Need a clear connection between vulnerability and proposed mitigation actions.
- Use the capability assessment to provide insight into challenges/opportunities for the mitigation strategy as well.
- Provide a factual basis for activities proposed in the mitigation strategy.

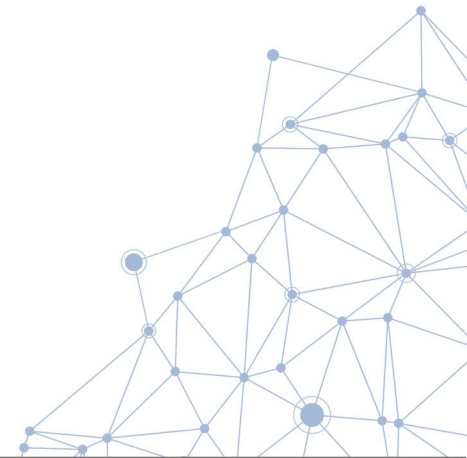






# What We Need From You

- Attend the upcoming worksheet workshop
  - Worksheet Workshop – November 16 at 10 am
- Review and submit your critical facilities by December 9th
- Complete and return your worksheets
- Start thinking about what new mitigation actions you would like to add to your mitigation strategy.



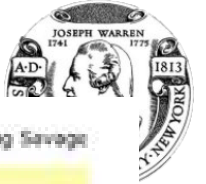


# Schedule

- Planning Process
  - Planning Partnership Kick-Off –TODAY!
  - Confirm critical facility/lifeline inventory by December 9th
  - Worksheets due November 23rd
  - Worksheet Workshop – November 16 at 10 am
  - Update Risk Assessment
  - Begin vulnerability assessment
  - Risk Assessment Meeting – February 2023
- Public Involvement Strategy – ongoing throughout the planning process

*Savage Chickens*


by Doug Savage







# Next Steps

- Determine Hazards of Concern to include in the HMP
- Review Hazard Profiles
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for DHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan  Increase Resilience!





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC, District Manager  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason, Emergency Services Director  
[masona@warrencountyny.gov](mailto:masona@warrencountyny.gov)

## Tetra Tech Project Contacts

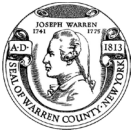
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Homework Workshop – AGENDA**  
**MEETING DATE/TIME: November 16, 2022 – 10:00 am**



*In-Person/Hybrid Meeting:*

Human Services Building  
3rd floor conference room  
1340 State Route 9, Warren, Lake George, NY

*Virtual: Microsoft Teams Meeting:*  
*Join on your computer or mobile app*

[Click here to join the meeting](#)

Meeting ID: 211 930 051 572

Passcode: 89z58L

Agenda Items

1. Welcome and Introductions
2. Benefits of Hazard Mitigation
3. Hazard Mitigation Planning Overview
4. Project Organization
5. Public and Stakeholder Outreach
6. In-Kind Services Tracking
7. Planning Partnership Responsibilities
8. Community Lifelines/Critical Facilities
9. Update Hazards of Concern and Risk Assessment
10. Goals and Objectives
11. Schedule
12. Questions/Next Steps/Wrap Up





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Purpose of Meeting:	Planning Partnership Meeting
Location of Meeting:	Hybrid In-person and Teleconference Teams Meeting
Date of Meeting:	November 16, 2022, 10:00 am – 11:00 am

Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ann Marie Mason	Warren County, Director Emergency Services
Ethan Gaddy	Warren County Planner/Climate Smart
Josh Westfall	Town of Bolton, Planner
Jennifer Ramsey	Warren County Office of Emergency Services
Jessica Leerkes	Town of Chester
Bill Norton	City of Glens Falls, Superintendent Water and Sewer
Michael N. Geraci	Town of Horicon, Supervisor
Danae Tucker	Town of Johnsbury, Bookkeeper
John Strough	Town of Queensbury
John O'Brien	Town of Queensbury, Director of Building and Code Enforcement
Dave Duell	Town of Queensbury, Highway Superintendent
Deb Runyon	Town of Thurman, Supervisor
Dan Barusch	Town/Village Lake George, Planner
Keith Lanfear	Town/Village Lake George, Superintendent Public Works
Eugene J. Merlino	Town of Lake Luzerne, Town Supervisor
Karen Putney	Town of Lake Luzerne, Zoning Enforcement Officer
Frank E. Thomas	Town of Stoney Creek, Supervisor
Elizabeth O'Reilly	NYSDHSES, Planning Manager
Paul Hoole	FEMA, Mitigation Planning
Cynthia Addonizio-Bianco	Tetra Tech, Inc. (Tt)





# Warren County Hazard Mitigation Plan Update Meeting Notes



**Agenda Summary:** The purpose of the meeting was to provide an overview of information needed to update the local information for the Warren County Hazard Mitigation Plan (HMP) update.

Item No.	Description	Action item(s):
1	<p><b>Overview/Agenda:</b></p> <p>Tetra Tech welcomed the attendees and provided an overview of the agenda which included the following topics:</p> <p>Benefits of hazard mitigation, Planning Partnership responsibilities, Worksheet review and data input, community lifelines and critical facilities, and next steps. Refer to the attached copy of the presentation for details.</p>	
2	<p>Discussion items:</p> <ul style="list-style-type: none"> <li>Worksheet information will be included in the community section or annex of the mitigation plan.</li> <li>Worksheet A: Hazard Event History - it is important to document local natural hazard events that have resulted in damages <i>not limited to named or declared events</i>. For example, if a community has experience localized flooding, note the date, location, and any damages or road closures. This information will help inform the development of projects to reduce future risk and damages.</li> <li>Worksheet B: Capability Assessment – Basic information such as whether or not the planning mechanism, code, or ordinance is in place. Additional information includes the adoption date of the item and a description of how it reduces risk or integrates hazard mitigation into the community activities.</li> <li>Worksheet C: NFIP Questionnaire – This should be completed by the community National Flood Insurance Program Administrator.</li> <li>Worksheet D: Action Review - This has been populated with the mitigation actions from the current plan. Information on the progress of the project is required (is it complete, in progress, no longer relevant?). Also indicate whether the project should be included in the plan update.</li> <li>Worksheet E: Building Permits - A listing of permits for new development since 2017 is required. This will provide an understanding of where development is occurring and if it is occurring in hazard areas. A description of the county permitting activities on behalf of local government will be included in the plan. A potential mitigation action may be to ensure that permits in floodplains are tracked going forward.</li> <li>Mr. Gaddy noted that it may be worthwhile to understand if the NYDEC Unit Management Process addresses elements of mitigation in state owned property management.</li> </ul>	<ul style="list-style-type: none"> <li>Tt to check HMP integration with NYDEC for Unit Management Process</li> </ul>
3	<p><b>Submittal date:</b></p> <p>All municipalities were requested to submit the completed worksheets to <a href="mailto:Cynthia.bianco@tetrattech.com">Cynthia.bianco@tetrattech.com</a> on or before November 23<sup>rd</sup>.</p>	<p>Municipalities to submit worksheets to Tt on or before 11/23/22.</p>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



4	Questions/Support: Questions should be directed to Cynthia Bianco of Tetra Tech at <a href="mailto:Cynthia.bianco@tetrattech.com">Cynthia.bianco@tetrattech.com</a> or Jim Lieberum of Warren County Soil & Water Conservation district at <a href="mailto:jiml@warrenswcd.org">jiml@warrenswcd.org</a> .	<ul style="list-style-type: none"><li>• Tt to post recording on OneDrive and share the link.</li><li>• Tt to send Presentation to invitees</li></ul>
7	<b>Conclusion</b> - The meeting concluded at 10:55 am.	





# Warren County, New York Hazard Mitigation Plan – 2023 Update

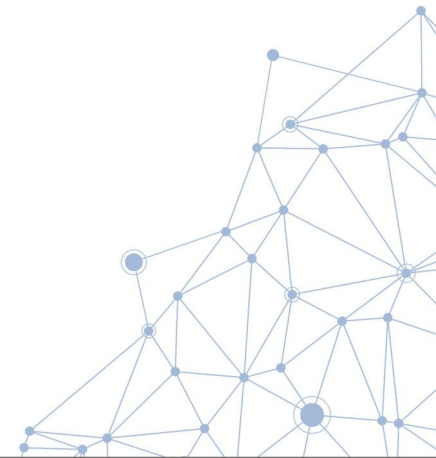
Homework Workshop | November 16, 2022 10:00am



# Agenda



- 1 Welcome
- 2 Benefits of Hazard Mitigation
- 3 Hazard Mitigation Planning Overview
- 4 Planning Partnership Responsibilities
- 5 Worksheet Review/Data Input
- 6 Community Lifelines/Critical Facilities
- 7 Questions/Next Steps/Wrap Up







# This is the Benefit of Participating in the Plan

By participating AND adopting the hazard mitigation plan:

- 1.** Your community remains eligible for pre-disaster mitigation funding!
- 2.** Your plan will help reduce future damages in your community

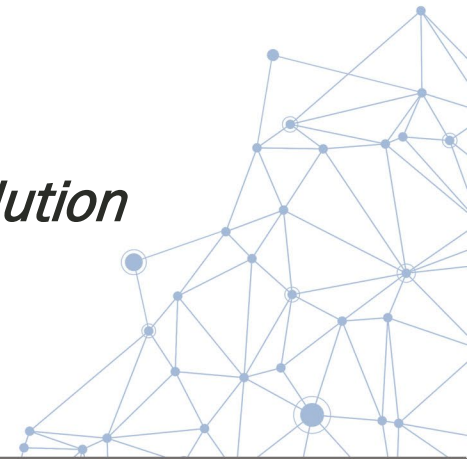






# How Do You Participate?

- Submit Letter of Intent to Participate
  - If you haven't returned it yet, please do so ASAP!
- ***Provide information about your town or village.***  
(This will be included in your chapter of the plan.)
- Attend planning partnership meetings/workshops
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – ***governing body must pass an Adoption Resolution***
- Implement and maintain the Plan



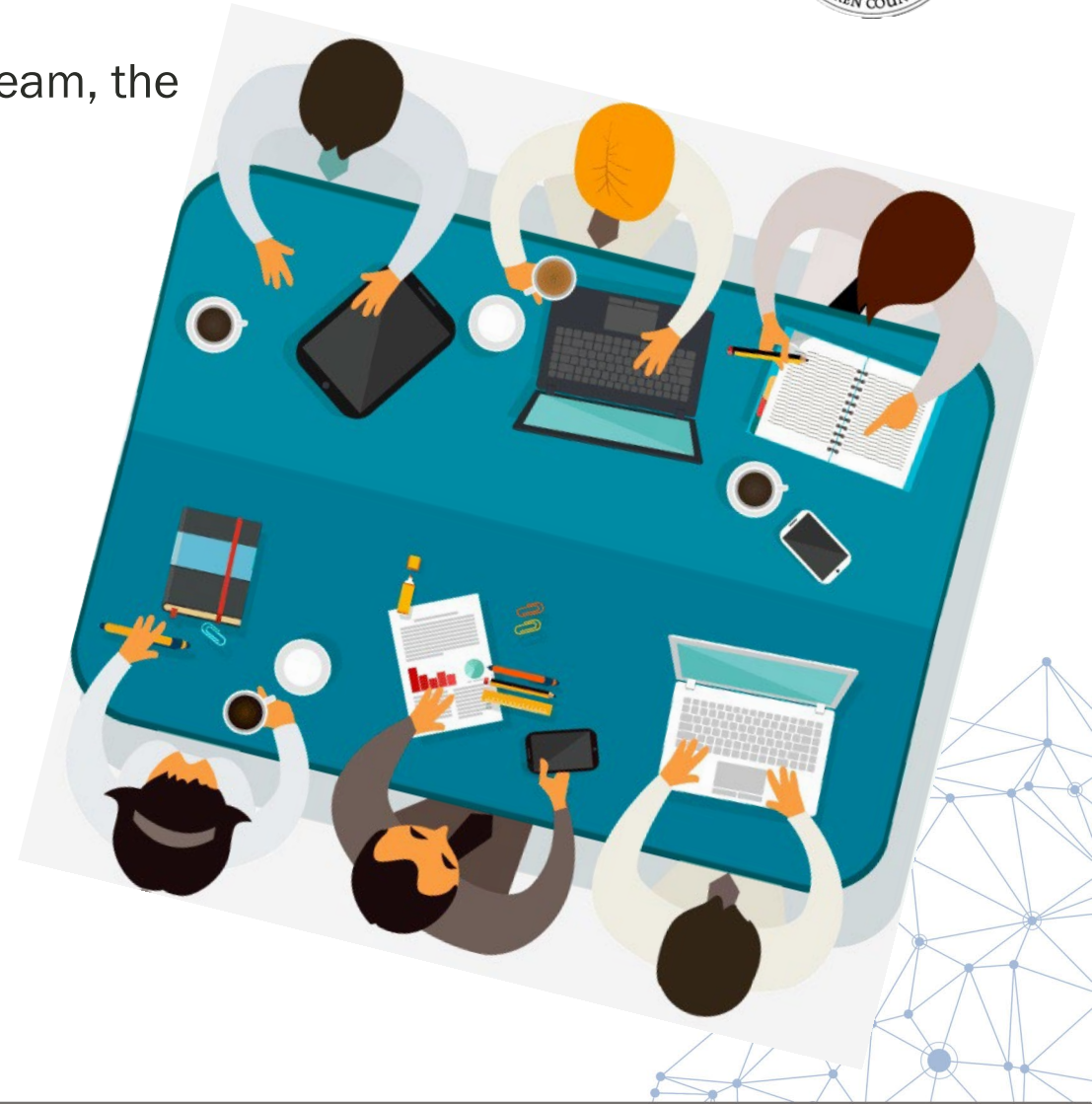




# Assemble Your Mitigation Team!

If you have not fully decided who should be on your municipal team, the following can provide you a better idea on who to invite:

- NFIP Floodplain Administrator
- Building Code Official
- Engineer
- Land Use Planner
- Clerk
- Mayor/Administrator
- Municipal CFO/Fiscal Representative
- Public Works Superintendent/Director
- Police/Fire Official





# What We Your Input!

- Tetra Tech has provided you with worksheets
- Information from the last plan has been pre-populated in your worksheets, as available.
- Your Mitigation Team is responsible for
  - providing updated information
  - reviewing the information from the 2017 plan.
- *This information will be included in your town or village annex*



SECTION 9.2. Town of Bolton

## SECTION 9.

### 9.2 TOWN OF BOLTON

This section presents the jurisdictional annex for the Town of Bolton that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, who in the TOWN participated in the planning process, an assessment of the Town of Bolton's risk and vulnerability, the different capabilities used in the TOWN, and an action plan that will be implemented to achieve a more resilient community.

#### 9.2.1 Hazard Mitigation Planning Team

The Town of Bolton identified the hazard mitigation plan (HMP) primary and alternate points of contact and developed this plan over the course of several months with input from many TOWN departments, including XXXX. The XXXX represented the community on the Warren County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume I, Section 3 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.1-1. Hazard Mitigation Planning Team

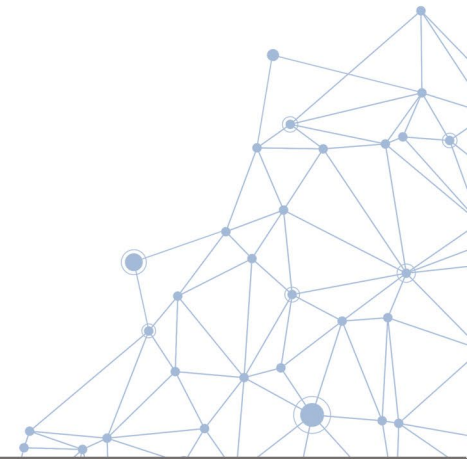
Primary Point of Contact	Alternate Point of Contact
Name/Title: Joshua Westfall, AICP Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Westfall.J@Town.Bolton.NY.US	Name/Title: Richard Miller, PE Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Miller.R@Town.Bolton.NY.US
<b>NFIP Floodplain Administrator</b>	
Name/Title: Richard Miller, PE Address: 4949 Lake Shore Drive, Bolton Landing, NY 12814 Phone Number: 518-644-2893 Email: Miller.R@Town.Bolton.NY.US	
<b>Additional Contributors</b>	
Name/Title: Method of Participation: Name/Title:	



# Hazard Event History Specific to Your Town or Village



- Describe impactful hazard events that have occurred since 2017
  - When did the event occur?
  - What type of event was it?
  - What are the details of how the event unfolded?
  - How was the community impacted?
    - Damages
    - Closures
    - Injuries/deaths

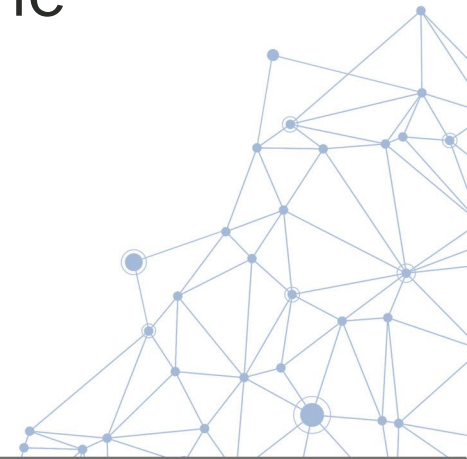






# HAZARD EVENT HISTORY

- ✓ Fill out contact information.
- ✓ Provide a summary of damages/impacts to the listed events AND note other local hazard events that resulted in damages, closures, or other impacts.
- ✓ Identify other hazard events that have caused damage/losses in your community. Refer to FEMA project worksheets (PWs), overtime records, police/fire reports, repair costs (invoices), etc





# WORKSHEET A – HAZARD EVENT HISTORY



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet A – Hazard Event History

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to Cynthia Bianco (Tetra Tech) by November 23<sup>rd</sup>, 2022.  
Email: cynthia.bianco@tetratech.com

Municipality: Town of Bolton

Name and Title of  
Individual  
Completing  
Worksheet:

Warren County has frequently experienced natural hazard events. Please complete the table below to summarize specific loss and damages experienced during hazard events since the last hazard mitigation plan update (January 1, 2017). Information already populated in the table below is based on County-wide events that resulted in significant damages and losses.

Please update the table to provide a summary of local impacts to the listed events AND note other local hazard events that resulted in damages, closures, or other impacts.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
April 27-28, 2011	Severe Storms, Flooding, Tornadoes and Straight-Line Winds (DR-1993)	Yes	Flooding occurred along the Hudson River in Warren County from North River southward to the Saratoga County line. Numerous reports of flooding. The County had approximately \$676,000 in damages. Nearly two-thirds of the County was damaged. In the Town of Bolton, River Rd. and <del>Highway</del> Roads were closed from flooding. The Town brought in six loads of #4 fill to fix both roads. In addition, there was one washout on <del>Highway</del> Rd., which the Town used two loads of #4 fill to fix.	
May 27 – June 2, 2011	Flooding "Memorial Day Storm"	N/A	Flooding occurred in the County and there was severe damage along a thin line through the County (Stony Creek, Thurman, Warrensburg, <del>Highway</del> and Bolton) that resulted in \$13.125 million in damages. Extensive flood damage to transportation infrastructure occurred throughout the Town of Bolton, including Combs Road Bridge which was washed out. A 30' deep x 50' wide segment of Hendricks Road washed out. Snye Farm Road was completely washed out, along with sections of Trout Falls and <del>Highway</del> Roads. A 4" x 60' culvert on River Rd. was also washed out.	
August 27-29, 2011	Hurricane Irene (DR-4020)	Yes	There was severe wind and flooding damage throughout the County. Very little damage occurred in the Town of Bolton. A few trees came down. The Town Highway Crew worked 15 overtime hours. Highway and Parks Departments kept all the culverts cleaned out.	



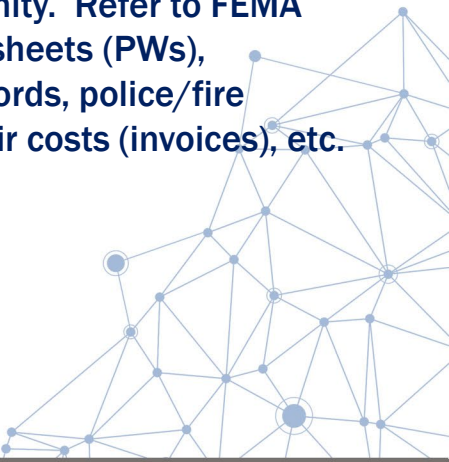
Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet A – Hazard Event History

May 29, 2012	Hail and Wind	N/A	Debris removal occurred in the County as a result of this event. A generator at a fire station, a patrol car, and the canopy of a patrol boat were all damaged. Very little damage occurred in the Town of Bolton. Clean up was needed for a few downed trees. Highway crews swept debris from roadways.	
October 29, 2012	Hurricane Sandy (EM-9351)	Yes	Heavy rain fell throughout the County. In the Town of Bolton, trees came down in Cotton Point. Highway crews swept debris from roadways.	
October 31 – November 1, 2019	Severe Storms, Straight-line winds, Flooding (DR-4472) "Halloween Storm"	Yes	A strengthening <del>low-pressure</del> system moving from Ohio to Lake Ontario drew anomalous warmth and moisture northward on Halloween, with temperatures surging into the 60s and 70s over eastern New York and western New England. Showers across the southern Adirondacks and Mohawk Valley became steadier and heavier during the evening ahead of a strong cold front as the low continued to strengthen. Strong winds aloft mixed down to the surface as an intense line of showers developed along the front resulting in sporadic wind damage and scattered power outages over eastern New York.	A large swath of rainfall totaling 2-5 inches, with isolated areas as high as 7 inches, occurred over the Mohawk Valley and southern Adirondacks, resulting in reports of flash flooding. The runoff caused rapid rises on area creeks and streams, with river gauges reaching record levels along the Mohawk River at Little Falls, the West Canada Creek at Hinkley and Kaat Bridge, and the Sacandaga River at Hope.
January 20, 2020	Covid-19 (EM-3434)	Yes	As of November 2022, Warren County has experienced over 20,000 positive cases of Covid-19.	

Please identify other hazard events that have caused damage/losses in your community. Refer to FEMA project worksheets (PWs), overtime records, police/fire reports, repair costs (invoices), etc.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses

- ✓ Fill out contact information.
- ✓ Provide a summary of local impacts to the listed events AND note other local hazard events that resulted in damages, closures, or other impacts.
- ✓ Identify other hazard events that have caused damage/losses in your community. Refer to FEMA project worksheets (PWs), overtime records, police/fire reports, repair costs (invoices), etc.

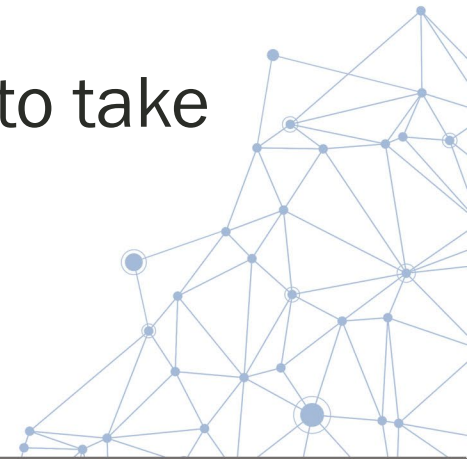






# Recent and Expected Future Development

- List the number of building permits for **NEW construction** issued since 2017
  - Do not include redevelopments or improvements
- List and describe recent **MAJOR DEVELOPMENT** (housing developments, hotels, commercial or industrial development, etc.) that has taken place since 2017
- List and describe **ANTICIPATED MAJOR DEVELOPMENT** likely to take place in the next 5 years.





# WORKSHEET E – RECENT DEVELOPMENT (BUILDING PERMITS)



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet E – Building Permits

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by November 23<sup>rd</sup>, 2022 to:  
Cynthia Bianco, Tetra Tech | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

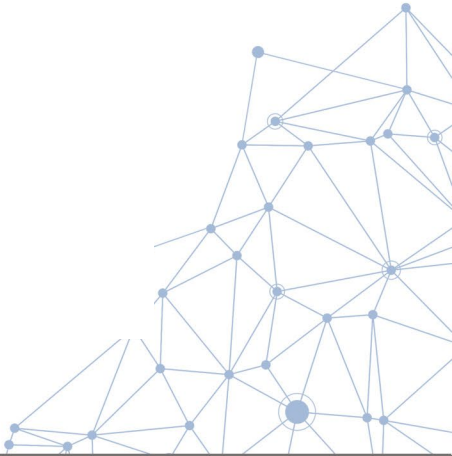
Municipality: Town of Bolton

Name and Title of Individual Completing Worksheet: \_\_\_\_\_

Who can assist with completing these tables: The Building Department, Planning Department, and NFIP Floodplain Administrator

Type of Development	2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family												
Multi-Family												
Other (commercial, mixed-use, etc.)												
Total New Construction Permits Issued												

SFHA Special Flood Hazard Area (1% annual chance flood event)  
\* Only location-specific hazard zones or vulnerabilities identified.

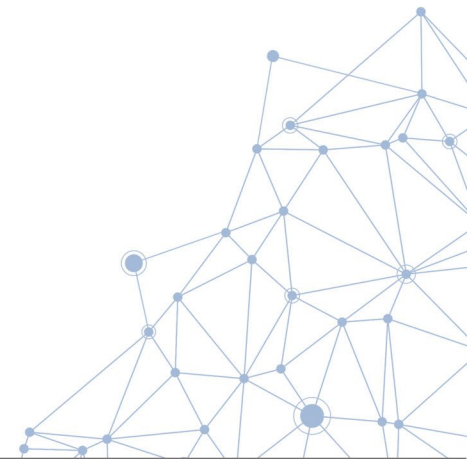






# National Flood Insurance Program

- This section should worksheet to be filled Floodplain Administrator for your community.
- Answer the questions regarding NFIP participation and implementation of floodplain administration.
- Provide details where necessary





# WORKSHEET C – FLOODPLAIN ADMINISTRATION QUESTIONNAIRE



Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to  
Cynthia Bianco by November 23<sup>rd</sup>, 2022  
Email: [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)



Municipality: Town of Bolton

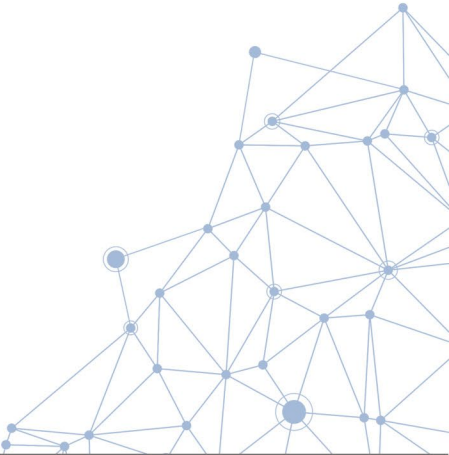
NFIP Floodplain Administrator Name/Title: \_\_\_\_\_



Who can assist with completing this table: NFIP Floodplain Administrator – as identified by role/title in your Flood Damage Prevention Ordinance.



NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"><li>Do you maintain a list of properties that have been damaged by flooding?</li></ul>	No
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"><li>How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?</li></ul>	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"><li>If so, state what projects are underway.</li></ul>	-
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	No
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"><li>If there are mitigation properties, how were the projects funded?</li></ul>	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	

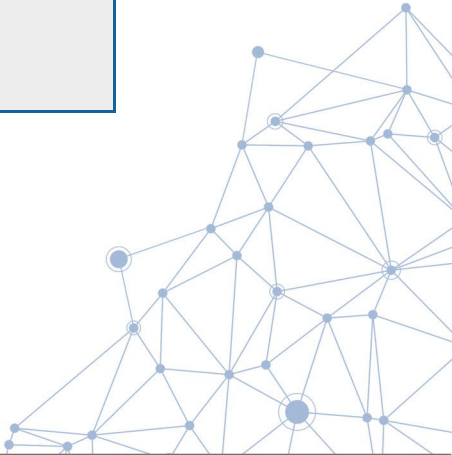




# WORKSHEET C – FLOODPLAIN ADMINISTRATION QUESTIONNAIRE



If not, state why.	
<b>NFIP Compliance</b>	
What local department is responsible for floodplain management?	
Are any certified floodplain managers on staff in your jurisdiction?	Yes – Floodplain Administrator
Do you have access to resources to determine possible future flooding conditions from climate change?	Unknown
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	

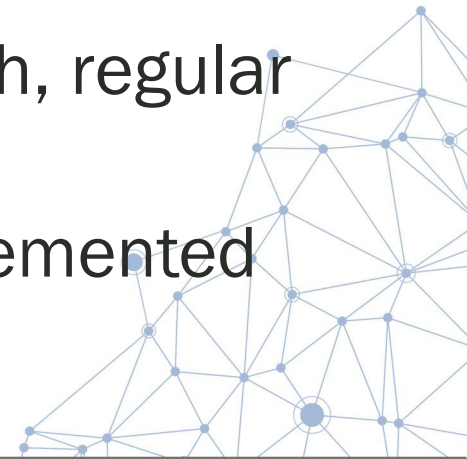






# Status of Previous HMP Mitigation Actions

- Report on the status of previous mitigation actions from the 2017 plan.
  - **In Progress:** The action has been started but has not been completed to date.
  - **No Progress:** The action has not been started
  - **Ongoing Capability:** The action has been started and is now part of the municipality's regular or annual operations
    - Examples: Regular stormwater cleaning, annual outreach, regular trainings for staff
  - **Complete:** The action has been 100% completed and implemented

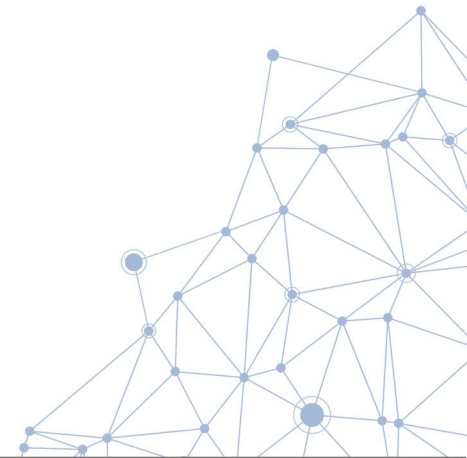






# Status of Previous HMP Mitigation Actions

- Indicate if this action should be included in the 2023
  - In progress actions should be carried over
  - If identified as an ongoing capability, we will include it in the integration section of the annex but not as a 2023 action
  - Completed actions will not be carried over as actions in the 2023 HMP update





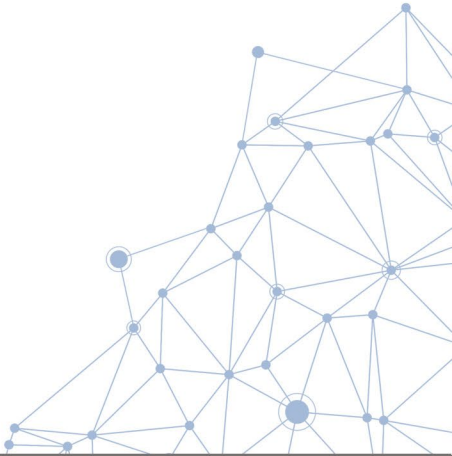
# WORKSHEET D – 2017 MITIGATION ACTION OR PROJECT REVIEW



## WARREN COUNTY HAZARD MITIGATION PLAN UPDATE Worksheet D - Mitigation Action Review Town of Bolton



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)			Next Steps 1. Project to be included in 2023 HMP or Discontinue 2. If including action in the 2023 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Level of Protection	Damages Avoided; Evidence of Success	
1	Develop a Hamlet-wide Stormwater Drainage System plan for the Hamlet of Bolton	Flood		Planning, Town Board	Choose an item.				Choose an item.
2	Adopt and implement the Local Waterfront Revitalization Plan (draft released in <a href="#">July</a> , 2014).	All Hazards		Town Board	Choose an item.				Choose an item.
3	Edgecomb Pond Dam Auxiliary Spillway Development Project: Install an auxiliary spillway for the dam which provides water to hamlet (built-up) area. Drainage easements have been acquired in area where new spillway would be built.	Flood		Bolton Water District, Town Board	Choose an item.				Choose an item.
4	Edgecomb Pond Dam Upgrades: Make structural upgrades and improvements of the existing Edgecomb Pond Dam as called for by the upcoming structural evaluation. The Dam (owned by Bolton Water District) is in need of some improvements. The Town is in the process of contracting for a	Flood		Bolton Water District, Town Board	Choose an item.				Choose an item.







# Status of Previous Mitigation Actions

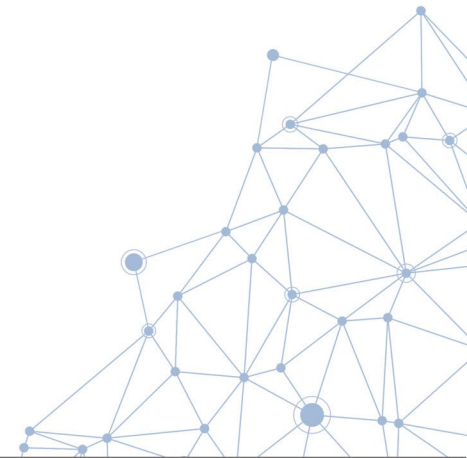
- List any mitigation actions or measures taken since the 2017 plan that were not part of the 2017 mitigation strategy
  - Did you install generators at critical facilities?
  - Upsize culverts or drainage pipes to reduce flooding?



## WARREN COUNTY HAZARD MITIGATION PLAN UPDATE Worksheet D - Mitigation Action Review Town of Bolton



Have you completed, or are there any in-progress or proposed mitigation or resilience projects that are not included in the table above since 2017? If yes, please provide the project details, what the project is mitigating and who is implementing below.

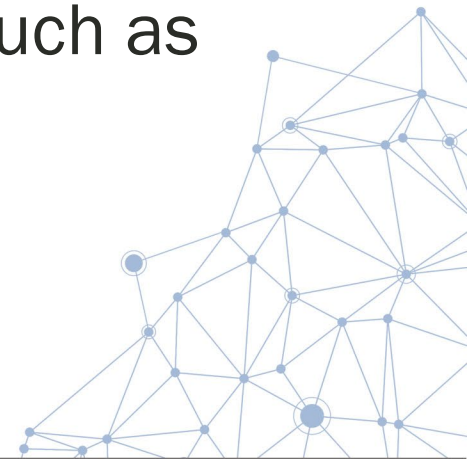






# Identified Issues

- Where are the problem areas in your community related to damages due to natural hazards?
  - What problems need solving?
  - What solutions need implementation?
  - What projects need funding?
- Tell us about floodprone locations outside of the floodplain such as stormwater/urban flooding areas
- Tell us about areas that experience damages.

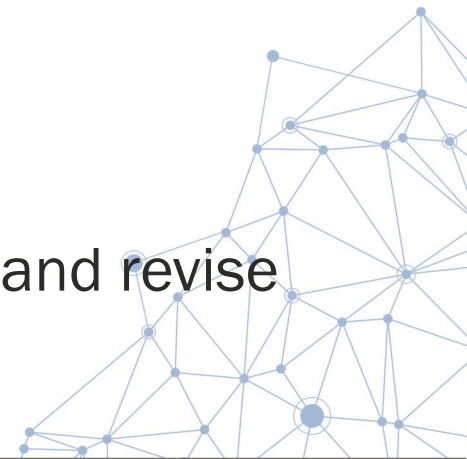






# Planning, Legal, and Regulatory Capability

- This table reviews our codes, ordinances, & requirements; planning documents; and response/recovery planning
- Indicate if you have the plan/ordinance/requirement
- Indicate if it already integrates hazard mitigation
  - Tetra Tech has reviewed a majority of your plans, codes and ordinances and updated this section. Please review and revise accordingly.
- Describe the plan/ordinance/requirement
  - Who is in charge of implementation?
  - When was it adopted/updated?
  - How does it integrate hazard mitigation/emergency response?
    - Again, Tetra Tech addressed this during our review. Please review and revise accordingly.

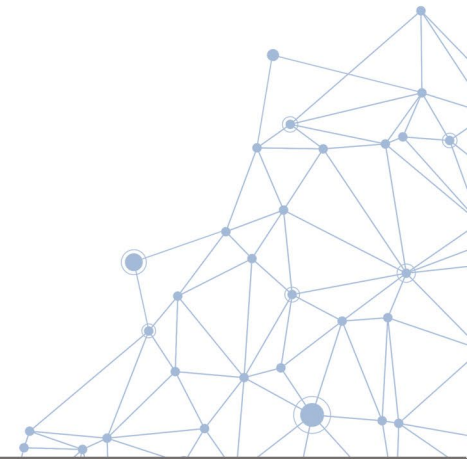






# Hazard Mitigation Planning Team

- Update contact information if necessary
  - Primary Point of Contact
  - Alternate Point of Contact
  - NFIP Floodplain Administrator
- **Remember**, this is a public document so your contact information will also be public.





# WORKSHEET B – CAPABILITY ASSESSMENT



Hazard Mitigation Plan 2023 Update  
WARREN COUNTY, NY  
Worksheet B – Capability Assessment

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version to Cynthia Bianco (Tetra Tech) by November 23, 2022  
Email: [cynthia.bianco@tetratech.com](mailto:cynthia.bianco@tetratech.com)



Municipality: Town of Bolton  
Name and Title of  
Individual Completing  
Worksheet: \_\_\_\_\_

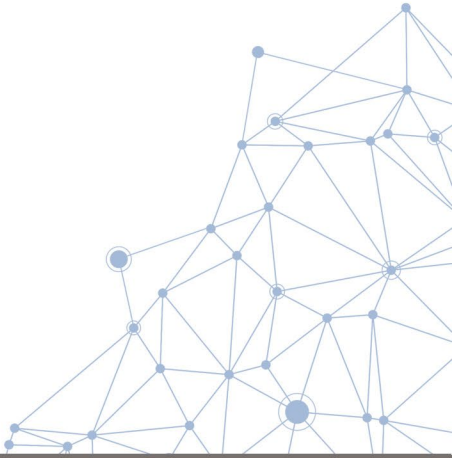
Who can assist with completing these tables: Municipal Planner, Clerk, Code Official, Administrator, Chief Fiscal Officer

## Planning and Regulatory Capability

Please complete the following table to summarize the regulatory tools that are available to your community, what is present in the jurisdiction, and code citation and date. For existing regulatory tools, note how it reduces risk to hazards or how it could be updated to better integrate hazard mitigation concepts to reduce risk.

Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>				
<b>Building Code</b>	Yes	NYS Property Maintenance Code	State and Local	Town Building Inspector
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> The Town of Bolton adopted the New York State Property Maintenance Code in December 2021.				
<b>Zoning/Land Use Code</b>	Yes	Chapter 200 – Zoning	Local	Zoning and Planning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i> Zoning Ordinance is in place to promote the health, safety, and general welfare of the community and to protect the property values and aesthetics of the community by channeling and directing growth and by regulating and restricting the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yard, courts and other open spaces, the density of population and the location and use of buildings, structures and land for trade, industry, residence and other purposes, to the maximum extent permissible within the proper exercise of the police power as delegated by the Town Law.  Consider the following: <ul style="list-style-type: none"><li>• Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?</li><li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?</li><li>• Does it contain natural overlay zones that set conditions?</li><li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</li><li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</li></ul>				
<b>Subdivision Ordinance</b>	Yes	Chapter 150 – Subdivision of Land	Local	Zoning and Planning
<i>How has or will this be integrated with the HMP and how does this reduce risk?</i>				





# Brainstorm New Mitigation Actions for the 2023 HMP Update


- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (HMGP generators, CDBG acquisitions, etc.)
- Tips for the 2023 update:
  - One action for each hazard of concern
  - Quality NOT quantity
  - Specific not general
  - What can realistically be accomplished in 5 years?




**Plans and regulations** include government authorities, policies, or codes that encourage risk reduction, such as building codes and state planning regulations. This may also include planning studies.



**Structure and infrastructure projects** involve modifying existing structures and infrastructure or constructing new structures to reduce the impact of hazards.



**Natural systems protection projects** minimize losses while also preserving or restoring the function of natural systems.



**Education and awareness programs** include long-term, sustained programs to inform and educate citizens and stakeholders about hazards and mitigation options. This category could also include training.



*"At the first sign of a flood, you just push this little button."*

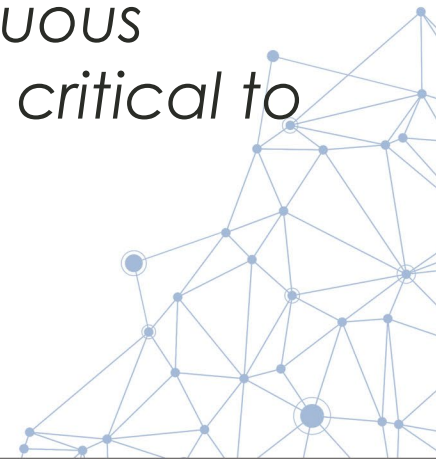






# Critical Facilities and Lifelines

- ✓ **Critical Facilities** are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard
  - ✓ Include essential facilities to ensure a full recovery following the occurrence of a hazard event, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.
- ✓ **Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security

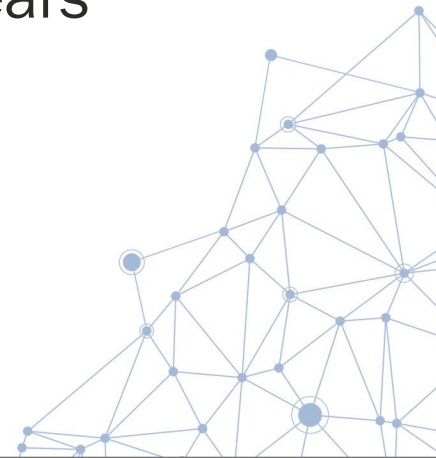






# Critical Facilities and Lifelines

- Tetra Tech will send out the Critical Facilities list to your community for your review – we push back the deadline as necessary (originally October 14<sup>th</sup>)
- Ensure the list is complete
  - Add new critical facilities that have been built/established in the last 5 years
  - Omit critical facilities that have been decommissioned in the last 5 years

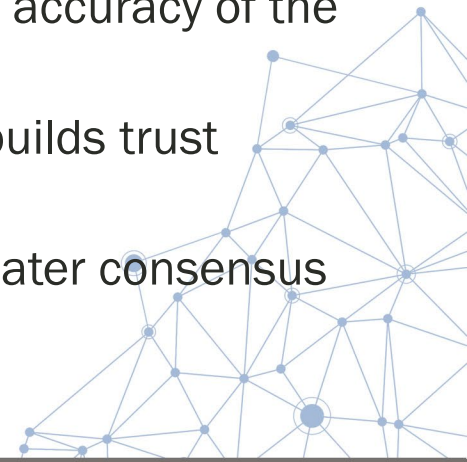






# We Need YOU Engaged and Involved!


- *Update your Municipal webpage and link to County's HMP webpage at <https://www.warrencountynewyorkhmp.com>*
  - Social Media Blasts – Tetra Tech will provide you with content and graphics
  - Local Announcements of HMP Update – local papers, newsletters, etc.
  - Local public meetings
  - Draft Plan Review
  - Document *each and every time* you share and engage!
- **Why conduct outreach?**
    - Informs and educates about hazards and risks
    - Invites interested parties to contribute their views and ideas for mitigation
    - Identifies conflicts and incorporates different perspectives and priorities early in the process
    - Provides data and information that improves overall quality and accuracy of the plan
    - Ensures transparency and builds trust
    - Maximizes opportunities for implementation through greater consensus and acceptance





# Remember to Document Your In-Kind Services!



**Warren County HMP - In-Kind Tracker**

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco (cynthia.bianco@tetratech.com | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

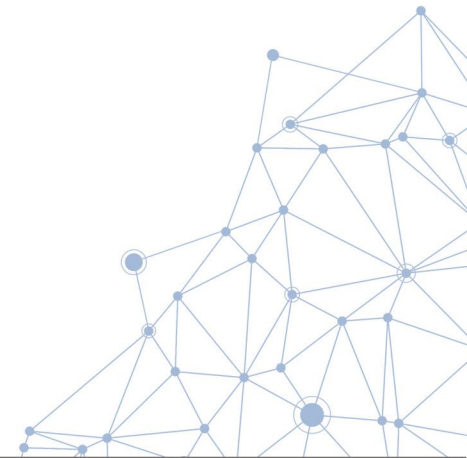
Please document your time spent working on the HMP:

Date	<input type="text"/>
# Hours	<input type="text"/>
Task Description	<input type="text"/>
Comments	<input type="text"/>

Please document your time spent working on the HMP:

Date	<input type="text"/>
# Hours	<input type="text"/>

- Use the on-line survey to document your in-kind hours worked on the hazard mitigation plan:  
<https://www.surveymonkey.com/r/WarrenNYHMPInKind>





# Schedule

- Planning Process
  - Confirm critical facility/lifeline inventory by December 9th
  - Worksheets due November 23rd
  - Worksheet Workshop – today!
  - Update Risk Assessment
  - Begin vulnerability assessment
  - Risk Assessment Meeting – February 2023
- Public Involvement Strategy – ongoing throughout the planning process
  - Mitigation Strategy
    - Mitigation Strategy Workshop
    - Draft Plan to Steering Committee by May 2023
  - Final draft plan to NYSDHSES and FEMA by August 2023



## Savage Chickens

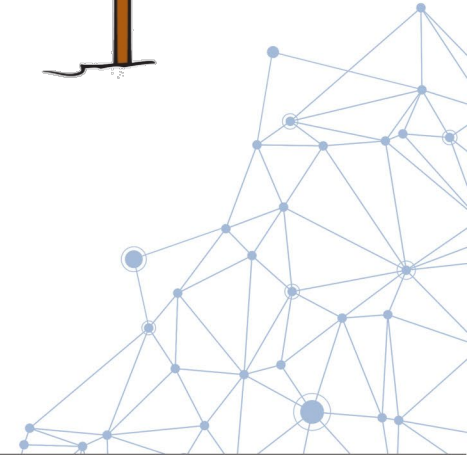
by Doug Savage





# Next Steps

- COMPLETE THE WORKSHEETS
  - Use Tetra Tech to answer any questions you may have!
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for NYSDHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan ➡ Increase Resilience!





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC, District Manager  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason, Emergency Services Director  
[masona@warrencountyny.gov](mailto:masona@warrencountyny.gov)

## Tetra Tech Project Contacts

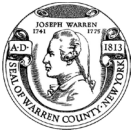
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #2 – AGENDA**  
**MEETING DATE/TIME: December 14, 2022 – 10:00 am**



Remote – MS Teams Link [Click here to join the meeting](#) (preferred for screen sharing)

Remote – Dial-in by phone (audio only) - [+1 518-300-1367,,503640440#](#) United States, Albany; Phone Conference ID: 503 640 440#

- Welcome
- Committee Responsibilities
- Progress Report
- Public and Stakeholder Outreach
- Data Collection - Plans and Reports
- Critical Facilities and Lifelines Review
- Confirmation of Hazards of Concern
- Goals and Objectives Updates
- SWOO (Strengths, Weaknesses, Obstacles, Opportunities)
- In-Kind Services Tracking
- Schedule
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Teleconference Teams Meeting
Date of Meeting:	December 14, 2022, 10:00 am

## Attendees:

Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ethan Gaddy	Warren County Planning Department, CSC
Sandy LeBarron	Finch Pruyn, Director of Environmental Health, and Safety
Tammie DeLorenzo	Warren County Administrators Office
James Schrammel	City of Glens Falls, Fire Chief
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Don Lehman	Warren County Public Information Officer
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to confirm Hazards of Concern, Update Mission Statement, Goals and Objectives, and facilitate a SWOO.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation. The process is on track for plan submittal to FEMA in August 2023. Tetra Tech will begin the vulnerability analysis once the final municipal critical facility input is received from the local jurisdictions. Steering committee responsibilities include guiding the planning process and confirming the hazards of concern to include in the plan as well as the updated goals and objectives. GIS data collection is complete with support from the County GIS staff. The steering committee was provided with a list of plans gathered to date and requested to provide any additional relevant plans.</li> </ul>	Committee to review the list of plans collected to date and provide any additional relevant plans.
2	<b>Outreach</b> <ul style="list-style-type: none"> <li>The HMP website is now live at <a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a> and public outreach materials are available for distribution. All communities in the county have confirmed their intent to participate in the planning process.</li> <li>The county sent out a press release this month and a couple of local weekly newspapers published articles regarding the mitigation plan and provided access to the public survey.</li> </ul>	<ul style="list-style-type: none"> <li>Tt to provide a social media package to municipalities to enable further online outreach.</li> <li>Tt to contact Warren County (WC) Chamber of Commerce for business email distribution lists.</li> </ul>





# Warren County Hazard Mitigation Plan Update Meeting Notes



	<ul style="list-style-type: none"> <li>One citizen has contacted Warren County Soil &amp; Water Conservation District (WCSWCD) to discuss concerns related to hazard mitigation and will meet with Mr. Lieberum to discuss.</li> <li>Tt requested email lists to support the stakeholder outreach and distribution of surveys to agencies including health services, police, fire, EMS, etc. WC Emergency Services, Glens Falls Hospital will provide available information. Tt to contact the Chamber of Commerce to distribute surveys to county businesses.</li> </ul>	
3	<b>Hazards of Concern</b> <ul style="list-style-type: none"> <li>The committee confirmed that the following hazard of concern pose significant risk to the county and its communities: <ul style="list-style-type: none"> <li>Disease Outbreak (including Covid-19, influenza, and tick-borne illnesses)</li> <li>Earthquake</li> <li>Extreme Temperatures</li> <li>Flood</li> <li>High Hazard Potential Dams</li> <li>Infestation</li> <li>Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)</li> <li>Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)</li> <li>Wildfire</li> </ul> </li> </ul> <p>These hazards will be profiled for the plan to provide a basis for the vulnerability assessment and the development of mitigation actions.</p>	
4	<b>Goals and Objectives</b> <ul style="list-style-type: none"> <li>Ms. Addonizio-Bianco shared the goals and objectives from the last HMP noting updates to include changes identified in the last committee meeting as well as additional edits to align with current priorities. During the discussion additional edits were made and are available in the attached document. The updated mission statement, goals and objectives will guide the plan update.</li> </ul>	
5	<b>Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)</b> <ul style="list-style-type: none"> <li>Tt provided an overview of the purpose of the SWOO which is to review the hazards of concern to identify areas that the county and communities do well and can improve upon, and to further understand obstacles to implementing policy, actions, and projects to mitigate the effects of the hazards – all with the intent of identifying actions or projects to support resilience. The committee reviewed examples related to the flood hazard and participated in a discussion of county-specific issues. The committee members were requested to access and respond to the SWOO survey to document their input. Attached is the SWOO survey input received as of the date of this meeting.</li> </ul>	<ul style="list-style-type: none"> <li>The committee is requested to provide input to the SWOO survey to assist in identifying problem areas and mitigation actions.</li> </ul>
6	<b>Upcoming Meetings</b>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>• Dates for the following meetings will be confirmed and shared with the committee in January:<ul style="list-style-type: none"><li>○ Risk Assessment Meeting – February 2023</li><li>○ Planning Partnership Risk Assessment Meeting – February 2023 (tentative)</li><li>○ Mitigation Strategy Workshop – March 2023</li></ul></li></ul>	
7	<b>Next Steps</b> <ul style="list-style-type: none"><li>• Provide input via Strengths, Weaknesses, Obstacles and Opportunities (SWOO) survey</li><li>• Review Hazard Profiles</li><li>• Review Risk Assessment Results</li><li>• Identify Problems and Problem Areas</li><li>• Develop Mitigation Strategy</li><li>• Review Draft Plan</li><li>• Submit Draft Plan for NYSDHSES/FEMA Review</li><li>• Adopt FEMA-Approved Plan</li><li>• Implement Projects and Maintain the Plan and Increase Resilience</li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 11:25 am.	



# Warren County, New York Hazard Mitigation Plan – 2023 Update

**Steering Committee #2 Meeting | December 14, 2022 | 10:00 – 11:30 AM**

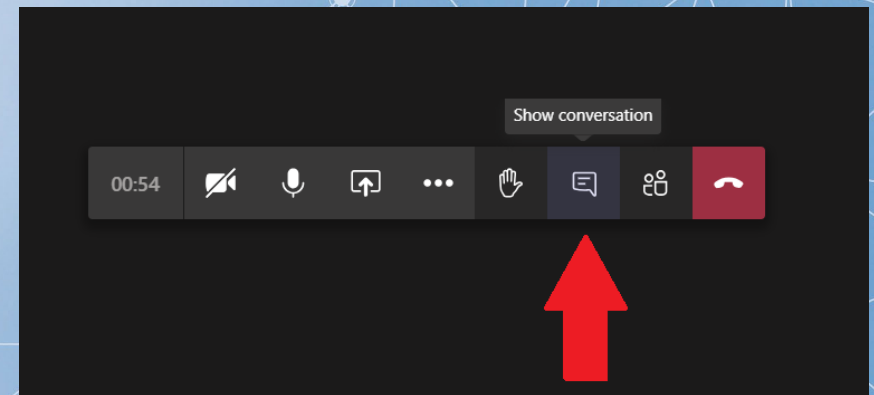
## ***WELCOME!***

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.

Click “Show Conversation” and type in your information.

This will assist in our attendance documentation.

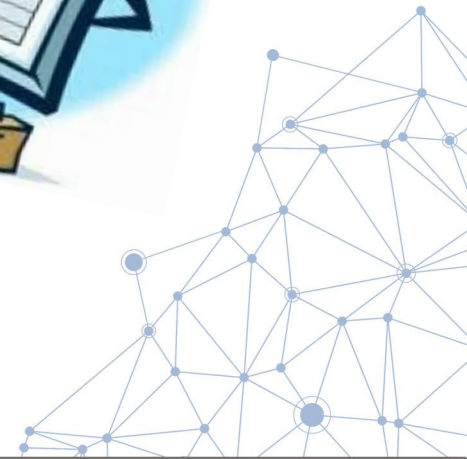






# Agenda

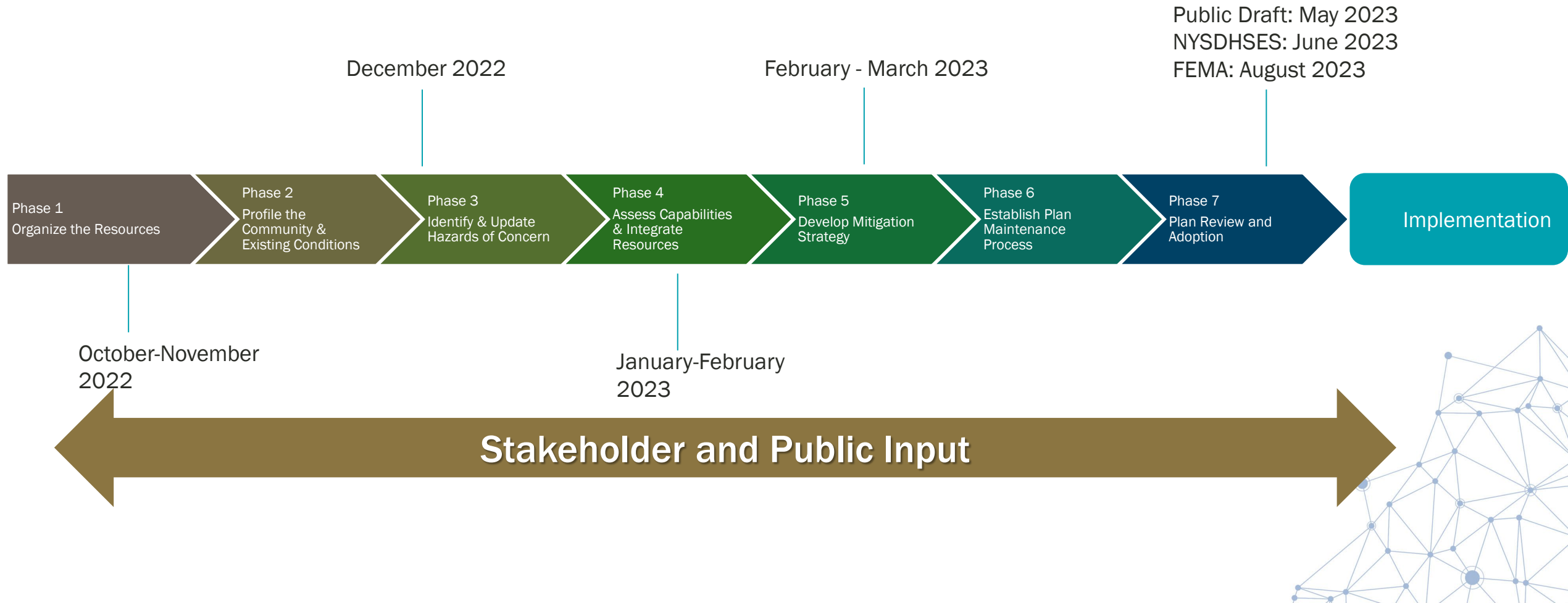
- Welcome
- Committee Responsibilities
- Progress Report
- Data Collection - Plans and Reports
- Critical Facilities and Lifelines Review
- Confirmation of Hazards of Concern
- Goals and Objectives Updates
- Public and Stakeholder Outreach
- SWOO (Strengths, Weaknesses, Obstacles, Opportunities)
- In-Kind Services Tracking
- Schedule
- Next Steps/ Questions/ Wrap Up







# Where are we in the Process?

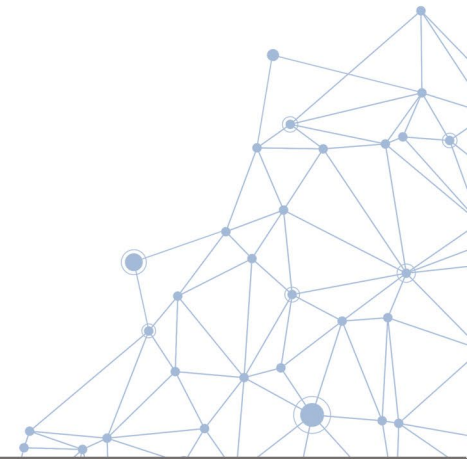






# Steering Committee Responsibilities

- ✓ Guide the Planning Partnership through the planning process
- ✓ Identify the natural hazards of concern
- ✓ Develop mitigation goals and objectives
- ✓ Develop public and stakeholder outreach strategy
- ✓ Support the development of the county-level mitigation strategy
- ✓ Review plan documents

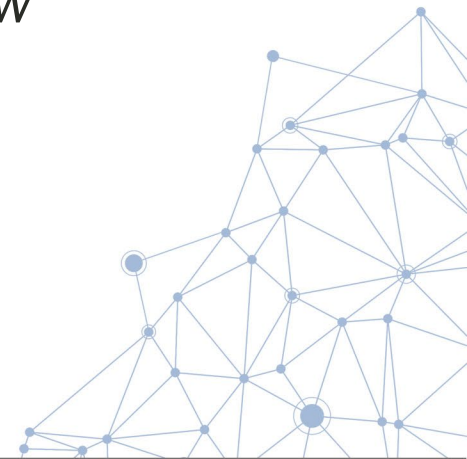






# Progress

- Requested NFIP Data
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *In progress*
- Review of Hazards of Concern/Input by Steering Committee – *Today*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *For Steering Committee Review*
- Planning Partnership Participation – 100%





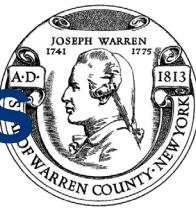


# Data Collection Status

Jurisdiction	Worksheet A - Hazard Event History	Worksheet B - Capability Assessment	Worksheet C - NFIP	Worksheet D - Action Review	Worksheet E - Building Permits
Warren County	X	X	N/A	X	X
Town of Bolton	X	X	X	X	
Town of Chester	X	X	X	X	X
City of Glens Falls					
Town of Hague	X	X	X	X	X
Town of Horicon					
Town of Johnsburg	X	X	X	X	X
Town of Lake George	X	X	X	X	X
Village of Lake George	X	X	X	X	X
Town of Lake Luzerne	X	X	X	X	X
Town of Queensbury	X	X	X	X	X
Town of Stony Creek	X	X	X	X	X
Town of Thurman	X	X	X	X	X
Town of Warrensburg	X	X	X	X	X



# Relevant County and Regional Plans and Studies



Name of Plan/Document	Date of Plan	Jurisdiction
Excessive Heat Plan	2022	Countywide
Schroon Lake Watershed Management Plan Addendum	2019	Chester (T)
Lake Champlain Watershed Roadside Erosion Assessment	-	Bolton (T), Hague (T), Lake George (T), Queensbury (T)
Upper Hudson River Watershed Management Plan	2020	Countywide
Friends Lake Watershed Assessment	2017	Chester (T)
LC Nonpoint Source Pollution Watershed Assessment and Management Plan	2018	Countywide
LG HAB Plan 2022 Update	2022	Lake George (T), Bolton (T)
Loon Lake Watershed Report	2021	Loon Lake, Chester (T)
Warren County - Dam Risk into Local HMG Plans	2021	Countywide

- *Summary matrix including local plans sent to committee for review .*





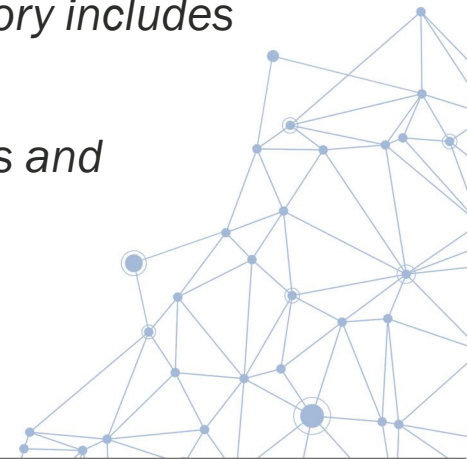
# Critical Facilities and Community Lifelines

- Municipalities to review the updated critical facility inventory to ensure complete
- Critical facility survey distributed to communities on 12/8 with input due on or before 12/21/22.

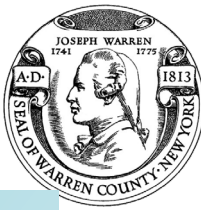
***Critical Facilities** are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include **essential facilities**, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.*

***Essential facilities** are a subset of lifelines that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category includes police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.*

***Lifelines** provide indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security*







# Identifying Hazards of Concern

- The 2017 plan included:
  - Disease Outbreak (Influenza, Ebola, Zika)
  - Earthquake
  - Flood
  - Infestation
  - **Landslide**
  - Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
  - Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
  - Wildfire
- In review...
  - Have additional hazards impacted the County since 2017?
  - Have hazard been mitigated and no longer cause damage?
  - Should hazards be regrouped to minimize number or required actions?
  - Should additional hazards be included?

## 2023 Hazards to Consider

- **Disease Outbreak**
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire

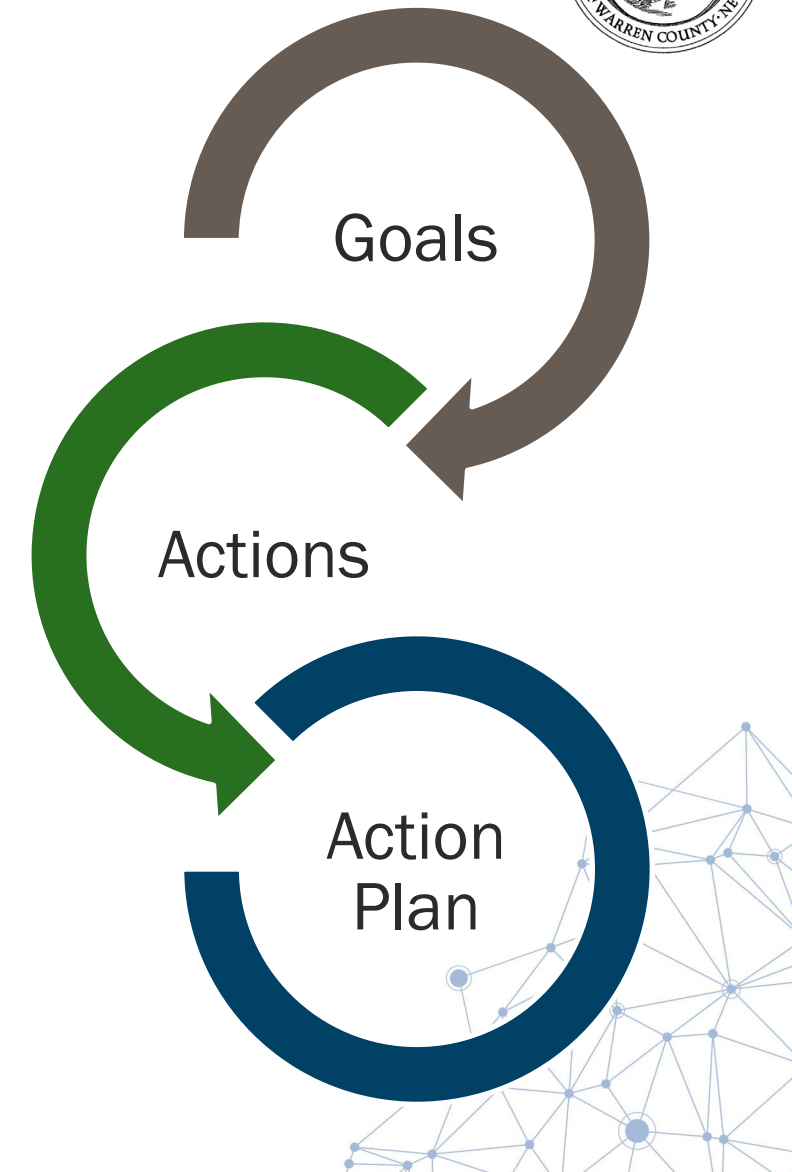






# Mitigation Strategy

- Goals
  - What outcomes do you want to achieve?
- Actions
  - What specific actions will be taken to reduce risk from hazards?
- Action Plan
  - How will the actions be prioritized and implemented?





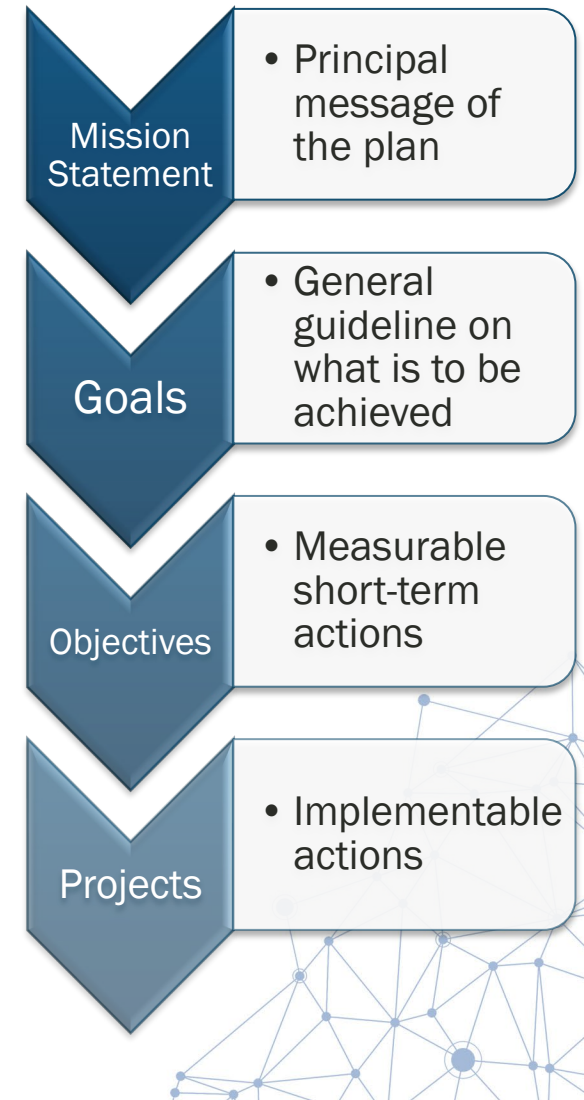


# Update Mission Statement?

As part the of the 2017 update process, the Steering Committee reviewed the mission statement and elected to maintain it without edit or amendment, as noted below. At this time, the committee is requested to review the Mission Statement to update to align with current County, state, and local policy. The committee is requested to consider adding the concept of equity and inclusiveness of socially vulnerable populations to the mission statement and the goals and objectives as well as additional adjustments to align with count, state, and local policy.

## *HMP Mission Statement*

*To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, **socially vulnerable populations** and the public to eliminate or reduce risks and adverse impacts from natural, **technological** and human-caused hazards .*







# Goals and Objectives Review and Update

Goal	Objective
<u>Goal 1:</u>  Protect Life and Property.	1.1: Introduce mitigation and adaptation activities that will make homes, businesses and critical facilities and infrastructure more hazard resistant and to increase resilience.
	1.2: In areas vulnerable to hazards, encourage businesses and homeowners to take preventive actions when possible and in an equitable manner.
	1.3: Periodically review existing building codes, safety procedures, municipal and county ordinances to update recent standards for building protection.
	1.4: Immediately enforce existing building codes, zoning ordinances, and floodplain development review and permitting within the jurisdictions.
	1.5: Encourage owners of home and businesses and renters to purchase appropriate insurance coverage for potential damages from hazards.
<u>Goal 2:</u>  Increase Public Awareness	2.1: Continue developing and integrating education and outreach programs in an effort to enhance public awareness of the hazards, and availability of information on specific activities for individuals in anticipation of a hazard event .
	2.2: Provide information on current government programs and funding resources to assist with mitigation and resilience.
	2.3: Strengthen communication and cooperation between public agencies, citizens, non-profit groups, and businesses to implement mitigation activities effectively.





# Goals and Objectives Review and Update

Goal	Objective
<u>Goal 3:</u> Provide for Emergency Services	3.1: Coordinate hazard mitigation activities with existing local emergency plans.
	3.2: Identify and plan for acquiring any specific emergency services and equipment needed to improve response capabilities for specific hazards.
	3.3: Review emergency traffic routes, making changes as needed, and educating the public as to the routes <b>including use of mass notification systems and real-time storm and problem area reporting.</b>
<u>Goal 4:</u>  Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related state, regional, county and local plans and programs.	4.1: Promote land use planning to encourage resilient and sustainable efforts throughout statewide and regional programs that address zoning, building codes, capital improvement programs, open space preservation, nature-based solutions, and storm water management regulations. <b>Encourage integration of mitigation via review and update of local planning documents to be consistent with and relevant to the Hazard Mitigation Plan.</b>
	4.2: Continue to participate in state, regional and local programs and efforts that focus on practices that support or enhance resiliency.
	4.3: Improve hazard data through participation in studies, research, and mapping to enhance information related to the impacts of hazards and related risks, vulnerability, and losses.





# Goals and Objectives Review and Update

Goal	Objective
<u>Goal 5:</u>  Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.	5.1: Encourage the use of green and natural infrastructure, <b>low impact development, and</b> nature-based solutions.
	5.2: Provide technical assistance to communities and stakeholders in the application and implementation of mitigation projects that preserve or restore natural systems.
	5.3: Maintain and encourage ongoing relationships between state agencies and partners to play an active and vital role in preservation and restoration of vulnerable natural systems.
	5.4: Promote climate change adaption strategies that protect against long-term effects on the environment <b>and incorporate into a county-wide climate action plan.</b>
<u>Goal 6:</u>  <b>Address Long-Term Vulnerabilities from High Hazard Dams</b>	<b>6.1: Ensure dam infrastructure is maintained</b>
	<b>6.2: Ensure Emergency Action Plans are developed and updated</b>
	<b>6.3: Support the identification and access to funding to repair/replace dams</b>





# Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynewyorkhmp.com>




- Social Media
- Stakeholder Survey
- Public Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey

**NORTH COUNTRY**

## Input needed on natural disasters in Warren County

by: Jay Petreaula  
Posted: Dec 9, 2022 / 11:54 AM EST  
Updated: Dec 9, 2022 / 12:03 PM EST

Severe damage to the driveway of Fairview Association, along Lake

SHARE    ...

WARREN COUNTY, N.Y. (NEWS10) – It's important to know and understand what potential hazards could come with where one lives, and what different weather conditions can bring to those areas. Warren County is looking for public input as it makes updates to its plan to curb natural disaster danger for county residents.

**Get the latest news, weather, sports and community events delivered right to your inbox!**

The county's Multi-Jurisdictional Hazard Mitigation Plan is up for revision – and a survey gives residents a chance to weigh in on it. The plan is a document that can be used by the county to reduce the impact and damage from natural disasters, especially targeted at prevention and

Warren County NY Weather ▾ Traffic Watch Live News ▾ Sports ▾ Jobs ▾

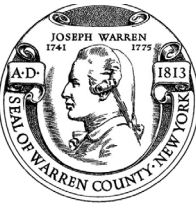
"Public participation and feedback are a vital part of the hazard mitigation planning process," said Warren County Emergency Services Director Ann Marie Mason. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."

The survey asks for residents to report what types of natural disasters they have seen and experienced in Warren County over the last decade, such as flooding, drought and climate change impacts. It also seeks information such as concern for future disasters, and how residents get their disaster information.

**ARPA lets Glens Falls Hospital's crisis unit grow**

The Hazard Mitigation Plan is updated every five years. The plan is used for communities to make risk-based decisions that can lead to fewer lives being lost, or less property being damaged, in the event of a disaster. The process going forward will also involve voices from nonprofits, community partners and the private sector. The plan will analyze how best to protect essential community facilities, transportation systems, lifeline utilities and hazardous material facilities.



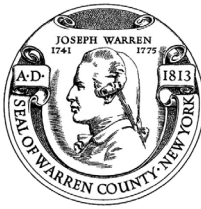


# Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)

*The purpose of the SWOO is to identify mitigation strategies and capabilities that will meet the goals and objectives of the plan update. It is also used to develop potential mitigation actions for the participating jurisdictions.*

- Strengths – what we do well
- Weaknesses – what could we do better
- Obstacles – things that stand in the way, and either prevents you from doing something or something that need to be overcome
- Opportunities – used to develop mitigation strategies



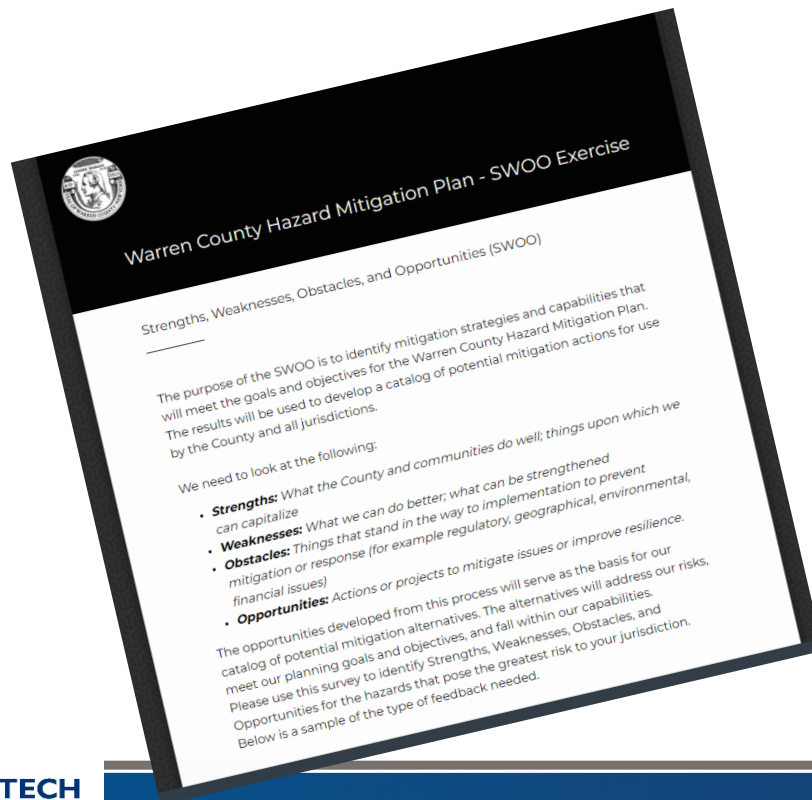


# SWOO EXERCISE

## Strengths, Weaknesses, Obstacles and Opportunities

Thinking about hazards of concern and any new hazards for this update...what are some strengths, weaknesses, obstacles and opportunities the County has for each? Complete the form.

*Here are some examples to help brainstorm:*



Hazard: Flood	
S	Minimal exposure to flood risk
W	Silt and debris buildup in streams can lead to localized flooding
Ob	Funding for culvert and catch basin maintenance
Opps	Installing stream gages

Hazard: Severe Storms	
S	Tree trimming programs are in place
W	Aging infrastructure; lack of underground utilities
Ob	Cost to retrofit existing utility infrastructure
Opps	Underground utilities; enhance public outreach program

Hazard: Severe Winter Storm	
S	Municipalities have the resources and experience to deal with winter weather
W	Aging equipment
Ob	Funding; limited staff for prolonged events
Opps	Shared services





# 2020 SW00 Discussion/Example

Flood	
Strengths	Weaknesses
<p>What do the County/Communities do well in terms of:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>	<p>What can the County/Communities do better or what are identified gaps in terms of:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>

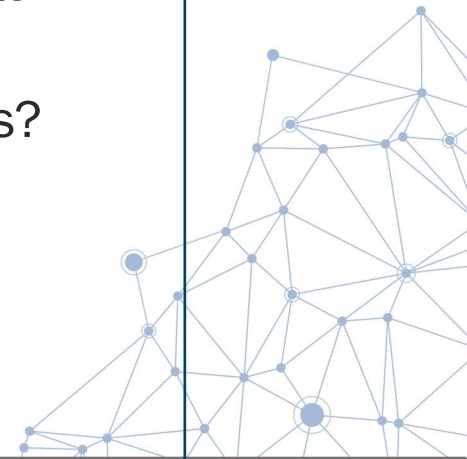






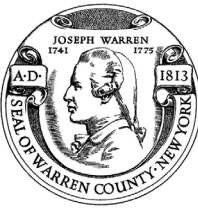
# 2020 SW00 Discussion/Example

Flood	
Obstacles	Opportunities
<p>What is preventing the County/Communities to implement:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>	<p>What can the County/Communities implement terms of:</p> <ul style="list-style-type: none"><li>➤ Plans and Regulations<ul style="list-style-type: none"><li>➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans</li></ul></li><li>➤ Structure and Infrastructure Projects</li><li>➤ Natural Systems Protection</li><li>➤ Education and Awareness Programs?</li><li>➤ Preparedness</li><li>➤ Others?</li></ul>



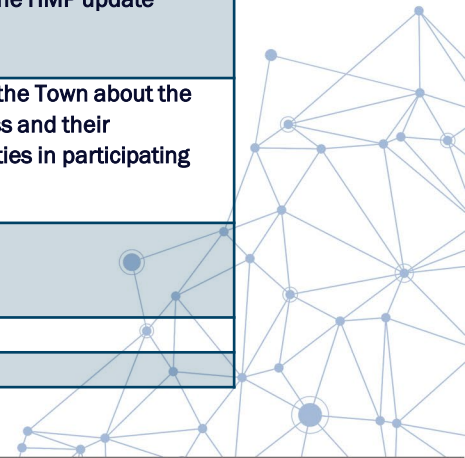


# In-Kind Services



- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at jim1@warrenswcd.org

Name of Team Member: _____							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes – sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	

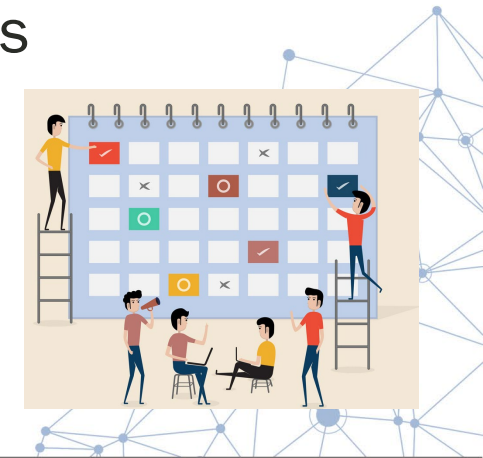






# Schedule

- Planning Process
  - Steering Committee #2 to identify hazards of concern for County and finalize goals– TODAY!
- Update Risk Assessment
  - Data collection is underway; confirm local critical facilities inventory by December 21, 2022
  - Begin vulnerability assessment
  - Risk Assessment Meetings: February (Steering Committee and Planning Partnership)
- Public Involvement Strategy – ongoing throughout the planning process

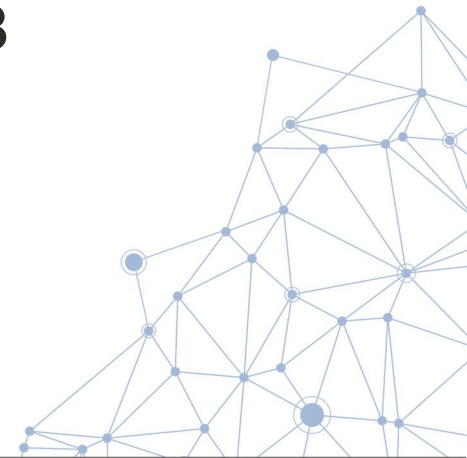






# Schedule

- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 2023**
- Draft Plan to Steering Committee in **May-June 2023** *(as sections are ready)*
- Public Review Period (30 days) – **June 2023**
- Final draft plan to NYSDHSES by June 2023 and FEMA by **August 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

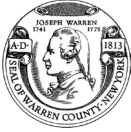
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #3 – AGENDA**  
**MEETING DATE/TIME: February 10, 2023 – 10:00 am**



- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	February 8, 2023, 10:00 am

## Attendees:

Ann Marie Mason	Director, Warren County Office of Emergency Services
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ethan Gaddy	Warren County Planning Department, CSC
Aaron Frankenfeld	Director, Adirondack/Glens Falls Transportation Council
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Dan Barusch	Town/Village Lake George, Planner
Ashley Rivers	Warren County Office of Emergency Services
John Gibb	Contingency Management Consulting Group
Jennifer Ramsey	Warren County Office of Emergency Services
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to provide a project status update and the preliminary county level hazards of concern relative risk rankings; to obtain input or adjustments of the rankings to incorporate local data.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation.</li> <li>The process continues to be on track for plan submittal to FEMA in August 2023.</li> <li>The majority of data to support the hazard mitigation plan (HMP) development has been received, with the receipt of the National Flood Insurance Program (NFIP) data pending processing by FEMA.</li> <li>The table of contents and draft sections of the plan are being posted as available on the project Teams site to enable steering committee members to access and review to enable input prior to sharing the drafts with the public. Tt requested the steering committee to review the documents and provide comments via 'track changes'.</li> </ul>	
2	<b>In-Kind Services Tracking/Outreach</b> <ul style="list-style-type: none"> <li>Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information</li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<p>to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</p> <ul style="list-style-type: none"><li>• The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>• Surveys to target the public, neighboring counties, agencies, and businesses have been distributed and will be used to provide additional input to the plan to support the identification of mitigation actions.</li></ul>	
3	<p><b>Risk Assessment Overview</b></p> <ul style="list-style-type: none"><li>• It reviewed the methodology to calculate the relative risk of the county's identified hazards of concern and shared the preliminary risk rankings. The ranks of Low, Medium, and High for each hazard will serve as a guide in identifying impactful mitigation actions to reduce damages and increase resilience. After review and adjustment by the core group, the preliminary county level ranks are as follows:<ul style="list-style-type: none"><li>○ Disease Outbreak (including Covid-19, influenza, and tick-borne illnesses) - <b>Medium</b></li><li>○ Earthquake - <b>Medium</b></li><li>○ Extreme Temperatures - <b>Medium</b></li><li>○ Flood - <b>High</b></li><li>○ Dams Failure - <b>High</b></li><li>○ Infestation - <b>Medium</b></li><li>○ Severe Storm (Windstorm, Thunderstorm, Hail, Tornado) – <b>High</b></li><li>○ Severe Winter Storm (Heavy Snow, Blizzards, Ice Storms) - <b>High</b></li><li>○ Wildfire - <b>High</b></li></ul></li></ul> <p>The county ranks indicate the highest municipal risk rather than the calculated regional risk. The Steering Committee was tasked to review the information provided in the presentation (see attached) to provide any additional input to revisit and potentially further adjust the rankings.</p> <p>Discussion included clarification that vulnerability assessment included only projected damages to general building stock and not potential infrastructure damages which are not modeled in Hazus-MH. These damages are an example of why the rankings should be adjusted, in particular, the flood ranking as it should include the risk posed by unmapped, localized flood areas evidenced by washouts and culvert failures. Capturing these floodprone areas was suggested as county and local level mitigation actions and could be documented in part using the ReadyWarren app.</p> <p>The public sharing of dam inundation areas was also discussed and will be addressed by Emergency Services staff.</p>	<p>Steering Committee members to email any input regarding adjusted risk ranking on or before 2/14/23.</p> <p>Emergency Services to review the level of detail provided to the public regarding dam inundation areas.</p> <p>Emergency Services, County GIS and SWCD to consider options to collect and map localized flood areas.</p>





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>These rankings will be presented to the Planning Partnership during a meeting on February 15<sup>th</sup>.</li></ul>	
6	<b>Upcoming Meetings</b> <ul style="list-style-type: none"><li>Planning Partnership Risk Assessment Meeting – February 15, 2023 <i>(Optional for Steering Committee members not affiliated with a municipality.)</i></li><li>Mitigation Strategy Workshop – March 15, 2023 <i>(Optional for Steering Committee members not affiliated with a municipality.)</i></li></ul>	
7	<b>Next Steps</b> <ul style="list-style-type: none"><li>Update Risk Assessment including adjustments as noted by Steering Committee</li><li>Present to planning partners</li><li>Populate adjusted results municipal annexes</li><li>Planning Partnership Risk Assessment Meeting: February 15, 2023</li><li>Continue to engage the public</li><li>Begin working with the municipalities to develop mitigation strategy/actions: <b>February 2023</b></li><li>Mitigation Strategy Workshop with FEMA and NYSDHSES – <b>March 15, 2023</b></li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 11:15 am.	





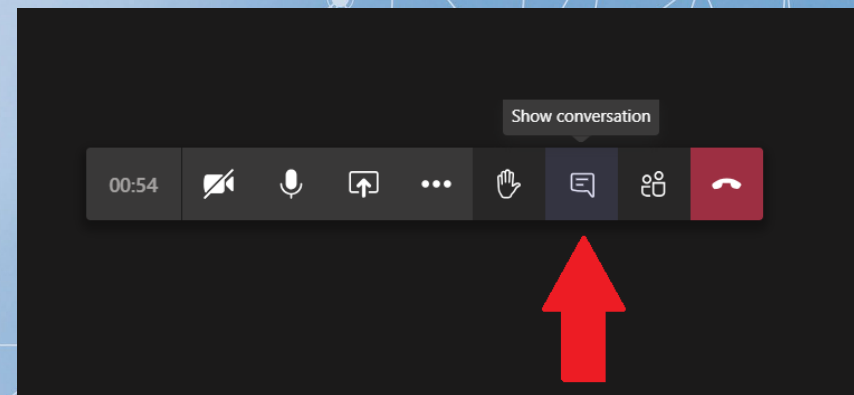
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Steering Committee #3 Meeting | February 10, 2023 | 10:00 – 11:30 AM

## ***WELCOME!***

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*





# Agenda

- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up

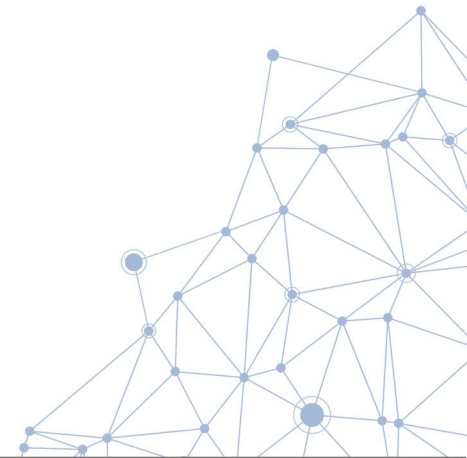






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ☐ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | May 2023                | Review draft plan                                    |
| ☐ | July/August 2023        | Submit plan to NYSDHSES and FEMA                     |

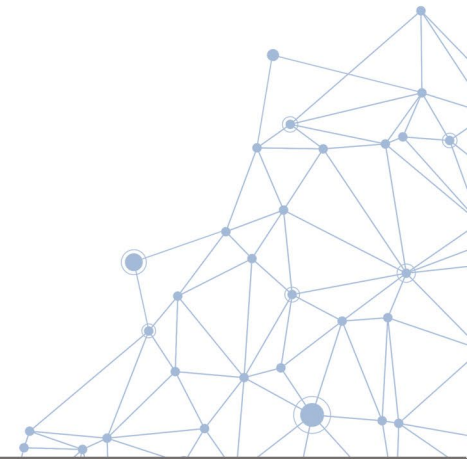






# Progress

- Requested NFIP Data – *Data pending*
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *Complete*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *Complete*
- Planning Partnership Participation – 100%







# Document Review on Sharepoint

- Access for document review
- Review in “desktop app” in track changes

OneDrive interface showing the 'Warren County (NY) HMP' folder. The 'Steering Committee' folder is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size	Sharing
GIS	November 14, 2022	frankenfelds@warrencoun	4 items	Shared
Letters of Intent to Participate	September 16, 2022	Bianco, Cynthia	14 items	Shared
Outreach Materials	November 30, 2022	Bianco, Cynthia	10 items	Shared
<b>Steering Committee</b>	January 24	Bianco, Cynthia	1 item	Shared
Survey				
SWCD				

OneDrive interface showing the 'Documents for Review' folder. The file '5.2 - HOC ID\_Warren\_rev.docx' is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size
Old	January 31	Bianco, Cynthia	6 items
Warren_TOC.docx	January 25	Bianco, Cynthia	205 KB
<b>5.2 - HOC ID_Warren_rev.docx</b>	6 days ago	Bianco, Cynthia	422 KB
Section 1-Introduction_rev.docx	6 days ago	Bianco, Cynthia	1.05 MB
Section 2-Plan Adoption.docx	January 25	masona@warrencountyny	360 KB
Section 5.1_Methodology_rev.docx	6 days ago	Bianco, Cynthia	517 KB

OneDrive interface showing the 'Steering Committee' folder. The 'Documents for Review' folder is circled in green, with a blue arrow pointing to it.

Name	Modified	Modified By	File size	Sharing
<b>Documents for Review</b>	January 24	Bianco, Cynthia	6 items	Shared






# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/ Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes – sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours







# Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynynewyorkhmp.com>

- Social Media
- Public Survey
- Stakeholder Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey

The screenshot shows the homepage of the Warren County Hazard Mitigation Plan 2023 Update website. The header is dark blue with the Warren County seal and the title 'WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE'. Below the header is a navigation bar with links: Home, About, What is Mitigation, Meetings, Calendar, Explore the Plan, and Additional Information. The main content area has a white background. It starts with the title 'Warren County Hazard Mitigation Plan 2023 Update' and a welcome message. It then describes the project's goal: to save lives and property by reducing hazard vulnerability. A call to action box on the right says 'WARREN COUNTY HAZARD MITIGATION PLAN UPDATE LIVE OR WORK IN THE COUNTY? WE NEED YOUR HELP!' with icons for Grants & Funding, Plan & Prepare, and Mitigate, and a link 'CLICK HERE TO TAKE THE PUBLIC SURVEY'. Another call to action box on the left says 'WARREN COUNTY HAZARD MITIGATION PLAN UPDATE REPRESENT AN ORGANIZATION OR GROUP THAT WORKS IN THE COUNTY? WE NEED YOUR HELP!' with icons for a building, bus, medical cross, police badge, and courthouse, and a link 'CLICK HERE TO TAKE THE SURVEY'. Below this, it states that public participation and feedback are vital parts of the process. At the bottom, there is a section for 'Events in February 2023' with a calendar navigation bar showing 'February 2023' and 'Go' button.



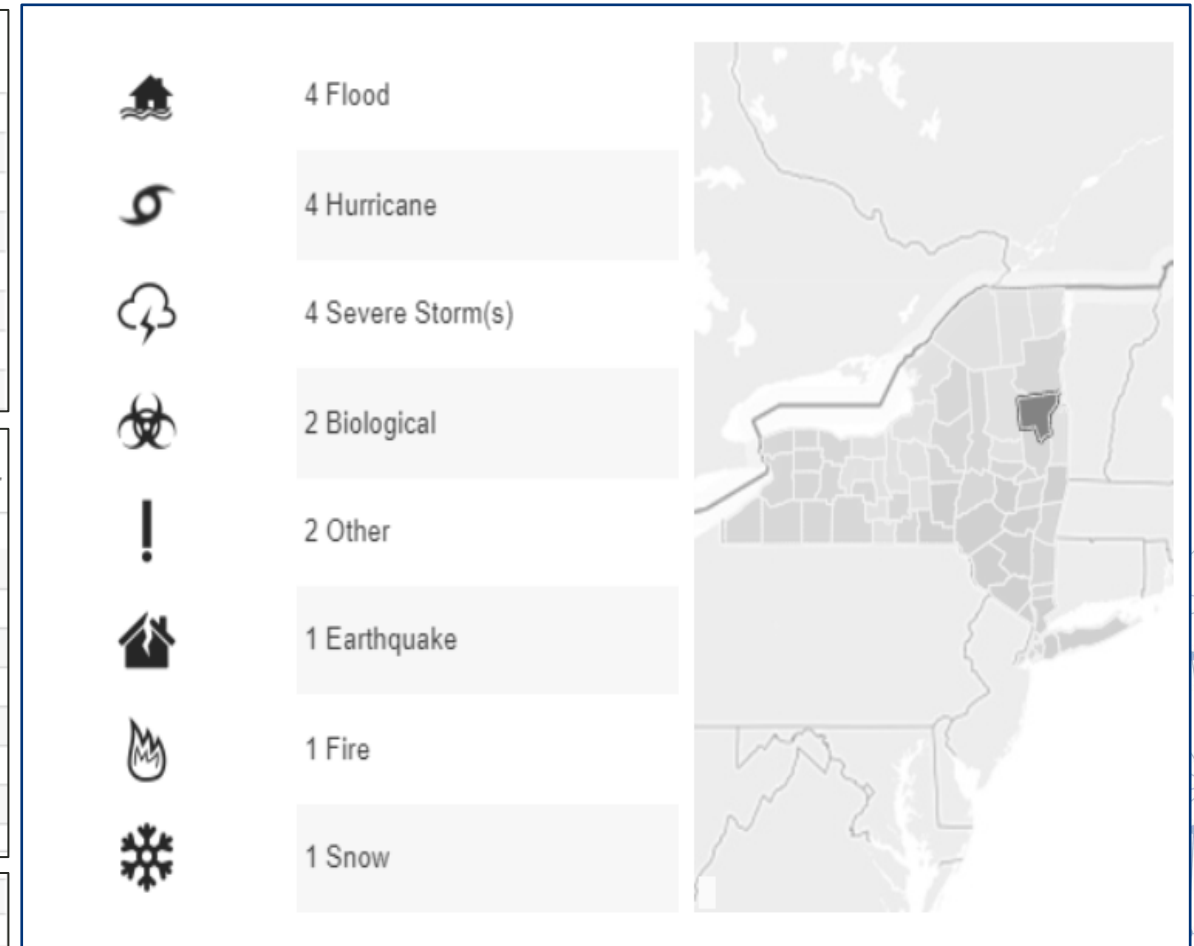


# Hazard Mitigation – What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480







# 2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire





# What is Risk?

## ✓ Hazard

- Source of potential danger or adverse condition

## ✓ Exposure

- Manmade or natural features that are exposed to the hazard

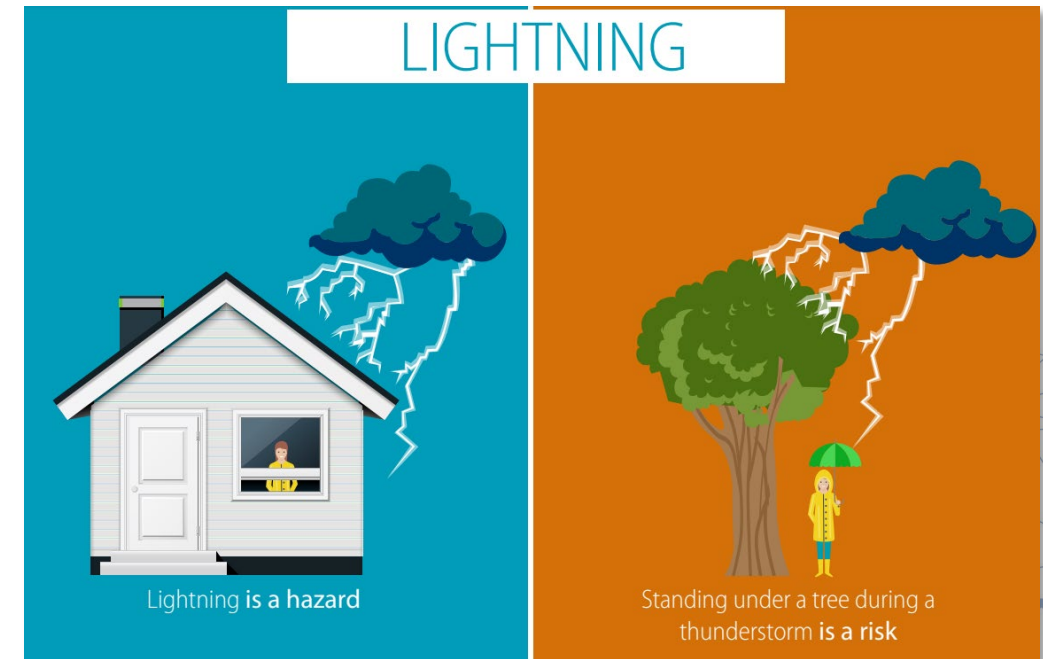
## ✓ Vulnerability

- Damage susceptibility of the exposed features

## ✓ Adaptive Capacity (or capability)

- Plans/policies
- Response/recovery
- Financial resources

## ✓ Climate Change

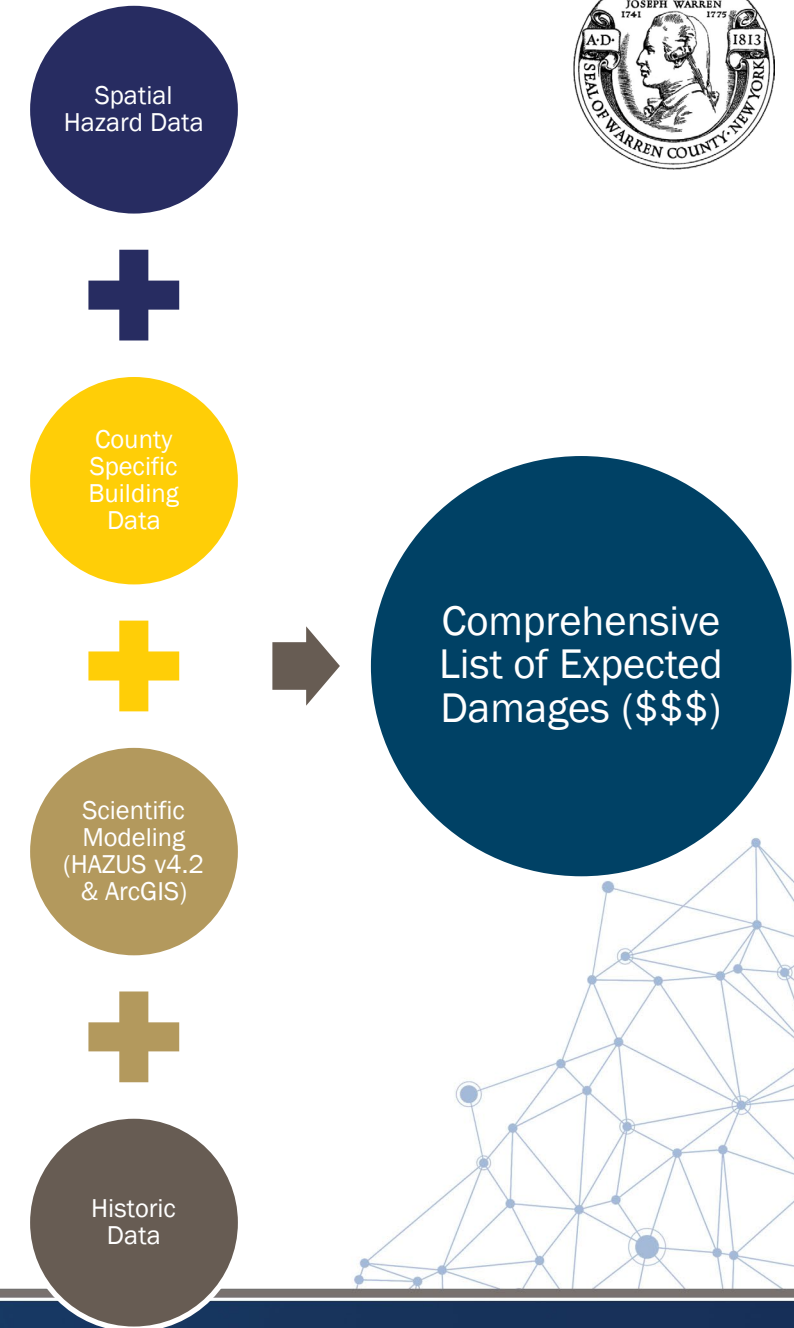






# Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings





# Preliminary Hazard Ranking

How are the rankings calculated?



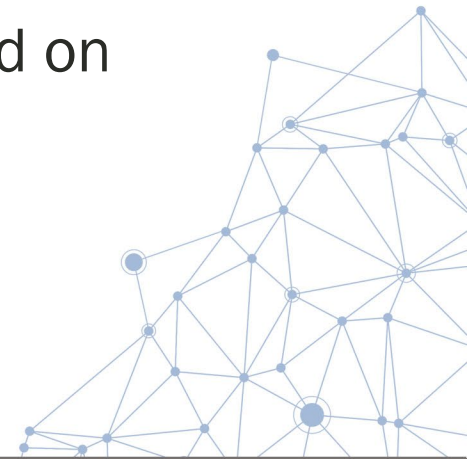




# Preliminary Hazard Ranking Methodology

Hazard Ranking is determined by quantitative and qualitative factors including:

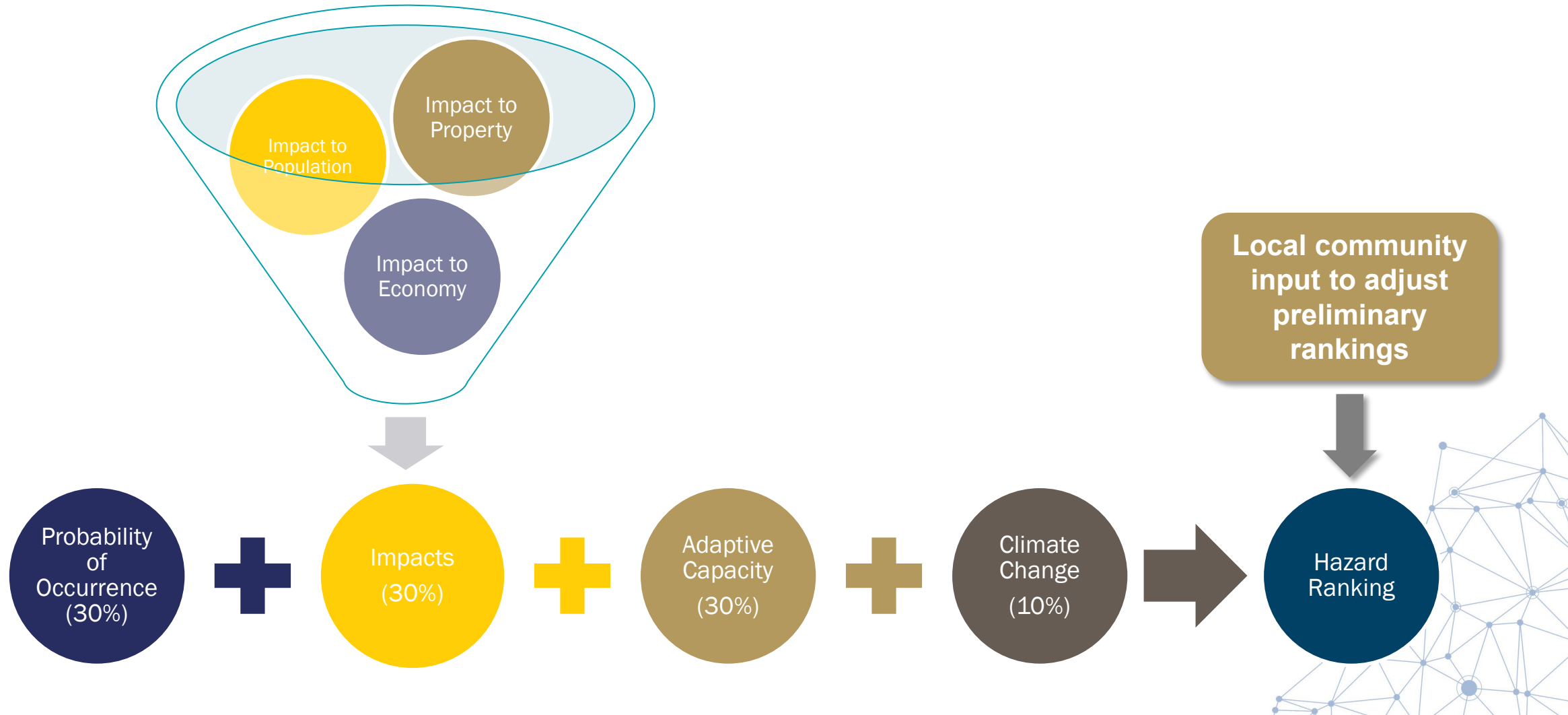
- The calculated probability of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which climate change will affect future occurrences based on best available data.
- Capability- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.







# Hazard Ranking Formula



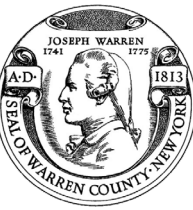


# Ranking the Hazards of Concern

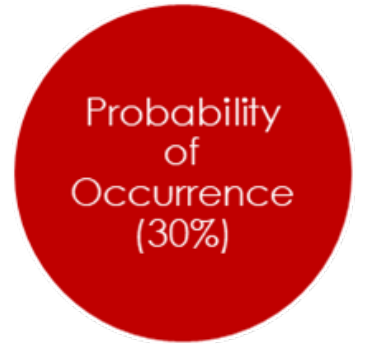
What information plays a role in determining the risk rankings?



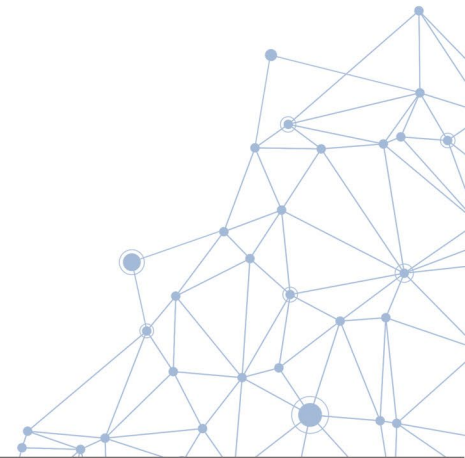




# Probability Of Occurrence



- **Unlikely**
  - Not likely to occur or less than 1% annual chance of occurring
- **Rare**
  - Between 1 and 10% annual chance of occurring
- **Occasional**
  - Between 10 and 100% annual chance of occurring
- **Frequent**
  - 100% chance occurring; occurs multiple times a year







# Hazard Ranking Input

## Impact on Population – Function of population exposed

- ✓ Low – 14% or less population exposed
- ✓ Medium – 15%-29% population exposed
- ✓ High – 30%+ population exposed

## Impact on property – Function of structures exposed

- ✓ Low – 14% or less structures exposed
- ✓ Medium – 15%-29% structures exposed
- ✓ High – 30%+ structures exposed

## Impact on economy – Function of damages to building stock

- ✓ Low – 9% or less loss estimate of total replacement cost
- ✓ Medium – 10%-19% loss estimate of total replacement cost
- ✓ High – 19%+ loss estimate of total replacement cost

## Capability – Function of level of planning, policies, enforcement

- ✓ Weak – outdated policies; limited to no deployable resources; limited capabilities to respond; long recovery
- ✓ Moderate – minimum requirements; mitigation strategies identified but not implemented; moderate county capabilities
- ✓ Strong – exceed requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high

## Climate Change – Function of climate predictions

- ✓ Low - No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)
- ✓ Medium - Studies and modeling projections indicate a potential for exacerbated conditions due to climate change
- ✓ High - Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change







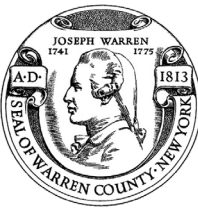
# Preliminary Overall Risk Ranking

Hazard of Concern	2021 CEPA Ranking	2023 Calculated Risk Ranking	2017 Risk Ranking	2023 Adjusted Ranking
Earthquake	Low	Low	High	Medium
Extreme Temperature	-	Medium	-	Medium
Flood	Very High	Low	Medium	High
Severe Storm	Medium	High	High	High
Severe Winter Storm	High	High	High	High
Wildfire	Medium	High	High	High
Infestation	-	Medium	Medium	Medium
Dam Failure	-	High	-	High
Disease Outbreak/Pandemic	Medium	Low	Medium	Medium

\* Potential adjustments



# Municipal Level Risk Ranking (Preliminary)



Hazard Ranking									
Municipality	Earthquake	Extreme Temps	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation	Dam Failure	Disease Outbreak
Bolton (T)	Low	Medium	Low	High	High	Medium	Medium	High	Medium
Chester (T)	Low	Medium	Low	High	High	Low	Medium	High	Low
Glens Falls (C)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Hague (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Horicon (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Johnsburg (T)	Low	Medium	Low	High	High	Low	Medium	High	Medium
Lake George (T)	Low	Medium	Low	High	High	High	Medium	Medium	Medium
Lake George (V)	Low	Medium	Low	High	High	High	Medium	Low	Low
Lake Luzerne (T)	Medium	Medium	Low	High	High	Medium	Medium	Medium	Low
Queensbury (T)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Stony Creek (T)	Medium	Low	Low	High	High	Low	Medium	Medium	Low
Thurman (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Warrensburg (T)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Warren County	Medium	Medium	Low	High	High	High	Medium	High	Low

\* To be adjusted





# Sample Risk Analysis Input (Flood)

Warren County Municipality	Probability		Impact on Population				
	Impact	Index	Population (2020 Decennial)	1-Percent Annual Chance Flood Event Population Exposed	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Impact	Numeric Value x3
Bolton (T)	Frequent	3	2,012	132	6.5%	L	3
Chester (T)	Frequent	3	3,086	262	8.5%	L	3
Glens Falls (C)	Frequent	3	14,830	0	0.0%	L	3
Hague (T)	Frequent	3	633	45	7.1%	L	3
Horicon (T)	Frequent	3	1,471	77	5.2%	L	3
Johnsburg (T)	Frequent	3	2,143	49	2.3%	L	3
Lake George (T)	Frequent	3	2,494	65	2.6%	L	3
Lake George (V)	Frequent	3	1,008	2	0.2%	L	3
Lake Luzerne (T)	Frequent	3	3,079	200	6.5%	L	3
Queensbury (T)	Frequent	3	29,169	376	1.3%	L	3
Stony Creek (T)	Frequent	3	758	23	3.0%	L	3
Thurman (T)	Frequent	3	1,095	8	0.7%	L	3
Warrensburg (T)	Frequent	3	3,959	147	3.7%	L	3
Warren County	Frequent	3	65,737	1,385	2.1%	L	3

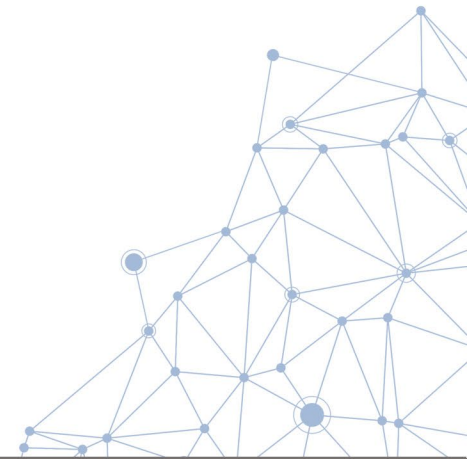




# Earthquake

- Number of Events
  - 189 earthquakes epicentered in NYS with 4 epicentered in Warren County, per 2015 NYS HMP, between 1973 and 2014
  - Faults are located within the County
  - Individual Assistance (IA) declared for EMA declarations DR-1415 in Warren County (5/16/2002)
  - Impacts
    - 2 earthquake scenarios: 500-yr and 2500-yr events
    - People and structures located in areas with soils more susceptible to earthquakes

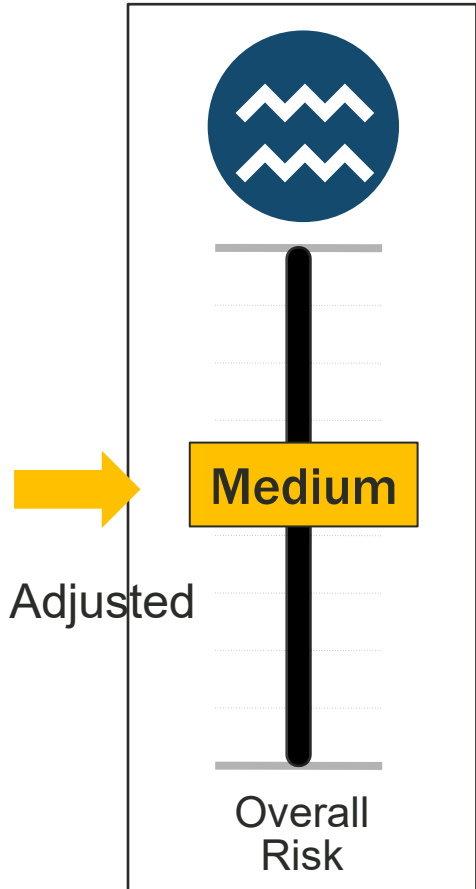
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Earthquake



**Probability of Occurrence: Rare**



**Impact on Population: Medium**

65.6% of population is exposed and vulnerable (NEHRP D & E soils)



**Impact on Property: High**

48.7% of County building stock is exposed and vulnerable (NEHRP D & E soils)



**Impact on Economy: Low**

\$1.9% of Structural Replacement Cost Value damaged



**Adaptive Capacity: Medium for all municipalities**

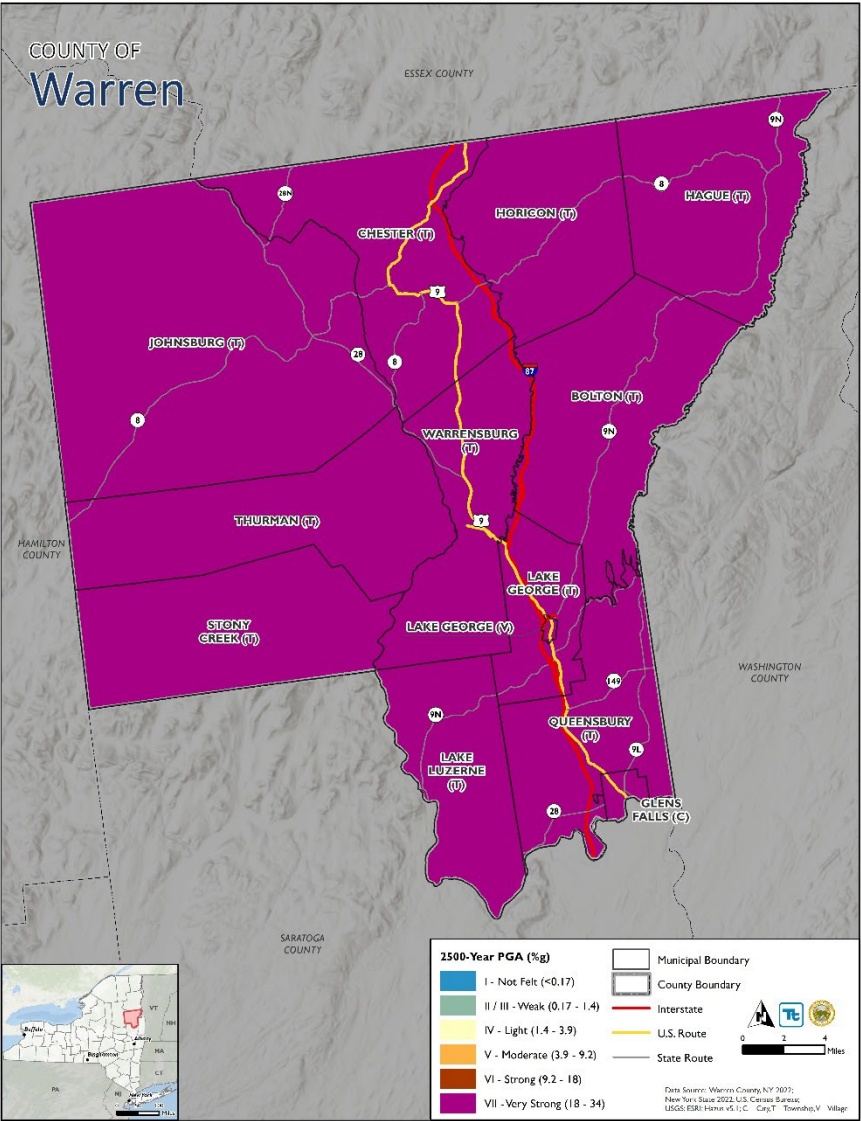


**Climate Change: Low for all municipalities**

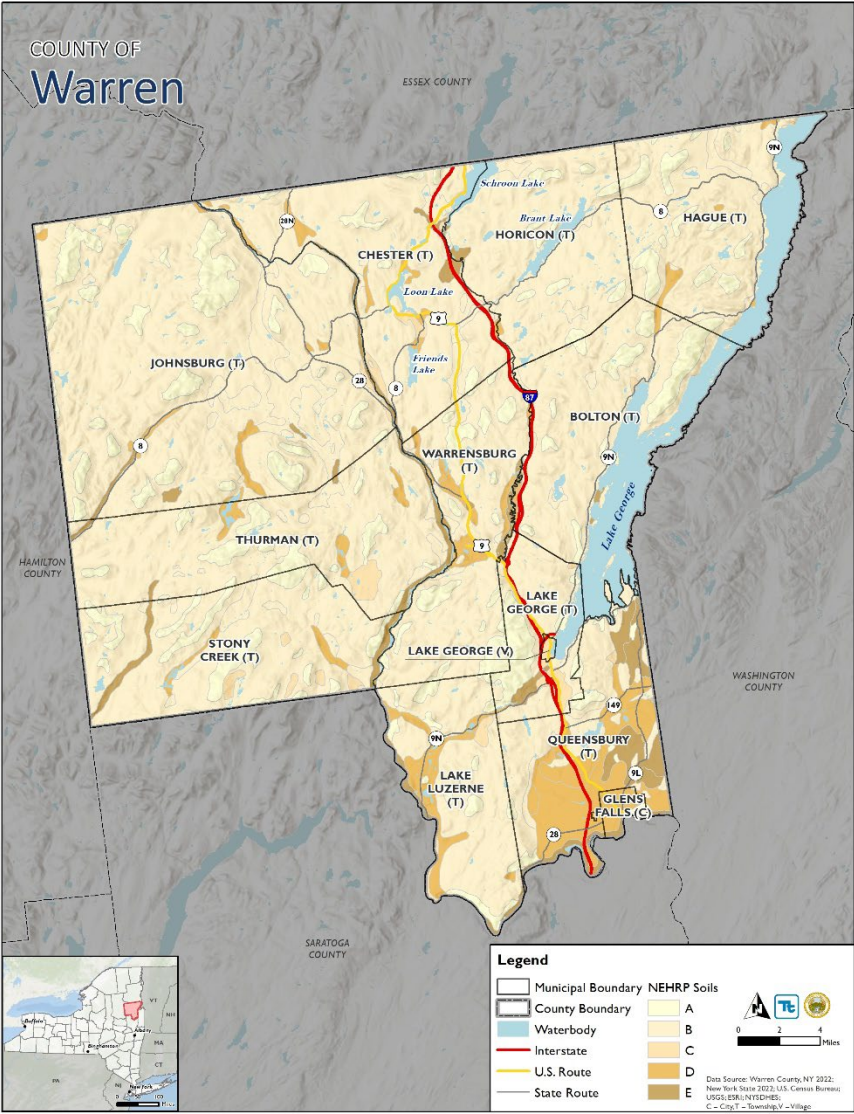




# Peak Ground Acceleration



# NEHRP Soil Class



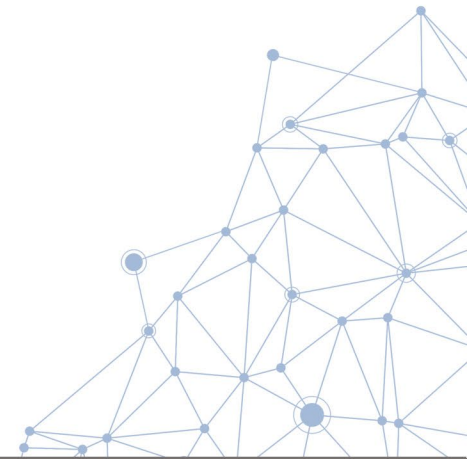




# Flood

- Previous Events
  - Riverine, flash, and stormwater flooding
    - Between 2000 and 2022, Warren County included in 2 FEMA flood-related declarations.
      - FEMA-DR-1993 (Severe Storms Tornadoes, Winds and Flooding) – April 26, 2011
      - FEMA-DR-4129 (Severe Storms, and Flooding) – July 2013
- Exposure
  - People and property located in the 1% annual chance flood area

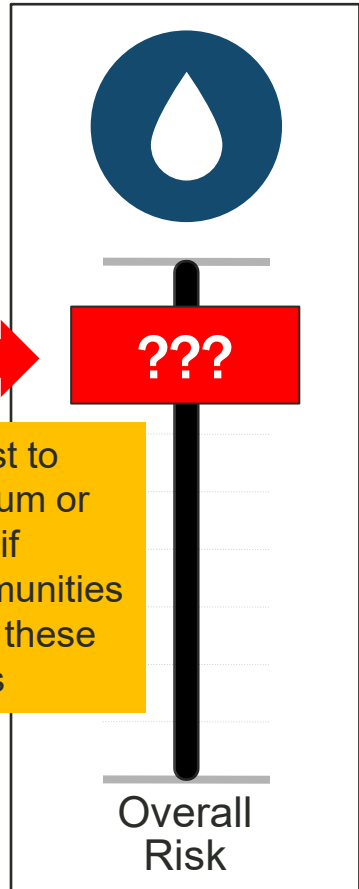
Warren County  
Ranking  
**LOW**







# Countywide Preliminary Risk Ranking: Flood



**Probability of Occurrence: Frequent**



**Impact on Population: Low**

1,385 people (2.1% of the population) in the SFHA



**Impact on Property: Low**

1,252 buildings (3.1% of total County buildings) in the SFHA; 1 Rep Loss



**Impact on Economy: Low**

\$721 M Replacement Cost Value (RCV) (3% of County total RCV) located in the Regulatory Floodplain



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



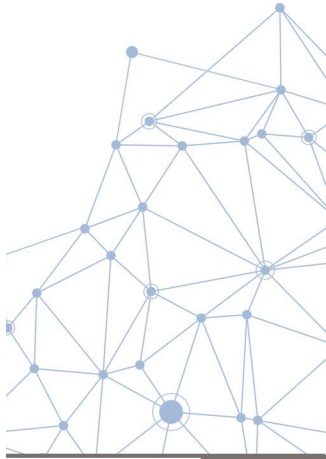
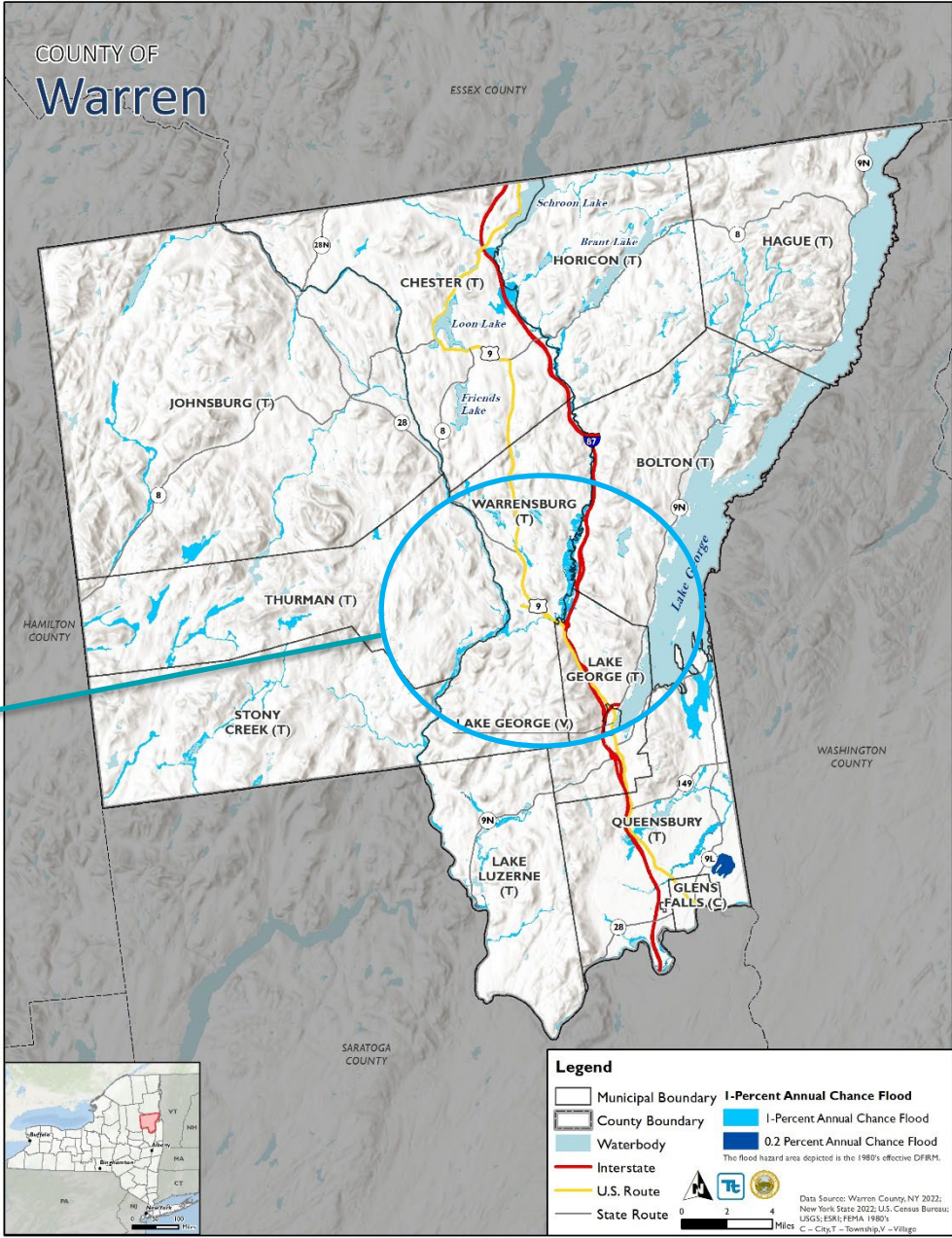
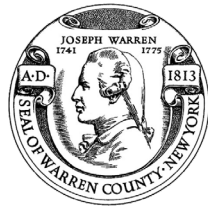


# 2023 vs. 2017 Rankings (Flood)

Warren County Municipality	IMPACT ON POPULATION	IMPACT ON PROPERTY	IMPACT ON ECONOMY	RISK RANKING	RISK RANKING
	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Percent of Total Buildings in 1% Flood Area	Percent of Total GBS RCV	2023 Estimated	2017
Bolton (T)	6.5%	6.6%	6.5%	Low	Medium
Chester (T)	8.5%	8.2%	7.6%	Low	Medium
Glens Falls (C)	0.0%	0.1%	1.0%	Low	Medium
Hague (T)	7.1%	7.0%	3.2%	Low	Medium
Horicon (T)	5.2%	5.2%	7.2%	Low	Medium
Johnsburg (T)	2.3%	2.4%	3.8%	Low	Medium
Lake George (T)	2.6%	2.5%	1.0%	Low	Medium
Lake George (V)	0.2%	1.1%	1.2%	Low	Medium
Lake Luzerne (T)	6.5%	6.3%	3.6%	Low	Medium
Queensbury (T)	1.3%	1.4%	2.1%	Low	Medium
Stony Creek (T)	3.0%	3.2%	3.8%	Low	Medium
Thurman (T)	0.7%	0.8%	0.5%	Low	Medium
Warrensburg (T)	3.7%	3.9%	2.7%	Low	High
Warren County	2.1%	3.1%	3.0%	Low	Medium



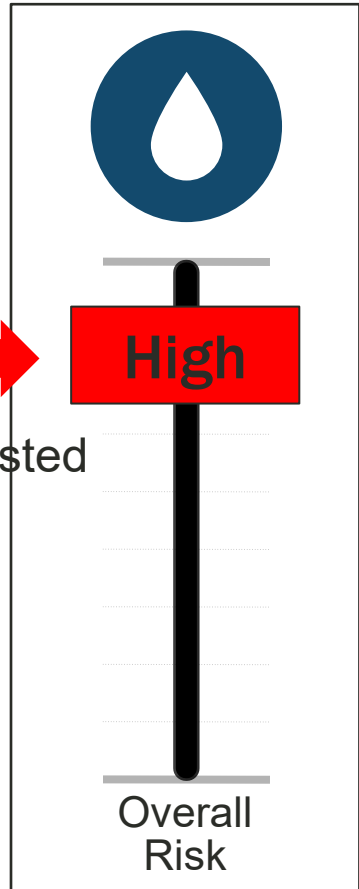
# Flood Hazard Areas







# Countywide Preliminary Risk Ranking: Dam Failure



**Probability of Occurrence: Rare**



**Impact on Population: High**

216 people in inundation areas



**Impact on Property: High**

254 buildings (0.6% of total County buildings) located in inundation areas



**Impact on Economy: High**

\$130 M Replacement Cost Value (RCV) (0.5% of County total RCV) in inundation areas



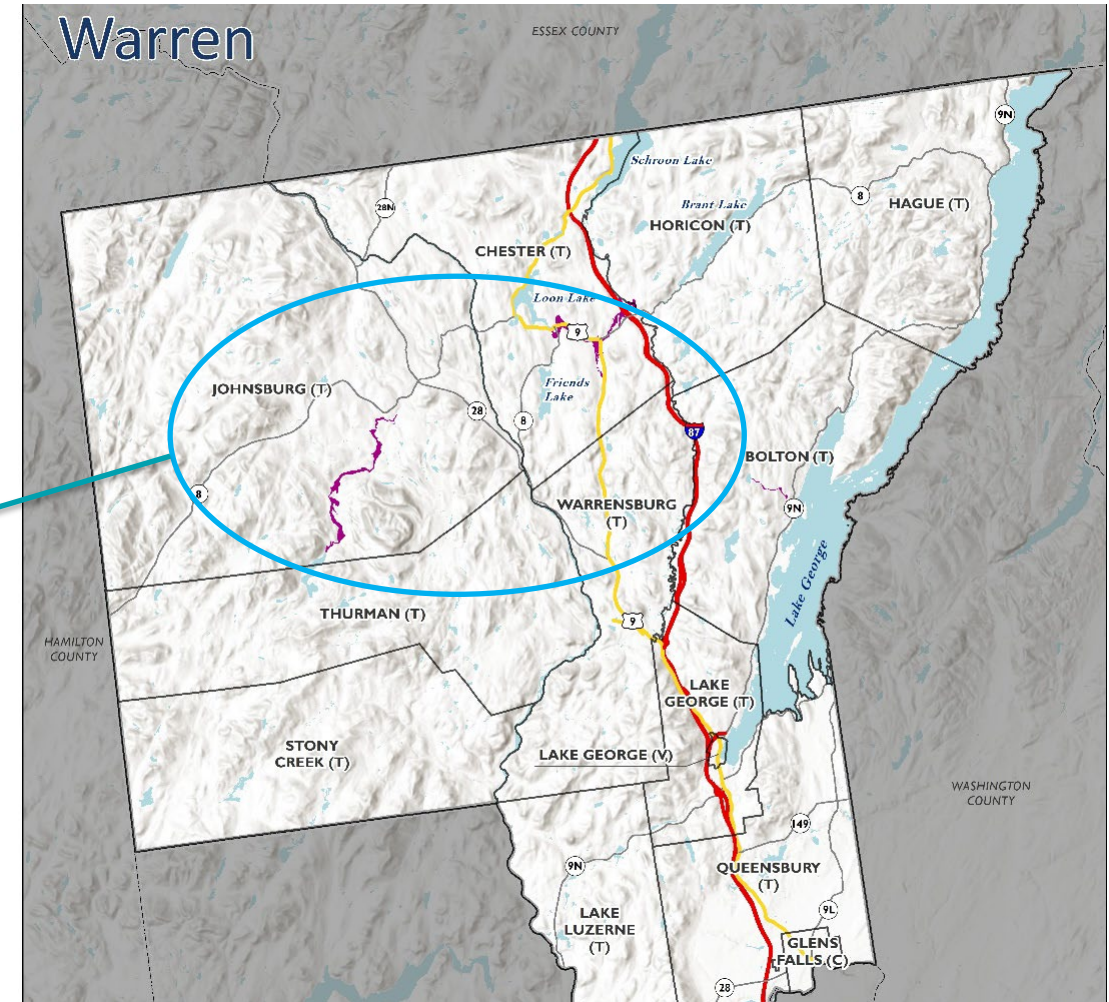
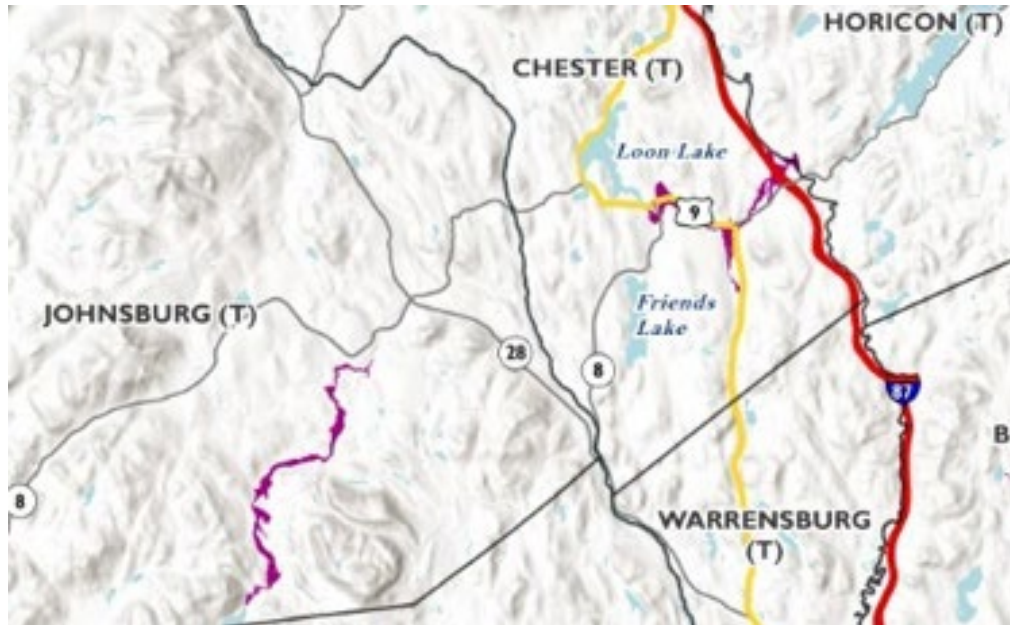
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Dam Inundation Areas







# Severe Storm

- Previous Events

- Hazard includes lightning, hail, and windstorms
- FEMA-DR-4472 (Severe Storms, Straight-line Winds and Flooding) – October 2019
- Between 2016 and 2022, Warren County was included in 1 FEMA severe storm-related declaration.
- According to the NOAA, 5 tornado events took place in Warren County between 1950 and 2022

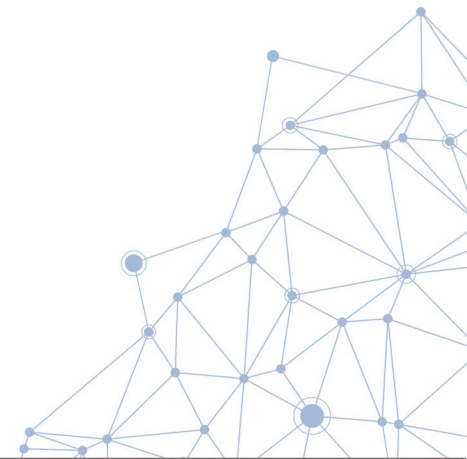
Warren County  
Ranking  
**HIGH**

- Exposure

- Population and property exposed to 100-year peak wind gusts (Tropical Storm-39 to 73 mph) and 500-year (Tropical Storm speeds)
- All people and property exposed and vulnerable

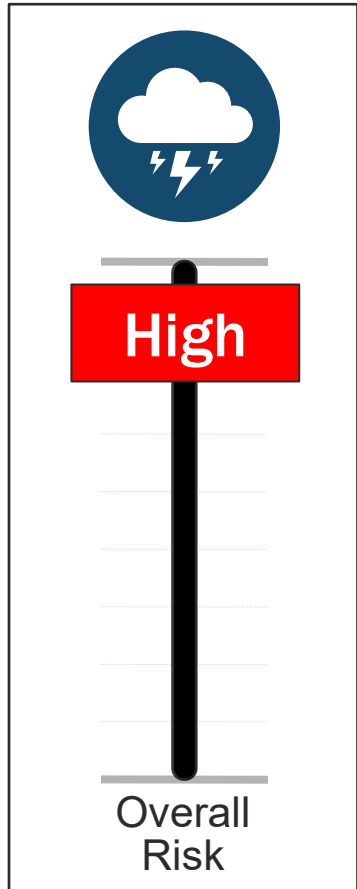
- Potential Impacts

- Power outages
- Critical facility and infrastructure damage





# Countywide Preliminary Risk Ranking: Severe Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable



**Impact on Economy: Low**

\$4.8 M (less than 1%) general building stock loss for a 500-year event



**Adaptive Capacity: High for all municipalities**



**Climate Change: High for all municipalities**



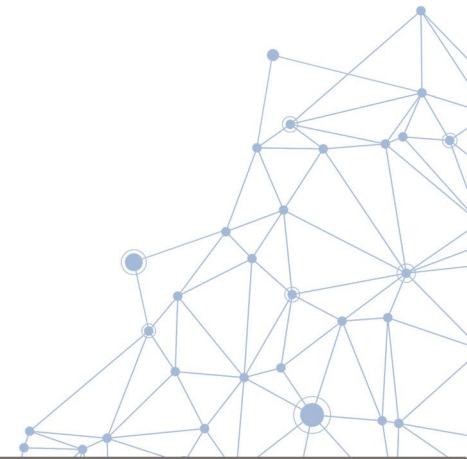


# Wildfire

- Previous Events

- The NYS HMP identified wildfire as a hazard of concern for New York State, however the daily probability of a wildfire event for the state is .09 percent.
- Warren County was included in one FEMA fire declaration; however, it was a manmade terrorist attack.
- According to the 2020 Warren County CEPA, the wildfire hazard is ranked medium.
- Exposure
  - People and property located in Wildfire Urban Interface WUI.

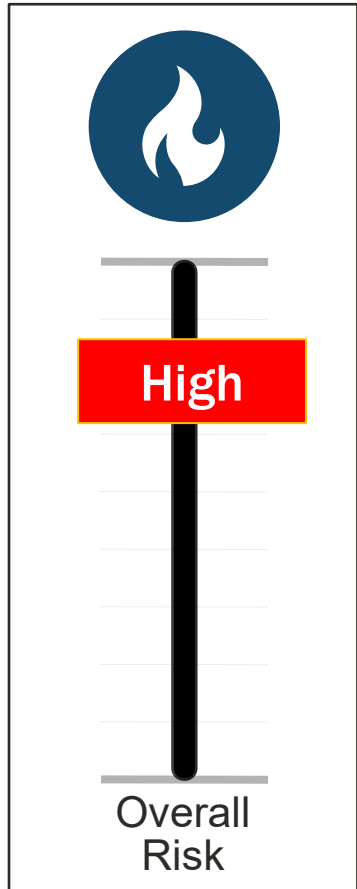
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Wildfire



**Probability of Occurrence: Occasional**



**Impact on Population: High**

44.4% of population exposed to the WUI Interface



**Impact on Property: High**

14,488 buildings (35.9 % of County total) exposed to WUI Interface



**Impact on Economy: High**

\$8.6M in RCV 35.4% of County total) exposed to WUI Interface



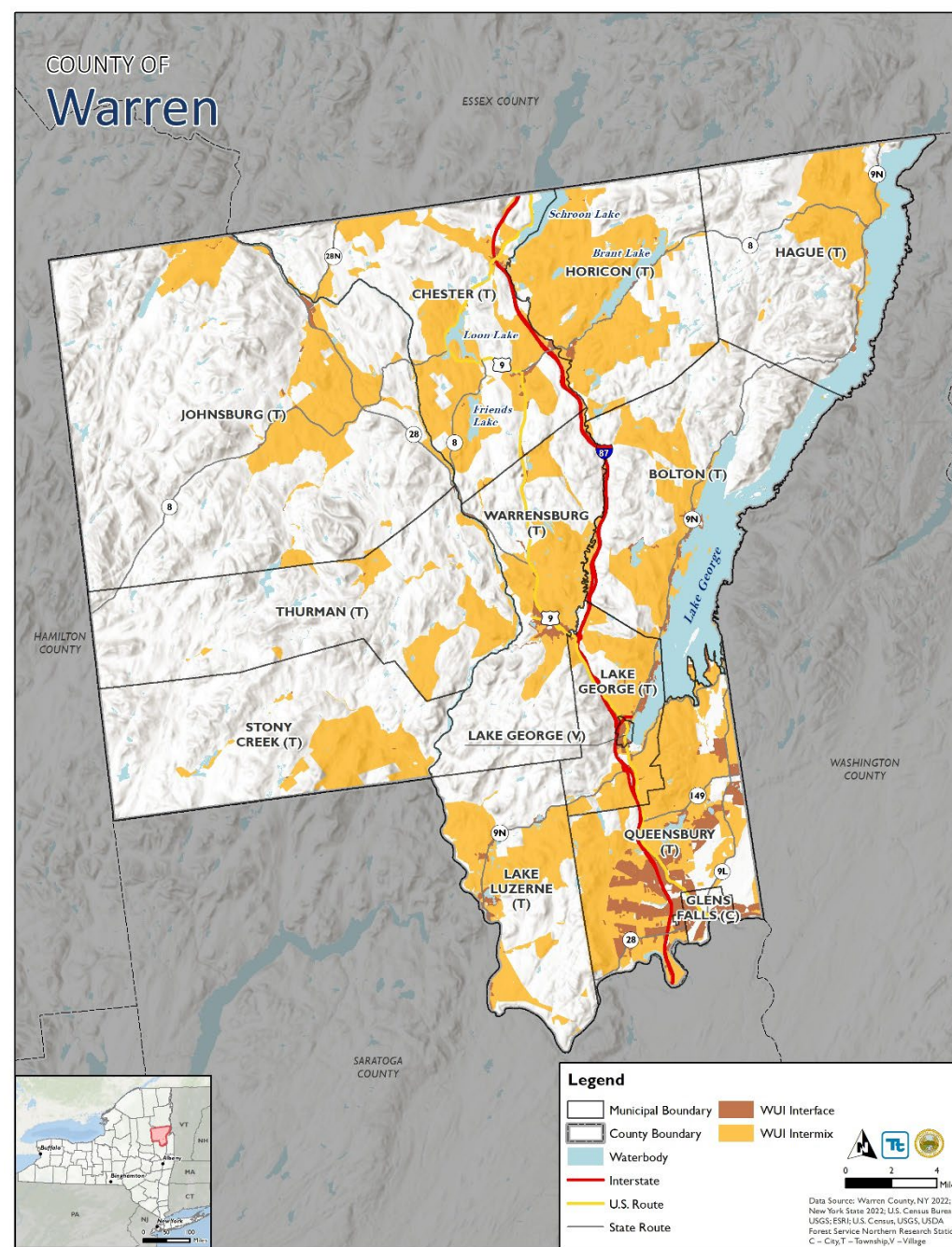
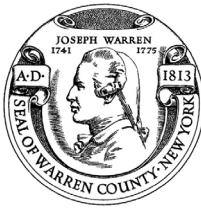
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Wildland Urban Interface/ Intermix Area



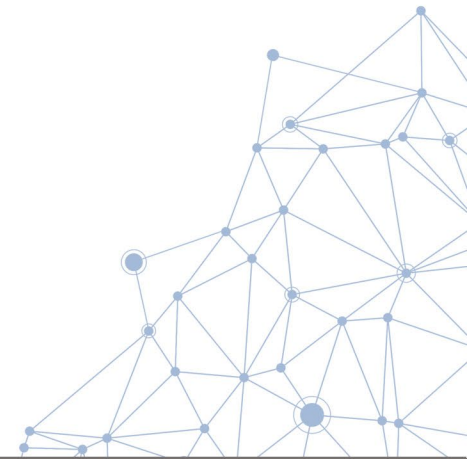




# Severe Winter Storm

- Hazard includes heavy snow, blizzards, ice storms
- Previous Events
  - FEMA included Warren County in one winter storm-related disaster declaration
    - FEMA-EM-3107 (Severe Blizzard) – March 1993
- Exposure
  - All people and property exposed and vulnerable
- Potential Impacts
  - Power outages
  - Critical facility and infrastructure damage
  - Transportation interruptions/accidents

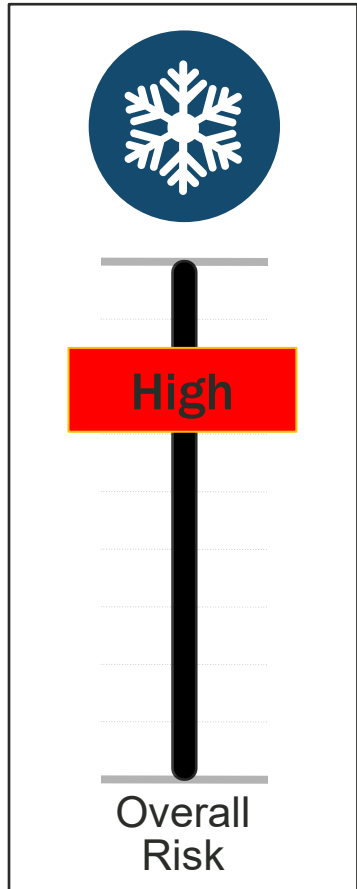
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Severe Winter Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable; however, impacts are minimal



**Impact on Economy: Low**

\$1.2M (5%) potential losses to building stock



**Adaptive Capacity: High for all municipalities**



**Climate Change: Medium for all municipalities**



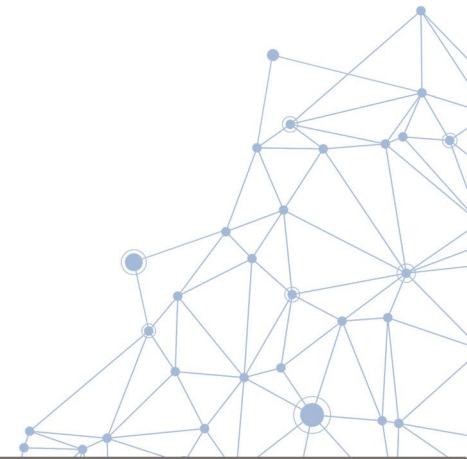


# Disease Outbreak/Pandemic

- Previous Events

- According to the 2020 Warren County CEPA, the pandemic hazard is ranked medium.
- The County has been impacted by the COVID-19 pandemic (DR-4480).
- The County has been impacted by various diseases (COVID-19, West Nile Virus, Lyme disease)
- Exposure
  - Entire County is exposed and vulnerable; however, not occurring multiple times a year with significant impacts
  - Severe events can lead to staffing and bed shortages in hospitals

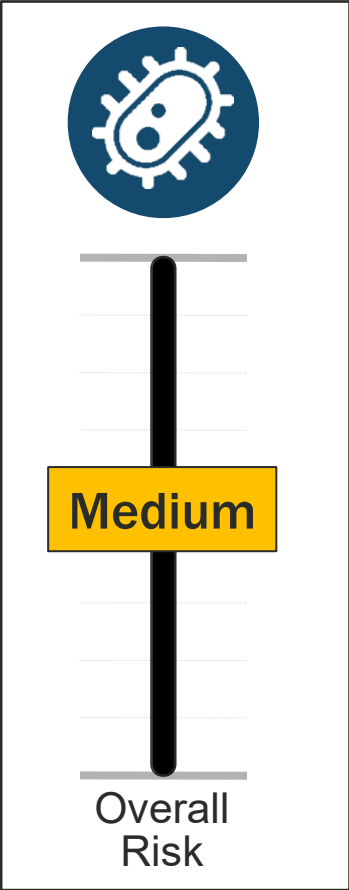
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Disease Outbreak



**Probability of Occurrence: Occasional**

**Impact on Population: Medium**  
(14,754 County residents are 65+ years and 2,850 >5 years (26.8 % of County population))

**Impact on Property: Low**

**Impact on Economy: Medium**

**Adaptive Capacity: Medium for all municipalities**

**Climate Change: Medium for all municipalities**



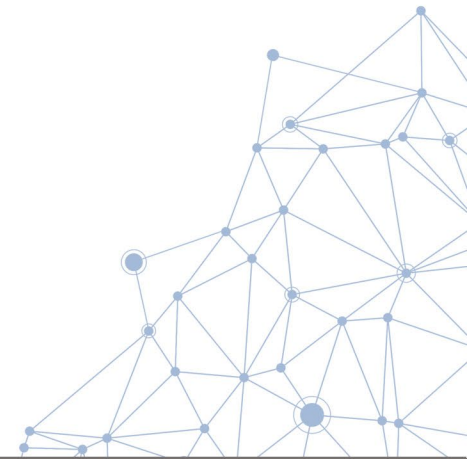




# Extreme Temperature

- Previous Events
  - Hot and cold events
- Exposure
  - Entire County is vulnerable
  - Increased vulnerability to populations at higher risk (65+ / <5 years old)
- Potential impacts:
  - Increased wildfire/brush fire risk
  - Impacts to agriculture/farms
  - Long-periods of warm temperatures can lead to drought conditions

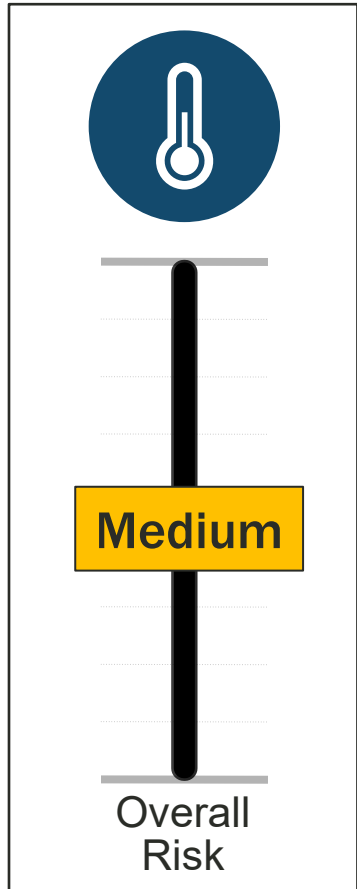
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Extreme Temps



**Probability of Occurrence: Occasional**



**Impact on Population: Medium**

17,604 County residents are 65+ years old or >5 years (26.8% of County population)



**Impact on Property: Low**



**Impact on Economy: Medium**



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**





# Infestation and Invasive Species

- Previous Events

- Beaver Dam Failure, March 2022
- Hemlock Woolly Adelgid, Lake George, 2017
- Emerald Ash Borer (EAB), Shroon River, 2022

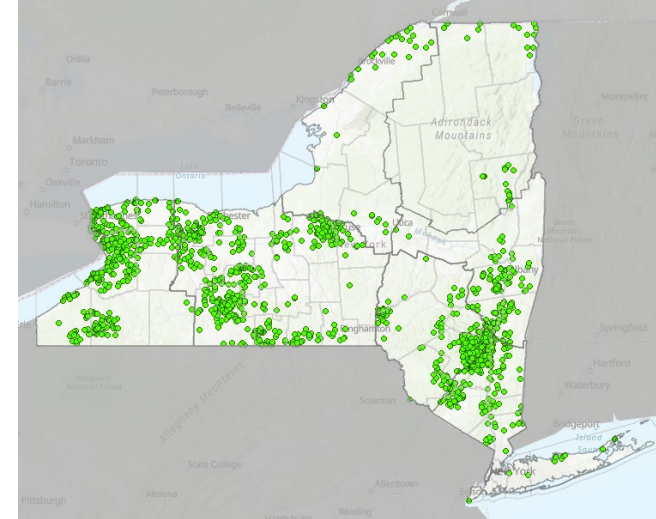
- Exposure

- Entire County is vulnerable

- Potential impacts:

- Soil destabilization
- Increased wildfire risk
- Impacts to agriculture/farms

Warren County  
Ranking  
**MEDIUM**

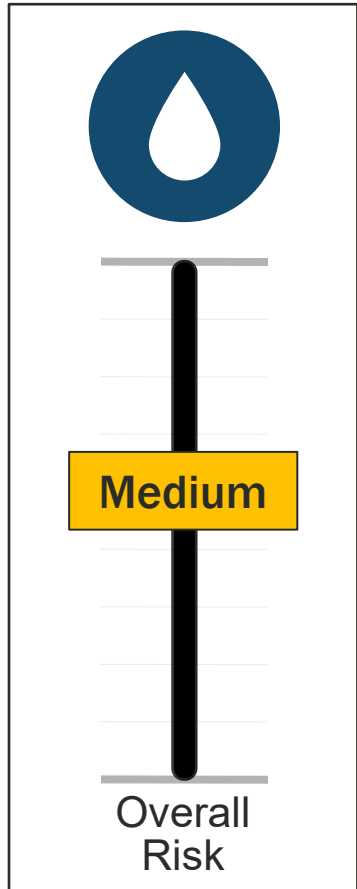


EAB – Source: New York Invasive Species Network 2019





# Countywide Preliminary Risk Ranking: Infestation



**Probability of Occurrence: Occasional**



**Impact on Population: Medium**



**Impact on Property: Medium**



**Impact on Economy: Medium**



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**





# Next Steps

- Update Risk Assessment
  - Prepare results to present to planning partners
  - Populate adjusted results municipal annexes
  - Planning Partnership Risk Assessment Meeting: February 15, 2023
  - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

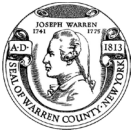
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #3 – AGENDA**  
**MEETING DATE/TIME: February 15, 2023 – 10:00 am**



- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Planning Partnership Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	February 15, 2023, 10:00 am

## Attendees:

Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Jessica Leerkes*	Engineer, Town of Chester
Dan Barusch*	Town/Village Lake George, Planner
Dave Duell*	Town of Queensbury Highway Superintendent
Mark DeMers	Deputy Highway Superintendent
Craig Leggett*	Supervisor, Town of Chester
Debra Runyan*	Town of Thurman Supervisor
Tammie DeLorenzo*	Assistant to the County Administrator, Warren County
Michael Geraci*	Supervisor, Town of Horicon
Frank E. Thomas*	Supervisor, Town of Stoney Creek
Khristopher Kassay	Town of Lake Luzerne
Erin Putney	Town of Lake Luzerne, Zoning Officer
Laura Moore*	Planner, Town of Queensbury
Westfall, Josh*	Planner, Town of Bolton
James Hull	Code Enforcement Officer, Town of Warrensburg
Mike Dunkley	Deputy Highway Superintendent, Town of Johnsbury
Ernie Dunkley	Safety Officer, Town of Johnsbury
Keith Lanfear	Superintendent of Public Works, Village of Lake George
William Norton	Superintendent, Water & Sewer, City of Glens Falls
John Strough	Supervisor, Town of Queensbury
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to provide a project status update and the preliminary municipal level hazards of concern relative risk rankings; to prepare the Planning Partners to review municipal rankings and adjust as necessary to take into account local data or undocumented issues.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation.</li> <li>Warren County (Jim Lieberum, Warren County Soil &amp; Water Conservation District) provided an overview of the importance of the plan in identifying projects to reduce risk and encouraged municipal</li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<p>teams supporting the plan to include public works, fire department, emergency management, and law enforcement staff to provide information on past events and problem areas to support the development mitigation projects.</p> <ul style="list-style-type: none"><li>• The process continues to be on track for plan submittal to FEMA in August 2023.</li><li>• The majority of data to support the hazard mitigation plan (HMP) development has been received, with the receipt of the National Flood Insurance Program (NFIP) data pending processing by FEMA.</li></ul>	
2	<p>In-Kind Services Tracking/Outreach</p> <ul style="list-style-type: none"><li>• Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>• Warren County reminded municipalities to submit documentation of in-kind hours to support the obligations related to the planning grant funding.</li><li>• The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>• Surveys to target the public, neighboring counties, agencies, and businesses have been distributed and will be used to provide additional input to the plan to support the identification of mitigation actions.</li></ul>	<p>Action: All staff to submit documentation of hours spent supporting the mitigation planning process, including hours spent to provide data, review documents, provide updates to communities.</p>
3	<p><b>Risk Assessment Overview</b></p> <ul style="list-style-type: none"><li>• Tt reviewed the methodology to calculate the relative risk of the county's identified hazards of concern and shared the preliminary risk rankings. The ranks of Low, Medium, and High for each hazard will serve as a guide in identifying impactful mitigation actions to reduce damages and increase resilience. After review and adjustment by the core group, the preliminary county level ranks are as follows:<ul style="list-style-type: none"><li>○ Disease Outbreak (including Covid-19, influenza, and tick-borne illnesses) - <b>Medium</b></li><li>○ Earthquake - <b>Medium</b></li><li>○ Extreme Temperatures - <b>Medium</b></li><li>○ Flood - <b>High</b></li><li>○ Dams Failure - <b>High</b></li><li>○ Infestation - <b>Medium</b></li><li>○ Severe Storm (Windstorm, Thunderstorm, Hail, Tornado) – <b>High</b></li><li>○ Severe Winter Storm (Heavy Snow, Blizzards, Ice Storms) - <b>High</b></li><li>○ Wildfire - <b>High</b></li></ul></li></ul> <p>The county ranks indicate the highest municipal risk rather than the calculated regional risk. The Steering Committee was tasked to review the information provided in the presentation (see attached) to provide</p>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<p>any additional input to revisit and potentially further adjust the rankings.</p> <p>Discussion included clarification that vulnerability assessment included only projected damages to general building stock and not potential infrastructure damages which are not modeled in Hazus-MH. These damages are an example of why the rankings should be adjusted, in particular, the flood ranking as it should include the risk posed by unmapped, localized flood areas evidenced by washouts and culvert failures.</p> <p>The public sharing of dam inundation areas was also discussed and will be addressed by Emergency Services staff.</p> <ul style="list-style-type: none"><li>• Tt will distribute municipal specific rankings of the hazard of concern to the Planning Partnership the week of 2/20/23. The Planning Partnership to review and adjust ranks for the hazards of concern to incorporate local hazard history and undocumented data, if necessary.</li></ul>	
6	<p><b>Upcoming Meeting</b></p> <ul style="list-style-type: none"><li>• Mitigation Strategy Workshop – March 15, 2023.</li></ul>	
7	<p><b>Next Steps</b></p> <ul style="list-style-type: none"><li>• Update municipal level risk ranking as necessary</li><li>• Address data gaps in municipal annexes</li><li>• Continue to engage the public</li><li>• Develop mitigation strategy/actions: <b>February 2023</b></li><li>• Mitigation Strategy Workshop with FEMA and NYSDHSES – <b>March 15, 2023</b></li></ul>	
7	<p><b>Conclusion</b> - The meeting concluded at 10:55 am.</p>	





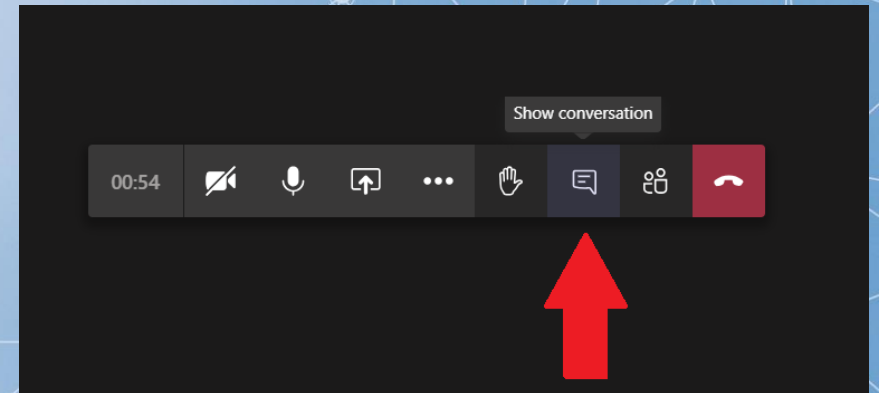
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Planning Partnership #2 Meeting | February 15, 2023 | 10:00 – 11:00 AM

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*





# Agenda

- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up

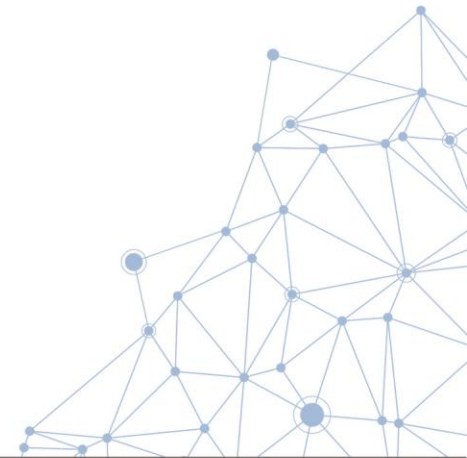






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ☐ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | May 2023                | Review draft plan                                    |
| ☐ | July/August 2023        | Submit plan to NYSDHSES and FEMA                     |

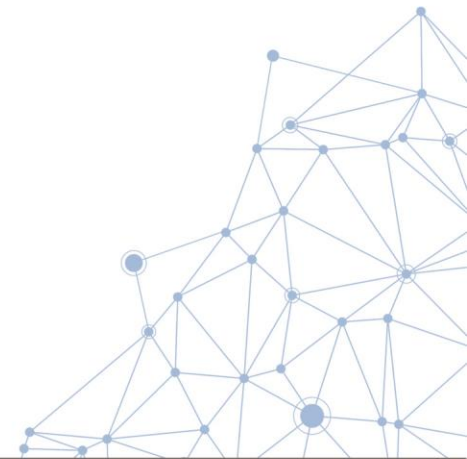




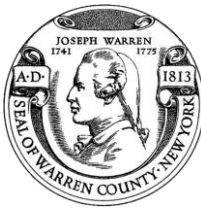


# Progress

- Requested NFIP Data – *Data pending*
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *Complete*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *Complete*
- Planning Partnership Participation – 100%








# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours







# Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynynewyorkhmp.com>

- Social Media
- Public Survey
- Stakeholder Survey
- Neighboring County Outreach
  - Notified of planning process
  - Survey

The screenshot shows the homepage of the Warren County Hazard Mitigation Plan 2023 Update website. The header is dark blue with the Warren County seal and the title 'WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE'. Below the header is a navigation menu with links: Home, About, What is Mitigation, Meetings, Calendar, Explore the Plan, and Additional Information. The main content area has a white background. It starts with the title 'Warren County Hazard Mitigation Plan 2023 Update' and a welcome message. It then describes the project's goal to save lives and property by reducing hazard vulnerability. A call to action for a public survey is highlighted with a red box and the text 'CLICK HERE TO TAKE THE PUBLIC SURVEY'. To the right of the survey call to action is a graphic with the text 'WARREN COUNTY HAZARD MITIGATION PLAN UPDATE LIVE OR WORK IN THE COUNTY? WE NEED YOUR HELP!' and icons for Grants & Funding, Plan & Prepare, and Mitigate. Below the survey call to action is a section for public participation and feedback, followed by a link to a survey form. At the bottom, there is a calendar view for February 2023 with a date picker set to February 2023.



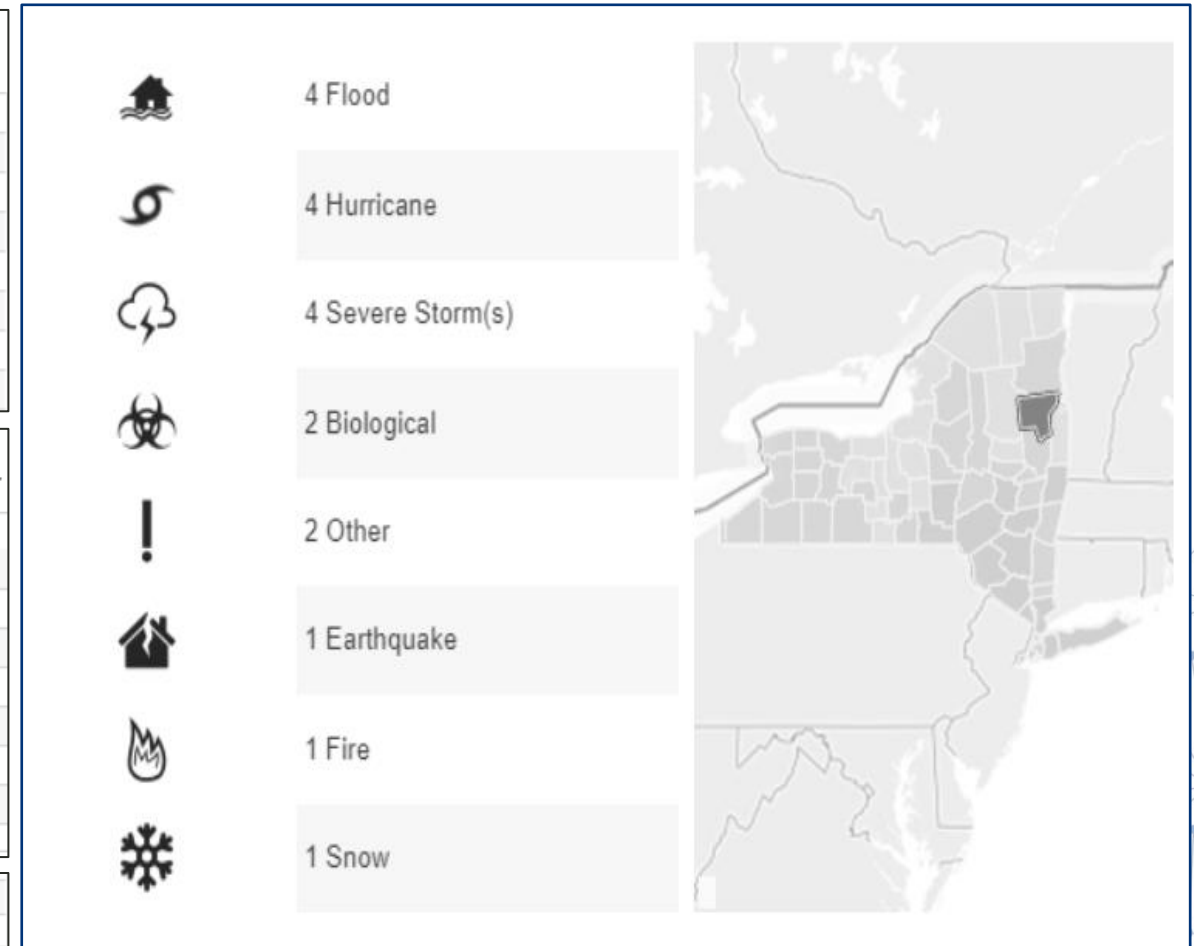


# Hazard Mitigation – What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480

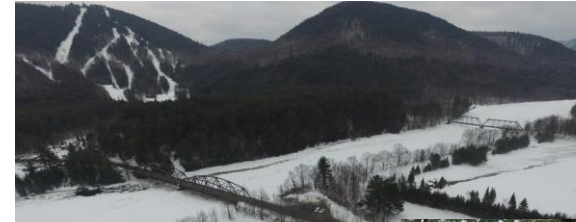






# 2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire





# What is Risk?

## ✓ Hazard

- Source of potential danger or adverse condition

## ✓ Exposure

- Manmade or natural features that are exposed to the hazard

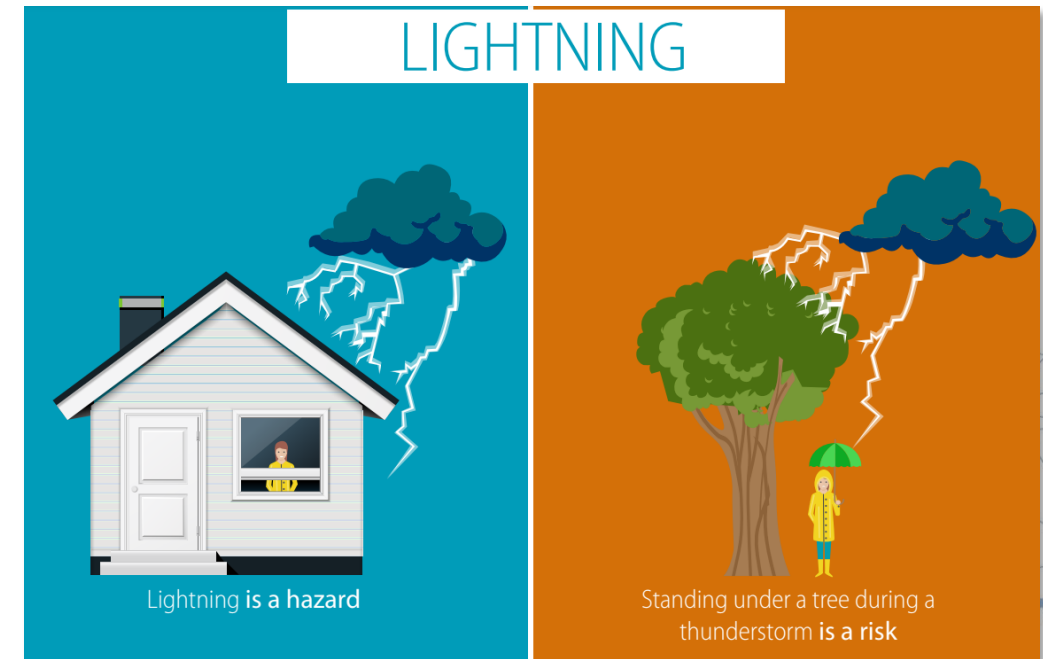
## ✓ Vulnerability

- Damage susceptibility of the exposed features

## ✓ Adaptive Capacity (or capability)

- Plans/policies
- Response/recovery
- Financial resources

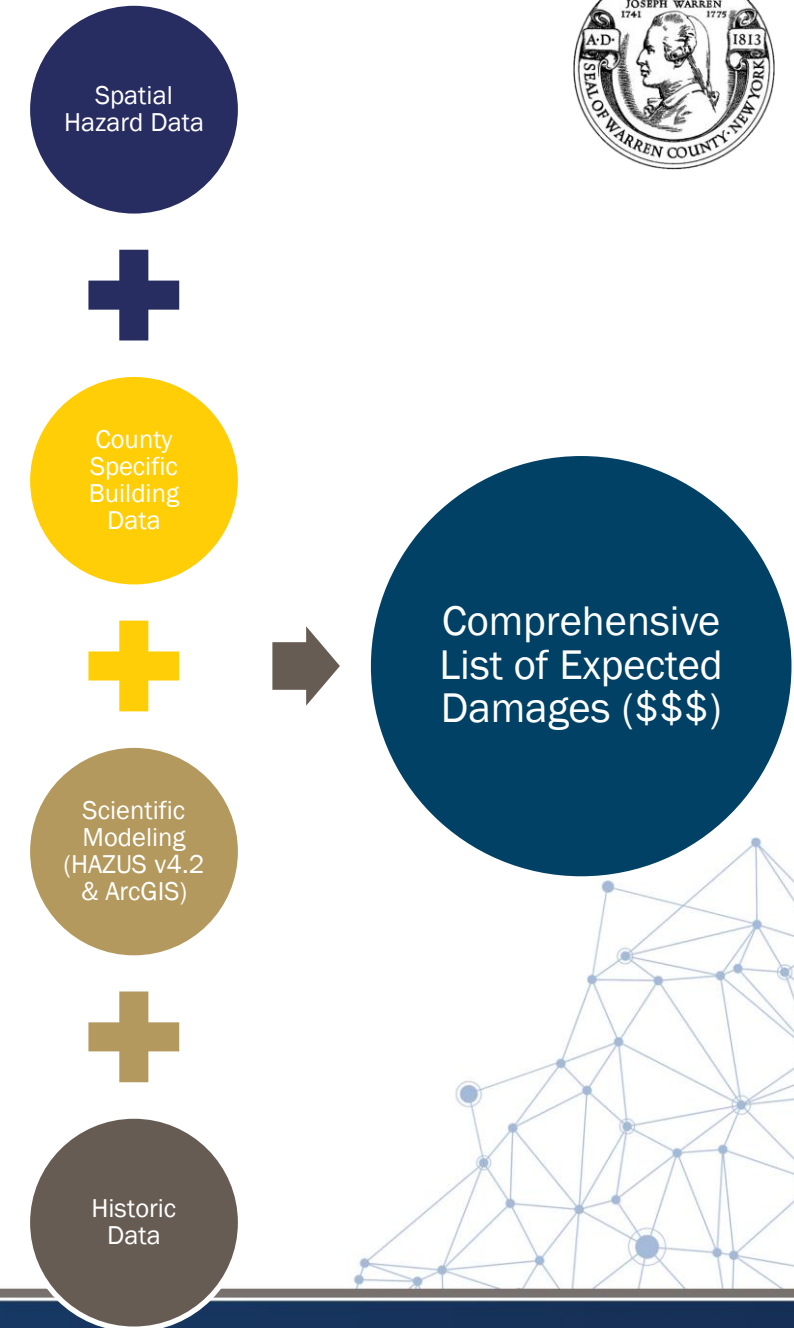
## ✓ Climate Change





# Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings





# Preliminary Hazard Ranking

How are the rankings calculated?



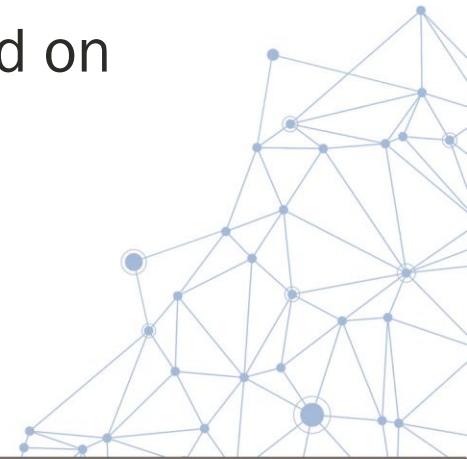




# Preliminary Hazard Ranking Methodology

Hazard Ranking is determined by quantitative and qualitative factors including:

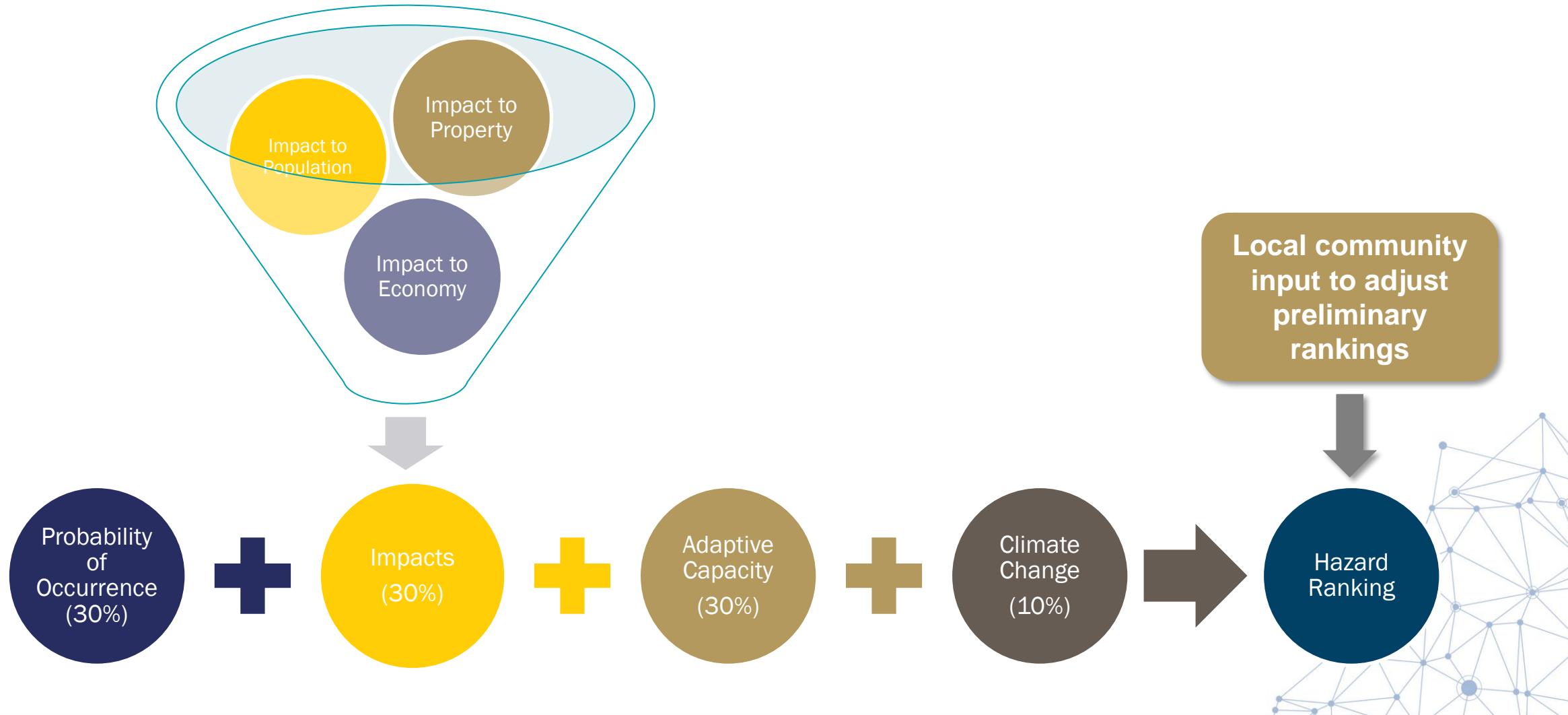
- The calculated probability of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which climate change will affect future occurrences based on best available data.
- Capability- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.







# Hazard Ranking Formula





# Ranking the Hazards of Concern

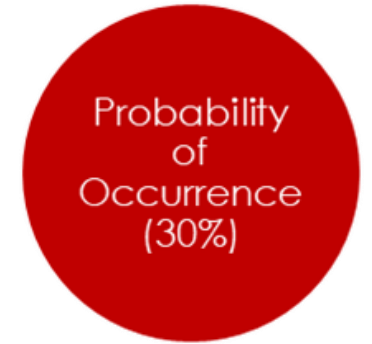
What information plays a role in determining the risk rankings?



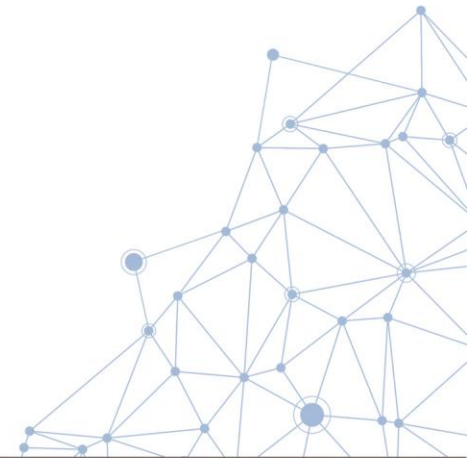




# Probability Of Occurrence



- **Unlikely**
  - Not likely to occur or less than 1% annual chance of occurring
- **Rare**
  - Between 1 and 10% annual chance of occurring
- **Occasional**
  - Between 10 and 100% annual chance of occurring
- **Frequent**
  - 100% chance occurring; occurs multiple times a year







# Hazard Ranking Input

## Impact on Population – Function of population exposed

- ✓ Low – 14% or less population exposed
- ✓ Medium – 15%-29% population exposed
- ✓ High – 30%+ population exposed

## Impact on property – Function of structures exposed

- ✓ Low – 14% or less structures exposed
- ✓ Medium – 15%-29% structures exposed
- ✓ High – 30%+ structures exposed

## Impact on economy – Function of damages to building stock

- ✓ Low – 9% or less loss estimate of total replacement cost
- ✓ Medium – 10%-19% loss estimate of total replacement cost
- ✓ High – 19%+ loss estimate of total replacement cost

## Capability – Function of level of planning, policies, enforcement

- ✓ Weak – outdated policies; limited to no deployable resources; limited capabilities to respond; long recovery
- ✓ Moderate – minimum requirements; mitigation strategies identified but not implemented; moderate county capabilities
- ✓ Strong – exceed requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high

## Climate Change – Function of climate predictions

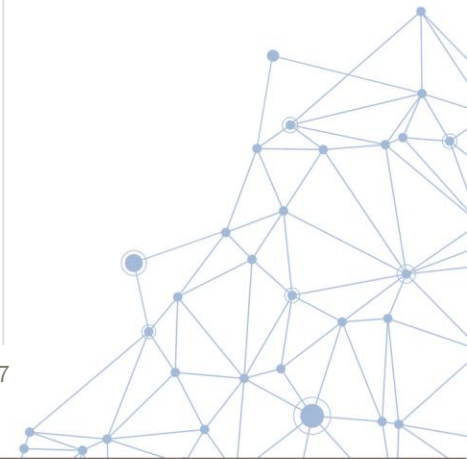
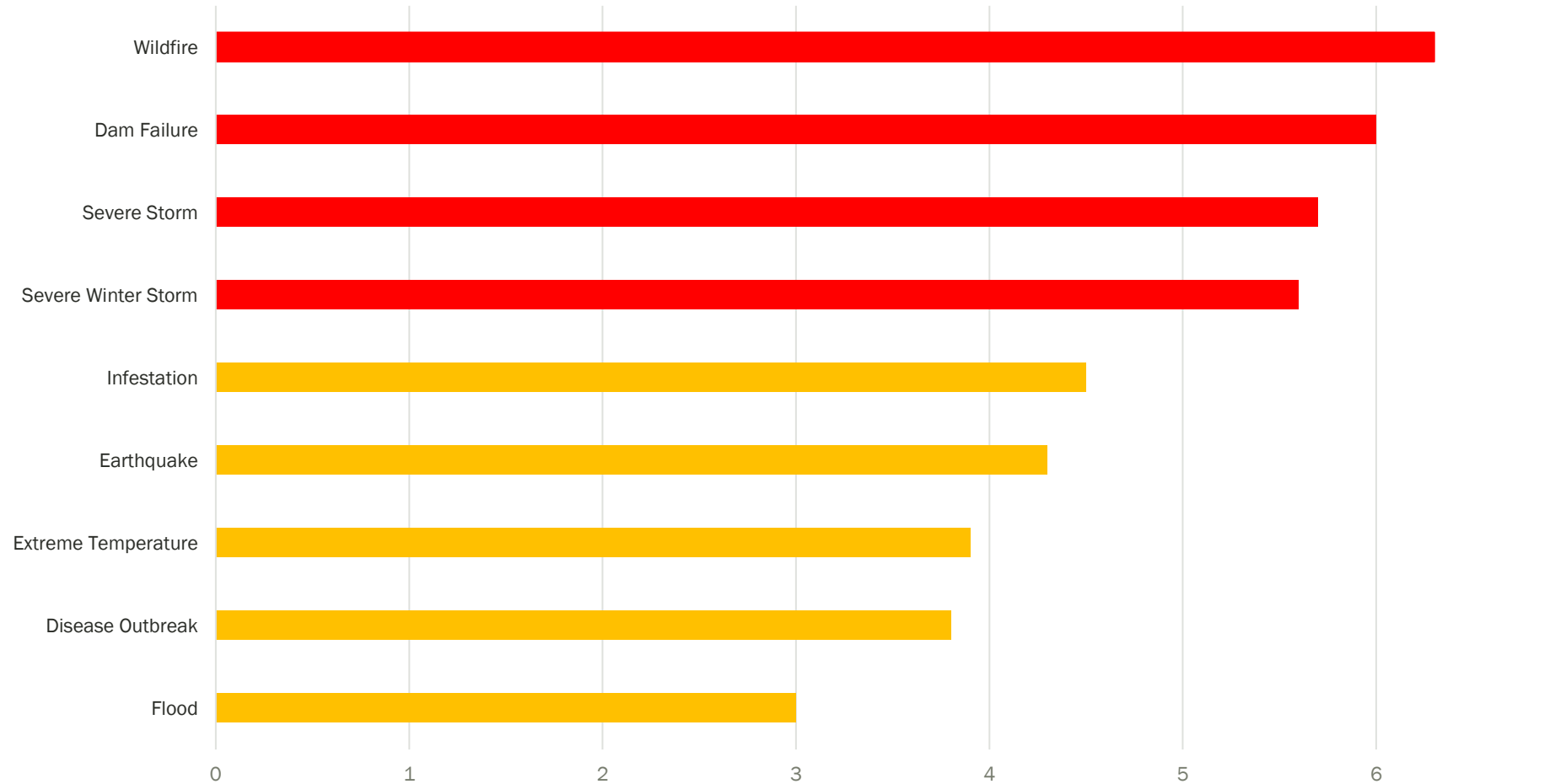
- ✓ Low - No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)
- ✓ Medium - Studies and modeling projections indicate a potential for exacerbated conditions due to climate change
- ✓ High - Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change





# Preliminary County Overall Risk Ranking

County Preliminary Relative Risk Rankings







# Preliminary County Overall Risk Ranking

Hazard of Concern	2021 CEPA Ranking	2023 Calculated Risk Ranking	2017 Risk Ranking	2023 Adjusted Ranking
Earthquake	Low	Low	High	Medium
Extreme Temperature	-	Medium	-	Medium
Flood	Very High	Low	Medium	Medium
Severe Storm	Medium	High	High	High
Severe Winter Storm	High	High	High	High
Wildfire	Medium	High	High	High
Infestation	-	Medium	Medium	Medium
Dam Failure	-	High	-	High
Disease Outbreak/Pandemic	Medium	Low	Medium	Medium

\* Potential adjustments



# Municipal Level Risk Ranking (Preliminary)



Hazard Ranking									
Municipality	Earthquake	Extreme Temps	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation	Dam Failure	Disease Outbreak
Bolton (T)	Low	Medium	Low	High	High	Medium	Medium	High	Medium
Chester (T)	Low	Medium	Medium	High	High	Low	Medium	High	Low
Glens Falls (C)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Hague (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Horicon (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Johnsburg (T)	Low	Medium	Low	High	High	Low	Medium	High	Medium
Lake George (T)	Low	Medium	Low	High	High	High	Medium	Medium	Medium
Lake George (V)	Low	Medium	Low	High	High	High	Medium	Low	Low
Lake Luzerne (T)	Medium	Medium	Medium	High	High	Medium	Medium	Medium	Low
Queensbury (T)	Medium	Medium	Medium	High	High	High	Medium	Medium	Low
Stony Creek (T)	Medium	Low	Low	High	High	Low	Medium	Medium	Low
Thurman (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Warrensburg (T)	Medium	Medium	Medium	High	High	High	Medium	Medium	Low
Warren County	Medium	Medium	Medium	High	High	High	Medium	High	Medium

\* adjusted





# Public Input: Flood Hazard Events

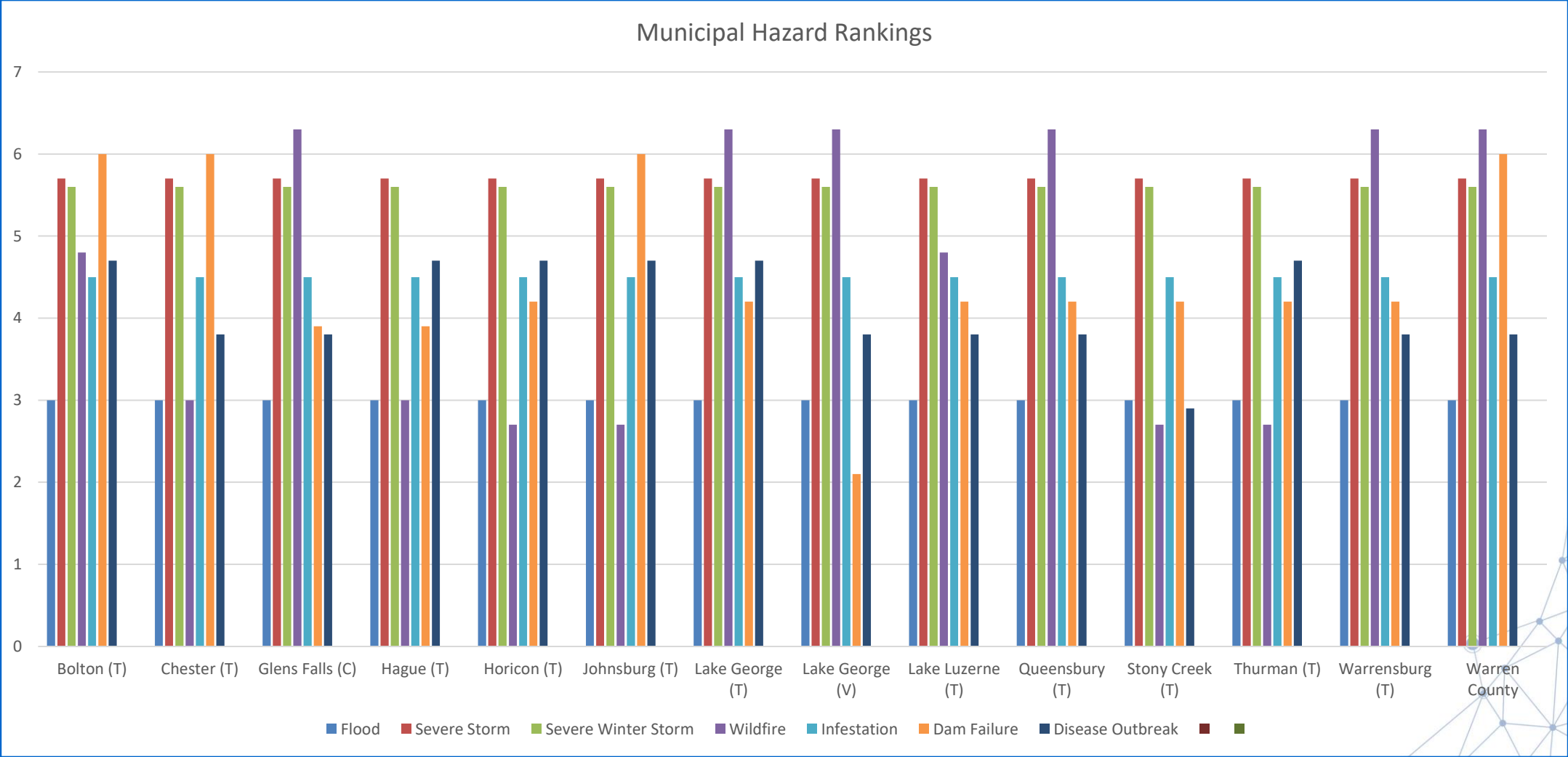
In the past 10 years, which of the following hazard events have you experienced in Warren County? Check all that apply.







# Preliminary Hazard Ranking – Warren County



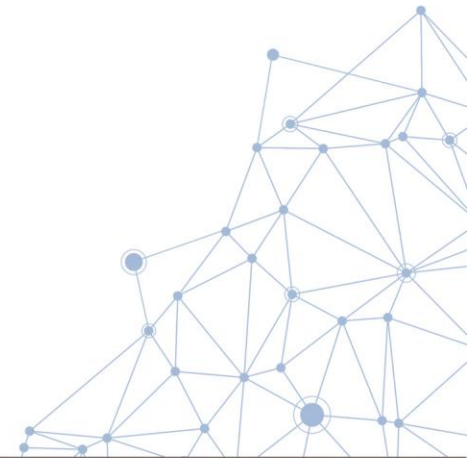




# Earthquake

- Number of Events
  - 189 earthquakes epicentered in NYS with 4 epicentered in Warren County, per 2015 NYS HMP, between 1973 and 2014
  - Faults are located within the County
  - Individual Assistance (IA) declared for EMA declarations DR-1415 in Warren County (5/16/2002)
  - Impacts
    - 2 earthquake scenarios: 500-yr and 2500-yr events
    - People and structures located in areas with soils more susceptible to earthquakes

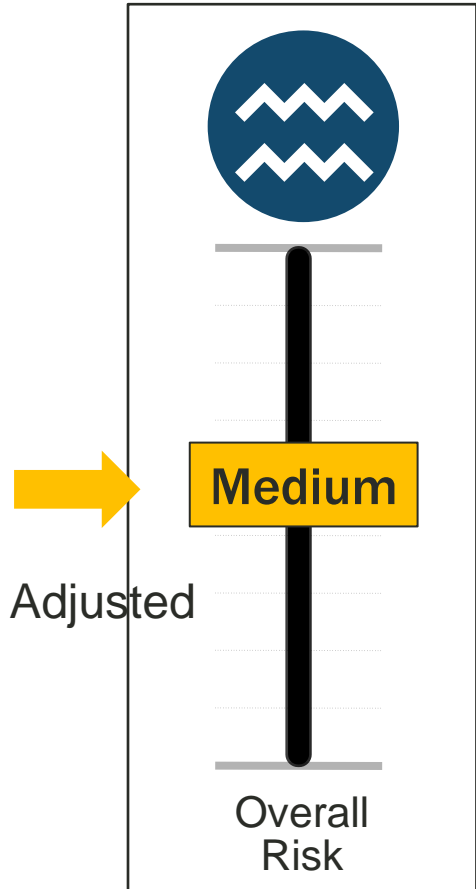
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Earthquake



**Probability of Occurrence: Rare**



**Impact on Population: Medium**

65.6% of population is exposed and vulnerable (NEHRP D & E soils)



**Impact on Property: High**

48.7% of County building stock is exposed and vulnerable (NEHRP D & E soils)



**Impact on Economy: Low**

\$1.9% of Structural Replacement Cost Value damaged



**Adaptive Capacity: Medium for all municipalities**

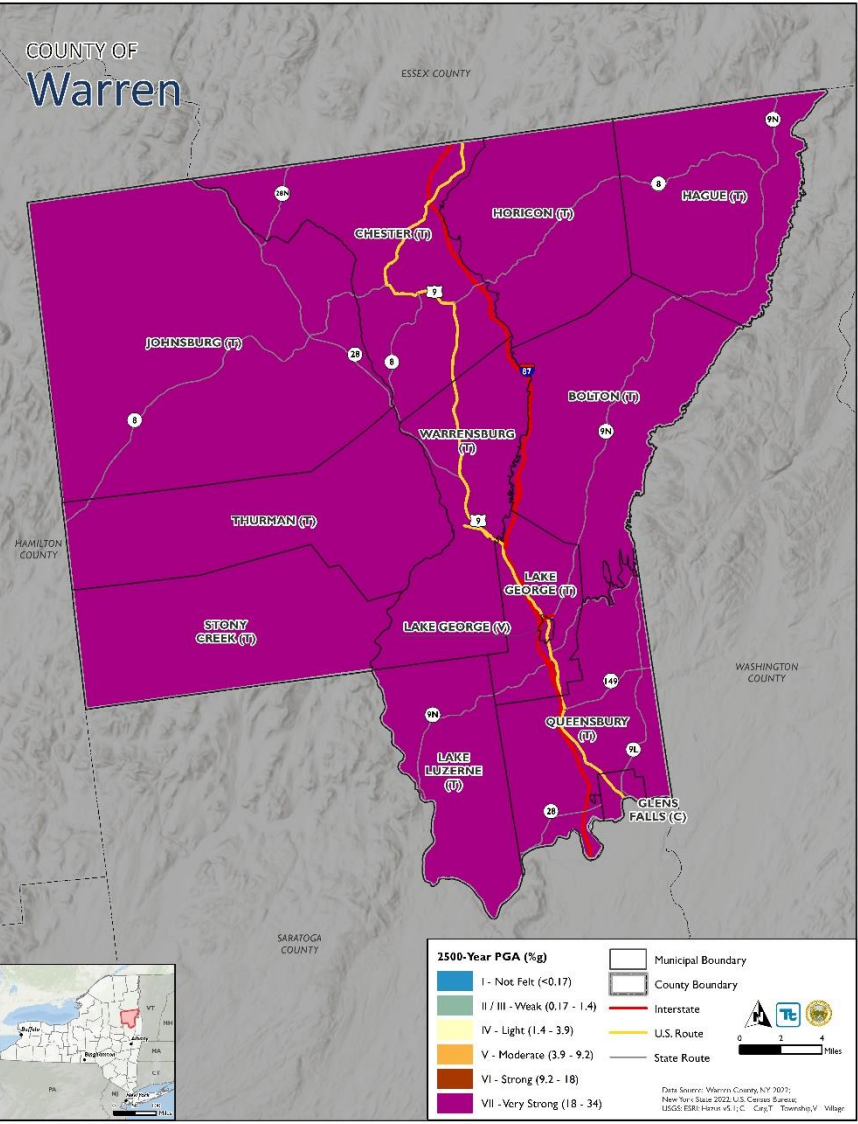


**Climate Change: Low for all municipalities**

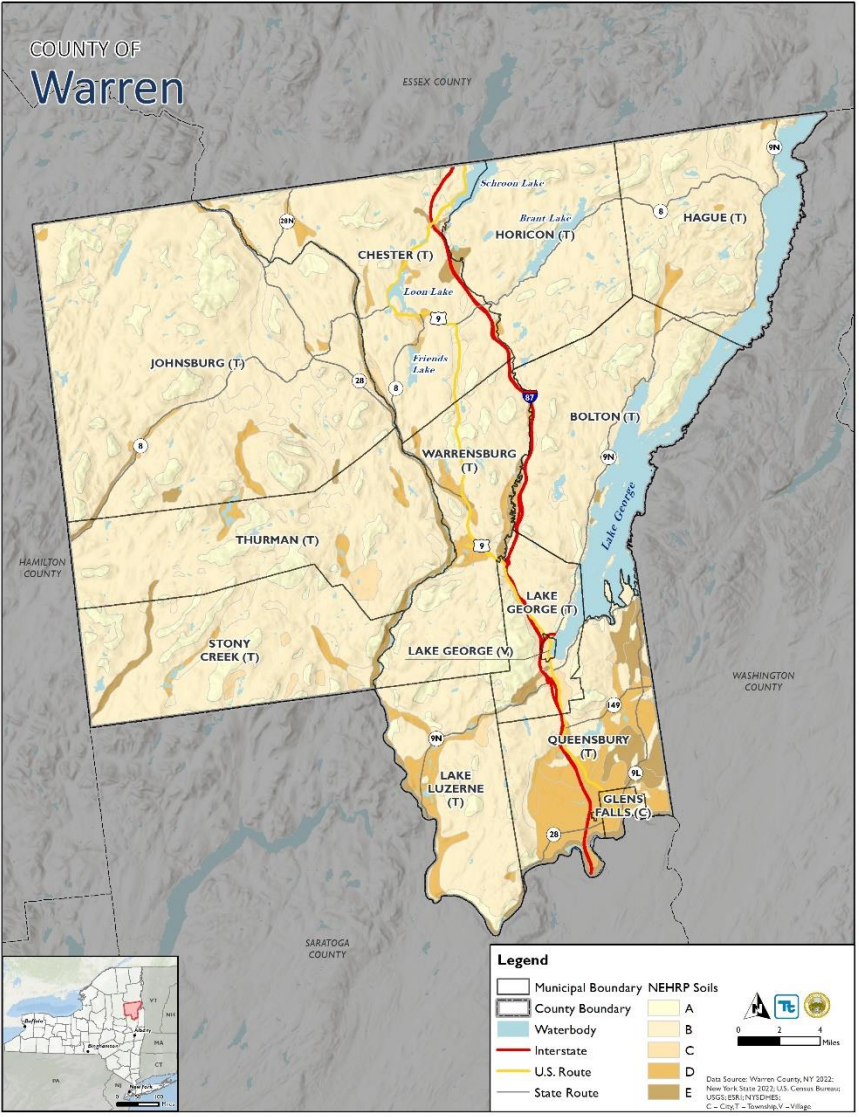




# Peak Ground Acceleration



# NEHRP Soil Class



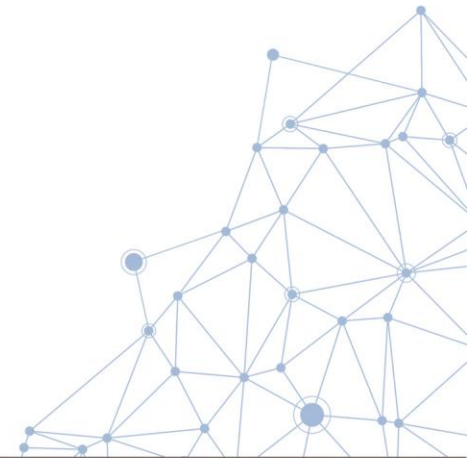




# Flood

- Previous Events
  - Riverine, flash, and stormwater flooding
    - Between 2000 and 2022, Warren County included in 2 FEMA flood-related declarations.
      - FEMA-DR-1993 (Severe Storms Tornadoes, Winds and Flooding) – April 26, 2011
      - FEMA-DR-4129 (Severe Storms, and Flooding) – July 2013
- Exposure
  - People and property located in the 1% annual chance flood area

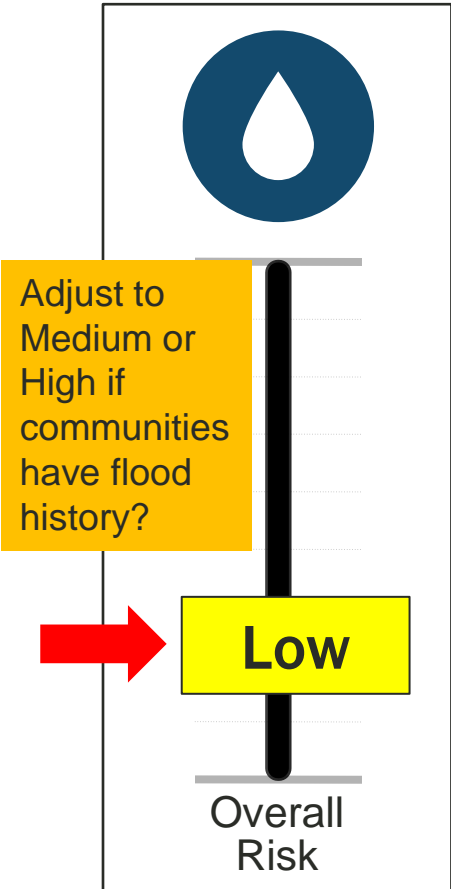
Warren County  
Ranking  
**LOW**







# Countywide Preliminary Risk Ranking: Flood



**Probability of Occurrence: Occasional or Frequent**



**Impact on Population: Low**

1,385 people (2.1% of the population) in the SFHA



**Impact on Property: Low**

1,252 buildings (3.1% of total County buildings) in the SFHA; 1 Rep Loss



**Impact on Economy: Low**

\$721 M Replacement Cost Value (RCV) (3% of County total RCV) located in the Regulatory Floodplain



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



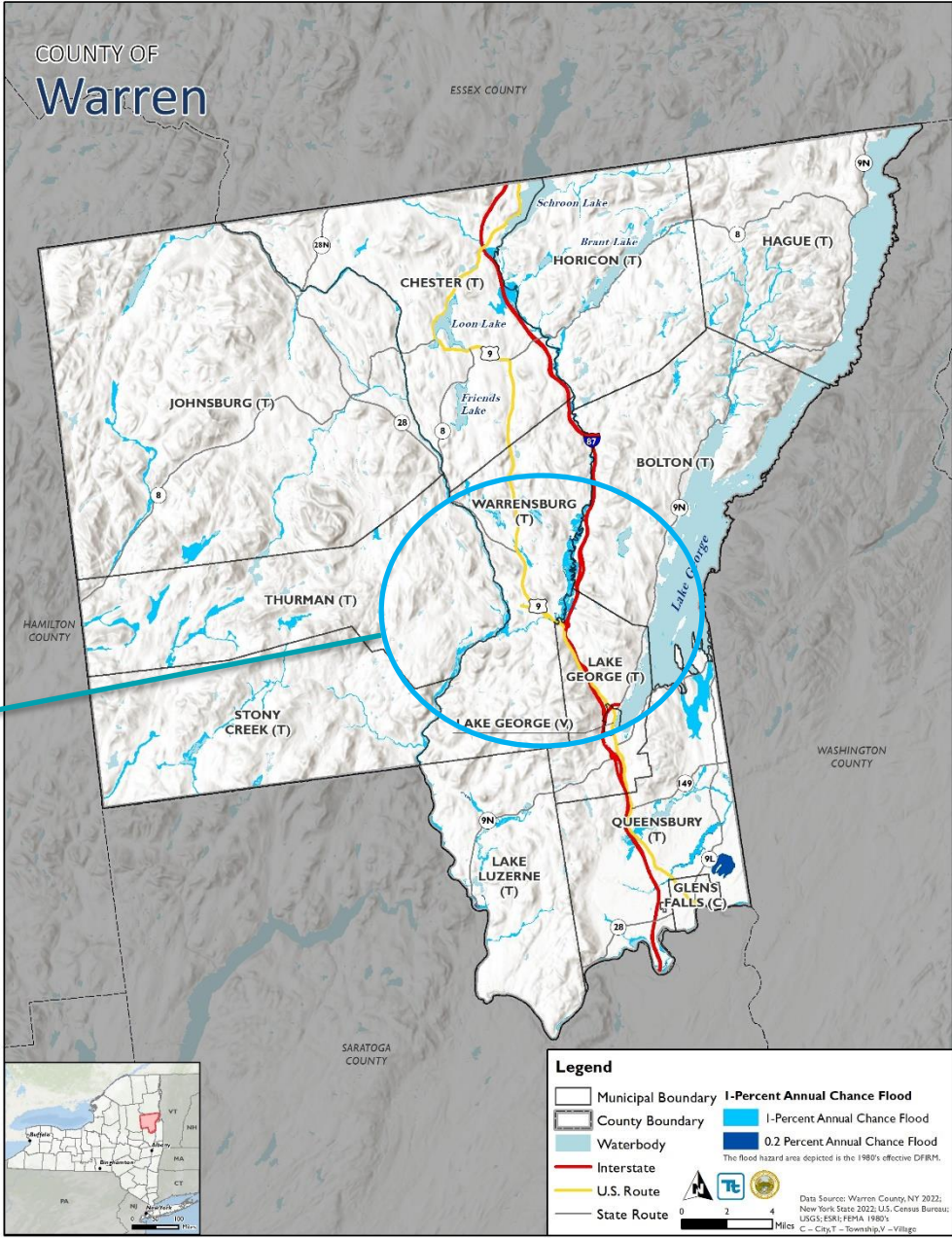
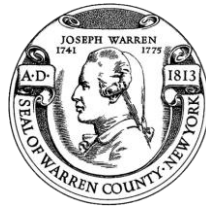


# Preliminary 2023 vs. 2017 Rankings (Flood)

Warren County Municipality	IMPACT ON POPULATION	IMPACT ON PROPERTY	IMPACT ON ECONOMY	RISK RANKING	RISK RANKING
	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Percent of Total Buildings in 1% Flood Area	Percent of Total GBS RCV	2023 Estimated	2017
Bolton (T)	6.5%	6.6%	6.5%	Low	Medium
Chester (T)	8.5%	8.2%	7.6%	Low	Medium
Glens Falls (C)	0.0%	0.1%	1.0%	Low	Medium
Hague (T)	7.1%	7.0%	3.2%	Low	Medium
Horicon (T)	5.2%	5.2%	7.2%	Low	Medium
Johnsburg (T)	2.3%	2.4%	3.8%	Low	Medium
Lake George (T)	2.6%	2.5%	1.0%	Low	Medium
Lake George (V)	0.2%	1.1%	1.2%	Low	Medium
Lake Luzerne (T)	6.5%	6.3%	3.6%	Low	Medium
Queensbury (T)	1.3%	1.4%	2.1%	Low	Medium
Stony Creek (T)	3.0%	3.2%	3.8%	Low	Medium
Thurman (T)	0.7%	0.8%	0.5%	Low	Medium
Warrensburg (T)	3.7%	3.9%	2.7%	Low	High
Warren County	2.1%	3.1%	3.0%	Low	Medium



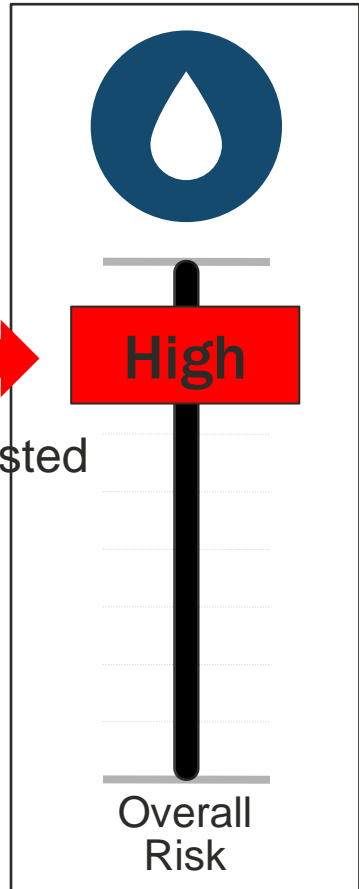
# Flood Hazard Areas







# Countywide Preliminary Risk Ranking: Dam Failure



**Probability of Occurrence: Rare**



**Impact on Population: High**

216 people in inundation areas



**Impact on Property: High**

254 buildings (0.6% of total County buildings) located in inundation areas



**Impact on Economy: High**

\$130 M Replacement Cost Value (RCV) (0.5% of County total RCV) in inundation areas



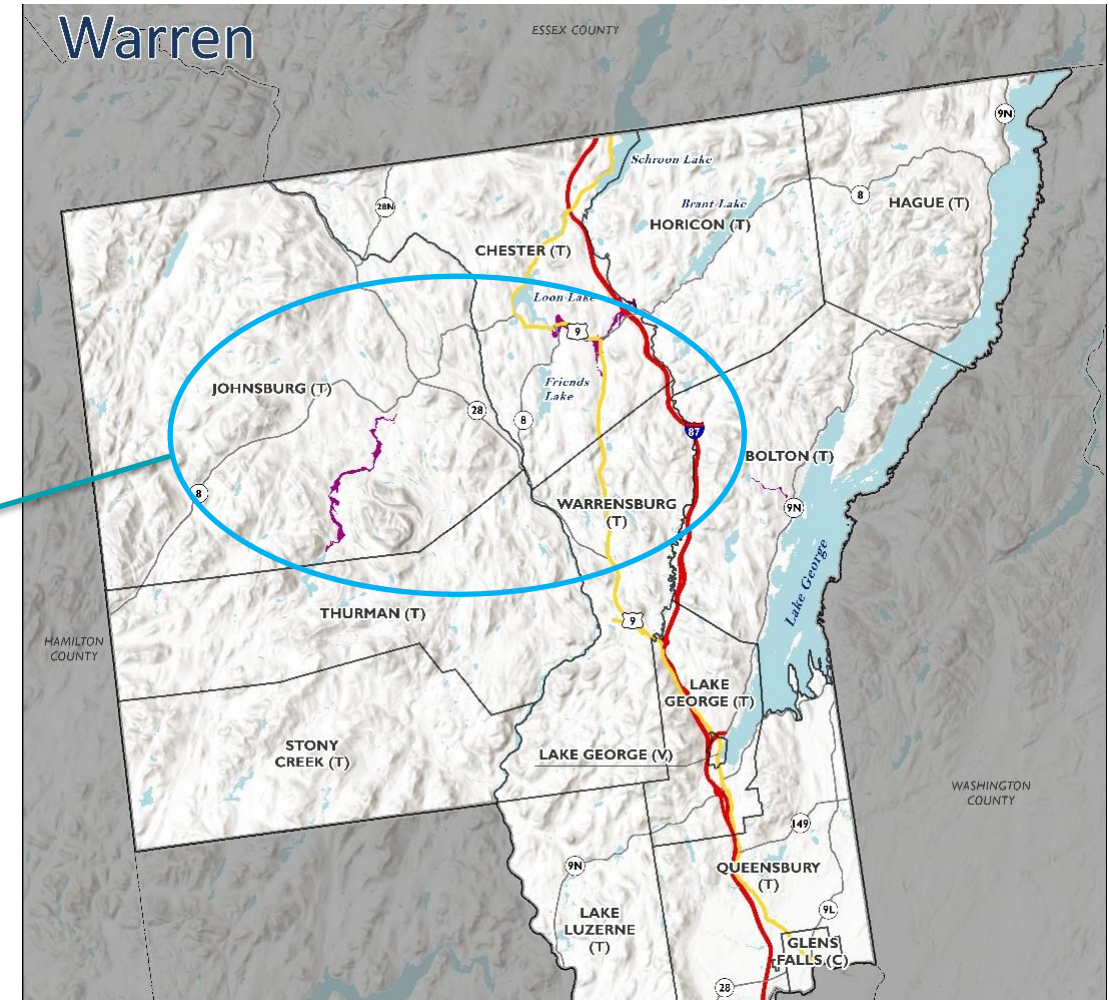
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Dam Inundation Areas







# Severe Storm

- Previous Events

- Hazard includes lightning, hail, and windstorms
- FEMA-DR-4472 (Severe Storms, Straight-line Winds and Flooding) – October 2019
- Between 2016 and 2022, Warren County was included in 1 FEMA severe storm-related declaration.
- According to the NOAA, 5 tornado events took place in Warren County between 1950 and 2022

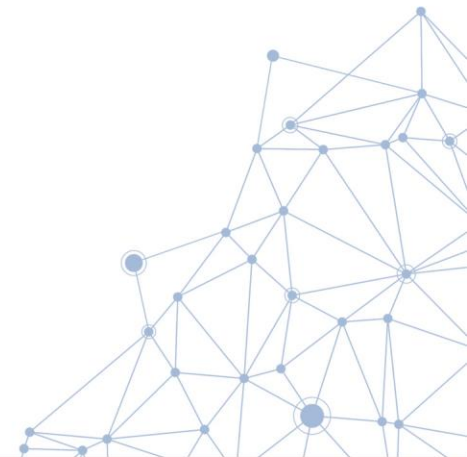
Warren County  
Ranking  
**HIGH**

- Exposure

- Population and property exposed to 100-year peak wind gusts (Tropical Storm-39 to 73 mph) and 500-year (Tropical Storm speeds)
- All people and property exposed and vulnerable

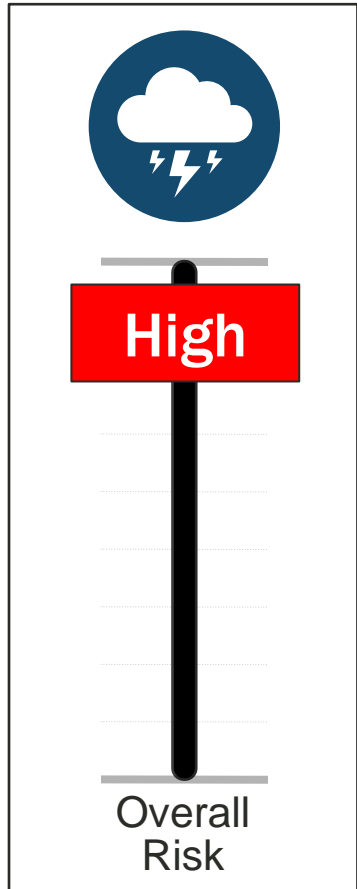
- Potential Impacts

- Power outages
- Critical facility and infrastructure damage





# Countywide Preliminary Risk Ranking: Severe Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable



**Impact on Economy: Low**

\$4.8 M (less than 1%) general building stock loss for a 500-year event



**Adaptive Capacity: High for all municipalities**



**Climate Change: High for all municipalities**



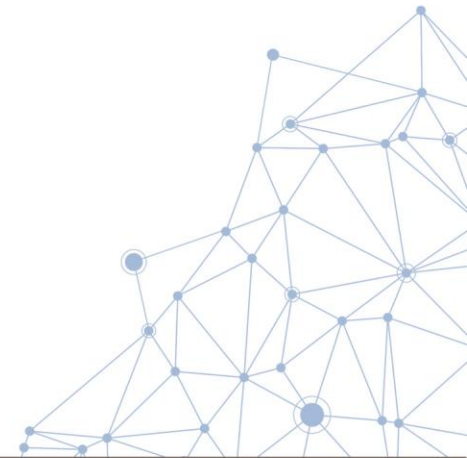


# Wildfire

- Previous Events

- The NYS HMP identified wildfire as a hazard of concern for New York State, however the daily probability of a wildfire event for the state is .09 percent.
- Warren County was included in one FEMA fire declaration; however, it was a manmade terrorist attack.
- According to the 2020 Warren County CEPA, the wildfire hazard is ranked medium.
- Exposure
  - People and property located in Wildfire Urban Interface WUI.

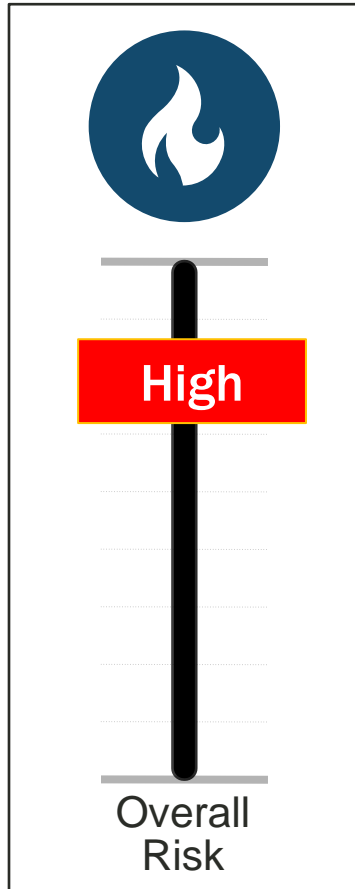
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Wildfire



**Probability of Occurrence: Occasional**



**Impact on Population: High**

44.4% of population exposed to the WUI Interface



**Impact on Property: High**

14,488 buildings (35.9 % of County total) exposed to WUI Interface



**Impact on Economy: High**

\$8.6M in RCV 35.4% of County total) exposed to WUI Interface



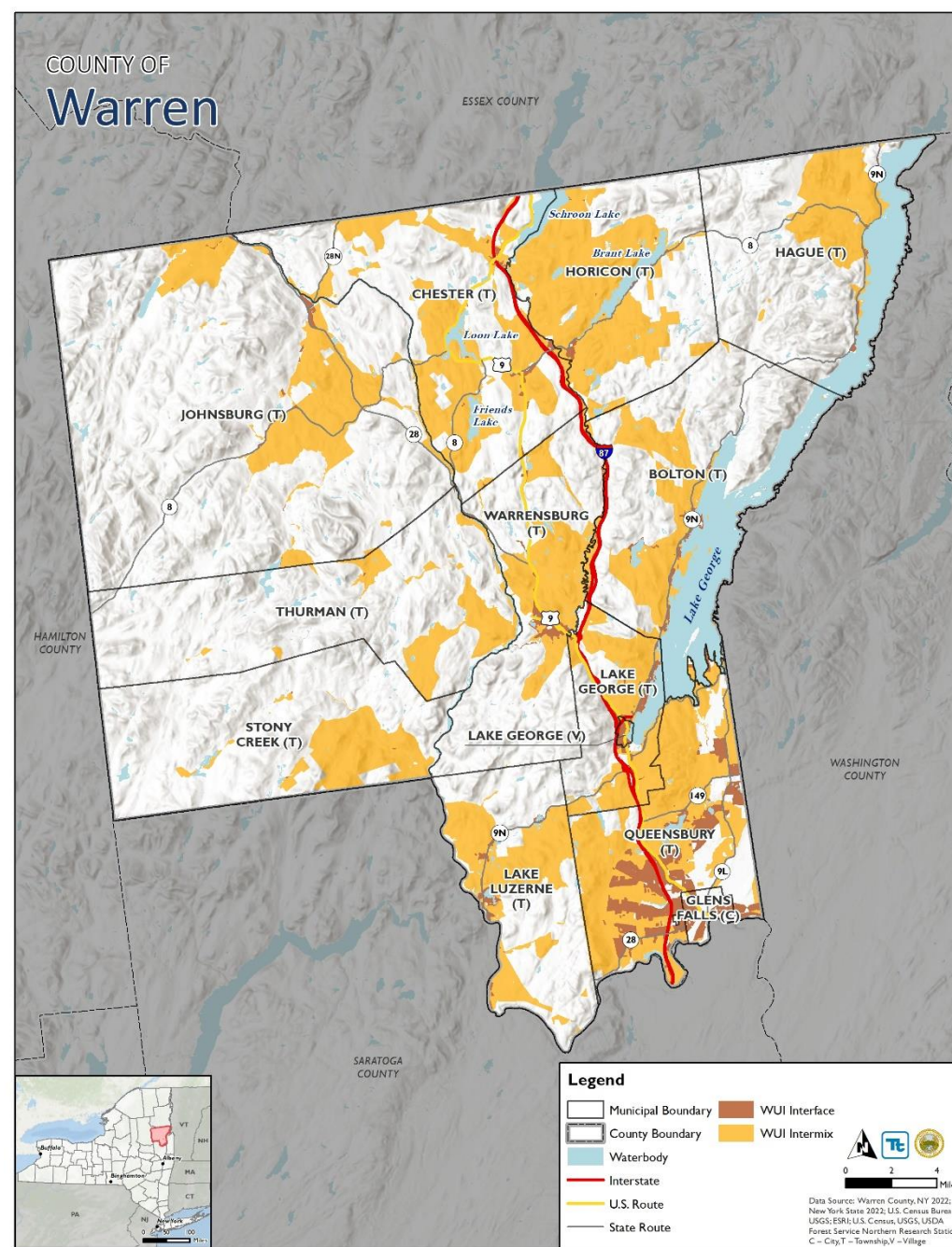
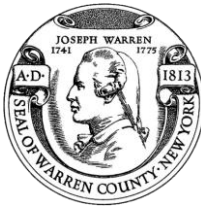
**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**



# Wildland Urban Interface/Intermix Area



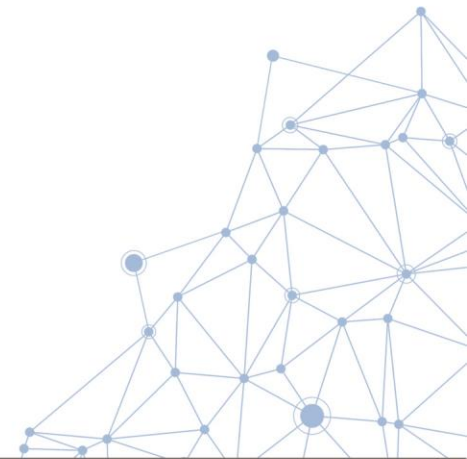




# Severe Winter Storm

- Hazard includes heavy snow, blizzards, ice storms
- Previous Events
  - FEMA included Warren County in one winter storm-related disaster declaration
    - FEMA-EM-3107 (Severe Blizzard) – March 1993
- Exposure
  - All people and property exposed and vulnerable
- Potential Impacts
  - Power outages
  - Critical facility and infrastructure damage
  - Transportation interruptions/accidents

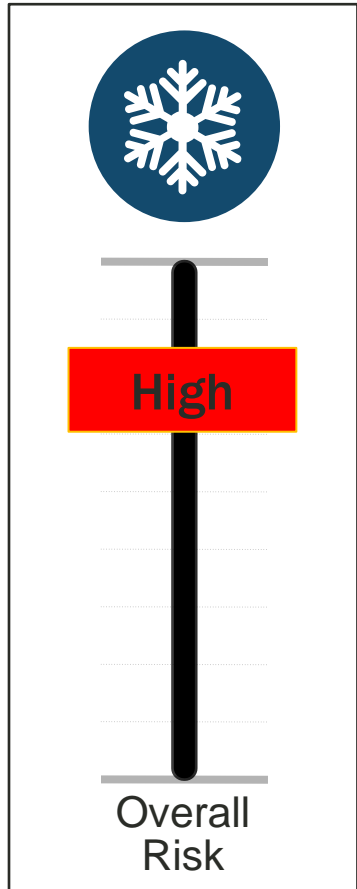
Warren County  
Ranking  
**HIGH**







# Countywide Preliminary Risk Ranking: Severe Winter Storm



**Probability of Occurrence: Frequent**



**Impact on Population: High**

Entire population is exposed and vulnerable



**Impact on Property: High**

Entire building stock is exposed and vulnerable; however, impacts are minimal



**Impact on Economy: Low**

\$1.2M (5%) potential losses to building stock



**Adaptive Capacity: High for all municipalities**



**Climate Change: Medium for all municipalities**



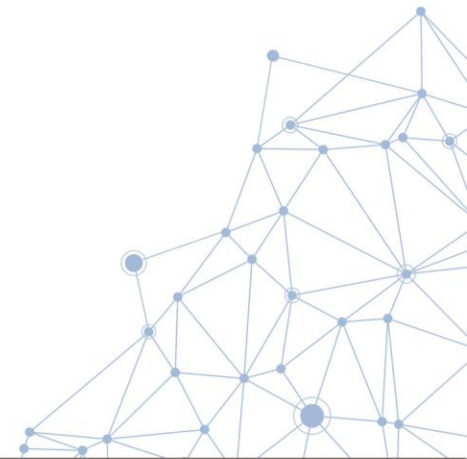


# Disease Outbreak/Pandemic

- Previous Events

- According to the 2020 Warren County CEPA, the pandemic hazard is ranked medium.
- The County has been impacted by the COVID-19 pandemic (DR-4480).
- The County has been impacted by various diseases (COVID-19, West Nile Virus, Lyme disease)
- Exposure
  - Entire County is exposed and vulnerable; however, not occurring multiple times a year with significant impacts
  - Severe events can lead to staffing and bed shortages in hospitals

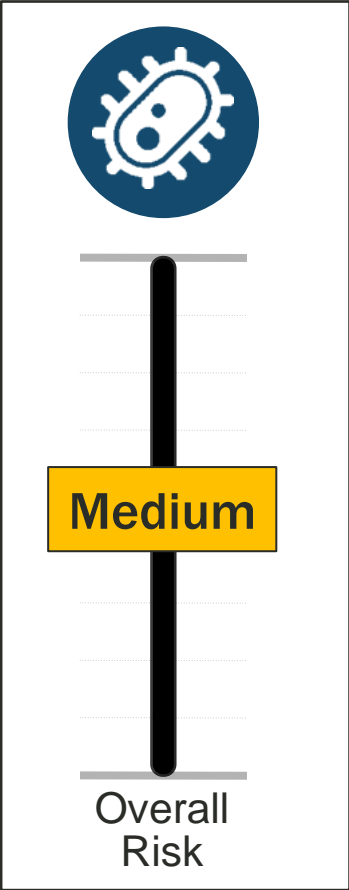
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Disease Outbreak



**Probability of Occurrence: Occasional**

**Impact on Population: Medium**  
(14,754 County residents are 65+ years and 2,850 >5 years (26.8 % of County population))

**Impact on Property: Low**

**Impact on Economy: Medium**

**Adaptive Capacity: Medium for all municipalities**

**Climate Change: Medium for all municipalities**



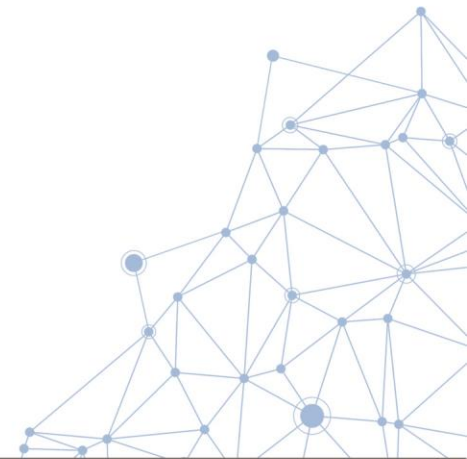




# Extreme Temperature

- Previous Events
  - Hot and cold events
- Exposure
  - Entire County is vulnerable
  - Increased vulnerability to populations at higher risk (65+ / <5 years old)
- Potential impacts:
  - Increased wildfire/brush fire risk
  - Impacts to agriculture/farms
  - Long-periods of warm temperatures can lead to drought conditions

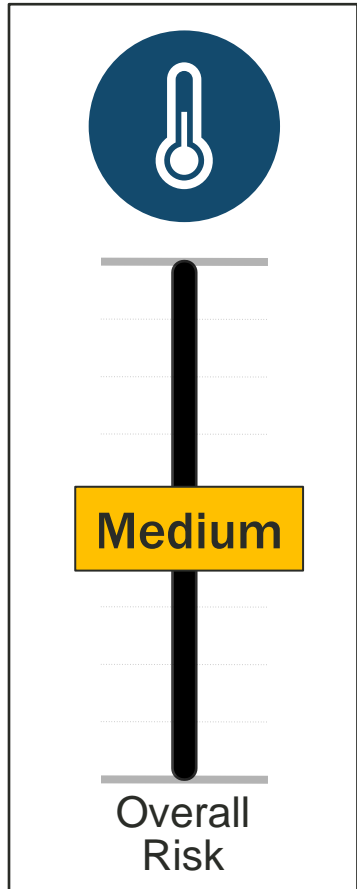
Warren County  
Ranking  
**MEDIUM**







# Countywide Preliminary Risk Ranking: Extreme Temps



**Probability of Occurrence: Occasional**



**Impact on Population: Medium**

17,604 County residents are 65+ years old or >5 years (26.8% of County population)



**Impact on Property: Low**



**Impact on Economy: Medium**



**Adaptive Capacity: Medium for all municipalities**



**Climate Change: High for all municipalities**





# Infestation and Invasive Species

- Previous Events

- Beaver Dam Failure, March 2022
- Hemlock Woolly Adelgid, Lake George, 2017
- Emerald Ash Borer (EAB), Shroon River, 2022

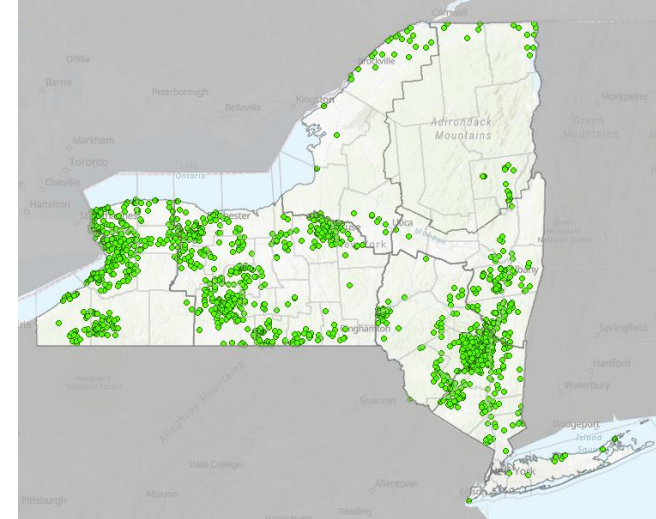
- Exposure

- Entire County is vulnerable

- Potential impacts:

- Soil destabilization
- Increased wildfire risk
- Impacts to agriculture/farms

Warren County  
Ranking  
**MEDIUM**

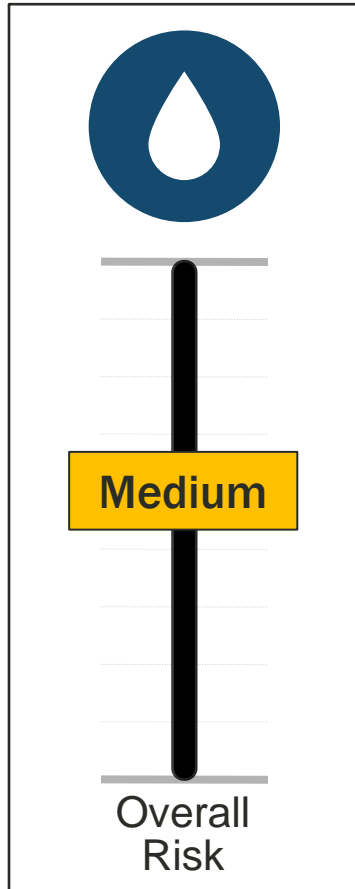


EAB – Source: New York Invasive Species Network 2019





# Countywide Preliminary Risk Ranking: Infestation



Probability of Occurrence: Occasional



Impact on Population: Medium



Impact on Property: Medium



Impact on Economy: Medium



Adaptive Capacity: Medium for all municipalities



Climate Change: High for all municipalities





# Next Steps

- Update Risk Assessment
  - Prepare results to present to planning partners
  - Populate adjusted results municipal annexes
  - Planning Partnership Risk Assessment Meeting: February 15, 2023
  - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

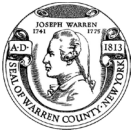
Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





**WARREN COUNTY HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee #4 – AGENDA**  
**MEETING DATE/TIME: March 8, 2023 – 10:00 am**



- Welcome
- Progress Report
- Pending Action Items
- Public and Stakeholder Outreach
- Other Items
- Next Steps/ Questions/ Wrap Up





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	March 8, 2023, 10:00 am

## Attendees:

Ann Marie Mason	Director, Warren County Office of Emergency Services (OES)
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Sara Frankenfeld	GIS Coordinator, Warren County
Laura Moore	Town of Queensbury, Land Use Planner
Dan Barusch	Town/Village Lake George, Planner
Ashley Rivers	Warren County Office of Emergency Services
John Gibb	Contingency Management Consulting Group
Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Don Lehman	Warren County Public Information Officer
Sandra LeBarron	Director of Environmental Health and Safety, Finch Pruyn
Cynthia Addonizio-Bianco	Tetra Tech, Inc.

**Agenda Summary:** Purpose to provide a brief progress report and address pending action items.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:05 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items and she provided a progress update as summarized in the attached PowerPoint presentation.</li> <li>The process continues to be on track for plan submittal to FEMA in August 2023.</li> <li>The majority of data to support the hazard mitigation plan (HMP) development has been received, with the receipt of the National Flood Insurance Program (NFIP) data pending processing by FEMA.</li> </ul>	
2	<b>Progress Report</b> <ul style="list-style-type: none"> <li>Risk Ranking worksheets due today. To date the communities that have submitted include: <ul style="list-style-type: none"> <li>Town of Lake George</li> <li>Village of Lake George <ul style="list-style-type: none"> <li>Town of Hague - In progress</li> <li>Town of Lake Luzerne - Requested clarification and noted worksheets in progress</li> <li>Town of Chester - Complete and awaiting supervisor review</li> <li>Town of Queensbury - In progress</li> </ul> </li> </ul> </li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>Assistance offered to the following communities via Mr. John Gibb:<ul style="list-style-type: none"><li>Town of Chester</li><li>Town of Glens Falls</li><li>Town of Horicon</li><li>Town of Johnsburg</li><li>Town of Queensbury.</li></ul></li></ul>	
3	<p><b>Pending Action Items</b></p> <ul style="list-style-type: none"><li>High Hazard Dam Information. Warren County OEs confirmed that dam inundation areas will be deemed confidential information and available at the Office of Emergency Services on an as needed basis.</li><li>Collection of localized flooding information. Warren County SWCD, OES, and GIS affirmed that the collection of localized flood impacts will be a collaborative mitigation action to be included in the hazard mitigation plan.</li><li>Receipt of National Flood Insurance information. Warren County OES confirmed that FEMA has provided this information. This will be incorporated into the hazard mitigation plan to assist with the identification of mitigation strategies.</li><li>Surveys targeting the public, neighboring counties, agencies, and businesses are live and will be used to provide additional input to the plan to support the identification of mitigation actions. Warren County PIO will perform another media blast to support a robust response to the surveys. To date sixty-nine responses have been received for the public survey. This represents an 87% completion rate with an average of 9 minutes to complete the survey. Respondents identified thirty areas vulnerable to hazard of concern.</li><li>Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>Tetra Tech reminded steering committee members to access the project OneDrive site to review draft plan sections and to provide input, as necessary.</li></ul>	<p>Warren County Public Information Officer to</p> <p>Tetra Tech to analyze NFIP data for inclusion in the HMP process and plan.</p>
6	<p><b>Upcoming Meeting</b></p> <ul style="list-style-type: none"><li>Mitigation Strategy Workshop – March 15, 2023 (<i>Optional for Steering Committee members not affiliated with a municipality.</i>)</li></ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



7	<b>Next Steps</b> <ul style="list-style-type: none"><li>• Populate adjusted results municipal annexes</li><li>• Planning Partnership Risk Assessment Meeting: February 15, 2023</li><li>• Continue to engage the public</li><li>• Work with the municipalities to develop mitigation strategy/actions</li><li>• Mitigation Strategy Workshop with FEMA and NYSDHSES – <b>March 15, 2023</b></li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 10:38 am.	





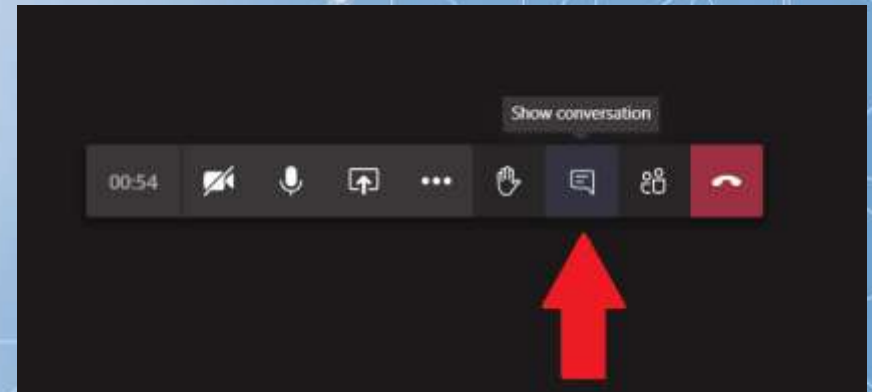
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Steering Committee #4 Meeting | March 8, 2023 | 10:00 – 11:00 AM

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*





# Agenda

- Welcome
- Progress Report
- Pending Action Items
- Public and Stakeholder Outreach
- Other Items
- Next Steps/ Questions/ Wrap Up

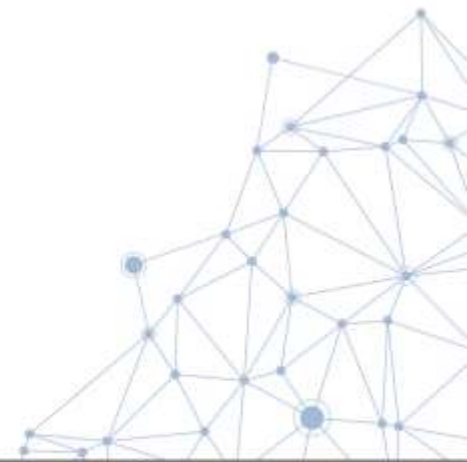






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ✓ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | May 2023                | Review draft plan                                    |
| ☐ | July/August 2023        | Submit plan to NYSDHSES and FEMA                     |

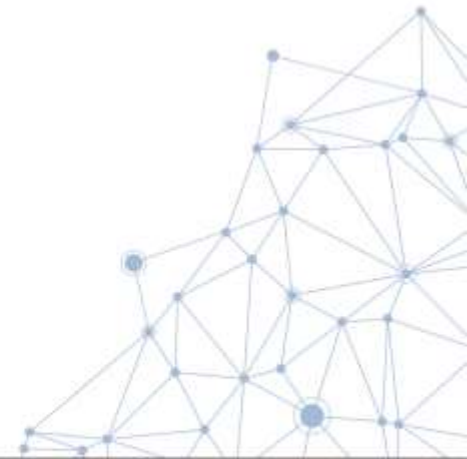






# Progress Report

- Requested NFIP Data – *Data pending*
- Risk Ranking Worksheets due today.
  - To date these communities have submitted:
    - Town of Lake George
    - Village of Lake George
    - Town of Hague
  - In progress
    - Town of Lake Luzerne asked for clarification and noted worksheets in progress
    - Town of Chester, complete and awaiting supervisor review
    - Town of Queensbury, in progress
  - Assistance offered via Mr. John Gibb to:
    - Town of Chester
    - Town of Glens Falls
    - Town of Horicon
    - Town of Johnsbury
    - Town of Queensbury

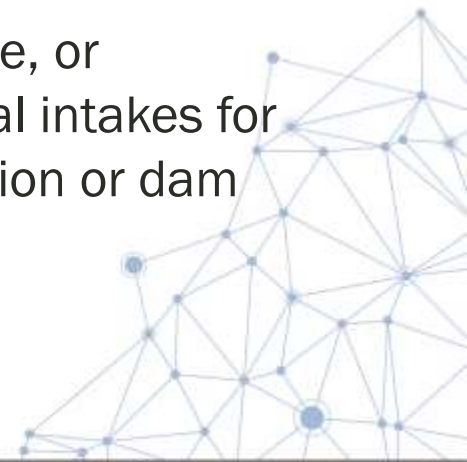






# Pending Action Items

- Pending action items:
  - Emergency Services to review the level of detail provided to the public regarding dam inundation areas.
  - Emergency Services, County GIS and SWCD to consider options to collect and map localized flood areas.
  - NFIP information receipt
- Information Request
  - Input regarding history of damages for disease outbreak, extreme heat, dam failure, or infestation hazards is requested. Examples include data/metrics regarding hospital intakes for related illnesses, impacts on workforce, or localized information regarding infestation or dam failure.



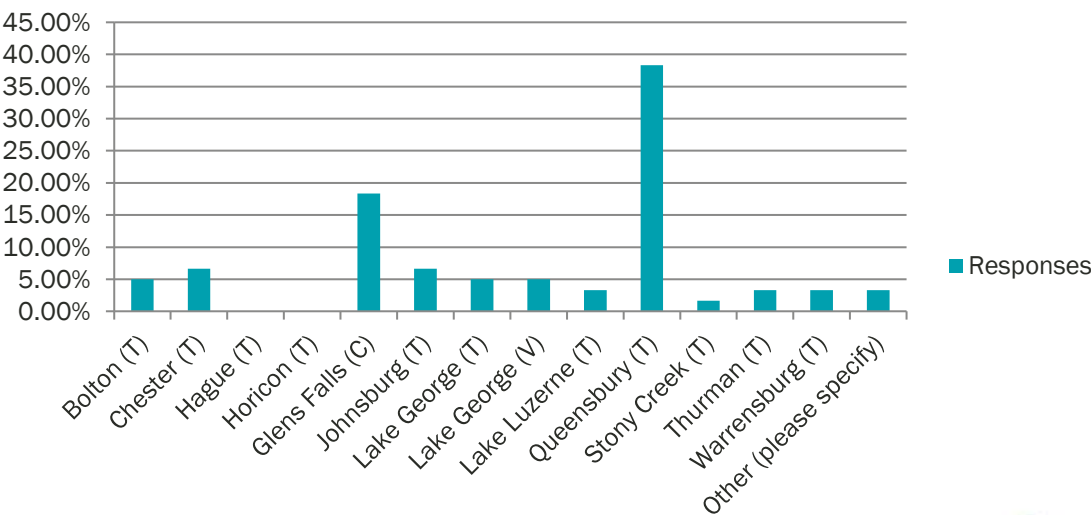




# Public Survey Results

- 69 Responses
- 87% Completion Rate
- 9 Minutes to Complete (Avg)
- ~30 identified vulnerable areas/items

Please indicate the municipality in which you live:



County streets Lake property Glens Falls Rd water due Road River  
flood drainage trees Hudson River None ice

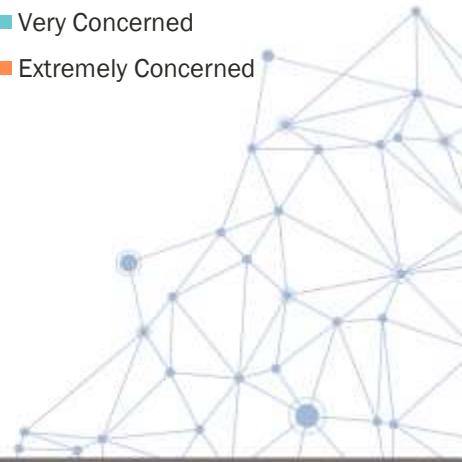
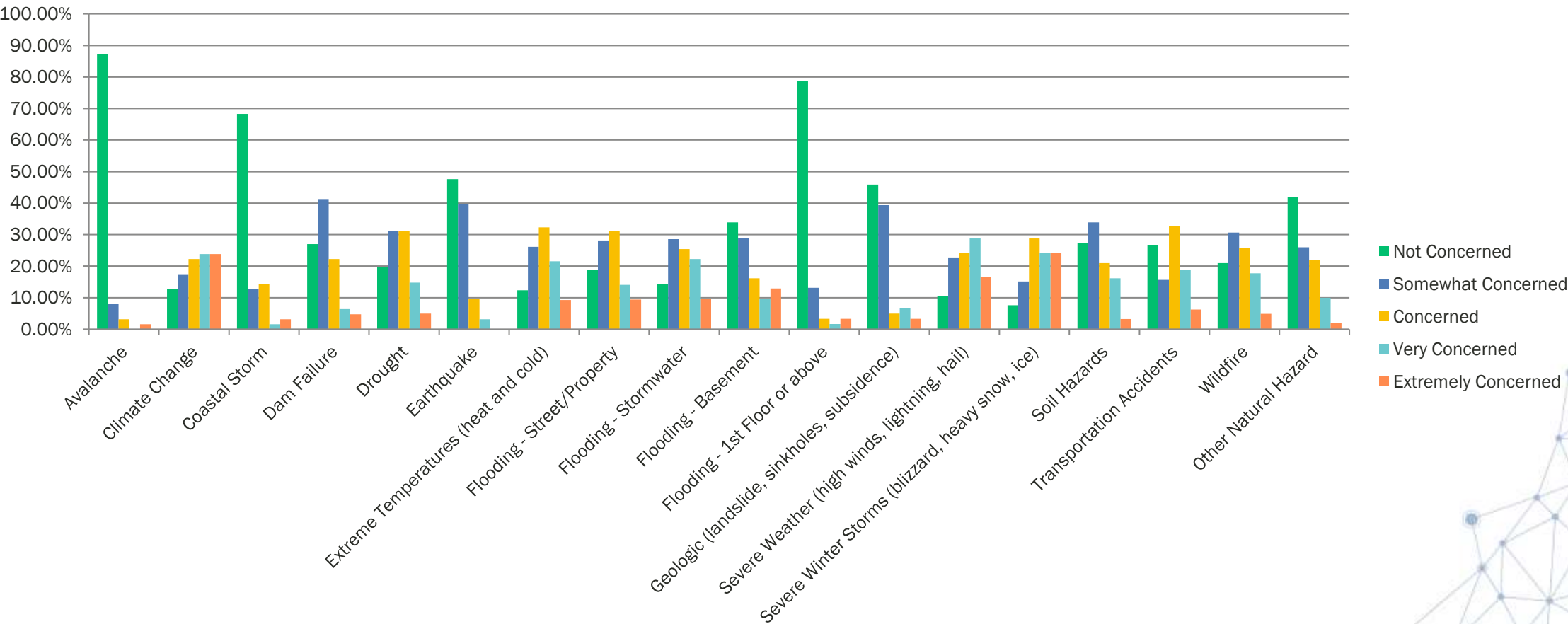






# Public Survey Results - Hazard Concerns

How concerned are you about the following hazards in Warren County? Please check one for each hazard.







# Problem Areas

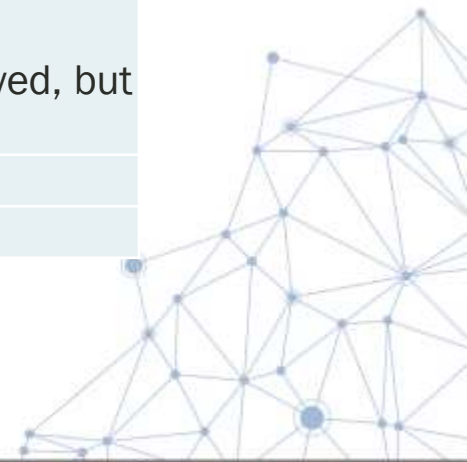
- Prone to power outages from trees on lines
- General back-up power, snow/ice blockage on highways
- Floodprone area on Meadowbrook Road @ Halfway Brook
- Low water levels in Kattskill Bay Lake George due to water management practices
- Apartment building for disabled and retired with all electric heat. No on demand generator. Located at 10 Manor Rd.
- 13th Lake Road, North River. The gabion walls are pushed out and look like they will give at any time. Also rocks fall in the middle of the road all the time.
- Flooding - 9N S/Hidden Valley Drive (Tubby Tubes-Lake Luzerne, NY 12846), due to a sewer drain that doesn't handle all the water, causing back up and ice/danger in winter. Trees down in my property from recent high winds (1275 Lake Avenue, Lake Luzerne, 12846)
- Water Tank control panel without power backup
- Ice jamming on Hudson River at 418 Bridge. Flooding on River Road
- Lake George sewage treatment plant has minimal security and is vulnerable to walk up attacks on infrastructure.
- Numerous roads and stream crossings could be subject to flood/storm damage.
- East End in Glens Falls is known for being a high water table area
- North Bolton Road at the foot of Church Hill Road is continually flooded due to the road having been raised several years ago. Raising the road removed all drainage possibilities and County officials refuse to do anything to correct the problem.
- Storm Drainage system that runs down the Lakeview Circle drive in the town of lake George and crosses Lake Shore Dr in the town of lake George and continues down to the lakefront between the Fairview Improvement association property and the lake view terrace property.
- Lack of municipal sewer and water
- Poor drainage for city streets (most streets in Glens Falls); raw sewage releases into the Hudson River (sometimes even if it only rains briefly); Poor tree maintenance causes downed branches in the high winds we now get for many months of the year.
- My road is collapsing into a stream. Many dead trees along the road. So called protected land around the watershed is not protected or monitored
- C/Glens Falls flood prone streets. Warren St, Mohican St, CR 19 T/Chester. SR 418 bridge & River Rd, Barton Mines RD Johnsburg
- Loon Lake Dam, Rt 8/9, Chestertown
- ZERO fragrance-free emergency shelters! Acute respiratory response / reactive airways when exposed for perfumes, scented products (ubiquitous), etc. ALSO: FEMA Flood Map makes ZERO sense! Unable to determine if my address is - or is not - in a flood plain: Fredella Avenue, Glens Falls, NY.
- Hudson River Basin Lake Luzerne to Corinth
- We have experienced power outages for as lengthy as 5 days. being on a deep well, the outage not only effects our lights and heat, but water as well.





# Problem Areas

- Queensbury - Halfway Brook Area/flooding  
Warrensburg - Schroon River Area/flooding  
Chester & Horicon - Schroon River Area/flooding
- Meadowbrook rd, Qby - Flooding
- Lakeview Circle Drive Town of Lake George
- GFWWTP releasing sewage into Hudson after every heavy rainstorm.  
Inadequate storm drainage on streets
- Still ZERO fragrance-free emergency shelters - I would not be able to survive in an emergency shelter due to respiratory distress when exposed to fragranced / scented products (body, laundry, cleaning, etc.)
- Power cybersecurity concern
- Flooding of the Hudson River in the spring occasionally that affects the State rt. 28 between North Creek and North River, and includes part of the town North Creek at the train station where Teddy Roosevelt learned McKinley had died from his wound, and he was now President. The historic Train station has been preserved, but flooding of the Hudson in the spring has caused concern a number of years in the past ten.
- Thurman bridge
- Downtown Warrensburg from Schroon River flooding








# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours

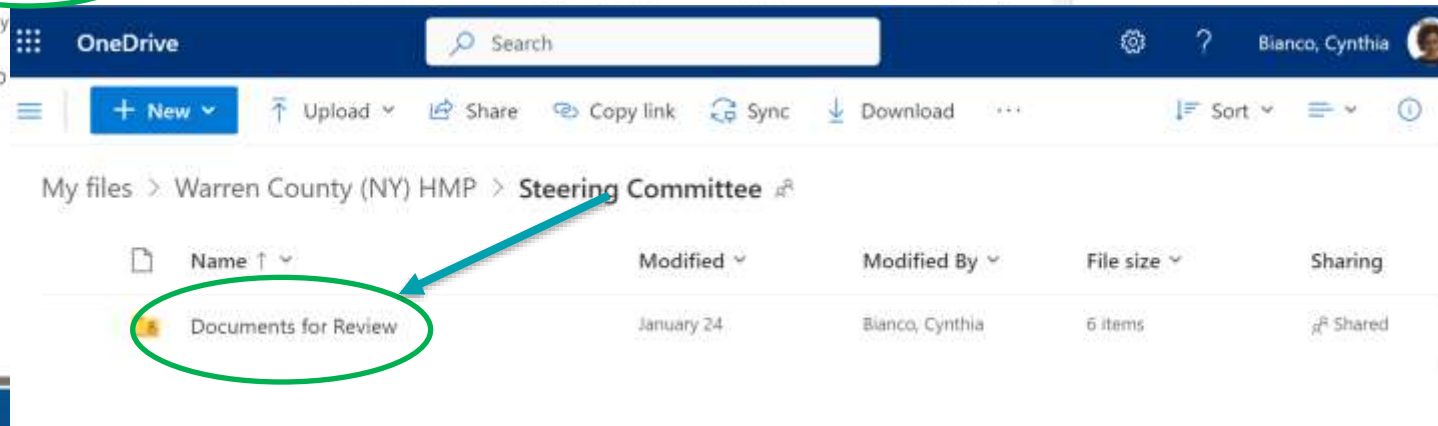
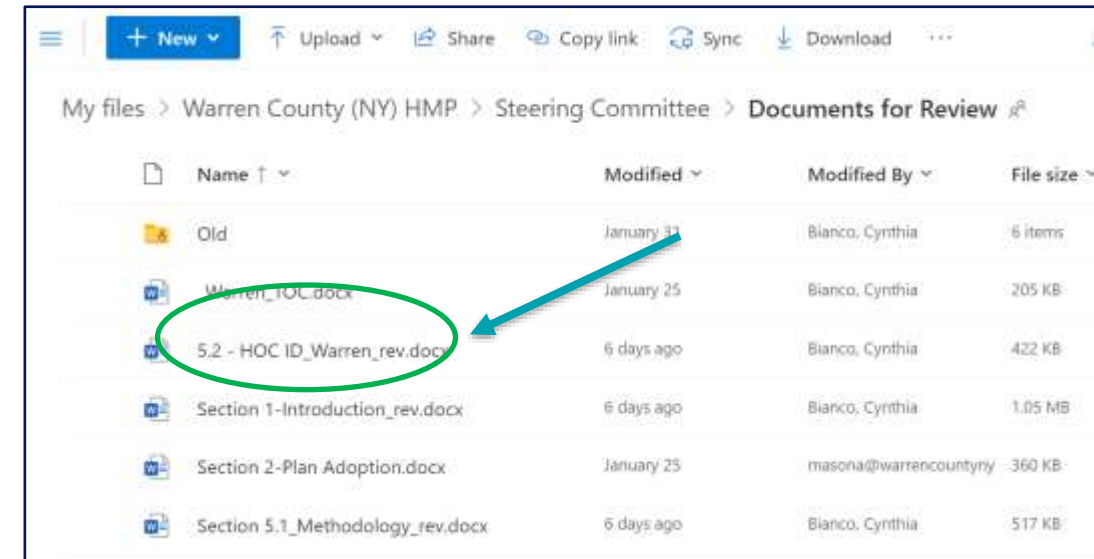
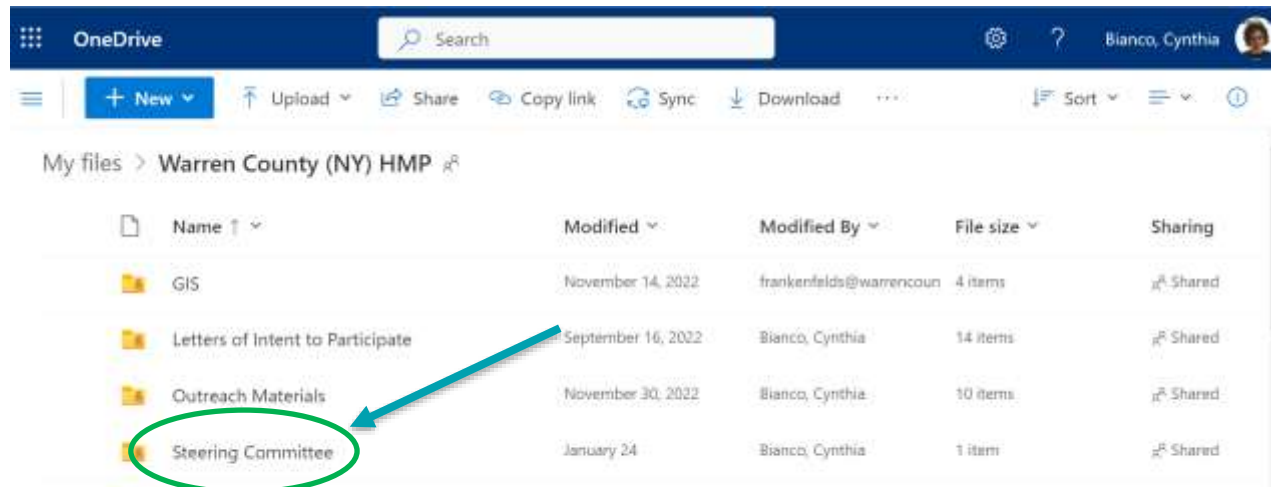






# Document Review on Sharepoint

- Access for document review
- Review in “desktop app” in track changes







# Next Steps

- Update Risk Assessment
  - Populate adjusted results municipal annexes to support project identification
  - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
  - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
  - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Purpose of Meeting:	Mitigation Strategy Workshop
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	March 15, 2023, 10:00 am
Attendees:	
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Ann Marie Mason	Director, Warren County Emergency Services
Jessica Leerkes	Engineer, Town of Chester
Dan Barusch	Town/Village Lake George, Planner
Keith Lanfear	Village of Lake George
Craig Leggett	Supervisor, Town of Chester
Tammie DeLorenzo	Assistant to the County Administrator, Warren County
Michael Geraci	Supervisor, Town of Horicon
Khristopher Kassay	Town of Lake Luzerne
Karen Putney	Town of Lake Luzerne, Zoning Officer
James Hull	Code Enforcement Officer, Town of Warrensburg
Ernie Dunkley	Safety Officer, Town of Johnsbury
Danae Tucker	Town of Johnsbury
John Strough	Supervisor, Town of Queensbury
Laura Moore	Planner, Town of Queensbury
Mindy Conway	Town Clerk, Town of Chester
Betsy Parmerter	NYSDHSES
Elizabeth O'Reilly	NYSDHSES
Edna Frasier	Supervisor, Town of Hague
Cathy Clark	Town of Hague
Sheila Mender	City of Glens Falls
Don Lehman	Warren County Public Information
Kevin Clapp	NYSDHSES
John Gibb	CMCG
Roland Paperman	NYSDHSES
Laura Stebbins	Glens Falls
John Wilkerson	NYSDHSES
Paul Hoole	FEMA
Ethan Gaddy	Warren County
Chris Huch	Tetra Tech, Inc.
Cynthia Addonizio-Bianco	Tetra Tech, Inc.





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



Agenda Summary: Purpose to provide guidance on identifying mitigation actions and developing a mitigation strategy		
Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"><li>Meeting started at 10:05 am</li><li></li></ul>	
2	<b>In-Kind Services Tracking/Outreach</b> <ul style="list-style-type: none"><li>Mr. Lieberum reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>Warren County reminded municipalities to submit documentation of in-kind hours to support the obligations related to the planning grant funding.</li><li>The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li></ul>	Action: Submit documentation of hours spent supporting the mitigation planning process, including hours spent to provide data, review documents, provide updates to communities.
3	<b>Developing Mitigation Strategies</b> <ul style="list-style-type: none"><li>Tetra Tech reviewed risk reduction strategies as included in the presentation (attached).</li><li>Regarding mitigation project details, in addition to the mitigation project matrix, Tetra Tech recommends at least two action worksheets for grant eligible projects. If a community has repetitive or severe repetitive loss properties, these should be addressed with an action worksheet.</li><li>Tetra Tech distributed brainstorming worksheets to kick-start the development of problem statements. In addition, they provided all communities with pre-populated Action Worksheets for some initial projects.</li></ul>	
4	<b>Development of Actions and Action Worksheets.</b> Tetra Tech reviewed the following guidelines for the content of Action Worksheets: <ul style="list-style-type: none"><li>Projects should have a strong connection to the risk assessment</li><li>Projects should be specific in time, place, and location</li><li>Projects should be diverse in nature</li><li>Communities have been provided a Mitigation Catalog</li><li>Project descriptions to include consideration of priorities, integration with existing programs, timelines, benefits, and costs•</li></ul>	
5	<b>Next Steps</b>	Schedule a support meeting with Tetra Tech to complete your community annex.





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>• To enable those who could not participate, a video of the presentation is available online for review here: <a href="#">Warren County Mitigation Workshop Video</a></li><li>• Continue to engage the public</li><li>• Develop mitigation strategy/actions: <b>March 2023</b></li><li>• Email <a href="mailto:chris.huch@ttratech.com">chris.huch@ttratech.com</a> to schedule a support meeting with Tetra Tech to complete your community annex.</li></ul>	
6	<b>Conclusion</b> - The meeting concluded at 11:14 am.	





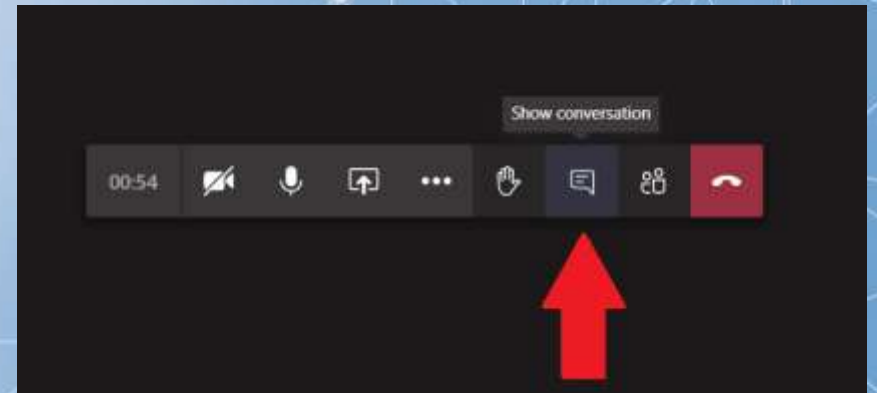
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Mitigation Workshop | March 15, 2023 | 10:00 – 11:30 AM

## ***WELCOME!***

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*







# Agenda

1. Introductions
2. In-Kind Tracking Reminder
3. Hazard Mitigation Refresher
4. Project Status
5. Developing Mitigation Strategies – NYS DHSES, FEMA
6. Updating Previous Actions
7. Using Mitigation Development Worksheets to Select Your Actions
8. Action Worksheets
9. Next Steps







# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

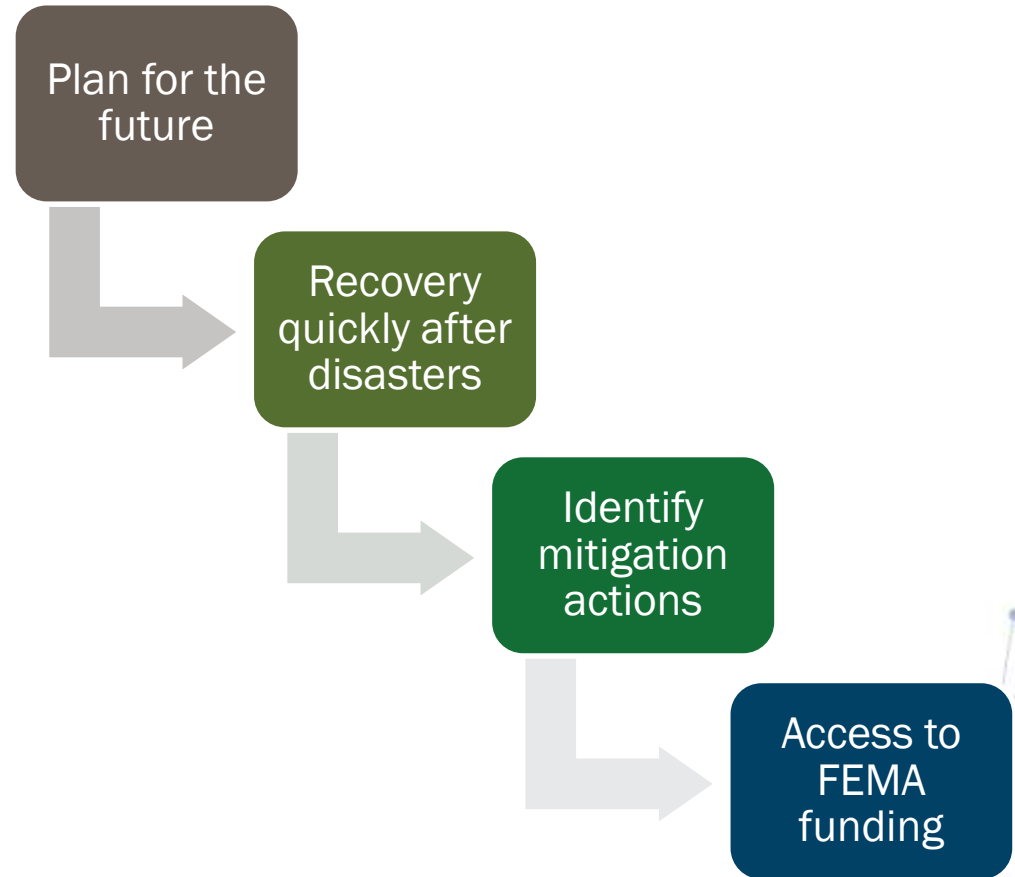
Date

# Hours





# Hazard Mitigation – What is it?







# Why are we spending valuable time on this?

## Hazard Mitigation Works!

- For every \$1 spent on hazard mitigation, saves the U.S. \$6 in future disaster costs!
- More than just money – it could prevent 600 deaths and 1 million non-fatal injuries!

**More Mitigation Measures,  
More Savings**



**One dollar invested in mitigation =  
six dollars U.S. saves in future costs**

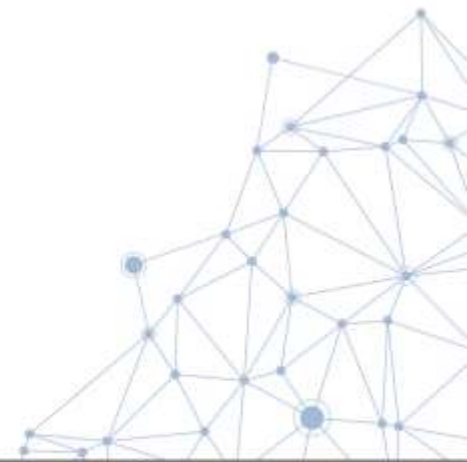






# Our Schedule

Task	Date
Data Collection	Complete
Update Hazard Profiles	Complete
Risk Assessment	Complete
Risk Results Presentation	Complete
Mitigation Strategy Workshop	March 15, 2023– TODAY!
Review Draft Plan	May 2023
Public Review of Plan	June/July
Submit to NYSDHSES	July/August
Submit to FEMA	September/October 2023

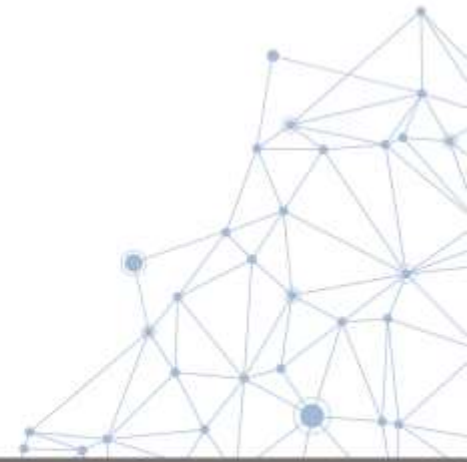
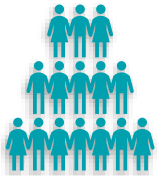






# Public Outreach and Engagement

- Check out the HMP website - <https://www.warrencountynewyorkhmp.com/>
- Post links on social media and department/agency websites
- Citizen, stakeholder and neighboring county surveys distributed, as of 3/10/23:
  - Citizen Survey: 71 responses
  - Stakeholder Survey: 9 responses
  - Neighboring County Survey: 1 response
  - *All responses relating to your jurisdiction are included in your updated Annex*





# Mitigation Strategy







# 2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- Dam Failure
- Infestation and Invasive Species
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire

*A community must include at least one mitigation action for each hazard that is deemed to have a significant impact on the community.*

*For hazards with minimal or no perceived impact to a community, a statement must be included in the annex to indicate why the community has not address any hazards with a mitigation action.*



# Risk Reduction Examples

## To Reduce Risk:

- *Manipulate the Hazard:*
  - Structural flood control
- *Reduce/Eliminate Exposure:*
  - Property acquisition
- *Reduce Vulnerability:*
  - Retrofit existing structures
- *Increase Capability:*
  - Preparation, technical assistance, planning, enforcement







# Using your Mitigation Strategy to Reduce Risk

- What is a *Mitigation Strategy*?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
- Terms to describe the *Mitigation Strategy* include:
  - *Mitigation Action Plan or Action Plan*
  - *Mitigation Projects or Initiatives or Actions*

Your Mitigation Strategy table is included in your annex of the plan.  
**TWO** of your actions must be detailed on Action Worksheets





# FEMA Mitigation Action Types



**Plans and regulations** include government authorities, policies, or codes that encourage risk reduction, such as building codes and state planning regulations. This may also include planning studies.



**Structure and infrastructure projects** involve modifying existing structures and infrastructure or constructing new structures to reduce the impact of hazards.



**Natural systems protection projects** minimize losses while also preserving or restoring the function of natural systems.



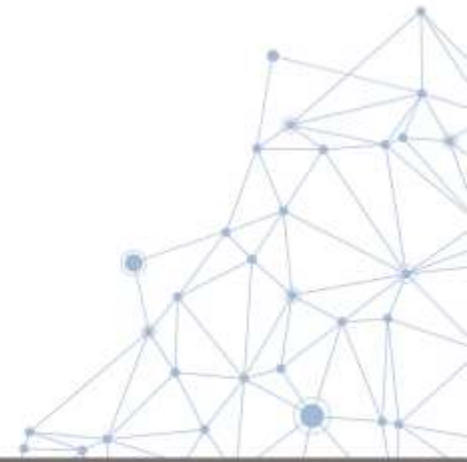
**Education and awareness programs** include long-term, sustained programs to inform and educate citizens and stakeholders about hazards and mitigation options. This category could also include training.





# NYS Requirements for Mitigation Strategy Update

- Need to develop at least 2 Action Worksheets
- If jurisdiction has a regulatory floodplain then one worksheet must address flooding
  - [if the jurisdiction has Repetitive and Severe Repetitive Loss Properties - it is good practice to include action with details (street or neighborhood names)]
- Critical facilities in the 100-year floodplain – must be protected to the 500-year flood event
  - If already protected, we must note how
  - If not protected, a mitigation action must be developed
- Plan for Climate Change and propose actions to address

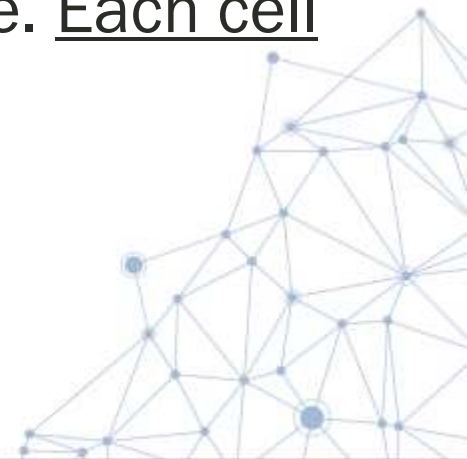






# NYS Requirements for Mitigation Strategy Update

- Proposed actions MUST have specific information identified including:
  - Project lead
  - Estimated cost
  - Timeline
  - Whether the action involves a critical facility
- All required items are identified within the proposed action table. Each cell of the table MUST be filled out!

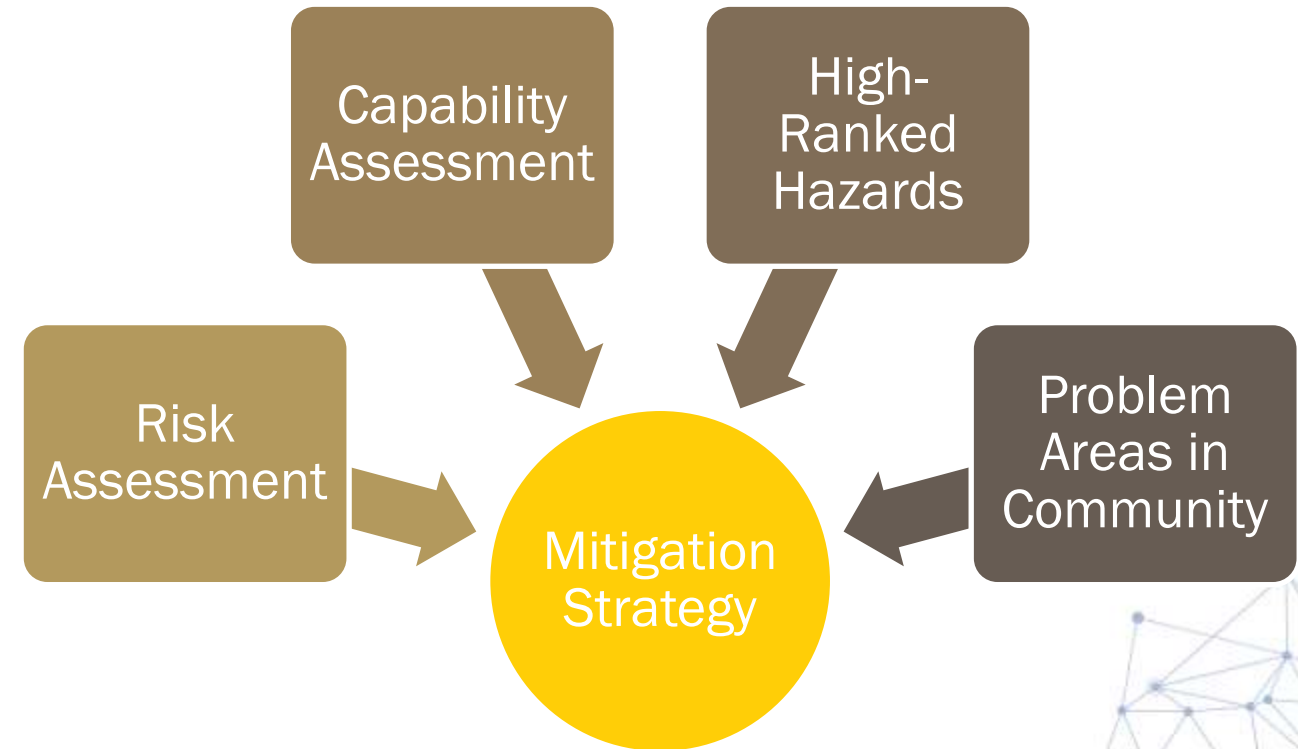






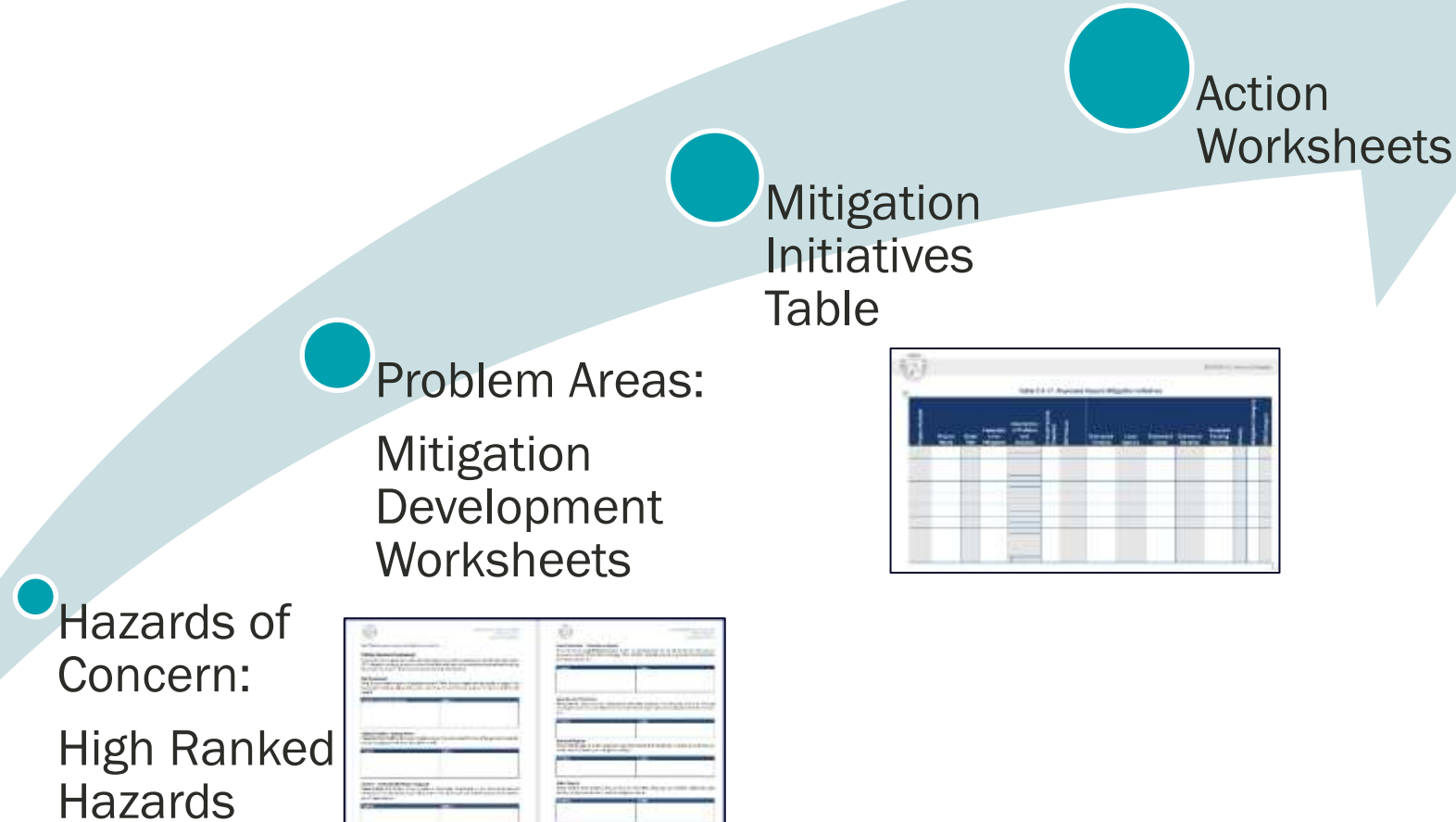
# Connecting to the Mitigation Strategy

- Need a clear connection between vulnerability and proposed mitigation actions.
- Capability assessment provides insight into challenges/opportunities for the mitigation strategy as well.
- Provides the factual basis for activities proposed in the mitigation strategy.





# The roadmap to a strong mitigation strategy



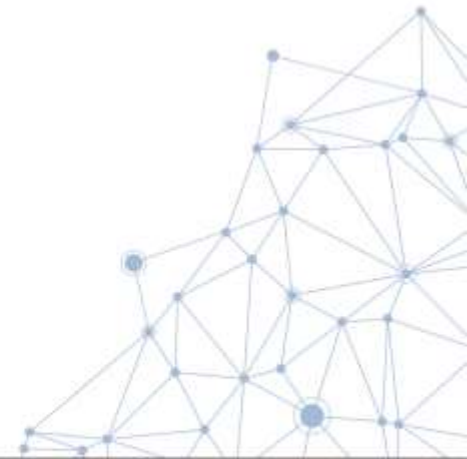
Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is the critical facility located in the 1% annual chance flood area? Yes <input type="checkbox"/> No <input type="checkbox"/>			
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	Estimated Benefits (lives avoided):	Goals Met:	
Useful Life:			
Estimated Cost:	Mitigation Action Type:		
Prioritization:	Desired Timeframe for Implementation:	Potential Funding Source:	
Estimated Time Required for Project Implementation:			
Responsible Organization:	Local Planning Mechanisms to be Used in Implementation if any:		
Three Alternatives Considered (Including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# What are we focusing on for our mitigation strategy?

- Stronger connection between the risk assessment and mitigation strategy
  - At least one action is needed to address each hazard of concern
- More specific actions
  - Specific projects, in specific locations, in a specific timeframe
- Diverse actions
  - Include a variety in the types of actions

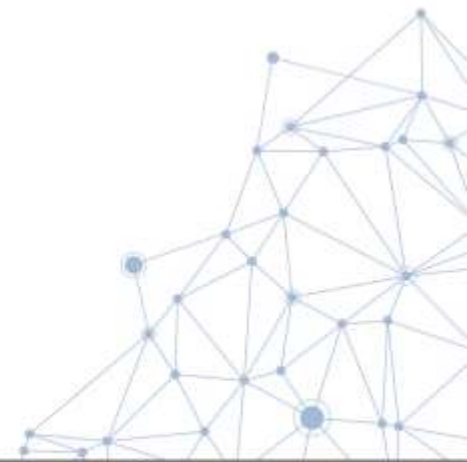






# Update the Mitigation Strategy

- Review our Goals and Objectives
- Start with Problems (many identified on your Worksheets)
  - Areas that have been impacted by hazard events
  - Recurring issues
  - Critical/Lifeline facilities in the floodplain
  - RL/SRL properties need mitigating
  - Evacuation routes and sheltering needs



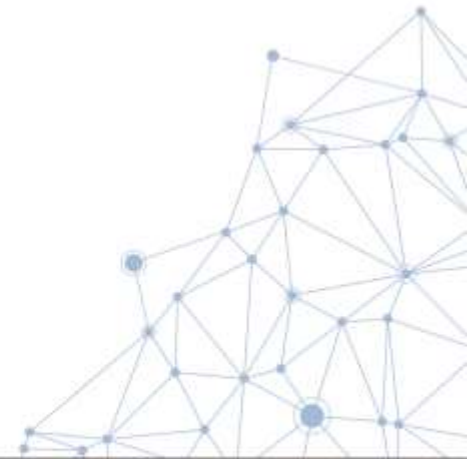




# Update the Mitigation Strategy

- Identify New Mitigation Actions/Projects
- Modify 'Carry-Over' projects from the previous HMP -more specific or address different aspect of original problem

## Quality Over Quantity!!





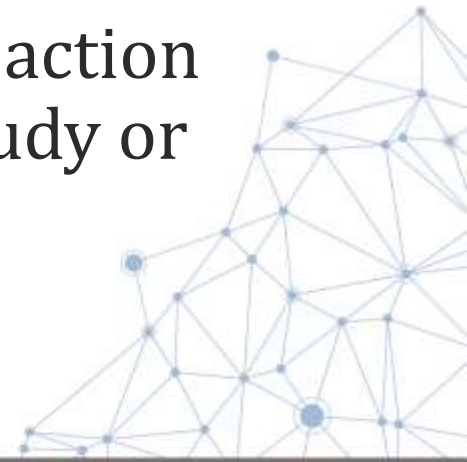
# Making Previous Actions More Specific





# Why we must update our actions...

- Actions in the previous plan often were general and did not include detailed information.
- Detailed information is needed to support FEMA grant applications for funding support.
- Focus on updating previous actions to include the necessary level of detailed information.
- If detailed information is not available, note a phase in the action that will gather this information such as an engineering study or feasibility assessment.
- Use the same level of detail for new actions as well!

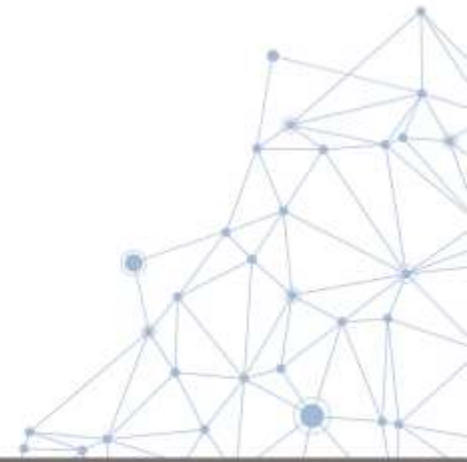






## Example: Previous problem and action

- **Problem:** Critical facilities require backup power.
- **Solution:** Acquire backup power for critical facilities.







## Example: Improved problem and action

- **Problem:** Town Hall lacks a backup power source. The Town Hall houses the Emergency Operations Center and also can serve as a backup shelter. Lack of power results in a breakdown of continuity of operations and prevents the Town Hall from providing critical services during a hazard event.
- **Solution:** The Town Engineer will work with the Office of Emergency Management to research and purchase the appropriately sized backup generator for the Town Hall. The Town DPW will install the backup generator and necessary electrical components and will be responsible for testing and upkeep of the generator after installation.







# Example: EVEN MORE Improved problem and action

- **Problem:** Town Hall lacks a backup power source. The Town Hall houses the Emergency Operations Center and also can serve as a backup shelter **for approximately 100 people**. Lack of power results in a breakdown of continuity of operations and prevents the Town Hall from providing critical services during a hazard event.
- **Solution:** The Town Engineer will work with the Office of Emergency Management to research and purchase **a 75 kW** generator for the Town Hall. The Town DPW will install the backup generator **on the roof of the Town Hall** and necessary electrical components and will be responsible for testing and upkeep of the generator after installation.



# Mitigation Development Worksheet





# Use Your Worksheet to Identify Mitigation Actions



Hazard Mitigation Plan 2023 Update  
Warren County, NY  
Hazard Ranking Review

Note: \*Adaptive capacity was assumed Moderate for all hazards.

## Problem Statement Development

Utilizing the results gathered to date (i.e., risk assessment, capability assessment, identified problem areas, 2017 mitigation strategy), please review the identified problems and potential solutions and add anything that may be missing to inform your mitigation strategy development.

## Risk Assessment

What is your hazard concern of greatest concern? Refer to your hazard ranking results on page 1 (ex: stormwater flooding, falling trees, power loss, etc.). Do you have any projects in mind to address that hazard?

Problem / High-Ranked Hazards	Solution

## Critical Facilities - Backup Power

Please list critical facilities that require backup power. If you have specifics (size of the generator, potential cost, etc.), please provide that information as well.

Problem	Solution

## Culverts - Undersized/In Need of Upgrade

Please indicate the location of any culverts or stormwater components in your community that are undersized or are damaged from past flood events. Then note if you would like to add a project to address any of these locations.

Problem	Solution



Hazard Mitigation Plan 2023 Update  
Warren County, NY  
Hazard Ranking Review

## Flood Protection – Elevation or Buyout

Please identify any **repetitive loss areas**, homes, or neighborhoods that would benefit from elevation or buyout to prevent future flood damages. Then identify potential projects to provide flood protection (elevation, buyout, etc.)

Problem	Solution

## Infrastructure Protection

Please identify roads and other infrastructure that needs protection from flooding, storms, etc. Provide any projects where you would like to include protection measures (elevate roadway, harden infrastructure, etc.)

Problem	Solution

## Outreach Projects

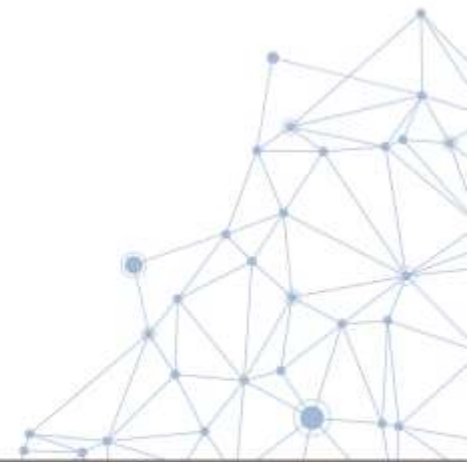
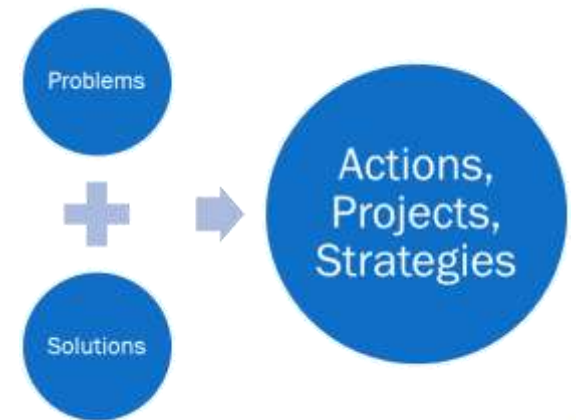
Please identify gaps in public awareness regarding hazards and identify any outreach projects that you would like to include in your mitigation strategy.

Problem	Solution

## Other Projects

Please identify other projects that you have in mind after reviewing your problem statements, past actions, risk assessment results, and the mitigation catalog.

Problem	Solution



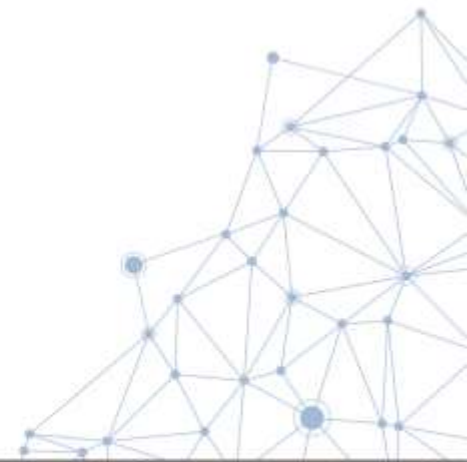




# How do you fill in the Worksheet?

The worksheet asks a series of questions to help you think about vulnerabilities within your community.

- Critical Facilities/Lifelines – backup power
- Critical Facilities/Lifelines – flood protection
- Culverts – undersized/in need of upgrades
- Flood Protection – elevations/buyouts; think about the RL/SRL properties – if you have RL/SRLs you need an action related to this
- Infrastructure Protection – what needs protection from flooding, storms, etc.?
- Anything else?



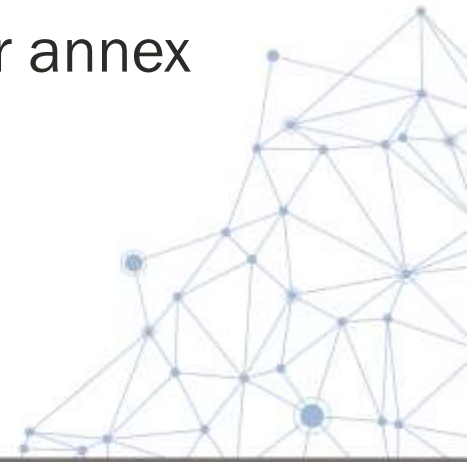




# How do you fill in the Worksheet?

- Review the pre-populated information on your worksheet
  - Information from worksheets submitted to date
  - Input from public/stakeholder surveys
  - Risk assessment results
- Determine the problems that you will pursue solutions for
- Add as much detail as possible to the problems and develop detailed solutions
- Return worksheet to your Tetra Tech planner for discussion during your annex development meeting

**Schedule your meeting with your Tetra Tech planner ASAP!**





# Proposed Action Table







# Proposed Action Table

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2020-Muni-001				Problem:										
				Solution:										
2020-Muni-002				Problem:										
				Solution:										
2020-Muni-003				Problem:										
				Solution:										
2020-Muni-004				Problem:										
				Solution:										
2020-Muni-005				Problem:										
				Solution:										



# Action Worksheets







# Action Worksheets

- Each jurisdiction must develop at least 2 Action Worksheets
- Should also develop additional Action Worksheets for projects you plan to apply for FEMA funding support for within the next 5 years
- Not every action requires an Action Worksheet to be developed but the same sort of information about those actions are still needed in the Proposed Actions table of the annex
- If jurisdiction has a regulatory floodplain then one worksheet must address flooding
- Critical facilities in the 100-year floodplain – must be protected to the 500-year flood event
- Plan for Climate Change and propose actions to address





# Action Worksheet

## ➤ Description of the Problem

- What is the problem?
- What is the risk?
- Where is the problem occurring?
- Who is the problem impacting?
- Have there been past damages?
- How frequently does the problem occur?

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



# Action Worksheet

## ➤ Description of the Solution

- How do you propose to solve or mitigate the problem?
- What are the design specifications?
  - Height and length of a floodwall
  - kW for backup generators
  - Number of structures to be bought out or elevated
  - Etc.
- Who is responsible for what aspects of the project?



Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



# Action Worksheet

## ➤ Level of Protection

- What level event is the project being designed to protect to?
  - For flood protection: 100-year flood, 500-year flood
  - For stormwater improvements: 5 year, 10 year rain events
- If not a specific level, include brief description of what protections are
  - For generators: Prevents power loss

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



# Action Worksheet

- Estimated cost
- What will the project cost?
- If project includes phases or components, what will each phase or component cost?
  - New generator: \$25K, elevation platform for generator: \$1K



Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



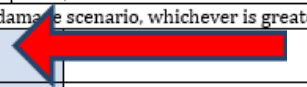


# Action Worksheet

- Estimated Benefits
- Provide a description of the estimated benefits, either quantitative and/or qualitative
- Identify the benefits that implementation of this project will provide. If dollar amounts are known, include them. If dollar amounts are unknown or are unquantifiable, describe the losses that will be avoided.



Action Worksheet			
<b>Project Name:</b>			
<b>Project Number:</b>			
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>			
<b>Description of the Problem:</b>			
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>			
<b>Is this project related to a Critical Facility?</b>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
<b>Is the critical facility located in the 1% annual chance flood area?</b>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
<b>Level of Protection:</b>		<b>Estimated Benefits (losses avoided):</b>	
<b>Useful Life:</b>		<b>Goals Met:</b>	
<b>Estimated Cost:</b>		<b>Mitigation Action Type:</b>	
Plan for Implementation			
<b>Prioritization:</b>		<b>Desired Timeframe for Implementation:</b>	
<b>Estimated Time Required for Project Implementation:</b>		<b>Potential Funding Sources:</b>	
<b>Responsible Organization:</b>		<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





# Action Worksheet

- Prioritization
- High, Medium, or Low
- Use the second page of Action Worksheet to evaluate each action and assist in the determination of priority (to be discussed shortly)

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes	<input type="checkbox"/> No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes	<input type="checkbox"/> No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Responsible Organization
- Identify the lead organization/department/individual for the project
- Identify any supporting organizations/departments/ individuals for the project.

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Estimated Time Required for Project Implementation
- Provide the estimated time required to complete the project from start to finish.

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





# Action Worksheet

- Alternatives
- Three alternatives are needed for each action worksheet.
  - 1<sup>st</sup> alternative can be no action
  - 2<sup>nd</sup> and 3<sup>rd</sup> alternatives – include estimate cost and a description of the pros/cons of the alternatives

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			







# Evaluation of Actions

- Consider the benefits and costs
- Consider the implementation timeline
- Consider the areas/problems of greatest need
- Consider the funding sources
- High/Medium/Low priority

**1 = highlight effective or feasible**

**0 = neutral**

**-1 = ineffective or not feasible**

Evaluation and Prioritization		
Project Name:		
Project Number:		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety		
Property Protection		
Cost-Effectiveness		
Technical		
Political		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		
Timeline		
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		





# Important Actions

- **Municipalities with high hazard potential dams with a condition rating of unsafe or unsound** should include an action to address the deficiencies, using the High Hazard Potential Dam (HHPD) grant program for funding.
- **Municipalities with repetitive loss properties** need to include an action to address repetitive loss (elevation and/or acquisition). Tetra Tech has emailed the communities that have repetitive loss properties.

## High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans<sup>1</sup>  
Complete a Separate Worksheet for each<sup>2</sup> state regulated HHPD in your community.

Name of the Mitigation Plan:	Point of Contact for this Worksheet Name:
	Email:
Municipality where dam is located:	Name of Dam:
Name of the Dam Owner:	NYS Dam ID #:

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

<sup>1</sup> Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

<sup>2</sup> This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.





# Schedule

- Complete Mitigation Development Worksheet and Schedule Meeting with your Tetra Tech Planner **Before March 31<sup>st</sup>**
- Work with Tetra Tech Planner to Complete Actions and Annex following meeting
- Draft Plan to Steering Committee by middle of May
- Final draft plan to NYS DHSES and FEMA – August/September 2023





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





# Warren County Hazard Mitigation Plan Update Meeting Notes



Purpose of Meeting:	Steering Committee Meeting
Location of Meeting:	Virtual Teams Meeting
Date of Meeting:	June 7, 2023, 10:00 am

## Attendees:

Ann Marie Mason	Director, Warren County Office of Emergency Services (OES)
Jim Lieberum	Warren County SWCD, District Manager, HM Coordinator
Laura Moore	Town of Queensbury, Land Use Planner
Kevin Hajos	Warren County Department of Public Works
Ashley Rivers	Warren County Office of Emergency Services
John Gibb	Contingency Management Consulting Group
Laura Stebbins	Director of Emergency Preparedness, Glens Falls Hospital
Sandra LeBarron	Director of Environmental Health and Safety, Finch Pruyn
Elizabeth O'Reilly	NYSDHSES

**Agenda Summary:** Purpose to provide a brief progress report and address pending action items. To re-convene the Steering Committee meeting to review the plan status and agenda items below.

Item No.	Description	Action item(s):
1	<b>Opening Remarks/Progress Report</b> <ul style="list-style-type: none"> <li>Meeting started at 10:00 am</li> <li>Cynthia Addonizio-Bianco, Tetra Tech (Tt), welcomed participants and noted the key agenda items as summarized in the attached PowerPoint presentation.</li> <li>The Steering Committee is requested to access the draft plan documents on the project OneDrive to review and provide any comments or feedback to be incorporated into the plan before posting for public review.</li> </ul>	
2	<b>Progress Report</b> <ul style="list-style-type: none"> <li>The process continues to be on track for plan submittal to FEMA in August 2023.</li> <li>Upcoming milestones <ul style="list-style-type: none"> <li>Steering Committee Review of Draft Plan (through July 12<sup>th</sup>)</li> <li>Draft plan posted for public comment (August 1<sup>st</sup> – August 31<sup>st</sup>)</li> <li>Plan submittal to NYSDHSES/FEMA (September)</li> </ul> </li> </ul>	
3	<b>Draft Plan Review</b> (refer to attached presentation for details) <ul style="list-style-type: none"> <li>Survey Results</li> <li>Section-by-section content review</li> <li>Maintenance procedure review</li> </ul>	





Warren County  
Hazard Mitigation Plan Update  
Meeting Notes



	<ul style="list-style-type: none"><li>Steering Committee Review guidelines</li></ul>	
4	<b>Discussion</b> <ul style="list-style-type: none"><li>Mr. Hajos reviewed and discussed mitigation actions included in the draft county annex to support finalization of the mitigation strategy. This input will be included in the draft annex.</li></ul>	
5	<b>Pending Action Items</b> <ul style="list-style-type: none"><li>Tt reminded committee members to document any time spent to attend HMP meetings, to provide input, or to provide information to their constituencies to ensure their efforts are included in the documentation to comply with grant requirements.</li><li>The public HMP website (<a href="https://www.warrencountynewyorkhmp.com">https://www.warrencountynewyorkhmp.com</a>) has been updated with meeting dates and meeting documentation. The public draft will be located on this site for public review.</li><li>Tetra Tech reminded steering committee members to access the project OneDrive site to review draft plan sections and to provide input, as necessary.</li></ul>	<p>Steering Committee members to access plan on project OneDrive and provide comments as needed by July 12<sup>th</sup>.</p> <p>Tt to send OneDrive access links and review guidance to committee members.</p>
6	<b>Next Steps</b> <ul style="list-style-type: none"><li>Steering Committee members to access plan on project OneDrive and provide comments as needed by July 12<sup>th</sup>.</li><li>Tt to update draft plan to include committee feedback and post plan for public review in August.</li></ul>	
7	<b>Conclusion</b> - The meeting concluded at 11:07 am.	





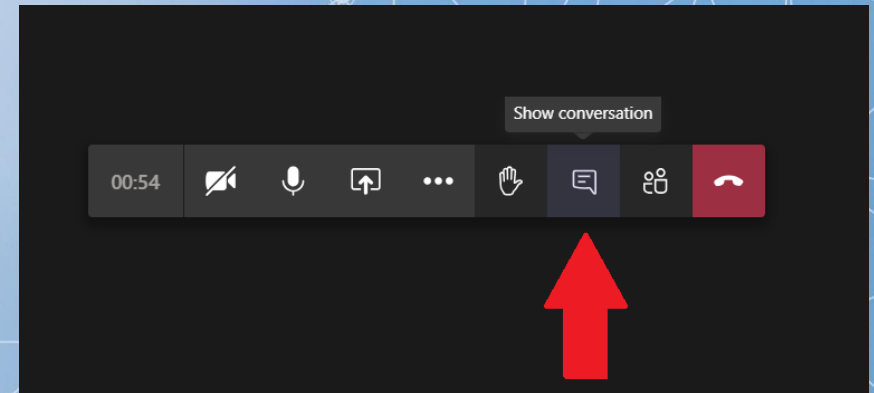
# Warren County, New York Hazard Mitigation Plan – 2023 Update

Steering Committee #5 Meeting | June 7, 2023 | 10:00 – 11:00 AM  
Draft Plan Review

## **WELCOME!**

*If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.*

*This will assist in our attendance documentation.*

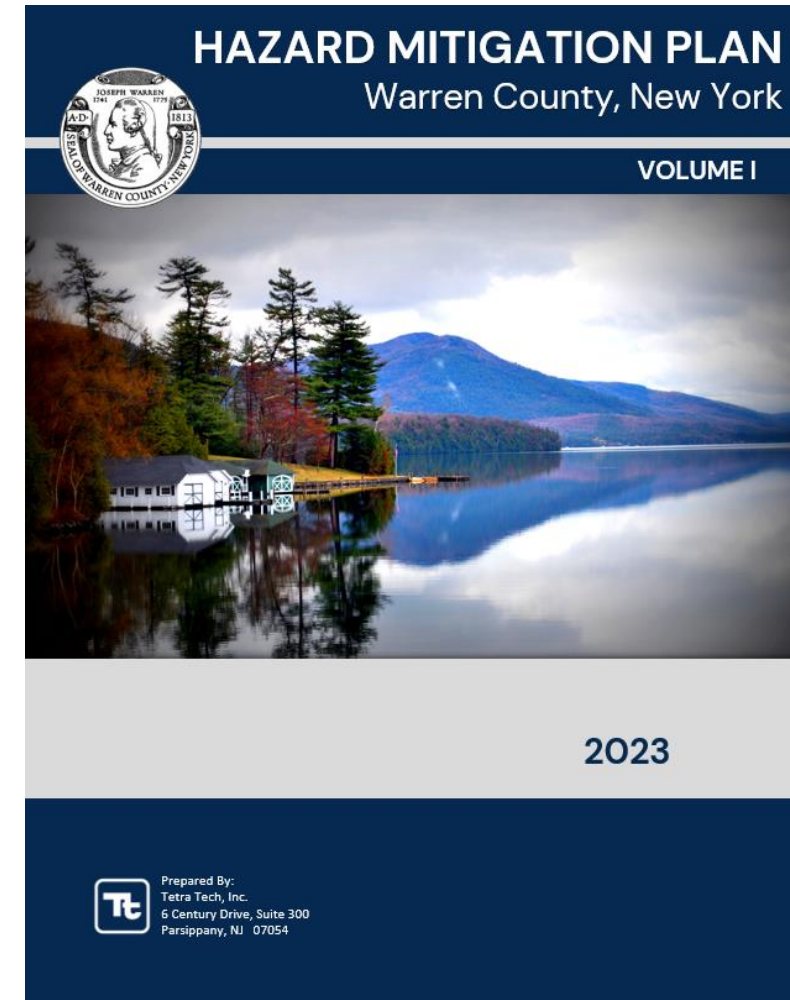






# Agenda

1. Introductions
2. Project Schedule
3. Draft Plan Review
  - What is New?
  - Survey Results
  - Section-by-Section Content Overview
  - Review Guidelines
  - Finalizing the Plan
  - County Mitigation Actions Discussion
4. Next Steps
5. Q&A

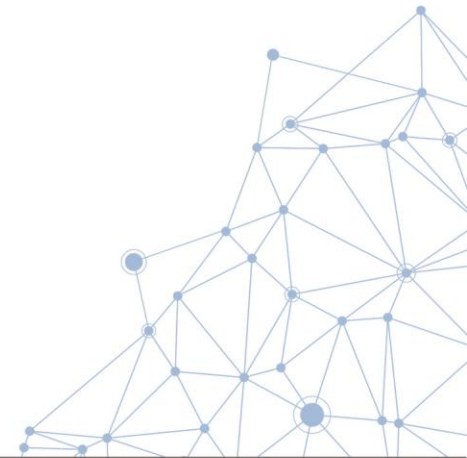






# Project Schedule Review

- |   |                         |                                                      |
|---|-------------------------|------------------------------------------------------|
| ✓ | November 2, 2022        | Municipal Kick-Off Meeting                           |
| ✓ | November – December     | Data Collection                                      |
| ✓ | January 2023 – February | Update hazard profiles                               |
| ✓ | February 15, 2023       | Risk Assessment Presentation to Planning Partnership |
| ✓ | March 15, 2023          | Mitigation Strategy Workshop                         |
| ☐ | June/July 2023          | Review draft plan                                    |
| ☐ | September 2023          | Submit plan to NYSDHSES and FEMA                     |

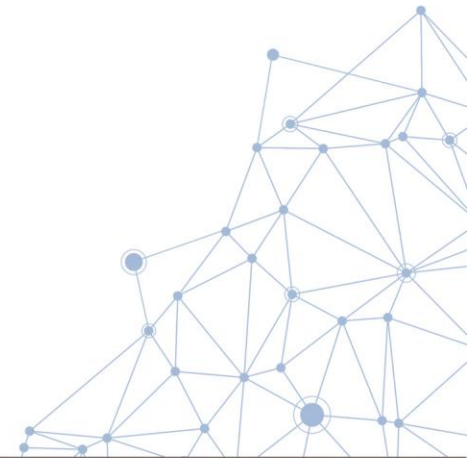






# What is new in the 2023 Update?

- Review of hazard impacts since last plan.
- Updated critical facility inventory, including Community Lifelines
- Updated annexes to align with new FEMA and NYSDHSES Guidance
- Supplementary information appendix to support policy and planning
- Climate Change impacts and Adaptive Capacity to reduce vulnerability used in hazard ranking







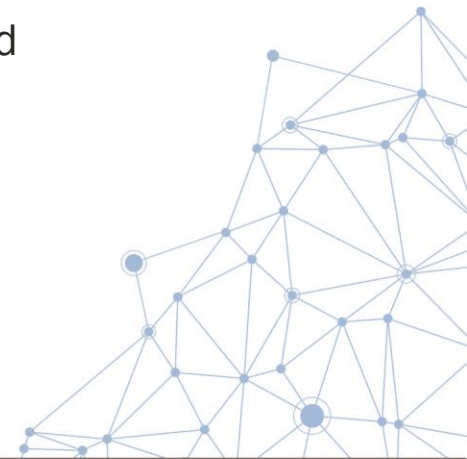
# Neighboring County Survey Results

- **Saratoga (2 responses)**

- Indicated mutual agreements to deploy staff for emergency evacuations/disaster response
- Warren County was instrumental in helping us to develop many of our plans. They are a partner that could be asked for assistance in a variety of disasters.
- Emergency Managers work together to respond to incidents and may work together to mitigate against incidents along shared vulnerabilities.
- Shared hazards of concern: Flooding along the Hudson - which serves as the boundary between a good portion our counties. Additionally, various incidents along the Northway. Also, large scale incidents (e.g .brush fire) along our rural border; All dams/flooding along common county borders.
- Information shared with Saratoga communities by the hazard mitigation plan, intercommunity communication often by the highway department leadership.
- Multi-county evacuations would require collaboration. Historically we have collaborated on shared hazards/events

- **No response**

- Essex accessed survey (No data-will contact to discuss)
- Hamilton County
- Washington County

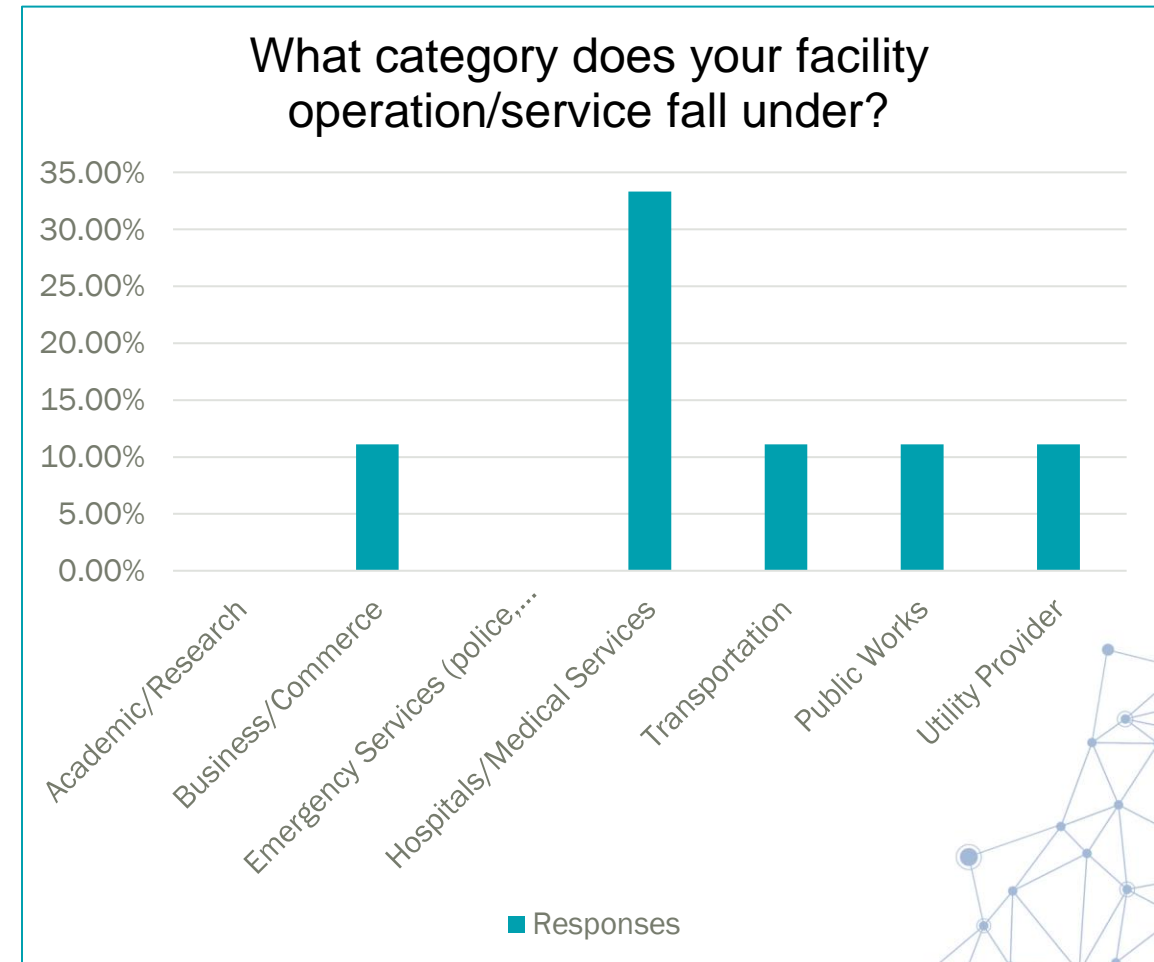






# Agency Survey Results

- 9 Respondents
  - National Grid
  - Warren County Health Services
  - SAIL
  - NYS Department of Health Glens Falls District Office
  - Lake George Regional Chamber of Commerce & CVB
  - Southern Adirondack Independent Living
  - Glens Falls Hospital
  - Greater Glens Falls Transit
  - Glens Falls Common Council

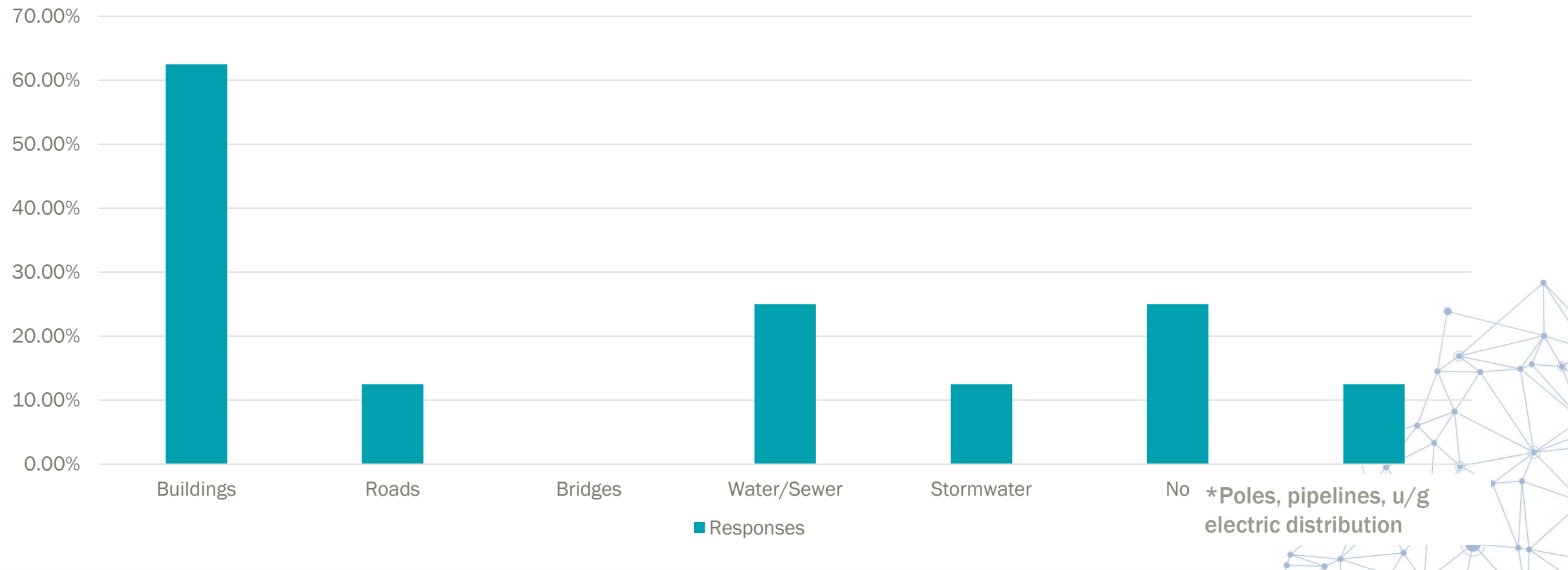






# Agency Survey Results

Does your organization maintain or manage any of the following within your designated service area?





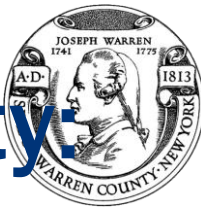
# Agency Survey - Hazard Vulnerability:



- Electric Substations and gas regulating stations. As we've all seen in the news with the recent vandalism with electric utility equipment, it is high on the priority list for our security teams.
- Salt mitigation to protect the lake. We currently use sand on the backside of our building/parking area and salt/sand mixture on the front. No other hazards as of this writing.
- Reliance on pre-identified municipal buildings and locations that are owned and maintained by City/Town municipalities for many of our activities.
- Our hub is the County Municipal Center. Vulnerabilities include fire, severe weather impacting the facility, loss of internet and utilities caused by weather or man-made factors"
- Road hazards - downed trees, winter driving conditions
- Industry along the river and watershed

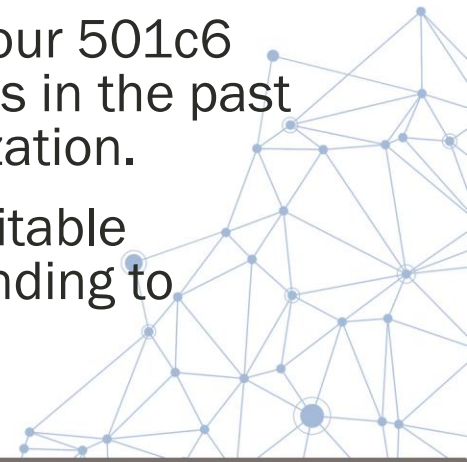




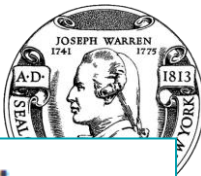


# Agency Survey - Programs to Reduce Vulnerability

- Tree Trimming program - each of our circuits are trimmed on 5-year cycles, that means every 5 years ""Main St in Queensbury"" will be inspected for danger trees and trimmed by one of our tree contractors.
- **"Computapole"** program. This is a program that has us inspect and get eyes on every piece of National Grid electric infrastructure throughout our territory. We identify potential hazards like rotting poles, broken or unbonded guy wires, blown lightening arrestors, or broken cross arms. Once they are reported, the issues are then sent to the field workers for repairs. This is also done in 5-year cycles for each of our circuits.
- We have a similar program for our gas distribution system regarding our Leak Prone Pipe program where we are replacing old cast iron mains and services with plastic. We have a gas corrosion team that inspects our pipelines to make sure they are still in spec.
- We were able to take advantage of the second round of PPP funding because of our 501c6 corporate status that helped us through the pandemic financially. Other strategies in the past have been to cut programs and not people to stay financially stable as an organization.
- Upgrading work from home opportunities if the facility is unusable, ensuring a suitable secondary location is available for staff that have to be in the office, providing funding to ensure IT and other equipment necessary to maintain operations is provided
- Sewage treatment plant power project







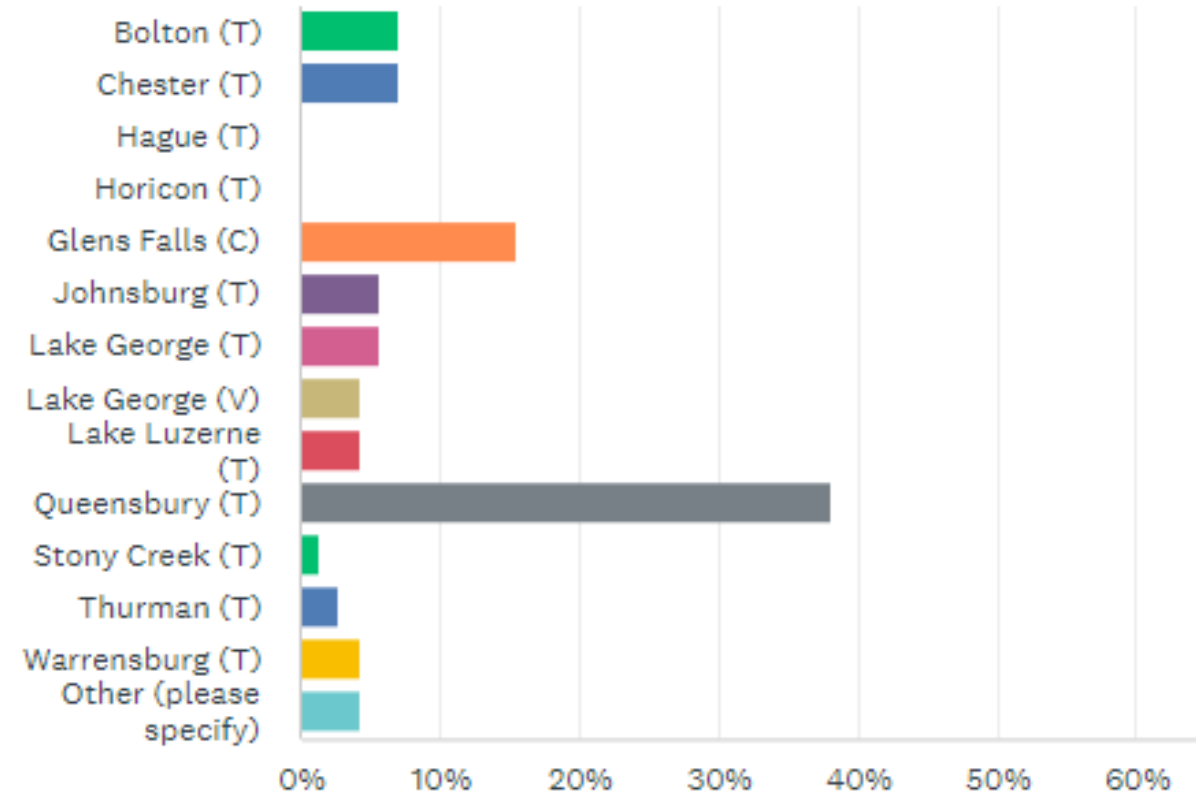
# Public Survey Results

- 81 Responses
- 64% Completion Rate
- 8 Minutes to Complete (Avg)
- ~39 identified vulnerable areas/items

County streets Lake property Glens Falls Rd water due Road River  
flood drainage trees Hudson River None ice

Please indicate the municipality in which you live:

Answered: 71 Skipped: 10

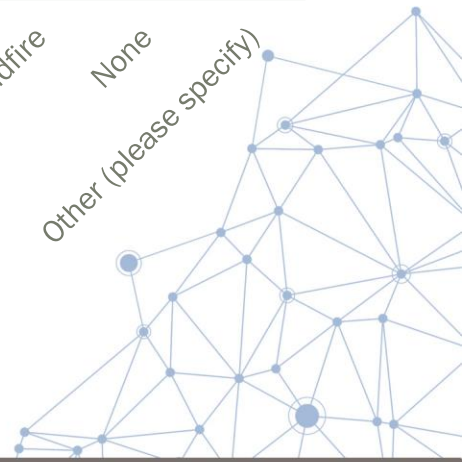
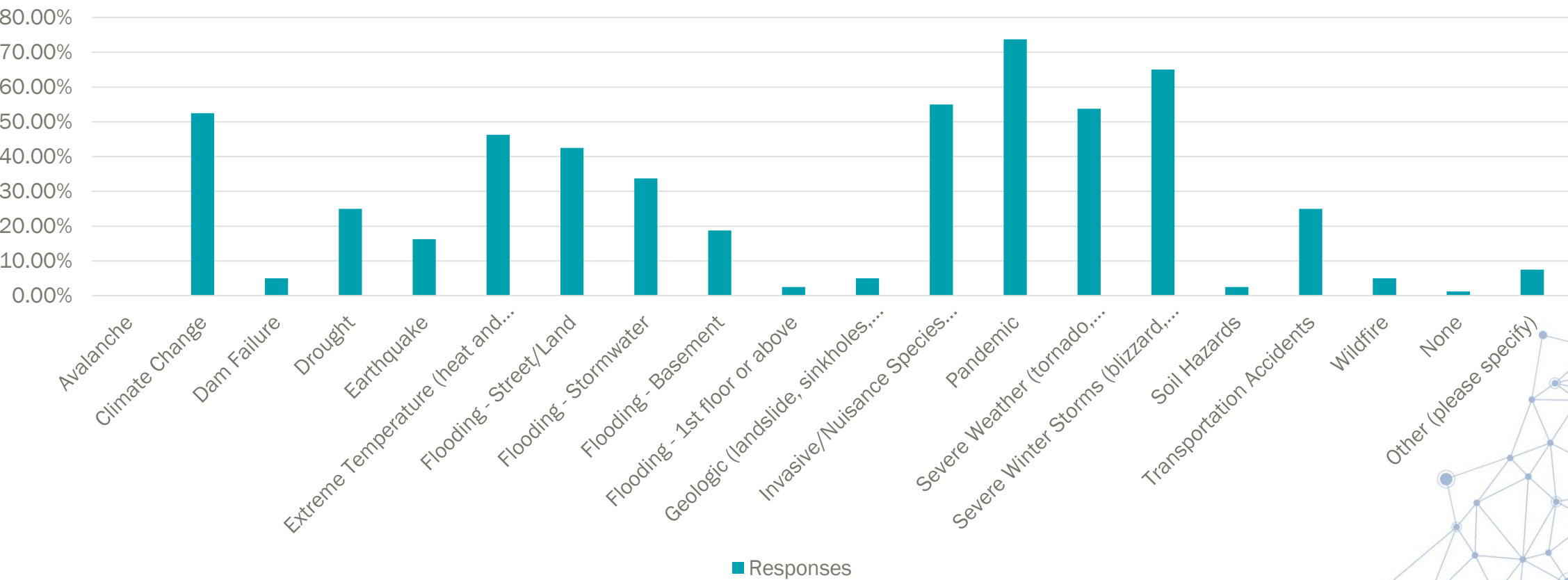






# Public Survey Results: Hazards Experienced

In the past 10 years, which of the following hazard events have you experienced in Warren County?

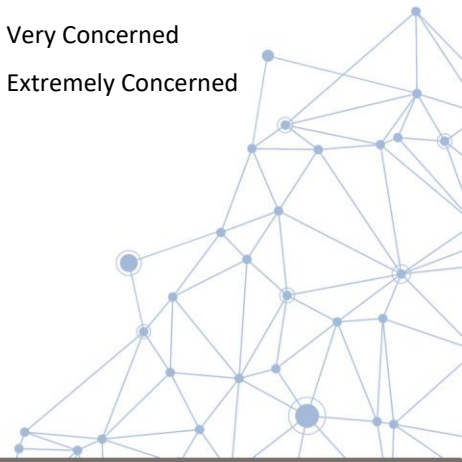
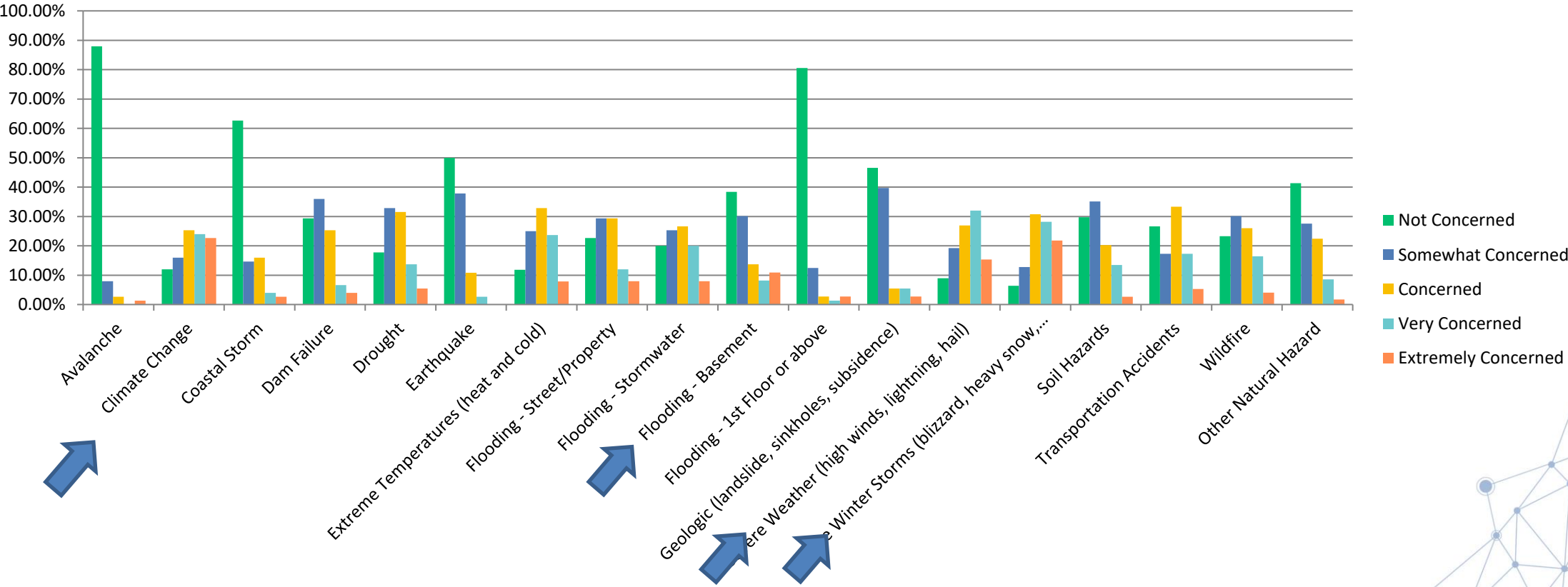






# Public Survey Results - Hazard Concerns

How concerned are you about the following hazards in Warren County? Please check one for each hazard.

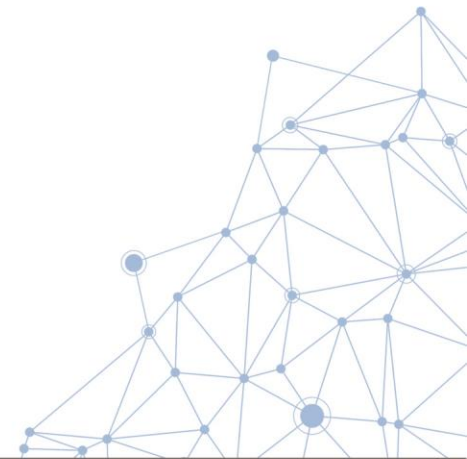






# Problem Areas

- Pine Tree Lane Diamond Point
- Always having power outages when others don't. They can last up to four days.
- Lack of back up power
- Loon Lake Dam Failure.
- Power outages due to lack of appropriate tree removal along power lines.
- Poor cell service. Lake Luzerne
- Queensbury boat launch, Glen Lake, Lake George, Hudson
- Susceptibility to flooding, poorly maintained dams owned by city of Glens Falls.
- Schools lack of back up power in the event power goes out and lack heating elements. Trees along residential roads that aren't cut back. Power drainage on roadways.
- Prone to power outages from trees on lines
- General back-up power, snow/ice blockage on highways
- Floodprone area on Meadowbrook Road @ Halfway Brook
- Low water levels in Kattskill by Lake George due to water management practices
- Apartment building for disabled and retired with all electric heat. No on demand generator.
- Located at 10 Manor Rd.

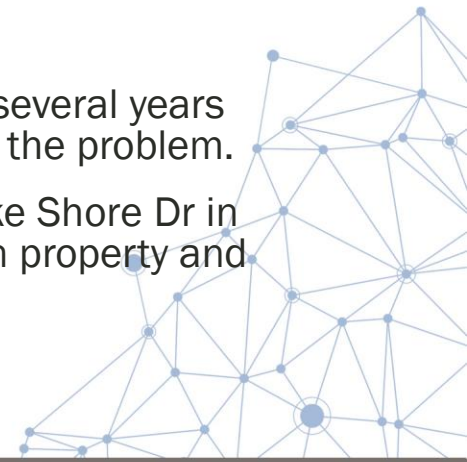






# Problem Areas, continued

- 13th Lake Road, North River. The gabion walls are pushed out and look like they will give at any time. Also rocks fall in the middle of the road all the time.
- Flooding - 9N S/Hidden Valley Drive (Tubby Tubes-Lake Luzerne, NY 12846), due to a sewer drain that doesn't handle all the water, causing back up and ice/danger in winter. Trees down in my property from recent high winds (1275 Lake Avenue, Lake Luzerne, 12846)
- Water Tank control panel without power backup
- Ice jamming on Hudson River at 418 Bridge.
- Flooding on River Road
- Lake George sewage treatment plant has minimal security and is vulnerable to walk up attacks on infrastructure.
- Numerous roads and stream crossings could be subject to flood/storm damage.
- East End in Glens Falls is known for being a high water table area
- North Bolton Road at the foot of Church Hill Road is continually flooded due to the road having been raised several years ago. Raising the road removed all drainage possibilities and County officials refuse to do anything to correct the problem.
- Storm Drainage system that runs down the Lakeview Circle drive in the town of lake George and crosses Lake Shore Dr in the town of lake George and continues down to the lakefront between the Fairview Improvement association property and the lake view terrace property.

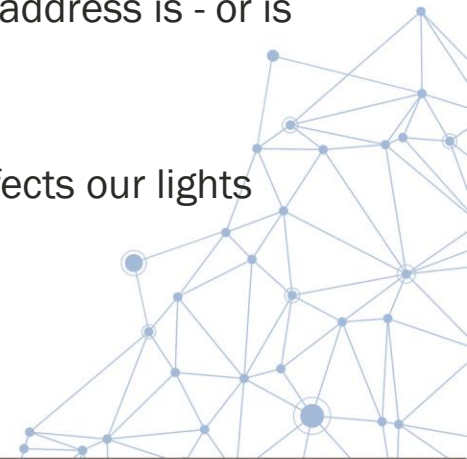






# Problem Areas, continued

- Lack of municipal sewer and water
- Poor drainage for city streets (most streets in Glens Falls); raw sewage releases into the Hudson River (sometimes even if it only rains briefly); Poor tree maintenance causes downed branches in the high winds we now get for many months of the year.
- My road is collapsing into a stream. Many dead trees along the road. So called protected land around the watershed is not protected or monitored
- C/Glens Falls flood prone streets. Warren St, Mohican St, CR 19 T/Chester. SR 418 bridge & River Rd, Barton Mines RD  
Johnsburg
- Loon Lake Dam, Rt 8/9, Chestertown
- ZERO fragrance-free emergency shelters! Acute respiratory response / reactive airways when exposed for perfumes, scented products (ubiquitous), etc. ALSO: FEMA Flood Map makes ZERO sense! Unable to determine if my address is - or is not - in a flood plain: Fredella Avenue, Glens Falls, NY.
- Hudson River Basin Lake Luzerne to Corinth
- We have experienced power outages for as lengthy as 5 days. being on a deep well, the outage not only effects our lights and heat, but water as well.
- Electric
- Glens Falls dams on West Mountain

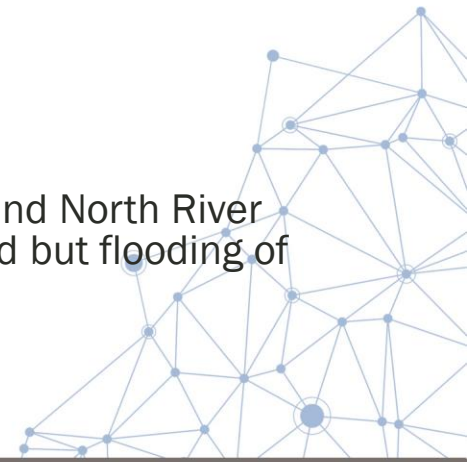




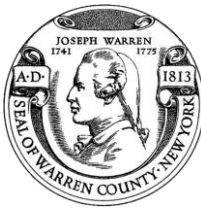


# Problem Areas, continued

- Federal Hill Rd
- Areas along Hudson River and Schroon River are flooded frequently
- Lack of internet service in rural areas.
- Queensbury - Halfway Brook Area/flooding
- Warrensburg - Schroon River Area/flooding
- Chester & Horicon - Schroon River Area/flooding
- Meadowbrook Road, Queensbury - Flooding
- Lakeview Circle Drive Town of Lake George
- GFWWTP releasing sewage into Hudson after every heavy rainstorm.
- Inadequate storm drainage on streets
- Power cybersecurity concerns
- Flooding of the Hudson River in the spring occasionally that affects the State rt. 28 between North Creek and North River and includes part of the town North Creek at the train station. The historic Train station has been preserved but flooding of the Hudson in the spring has caused concern a number of years in the past ten.
- Thurman bridge
- Downtown Warrensburg from Schroon River flooding

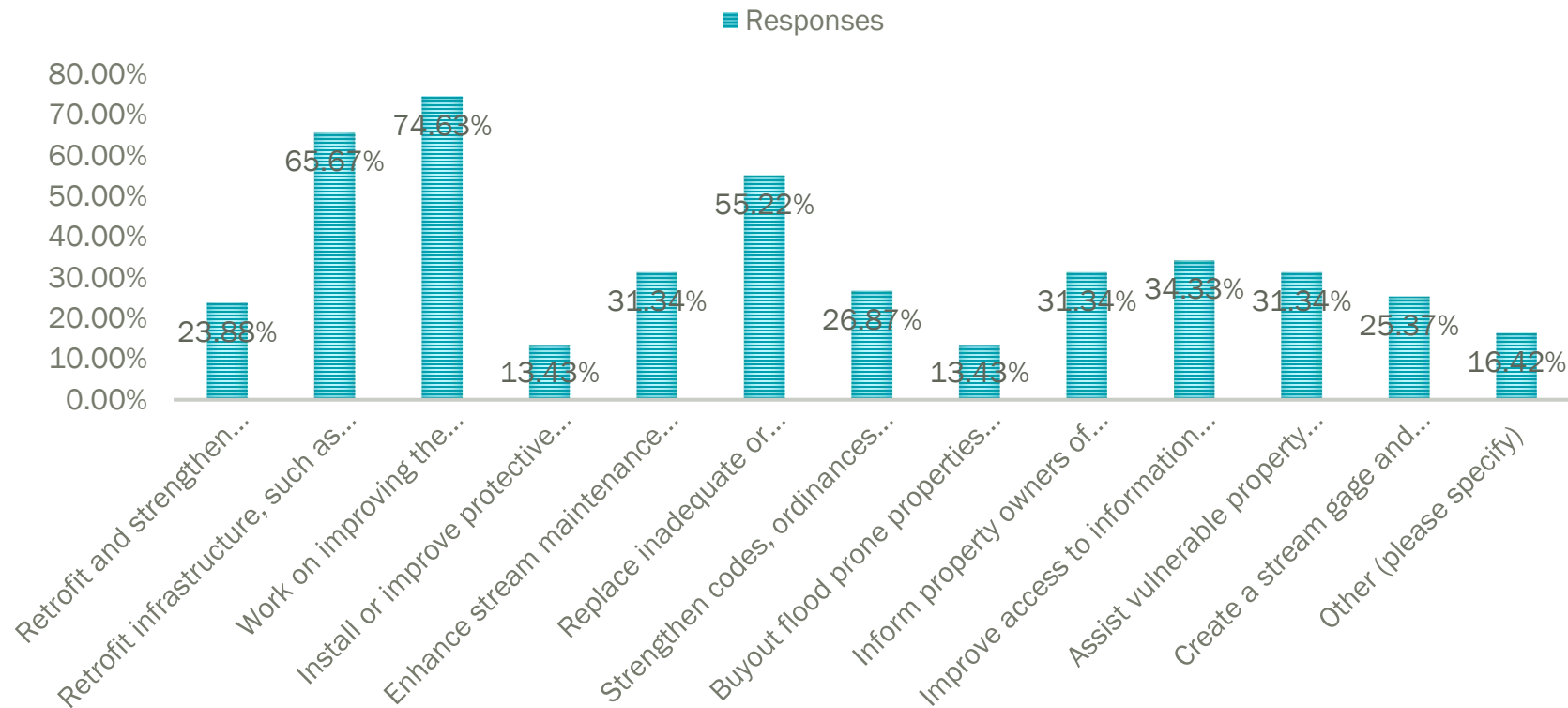






# Priority Projects

What types of projects do you believe local, county, state, or federal government agencies could be doing to reduce the damage and disruption of disasters in Warren County?



## Top 3 project types to fund:

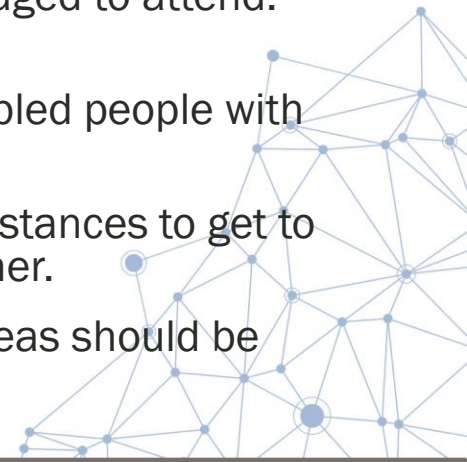
- 74.8% - Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)
- 65.6% - Retrofit infrastructure, such as elevating roadways and improving drainage systems
- 55.2% - Replace inadequate or vulnerable bridges and causeways





# Concerns

- Inadequate shelters in case of emergencies
- Remove tree limbs that hang over the 9L road before someone gets seriously injured
- I would appreciate receiving real time alerts from Warren County similarly to FEMA
- Each municipal government should be required to participate in this process. They should assess their community for potential hazards and develop a mitigation plan.
- Warren County needs to fix the drainage issue it CAUSED.
- I see that climate change is affecting us. One problem that we never experienced until recent years is algae blooms.
- I see climate change as one of the biggest concerns now and in the future that could and would impact a lot of weather -related hazard events. I think more projects that focus on taking care of our environment, like adopt a highway and stream clean up days, as a good thing to consider.
- Annual preparedness training at senior centers, at schools and in locations that citizens are encouraged to attend. create a citizen team to work with Emergency Management for Warren County
- Vastly improve ACCESSIBILITY for disabled people and Disaster Planning to include INPUT from disabled people with various disabilities; including respiratory
- During severe winter storms, county buildings need to close or open late as employees travel long distances to get to Warren County Municipal Center and should not have to use personal time in case of extreme weather.
- Extreme weather (heavy downpours and sudden storms) have increased greatly. Review of runoff areas should be reviewed.

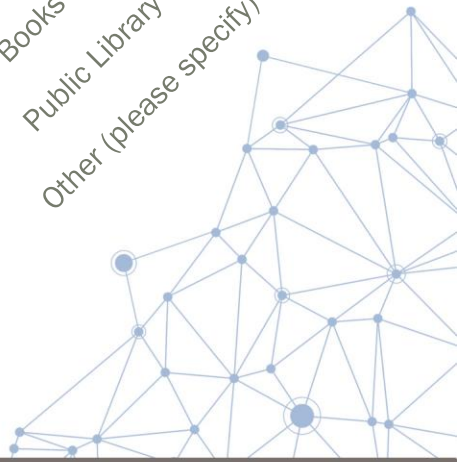
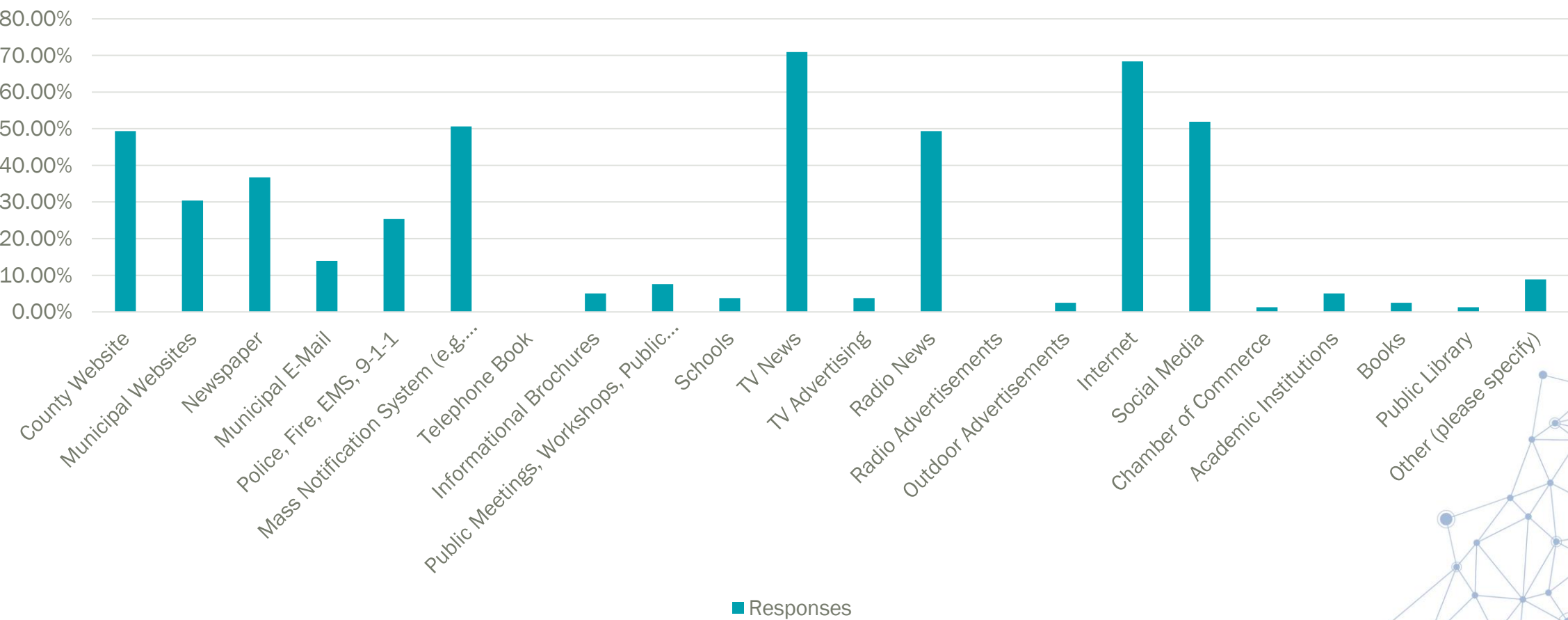






# Effective Messaging Resources

How do you receive your information concerning a disaster? Check all that apply.







# Document Review on Sharepoint

- Access for document review
- Review in “desktop app” in track changes

OneDrive interface showing the 'Warren County (NY) HMP' folder. The 'Steering Committee' folder is circled in green, and a blue arrow points to it from the right.

Name	Modified	Modified By	File size	Sharing
GIS	November 14, 2022	frankenfelds@warrencoun	4 items	Shared
Letters of Intent to Participate	September 16, 2022	Bianco, Cynthia	14 items	Shared
Outreach Materials	November 30, 2022	Bianco, Cynthia	10 items	Shared
<b>Steering Committee</b>	January 24	Bianco, Cynthia	1 item	Shared
Survey				
SWCD				

OneDrive interface showing the 'Documents for Review' folder. The '5.2 - HOC ID\_Warren\_rev.docx' file is circled in green, and a blue arrow points to it from the left.

Name	Modified	Modified By	File size
Old	January 31	Bianco, Cynthia	6 items
Warren_TOC.docx	January 25	Bianco, Cynthia	205 KB
<b>5.2 - HOC ID_Warren_rev.docx</b>	6 days ago	Bianco, Cynthia	422 KB
Section 1-Introduction_rev.docx	6 days ago	Bianco, Cynthia	1.05 MB
Section 2-Plan Adoption.docx	January 25	masona@warrencountyny	360 KB
Section 5.1_Methodology_rev.docx	6 days ago	Bianco, Cynthia	517 KB

OneDrive interface showing the 'Steering Committee' folder. The 'Documents for Review' folder is circled in green, and a blue arrow points to it from the left.

Name	Modified	Modified By	File size	Sharing
<b>Documents for Review</b>	January 24	Bianco, Cynthia	6 items	Shared





# Draft Plan Review – Section Contents

## Volume I

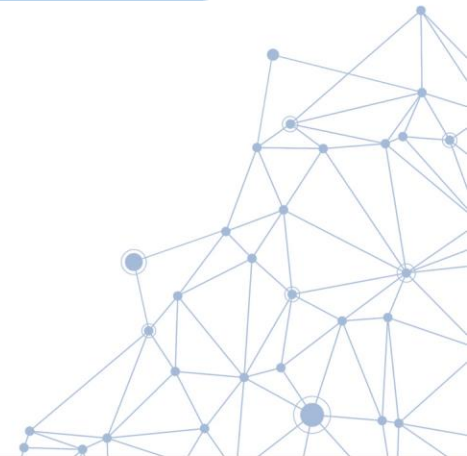
- **Section 1 – Introduction**
  - Mitigation Planning Overview
  - Participating Jurisdictions
  - 2023 Updates
- **Section 2 – Plan Adoption**
  - Adoption Process
- **Section 3 – Planning Process**
  - Participants
  - Activities
  - Ongoing Process



HAZUS-MH was applied to

- Identify Hazards (Phase 2)
- Profile Hazards (Phase 2)
- Perform a Vulnerability Assessment (Phase 2) including:
  - Inventory Assets
  - Estimate Losses
  - Evaluate Development Trends
  - Present Results of Risk Assessment

These results provide an input to Phase 3.





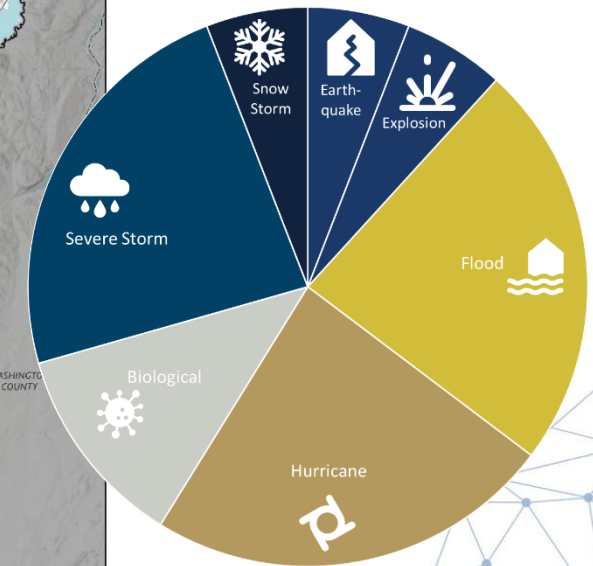


# Draft Plan Review – Section Contents

- **Section 4 – County Profile**
  - History & Physical Setting
  - Population and Demographics
  - Major Hazard Event History
  - General Building Stock
  - Land Use and Population Trends
  - Critical Facilities & Lifelines
- **Section 5 – Risk Assessment**
  - Hazards of Concern
  - Hazard Ranking
  - Hazard Profiles



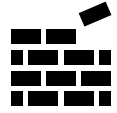
Warren County Hazard Events







# Hazards Profiles – Section 5.4



- Dam Failure



- Disease Outbreak



- Earthquake



- Extreme Temperature



- Flood



- Infestation and Invasive Species



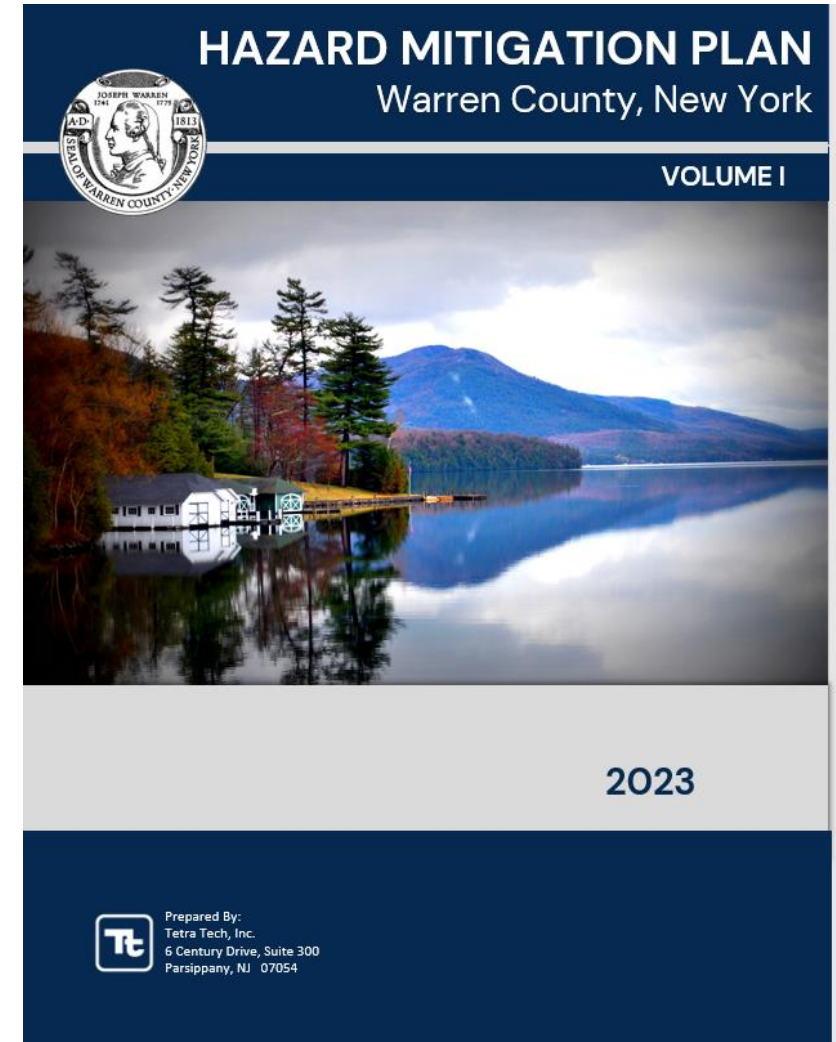
- Severe Storm



- Severe Winter Storm



- Wildfire







# Draft Plan Review – Section Contents

- Section 6 – Mitigation Strategies
  - Past accomplishments
  - Goals and Objectives
  - Capability Assessment
    - Available plans, programs, & resources
    - Administrative and technical capabilities
    - Fiscal capabilities
  - Mitigation strategy development and update
    - Action identification
    - Evaluation and prioritization
    - Benefit/cost review

*To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, socially vulnerable populations, and the public to eliminate or reduce risks and adverse impacts from natural, **and human-caused** hazards.*

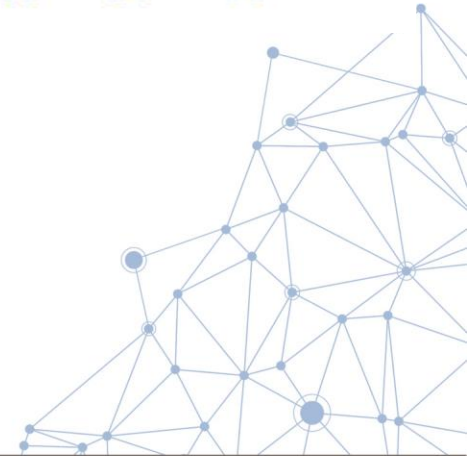
Discussion item: Omit human-caused hazards to align with FEMA HMP focus.





# Draft Plan Review – Section Contents

- Section 7 – Plan Maintenance
  - HMP Coordinator
  - Ongoing Planning Committee
  - Monitoring
  - Continuous evaluation and progress reports
    - FEMA Worksheets and BATool<sup>SM</sup>
  - Updating
  - Integration of hazard mitigation with existing and future programs
  - Continued public involvement







# BATool<sup>SM</sup>

- Online progress reporting for individual mitigation actions – pre-populated by Tetra Tech

[Prev Action](#) \* Action ID: TPQ - 1 [Next Action](#)

*Review of this Action has not started* [Add New Action](#)

[View Update History](#)

Please review and update this action by following the steps below and updating any/all fields (as needed).

*Step 1: Enter your name as the 'Reviewer' (then step 2 will be enabled for selection).*

\* Reviewer:

*Step 2: Update the 'Action Status' field. Please continue to review and update all other fields, as needed.*

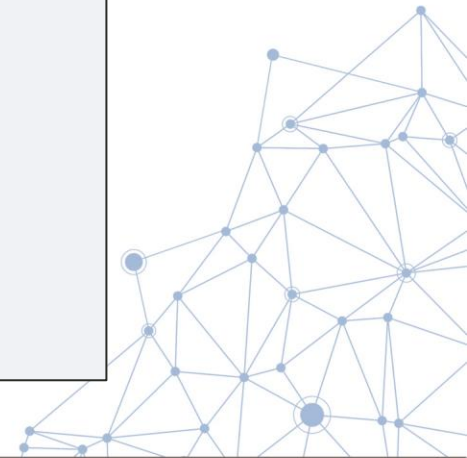
\* Action Status:

Previous Action Status:

Project/Action Status Comments:

\* Description of the Action:

Specific Problem Mitigated:







# Plan Maintenance Matrix

Task	Approach	Timeline	Lead Responsibility	Support Responsibility
Monitoring	Preparation of status updates and action implementation tracking as part of submission <b>for Annual Progress Report.</b>	January or upon major update to Comprehensive Plan or major disaster	Jurisdictional points of contact identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)	Jurisdictional implementation lead identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)
Integration	In order for integration of mitigation principles action to become an organic part of the ongoing county and municipal activities, <b>the county will incorporate the distribution of the safe growth worksheet (see 7.1.2 below) for annual review</b> and update by all participating jurisdictions.	January each year with interim email reminders to address integration in county and municipal activities.	HMP Coordinator and jurisdictional points of contact identified in Section 8 (Planning Partnership) and Section 9 (Jurisdictional Annexes)	HMP Coordinator
Evaluation	Review the status of previous actions as submitted by the monitoring task lead and support to assess the effectiveness of the plan; compile and finalize the Annual Progress Report	Finalized progress report completed by January 15 of each year	Steering Committee; Plan Maintenance element	Jurisdictional points of contacts identified in Section 9 (Jurisdictional Annexes)
Update	<b>Reconvene the planning partners</b> , at a minimum, every 5 years to guide a comprehensive update to review and revise the plan.	Every 5 years or upon major update to Comprehensive Plan or major disaster	Warren County HMP Coordinator	Jurisdictional points of contacts identified in Section 9 (Jurisdictional Annexes)

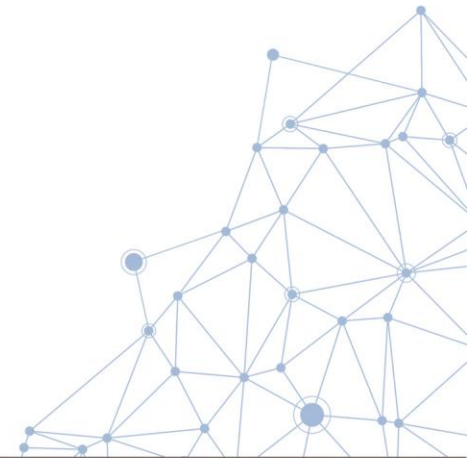




# Draft Plan Review – Section Contents

## Volume II

- **Section 8 – Planning Partnership**
  - Participating jurisdictions
  - Introduce jurisdictional annexes
- **Section 9 – Municipal Annexes**
  - Point of Contact
  - Municipal Profile
  - Capabilities
  - NFIP Participation
  - Risk Assessment
  - Critical Facilities
  - Status of Past Mitigation Actions
  - Current Mitigation Actions
  - Future Needs

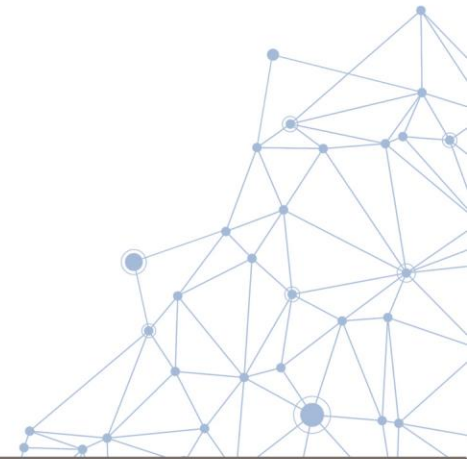






# Draft Plan Review – Section Contents

- Appendices
  - Appendix A – Plan Adoption
  - Appendix B – Participation Matrix
  - Appendix C – Meeting Documentation
  - Appendix D – Public and Stakeholder Outreach Documentation
  - Appendix E – County Profile and Risk Assessment Supplementary Data
  - Appendix F – Critical Facilities
  - Appendix G – FEMA Plan Review Tools
  - Appendix H – NYS DHSES 2017 Mitigation Planning Standards







# Steering Committee Review Guidance

- Documents posted on OneDrive for collaborative review
  - OneDrive guidance will provide direction on how to edit/comment
- Input requested
  - Provide additional or specific information
  - Correct errors or omissions
- All feedback requested on or before July 12<sup>th</sup>
  - Feedback will be incorporated as appropriate before Public Review
- Plan sections to be posted on the Warren HMP website for a 30-day review period
- Public feedback to be incorporated as appropriate prior to submittal to NYSDHSES/FEMA for agency review







# Plan Adoption and Timeline

- Information on the planning process is available here: (<https://www.warrencountynyorkhmp.com>)
- Draft plan sections will be posted for public review and comment beginning August 1st for 30 days
- The plan will be submitted for review and approval by NYSDHSES and FEMA in November
- Adoption of the plan by the community is required to be deemed APPROVED by FEMA.

**WARREN COUNTY HAZARD MITIGATION PLAN**  
**2023 UPDATE**

Home About What Is Mitigation Meetings Calendar Explore the Plan Additional Information

### Explore the Plan

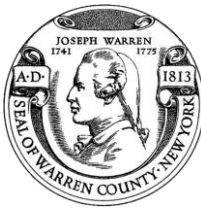
2023 Warren County Hazard Mitigation Plan Update

Sections of the 2023 Warren County HMP update will be posted as available.

#### Municipal Annexes

• 9.02_Town of Bolton	Download
• 9.03_Town of Chester	Download
• 9.04_City of Glens Falls	Download
• 9.05_Town of Hague	Download
• 9.06_Town of Horicon	Download
• 9.07_Town of Johnsbury	Download
• 9.08_Town of Lake George	Download
• 9.09_Village of Lake George	Download
• 9.10_Town of Lake Luzerne	Download






# In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/ Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



### Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco ([cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com) | 973.630.8044).

\* Name

\* Title

\* Jurisdiction

Please document your time spent working on the HMP:

Date

# Hours

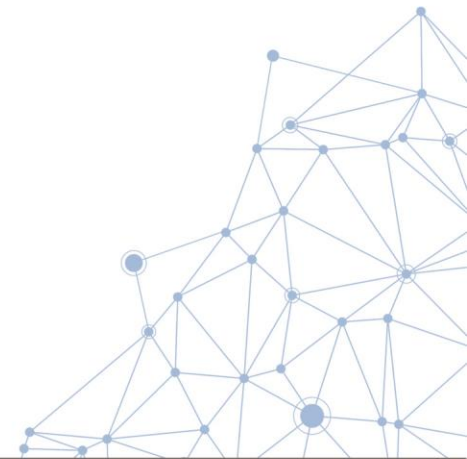






# Next Steps

- Finalize Jurisdictional Annexes – in progress, drafts posted on OneDrive and [www.warren](http://www.warren)
- Steering Committee Plan Review – Now through July 12th
- Update Plan Based on Steering Committee Feedback
- Draft Posted for Public Review and Comment – August 1<sup>st</sup> – 30 Days
- Submit to NYS DHSES and FEMA – September 2023
  - Estimated 45-day review period
- BATool<sup>SM</sup> Webinar to Review Plan Maintenance
- Plan Adoption by County and Participating Municipalities





# Questions?





## Warren County Emergency Services Project Contacts

Jim Lieberum, CPESC  
[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)

Ann Marie Mason  
Emergency Services Director  
[masona@WarrenCountyNY.gov](mailto:masona@WarrenCountyNY.gov)

## Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, Project Manager  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM, Lead Planner  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



Thank  
You!





## APPENDIX D. PUBLIC AND STAKEHOLDER OUTREACH

This appendix provides documentation of public and stakeholder outreach. Stakeholder involvement in this planning process was broad and productive as discussed and further documented in Section 3 (Planning Process). Public and stakeholder input has been incorporated throughout this HMP as appropriate, as identified in Section 3 and the References section, as well as within specific mitigation initiatives identified within the jurisdictional annexes (Section 9). Respondent feedback filtered by jurisdiction is included in each jurisdictional annex as available to provide an indication of community resident concerns related to natural hazards.

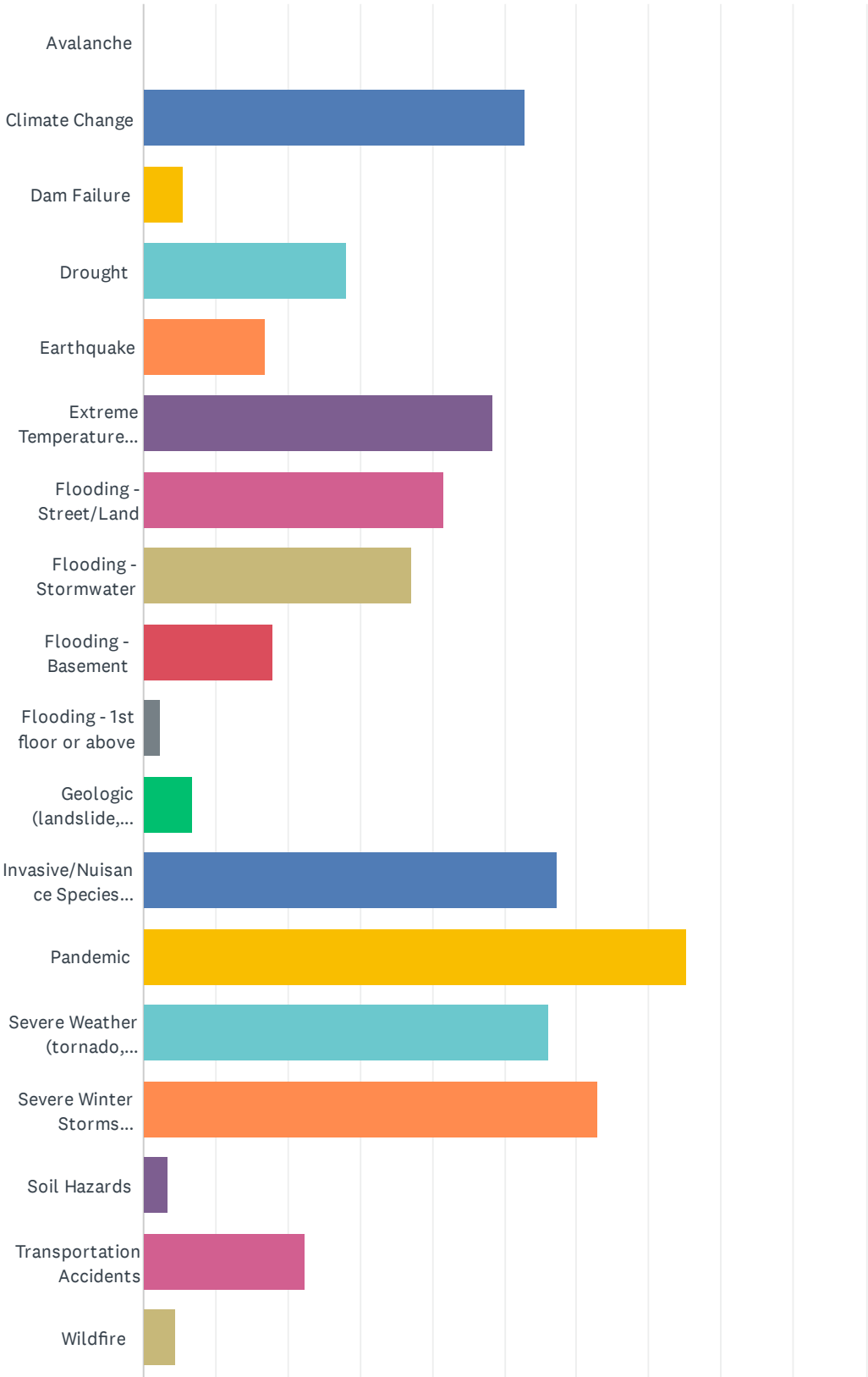
### D.1 WARREN COUNTY CITIZEN SURVEY RESULTS

This section contains information and results gathered from the Warren County Citizen Survey. The main objective of this survey was to gather information from citizens regarding their level of knowledge regarding hazard vulnerability and knowledge of hazard mitigation information for their local communities. Over 90 respondents completed this survey over a period of 12 months during the planning process. The survey was available on Warren County website and the HMP website at: <https://www.warrencountynewyorkhmp.com>. The survey results are provided in the following pages, with personal information redacted.



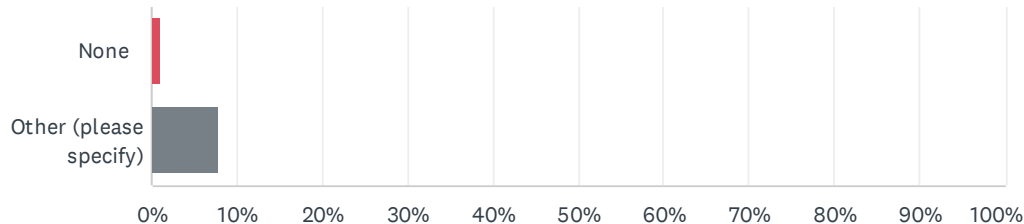
Q1 In the past 10 years, which of the following hazard events have you experienced in Warren County? Check all that apply.

Answered: 89    Skipped: 1





# Warren County Hazard Mitigation Plan Update - Public Survey



ANSWER CHOICES	RESPONSES	
Avalanche	0.00%	0
Climate Change	52.81%	47
Dam Failure	5.62%	5
Drought	28.09%	25
Earthquake	16.85%	15
Extreme Temperature (heat and cold)	48.31%	43
Flooding - Street/Land	41.57%	37
Flooding - Stormwater	37.08%	33
Flooding - Basement	17.98%	16
Flooding - 1st floor or above	2.25%	2
Geologic (landslide, sinkholes, subsidence)	6.74%	6
Invasive/Nuisance Species (harmful algal bloom, spotted lanternfly, etc.)	57.30%	51
Pandemic	75.28%	67
Severe Weather (tornado, thunderstorm, hail)	56.18%	50
Severe Winter Storms (blizzard, heavy snow, ice)	62.92%	56
Soil Hazards	3.37%	3
Transportation Accidents	22.47%	20
Wildfire	4.49%	4
None	1.12%	1
Other (please specify)	7.87%	7
Total Respondents: 89		

#	OTHER (PLEASE SPECIFY)	DATE
1	Air Quality Danger from Canadian Wildfires	8/2/2023 8:24 AM
2	Spongy Moths	12/21/2022 10:17 AM
3	salt runoff into my private well near Church Hill Road in Bolton Landing	12/11/2022 10:06 AM
4	high winds; raw sewage releases into the Hudson River	12/10/2022 11:36 AM
5	Tree failures. Blocking the road	12/10/2022 8:19 AM



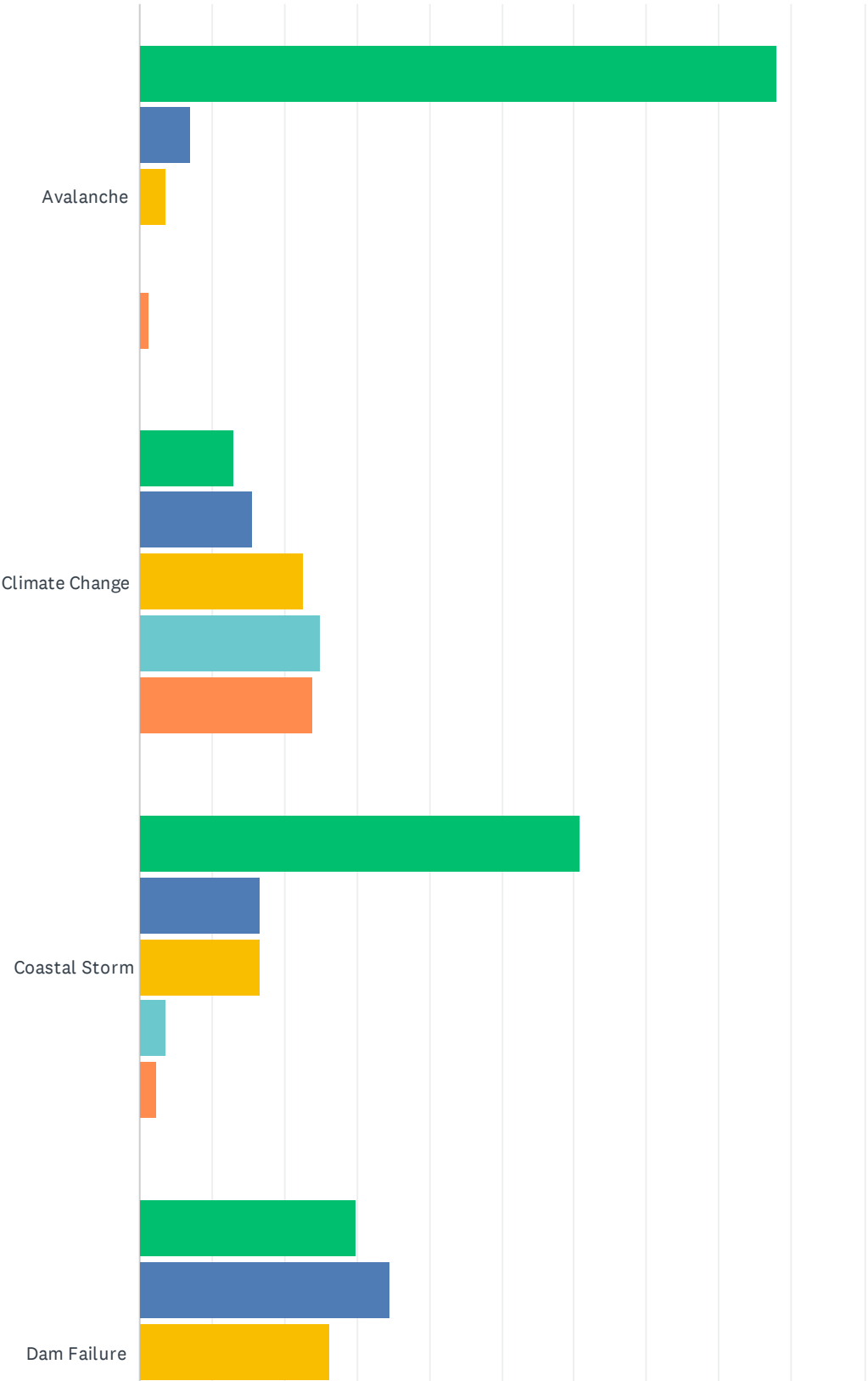
## Warren County Hazard Mitigation Plan Update - Public Survey

6	Sewage backup from street to basement, sewage gas fumes in HVAC floor vents	12/9/2022 9:35 PM
7	tree fell on house	12/9/2022 8:50 PM



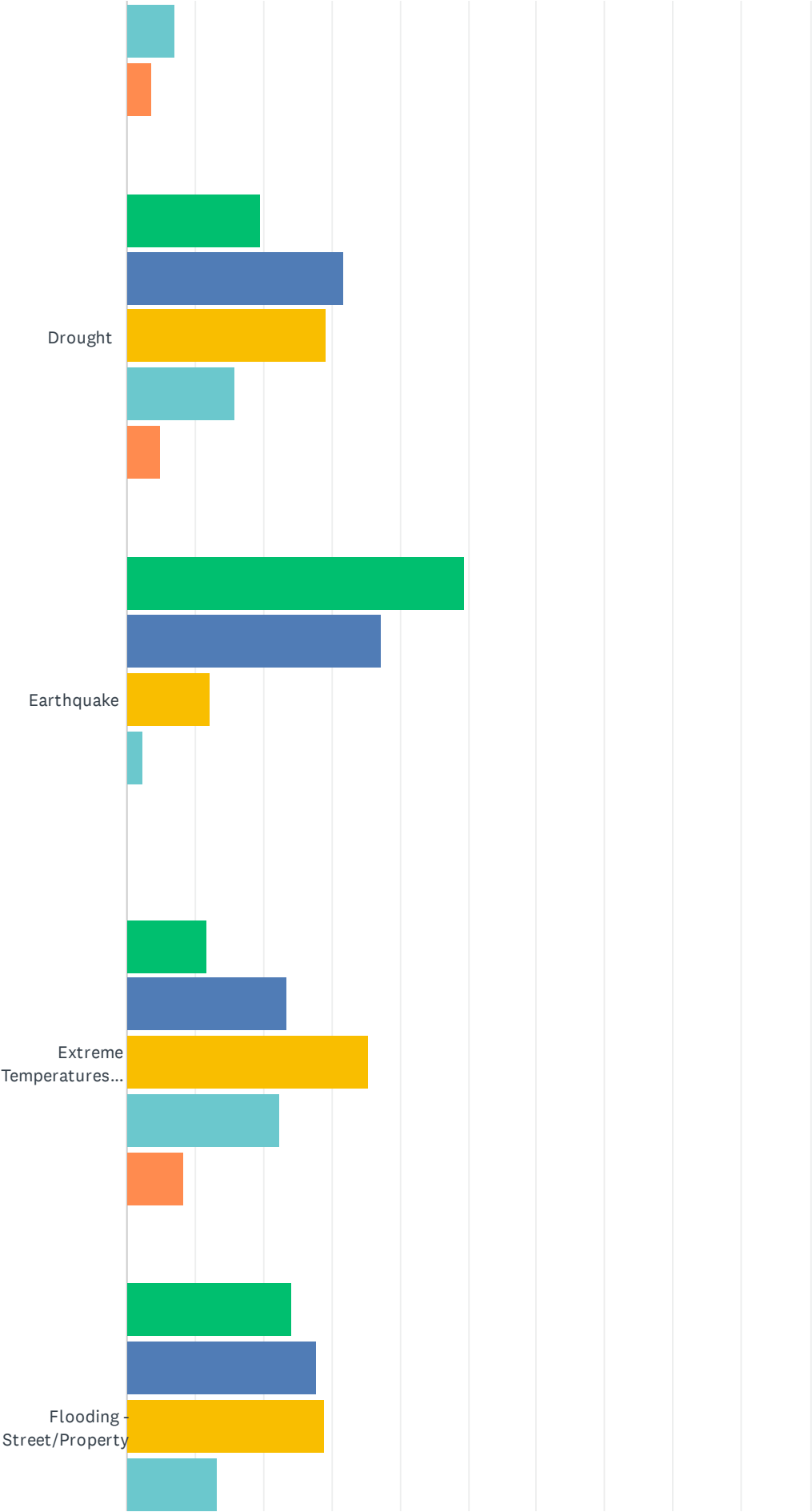
Q2 How concerned are you about the following hazards in Warren County?  
Please check one for each hazard.

Answered: 89    Skipped: 1



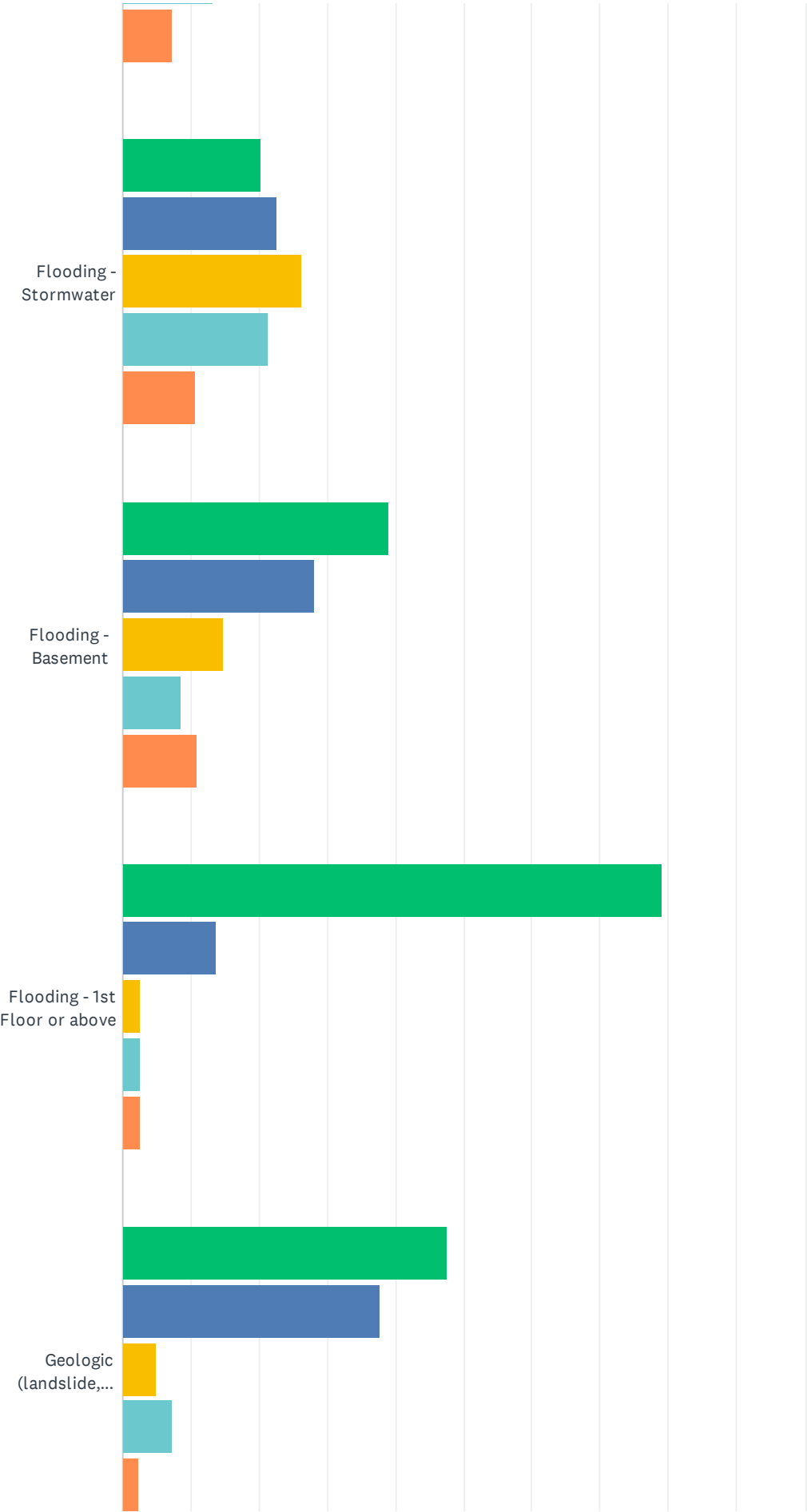


Warren County Hazard Mitigation Plan Update - Public Survey



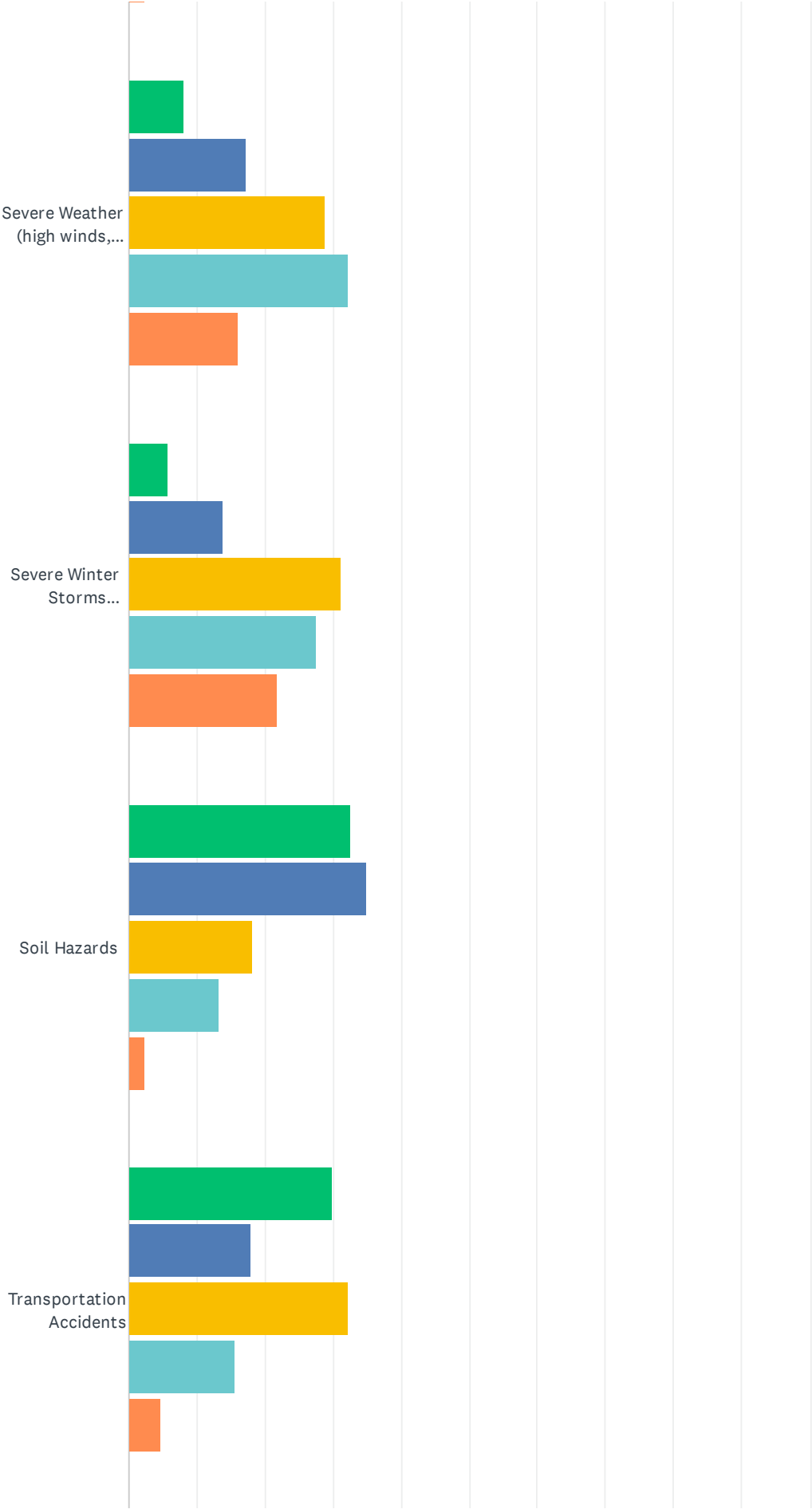


Warren County Hazard Mitigation Plan Update - Public Survey



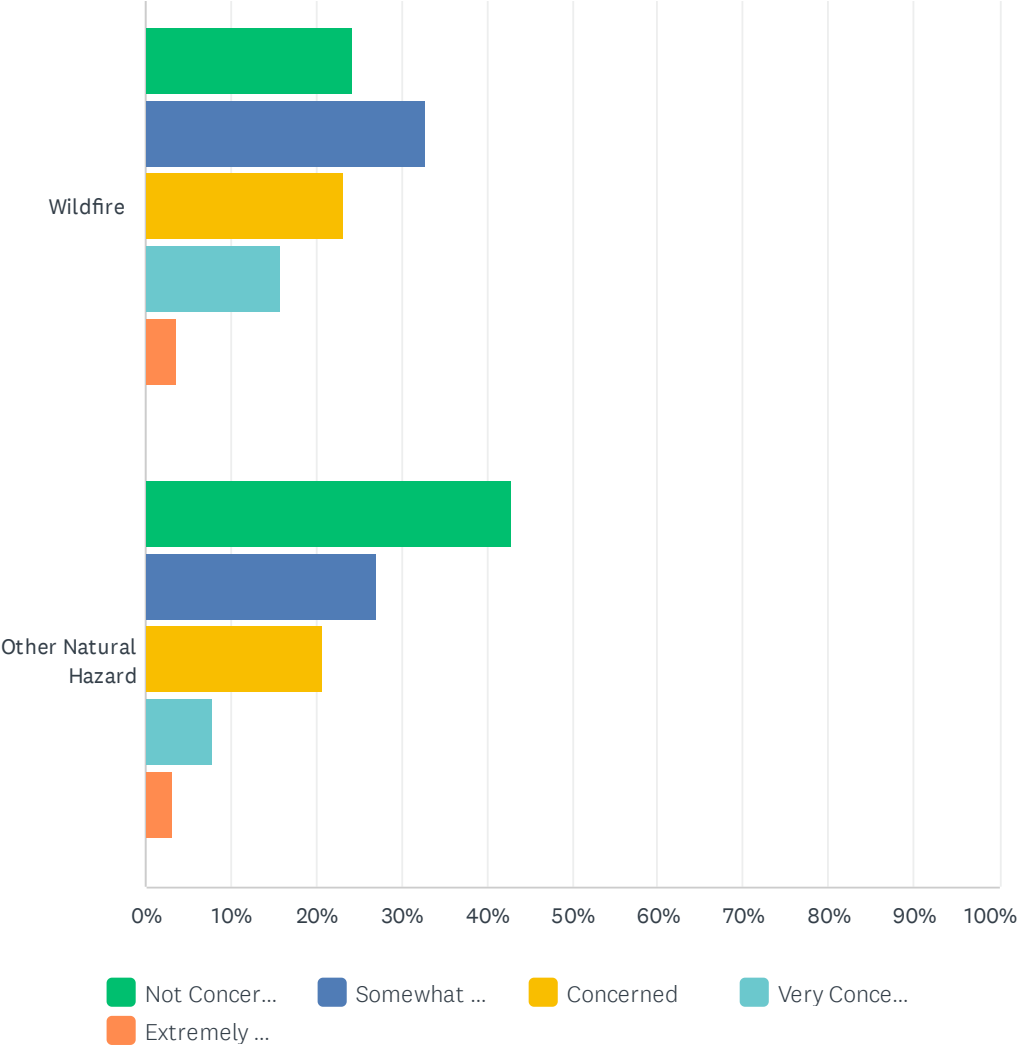


Warren County Hazard Mitigation Plan Update - Public Survey





Warren County Hazard Mitigation Plan Update - Public Survey





# Warren County Hazard Mitigation Plan Update - Public Survey

	NOT CONCERNED	SOMEWHAT CONCERNED	CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED	TOTAL RESPONDENTS
Avalanche	88.10% 74	7.14% 6	3.57% 3	0.00% 0	1.19% 1	84
Climate Change	13.10% 11	15.48% 13	22.62% 19	25.00% 21	23.81% 20	84
Coastal Storm	60.71% 51	16.67% 14	16.67% 14	3.57% 3	2.38% 2	84
Dam Failure	29.76% 25	34.52% 29	26.19% 22	7.14% 6	3.57% 3	84
Drought	19.51% 16	31.71% 26	29.27% 24	15.85% 13	4.88% 4	82
Earthquake	49.40% 41	37.35% 31	12.05% 10	2.41% 2	0.00% 0	83
Extreme Temperatures (heat and cold)	11.76% 10	23.53% 20	35.29% 30	22.35% 19	8.24% 7	85
Flooding - Street/Property	24.10% 20	27.71% 23	28.92% 24	13.25% 11	7.23% 6	83
Flooding - Stormwater	20.24% 17	22.62% 19	26.19% 22	21.43% 18	10.71% 9	84
Flooding - Basement	39.02% 32	28.05% 23	14.63% 12	8.54% 7	10.98% 9	82
Flooding - 1st Floor or above	79.01% 64	13.58% 11	2.47% 2	2.47% 2	2.47% 2	81
Geologic (landslide, sinkholes, subsidence)	47.56% 39	37.80% 31	4.88% 4	7.32% 6	2.44% 2	82
Severe Weather (high winds, lightning, hail)	8.05% 7	17.24% 15	28.74% 25	32.18% 28	16.09% 14	87
Severe Winter Storms (blizzard, heavy snow, ice)	5.75% 5	13.79% 12	31.03% 27	27.59% 24	21.84% 19	87
Soil Hazards	32.53% 27	34.94% 29	18.07% 15	13.25% 11	2.41% 2	83
Transportation Accidents	29.76% 25	17.86% 15	32.14% 27	15.48% 13	4.76% 4	84
Wildfire	24.39% 20	32.93% 27	23.17% 19	15.85% 13	3.66% 3	82
Other Natural Hazard	42.86% 27	26.98% 17	20.63% 13	7.94% 5	3.17% 2	63

#	OTHER (PLEASE SPECIFY)	DATE
1	Air Quality Dangers	8/2/2023 8:24 AM
2	invasive species ie ash borers	3/15/2023 8:40 AM
3	mass shootings	3/11/2023 6:56 AM
4	Invasive species	3/10/2023 9:13 PM
5	G E and Finch landfills, Hudson River	3/10/2023 7:41 PM
6	Invasive insect forest destruction, power grid failure	1/12/2023 1:43 PM



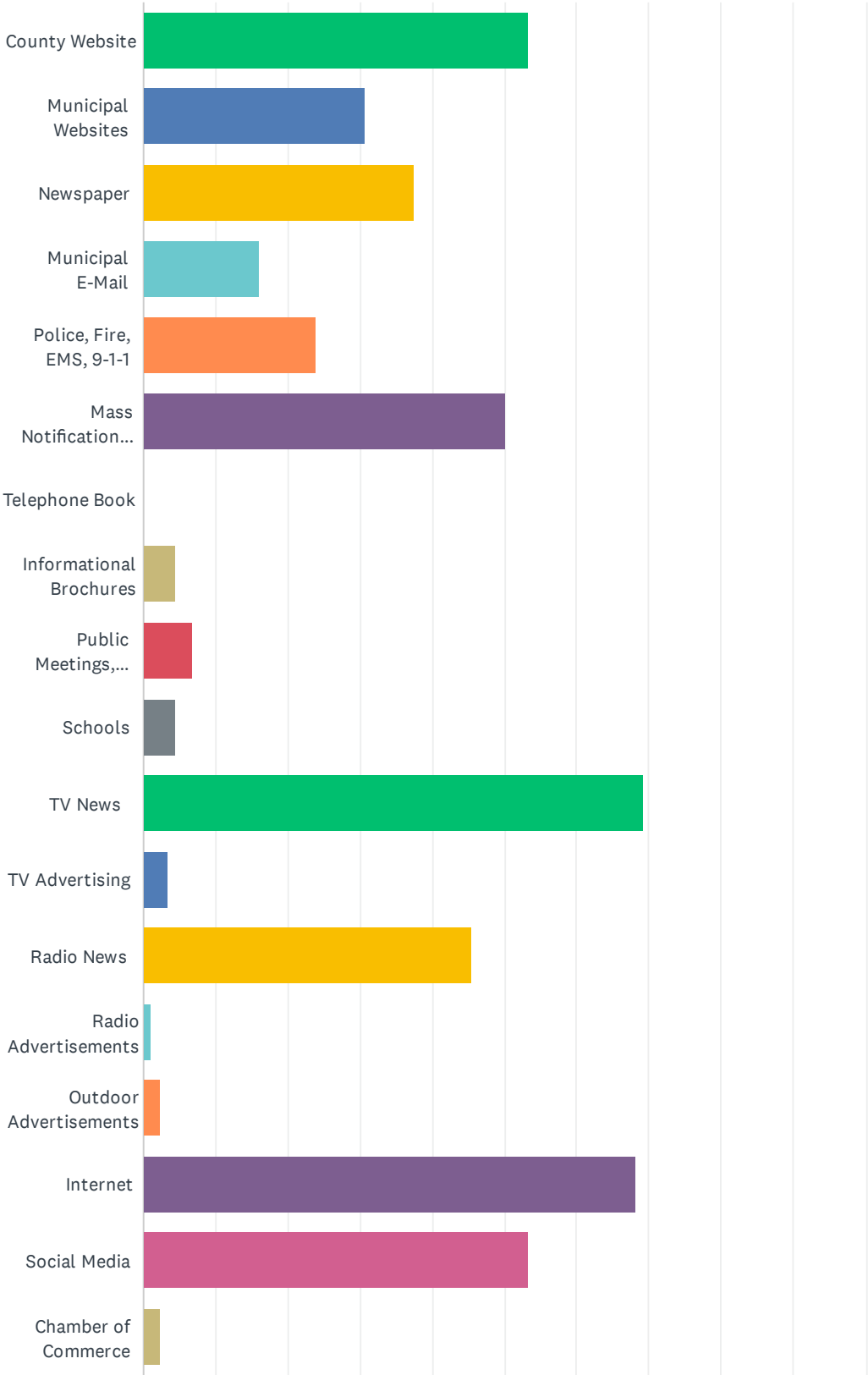
# Warren County Hazard Mitigation Plan Update - Public Survey

7	Aging Infrastructure	12/27/2022 7:03 AM
8	Invasive species impacts	12/21/2022 10:17 AM
9	Invasive insects	12/20/2022 1:35 PM
10	oil/gas/antifreeze seepage from dock storage at North Bolton Road/Church Hill Road into my pond/catch-basin	12/11/2022 10:06 AM
11	algae blooms	12/10/2022 11:45 AM
12	Power service interruptions should be on your list as they are a very big concern.	12/10/2022 6:52 AM
13	aquifer drainage by Just Water. Toxic air pollution by Finch Pruyn etc	12/9/2022 10:21 PM
14	Tornado	12/9/2022 9:35 PM
15	Invasive species	12/6/2022 10:16 AM



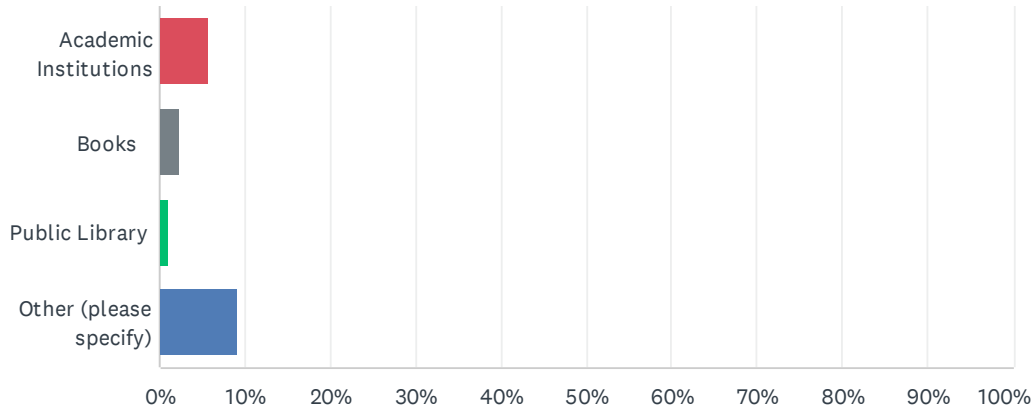
Q3 How do you receive your information concerning a disaster? Check all that apply.

Answered: 88 Skipped: 2





## Warren County Hazard Mitigation Plan Update - Public Survey



ANSWER CHOICES	RESPONSES	
County Website	53.41%	47
Municipal Websites	30.68%	27
Newspaper	37.50%	33
Municipal E-Mail	15.91%	14
Police, Fire, EMS, 9-1-1	23.86%	21
Mass Notification System (e.g. NYAlert)	50.00%	44
Telephone Book	0.00%	0
Informational Brochures	4.55%	4
Public Meetings, Workshops, Public Awareness Events	6.82%	6
Schools	4.55%	4
TV News	69.32%	61
TV Advertising	3.41%	3
Radio News	45.45%	40
Radio Advertisements	1.14%	1
Outdoor Advertisements	2.27%	2
Internet	68.18%	60
Social Media	53.41%	47
Chamber of Commerce	2.27%	2
Academic Institutions	5.68%	5
Books	2.27%	2
Public Library	1.14%	1
Other (please specify)	9.09%	8
Total Respondents: 88		



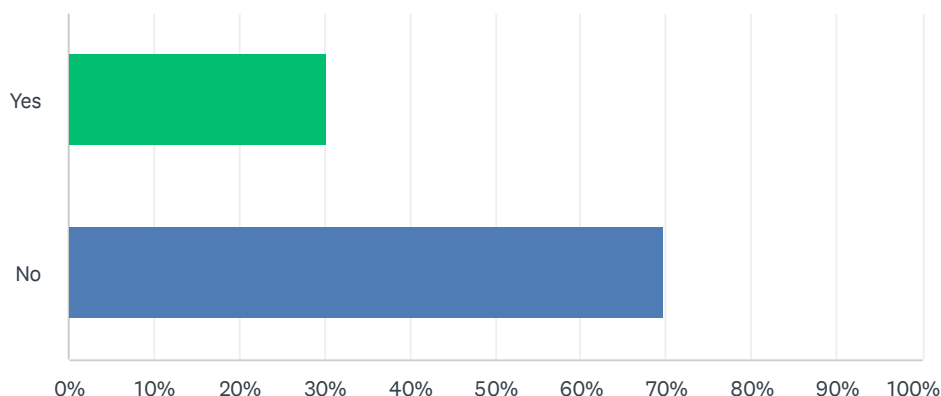
# Warren County Hazard Mitigation Plan Update - Public Survey

#	OTHER (PLEASE SPECIFY)	DATE
1	Google phone alerts	7/13/2023 9:20 AM
2	Word of mouth	3/9/2023 6:24 AM
3	Phone/text communication w/ colleagues, friends, family	1/12/2023 1:05 PM
4	Utility Company Alerts (National Grid/Spectrum)	1/8/2023 4:40 PM
5	I am responding	12/14/2022 8:12 AM
6	NY.gov text alerts	12/12/2022 12:02 PM
7	National Grid notifications (Town of Bolton & Warren County do not send emails)	12/11/2022 10:06 AM
8	Friends who work in the fields	12/9/2022 9:35 PM



## Q4 In the past, has your home been damaged by a hazard event? For example, the basement of your home flooded and damaged the hot water heater.

Answered: 86 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	30.23%	26
No	69.77%	60
<b>TOTAL</b>		<b>86</b>

#	PLEASE EXPLAIN THE TYPE OF DAMAGE SUSTAINED AND WHEN IT OCCURRED.	DATE
1	Severe storm with lightening damage. Furnace, Door Opener, Elec Damage.	7/24/2023 9:37 AM
2	Extreme cold, frozen water pipes	7/13/2023 7:58 AM
3	roof shingles torn off in wind event in summer 2022	7/12/2023 4:26 PM
4	Wind damage to roof, water damage to ceilings, ice damage, electric system damage from lightning strike	7/11/2023 2:16 PM
5	Tree fell on house	3/11/2023 3:55 AM
6	Wind damage to roof and eaves	3/10/2023 9:13 PM
7	Wind damaged roof, lightning hit tree and traveled into house, damaging electrical system	3/9/2023 1:37 PM
8	Trees falling, high winds	3/9/2023 6:24 AM
9	We had severe rain and driving winds and our basement floor had water soaked through the concrete foundation; this was in the past year. About 3-4 years ago, we had an earthquake which caused some cracking in our house walls and shifting so the interior doors didn't close correctly anymore.	2/15/2023 1:01 PM
10	Sewer backup flooded into basement after a storm event.	1/12/2023 1:05 PM
11	I did have some flooding from a recent severe rain storm and my contractor was able to fix the roof issue that happened due to severe rain and then immediate 40 mph winds.	1/8/2023 4:40 PM
12	Basement flooded	12/20/2022 1:35 PM
13	Basement flood caused furnace outage and resulted in frozen pipes	12/14/2022 7:24 AM



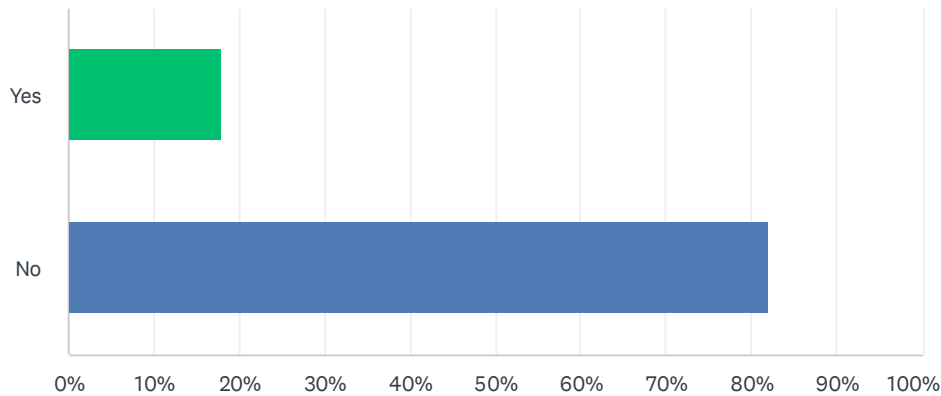
# Warren County Hazard Mitigation Plan Update - Public Survey

14	Basement in home flooded from ice storm causing flooring and walls needing to be replaced.	12/12/2022 12:02 PM
15	Due to the constant flooding from climate change and no longer just the spring thaw my basement floors have cracked and pieces of the concrete flooring are eroding/chipping and white mold has appeared	12/12/2022 9:31 AM
16	There's a county storm drain underneath Brook St, in the town of Bolton, that shoots huge volumes of water onto three other properties including mine, with it, we receive rocks, raw sewage, sand, glass, soil from upstream tributaries, and road debris. This is in addition to the widened culvert drain pipe running under Brook and Stewart Ave.	12/11/2022 5:05 PM
17	My garage is sinking because Warren County raised the road ~5 feet at the brook so my garage is now the lowest point on North Bolton Road at the foot of Church Hill Road. This resulted in NO drainage from the west side to east side of the road, almost no drainage north-to-south from garage to brook. This causes flooding in the road (as well as my former garden area and my garage foundation) all spring and summer AND ice all winter across North Bolton Road. Repeated requests for drainage solutions have been repulsed.	12/11/2022 10:06 AM
18	Storm drainage system failure in 30" CMP, caused wash out and beach failure. From the washout silts and stones washed into lake George causing a delta of sand and stone and asphalt	12/11/2022 7:50 AM
19	Basement flood	12/10/2022 2:31 PM
20	high winds have caused tree branches to come down and hit the house; roof shingle damage	12/10/2022 11:36 AM
21	Roof damage and leak from strong wind thunderstorm resulted in interior damage	12/10/2022 7:27 AM
22	Broken sewer line backed up into the basement with sewer gas fumes into my HVAC floor vents a few months ago. I developed both polycythemia and obstructive sleep apnea that may be related to previously diagnosed rare autoimmune neuromuscular disease OR the sewer line may have contributed	12/9/2022 9:35 PM
23	Tree fell on house in high wind - 2016 & 2022 Crawl space flooded - 2011	12/9/2022 8:50 PM
24	hot water heater	12/9/2022 4:50 PM
25	Hail storm. House roof had to be replaced. Additionally, car needed major (auto body) repair.	12/9/2022 2:14 PM
26	Severe thunderstorms, roof damage.	12/6/2022 10:16 AM



Q5 If you answered 'yes' above, did you report the damages to your local police or fire departments or to an emergency management agency?

Answered: 56    Skipped: 34

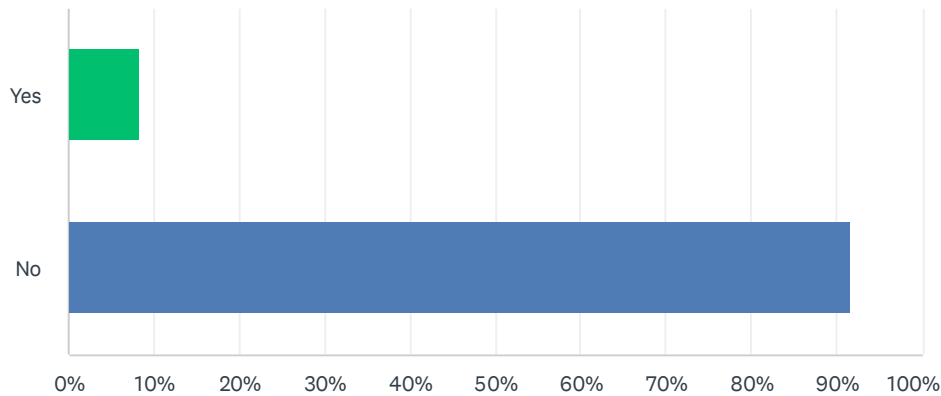


ANSWER CHOICES		RESPONSES	
Yes		17.86%	10
No		82.14%	46
TOTAL			56



Q6 To the best of your knowledge, is your property located in a designated floodplain? If you do not know, click here to find out.

Answered: 85    Skipped: 5

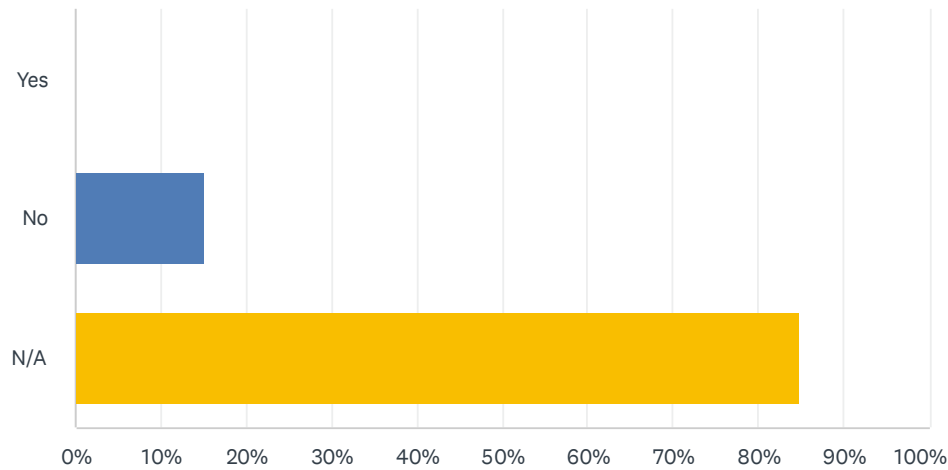


ANSWER CHOICES	RESPONSES	
Yes	8.24%	7
No	91.76%	78
TOTAL		85



Q7 If your property is in the floodplain, do you have flood insurance?

Answered: 79    Skipped: 11

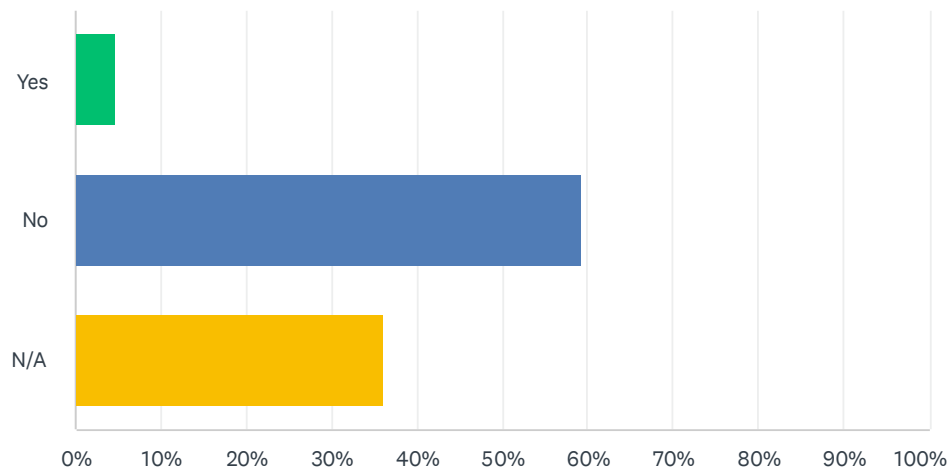


ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		15.19%	12
N/A		84.81%	67
TOTAL			79



Q8 If your property is located outside of the floodplain, do you have flood insurance?

Answered: 86    Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	4.65%	4
No	59.30%	51
N/A	36.05%	31
TOTAL		86



**Q9 Please identify any specific vulnerabilities that you are aware of in your city/town/village (e.g. floodprone areas or specific properties, critical facilities that lack backup power, etc.). Please list street names and other specific identifiers if possible.**

Answered: 45 Skipped: 45

#	RESPONSES	DATE
1	All of Warren County is susceptible to air quality dangers, as recently experienced from the Canadian Wildfires. The Hazard Mitigation plan is critically deficient regarding this danger.	8/2/2023 8:29 AM
2	13th Lake Road, North River, NY - 1st mile gabion wall.	7/14/2023 12:32 PM
3	The above-ground electric poles along Bloody Pond Road (and elsewhere in LG) are prone to outages due to wind and snow. Buried lines would be safer.	7/13/2023 9:23 AM
4	Thurman Bridge Spring Ice Jam 418	7/13/2023 8:02 AM
5	Stormwater washing out roads	7/12/2023 4:33 PM
6	Glens Falls watershed dams had concerns. Stormwater basins frequently overflow in Queensbury	7/11/2023 2:18 PM
7	Pine Tree Lane Diamond Point Always having power outages when others don't. They can last up to four days.	3/11/2023 10:56 AM
8	lack of back up power	3/11/2023 8:36 AM
9	Loon Lake Dam Failure. Power outages due to lack of appropriate tree removal along power lines.	3/11/2023 7:01 AM
10	Poor cell service. Lake Luzerne	3/10/2023 8:44 PM
11	Queensbury boat launch, Glen Lake, Lake George, Hudson	3/10/2023 7:45 PM
12	Susceptibility to flooding, poorly maintained dams owned by city of Glens Falls.	3/9/2023 1:38 PM
13	Schools lack of back up power in the event power goes out and lack heating elements. Trees along residential roads that aren't cut back. Power drainage on road ways.	3/9/2023 6:32 AM
14	I only work in Warren County; I live in Saratoga County. I don't believe this question is applicable to me.	2/24/2023 8:55 AM
15	prone to power outages from trees on lines	2/16/2023 2:05 PM
16	general back-up power, snow/ice blockage on highways	2/15/2023 1:58 PM
17	Floodprone area on Meadowbrook Road @ Halfway Brook	2/15/2023 1:34 PM
18	low water levels in kattskill bay lake george due to water management practices	2/15/2023 1:33 PM
19	None that I'm	2/15/2023 12:41 PM
20	n/a	2/15/2023 12:40 PM
21	None known	1/15/2023 10:53 PM
22	Apartment building for disabled and retired with all electric heat. No on demand generator. Located at 10 Manor Rd.	1/13/2023 2:03 PM
23	13th Lake Road, North River. The gabion walls are pushed out and look like they will give at any time. Also rocks fall in the middle of the road all the time.	1/12/2023 3:57 PM
24	Flooding - 9N S/Hidden Valley Drive (Tubby Tubes-Lake Luzerne, NY 12846), due to a sewer	1/8/2023 4:44 PM



## Warren County Hazard Mitigation Plan Update - Public Survey

drain that doesn't handle all the water, causing back up and ice/danger in winter. Trees down in my property from recent high winds (1275 Lake Avenue, Lake Luzerne, 12846)

25	Water Tank control panel without power backup	12/27/2022 7:07 AM
26	None	12/23/2022 3:24 PM
27	Ice jamming on Hudson River at 418 Bridge. Flooding on River Road	12/21/2022 10:22 AM
28	See initial list of environmental threats experienced in this region	12/14/2022 3:47 PM
29	Lake George sewage treatment plant has minimal security and is vulnerable to walk up attacks on infrastructure.	12/14/2022 7:27 AM
30	None	12/14/2022 6:49 AM
31	Numerous roads and stream crossings could be subject to flood/storm damage.	12/14/2022 6:03 AM
32	East End in Glens Falls is known for being a high water table area	12/12/2022 9:33 AM
33	North Bolton Road at the foot of Church Hill Road is continually flooded due to the road having been raised several years ago. Raising the road removed all drainage possibilities and County officials refuse to do anything to correct the problem.	12/11/2022 10:09 AM
34	Storm Drainage system that runs down the Lakeview Circle drive in the town of lake George and crosses Lake Shore Dr in the town of lake George and continues down to the lakefront between the Fairview Improvement association property and the lake view terrace property.	12/11/2022 8:00 AM
35	Lack of municipal sewer and water	12/10/2022 2:32 PM
36	na	12/10/2022 11:49 AM
37	poor drainage for city streets (most streets in Glens Falls); raw sewage releases into the Hudson River (sometimes even if it only rains briefly); Poor tree maintenance causes downed branches in the high winds we now get for many months of the year.	12/10/2022 11:44 AM
38	My road is collapsing into a stream. Many dead trees along the road. So called protected land around the watershed is not protected or monitored	12/10/2022 8:22 AM
39	C/Glens Falls flood prone streets. Warren St, Mohican St, CR 19 T/Chester. SR 418 bridge & River Rd, Barton Mines RD Johnsburg	12/10/2022 7:39 AM
40	Loon Lake Dam, Rt 8/9, Chestertown	12/10/2022 6:57 AM
41	ZERO fragrance-free emergency shelters! Acute respiratory response / reactive airways when exposed for perfumes, scented products (ubiquitous), etc. ALSO: FEMA Flood Map makes ZERO sense! Unable to determine if my address is - or is not - in a flood plain: Fredella Avenue, Glens Falls, NY.	12/9/2022 9:47 PM
42	Hudson River Basin Lake Luzerne to Corinth	12/9/2022 8:54 PM
43	We have experienced power outages for as lengthy as 5 days. being on a deep well, the outage not only effects our lights and heat, but water as well.	12/9/2022 7:25 PM
44	Electric	12/9/2022 12:13 PM
45	Glens Falls dams on West Mountain	12/9/2022 9:03 AM



**Q10 Please identify any specific vulnerable areas outside of your city/town/village (e.g. flood-prone areas or specific properties, critical facilities that lack backup power, etc.). Please list the city/town/village, street names, and other specific identifiers if possible.**

Answered: 33 Skipped: 57

#	RESPONSES	DATE
1	n/a	8/2/2023 8:29 AM
2	n/a	7/13/2023 9:23 AM
3	Post office is located on Number 9 Brook.	7/13/2023 8:14 AM
4	Hague Brook flooding	7/12/2023 4:33 PM
5	Schroon and Hudson Rivers flooding	7/11/2023 2:18 PM
6	Federal Hill Rd	3/11/2023 8:36 AM
7	See above	3/10/2023 7:45 PM
8	Areas along Hudson River and Schroon River are flooded frequently	3/9/2023 1:38 PM
9	Lack of internet service in rural areas.	3/9/2023 6:32 AM
10	I only work in Warren County. I live in Saratoga County.	2/24/2023 8:55 AM
11	Queensbury - Halfway Brook Area/flooding Warrensburg - Schroon River Area/flooding Chester&Horicon - Schroon River Area/flooding	2/16/2023 2:05 PM
12	same	2/15/2023 1:58 PM
13	na	2/15/2023 1:33 PM
14	None that I'm aware of	2/15/2023 12:41 PM
15	n/a	2/15/2023 12:40 PM
16	Unknown	1/15/2023 10:53 PM
17	None I can think of	1/13/2023 2:03 PM
18	Meadowbrook rd, Qby - Flooding	1/12/2023 1:24 PM
19	Unsure.	1/8/2023 4:44 PM
20	None	12/23/2022 3:24 PM
21	Unaware	12/14/2022 3:47 PM
22	None.	12/14/2022 7:27 AM
23	None	12/14/2022 6:49 AM
24	None known of	12/11/2022 10:09 AM
25	Lakeview Circle Drive Town of Lake George	12/11/2022 8:00 AM
26	na	12/10/2022 11:49 AM
27	don't know.	12/10/2022 11:44 AM
28	GFWWTP releasing sewage into Hudson after every heavy rainstorm. Inadequate storm drainage on streets	12/9/2022 10:31 PM



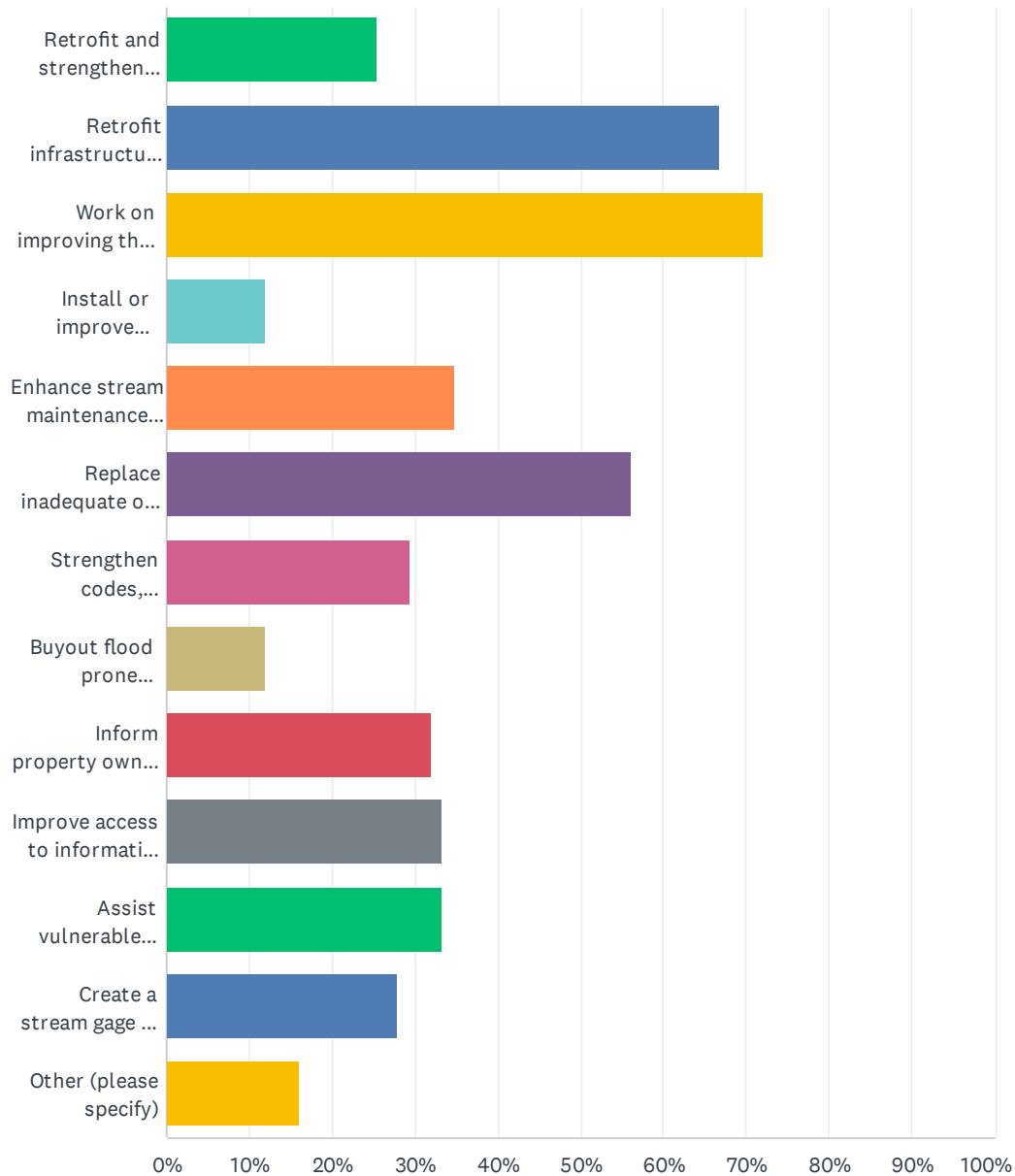
## Warren County Hazard Mitigation Plan Update - Public Survey

29	Still ZERO fragrance-free emergency shelters - I would not be able to survive in an emergency shelter due to respiratory distress when exposed to fragranced / scented products (body, laundry, cleaning, etc.)	12/9/2022 9:47 PM
30	Power cybersecurity concern	12/9/2022 8:10 PM
31	Flooding of the Hudson River in the spring occasionally that affects the State rt. 28 between North Creek and North River, and includes part of the town North Creek at the train station where Teddy Roosevelt learned McKinley had died from his wound, and he was now President. The historic Train station has been preserved, but flooding of the Hudson in the spring has caused concern a number of years in the past ten.	12/9/2022 7:25 PM
32	Thurman bridge	12/9/2022 12:13 PM
33	Downtown Warrensburg from Schroon River flooding	12/9/2022 9:03 AM



# Q11 What types of projects do you believe local, county, state, or federal government agencies could be doing to reduce the damage and disruption of disasters in Warren County? Select your top three choices.

Answered: 75 Skipped: 15





# Warren County Hazard Mitigation Plan Update - Public Survey

ANSWER CHOICES	RESPONSES	
Retrofit and strengthen essential facilities such as police, schools, and hospitals	25.33%	19
Retrofit infrastructure, such as elevating roadways and improving drainage systems	66.67%	50
Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)	72.00%	54
Install or improve protective structures, such as floodwalls, levees, bulkheads, and firebreaks	12.00%	9
Enhance stream maintenance programs/projects	34.67%	26
Replace inadequate or vulnerable bridges and causeways	56.00%	42
Strengthen codes, ordinances and plans to require higher hazard risk management standards and/or provide greater control over development in high hazard areas	29.33%	22
Buyout flood prone properties and maintain as open space	12.00%	9
Inform property owners of ways they can mitigate damage to their properties	32.00%	24
Improve access to information about hazard risks and high-hazard areas	33.33%	25
Assist vulnerable property owners with securing funding to mitigate their properties	33.33%	25
Create a stream gage and weather monitoring program to provide more accurate data and warnings	28.00%	21
Other (please specify)	16.00%	12
Total Respondents: 75		

#	OTHER (PLEASE SPECIFY)	DATE
1	Install PurpleAir air monitoring sensors in the Northern & Western areas of Warren County to improve the Air Quality Forecasts provided by the EPA and NYS DEC.	8/2/2023 8:29 AM
2	Require power companies to be more proactive in maintain power lines from tree damage, put power source lines underground	3/11/2023 8:36 AM
3	Underground utilities!	3/10/2023 7:45 PM
4	Burying utilities and power lines to prevent damage from storms, and accidents	3/9/2023 6:32 AM
5	Encourage all property owners to assist with capturing & infiltrating stormwater.	1/12/2023 1:24 PM
6	I think some of the projects listed here are already being mitigated/worked on.	1/8/2023 4:44 PM
7	None	12/14/2022 6:49 AM
8	Retrofit infrastructure by LOWERING North Bolton Road at the foot of Church Hill Road to where it was years ago when drainage was NEVER A PROBLEM.	12/11/2022 10:09 AM
9	Infrastructure improvements drainage	12/11/2022 8:00 AM
10	Assist utilities in ROW acquisition on bridge projects and to support new critical ethic redundancy projects	12/10/2022 7:39 AM
11	emergency preparedness training for natural disasters for citizens, and in schools	12/9/2022 10:31 PM
12	Ensure town's have emergency plans and backup or mobile power	12/9/2022 2:25 PM



## Q12 Do you have any other comments, questions, or concerns regarding hazard mitigation in Warren County?

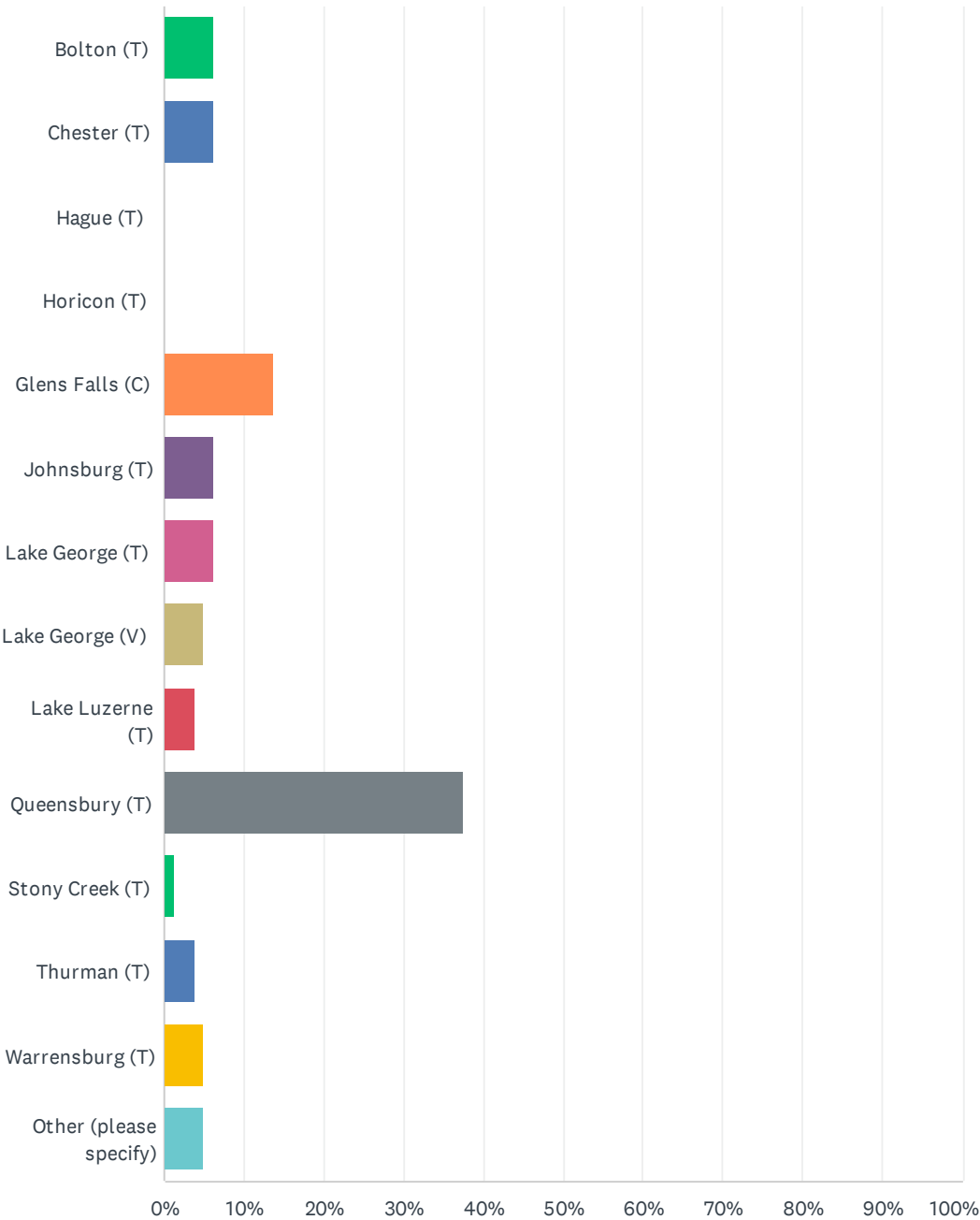
Answered: 23    Skipped: 67

#	RESPONSES	DATE
1	Air Quality emergencies must be incorporated into this hazard mitigation plan. This plan is critically deficient without this obvious hazard.	8/2/2023 8:29 AM
2	Inadequate shelters in case of emergencies	3/11/2023 7:01 AM
3	Use the health Dept	3/10/2023 7:45 PM
4	no	3/9/2023 1:38 PM
5	no	2/24/2023 8:55 AM
6	no, thanks	2/15/2023 1:58 PM
7	remove tree limbs that hang over the 9L road before someone gets seriously injured	2/15/2023 1:33 PM
8	I see climate change as one of the biggest concerns now and in the future that could and would impact a lot of weather related hazard events. I think more projects that focus on taking care of our environment, like adopt a highway and stream clean up days, as a good thing to consider.	2/15/2023 12:41 PM
9	No	1/13/2023 2:03 PM
10	Looking forward to the outcomes of these surveys.	1/8/2023 4:44 PM
11	Nope	12/23/2022 3:24 PM
12	I would appreciate receiving real time alerts from Warren County similarly to FEMA	12/14/2022 3:47 PM
13	The area looks pretty safe to me!!!....JMO	12/14/2022 6:49 AM
14	Each municipal government should be required to participate in this process. They should assess their community for potential hazards and develop a mitigation plan.	12/14/2022 6:03 AM
15	Warren County needs to fix the drainage issue it CAUSED.	12/11/2022 10:09 AM
16	Funding	12/11/2022 8:00 AM
17	I see that climate change is affecting us. One problem that we never experienced until recent years is algae blooms.	12/10/2022 11:49 AM
18	Until now, I've never heard of it.	12/10/2022 8:22 AM
19	No	12/10/2022 6:57 AM
20	Annual preparedness training at senior centers, at schools and in locations that citizens are encouraged to attend. create a citizen team to work with Emergency Management for Warren County	12/9/2022 10:31 PM
21	Vastly improve ACCESSIBILITY for disabled people and Disaster Planning to include INPUT from disabled people with various disabilities; including respiratory	12/9/2022 9:47 PM
22	during severe winter storms, county buildings need to close or open late as employees travel long distances to get to Warren County Municipal Center and should not have to use personal time in case of extreme weather.	12/9/2022 4:54 PM
23	Extreme weather (heavy downpours and sudden storms) have increased greatly. Review of runoff areas should be reviewed.	12/9/2022 2:25 PM



Q13 Please indicate the municipality in which you live:

Answered: 80    Skipped: 10





# Warren County Hazard Mitigation Plan Update - Public Survey

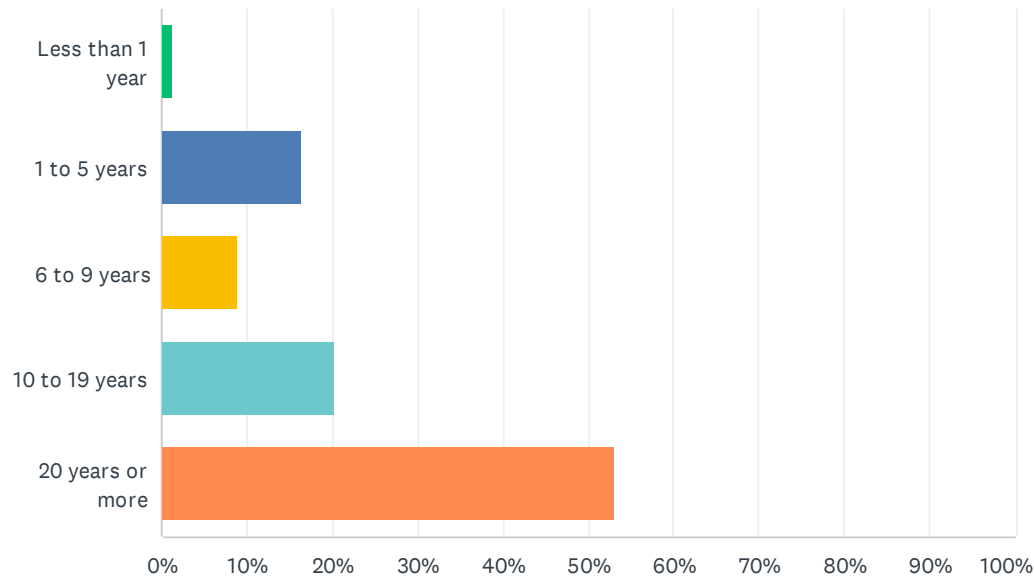
ANSWER CHOICES	RESPONSES	
Bolton (T)	6.25%	5
Chester (T)	6.25%	5
Hague (T)	0.00%	0
Horicon (T)	0.00%	0
Glens Falls (C)	13.75%	11
Johnsburg (T)	6.25%	5
Lake George (T)	6.25%	5
Lake George (V)	5.00%	4
Lake Luzerne (T)	3.75%	3
Queensbury (T)	37.50%	30
Stony Creek (T)	1.25%	1
Thurman (T)	3.75%	3
Warrensburg (T)	5.00%	4
Other (please specify)	5.00%	4
Total Respondents: 80		

#	OTHER (PLEASE SPECIFY)	DATE
1	live outside Warren County in Ticonderoga but work in Hague	7/12/2023 4:35 PM
2	Hadley	3/15/2023 8:42 AM
3	Corinth	2/24/2023 8:56 AM
4	Ticonderoga, but work in Queensbury	2/15/2023 1:34 PM



Q14 How long have you lived here?

Answered: 79    Skipped: 11

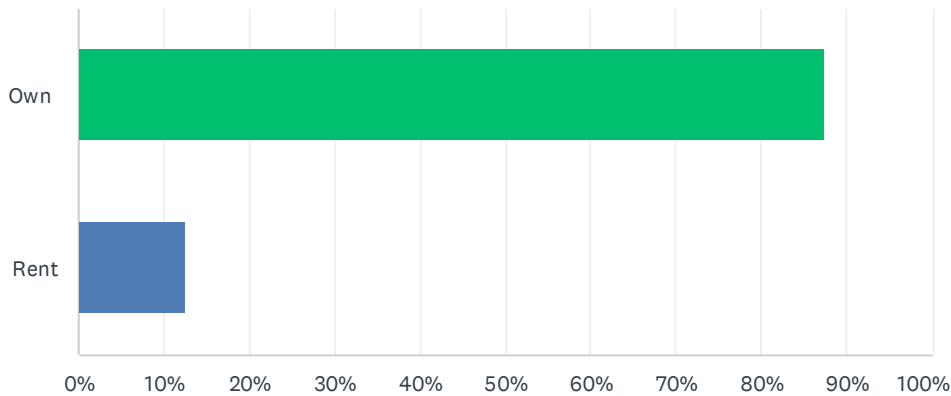


ANSWER CHOICES		RESPONSES	
Less than 1 year		1.27%	1
1 to 5 years		16.46%	13
6 to 9 years		8.86%	7
10 to 19 years		20.25%	16
20 years or more		53.16%	42
TOTAL			79



Q15 Do you own or rent your place of residence?

Answered: 80    Skipped: 10

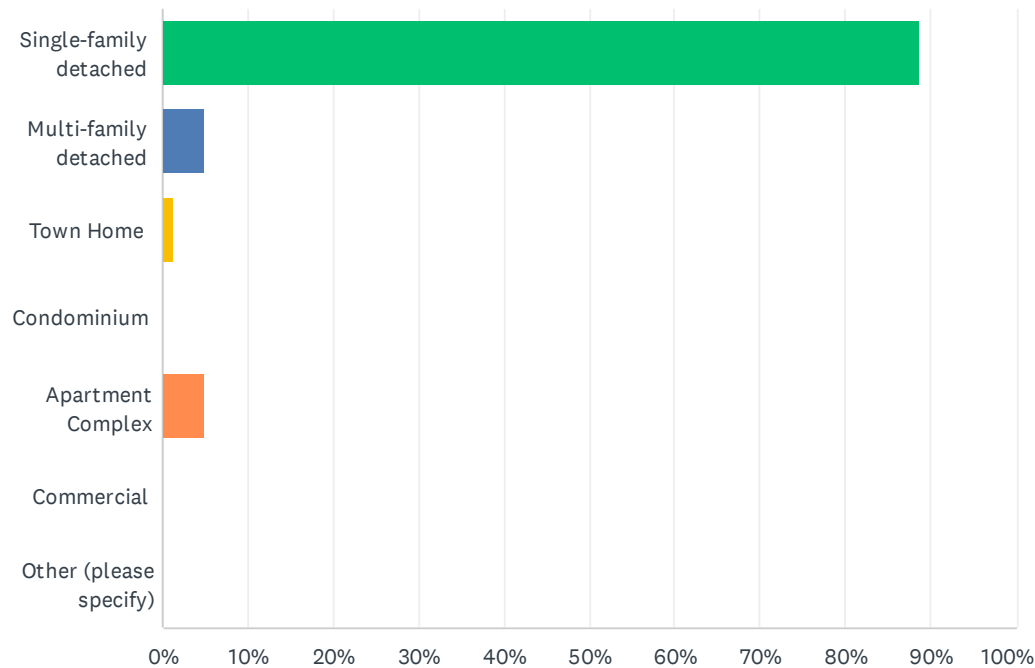


ANSWER CHOICES	RESPONSES	
Own	87.50%	70
Rent	12.50%	10
TOTAL		80



Q16 What type of residence do you live in?

Answered: 80    Skipped: 10



ANSWER CHOICES		RESPONSES	
Single-family detached		88.75%	71
Multi-family detached		5.00%	4
Town Home		1.25%	1
Condominium		0.00%	0
Apartment Complex		5.00%	4
Commercial		0.00%	0
Other (please specify)		0.00%	0
TOTAL			80

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



Q17 What is the address of your property? (optional, will be kept confidential - only used to identify hazard areas such as flooding)

Answered: 40    Skipped: 50

#	RESPONSES	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

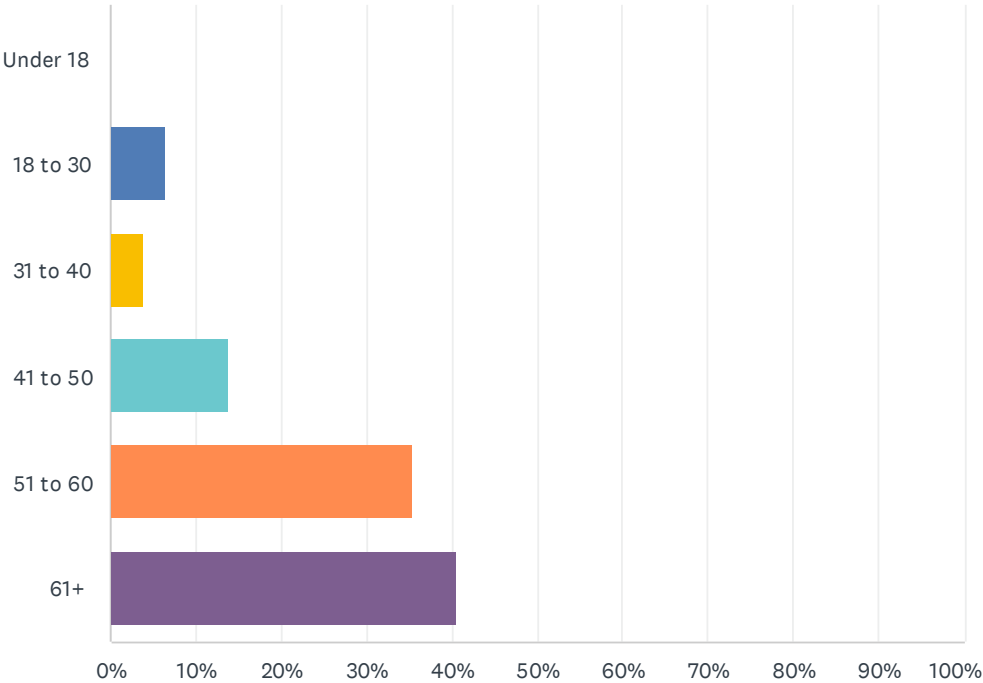


32		
33		
34		
35		
36		
37		
38		
39		
40		



Q18 Please indicate your age range:

Answered: 79    Skipped: 11



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18 to 30	6.33%	5
31 to 40	3.80%	3
41 to 50	13.92%	11
51 to 60	35.44%	28
61+	40.51%	32
TOTAL		79





## D.2 STAKEHOLDER SURVEYS

In addition to collecting information from residents of Warren County, surveys were developed for the agencies and stakeholders in the county. Unlike steering committee or planning partnership members, stakeholders may not be involved in all stages of the planning process, but they may have information or input to provide. In order to gather that information, the surveys were sent to the following stakeholders: law enforcement, firefighters, emergency medical services, highway and public works, business and commerce, hospitals and health care providers, and utilities. Results of the surveys are provided in the following pages, with personal information redacted.



## Q1 Name of your department/office/institution

Answered: 15 Skipped: 0

#	RESPONSES	DATE
1	Glens Falls City School District	7/24/2023 2:55 PM
2	Warren/Hamilton Counties OFA	7/13/2023 3:09 PM
3	Silver Bay YMCA	7/13/2023 1:18 PM
4	Glens Falls Police Department	7/13/2023 11:05 AM
5	Center for Disability Services , Prospect School	7/13/2023 7:36 AM
6	Warren County Parks Recreation & Railroad	7/13/2023 7:22 AM
7	National Grid	1/18/2023 8:39 AM
8	WARREN COUNTY HEALTH SERVICES	1/9/2023 10:39 AM
9	NYS Department of Health Glens Falls District Office	1/9/2023 9:28 AM
10	Lake George Regional Chamber of Commerce & CVB	1/8/2023 4:26 PM
11	Southern Adirondack Independent Living	1/6/2023 8:13 AM
12	Health Services	1/6/2023 8:08 AM
13	Glens Falls Hospital	1/5/2023 4:55 PM
14	Greater Glens Falls Transit	1/5/2023 4:26 PM
15	Glens Falls common council	12/14/2022 7:26 PM



## Q2 Name of Respondent

Answered: 15   Skipped: 0

#	RESPONSES	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



### Q3 What is your position/title/role with your department/office/institution?

Answered: 15 Skipped: 0

#	RESPONSES	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



## Q4 Please provide your contact information.

Answered: 15 Skipped: 0

ANSWER CHOICES	RESPONSES	
Name	0.00%	0
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	15
Phone Number	93.33%	14

#	NAME	DATE
---	------	------

There are no responses.

#	COMPANY	DATE
---	---------	------

There are no responses.

#	ADDRESS	DATE
---	---------	------

There are no responses.

#	ADDRESS 2	DATE
---	-----------	------

There are no responses.

#	CITY/TOWN	DATE
---	-----------	------

There are no responses.

#	STATE/PROVINCE	DATE
---	----------------	------

There are no responses.

#	ZIP/POSTAL CODE	DATE
---	-----------------	------

There are no responses.

#	COUNTRY	DATE
---	---------	------

There are no responses.

#	EMAIL ADDRESS	DATE
---	---------------	------

1

2

3

4

5



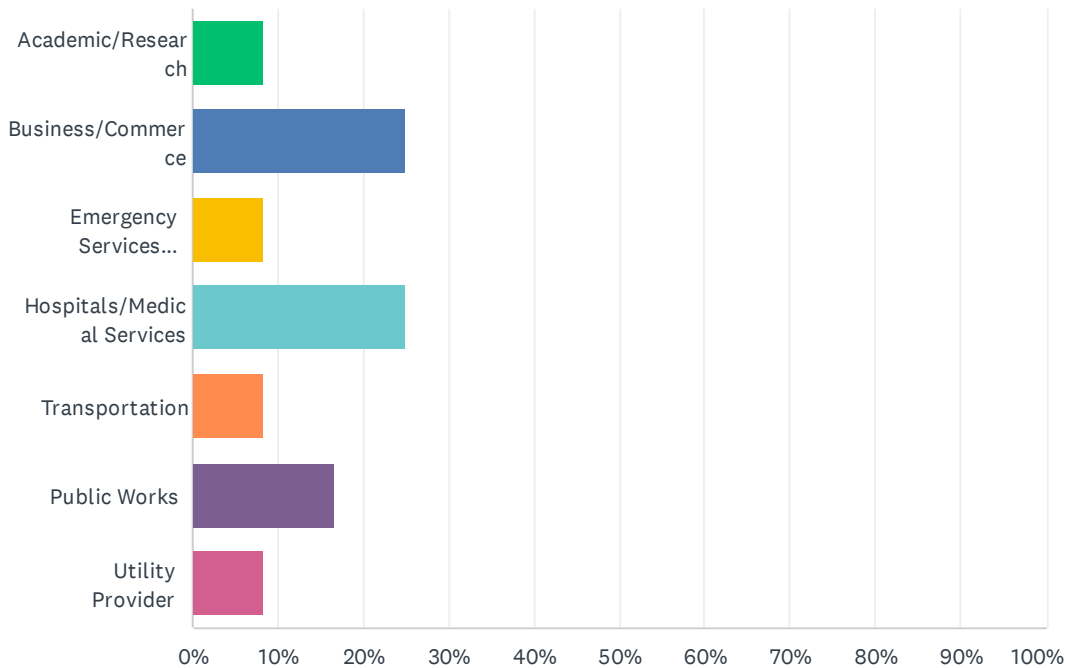
# Warren County Hazard Mitigation Plan - Stakeholder Survey

6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
#	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	



## Q5 What category does your facility operation/service fall under?

Answered: 12 Skipped: 3



ANSWER CHOICES	RESPONSES	
Academic/Research	8.33%	1
Business/Commerce	25.00%	3
Emergency Services (police, fire, EMS)	8.33%	1
Hospitals/Medical Services	25.00%	3
Transportation	8.33%	1
Public Works	16.67%	2
Utility Provider	8.33%	1
<b>TOTAL</b>		<b>12</b>

#	OTHER (PLEASE SPECIFY)	DATE
1	School	7/13/2023 7:38 AM
2	Environmental Health	1/9/2023 9:32 AM
3	We work with more than 460 hospitality focused businesses to ensure our economic vitality throughout Warren County and beyond. We also promote Warren County as the destination of choice for group (business/association/bus tours/reunions/weddings) business. Lastly, we operate the Adirondacks Welcome Center TasteNY / Tourism programs.	1/8/2023 4:30 PM
4	Local Health Department	1/6/2023 8:18 AM



## Q6 Based on the above category, please provide additional description and information as to what your organization does or offers (please explain)

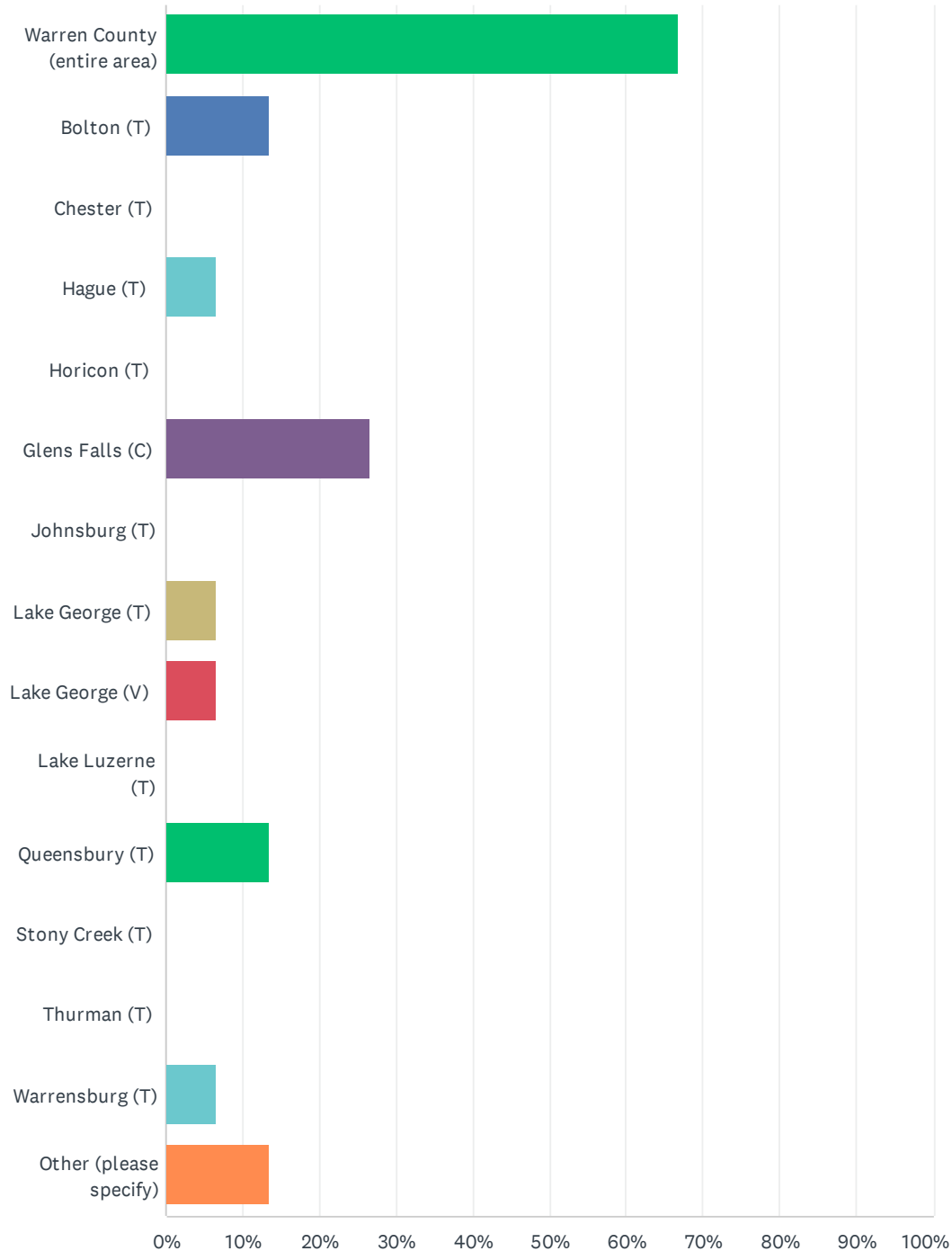
Answered: 14 Skipped: 1

#	RESPONSES	DATE
1	Public School	7/24/2023 2:58 PM
2	Office for the Aging - provide assistance to seniors	7/13/2023 3:11 PM
3	YMCA Family Retreat and Conference Center offers lodging, hospitality services, meals, programs and indoor and outdoor recreation to visitors and community members.	7/13/2023 1:21 PM
4	Police	7/13/2023 11:06 AM
5	We provide educational services for school age children	7/13/2023 7:38 AM
6	We manage and maintain the Warren County Fish Hatchery, Bikeway, Fairgrounds, Canoe access sites and Up Yonda Farm Environmental Education Center	7/13/2023 7:27 AM
7	Electricity and Natural Gas Utility.	1/18/2023 8:41 AM
8	MEDICAL ASSITANCE TO THE ILL AND ELDERLY, VACCINATIONS, RABIES CLINICS	1/9/2023 10:40 AM
9	Provide environmental health oversight of facilities permitted and regulated by our office.	1/9/2023 9:32 AM
10	We offer information outreach, tourism marketing/promotional activities, direct contact with visitors and community partners.	1/8/2023 4:30 PM
11	we are responsible for completing the requirements of NYSDOH Article 6 General Public Health Work Program which includes completing a Community Health Assessment & Improvement Plann every 3 years, chronic disease prevention (CVD, cancer, diabetes, obesity, tobacco prevention), communicable disease surveillance and control, vector borne disease monitoring and control, rabies control, lead poisoning prevention, and family health. In addition to the Article 6 programs we are also responsible for public health emergency preparedness planning which includes pandemic planning and response, isolation and quarantine protocols, medical countermeasures distribution and dispensing, participation in mass shelter/casualty/fatality planning and more.	1/6/2023 8:18 AM
12	SAIL is a non-profit organization that helps people live more independently through an array of programs and services.	1/6/2023 8:14 AM
13	Operates public transportation services in Glens Falls, Queensbury, Lake George (T & V), Bolton	1/5/2023 4:28 PM
14	Legislative	12/14/2022 7:27 PM



**Q7 Please identify the location of your facility(ies) and/ or primary service area. You may choose more than one if your service area covers multiple communities, or “Warren County (entire area) ” if your service area is county-wide:**

Answered: 15 Skipped: 0





# Warren County Hazard Mitigation Plan - Stakeholder Survey

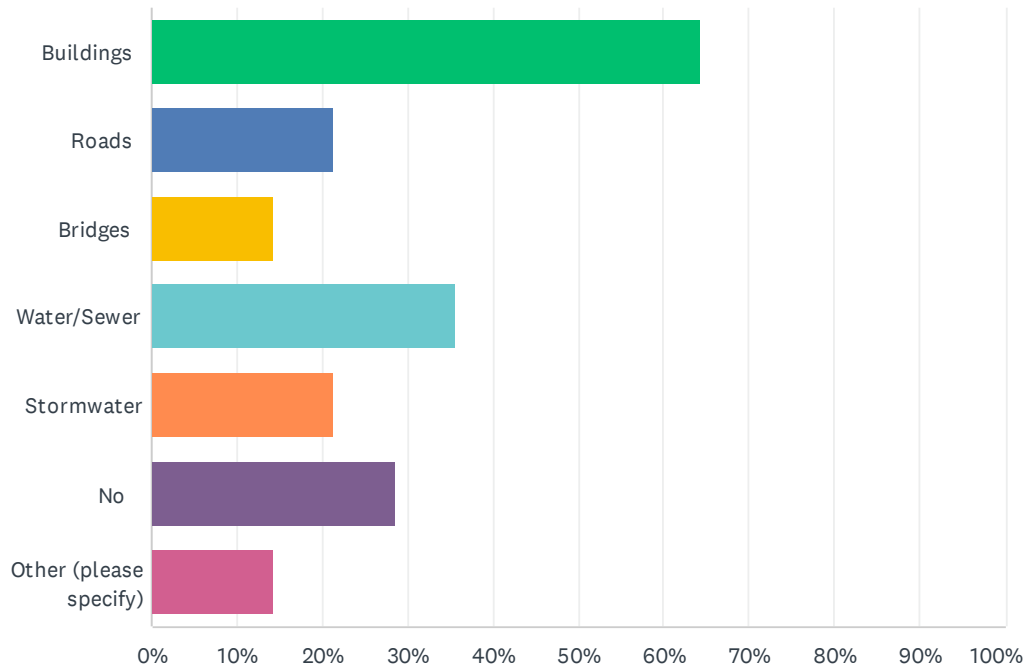
ANSWER CHOICES	RESPONSES	
Warren County (entire area)	66.67%	10
Bolton (T)	13.33%	2
Chester (T)	0.00%	0
Hague (T)	6.67%	1
Horicon (T)	0.00%	0
Glens Falls (C)	26.67%	4
Johnsburg (T)	0.00%	0
Lake George (T)	6.67%	1
Lake George (V)	6.67%	1
Lake Luzerne (T)	0.00%	0
Queensbury (T)	13.33%	2
Stony Creek (T)	0.00%	0
Thurman (T)	0.00%	0
Warrensburg (T)	6.67%	1
Other (please specify)	13.33%	2
Total Respondents: 15		

#	OTHER (PLEASE SPECIFY)	DATE
1	Hamilton County	7/13/2023 3:11 PM
2	Other partners throughout the Adirondacks as well as statewide.	1/8/2023 4:30 PM



**Q8 Does your organization maintain or manage any of the following within your designated service area? If not, answer “No” at the bottom, otherwise check all that apply.**

Answered: 14 Skipped: 1



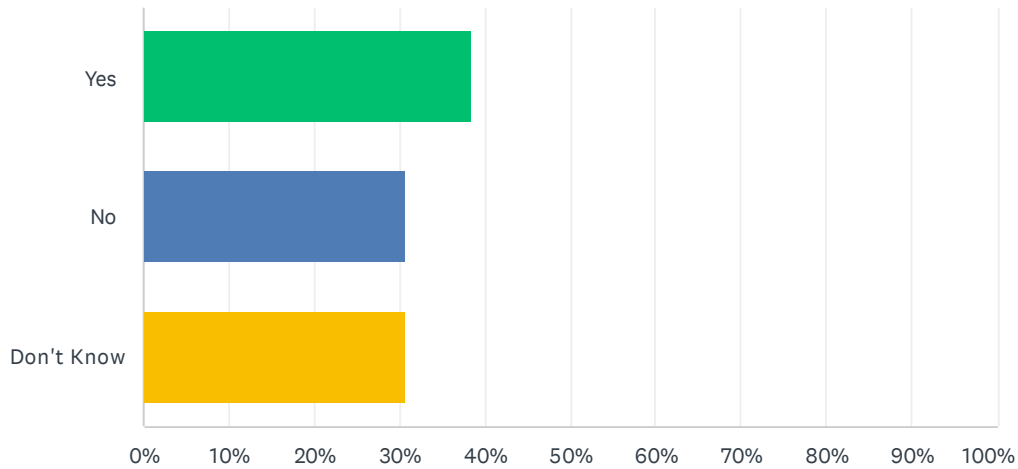
ANSWER CHOICES	RESPONSES
Buildings	64.29% 9
Roads	21.43% 3
Bridges	14.29% 2
Water/Sewer	35.71% 5
Stormwater	21.43% 3
No	28.57% 4
Other (please specify)	14.29% 2
Total Respondents: 14	

#	OTHER (PLEASE SPECIFY)	DATE
1	Bikeway path	7/13/2023 7:27 AM
2	Utility Poles, pipelines, underground electric distribution facilities.	1/18/2023 8:41 AM



**Q9 Looking back at previous hazard events, have buildings/facilities/structures you have worked in and/ or are responsible for been impacted by a hazard (ex. damage/closures/etc.)?**

Answered: 13 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	38.46%	5
No	30.77%	4
Don't Know	30.77%	4
TOTAL		13



**Q10** If you answered “Yes” to the above question, please describe the event that caused or is causing (if recurring) damage and loss of service/ property. If quantifiable data is available, please provide that as well (number of damaged structures, monetary loss, etc.) (please explain)

Answered: 7   Skipped: 8

#	RESPONSES	DATE
1	Sewage back up in Middle School when storm water was visible in the streets (not draining).	7/24/2023 3:08 PM
2	Road Closure; Power Outages; Telephone Outages	7/13/2023 3:13 PM
3	Significant rain event washed out road	7/13/2023 1:25 PM
4	Flooding and tree hazards along bikeway. Power outages at Up Yonda Farm, flooding at the Fish Hatchery. Blocked culverts on railroad, due to beaver activity.	7/13/2023 7:35 AM
5	N/A	1/9/2023 9:32 AM
6	Fire in the municipal center	1/6/2023 8:22 AM
7	NA	1/5/2023 4:30 PM



**Q11 Looking at where your facilities or services are located in Warren County, what areas do you believe to be the most vulnerable to hazards? What are these hazards? (please explain).**

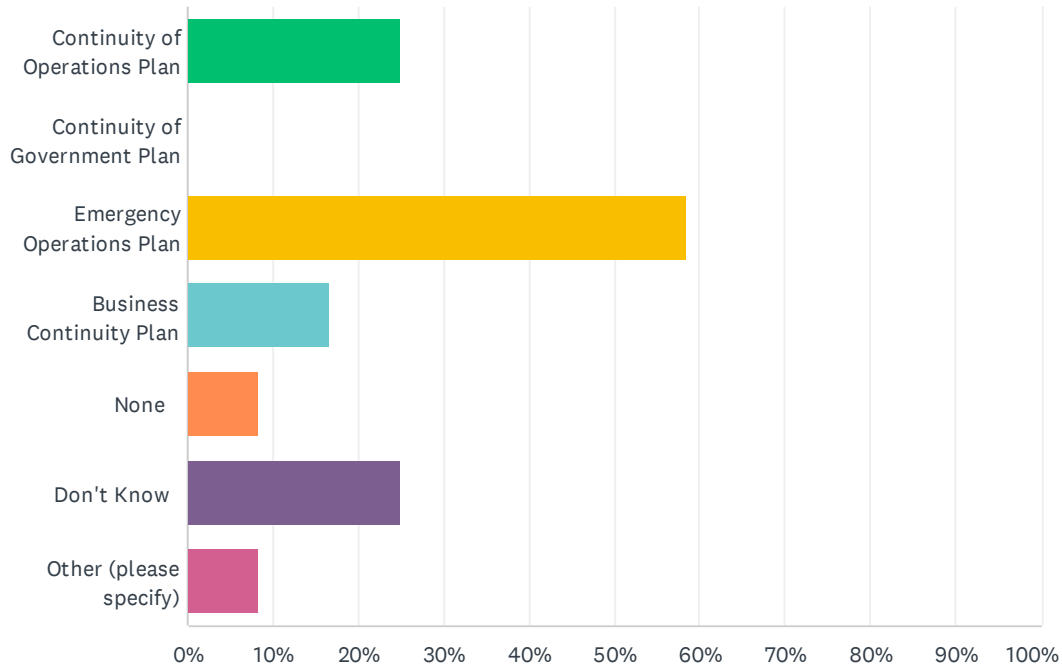
Answered: 12   Skipped: 3

#	RESPONSES	DATE
1	The streets around the Middle and High Schools, Administrative Offices on Quade St, West Notre Dame, and Shippey Ave regularly have standing storm water.	7/24/2023 3:08 PM
2	North Country near bodies of water; Areas with significant snow storms, wind storms; Rainfall	7/13/2023 3:13 PM
3	Power outages, fallen trees, stormwater washing out roads, water supply (Lake George)	7/13/2023 1:25 PM
4	City Hall/Police Station Possible Fire	7/13/2023 11:07 AM
5	severe storms	7/13/2023 7:39 AM
6	The bikeway constantly has issues with trees down or blocking the bikeway. At the Fish Hatchery, every spring we need to be prepared for ice jams and flooding.	7/13/2023 7:35 AM
7	Electric Substations and gas regulating stations. As we've all seen in the news with the recent vandalism with electric utility equipment, it is high on the priority list for our security teams.	1/18/2023 9:13 AM
8	N/A	1/9/2023 9:32 AM
9	Salt mitigation to protect the lake. We currently use sand on the backside of our building/parking area and salt/sand mixture on the front. No other hazards as of this writing.	1/8/2023 4:31 PM
10	We rely on pre-identified municipal buildings and locations that are owned and maintained by City/Town municipalities for many of our activities. Our hub is the County Municipal Center. Vulnerabilities include fire, severe weather impacting the facility, loss of internet and utilities caused by weather or man made factors	1/6/2023 8:22 AM
11	Road hazards - downed trees, winter driving conditions	1/5/2023 4:30 PM
12	Industry along the river and watershed	12/14/2022 7:28 PM



## Q12 Is your organization covered by any of the following plans? Check all that apply

Answered: 12 Skipped: 3



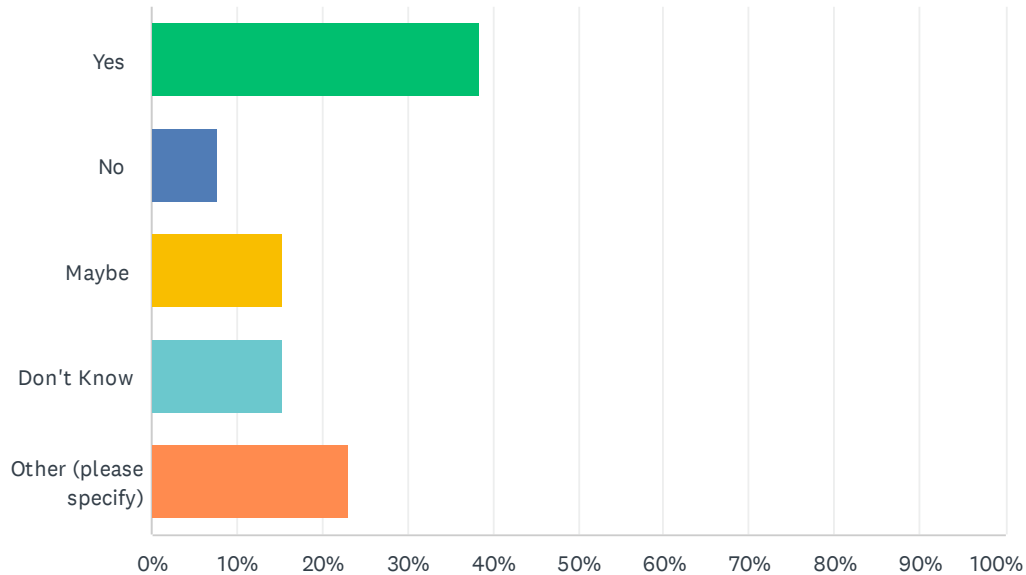
ANSWER CHOICES	RESPONSES	
Continuity of Operations Plan	25.00%	3
Continuity of Government Plan	0.00%	0
Emergency Operations Plan	58.33%	7
Business Continuity Plan	16.67%	2
None	8.33%	1
Don't Know	25.00%	3
Other (please specify)	8.33%	1
Total Respondents: 12		

#	OTHER (PLEASE SPECIFY)	DATE
1	GFSD Safety Plan	7/24/2023 3:08 PM



# Q13 Do you believe the facilities and infrastructure for your organization are equipped to handle a disaster and/or resilient to damages?

Answered: 13 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	38.46%	5
No	7.69%	1
Maybe	15.38%	2
Don't Know	15.38%	2
Other (please specify)	23.08%	3
TOTAL		13

#	OTHER (PLEASE SPECIFY)	DATE
1	Some are and some not as well	7/13/2023 7:39 AM
2	We have systems in place to maintain our infrastructure while also performing continuous improvement projects for storm hardening/reliability on our networks.	1/18/2023 9:13 AM
3	We were able to operate successfully throughout the pandemic shutdown and help our community overcome the challenges for economic success. Unsure about other potential disasters as we haven't had them other than economic downturns (2008-2010, 1990's).	1/8/2023 4:33 PM



## Q14 Can you identify projects or programs that will reduce your facility/organization's vulnerability to damages and losses, including loss of operation/service, to hazard events? (Please explain)

Answered: 9 Skipped: 6

#	RESPONSES	DATE
1	No	7/24/2023 3:11 PM
2	Improved stormwater management, additional power generators,	7/13/2023 1:33 PM
3	Frequent inspections of facilities and regular maintenance	7/13/2023 7:52 AM
4	We have an emergency plan in place for fire, natural disasters and man made disasters and we conduct drills	7/13/2023 7:41 AM
5	Tree Trimming program - each of our circuits are trimmed on 5 year cycles, that means every 5 years "Main St in Queensbury" will be inspected for danger trees and trimmed by one of our tree contractors. "Computapole" program. This is a program that has us inspect and get eyes on every piece of National Grid electric infrastructure throughout our territory. We identify potential hazards like rotting poles, broken or unbonded guy wires, blown lightening arrestors, or broken cross arms. Once they are reported, the issues are then sent to the field workers for repairs. This is also done in 5 year cycles for each of our circuits. We have a similar program for our gas distribution system in regards to our Leak Prone Pipe program where we are replacing old cast iron mains and services with plastic. We have a gas corrosion team that inspects our pipe lines to make sure they are still in spec.	1/18/2023 9:13 AM
6	N/A	1/9/2023 9:33 AM
7	We were able to take advantage of the second round of PPP funding because of our 501c6 corporate status that helped us through the pandemic financially. Other strategies in the past have been to cut programs and not people to stay financially stable as an organization.	1/8/2023 4:36 PM
8	Upgrading work from home opportunities if the facility is unusable, ensuring a suitable secondary location is available for staff that have to be in the office, providing funding to ensure IT and other equipment necessary to maintain operations is provided	1/6/2023 8:32 AM
9	Sewage treatment plant power project	12/14/2022 7:29 PM



**Q15 Can you identify projects or programs that have been recently been implemented to reduce your facility's/organization's vulnerability, damage and losses, including loss of operation/service, to hazard events? (please explain)**

Answered: 12 Skipped: 3

#	RESPONSES	DATE
1	No	7/24/2023 3:11 PM
2	Warren County Continuity of Operations Plan implemented by Amy Hirsch; Response to COVID	7/13/2023 3:14 PM
3	Installed manmade wetland to help manage stormwater, installed limited number of generators to offset power losses	7/13/2023 1:33 PM
4	Frequent inspections of facilities and regular maintenance	7/13/2023 7:52 AM
5	Drilling our disaster plan	7/13/2023 7:41 AM
6	See Above.	1/18/2023 9:13 AM
7	N/A	1/9/2023 9:33 AM
8	We are reworking our strategic plan and have begun a five year financial look-back and a five year forecast CAGR - (compound annual growth rate).	1/8/2023 4:36 PM
9	none at a County level. Public Health initiatives to mitigate the impacts of a disaster have been undertaken as a requirement of the NYSDOH Office of Health Emergency Preparedness annual core deliverables which must be completed to receive funding from NYSDOH for the Warren County Public Health Emergency Preparedness program	1/6/2023 8:32 AM
10	SAIL has an internal emergency preparedness plan that we will exercise in the event of an emergency.	1/6/2023 8:16 AM
11	Installation of an emergency back-up generator	1/5/2023 4:31 PM
12	Storm water and sewage decoupling projects	12/14/2022 7:29 PM



## Q16 Do you have any questions or comments for Warren County?

Answered: 8   Skipped: 7

#	RESPONSES	DATE
1	No	7/24/2023 3:12 PM
2	NO	7/13/2023 7:52 AM
3	no	7/13/2023 7:41 AM
4	Warren County has been a great partner in National Grid's restoration and community efforts. I look forward to working with you for years to come.	1/18/2023 9:13 AM
5	No	1/9/2023 9:33 AM
6	None as of this writing.	1/8/2023 4:36 PM
7	What steps are being taken to prepare for the impacts of climate change? NYSDOH is making that a priority in Public Health Emergency Preparedness Planning? Also what steps are being taken to identify populations within Warren County with access and functional needs so planning considerations can be made and gaps can be filled as funding becomes available. Is there a plan to create or does one exist for a work pool for County workers if a department temporarily needs extra help to respond to and recovery from a disaster? Are the elected leaders in Warren County required to attend emergency preparedness trainings and participate in the hazard mitigation planning process?	1/6/2023 8:38 AM
8	None	1/6/2023 8:16 AM





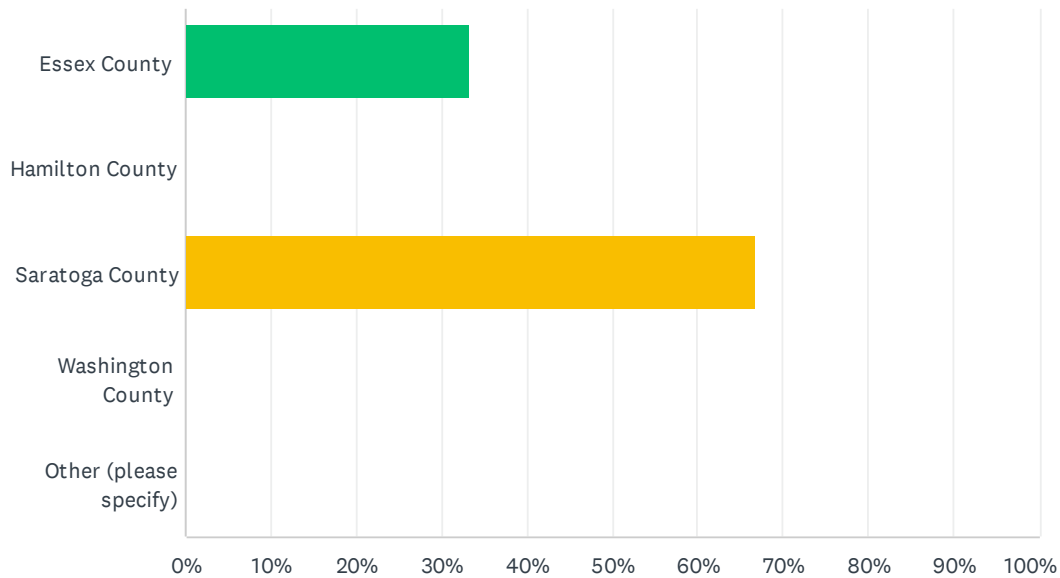
## D.3 NEIGHBORING COUNTY SURVEY

A neighboring county survey was sent to the surrounding counties of Warren due to their proximity to the County and because the effects of hazard events that impact Warren County would be similar to that of their neighbors. A summary of the results are included on the following pages.



## Q1 Please indicate the community in which you represent

Answered: 3   Skipped: 0



ANSWER CHOICES		RESPONSES	
Essex County		33.33%	1
Hamilton County		0.00%	0
Saratoga County		66.67%	2
Washington County		0.00%	0
Other (please specify)		0.00%	0
TOTAL			3

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



## Q2 Name and Title of Respondent

Answered: 3    Skipped: 0

#	RESPONSES	DATE
1		
2		
3		



### Q3 What department do you represent?

Answered: 3   Skipped: 0

#	RESPONSES	DATE
1	Saratoga County Emergency Management	5/1/2023 10:28 AM
2	Essex County Emergency Services	5/1/2023 8:14 AM
3	OEM	1/9/2023 2:35 PM



Q4 Please provide your contact information.

Answered: 3    Skipped: 0

ANSWER CHOICES	RESPONSES	
Name	0.00%	0
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	3
Phone Number	100.00%	3

#	NAME	DATE
	There are no responses.	
#	COMPANY	DATE
	There are no responses.	
#	ADDRESS	DATE
	There are no responses.	
#	ADDRESS 2	DATE
	There are no responses.	
#	CITY/TOWN	DATE
	There are no responses.	
#	STATE/PROVINCE	DATE
	There are no responses.	
#	ZIP/POSTAL CODE	DATE
	There are no responses.	
#	COUNTRY	DATE
	There are no responses.	
#	EMAIL ADDRESS	DATE
1		
2		
3		
#		
1		



## Warren County Hazard Mitigation Plan - Neighboring Community Survey

2

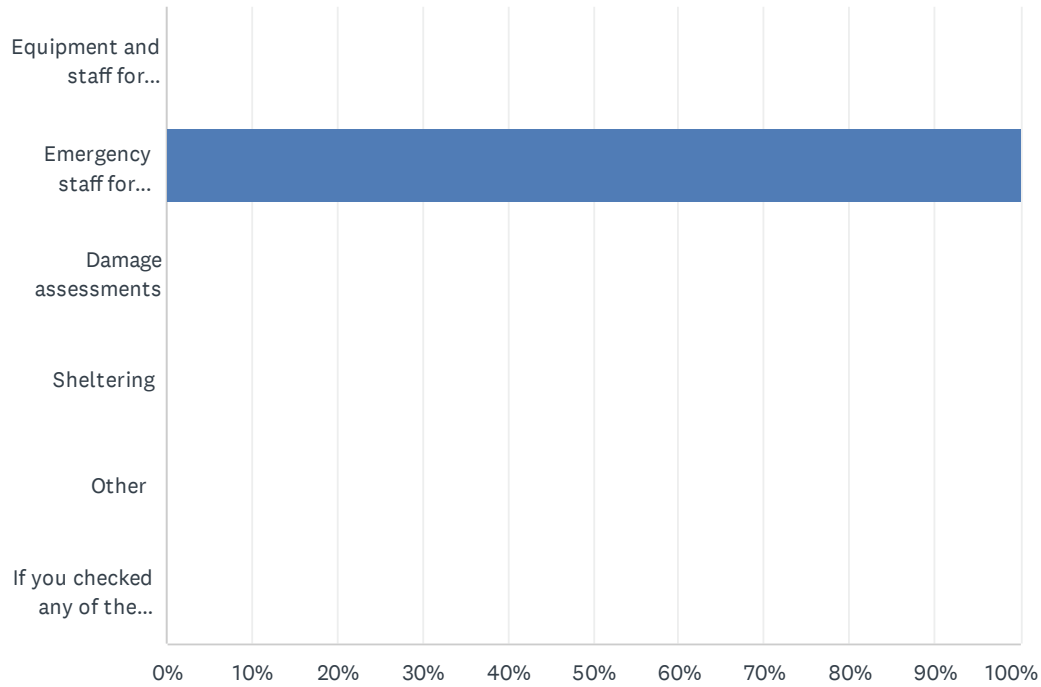
3

--



## Q5 Do you have any shared service agreements or mutual aid agreements in place with Warren County for the following?

Answered: 1   Skipped: 2



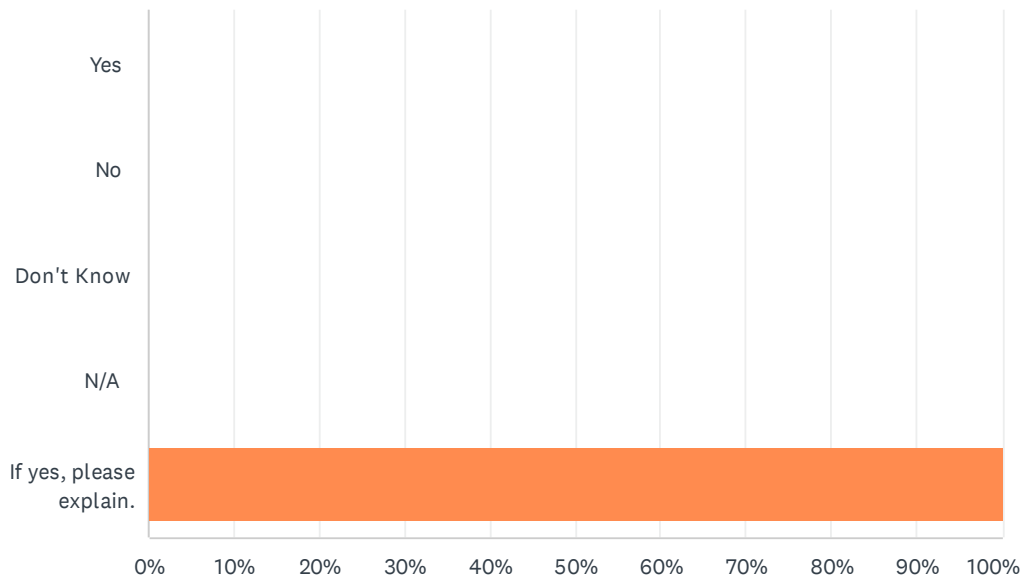
ANSWER CHOICES	RESPONSES	
Equipment and staff for debris cleanup and removal	0.00%	0
Emergency staff for evacuations/disaster response	100.00%	1
Damage assessments	0.00%	0
Sheltering	0.00%	0
Other	0.00%	0
If you checked any of the above, please explain.	0.00%	0
Total Respondents: 1		

#	IF YOU CHECKED ANY OF THE ABOVE, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q6 Is Warren County involved in your community's comprehensive emergency operations planning, such as by participating on a planning team, or providing resources during an emergency?

Answered: 2   Skipped: 1



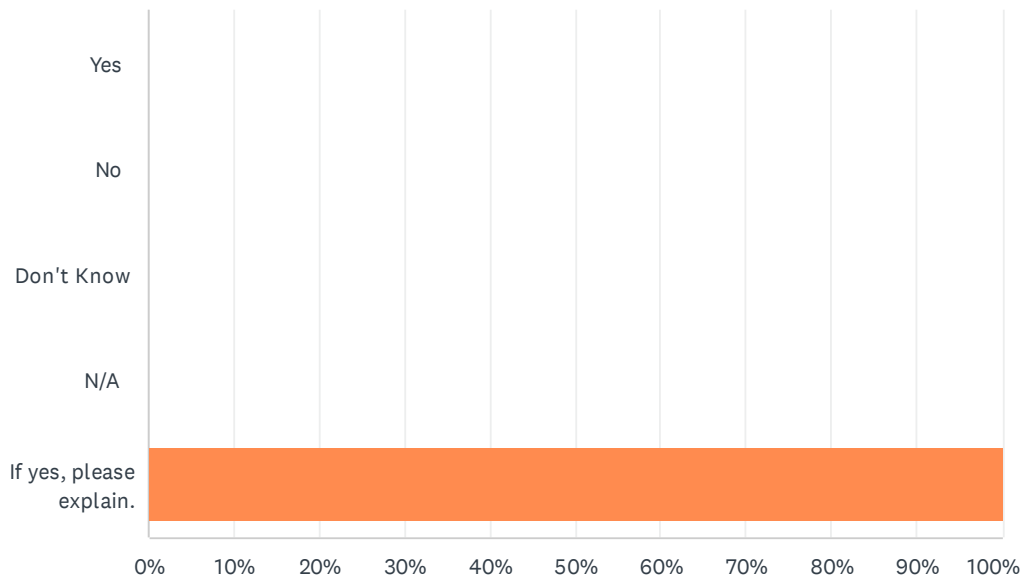
ANSWER CHOICES	RESPONSES
Yes	0.00% 0
No	0.00% 0
Don't Know	0.00% 0
N/A	0.00% 0
If yes, please explain.	100.00% 2
<b>TOTAL</b>	<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Fire/EMS mutual aid plans	5/1/2023 3:10 PM
2	Warren County was instrumental in helping us to develop many of our plans. They are a partner that could be asked for assistance in a variety of disasters	1/9/2023 2:38 PM



## Q7 Is your community involved in Warren County's comprehensive emergency operations planning, such as by participating on a planning team, or providing resources during an emergency?

Answered: 2   Skipped: 1



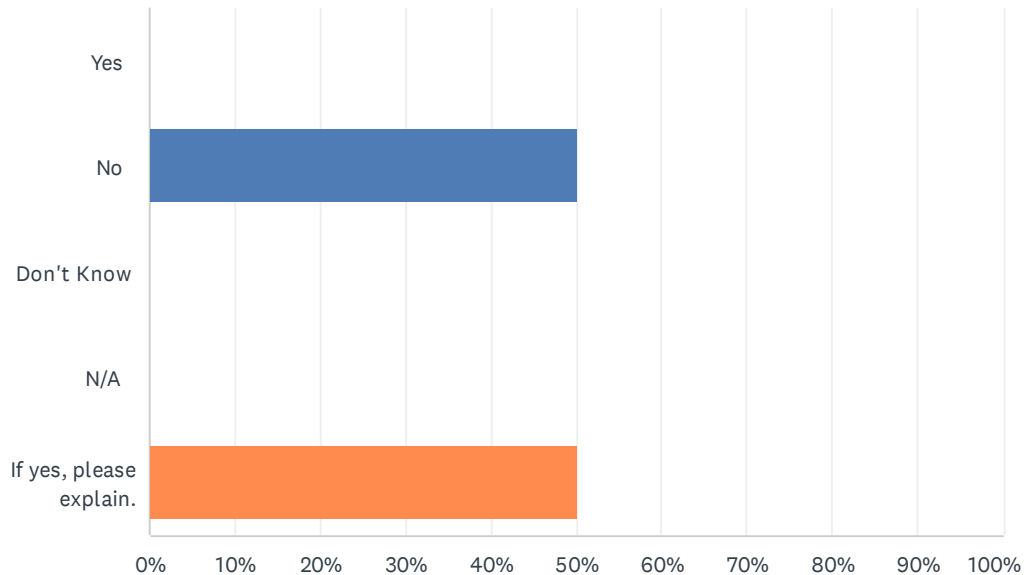
ANSWER CHOICES	RESPONSES
Yes	0.00% 0
No	0.00% 0
Don't Know	0.00% 0
N/A	0.00% 0
If yes, please explain.	100.00% 2
<b>TOTAL</b>	<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Fire/EMS mutual aid plans	5/1/2023 3:10 PM
2	Same as above	1/9/2023 2:38 PM



## Q8 Is Warren County involved in your community's Continuity of Operations planning, such as by participating on a planning team, providing resources during an emergency, or carrying out some of your community's essential functions for a period of time?

Answered: 2   Skipped: 1



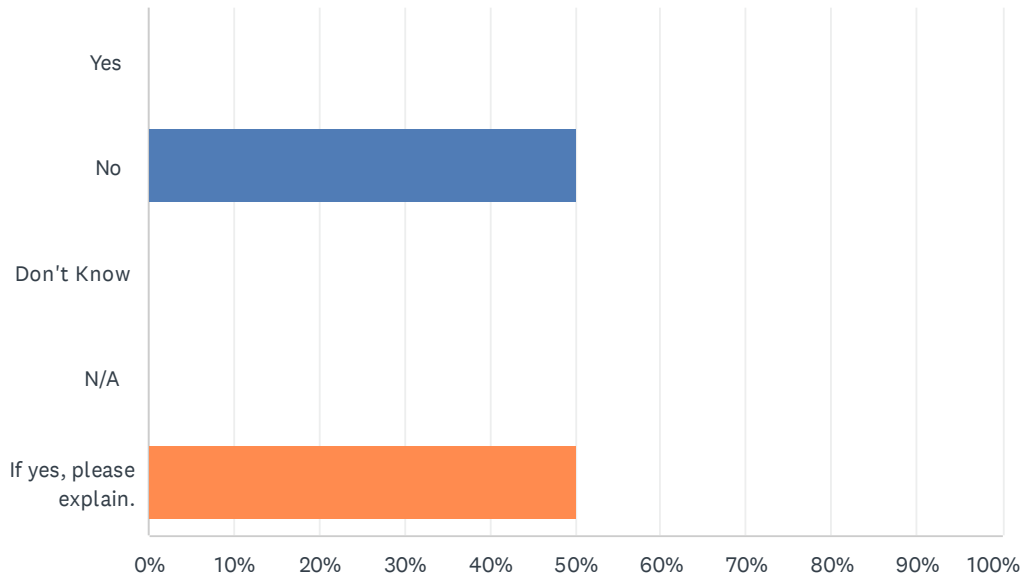
ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
<b>TOTAL</b>		<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	Mutual aid plans Fire/EMS/Law	1/9/2023 2:38 PM



## Q9 Is your community involved in Warren County's Continuity of Operations planning, such as by participating on a planning team, providing resources during an emergency, or carrying out some of Warren County's essential functions for a period of time?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Mutual aid plans Fire/EMS/Law	1/9/2023 2:38 PM



## Q10 Thinking about emergency operations and disaster response, please explain how these actions are communicated between communities.

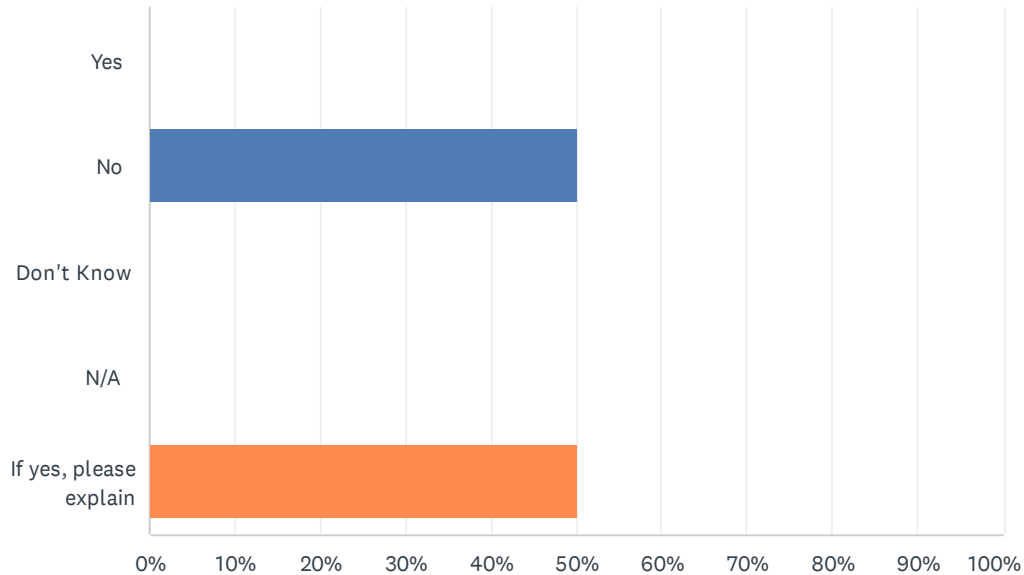
Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	Phone, email, NY Responds	5/1/2023 3:10 PM
2	Emergency Managers work together to respond to incidents and may work together to mitigate against incidents along shared vulnerabilities.	1/9/2023 2:38 PM



## Q11 Does your community share risk and vulnerability assessments (flood mapping, HAZUS, etc.) with Warren County?

Answered: 2 Skipped: 1



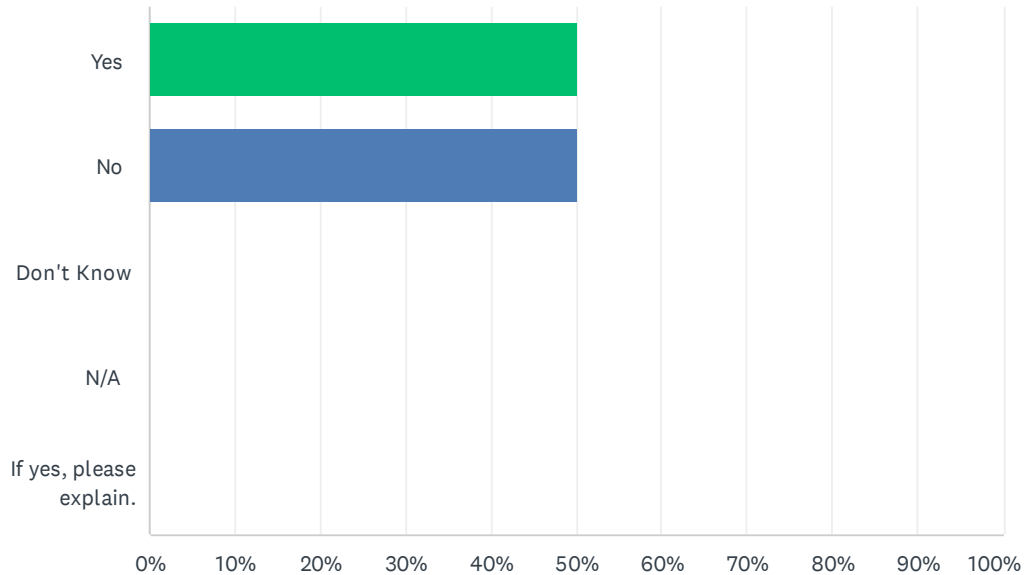
ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain	50.00%	1
TOTAL		2

#	IF YES, PLEASE EXPLAIN	DATE
1	Flood mapping	5/1/2023 3:11 PM



## Q12 Do you collaborate with Warren County on establishing evacuation routes and alternate evacuation routes?

Answered: 2 Skipped: 1



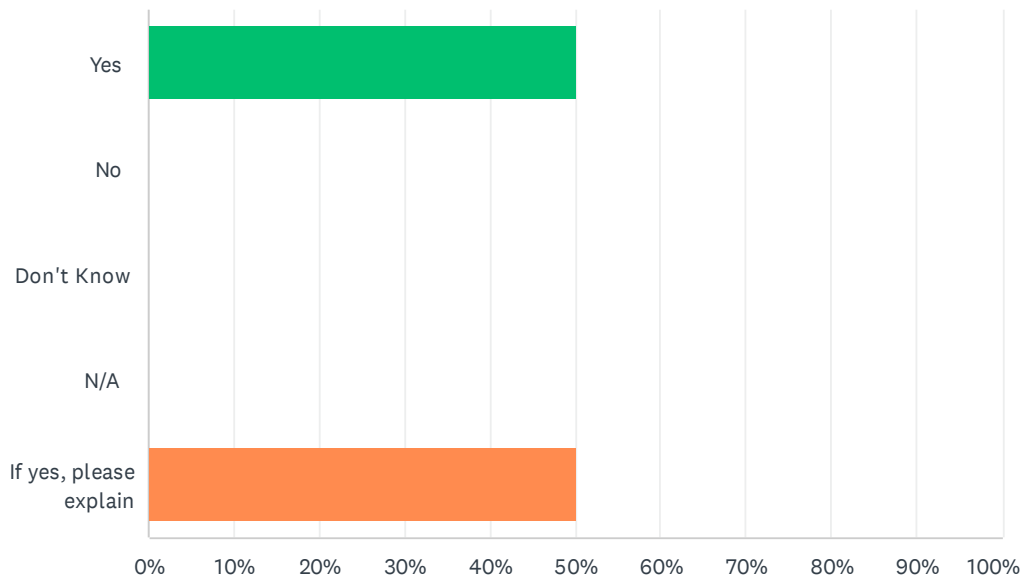
ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	0.00%	0
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



### Q13 Do you and Warren County consult with one another before making evacuation decisions that would impact one another (recommending evacuation routes into neighboring jurisdictions)?

Answered: 2 Skipped: 1



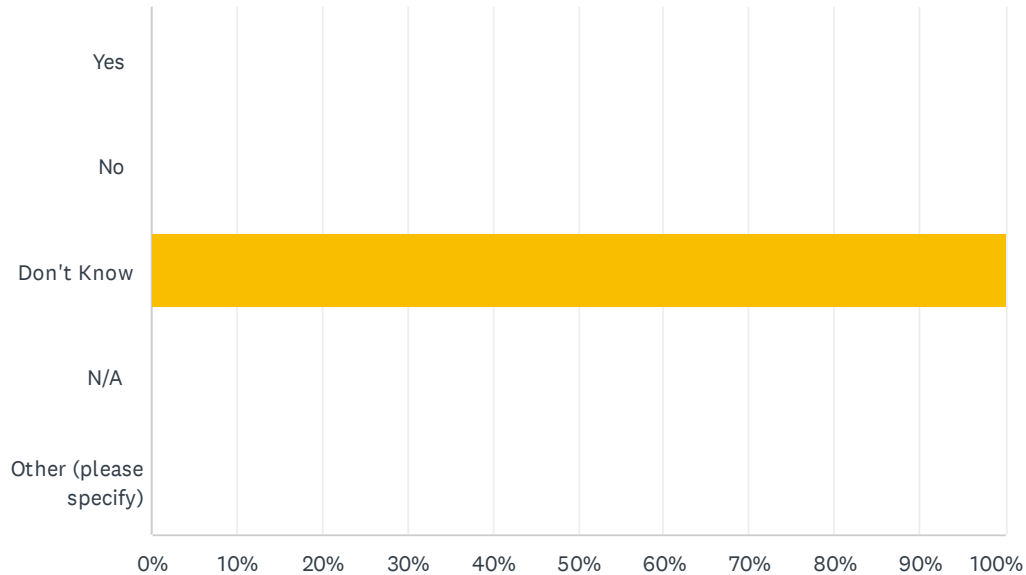
ANSWER CHOICES	RESPONSES
Yes	50.00% 1
No	0.00% 0
Don't Know	0.00% 0
N/A	0.00% 0
If yes, please explain	50.00% 1
<b>TOTAL</b>	<b>2</b>

#	IF YES, PLEASE EXPLAIN	DATE
1	Multi-county evacuations would require collaboration	5/1/2023 3:14 PM



## Q14 Are evacuation routes maintained to the same level of protection across jurisdictional lines?

Answered: 2   Skipped: 1



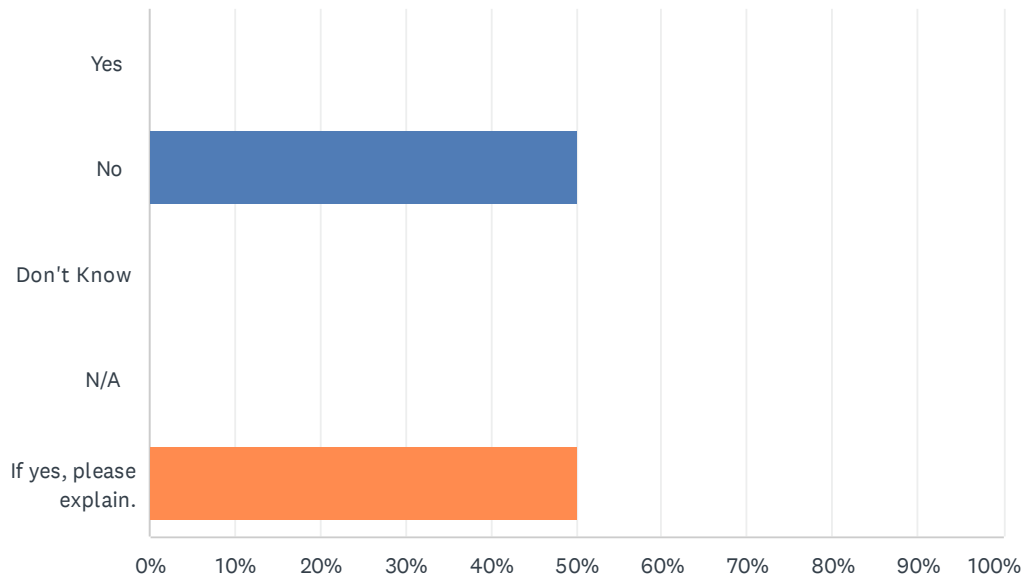
ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	0.00%	0
Don't Know	100.00%	2
N/A	0.00%	0
Other (please specify)	0.00%	0
TOTAL		2

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



## Q15 Do you collaborate with Warren County on establishing shelters?

Answered: 2   Skipped: 1



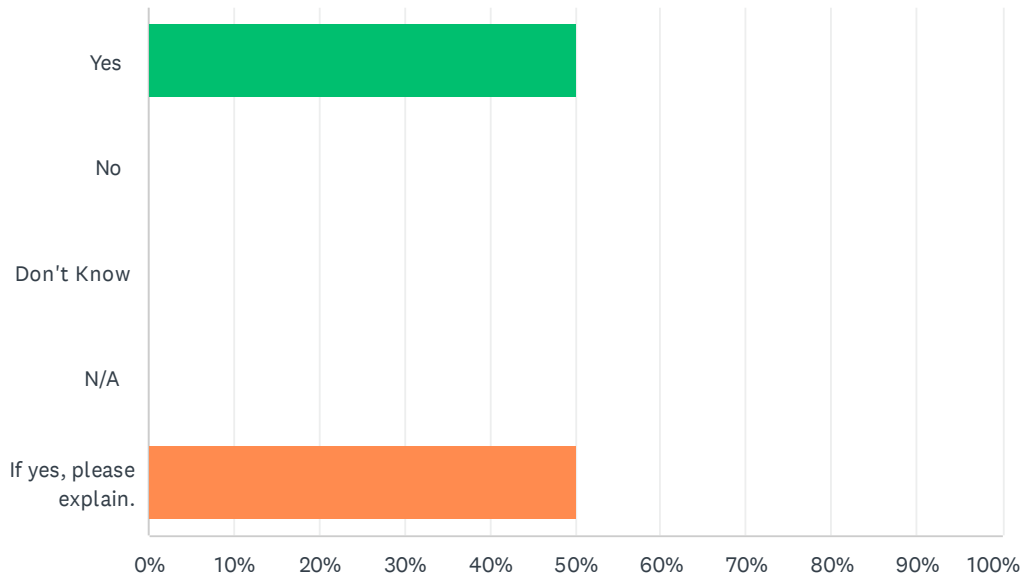
ANSWER CHOICES		RESPONSES	
Yes		0.00%	0
No		50.00%	1
Don't Know		0.00%	0
N/A		0.00%	0
If yes, please explain.		50.00%	1
TOTAL			2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Historically we have collaborated on shared hazards/events	5/1/2023 3:14 PM



## Q16 Do you and Warren County consult with one another before making sheltering decisions that would impact one another (recommending shelters in neighboring communities)?

Answered: 2   Skipped: 1



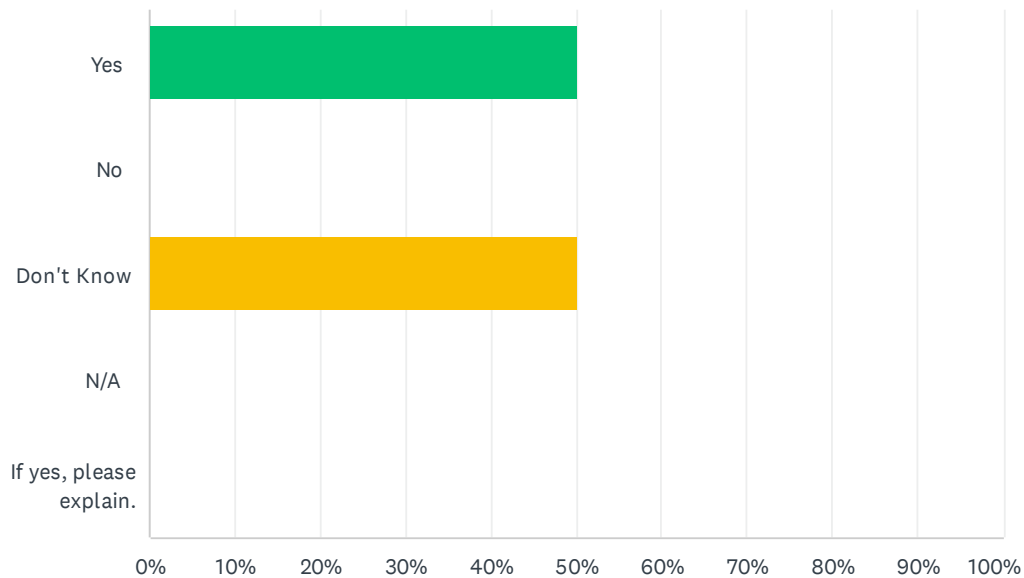
ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	0.00%	0
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
<b>TOTAL</b>		<b>2</b>

#	IF YES, PLEASE EXPLAIN.	DATE
1	By phone/email	5/1/2023 3:14 PM



**Q17 Do you and Warren County share any spaces suitable for temporary housing? This includes locations suitable to place temporary housing units to house residents displaced by a disaster.**

Answered: 2 Skipped: 1



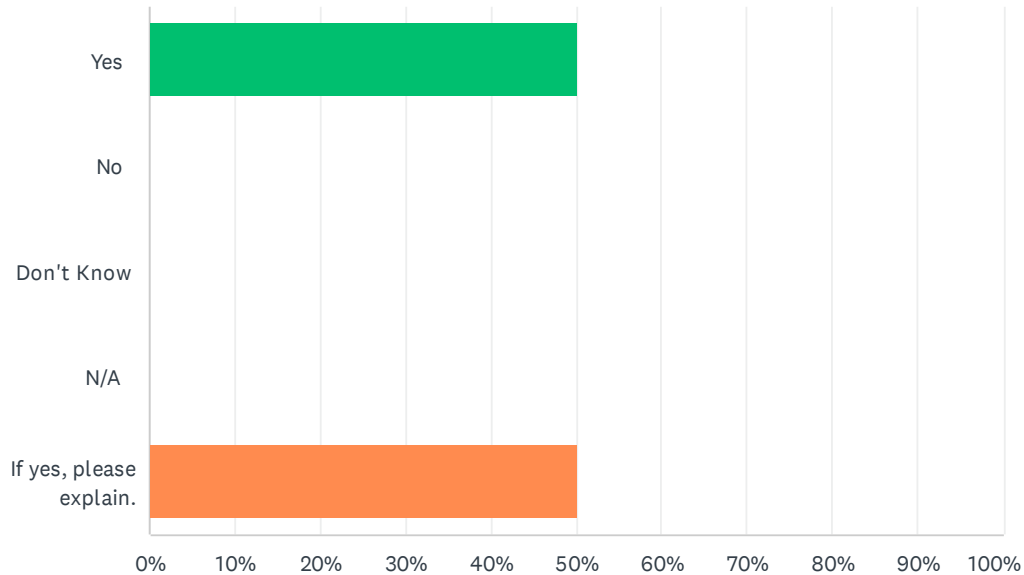
ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	0.00%	0
Don't Know	50.00%	1
N/A	0.00%	0
If yes, please explain.	0.00%	0
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q18 Does your community have access to contact information for Warren County's emergency operation centers?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	0.00%	0
Don't Know	0.00%	0
N/A	0.00%	0
If yes, please explain.	50.00%	1
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Phone/email	5/1/2023 3:22 PM



Q19 Please describe any situations or hazards that are of concern to both your community and Warren County. For example, would flooding along a particular waterway impact both jurisdictions, or are there any facilities or infrastructure that would affect both jurisdictions if it/they failed?

Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	All dams/flooding along common county borders	5/1/2023 3:22 PM
2	Flooding along the Hudson - which serves as the boundary between a good portion our counties. Additionally, various incidents along the northway. Also, large scale incidents (eg brush fire) along our rural border.	1/9/2023 2:51 PM



## Q20 Please explain how information is shared between communities regarding mitigation projects.

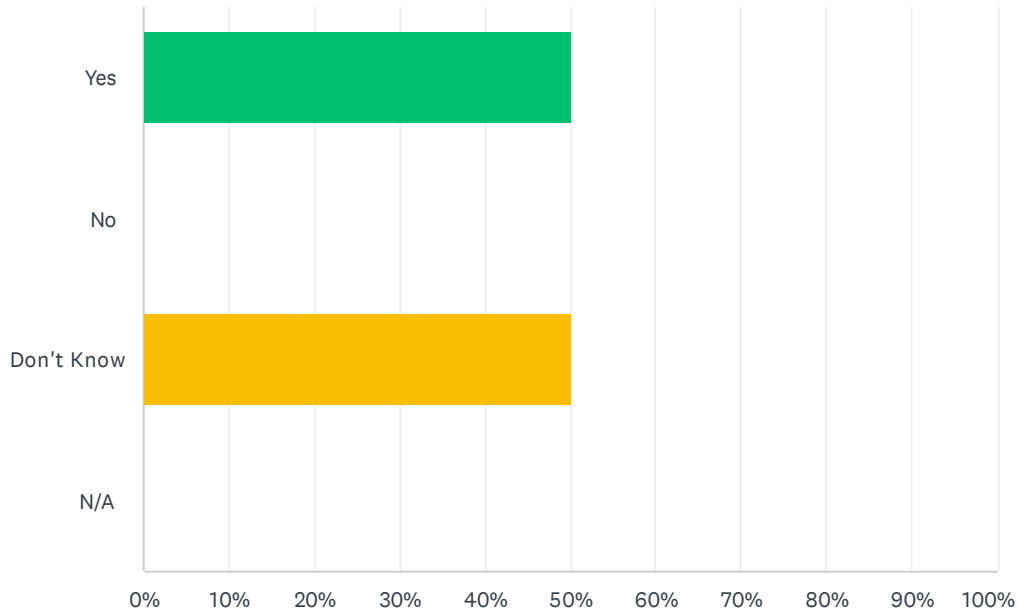
Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	Phone/email	5/1/2023 3:22 PM
2	The hazard mitigation plan, intercommunity communication often by the highway department leadership	1/9/2023 2:51 PM



## Q21 Is information regarding mitigation shared during the planning and implementation phases of the projects?

Answered: 2   Skipped: 1



ANSWER CHOICES		RESPONSES	
Yes		50.00%	1
No		0.00%	0
Don't Know		50.00%	1
N/A		0.00%	0
TOTAL			2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q22 Are you aware of any projects for the following that requires cross-collaboration between jurisdictional boundaries?

Answered: 0   Skipped: 3

 No matching responses.

ANSWER CHOICES	RESPONSES	
Stormwater projects	0.00%	0
Watershed projects or planning	0.00%	0
Floodplain projects or planning	0.00%	0
Connected roadway improvements	0.00%	0
Natural infrastructure restoration	0.00%	0
Outreach (education and outreach campaigns, programs for public information, etc.)	0.00%	0
Other (please specify)	0.00%	0
Total Respondents: 0		

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	



## Q23 If you selected anything above, please explain.

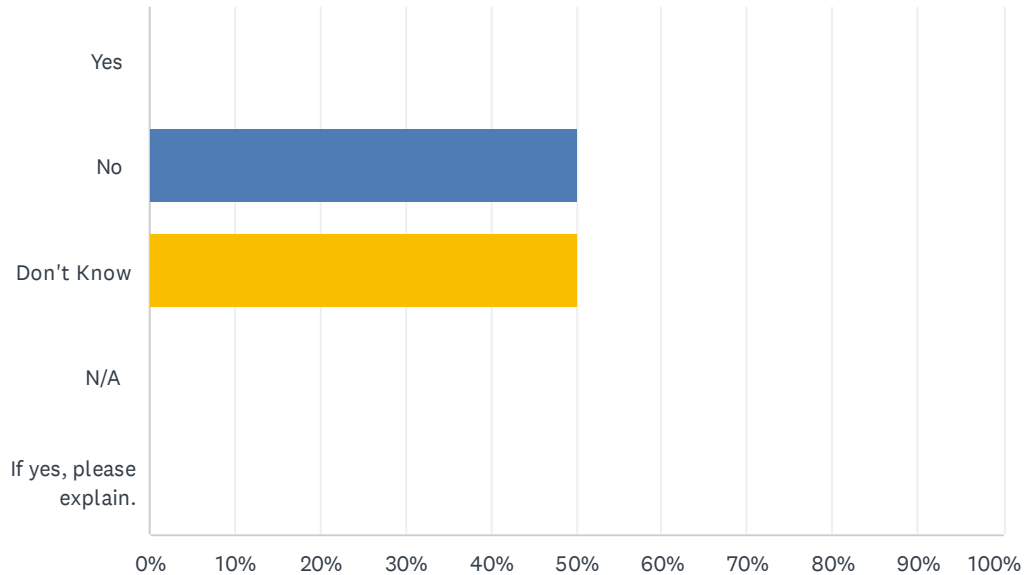
Answered: 0   Skipped: 3

#	RESPONSES	DATE
	There are no responses.	



## Q24 Have your community and Warren County collaborated on grant applications?

Answered: 2 Skipped: 1



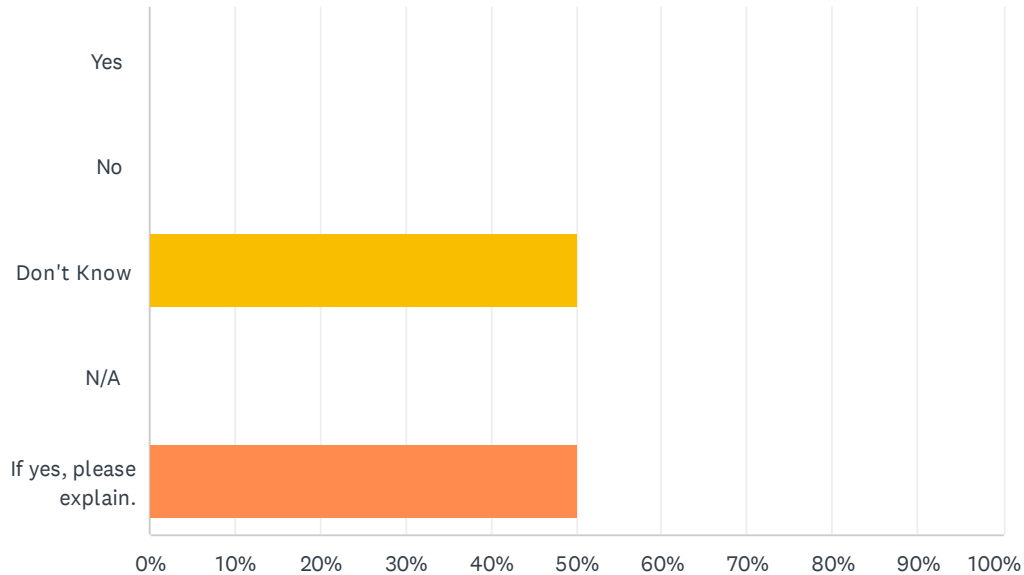
ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	50.00%	1
Don't Know	50.00%	1
N/A	0.00%	0
If yes, please explain.	0.00%	0
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
	There are no responses.	



## Q25 Are you aware of any organizations that carry out education and outreach regarding hazards in both your community and Warren County?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	0.00%	0
Don't Know	50.00%	1
N/A	0.00%	0
If yes, please explain.	50.00%	1
TOTAL		2

#	IF YES, PLEASE EXPLAIN.	DATE
1	Dam operators	5/1/2023 3:24 PM



## Q26 What are opportunities or ideas to optimize cooperation with Warren County on emergency management operations and hazard mitigation projects?

Answered: 2   Skipped: 1

#	RESPONSES	DATE
1	Open communication when planning cross-jurisdictional projects	5/1/2023 3:24 PM
2	Corresponding HAZMIT Plans/Projects	1/9/2023 2:52 PM



## Q27 Do you have any relevant questions or comments for Warren County?

Answered: 1   Skipped: 2

#	RESPONSES	DATE
1	We will be going through a HAZMIT plan update later this year as well	1/9/2023 2:52 PM





## D.4 WEBSITE AND SOCIAL MEDIA POSTS

The following provides screenshots of the informational fact sheet, website, news articles, and social media posts.





# WARREN COUNTY HAZARD MITIGATION PLAN

2023 Update

## What is a Hazard Mitigation?

Hazard mitigation is an action to help reduce long-term risks caused by hazards or disasters, such as flooding, earthquakes, or wildfires. The purpose of hazard mitigation is to protect people and structures, and minimize the costs of disaster response and recovery. Hazard mitigation can take many forms: capital projects, policies, education, and environmental protection.

Proactive mitigation leads to more cost-effective projects. By contrast, reactive mitigation, tends to lead to severe damage and often more costly fixes; it simply costs too much to address the effects of disasters only after they happen. A surprising amount of damage can be prevented if we can anticipate where and how disasters occur, and take steps to prevent those damages.

## What is a Hazard Mitigation Plan?

Hazard Mitigation Plans (HMP) are prepared and adopted by counties and municipalities with the primary purpose of identifying, assessing, and reducing the long-term risk to life and property from hazard events. HMPs are most effective when they are based on a comprehensive, long-term plans developed before a disaster occurs.

Effective mitigation planning can break the cycle of disaster damage, reconstruction, and repeated damage. There are four key elements of an HMP: 1) a risk assessment, 2) capability assessment, 3) mitigation strategy, and 4) plan maintenance procedures.

The purpose of mitigation planning is to identify local policies and actions that can be implemented over the long term to reduce risk and future losses from hazards. These mitigation policies and actions are identified based on an assessment of hazards, vulnerabilities, and risks and the participation of a wide range of stakeholders and the public in the planning process.

## Purpose

The Warren County Soil and Water Conservation District is leading the update of the Warren County HMP. This plan is an opportunity to detail a variety of potential hazards that could affect some or all of the residents and will also allow the county and participating municipalities to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA).

The goal of the plan is to identify projects that can reduce damages from future hazards. The plan will include a risk assessment and a hazard mitigation strategy. The primary hazards of concern in the counties include: Dam Failure, Disease Outbreak, Earthquake, Flood, Infestation, Severe Storm, Severe Winter Storm, and Wildfire.

The study will focus on existing buildings and potential future development, infrastructure, and lifelines that might be impacted.

Lifelines include but are not limited to municipal buildings and infrastructure such as power-generation facilities, water utilities, roadways, railroads and communication systems.





## What are the benefits of Hazard Mitigation?

Mitigation planning will help the county and the participating jurisdictions prepare for disasters, before they happen, to reduce impacts when a disaster occurs.

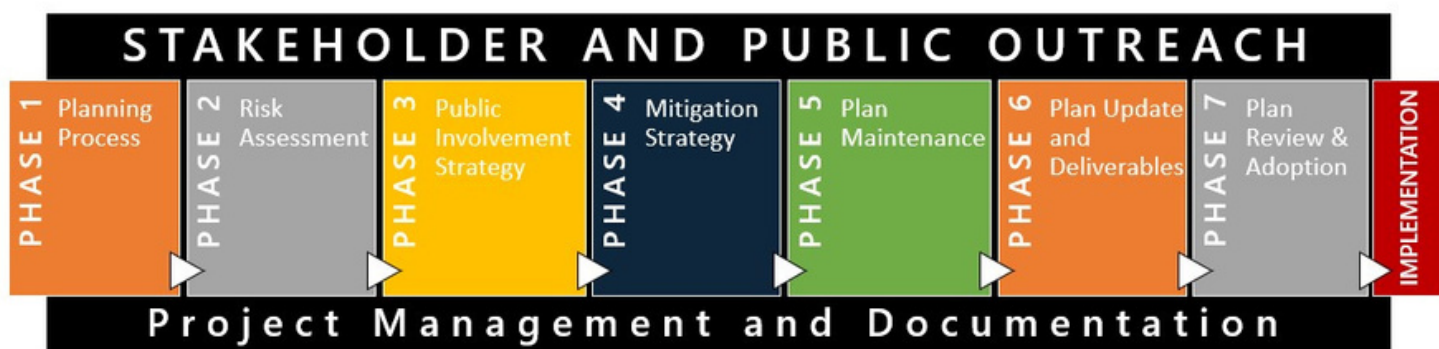
Benefits include:

- Identifying actions for risk reduction that are agreed upon by stakeholders and the public,
- Focusing resources on the greatest risks and vulnerabilities,
- Building partnerships by involving citizens, organizations, and businesses,
- Increasing education and awareness of threats and hazards, as well as their risks,
- Communicating priorities to state and federal officials, and
- Aligning risk reduction with other community objectives.

## What is required in a Hazard Mitigation Plan?

FEMA regulations require that the public must be engaged in all phases of the plan's development. The HMP should review and incorporate existing plans and programs that can support or enhance hazard mitigation. The plan must assess the risk to natural hazards that may impact the planning area and identify and prioritize mitigation actions that can be taken. The HMP must also include a strategy for maintaining the plan, which must be updated every 5 years.

## Planning Process



## FAQs

**What is mitigation?** Any sustained action taken to reduce/ eliminate long-term risk to life and property from a hazard event.

**How can you reduce/eliminate risk?** Identify mitigation actions/ projects/activities or processes that can include 1) Local plans and regulations; 2) Structure and infrastructure projects; 3) Natural systems protection; 4) Education and awareness programs.

**What grant funding is available?** FEMA Hazard Mitigation Assistance grant funding is available with a FEMA-approved Hazard Mitigation Plan (annual and post-disaster opportunities).

**How can I support the plan?** Take the public survey! This will help us obtain input and get a better understanding of public preparedness for hazard events.

**Where can I see the 2023 plan?** Sections of the draft plan will be available late-2022 for download, review and comment on the Warren County HMP website at: <https://www.warrencountynewyorkhmp.com/>

For more information, please visit our website:

<https://www.warrencountynewyorkhmp.com/>

For more information about this process, please contact:



Warren County Soil and Water Conservation District  
518-623-3119

Live or work in Warren County? Take our survey!  
<https://www.surveymonkey.com/r/WarrenNYHMPPublic>

-or-

scan the QR code to complete the survey







# WARREN COUNTY HAZARD MITIGATION PLAN

## 2023 UPDATE

[Home](#)[About](#)[What is Mitigation](#)[Meetings](#)[Calendar](#)[Explore the Plan](#)[Additional Information](#)

### Warren County Hazard Mitigation Plan 2023 Update

The draft Warren County Hazard Mitigation Plan is available for public review. This plan will be available for public review through September 2<sup>nd</sup>, 2023.

Welcome to the Warren County Hazard Mitigation Plan (HMP) Website. This website provides project updates, resources, and links to hazard mitigation in support of the HMP update.

The goal of the project is to save lives and property through the reduction of hazard vulnerability for Warren County and its municipalities. During the course of this planning project, county and local leaders and the community will work in tandem to identify risks, assess capabilities, and formulate a strategy to reduce disaster vulnerability.

Public participation and feedback are vital parts of the hazard mitigation planning process. The Warren County HMP Steering Committee developed a mitigation survey to assist in providing the public an outlet to contribute to the Warren County HMP update which was active through June 8, 2023. The results of the survey will be used to develop portions of the HMP.

If you have any questions or comments regarding the HMP or planning process, please complete this form, and someone from the Planning Partnership will be in touch.

Events in August 2023–July 2024



# **WARREN COUNTY**

## **2023 HAZARD MITIGATION PLAN UPDATE**

**When natural hazards occur, how are you prepared?  
Let us know in this survey as part of Warren County's  
Hazard Mitigation Plan update.**

**<https://www.warrencountynewyorkhmp.com/>**



For more information, please contact Warren County Soil  
and Water Conservation District:  
(518) 623-3119





Boost post



HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note this ...

March 9, 2023 at 6:11 AM  
ID: 555241586795063

Interactions

0 reactions

0 comments

5 shares

- Overview
- Performance
- Feed preview

Performance

Reach ⓘ

Total

964

Organic964 (100%)

Paid0 (0%)

Engagements ⓘ

Reactions

0

Comments0

Shares5

View details

Negative interactions ⓘ

Total

0

Unique0

Feed preview

Warren County, New York

March 9 · 🌐

HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note





Boost post



# HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note this ...

January 12, 2023 at 6:21 AM  
ID: 519354607050428

## Interactions

2 reactions

0 comments

2 shares

- Overview
- Performance
- Feed preview

## Performance

**Reach ⓘ**

Total

928

Organic	928 (100%)
Paid	0 (0%)

**Engagements ⓘ**

Reactions

2

Comments	0
Shares	2

View details

**Negative interactions ⓘ**

Total

0

Unique	0
--------	---





























## Feed preview

Warren County, New York

January 12 · 🌐

HELP US COMPLETE OUR HAZARD MITIGATION PLAN -- Please note



	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Thu Mar 9, 6:11am	 	--					0:00
							Distribution				video views	<a href="#">Average minutes</a>
	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Thu Jan 12, 6:21am	 	--					0:00
							Distribution				video views	<a href="#">Average minutes</a>
	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Sat Jan 7, 10:19am	 	--					0:00
							Distribution				video views	<a href="#">Average minutes</a>
	HELP US COMPLETE OUR HAZ...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Dec 22, 2022	 	--	0	0	0		0:00
							Distribution	Minutes viewed	<a href="#">3-second video views</a>	1-Minute video views		<a href="#">Average minutes</a>
	Good advice from Warren Coun...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Dec 20, 2022	 	--	0	0	0		0:00
							Distribution	Minutes viewed	<a href="#">3-second video views</a>	1-Minute video views		<a href="#">Average minutes</a>
	Warren County is looking for p...	 warrencountynewyork	<a href="#">View insights</a>	<a href="#">...</a>	Dec 9, 2022	 	--	--	--	--		--
	Warren County and its partners...	 Warren County, New York	<a href="#">View insights</a>	<a href="#">...</a>	Dec 9, 2022	 	--	0	0	0		0:00
							Distribution	Minutes viewed	<a href="#">3-second video views</a>	1-Minute video views		<a href="#">Average minutes</a>

-- your other posts within 21+ days of publishing.

↓ 399,999,999.0x less Impressions

↓ 399,999,999.0x less Link clicks

↓ 399,999,999.0x less Reactions

Understand your Distribution

Impressions is the metric that's likely having the biggest effect on the distribution of this post.





[https://poststar.com/news/local/warren-county-seeks-input-to-update-hazard-mitigation-plan/article\\_beb98a44-7b21-11ed-a710-b7a678f9a3f7.html](https://poststar.com/news/local/warren-county-seeks-input-to-update-hazard-mitigation-plan/article_beb98a44-7b21-11ed-a710-b7a678f9a3f7.html)

# Warren County seeks input to update hazard mitigation plan

**Post-Star staff report**

Dec 13, 2022

**W**arren County is looking for public input as it updates its Multi-Jurisdictional Hazard Mitigation Plan, a document that details the potential hazards, such as storm-related conditions, that could affect residents and visitors.

The plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Ann Marie Mason, Warren County's director of emergency services, said that updating the plan allows the county and participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency.

"Public participation and feedback are a vital part of the hazard mitigation planning process," Mason said in a news release. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."

---

## People are also reading...

- 1 **South Glens Falls may sue to have electrical box fixed**
  - 2 **Mr. Shatner goes to Ticonderoga**
  - 3 **Glens Falls Windy Hill residents react to possible Quaker Road development**
  - 4 **Reminder: New print edition, schedule this week**
-



The survey can be found here:

**<https://www.surveymonkey.com/r/WarrenNYHMPPublic>**.

The plan identifies projects that can reduce damages from future natural hazards. It also creates a framework for risk-based decision making to reduce damages to lives, property and the economy from future disasters.

The county will involve the private sector, nonprofit organizations and other community partners in the planning process.

The approach is consistent with a “Whole Community Approach” that seeks to involve the entire community in disaster and hazard planning, according to Jim Lieberum, district manager of Warren County Soil and Water Conservation District, one of the planning partners.

The plan will include a risk assessment and a hazard mitigation strategy. It will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard, and include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities and hazardous material facilities.

The update of the plan allows the county and participating jurisdictions to continue to be eligible for grant-funded projects such as home acquisitions or elevations to either remove houses located in the floodplain to generate open space and increase flood storage or to raise their first floor above the FEMA base flood elevation and local flood control measures.

For more information or to get involved in this project, contact Lieberum at 518.623.3119 or **[jiml@warrenswcd.org](mailto:jiml@warrenswcd.org)**.

To stay informed about the project, visit:

**<https://www.warrencountynewyorkhmp.com>**.



# Input needed on natural disasters in Warren County

by: [Jay Petrequin](#)

Posted: Dec 9, 2022 / 11:54 AM EST

Updated: Dec 9, 2022 / 12:03 PM EST



Severe damage to the driveway and parking lot of the Lakeview Terrace Hotel and the Fairview Association, along Lake George, N.Y. (Photo: Jay Petrequin)

SHARE



WARREN COUNTY, N.Y. (NEWS10) – It's important to know and understand what potential hazards could come with where one lives, and what different weather conditions can bring to those areas. Warren County is looking for public input as it makes updates to its plan to curb natural disaster danger for county residents.

[Get the latest news, weather, sports and community events delivered right to your inbox!](#)

The county's Multi-Jurisdictional Hazard Mitigation Plan is up for revision – and [a survey](#) gives residents a chance to weigh in on it. The plan is a document that can be used by the county to reduce the impact and damage from natural disasters, especially targeted at preventing and

any NY Weather ▾

Traffic

Watch Live News ▾

Sports ▾

Jobs ▾

Community ▾

Video Center

“Public participation and feedback are a vital part of the hazard mitigation planning process,” said Warren County Emergency Services Director Ann Marie Mason. “We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made.”

[The survey asks for residents](#) to report what types of natural disasters they have seen and experienced in Warren County over the last decade, such as flooding, drought and climate change impacts. It also seeks information such as concern for future disasters, and how residents get their disaster information.

[ARPA lets Glens Falls Hospital's crisis unit grow](#)

The Hazard Mitigation Plan is updated every five years. The plan is used for communities to make risk-based decisions that can lead to fewer lives being lost, or less property being damaged, in the event of a disaster. The process going forward will also involve voices from nonprofits, community partners and the private sector. The plan will analyze how best to protect essential community facilities, transportation systems, lifeline utilities and hazardous material facilities.



## CLEARANCE

Women's sneaker



~~\$23.00~~  
**\$2.88**  
**SHOP NOW**

**BESTREVIEWS.COM - HOLIDAY SHOPPING DEALS**



**The best Secret Santa gifts for someone you don't ...**

Holiday • 3 hours ago



**Get ready to hibernate for the holidays with these ...**

Holiday • 3 hours ago



**Best Christmas sweater**

Shirts & Tops • 4 hours ago



**Best New Year's Eve decoration**

Holiday • 5 hours ago





# Warren County seeks input to update hazard mitigation plan

Post-Star staff report Dec 13, 2022 0



Listen to this article now

Powered by Trinity Audio

00:00

1.0x

02:46

**W**arren County is looking for public input as it updates its Multi-Jurisdictional Hazard Mitigation Plan, a document that details the potential hazards, such as storm-related conditions, that could affect residents and visitors.

The plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Ann Marie Mason, Warren County's director of emergency services, said that updating the plan allows the county and participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency.

"Public participation and feedback are a vital part of the hazard mitigation planning process," Mason said in a news release. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."



WARREN COUNTY, NY -- Warren County is looking for public input as it updates its **Multi-Jurisdictional Hazard Mitigation Plan**, a document that details the potential hazards, such as storm-related conditions, that could affect Warren County's residents and visitors.

This updated plan is an opportunity to detail a variety of potential hazards that might affect those who live in and visit Warren County. Updating the plan allows the county and participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA), explained **Ann Marie Mason, Warren County Director of Emergency Services**.

"Public participation and feedback are a vital part of the hazard mitigation planning process," Mason said. "We ask that those who live in or visit Warren County take the brief online survey to detail any instances where they have experienced disaster or noted vulnerabilities, and their thoughts on changes that should be made."

The survey can be found here: <https://www.surveymonkey.com/r/WarrenNYHMPPublic>.

What is a Hazard Mitigation Plan (HMP)?

A Hazard Mitigation Plan is a document that communities use to identify projects that can reduce damages from future natural hazards. HMPs form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The plan is updated every 5 years.

HMPs also create a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters. During the planning process, organizations in the Warren County HMP Planning Partnership will actively involve private sector, non-profit, and other community partners in the planning process.

The approach is consistent with a "Whole Community Approach," that seeks to involve the entire community in disaster and hazard planning, said **Jim Lieberum, District Manager of [Warren County Soil and Water Conservation District](#)**, one of the planning partners.

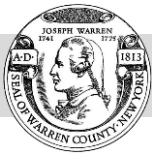
The plan will include a risk assessment and a hazard mitigation strategy. It will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard, and include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

The update of the plan allows the county and participating jurisdictions to continue to be eligible for grant-funded projects such as home acquisitions or elevations – to either remove houses located in the floodplain to generate open space and increase flood storage or to raise their first floor above the FEMA base flood elevation – and local flood control measures. Ultimately, these actions reduce vulnerability, and communities are able to recover more quickly from disasters.

If you would like more information on how to get involved in this project, contact Lieberum at 518.623.3119 or [jiml@warrenswcd.org](mailto:jiml@warrenswcd.org).

To stay informed about the project, visit: <https://www.warrencountynewyorkhmp.com>.





## APPENDIX E SUPPLEMENTARY DATA

This appendix contains information and details to support information provided in Section 5 (Risk Assessment).

### E.1 HISTORY OF HAZARD EVENTS WITHIN THE COUNTY

To supplement the information provided in this plan, events prior to the update of this plan are included below by hazard of concern type. Many sources provided historical information regarding previous occurrences and losses associated with hazards throughout New York and Warren County. It is noted that, with a number of sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the sources.

For more information on past events and impacts, refer to the 2017 Warren County Hazard Mitigation Plan.

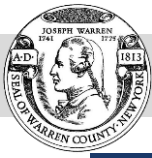
#### E.1.1 Earthquake

Known earthquakes events that have impacted New York State and Warren County between 1916 and 2023 are identified in Table E.1. Many sources were researched for historical information regarding earthquake events in Warren County; therefore, Table E.1 may not include all earthquake events that have impacted the County.

*Table E.1. Earthquake History in New York State, 1916-2023*

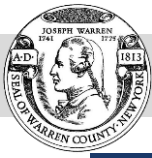
Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
February 3, 1916	Earthquake 4.1	Galway, NY	N/A	N/A	No reference and/or no damage reported.
March 18, 1928	Earthquake 4.1	Paul Smiths, NY	N/A	N/A	No reference and/or no damage reported.
August 12, 1929	Earthquake 4.7	Corfu, NY	N/A	N/A	No reference and/or no damage reported.
April 20, 1931	Earthquake 4.7	Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
April 15, 1934	Earthquake 4.5	Dannemora, NY	N/A	N/A	No reference and/or no damage reported.
January 1, 1966	Earthquake 4.3	Attica, NY	N/A	N/A	No reference and/or no damage reported.
June 13, 1967	Earthquake 4.1	Attica, NY	N/A	N/A	No reference and/or no damage reported.
July 15, 1973	Earthquake 3.4	Long Lake, NY	N/A	N/A	No reference and/or no damage reported.
June 7, 1974	Earthquake 3.3	Wappingers Falls, NY	N/A	N/A	No reference and/or no damage reported.
June 9, 1975	Earthquake 4.2	Altona, NY	N/A	N/A	No reference and/or no damage reported.
November 3, 1975	Earthquake 4.0	Long Lake, NY	N/A	N/A	No reference and/or no damage reported.





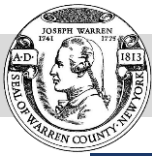
Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
September 28, 1977	Earthquake 3.1	Wilmington, NY	N/A	N/A	No reference and/or no damage reported.
April 5, 1978	Earthquake 2.6	Newcomb, NY	N/A	N/A	No reference and/or no damage reported.
August 21, 1978	Earthquake 3.1	Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
December 30, 1979	Earthquake 2.5	North Castle, NY	N/A	N/A	No reference and/or no damage reported.
June 6, 1980	Earthquake 3.5	Port Leyden, NY	N/A	N/A	No reference and/or no damage reported.
August 31, 1982	Earthquake 2.7	Northville, NY	N/A	N/A	No reference and/or no damage reported.
February 26, 1983	Earthquake 3.0	Pawling, NY	N/A	N/A	No reference and/or no damage reported.
October 7, 1983	Earthquake 5.1	Newcomb, NY	N/A	N/A	At Blue Mountain Lake, one old chimney collapsed, about 20 tombstones slid or rotated, and some minor cracks formed in plaster walls. Several landslides were reported. Light damage also occurred at several other towns in the area, but the most common effects were cracked chimneys, broken dishes or glassware and overturned or fallen objects. Although this earthquake caused only minor damage, it was felt over a wide region, including two Provinces in Canada and 12 States.
August 20, 1984	Earthquake 3.2	Chazy, NY	N/A	N/A	No reference and/or no damage reported.
October 19, 1985	Earthquake 3.6	Greenville, NY	N/A	N/A	No reference and/or no damage reported.
September 26, 1987	Earthquake 3.8	Tupper Lake, NY	N/A	N/A	No reference and/or no damage reported.
August 9, 1988	Earthquake 3.5	Massena, NY	N/A	N/A	No reference and/or no damage reported.
June 17, 1991	Earthquake 4.0	Worcester, NY	N/A	N/A	Felt (V) at Carlisle, Charlotteville, Cobleskill, Fly Creek, Fultonham, Herkimer, Howes Cave, Ilion, Morris, New Kingston, New York Mills, Portlandville, Rensselaerville, Seward and Worcester. Felt throughout much of New York from Rochester to Rockland and Westchester Counties. Also felt in northern New Jersey, western Connecticut, western Massachusetts and in parts of New Hampshire, Pennsylvania and Vermont.
March 2, 1995	Earthquake 3.0	Tupper Lake, NY	N/A	N/A	No reference and/or no damage reported.
July 31, 1997	Earthquake 3.2	Lyons Falls, NY	N/A	N/A	No reference and/or no damage reported.
April 20, 2000	Earthquake 3.8	Newcomb, NY	N/A	N/A	Felt at Clifton Park, Crown Point, Greenwich, Ilion, Indian Lake, Lake Bonaparte, Newcomb, Northville, Queensbury, Saranac Lake, Tupper Lake, Vermontville and Wells. Felt at Keene and Swanzey, New Hampshire; Addison, Moretown, Montpelier and Northfield, Vermont. Also felt at Brigham and Sherbrooke, Quebec, Canada.





Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
February 3, 2001	Earthquake 3.2	Bath, NY	N/A	N/A	No reference and/or no damage reported.
April 20, 2002	Earthquake 5.1	Au Sable Forks, NY	DR-1415	Yes	Approximately 12 residents throughout the County reported specific damage to WCDER, including cracked foundations and walls, structural damage, broken doors and windows, and septic system and other utility damage.
July 24, 2007	Earthquake 3.1	East Berne, NY	N/A	N/A	No reference and/or no damage reported.
February 27, 2008	Earthquake 2.7	Howes Cave, NY	N/A	N/A	No reference and/or no damage reported.
February 18, 2009	Earthquake 2.7	East Berne, NY	N/A	N/A	No reference and/or no damage reported.
February 20, 2009	Earthquake 2.7	Berne, NY	N/A	N/A	No reference and/or no damage reported.
February 23, 2009	Earthquake 2.1	Berne, NY	N/A	N/A	No reference and/or no damage reported.
March 22, 2009	Earthquake 2.8	Berne, NY	N/A	N/A	No reference and/or no damage reported.
May 18, 2009	Earthquake 3.0	Berne, NY	N/A	N/A	No reference and/or no damage reported.
October 21, 2009	Earthquake 2.9	East Berne, NY	N/A	N/A	No reference and/or no damage reported.
December 13, 2009	Earthquake 3.1	Berne, NY	N/A	N/A	No reference and/or no damage reported.
June 24, 2010	Earthquake	Ottawa, Canada	N/A	N/A	An earthquake centered north of Ottawa, Canada was felt in the Hudson Valley and elsewhere in New York State and across a wide swath of the northeast United States. There were reports of people having felt the event in Warren County, New York. Chestertown residents reported having felt it. There were no reports of injuries or damages in the County.
August 23, 2011	Earthquake 5.8	Mineral, Virginia	DR-4044 (Washington D.C.) DR-4022 (Virginia)	No	A 5.8 earthquake occurred during the afternoon of August 23 <sup>rd</sup> when a fault near Mineral, VA ruptured. It damaged older buildings, shut down much of Washington D.C. and impacted people from New England to the Carolinas. Many buildings in Virginia and Washington D.C. were damaged as a result of this event.
January 23, 2012	Earthquake 2.3	New York	N/A	N/A	No reference and/or no damage reported.
August 25, 2013	Earthquake 2.7	6 miles S/SE of Warrensburg, NY	N/A	N/A	The USGS confirmed a minor earthquake occurred in the Glens Falls area on the morning of August 25 <sup>th</sup> . The 2.7 earthquake was centered approximately 6 miles south/southeast of Warrensburg. Residents of Glens Falls, Queensbury, Lake George, and Lake



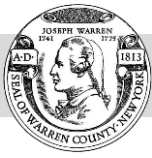


Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
					Luzerne area all reported having felt the earthquake.
July 24, 2014	Earthquake 1.6	9 miles NW of Hadley, NY	N/A	N/A	No reference and/or no damage reported.
November 13, 2014	Earthquake 1.6	13 miles NW of Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
February 2, 2015	Earthquake 1.9	19 miles NW of Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
May 25, 2015	Earthquake 1.3	19 miles NW of Warrensburg, NY	N/A	N/A	No reference and/or no damage reported.
July 11, 2017	Earthquake 2.5	7 miles NW of Barker, NY	N/A	N/A	No reference and/or no damage reported.
March 21, 2018	Earthquake 2.7	6 miles NW of Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
May 31, 2019	Earthquake 2.6	4 miles NW of Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
March 11, 2020	Earthquake 3.1	South Glens Falls, NY	N/A	N/A	No reference and/or no damage reported.
March 29, 2020	Earthquake 2.6	7 miles N of Lyndonville, NY	N/A	N/A	No reference and/or no damage reported.
July 14, 2021	Earthquake 2.8	5 miles NW of Massena, NY	N/A	N/A	No reference and/or no damage reported.
March 15, 2022	Earthquake 2.6	3 miles SW of Warsaw, NY	N/A	N/A	No reference and/or no damage reported.
July 27, 2022	Earthquake 2.5	1 mile SW of Saint Regis Falls, NY	N/A	N/A	No reference and/or no damage reported.
February 6, 2023	Earthquake 3.8	0.5 miles NE of West Seneca, NY	N/A	N/A	No reference and/or no damage reported.

Source(s): NYS DHSES 2014; USGS 2023; FEMA 2016

DR Major Disaster Declaration (FEMA)  
 FEMA Federal Emergency Management Agency  
 N/A Not Applicable  
 NY New York  
 USGS U.S. Geological Survey





## E.1.2 Extreme Temperature

Information regarding specific details of temperature extremes in Warren County is scarce; therefore, previous occurrences and losses associated with extreme temperature events are limited. Table H.2 summarizes the extreme temperature events in the County from 2000 through 2023.

*Table E.2. Extreme Temperature Events between 2000 and 2023*

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 8, 2000	Excessive Heat	N/A	N/A	The season's first Bermuda type high pumped unseasonably warm air into eastern New York on March 8 and March 9. Temperatures soared well into the 60s at most locations, and touched 70 in a few spots. Even across the Adirondacks, readings climbed well into the 50s to near 60. At the Albany International Airport, the high on March 8 of 66 degrees, eclipsed the old record of 64 set in 1942. On March 9, the high reached 68 degrees, replacing the old record of 66 established in 1977.
January 28-29, 2009	Winter Storm	N/A	N/A	A winter storm spread a significant wintry mix of precipitation across eastern New York State, with heavy snow and sleet across much of the southern Adirondacks into the Lake George Saratoga region. Snow and sleet amounts ranged from 8 to 12 inches across the southern Adirondacks and the Lake George Saratoga region. This wintry mix resulted in the closure of numerous schools and businesses across east central New York for both Wednesday and Thursday mornings, and also created treacherous travel conditions. Snowfall totals in Warren County ranged from 8 to 9 inches in the city of Glens Falls.
February 18, 2009	Winter Weather	N/A	N/A	Winter storm system swept northeast across eastern New York State early Thursday morning, preceded and accompanied by moderate to locally heavy wet snow. The snow began Wednesday afternoon and tapered off early Thursday morning. The heaviest snowfall amounts occurred across the Lake George Saratoga region, where 6 to 10 inches fell.
February 23, 2010	Heavy Snow	N/A	N/A	<p>A powerful storm impacted the region, the second in just a couple of days bringing heavy rainfall and a heavy wet snow to the local area. The heavy wet snow resulted in additional and continued widespread power outages across east central New York, downed trees and power lines, treacherous travel, road closures, train delays, building collapses and snow emergencies.</p> <p>In Warren County, up to 2 feet of snow fell in the west portion of the county in the higher elevations. Route 9N at Pinewoods Road in the Town of Lake Luzerne was reported closed for a couple of hours late Tuesday evening, February 23rd, due to downed power lines. No property damages were reported. Snowfall totals in Warren County ranged from 10.5 inches in</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				the City of Glens Falls to 21.3 inches at the Town of Lake Luzerne.
February 25, 2010	Winter Storm	N/A	N/A	<p>This storm system produced a widespread swath of heavy wet snow across the greater Capital District and surrounding area, the Lake George Saratoga region, the Mohawk River Valley, Schoharie Valley and southern Adirondacks during the day Friday. Snowfall rates of 1 to 2 inches per hour occurred, beginning during the early morning hours, and persisting until late afternoon.</p> <p>Snowfall amounts reached 12 to 15 inches across northern portions of the Capital Region extending into the east central Mohawk River Valley and Lake George Saratoga region. The heavy snow created treacherous travel conditions for the morning and evening commutes on Friday, with numerous accidents reported, including along portions of the Adirondack Northway, as well as Interstate 90. The heavy wet snow also led to numerous school and business closings across much of eastern New York on Friday.</p> <p>Snowfall totals in Warren County ranged from 4 inches at Warrensburg to 24 inches at Garnet Hill in North River hamlet.</p>
July 21, 2011	Excessive Heat	N/A	N/A	<p>Bermuda high pressure dominated the region with broad southwest flow aloft. This flow ushered in hot and humid air. Temperatures across much of east central New York warmed well into the 90s with some locations reaching the century mark in the mid Hudson Valley. On Friday July 22nd in Dutchess County, Rhinebeck reached 104 degrees, Dutchess County Airport in Poughkeepsie reached 102 degrees and Mills Norre State Park came in with 100 degrees. In Columbia County, 101 degrees was reported in Hudson at the Columbia County Airport. The most oppressive day was Thursday, July 21st, due to very high dew points in the 70s. The high humidity, combined with temperatures in the 90s, resulted in heat indices of 105 to 110 degrees up the Hudson River Valley. The New York Independent System Operator (NYISO) reported that New York State's power consumption on the 21st peaked between 4 pm and 5 pm EDT and was the third highest peak on record. A weak boundary marked by a shift in winds and lower dew points moved southward across east central New York on Friday, July 22nd. Dew points dropped into the 50s in the wake of the boundary. However, the boundary did not reach the mid Hudson Valley until late in the day, and this was too late to bring any relief to the oppressive heat and humidity. The boundary dissipated across the area Friday evening. On Saturday July 23rd, temperatures warmed in the 90s, and with dew points in the upper 60s and lower 70s, resulted in heat indices of 100 to 104 degrees across the</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Capital District, mid Hudson Valley, southern Taconics and southeastern Catskills.
December 10-11, 2013	Winter Weather	N/A	N/A	As very cold air passed over the relatively warm water of Lake Ontario, a heavy, long-lasting band of lake effect snow developed on the evening of the 10 <sup>th</sup> , extending east across the entire western and southern Adirondacks. By the time the band ended late in the evening of December 11th, over one foot of snow was common across the western Adirondacks. Snowfall totals included 4.5 inches at Gore Mountain in Warren County.
December 14-15, 2013	Winter Storm	N/A	N/A	A light snow slowly spread across New York State from southwest to northeast during the day on December 14 <sup>th</sup> , followed by a steadier and heavier snowfall moved across the region during the evening hours and into the overnight. Snow fell at rates in excess of one inch per hour over much of the region and snow rates locally were as high as up to three inches per hour at times. The bulk of the accumulating snow was finished by the late overnight hours, but light snow showers and flurries continued into the mid-morning hours, especially across the Adirondacks and Capital Region. By the end of the storm, many places around the eastern Catskills, Capital Region and Lake George Saratoga Region received around a foot of snowfall. Snowfall totals in Warren County ranged from 9 inches at Brant Lake hamlet to 12.2 inches at the Town of Lake Luzerne.
February 13-14, 2014	Heavy Snow	N/A	N/A	<p>An exceptional winter storm impacted all of eastern New York between Thursday, February 13th and the morning of Friday, February 14th. The snow began falling in the morning hours at rates of up to three inches per hour, causing significant travel issues across the region. After a late afternoon break in the snowfall, heavy precipitation returned in the late evening hours. Once again, the snow fell at significant rates of up to 3 inches per hour. In addition, lightning and thunder accompanied the snow across far southern and eastern areas at times as well. By the time snow ended, between one and two feet of snow fell across much of the Lake George Saratoga Region, with lower amounts of 4 to 10 inches across the Adirondacks. Very strong winds, gusting as high as 40 mph, occurred as the storm pulled away. This led to significant blowing and drifting of the snowfall through the entire day on February 14th.</p> <p>As a result of the storm, Governor Andrew M. Cuomo declared a state of emergency for the Mid-Hudson as well other counties, including Warren, across east central New York. Restrictions were put on travel. Many towns and cities had difficulty with snow removal, as much of the snowfall also remained from a recent early February snowstorm as well. The</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				weight of snow caused a few roof collapses and power outages across the region. Snowfall totals in Warren County ranged from 6 inches at North Creek hamlet to 12 inches at the Town of Lake Luzerne.
November 26-27, 2014	Nor'Easter / Snowstorm	DR-4204	No	An early season winter storm impacted eastern New York State during Thanksgiving. The storm began the morning of the 26 <sup>th</sup> and once the snow began, it increased in intensity, falling at rates at or greater than one inch per hour. Temperatures dropped to or below freezing across the entire region. There were heavy bands of snow occurring in some locations, especially across the Taconics, Mohawk Valley and southeastern Adirondacks. Snowfall totals ranged from six to 12 inches, with up to 15 inches in the southeastern Adirondacks. The weight of the snow caused power outages in the area, especially across the mid-Hudson Valley. Warren County DPW reported numerous damages, including automobile damages from falling trees and icy conditions, transportation blockages, and phone wires falling on and entangling a truck. Snowfall totals in Warren County ranged from 10 inches at the City of Glens Falls to 14.5 inches at North Creek hamlet.
January 7, 2015	Extreme Cold/Wind Chill	N/A	N/A	Behind an arctic cold front, bitter cold air moved into the region for the night of Wednesday, January 7 <sup>th</sup> . Overnight lows were below zero in most areas, with temperatures as low as -10 to -30 degrees over the Adirondacks and the Lake George and Saratoga Region. With strong northwesterly winds in place, this allowed for winds chill values to be as low as -40 degrees during the late-night hours into the morning hours on Thursday, January 8 <sup>th</sup> . Due to the dangerously cold temperatures, many towns and cities opened shelters and warming stations for residents who needed a place to stay overnight. Many school districts also delayed the start of school due to the extremely cold temperatures and low wind chill values.
February 15, 2015	Extreme Cold/Wind Chill	N/A	N/A	Behind a rapidly developing coastal storm, an extremely frigid Arctic air mass pour into the region from the north, beginning during the late morning hours on Sunday, February 15 <sup>th</sup> . With the developing storm just east of the region, a strong pressure gradient allowed for very strong winds. Northwest winds frequently gusted over 30 MPH, with some gusts as high as 46 MPH through the evening hours. Temperatures fell quickly through the day and dropped below zero for Sunday night into the morning of Monday, February 16 <sup>th</sup> . Some temperatures were as cold as 30 degrees below zero. With winds continuing to be gusty during the overnight and morning hours, wind chill values dropped as low as 15 to 45 degrees below zero.





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				With much of the month experiencing cold temperatures, many towns and cities continued to keep warming shelters open.
February 13, 2016	Extreme Cold/Wind Chill	N/A	N/A	<p>Behind an Arctic cold front, very cold temperatures poured into the region upon brisk northwesterly winds. Temperatures dropped through the day on Saturday, February 13th, reaching lows of 8 to 33 degrees below zero across eastern New York on Saturday night. Along with winds gusting 20 to 40 MPH, wind chill values reached 15 to 45 degrees below zero for Saturday night into Sunday morning.</p> <p>The cold temperatures and low wind chills resulted in several water main breaks across the region. About 60 residents of an elderly care facility in Hoosick had to spend the night at a fire station as a result of a burst water pipe. In addition, the Red Cross responded to 17 emergency calls over the weekend, including for house fires in Albany, Schodack and Gilboa. Around \$3000 of aid was given to families affected by these fires.</p>
February 12, 2017	Extreme Cold/Wind Chill	N/A	N/A	<p>Two low pressure systems approached the northeastern US on Sunday, February 12, with snowfall breaking out over the local area around sunrise. The snow was heavy during the morning and early afternoon, with accumulation rates of 1 to locally 2 inches per hour at times. The snow was wet and dense and readily clung to trees.</p> <p>In total, 7 to 12 inches of snowfall occurred through most of the local area, with lesser totals over southern portions of the region where sleet occurred. Car accidents were reported, and snow emergencies were in effect throughout the region, and Route 28 in Herkimer County was closed for a time due to several accidents. On February 13, strong winds developed on the back side of the system. The strongest winds targeted the Catskills and Mid-Hudson Valley, where several trees were downed and over 14,000 power outages were reported. Dutchess County Airport in Poughkeepsie recorded a 59 mph wind gust.</p>
December 22, 2017	Winter Storm	N/A	N/A	<p>A complex storm system brought snow and a wintry mix to the region on Friday, December 22nd through Saturday, December 23rd, 2017. The precipitation started out as snow on Friday, but transitioned to a wintry mix by Friday night. Freezing rain lingered through the day Saturday as a warm front lifted through the region, especially for sheltered mountain valley areas. Snowfall totals ranged from a trace in the Mid-Hudson Valley up to 8.5 inches in the Adirondacks (Hamilton county) along with light icing as well. A few spots in the Mohawk Valley and Saratoga Region saw up to two tenths of an inch of ice.</p>
February 7, 2018	Winter Storm	N/A	N/A	<p>A winter storm brought mixed wintry precipitation to the region. Precipitation began as snow during the morning hours but changed to a mix of sleet, freezing rain and snow during</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				the afternoon hours, mixing as far north as the town of Schenectady. Precipitation transitioned back to snow during the evening hours before exiting the region northwest to southeast. Snowfall and sleet totals ranged from 1 inch to 12 inches, with the higher totals generally north and west of the Greater Capital District.
July 1, 2018	Excessive Heat	N/A	N/A	A hot and humid airmass brought excessively high heat indices to eastern New York from the beginning of July through the Independence Day holiday. Temperatures soared as high as 99 degrees on July 1st, the hottest day of the stretch. Combined with dewpoints in the mid-70s, heat indices reached near 110 degrees in the warmest valleys. July 5th marked the sixth consecutive day reaching a temperature of 90 degrees at Albany and Glens Falls, and a seventh consecutive day at Poughkeepsie. In addition to the hot daytime temperatures, overnight low temperatures only falling into the 70s was common, which exacerbated heat-related problems. The extensive heat prompted the opening of many cooling centers across the region.
November 15, 2018	Winter Storm	N/A	N/A	A strengthening coastal low pressure system moved along the Atlantic shoreline November 15th and 16th, bringing accumulating snow and mixed precipitation to eastern New York. The Mid-Hudson Valley and eastern Catskills were hit hardest with 8 to 14 inches of snow, most of which occurred during the evening hours. The snow spread in during the evening rush hour with one to three inches per hour accumulation, snarling traffic and resulting in numerous accidents. The southern Adirondacks also saw 6 to 12 inches of snowfall, while totals for the remainder of eastern New York generally ranged from 4 to 8 inches. The snow changed to sleet and freezing rain overnight in many areas with minimal ice accretion. It changed back to snow during the morning hours of the 16th before ending.
January 19, 2019	Winter Storm	N/A	N/A	The largest snowstorm to date in the 2018-19 winter occurred on January 19th and 20th across eastern New York. Low pressure formed over the lower Mississippi Valley and lifted northeast across the Tennessee Valley during the night of the 19th before moving along the Mason-Dixon line on the 20th. Strong rising motion occurred as southerly winds aloft transported moist air northward, which was lifted over the cold airmass in place over eastern New York. Snowfall broke out during the afternoon of the 19th, continuing heavy at times into the evening and overnight hours before ending during the morning of the 20th. The strong southerly flow brought above-freezing air aloft into the region, causing the snow to turn to sleet as far north as the Capital District and northern Catskills for a time before turning back to snow. Further south, the air aloft was warm enough to turn the





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				precipitation to freezing rain with ice accretion of one to three tenths of an inch over portions of the southeast Catskills, Mid-Hudson Valley, and southern Taconics.
July 20, 2019	Excessive Heat	N/A	N/A	<p>A heat wave gripped eastern New York from July 19th through the 21st. Temperatures soared into the low to mid-90s with dewpoints in the low to mid-70s. This resulted in heat index values in the 100 to 110 range in the warmest spots of the Hudson Valley. Saturday, July 20th was the hottest day for most areas. Due to the excessive heat, area cities extended hours for pools and cooling centers, and Saturday's races at the Saratoga Race Course were cancelled due to the heat for the first time since August 2006.</p> <p>The hot and humid airmass provided fuel for thunderstorms that formed along the Lake Ontario shoreline during the late afternoon of the 20th. Two clusters of storms moved from the Mohawk Valley through the Capital District and into the Taconics during the evening, resulting in several reports of wind damage. The storms knocked out power to over 1,700 customers in Schenectady and Saratoga Counties.</p>
December 29, 2019	Winter Storm	N/A	N/A	A complex winter storm brought a mix of rain, snow, sleet and freezing rain to the region from the evening of Sunday, December 29th, lingering through the morning of Tuesday, December 31st, 2019. Heavy accumulations of ice impacted portions of the eastern Catskills, Mohawk Valley and the southern Adirondacks during this time frame. There were approximately 10,000 people without power across the state due to a combination of icy conditions and strong winds bringing down trees and power lines.
March 23, 2020	Winter Storm	N/A	N/A	A late season snowfall impacted the region on Monday, March 23rd, 2020. This was brought on by an anomalously cold air mass interacting with a coastal low pressure system. Snowfall totals ranged from an inch in the Mid-Hudson valley up to almost 10 inches in the southern Adirondacks and northern Lake George Saratoga region. The lower amounts were mainly confined to the Lower Hudson Valley due to a rain and snow mix throughout much of the day. Snow intensity increased during the late afternoon and early evening hours impacting the evening commute. As a result, a tractor trailer crashed on Interstate 87 South prompting portions of the interstate to be closed.
February 3, 2022	Winter Storm	N/A	N/A	A prolific winter storm began on Thursday, February 3 and continued into Friday, February 4. Precipitation began as rain for most areas on February 3 with the exception of the Adirondacks which began as a mix of rain and snow. Colder air gradually pushed southward into the overnight and early morning hours of February 4 resulting in a changeover to a wintry mix of sleet, freezing rain and snow. Most locations picked up 1 to 2 inches of liquid equivalent precipitation from





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				this event with the majority of it falling as one or multiple types of frozen precipitation. Precipitation ended during the afternoon hours on February 4. Utility companies noted that more than 50,000 customers lost power from the storm across the Hudson Valley, most of them in eastern Ulster County. At least 44 utility poles broke and more than 900 power lines came down as a result of the snow and ice with more than 500 individual damage locations.
November 18, 2022	Severe Winter Storm	EM-3589	N/A	Following the passage of a strong cold front, bands of lake effect snow developed off Lake Ontario impacting portions of the Adirondacks and Mohawk Valley and also extending into the Hudson Valley. This resulted in multiple car accidents across the Hudson Valley with one occurring Sunday morning and the others Sunday evening. Additionally, the band of lake effect snow over Herkimer County resulted in several inches of accumulation over parts of the county. In addition to the snows, it was also blustery with winds gusting between 25-45 mph over the area.
December 23, 2022	Severe Winter Storm	EM-3590	N/A	Two separate frontal systems merged to form a powerful winter storm over the Great Lakes from December 22 to December 24 bringing multiple hazards to the region including heavy rain, snow, strong winds and a very cold air mass in its wake. Widespread rainfall amounts of 1 to 3 inches were observed with some localized amounts of 4 inches. The combination of the rain and snowmelt in some places resulted in some flooding and some creeks to overflow their banks. Strong pre-frontal and post-frontal winds occurred with this event with widespread wind gusts of 40 to 55 mph. Such winds resulted in some downed trees and power lines as well as minor damage to some structures. A few power outages occurred as a result. Snow showers in the wake of the cold front brought mainly light accumulations. However, a pocket of more moderate snow occurred across the northern and central Taconics with snowfall amounts in the 4-to-8-inch range. Much colder air built into the region in the wake of the front which, combined with the strong winds, led to wind chill values as low as 15 to 25 degrees below zero in some areas.
January 22, 2023	Winter Storm	N/A	N/A	With eastern New York in the cold sector of a coastal low pressure system, a swath of moderate to heavy snow fell across a good portion of the area Sunday evening/night into Monday before ending Monday afternoon. The winter storm proved impactful resulting in car crashes and power outages. Some schools and businesses also closed as a result of the storm.
March 13, 2023	Winter Storm	N/A	N/A	A powerful Nor'Easter resulted in widespread moderate to heavy wet snow and gusty winds across eastern New York March 13-March 15, 2023. Anywhere from 15 to 30 inches of snow with locally higher amounts in excess of 30 inches fell





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				over the SW Adirondacks and eastern Catskills. Valley locations received lesser amounts with totals generally ranging between 7 to 15 inches. A few locations across the western Mohawk Valley and mid-Hudson Valley received less than 6 inches of snow. Numerous downed trees and powerlines resulted in widespread power outages. According to the National Grid, approximately 141,000 customers lost power within the state of New York with most occurring within our county warning area. Some locations were without power for at least 1 or 2 days.

Sources: NYS DHSES 2014; USGS 2023; FEMA 2016

NOAA-NCDC National Oceanic Atmospheric Administration – National Climatic Data Center

NWS National Weather Service

NYS New York State

### E.1.3 Flood

Known flooding events that occurred from 1996 to 2022 are identified in Table E.3. With flooding documentation for New York State and Warren County being so extensive, not all sources have been identified or researched. Therefore, Table E.3 may not include all events that have occurred in the County.

*Table E.3. Flooding Events in Warren County Between 1996 and 2022*

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 19, 1996	Flooding	N/A	N/A	In Lake George Village widespread flooding occurred and seven families had to be evacuated. Many roads were closed throughout the county due to flooding including 16 county roads. Significant damage was also incurred to many state roads. Routes 9 and 9N were closed from Lake George north. Route 418 was closed at the Hudson River Bridge and along route 8 a 150 foot section was washed out between Brant Lake and Hague.
January 8, 1998	Flooding	N/A	N/A	From January 8 to January 12, the Hudson River flooded from its headwaters to where it crosses into Greene and Columbia Counties, due to a combination of significant rain and snowmelt. In Hamilton and Warren Counties, the river rose to heights that came close to the flood of record. Flood damage in this area was kept to a minimum due to its flow through undeveloped areas and vacation property which was secured for the winter.
April 1, 1998	Flooding	N/A	N/A	Due to rapid snowmelt at the end of March and beginning of April, rather severe flooding continued along the Schroon River in Warren County. The flood waters affected river front homes, State Highway 418 between Warrensburg and Thurman Station and forced the closure of a bridge at Starbuckville. The river at Riverbank crested at 9.3 feet during the afternoon of April 2.
February 28, 2000	Flooding	N/A	N/A	A warmup at the end of February, began melting the winter snowpack fairly quickly and helped break up an extensive ice pack on the upper Hudson and Mohawk Rivers. As a result, ice jams developed on the Mohawk and Hudson rivers. During the night of February 27 and 28, rainfall accumulated between one half and one inch and a half across eastern New York. The rains





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				exacerbated the runoff, which resulted in the flooding of the Mohawk and Hudson rivers, as well as some smaller streams. Most of the flooding was minor. There were no casualties directly related to this flooding, reported to the National Weather Service.
April 16, 2001	Flooding	N/A	N/A	he runoff from rapid snowmelt, caused the Schroon River in Warren County to rise out of its banks around midday, on April 16th. The gage at Riverbank reached the flood stage of 7.0 feet at that time. The river continued to swell, and did not crest until the gauge reached 10.1 feet, early on April 24. This was the highest level recorded in 50 years. Portions of Route 413 became inundated, as did many homes in the towns of Chester, Pottersville, Horicon and Warrensburg. A number of residents had to be evacuated and a few bridges were closed.
March 30, 2003	Flooding	N/A	N/A	An area of low pressure, moving along a slow moving cold front on March 29 and 30, produce 1 to 2 inches of rainfall across eastern New York. The rain, combined with seasonably mild temperatures, melted most of the remaining snow pack across much of eastern New York. The combination of the rain and mild temperatures, produced another significant runoff which caused some additional minor flooding.
April 2, 2004	Flooding	N/A	N/A	As much as three inches of rain fell between March 31 through April 2 across eastern New York. This rain combined with the last of the snow melt to produce an excessive runoff of water. As a result, the Schroon River in Warren County briefly reached above flood stage on the evening of April 2. No problems were reported to the National Weather Service as a result of this flooding.
May 1, 2006	Flooding	N/A	N/A	On May 1, at Riverbank, the Schroon River had some lingering flooding from heavy rainfall during the last week in April. The water level dropped below the 7-foot Riverbank flood stage at 18:45 EST.
April 20, 2007	Flooding	N/A	N/A	Warm temperatures from April 19th to April 24th led to rapid melting of a deep snowpack across much of the Adirondacks. Antecedent water equivalent in the snow pack ranged from 6 to 16 inches. This rapid melting led to flooding of many rivers that drain the Adirondacks. In addition, releases from Sacandaga Lake perpetuated the flooding on some rivers through the end of the month.
March 5, 2008	Flooding	N/A	N/A	A low-pressure system tracked northeast from the lower Ohio Valley on Tuesday March 4th, into south central New York State by Wednesday morning on March 5th. Abundant moisture was associated with this system, which led to widespread heavy rainfall across much of east central New York and western New England, which began late Tuesday night, and persisted into early Wednesday afternoon. Rainfall amounts of 1 to 3 inches fell during this event. This heavy rainfall, in combination with frozen ground and snowmelt led to flooding in many areas within the Capital Region, as well as within the Lake George and Saratoga region, the Schoharie Valley, the eastern Catskills and mid Hudson Valley.
April 9, 2008	Flooding	N/A	N/A	he melting of a deep snowpack led to moderate or higher river flooding across portions of the upper Hudson River basin, including the Schroon River, Lake Champlain, and the Great Sacandaga Lake. Snow water equivalents of nearly one foot began to melt during a warm period beginning around April 10th,





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				and led to river flooding which persisted through the end of April. Along the Schroon River, at least one permanent home, along with a few summer camps were flooded. On the Hudson River near Schuylerville, a sod farm suffered estimated losses of \$225,000 due to prolonged submersion of sod in Hudson River flood waters. In addition, the New York State Canal Corporation was unable to open the Hudson-Champlain Canal in April due to high water levels.
March 13-31, 2010	Severe Storms and Flooding	DR-1899	Yes	Moderate to heavy rain fell across east-central New York State. The ground was already nearly saturated from recent snow melt, causing rivers and streams to run high. Flooding from this event caused damage to numerous roads in the northern section of Warren County. In the Town of Johnsburg, a bridge was reported washed out on Harrington Road due to a possible beaver dam break along Johnson Brook. Overall, the County had approximately \$25,000 in property damage from this event.
October 1, 2010	Flooding (Remnants of Tropical Storm Nicole)	N/A	N/A	The remnants of Tropical Storm Nicole brought very heavy rains to east-central New York State. Rainfall totals from this storm ranged from three to nine inches, resulting in widespread river and small stream and urban flooding, including water in basements. In Warren County, there was standing water reported in the City of Glens Falls at the intersection of Sherman Avenue and Elm Street due to the heavy rains.
March 8-12, 2011	Ice Jam	N/A	N/A	An ice jam began to form on March 7 <sup>th</sup> near the Route 28N bridge in the hamlet of North Creek (Town of Johnsburg). The water that backed up from the ice jam began flooding Old River Road on March 10 <sup>th</sup> , prompting the evacuation of some residents and forced the closing of the road. The water began to recede on March 13 <sup>th</sup> when the ice jam release and moved downstream. As the ice jam moved down the river, it ripped trees from the river bank and then became lodged along the Route 418 bridge in the Town of Thurman on the evening of March 13 <sup>th</sup> . Overall, damage was reported at the County fish hatchery in the Town of Warrensburg and damage to a recreational property from North Creek downstream to Lake Luzerne.
April 28-30, 2011	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds	DR-1993	Yes	Heavy showers and thunderstorms impacted the western and central Mohawk Valley, Adirondack region, and the Upper Hudson River Valley, including the Lake George Region (Warren County). Thunderstorms produced severe weather and very heavy rainfall. The combination of the rainfall and rapid snowmelt due to warm temperatures led to increased runoff and rapid river rises.  In Warren County, flooding from this event covered nearly two-thirds of the County. Flooding occurred along the Hudson River in the County from North River southward to the Saratoga County line. Numerous municipalities reported flooding of roadways, houses, and riverside camps. Some properties had several feet of water in them. Many major roadways were closed





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>in the County due to flooding. The North Creek Trailer Park on Route 28 in the Town of Johnsburg was evacuated because water from the Hudson River entered the park. A mudslide in excess of 200 feet occurred on 13<sup>th</sup> Lake Road in North River/North Creek.</p> <p>In the hamlet of North Creek (Town of Johnsburg), a couple hundred feet of railway tracks were reported under two to five feet of water with several buildings at the train station being flooded as well. In the Town of Stony Creek, the 1,000 Acres Golf Course was flooded with the 9<sup>th</sup> green under eight feet of water.</p> <p>Flood water receded through April 30<sup>th</sup>. The County had approximately \$676,000 in property damage from this event.</p>
May 27 – June 2, 2011	Flooding	N/A	N/A	<p>Flooding caused severe damage along a thin line through the County and impacted the Towns of Stony Creek, Thurman, Warrensburg, Horicon, and Bolton. The County had \$13.125 million in damages from this event.</p>
August 28-30, 2011	Hurricane Irene	DR-4020	Yes	<p>The greatest impact of Irene in eastern New York State was heavy to extreme rainfall which resulted in catastrophic flooding across portions of the region. Rainfall amounts averaged between four and eight inches with amounts of up to 12 inches falling in the eastern Catskills and Schoharie Valley. Three to six inches were common across the Lake George and Saratoga regions. The rainfall resulted in widespread flash flooding and river flooding across eastern New York State. Bridges were closed on major roadways in this area of the State.</p> <p>In Warren County, there was severe wind and flood damage throughout. In the Town of Lake George, Route 9N was flooded from the Route 9/9N split south to the ramp for Exit 21 for the Northway. Route 9L was also flooded between Route 9N and Bay Road. Two of the seven docks in the Village of Lake George floated off and were crushed.</p>
October 27 – November 8, 2012	Hurricane Sandy	EM-3351	Yes	<p>Hurricane Sandy moved up the east coast of the United States during the last week of October 2012. As the storm made landfall in southern New Jersey, bands of rain moved across eastern New York State. Rainfall totals in this part of the State were minimal and did not cause any flooding. The storm did bring strong and gusty winds to the area, bringing down trees and power lines across the region. Wind gusts ranged from 40 to 60 mph.</p> <p>In Warren County, wind gusts of 65 mph pushed down the length of Lake George, creating waves that threatened to spill over the shoreline. Some of the docks along the Lake were damaged but flooding did not occur. In Glens Falls, trees and wires were knocked down from the winds.</p>
February 1, 2013	Ice Jam	N/A	N/A	<p>Massive ice chunks of up to 10 feet thick in spots, broke off near North Creek in Warren County. This created an ice jam on the upper Hudson River near the Town of Thurman. As the ice</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				chunks became lodged, they caused the water behind them to jump the banks, with more than 100 yards of River Road in Thurman over 10 feet of ice chunks. The water receded by midday and the town highway department had to use loaders and backhoes to remove the ice from the roadway.
June 28, 2013	Severe Storms and Flooding	DR-4129	Yes	<p>Heavy rain fell across the Mohawk Valley and western Adirondacks with rates of one inch per hour with three to five inches of rain falling in total. This event, with the combination of a previous rainfall event, led to significant flash flooding across both the Mohawk Valley and Adirondacks. Many roads were washed out and closed. Urbanized areas along the Mohawk River experienced flooding as well. Many communities declared state of emergencies and President Obama signed a major disaster declaration for New York State which included Herkimer, Montgomery and Warren Counties.</p> <p>In Warren County, the Town of Johnsburg experienced severe flooding from this event. Flash flooding occurred in the Bakers Mill section of the Town. Water rescue teams were deployed to several homes that were threatened by flooding. A state of emergency was declared for the Town as a result of flooding.</p>
January 12, 2014	Ice Jam	N/A	N/A	Harrington Road in the Town of Thurman had ice up to scraper banks in some locations and Glen Creek Road was closed due to flooding caused by an ice jam on the Hudson River.
April 13-21, 2014	Flooding	N/A	N/A	<p>Significant snow pack began to melt as a result of an extended period of warm weather. Up to 10 inches of liquid equivalent started melting between April 8<sup>th</sup> and April 15<sup>th</sup>. The snow melt caused many rivers and streams in and around the Adirondacks to become very high with a few reaching flood stages just from the snow melt.</p> <p>Heavy rain began to fall in the region on April 15<sup>th</sup>, bringing up to two inches of rain in the area. The rainfall, combined with the snow melt, caused many rivers to reach moderate flood stage. By April 21<sup>st</sup>, all rivers in the area were below flood stages.</p> <p>In Warren County, the Schroon River reached major flood stage and remained at this stage for several days. The flooding caused several private roads of homes and vacation properties to be impacted by water. Roads were closed due to flooding in the County.</p>
May 13-22, 2014	Flooding	N/A	N/A	A culvert was washed out in the County.
January 13, 2018	Flooding	N/A	N/A	After a frigid end of December and beginning of January, an unseasonably warm airmass was pumped into New York on January 12th on southerly winds. The temperatures reached the 50s and 60s during the day. Showers also developed in the warm





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				airmass ahead of a cold front and were heavy at times, with some locations receiving one to three inches of rainfall. The combination of warm temperatures and heavy rainfall caused river ice to dislodge and resulted in ice jams in spots. Flooding occurred due to a combination of ice jam movement and heavy rainfall. Several roads were closed or damaged and a water rescue had to be performed near the Hoosic River in Rensselaer County. After the strong cold front passed, many ice jams and their associated flooding froze back in place, resulting in road closures continuing for several days in some areas.
February 22, 2018	Flood	N/A	N/A	A large ice jam remained in place on the Mohawk River for much of the month of February and was one of the biggest ice jam seen in decades, according to Union College professor John Garver. The ice jam stretched up to 17 miles from Rexford to Crane Hollow throughout the month in February. The ice jam mainly remained in place into late February and received a large amount of media and government attention. Albany County was concerned about impacts downstream if the jam were to give way quickly. Temperatures skyrocketing into the 60s and 70s on February 20-21 coupled with around 0.50-1.00 rainfall on the 19th over the Mohawk basin allowed river levels to rise and flooding occurred by the 21st within the Stockade neighborhood of Schenectady and across the river in Scotia, as well as backwater flooding of the Alplaus Kill. A substantial portion of the ice jam gave way during the early morning hours of the 22nd, leading to concern for flooding in the downstream communities, but it turned out that impacts were minimal. There were some road closures in the Rotterdam Junction and Schenectady area due to the ice jam movement and breakage. The remainder of the jam gradually broke up over the next week or so with little impact.
April 20, 2019	Flood	N/A	N/A	Heavy rain, combined with snow melt from the Adirondacks, caused the Schroon River at Riverbank to rise above flood stage for several days. River levels reached moderate flood stage on Saturday, April 20th and remained there through Thursday, April 25th. The high water levels resulted in water making its way into numerous homes and onto several roads across northern Warren county. No homes were evacuated.
November 1, 2019	Flood	N/A	N/A	The Hudson River at Hadley reached moderate flood stage at 1000EST 1 November, rising to a crest of 17.96 feet at 1545EST. It fell below moderate flood stage buy 0118EST 2 November. The floodwaters reached some riverside streets in the Lake Luzerne area, including Stephen Lane where residents were evacuated. A residence on East River Drive sustained damage to basement walls as a result of the flooding.
February 18, 2022	Flood	N/A	N/A	A storm system pushed across the region during February 17-18, 2022. Warm air pushed northward into the region along with periods of rainfall before a cold front brought the return of windy





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				and colder weather. A convective line of gusty showers also accompanied the cold frontal passage. Some locations picked up over 1 inch of rainfall which led to minor flooding in a few locations.
April 8, 2022	Flood	N/A	N/A	A slow-moving frontal system produced widespread heavy rainfall and flooding across eastern New York from April 7-8, 2022. Rainfall amounts between 1.50 and 3.00 inches were common, though a few localized areas received upwards of 4.50 inches. Periods of light to moderate rainfall began during the daytime hours on April 7 with the steadiest and heaviest rainfall arriving during the evening hours on April 7 into the overnight hours on April 8 before ending. This heavy rainfall led to over a dozen rivers to exceed minor flood stage with a few rivers reaching moderate flood stage. For some, it took days after the event for waters to recede. In addition to the heavy rainfall and widespread flooding, strong winds developed across portions of the Taconics with peak gusts in the 35-50 mph range. The combination of rain and wind led to only sporadic power outages.

Source: NYSDEC 2015; FEMA 2015; NOAA-NCDC 2015; NWS 2015

Note (1): Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of increased U.S. Inflation Rates.

DR	Federal Disaster Declaration
EM	Federal Emergency Declaration
FEMA	Federal Emergency Management Agency
IA	Individual Assistance
K	Thousand (\$)
M	Million (\$)
N/A	Not applicable
NCDC	National Climate Data Center
NOAA	National Oceanic Atmospheric Administration
NWS	National Weather Service
NYS DHSES	New York State Division of Homeland Security & Emergency Services
PA	Public Assistance
SHELDUS	Spatial Hazard Events and Losses Database for the U.S.
USACE	U.S. Army Corps of Engineer

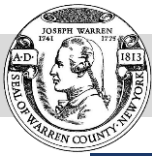
## E.1.4 Severe Storm

Known severe storm events that occurred from 1978 to 2013 are identified in Table H.4. As severe storm documentation for New York State and Warren County is extensive, not all sources have been identified or researched. Therefore, Table H.7 may not include all events that have occurred in the County.

*Table E.4. Severe Storm Events between 1978 and 2013*

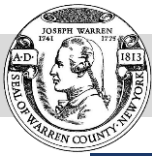
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 9, 1978	Tornado	N/A	N/A	F1 tornado traveled a distance of approximately 1.2 miles in an area between Lake Luzerne and Glens Falls





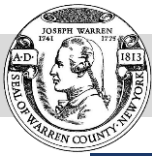
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 18, 1985	Tornado	N/A	N/A	F0 tornado was spotted between Route 149 and French Mountain Road. The total path of the storm was about 2 to 2.5 miles. Due to sparse population and hilly terrain, damage was limited. Some debris was found a mile or two from its original site.
July 19, 1989	Thunderstorm Wind	N/A	N/A	An early morning wave of thunderstorms produced hail and strong gusty winds. Wind damage caused downed trees, tree limbs, and power lines. Two persons were injured when a tree fell onto a vehicle during high thunderstorm winds.
July 6, 1999	Thunderstorm Wind	N/A	N/A	A cold front moved from the Great Lakes eastward across New York State on July 6. With sultry air in place, and favorable strong winds aloft, this front triggered the largest outbreak of severe weather in eastern New York since May 31st, 1998. A squall line developed around midday ahead of the front and produced the most damage. However, more thunderstorm cells continued developing and some of these became severe into the evening hours. Nearly every county in eastern New York experienced some wind damage. Rensselaer, Warren, Washington, Herkimer, Saratoga and Schenectady Counties were especially hard -hit. Powerful thunderstorms brought down trees and power lines in many localities. Unfortunately, a falling tree killed a camper located on Uncas Island on Lake George. Two other individuals were injured as they lost control of their car avoiding a falling tree at Diamond Point near Lake George.
August 9, 2001	Thunderstorm Wind	N/A	N/A	A lake breeze front off Lake Ontario, interacted with a hot and humid air mass, to trigger a thunderstorm cluster in western New York during the late afternoon of August 9. As the thunderstorm complex reached the Mohawk Valley, it evolved into a supercell. The supercell then developed into a mesoscale convective system (MCS) as it move into the Lake George / Saratoga region and into the northern Taconics. Wind damage then spread into Warren County, as power lines were blown down in both the villages of Lake Luzerne and Lake George.
June 6, 2005	Thunderstorm Wind	N/A	N/A	Trees and power lines down county-wide. A tree crashed through house in Queensbury. Part of Bay Road and Route 149 closed by downed trees or limbs. Additional trees fell on homes in Fort Edward, Granville, Queensbury and Argyle.
September 27, 2007	Thunderstorm Wind	N/A	N/A	A nearly stationary frontal boundary across central New York State gradually moved east during Thursday afternoon on September 27th. With a very warm, moist and unstable air mass in place to the east of this boundary, scattered strong to isolated severe thunderstorms developed across portions of eastern New York State Thursday afternoon and evening.
March 13 – 31, 2010	Severe Storms and Flooding	DR-1899	Yes	A low pressure system tracked northeast over northeastern United States on March 23rd, bringing a moderate to heavy rainfall to east central New York. The ground was already





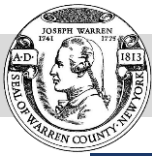
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				nearly saturated from recent snow melt, causing rivers and streams to run high. In Warren County, a bridge was reported washed out on Harrington Road in the Town of Johnsburg due to a possible beaver dam break along Johnson Brook. The County reported a total of \$25,000 in property damage.
October 1, 2010	Flooding (Remnants of Tropical Storm Nicole)	N/A	N/A	The remnants of Tropical Storm Nicole brought very heavy rains to east-central New York State. Rainfall totals from this storm ranged from three to nine inches, resulting in widespread river and small stream and urban flooding, including water in basements. In Warren County, there was standing water reported in the City of Glens Falls at the intersection of Sherman Avenue and Elm Street due to the heavy rains.
April 28-30, 2011	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds	DR-1993	Yes	<p>Heavy showers and thunderstorms impacted the western and central Mohawk Valley, Adirondack region, and the Upper Hudson River Valley, including the Lake George Region (Warren County). Thunderstorms produced severe weather and very heavy rainfall. The combination of the rainfall and rapid snowmelt due to warm temperatures led to increased runoff and rapid river rises.</p> <p>In Warren County, flooding from this event covered nearly two-thirds of the County. Flooding occurred along the Hudson River in the County from North River southward to the Saratoga County line. Numerous municipalities reported flooding of roadways, houses, and riverside camps. Some properties had several feet of water in them. Many major roadways were closed in the County due to flooding. The North Creek Trailer Park on Route 28 in the Town of Johnsburg was evacuated because water from the Hudson River entered the park. A mudslide in excess of 200 feet occurred on 13<sup>th</sup> Lake Road in North River/North Creek. In the hamlet of North Creek (Town of Johnsburg), a couple hundred feet of railway tracks were reported under two to five feet of water with several buildings at the train station being flooded as well. In the Town of Stony Creek, the 1,000 Acres Golf Course was flooded with the 9<sup>th</sup> green under eight feet of water. Flood water receded through April 30<sup>th</sup>. The County had approximately \$676,000 in property damage from this event.</p>
May 27 – June 2, 2011	Flooding, Thunderstorm Wind, Hail (Memorial Day Storm)	N/A	N/A	A combination of individual storms caused severe damage along a thin line through the County and impacted the Towns of Stony Creek, Thurman, Warrensburg, Horicon, and Bolton. A swath of heavy rainfall which fell in just a few hours causing flash flooding, resulting in road closures with significant damage to many roadways, washed-out culverts and a least a couple of washed-out bridges. In addition, a few of the storms





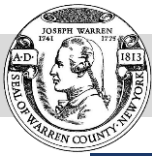
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>were severe producing large hail up to the size of a golf ball and some trees were downed by strong thunderstorm winds. It was reported that seven area fire departments, three EMS crews, the Warren County Sheriff's Office, State Police, along with state, county and local highway departments all responded to the flooding.</p> <p>Numerous trees were reported down on wires in Chestertown, as well as in Thurman, and Warrensburg. Nickel size hail was reported in Chestertown and Stony Creek, quarter size hail was reported in Hague, ping-pong ball size hail was reported in Thurman, and golf ball size hail was reported in Warrensburg.</p> <p>The County had \$13.125 million in damages from this event.</p>
August 28-30, 2011	Hurricane Irene	DR-4020	Yes	<p>The greatest impact of Irene in eastern New York State was heavy to extreme rainfall which resulted in catastrophic flooding across portions of the region. Rainfall amounts averaged between four and eight inches with amounts of up to 12 inches falling in the eastern Catskills and Schoharie Valley. Three to six inches were common across the Lake George and Saratoga regions. The rainfall resulted in widespread flash flooding and river flooding across eastern New York State. Bridges were closed on major roadways in this area of the State.</p> <p>In Warren County, wind and flood damage occurred throughout the county. The most severe was limited to the Lake Champlain Watershed area, located on the eastern side of the County, and in the Lake George and West Mountain areas. In the Town of Lake George, Route 9N was flooded from the Route 9/9N spilt south to the ramp for Exit 21 for the Northway. Route 9L was also flooded between Route 9N and Bay Road. Two of the seven docks in the Village of Lake George floated off and were crushed.</p>
October 27 – November 8, 2012	Hurricane Sandy	EM-3351	Yes	<p>Hurricane Sandy moved up the east coast of the United States during the last week of October 2012. As the storm made landfall in southern New Jersey, bands of rain moved across eastern New York State. Rainfall totals in this part of the State were minimal and did not cause any flooding. The storm did bring strong and gusty winds to the area, bringing down trees and power lines across the region. Wind gusts ranged from 40 to 60 mph.</p> <p>In Warren County, wind gusts of 65 mph pushed down the length of Lake George, creating waves that threatened to spill over the shoreline. Some of the docks along the Lake were damaged but flooding did not occur. Numerous private boats were sunk or damaged. In Glens Falls, trees and wires were knocked down from the winds.</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 28, 2013	Severe Storms and Flooding	DR-4129	Yes	<p>Heavy rain fell across the Mohawk Valley and western Adirondacks with rates of one inch per hour with three to five inches of rain falling in total. This event, with the combination of a previous rainfall event, led to significant flash flooding across both the Mohawk Valley and Adirondacks. Many roads were washed out and closed. Urbanized areas along the Mohawk River experienced flooding as well. Many communities declared state of emergencies and President Obama signed a major disaster declaration for New York State which included Herkimer, Montgomery and Warren Counties.</p> <p>In Warren County, the Town of Johnsbury experienced severe flooding from this event. Flash flooding occurred in the Bakers Mill section of the Town. Water rescue teams were deployed to several homes that were threatened by flooding. A state of emergency was declared for the Town as a result of flooding.</p>
July 8, 2014	Tornado	N/A	N/A	<p>A very warm and humid air mass was in place over the region on Tuesday, July 8th. The region was ahead of a strong cold front that was moving eastward from the Great Lakes Region. Aided by a strong jet streak aloft and a potent upper-level shortwave trough, the cold front triggered a line of thunderstorms that produced damaging winds across western and central New York. It continued to produce strong winds, which caused damage across the Adirondacks and Mohawk Valley and eventually into the Saratoga area, Capital Region and Hudson Valley as well. In addition, a weak, brief tornado also occurred in the southeastern Adirondacks in North Creek. The line of thunderstorms moved eastward and weakened as they reached the border with New England by the late evening hours.</p>
May 29, 2020	Tornado	N/A	N/A	<p>A couple of rounds of strong to severe thunderstorms impacted eastern New York during the afternoon and evening of the 29th. The first was a couple of isolated cells that produced sporadic wind damage from portions of the Capital District into the Glens Falls area. The second was a broken line of storms that produced a more widespread swath of wind damage in the greater Saratoga-Glens Falls area. An EF1 tornado formed within this line, impacting the area from Lake Luzerne to Glens Falls. Low-hanging wires resulted in the closure of Interstate 87 between exits 17 and 19. More than 8,000 customers lost power in Warren and northern Saratoga Counties due to the storms.</p>
August 29, 2020	Tornado	N/A	N/A	<p>Thunderstorms developed over portions of eastern New York during the afternoon of the 29th. A couple of these storms produced hail up to ping pong ball size. They later spawned two EF1 tornadoes in the towns of Stillwater and Schaghticoke, with damage to a couple of residences and a</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				high school. An EFO tornado briefly touched down in southwestern Warren County. Sporadic wind damage was noted elsewhere.

Sources: FEMA 2015; NYSDEC; Robinson 1999

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

DR	Federal Disaster Declaration
EM	Federal Emergency Declaration
FEMA	Federal Emergency Management Agency
NCDC	National Climate Data Center
NOAA	National Oceanic Atmospheric Administration
NYS	New York State
NWS	National Weather Service
PA	Public Assistance
SHELDUS	Spatial Hazard Events and Losses Database for the U.S.
TSTM	Thunderstorms

### E.1.5 Severe Winter Storm

Known severe winter storm events that occurred in Warren County between 1996 and 2023 are identified in Table E.5. With severe winter storm documentation for New York State and Warren County being so extensive, not all sources have been identified or researched. Therefore, Table E.5 may not include all events that have occurred in the County.

*Table E.5. Winter Storm Events Between 1996 and 2023*

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
November 26, 1996	Winter Storm	N/A	N/A	On November 26, a low pressure system brought a combination of snow and freezing rain to parts of eastern New York. Over Warren and Washington Counties, snow and heavy freezing rain downed trees and power lines and caused numerous accidents. In Washington County, approximately 3,000 customers lost power.
January 24, 1997	Winter Storm	N/A	N/A	On January 24 and 25, low pressure moved from northern Indiana northeast to the Saint Lawrence Valley. The winter storm produced heavy snow over the southern Adirondacks, which occasionally mixed with sleet and freezing rain. Snowfall totals in Warren, Hamilton and northern Herkimer Counties ranged from 5 to 7 inches. Toward the end of the storm, the precipitation changed to a mix of freezing rain and sleet which caused icing on top of the snow pack.
March 14, 1997	Winter Storm	N/A	N/A	On March 14, a complex area of low pressure tracked from northern Ohio northeast to southern Ontario Canada. This system produced several hours of heavy snow across the southern Adirondacks, Catskills,





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				northern Saratoga County, Washington County and parts of the Mohawk Valley. The snow changed to sleet and eventually to freezing rain which caused significant icing. Snowfall totals generally ranged from 2 to 5 inches with up to 8 inches in Hamilton County. The icing resulted in treacherous driving conditions along with downed trees and power lines. Scattered power outages occurred across this region.
January 2, 1999	Winter Storm	N/A	N/A	<p>A deep area of low pressure moved from the Mississippi Valley into the central Great Lakes Region during the night of January 2 and January 3. With arctic air in place over New York State, a wintry mix of heavy sleet and freezing rain resulted. This mix of precipitation resulted in significant accumulations of ice across the region. Total melted precipitation exceeded an inch across the Mid-Hudson Valley.</p> <p>The storm resulted in hundreds of vehicular accidents or vehicles sliding off roadways. Two highways in Greene County (Route 23 and route 23A) were temporarily closed due to very slick conditions. Ice buildup downed power lines which caused 2,500 residents to be without power in the Mid-Hudson Valley and an additional 1200 customers without power in the Saratoga region.</p>
January 14, 1999	Winter Storm	N/A	N/A	<p>Extremely cold arctic air moved into Eastern New York on January 13 and January 14. At the same time an area of low pressure formed in Kentucky. This low tracked east into northern Virginia then turned north and moved through the Hudson Valley late on January 14 through January 15. The storm dumped heavy snow on the region followed by an extended period of sleet and freezing rain. The onset of the snow was accompanied by dangerously cold conditions with temperatures as low as 9 below zero. Snowfall amounts included 11 inches at both the Albany International Airport and Little Falls in Herkimer County. 15 inches of snow fell at Gloversville in Fulton County. In addition to the usual traffic disruptions, the weight of the snow and ice caused a roof to cave in at a bowling alley in Rotterdam in Schenectady county. A roof also collapsed at a farm in Mayfield Fulton county which killed a cow and injured several others. The Adirondack Northway was closed between Exits 17 and 23 from 10AM through 7PM on Friday the 15th due to very icy conditions.</p>
January 31, 2000	Winter Storm	N/A	N/A	<p>Low pressure formed in the Gulf States on January 29. There was a disparity of snowfall with this system. To the south, sleet and freezing rain mixed in, which held accumulations to the 4 to 7 inch range across the Mid Hudson Valley and southern Catskills. Six to 10 inch</p>





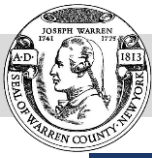
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>snowfall accumulations were common in the immediate Capital District. However, in the Mohawk Valley, just west of Amsterdam, and throughout the Western Adirondacks as well as the Lake George region, snow accumulated a foot or more. Most of the snow fell during the overnight hours on Sunday into Monday morning. To the west of Albany, snow fell heavily, at times in excess of 3 inches per hour.</p> <p>Specific accumulations included 7 inches at Albany, while East Caroga Lake got buried with 21, and 18 inches fell at Gloversville, both located in Fulton county. 17 inches fell at Fort Plain, Montgomery county and 16 at North Creek, Warren county. The storm once again closed many schools and some businesses. The snow removal effort was made more difficult due to the large amount of snow still left from previous storms.</p>
February 14, 2000	Winter Storm	N/A	N/A	<p>A low-pressure area developed over the Oklahoma panhandle early on February 13. This storm tracked northeast, reaching the Ohio Valley early on February 14, then across Pennsylvania and off the coast of Long Island by late in the day.</p> <p>The storm brought a potpourri of wintry weather to eastern New York, including snow, sleet, rain and freezing rain. A swath of 6 to 14 inches of snow fell across the Western Adirondacks, including 13 inches at Stillwater, and 7.5 inches at Indian Lake, both located in Herkimer county. Lesser amounts of snow fell across the remainder of the area. However, significant ice accumulated across the Saratoga-Lake George area. In this area, up to 3/4 of an inch of ice accretion was noted. The ice brought down some power lines near Scotia and Duanesburg in western Schenectady county. There were spotty power outages reported as well as some school and business closings.</p>
April 9, 2000	Winter Storm	N/A	N/A	<p>A strong cold front moved across eastern New York, then stalled to the east, over the Connecticut River valley late on April 8. Low pressure developed along this front, off Cape Hatteras. This storm strengthened as it moved due north along the front during the early morning hours of the 9th. Ample moisture was supplied by the warm air mass over eastern New England. Enough cold air was both advected into the region as well as brought downward by heavy precipitation to change the rain over to snow, and produce an unusually late season snowstorm. Snow, falling at the rate of 2 inches per hour, was common at the height of the storm. Gusty winds to near 35 mph produced near blizzard conditions at times, including both some blowing and drifting of the</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>snow. A mantle of 8 to locally more than 16 inches of snow buried the Schoharie and Mohawk valleys, Greater Capital District, Western Adirondacks as well as the Lake George Saratoga region. Further south, 4 to 8 inches of snow covered portions of the Mid Hudson Valley. The official reading of 13.3 inches at Albany was the second heaviest April snowstorm on record, second only to a 17.7 inch storm during 1982.</p> <p>Since the storm happened on a Sunday, disruptions from it were minimized. However, some business were closed or delayed in opening. The biggest damage from the storm was due to the heavy wet nature of the snow, which resulted in many damaged or downed limbs and trees, especially north of the Mohawk River. Up to 35,000 customers in eastern New York were without power during the height of the storm.</p>
March 21, 2001				<p>Low pressure, from eastern Georgia, moved to eastern North Carolina by the morning of March 21. The storm then tracked off the Virginia coastline and up the eastern seaboard, to become the third nor'easter of the month. By the morning of March 23, the storm center had slowly progressed to the Gulf of Maine. Although not all that powerful, the storm had both Gulf and Atlantic moisture to work with. Heavy wet snow fell, accumulating 5 to 10 inches across the higher terrain of eastern New York, with most valley locations getting little or no slushy accumulation. This snow was heavy and wet enough to bring down limbs across the region. Wires and trees were reported down in Middelburgh, Schoharie county. Trees also fell across portions of Warren county. Specific snowfall amounts included 7 inches at Windham, Greene County, 10.5 inches at Indian Lake, Hamilton County, 8.7 inches at Summit, Schoharie County, 8.5 inches at Stillwater in Herkimer County and 7.6 inches in Warrensburg, Warren County.</p> <p>An estimated 1,500 homes over the higher terrain across eastern New York state, were without power. Service was disrupted to about 100 phone customers in Warren County.</p>
November 17, 2002	Winter Storm	N/A	N/A	<p>A strong nor'easter developed off Cape Hatteras on Saturday, November 16. The low pressure center then slowly moved north along the coast, reaching Cape Cod by late November 17. At the same time, a shallow layer of arctic air bled south from eastern Canada. The air was cold enough to produce a heavy wintery mix of precipitation during a good portion of the storm across eastern New York. Initially, the precipitation fell as snow, or snow and sleet mixed. A 1-3 inch swath of snow was</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				observed from about Albany southward. A 3-6 inch swath of snow fell north of Albany. As warmer air worked in aloft, the snow changed to sleet, then freezing rain. Freezing rain was more extensive south of Albany, where up to 58,000 customers lost power in the Mid Hudson Valley. Ice accretion was between one-half and one inch. Western Ulster County was especially hard hit where in addition to the ice, winds frequently gusted to 30 mph and, with lingering leaves on the trees, brought many trees and power lines down. Further north, the combination of snow, sleet and freezing rain still caused up to 1,000 customers in the Lake George Saratoga region to lose power, and spotty power losses elsewhere in the Capital District. In addition, there was a loss of significant limbs on trees and dangerous travel conditions.
December 14, 2003	Winter Storm	N/A	N/A	<p>A low pressure area formed in the Gulf States early on December 14. This storm hugged the coast line as it tracked northward to become the second nor'easter of the winter season. This storm moved a little quicker than its predecessor. Also different from the last storm, enough warm air moved in aloft to change the snow to sleet and freezing rain, especially from Albany south.</p> <p>Snow began falling during the morning hours to the south of Albany, into the Capital District around noon, and further north during the afternoon. The sleet and freezing rain began mixing in during the evening hours. Meanwhile, the precipitation stayed all snow from about Glens Falls northward. By the time the storm was east of Cape Cod, early on Monday, a swath of 4 to 8 inches of snow, mixed with sleet, had fallen from Albany southward. To the north, 8 to 16 inches of mostly snow fell with locally higher amounts across the Adirondacks. Officially, 7.2 inches of snow fell at Albany, while up to 20.8 inches of snow, the most in eastern New York, was reported at Old Forge in Herkimer County. The storm closed most school districts on Monday and resulted in some vehicular accidents.</p>
April 12, 2007	Winter Storm	N/A	N/A	<p>Low pressure moved from the mid Mississippi Valley on Wednesday April 11th into the southern Great Lakes by Thursday morning on April 12th, spreading a swath of heavy wet snow across the higher elevations of the southern Adirondacks and eastern Mohawk Valley from early Thursday morning into early Thursday afternoon.</p> <p>Snowfall amounts were greatest across the higher elevations above 1500 feet, where 6 to 12 inches fell. Some snowfall totals included 10.5 inches at Speculator, 10.3 inches at Wells, 8 inches at Caroga Lake and</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Stratford, 8 inches at Middle Grove, 12 inches at North Creek at an elevation of 3600 feet, and 10 inches at Bakers Mills. The heavy wet snowfall led to downed tree limbs and power lines, which led to numerous power outages across the affected region during Thursday afternoon.
February 6, 2008	Winter Storm	N/A	N/A	<p>A low-pressure system tracked east northeast from the lower Ohio Valley on Wednesday morning, February 6th, to just south of Cape Cod by Thursday morning on February 7th. This storm system spread a swath of moderate to locally heavy snow, sleet and freezing rain across portions of east central New York and adjacent western New England from Wednesday morning into Thursday morning.</p> <p>Snow and sleet amounts ranged from 6 to 12 inches across portions of the southern and western Adirondacks, with generally under 3 inches elsewhere. However, ice accretion from freezing rain ranged between one quarter, to just under one half of an inch, with the greatest amounts across the higher elevations of the central and southern Taconics, as well as across the Lake George and Saratoga region. The ice accretion led to scattered power outages as a result of downed tree limbs on power lines.</p>
January 28-29, 2009	Winter Storm	N/A	N/A	<p>A winter storm spread a significant wintry mix of precipitation across eastern New York State, with heavy snow and sleet across much of the southern Adirondacks into the Lake George Saratoga region. Snow and sleet amounts ranged from 8 to 12 inches across the southern Adirondacks and the Lake George Saratoga region. This wintry mix resulted in the closure of numerous schools and businesses across east central New York for both Wednesday and Thursday mornings, and also created treacherous travel conditions. Snowfall totals in Warren County ranged from 8 to 9 inches in the city of Glens Falls.</p>
February 18, 2009	Winter Weather	N/A	N/A	<p>Winter storm system swept northeast across eastern New York State early Thursday morning, preceded and accompanied by moderate to locally heavy wet snow. The snow began Wednesday afternoon, and tapered off early Thursday morning. The heaviest snowfall amounts occurred across the Lake George Saratoga region, where 6 to 10 inches fell.</p>
February 23, 2010	Heavy Snow	N/A	N/A	<p>A powerful storm impacted the region, the second in just a couple of days bringing heavy rainfall and a heavy wet snow to the local area. The heavy wet snow resulted in additional and continued widespread power outages across east central New York, downed trees and power</p>





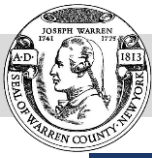
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>lines, treacherous travel, road closures, train delays, building collapses and snow emergencies.</p> <p>In Warren County, up to 2 feet of snow fell in the west portion of the county in the higher elevations. Route 9N at Pinewoods Road in the Town of Lake Luzerne was reported closed for a couple of hours late Tuesday evening, February 23rd, due to downed power lines. No property damages were reported. Snowfall totals in Warren County ranged from 10.5 inches in the City of Glens Falls to 21.3 inches at the Town of Lake Luzerne.</p>
February 25, 2010	Winter Storm	N/A	N/A	<p>This storm system produced a widespread swath of heavy wet snow across the greater Capital District and surrounding area, the Lake George Saratoga region, the Mohawk River Valley, Schoharie Valley and southern Adirondacks during the day Friday. Snowfall rates of 1 to 2 inches per hour occurred, beginning during the early morning hours, and persisting until late afternoon.</p> <p>Snowfall amounts reached 12 to 15 inches across northern portions of the Capital Region extending into the east central Mohawk River Valley and Lake George Saratoga region. The heavy snow created treacherous travel conditions for the morning and evening commutes on Friday, with numerous accidents reported, including along portions of the Adirondack Northway, as well as Interstate 90. The heavy wet snow also led to numerous school and business closings across much of eastern New York on Friday.</p> <p>Snowfall totals in Warren County ranged from 4 inches at Warrensburg to 24 inches at Garnet Hill in North River hamlet.</p>
December 10-11, 2013	Winter Weather	N/A	N/A	<p>As very cold air passed over the relatively warm water of Lake Ontario, a heavy, long-lasting band of lake effect snow developed on the evening of the 10<sup>th</sup>, extending east across the entire western and southern Adirondacks. By the time the band ended late in the evening of December 11th, over one foot of snow was common across the western Adirondacks. Snowfall totals included 4.5 inches at Gore Mountain in Warren County.</p>
December 14-15, 2013	Winter Storm	N/A	N/A	<p>A light snow slowly spread across New York State from southwest to northeast during the day on December 14<sup>th</sup>, followed by a steadier and heavier snowfall moved across the region during the evening hours and into the overnight. Snow fell at rates in excess of one inch per hour over much of the region and snow rates locally were as high as up to three inches per hour at times. The bulk of the accumulating snow was finished by the late overnight hours, but light snow showers and flurries</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				continued into the mid-morning hours, especially across the Adirondacks and Capital Region. By the end of the storm, many places around the eastern Catskills, Capital Region and Lake George Saratoga Region received around a foot of snowfall. Snowfall totals in Warren County ranged from 9 inches at Brant Lake hamlet to 12.2 inches at the Town of Lake Luzerne.
February 13-14, 2014	Heavy Snow	N/A	N/A	<p>An exceptional winter storm impacted all of eastern New York between Thursday, February 13th and the morning of Friday, February 14th. The snow began falling in the morning hours at rates of up to three inches per hour, causing significant travel issues across the region. After a late afternoon break in the snowfall, heavy precipitation returned in the late evening hours. Once again, the snow fell at significant rates of up to 3 inches per hour. In addition, lightning and thunder accompanied the snow across far southern and eastern areas at times as well. By the time snow ended, between one and two feet of snow fell across much of the Lake George Saratoga Region, with lower amounts of 4 to 10 inches across the Adirondacks. Very strong winds, gusting as high as 40 mph, occurred as the storm pulled away. This led to significant blowing and drifting of the snowfall through the entire day on February 14th.</p> <p>As a result of the storm, Governor Andrew M. Cuomo declared a state of emergency for the Mid-Hudson as well other counties, including Warren, across east central New York. Restrictions were put on travel. Many towns and cities had difficulty with snow removal, as much of the snowfall also remained from a recent early February snowstorm as well. The weight of snow caused a few roof collapses and power outages across the region.</p> <p>Snowfall totals in Warren County ranged from 6 inches at North Creek hamlet to 12 inches at the Town of Lake Luzerne.</p>
November 26-27, 2014	Nor'Easter / Snowstorm	DR-4204	No	<p>An early season winter storm impacted eastern New York State during Thanksgiving. The storm began the morning of the 26<sup>th</sup> and once the snow began, it increased in intensity, falling at rates at or greater than one inch per hour. Temperatures dropped to or below freezing across the entire region. There were heavy bands of snow occurring in some locations, especially across the Taconics, Mohawk Valley and southeastern Adirondacks. Snowfall totals ranged from six to 12 inches, with up to 15 inches in the southeastern Adirondacks. The weight of the snow caused power outages in the area, especially across the mid-Hudson</p>





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Valley. Warren County DPW reported numerous damages, including automobile damages from falling trees and icy conditions, transportation blockages, and phone wires falling on and entangling a truck. Snowfall totals in Warren County ranged from 10 inches at the City of Glens Falls to 14.5 inches at North Creek hamlet.
February 12, 2017	Winter Storm	N/A	N/A	Two low pressure systems approached the northeastern US on Sunday, February 12, with snowfall breaking out over the local area around sunrise. The snow was heavy during the morning and early afternoon, with accumulation rates of 1 to locally 2 inches per hour at times. The snow was wet and dense and readily clung to trees. During the afternoon, warmer air resulted in precipitation changing to sleet for portions of the mid-Hudson Valley and Catskills, which cut down snowfall totals in those locales. The snowfall diminished Sunday evening, except over the higher terrain areas of the Adirondacks as well as the Mohawk Valley. In those locations, accumulating snowfall persisted through the night and into Monday before diminishing Monday afternoon.
December 22, 2017	Winter Storm	N/A	N/A	A complex storm system brought snow and a wintry mix to the region on Friday, December 22nd through Saturday, December 23rd, 2017. The precipitation started out as snow on Friday but transitioned to a wintry mix by Friday night. Freezing rain lingered through the day Saturday as a warm front lifted through the region, especially for sheltered mountain valley areas. Snowfall totals ranged from a trace in the Mid-Hudson Valley up to 8.5 inches in the Adirondacks (Hamilton county) along with light icing as well. A few spots in the Mohawk Valley and Saratoga Region saw up to two tenths of an inch of ice.
January 19, 2019	Winter Storm	N/A	N/A	The largest snowstorm to date in the 2018-19 winter occurred on January 19th and 20th across eastern New York. Low pressure formed over the lower Mississippi Valley and lifted northeast across the Tennessee Valley during the night of the 19th before moving along the Mason-Dixon line on the 20th. Strong rising motion occurred as southerly winds aloft transported moist air northward, which was lifted over the cold airmass in place over eastern New York. Snowfall broke out during the afternoon of the 19th, continuing heavy at times into the evening and overnight hours before ending during the morning of the 20th. The strong southerly flow brought above-freezing air aloft into the region, causing the snow to turn to sleet as far north as the Capital District and northern Catskills for a time before turning





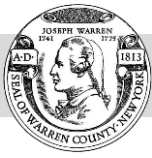
Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				back to snow. Further south, the air aloft was warm enough to turn the precipitation to freezing rain with ice accretion of one to three tenths of an inch over portions of the southeast Catskills, Mid-Hudson Valley, and southern Taconics.
March 23, 2020	Winter Storm	N/A	N/A	A late season snowfall impacted the region on Monday, March 23rd, 2020. This was brought on by an anomalously cold air mass interacting with a coastal low pressure system. Snowfall totals ranged from an inch in the Mid-Hudson valley up to almost 10 inches in the southern Adirondacks and northern Lake George Saratoga region. The lower amounts were mainly confined to the Lower Hudson Valley due to a rain and snow mix throughout much of the day. Snow intensity increased during the late afternoon and early evening hours impacting the evening commute. As a result, a tractor trailer crashed on Interstate 87 South prompting portions of the interstate to be closed.
January 17, 2022	Winter Storm	N/A	N/A	A winter storm dumped 7-14 inches over eastern New York January 16-17. It was also windy with gusts generally between 30-45 mph. There were a few gusts that topped 50 and 60 mph. Snow emergencies were put in place in the Utica/Dolgeville area.
March 13, 2023	Winter Storm	N/A	N/A	<p>A powerful Nor'Easter resulted in widespread moderate to heavy wet snow and gusty winds across eastern New York March 13-March 15, 2023.</p> <p>Anywhere from 15 to 30 inches of snow with locally higher amounts in excess of 30 inches fell over the SW Adirondacks and eastern Catskills. Valley locations received lesser amounts with totals generally ranging between 7 to 15 inches. A few locations across the western Mohawk Valley and mid-Hudson Valley received less than 6 inches of snow.</p> <p>Numerous downed trees and powerlines resulted in widespread power outages. According to the National Grid, approximately 141,000 customers lost power within the state of New York with most occurring within our county warning area. Some locations were without power for at least 1 or 2 days.</p>

Sources: NYSDEC, NWS, NYS DHSES, NOAA-NCDC, FEMA

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

DR	Disaster Declaration
EM	Emergency Declaration
FEMA	Federal Emergency Management Agency
HMP	Hazard Mitigation Plan
N/A	Not Applicable
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service





PA

Public Assistance

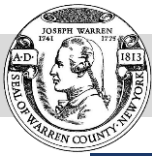
## E.1.6 Wildfire

Known wildfire events that have impacted Warren County from 2002 to 2015 are identified in Table E.6. Fire departments throughout the County respond to small brush fires each year. However, many of these fires are so small that little information is available. Therefore, Table E.6 may not include a complete record of all wildfire events that have occurred within the county.

*Table E.6. Wildfire Events in Warren County, 2002 to 2015*

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 5, 2002	Wildfire	N/A	N/A	Smoke, from many forest fires across the Nemiscau region of northern Quebec, became trapped under a subsidence inversion, and was transported south across eastern New York from the evening hours of July 5, to the late evening of July 7. The forest fires were sparked by exceptionally hot and dry weather over that part of Canada followed by an unusual amount of thunderstorm activity, resulting in many lightning strikes. The circulation between high pressure over Hudsons Bay and a low pressure off the Canadian Maritimes transported the smoke southward. The smoke obscured the sky, and even reduced surface visibilities to as low as one mile, especially on the early morning of July 7. Advisories were issued warning people with respiratory problems to remain indoors and all individuals to curb outside activity. No major problems were reported to the National Weather Service as a result of this smoke.
April 30 – May 7, 2009	Wildfire - Tongue Mtn 1	N/A	NYS-2009-0133	A lightning strike started a forest fire in a forest preserve in the Town of Hague, resulting in 13 acres burned.
May 16 – 27, 2013	Wildfire - Pine Mountain Fire	N/A	NYS-2013-0099	A lightning strike started a forest fire in a forest preserve in the Town of Warrensburg, resulting in 16.8 acres burned.
November 4-10, 2014	Wildfire	N/A	NYS-2014-0139	In 2014, the largest wildfire to occur in New York State was the 173-acre Darling Mountain Fire in the Town of Queensbury that





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				began on November 4. This fire occurred on private land and spread quickly because of strong winds blowing fallen leaves. Smoke from the fire triggered automatic alarm systems six miles away in the City of Glens Falls. Little mop up was needed for this surface fire, and it was declared out three days later. This fire was caused by hunters leaving an unextinguished campfire.
May 8 – 17, 2015	Wildfire	N/A	NYS-2015-0105	A campfire in the Town of Queensbury was reported to spark forest fires on private property, resulting in 14 acres burned.

Sources: NYSDEC 2013; NYSDEC 2015; NOAA-NCDC

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or following the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

FEMA Federal Emergency Management Agency

K Thousand (\$)

M Million (\$)

N/A Not applicable





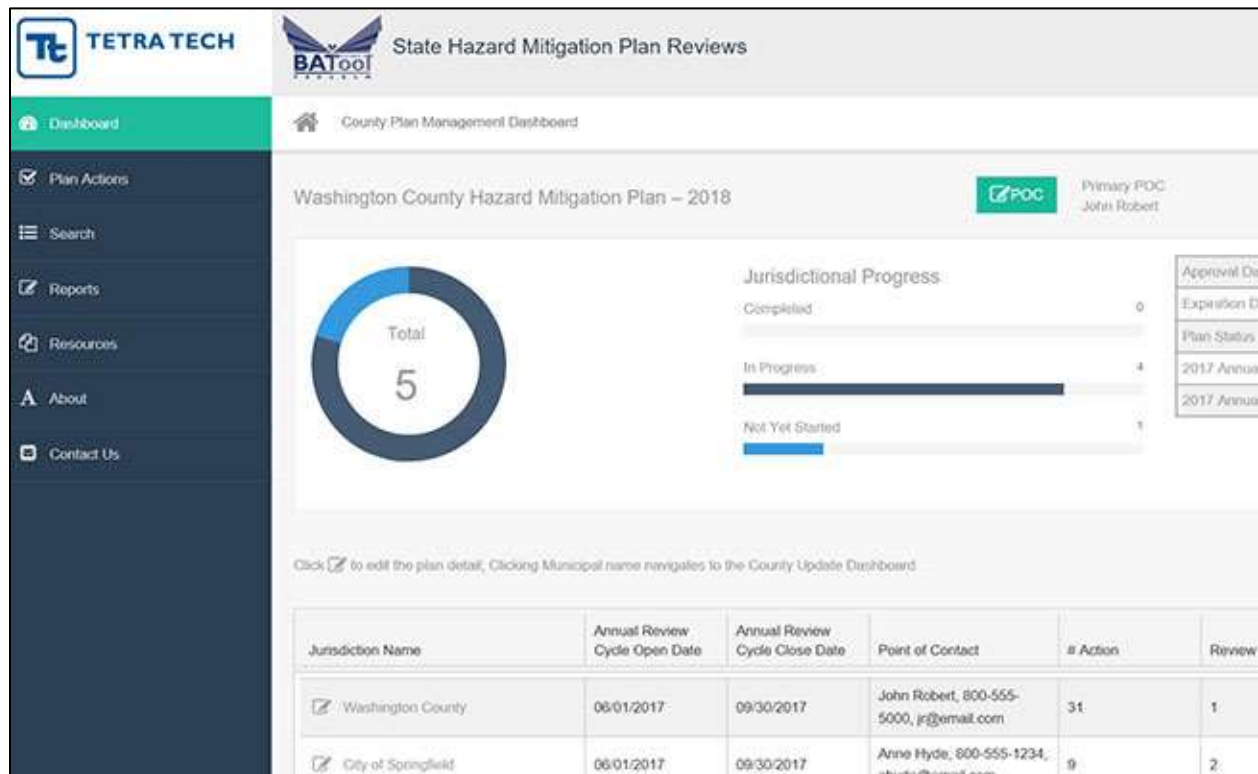
## APPENDIX F. PLAN MAINTENANCE TOOLS

This appendix includes tools and worksheets to facilitate plan maintenance and review by the Warren County Steering and Planning Committees.

In the first year of the performance period, an online performance progress reporting system, the BATool<sup>SM</sup> will provide municipal and county representatives direct access to their mitigation initiatives to easily update the status of each project, document successes or obstacles to implementation, add or delete projects to maintain mitigation project implementation. This online program will capture information and roll all input into a report to summarize mitigation strategy progress.



Figure G-1. BATool<sup>SM</sup> Screenshot



The FEMA 386-4 guidance worksheets are also available to assist with progress reporting. These worksheets are provided in this section for ease of access to the HMP Coordinator and Planning Partnership to maintain the 2023 HMP throughout its period of performance.



**Worksheet #1****Progress Report****step 2***Page 1 of 3*

Progress Report Period: \_\_\_\_\_ to \_\_\_\_\_  
(date) (date)

Project Title: \_\_\_\_\_ Project ID#: \_\_\_\_\_

Responsible Agency: \_\_\_\_\_

Address: \_\_\_\_\_

City/County: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

Phone #(s): \_\_\_\_\_ email address: \_\_\_\_\_

List Supporting Agencies and Contacts:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Project Cost: \_\_\_\_\_

Anticipated Cost Overrun/Underrun: \_\_\_\_\_

Date of Project Approval: \_\_\_\_\_ Start date of the project: \_\_\_\_\_

Anticipated completion date: \_\_\_\_\_

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Milestones	Complete	Projected Date of Completion



**Plan Goal(s)/Objective(s) Addressed:**

Goal: \_\_\_\_\_

Objective: \_\_\_\_\_

**Indicator of Success** (e.g., losses avoided as a result of the acquisition program):

*In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.*

**Status** (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

**Project Status**☐ Project on schedule☐ Project completed☐ Project delayed\*

\*explain: \_\_\_\_\_

☐ Project canceled**Project Cost Status**☐ Cost unchanged☐ Cost overrun\*

\*explain: \_\_\_\_\_

☐ Cost underrun\*

\*explain: \_\_\_\_\_

**Summary of progress on project for this report:**

A. What was accomplished during this reporting period?

---

---

---

---

B. What obstacles, problems, or delays did you encounter, if any?

---

---

---

C. How was each problem resolved?

---

---

---





**Other comments:**

[illegible]

Adapted from the North Carolina HMGP Progress Report Form at [http://www.dem.dcc.state.nc.us/mitigation/document\\_index.htm](http://www.dem.dcc.state.nc.us/mitigation/document_index.htm).



**Worksheet #2****Evaluate Your Planning Team****step 3**

*When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:*

	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?		
<b>Comments/Proposed Action:</b>		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?		
<b>Comments/Proposed Action:</b>		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?		
<b>Comments/Proposed Action:</b>		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?		
<b>Comments/Proposed Action:</b>		
Are there ways to gain more diverse and widespread cooperation?		
<b>Comments/Proposed Action:</b>		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		
<b>Comments/Proposed Action:</b>		

*If the planning team determines the answer to any of these questions is "yes," some changes may be necessary.*





**Worksheet #3 Evaluate Your Project Results****step 3**

page 1 of 2

Project Name and Number: \_\_\_\_\_

Project Budget: \_\_\_\_\_

Project Description: \_\_\_\_\_

Associated Goal and Objective(s): \_\_\_\_\_

Indicator of Success (e.g., losses avoided): \_\_\_\_\_

*Insert location map.  
Include before and after  
photos if appropriate.*

Was the action implemented? ☐ YES ☐ NOIF **NO**

Why not?

YES NO

Was there political support for the action?

☐ ☐

Were enough funds available?

☐ ☐

Were workloads equitably or realistically distributed?

☐ ☐

Was new information discovered about the risks or community that made implementation difficult or no longer sensible?

☐ ☐

Was the estimated time of implementation reasonable?

☐ ☐

Were sufficient resources (for example staff and technical assistance) available?

☐ ☐IF **YES**

What were the results of the implemented action? \_\_\_\_\_

---

---

---

---

---

---





page 2 of 2

	YES	NO
Were the outcomes as expected? If No, please explain:		
Did the results achieve the goal and objective(s)? Explain how:		
Was the action cost-effective? Explain how or how not:		
What were the losses avoided after having completed the project?		
If it was a structural project, how did it change the hazard profile?		
Additional comments or other outcomes:		

\_\_\_\_\_

Date: \_\_\_\_\_

Prepared by: \_\_\_\_\_





## Worksheet #4 Revisit Your Risk Assessment step 4

Risk Assessment Steps	Questions	YES	NO	COMMENTS
Identify hazards	Are there new hazards that can affect your community?			
Profile hazard events	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
Inventory assets	Have inventories of existing structures in hazard areas been updated?			
	Is future land development accounted for in the inventories?			
	Are there any new special high-risk populations?			
Estimate losses	Have loss estimates been updated to account for recent changes?			

*If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly.*



**Worksheet #5****Revise the Plan****step 4***page 1 of 4***Prepare to update the plan.***When preparing to update the plan:**Check the box when addressed:*

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.	<input type="checkbox"/>
Comments:	
2. Reconvene the planning team, making changes to the team composition as necessary (see results from Worksheet #2).	<input type="checkbox"/>
Comments:	

**Consider the results of the evaluation and new strategies for the future.***When examining the community consider:**Check the box when addressed:*

1. The results of the planning and outreach efforts.	<input type="checkbox"/>
Comments:	
2. The results of the mitigation efforts.	<input type="checkbox"/>
Comments:	





page 2 of 4

3. Shifts in development trends.

Comments:

4. Areas affected by recent disasters.

Comments:

5. The recent magnitude, location, and type of the most recent hazard or disaster.

Comments:

6. New studies or technologies.

Comments:

7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.

Comments:





page 3 of 4

8. Changes in the socioeconomic fabric of the community.	
Comments:	
9. Other changing conditions.	
Comments:	

**Incorporate your findings into the plan.***When examining the plan consider:**Check the box when addressed:*

1. Revisit the risk assessment. (See Worksheet #4)	
Comments:	
2. Update your goals and strategies.	
Comments:	
3. Recalculate benefit-cost analyses of projects to prioritize action items.	
Comments:	





Use the following criteria to evaluate the plan:

Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do existing actions need to be reprioritized for implementation?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented with available resources?			

Comments:

---

---

---

---

---

---

---

---

---

---





## APPENDIX G. CRITICAL FACILITY INVENTORY

### G.1 OVERVIEW

This section contains information and details to support information provided in Section 4 – County Profile which provides the distribution of critical facilities located within Warren County and its municipalities. Due to the sensitive nature of this information, details have been redacted. Contact the HMP Coordinator, for more information contact Ann Marie Mason Director, Warren County Office of Emergency Services at [masona@warrencountyny.gov](mailto:masona@warrencountyny.gov).





## APPENDIX H. PLANNING GUIDANCE

This appendix includes the 2022 NYS DHSES planning standards and guidelines for hazard mitigation planning, as well as FEMA guidance for classifying Lifelines within a community.





## 2022 New York State Hazard Mitigation Planning Standards (Supersedes the 2017 NYS Hazard Mitigation Planning Standards)

Congratulations on taking the first steps to update a multi-hazard mitigation plan for your community!

The goal of both the New York State Division of Homeland Security and Emergency Services (NYS DHSES) and FEMA is that all jurisdictions develop robust mitigation plans and tangible mitigation actions that will contribute to long-term risk reduction.

The 2022 NYS Hazard Mitigation Planning Standards reduce the 2017 Hazard Mitigation Planning Standards. Any plan currently in development, regardless of date funded, will be held *only* to these reduced standards.

---

### PLEASE NOTE:

On April 19, 2023, FEMA's new Local Mitigation Planning Policy will take effect. Plans approved on or after this date **must meet requirements** as outlined in the linked [Policy Guide](#).

[https://www.fema.gov/sites/default/files/documents/fema\\_local-mitigation-planning-policy-guide\\_042022.pdf](https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf)

---

The additional state requirements detailed below are intended to improve the quality of hazard mitigation plans and encourage the development of the most appropriate and effective mitigation projects for your community. It is recognized that many jurisdictions have inherent constraints and certain information may be difficult to provide. NYS DHSES and FEMA will work with you throughout the entire planning process to ensure the successful development of your community's hazard mitigation plan.

There are a multitude of resources that exist to provide guidance and support throughout the planning process, developed by Federal and State agencies, as well as private and research-based groups. We urge you to contact us so that we may direct you to additional resources and provide you with the most comprehensive technical assistance possible.

For questions and comments, please call our offices at 518-292-2304.

Additional contact information will be provided to sub-recipients for more direct assistance.





**Please note:**

*Jurisdiction* is used to describe all government entities within the boundaries set forth in the Multi-Jurisdictional Plan (typically County-wide), including the County itself, as well as cities, towns, villages and potentially tribes that choose to join a multi-jurisdictional plan.

*Special Flood Hazard Area (SFHA)* is defined as the area that will be inundated by the flood event having a 1-percent change of being equaled or exceeded in a given year (previously known as the 100-year flood event).

---

**1. Assess Critical Facilities**

*Critical facilities must remain accessible and functional before, during and after disasters to meet the jurisdictions Continuity of Government (COG) and Continuity of Operations (COOP) standards, and to support important emergency, government and sheltering functions.*

Jurisdictions must identify all critical facilities, assess their vulnerabilities, and evaluate and ensure they are protected to a 0.02% chance (500-year) flood event. Critical facilities that are located in an SFHA and/or have been previously flooded, must be protected against a repeat of that flood or to the 0.02% chance flood event, whichever provides the greater protection.

- The plan must document the name of facility, type of facility, jurisdictional location, and exposure to a 1% (100-year) and 0.02% chance event.
- The plan must document those critical facilities are protected to a 0.02% flood event, or previous worst case flood event. For those that do not meet this level of protection, the plan must include an action to meet or go beyond this criterion or explain why it is not feasible to do so. Going beyond this criterion is optional but may be wise to protect against a future worst case due to climate change.

**2. Include Jurisdictional Annexes**

*Jurisdictional annexes provide a unique, stand-alone guide to mitigation planning for each jurisdiction.*

The plan must be organized so that there is an annex for every jurisdiction within the county's borders, including the County.

- The plan must include a table in the Introduction section clearly identifying all jurisdictions and which are seeking FEMA approval.
- The annex for each jurisdiction seeking FEMA approval must include the following:
  - Contact Information;
  - Jurisdiction Profile;
  - Hazard Identification (specific to the jurisdiction);
  - Hazard Event History;
  - National Flood Insurance Program (NFIP) Summary (to meet Federal Standards);
  - Critical Facilities Information (to meet F1);
  - Jurisdiction/public identified vulnerabilities;
  - Additional public involvement;
  - Capabilities Assessment;
  - Mitigation Strategy:
    - All identified previous mitigation activities with current status;
    - All proposed mitigation activities (both new and carried forward, to meet F3)
- The annex for each non-participating jurisdiction (those not seeking FEMA approval at this time), must include a cover sheet and should include as much information as is available.



**3. Develop Mitigation Actions**

*Projects that are well developed and documented in one place are more quickly identifiable for selection when grants become available, making implementation that much more likely.*

Within each jurisdictional annex, jurisdictions must develop a minimum of two (2) new or carryover (not started) proposed mitigation actions that include all information requested in the NYS DHSES LHMP Proposed Action spreadsheet. For jurisdictions containing an SFHA, one (1) of these actions must be for a project that addresses flooding.

**4. Post Draft Plan Online**

*Allowing the public to comment on the draft plan increases awareness about how mitigation saves lives and reduces risk and allows a final opportunity for public input.*

The public must have an opportunity to view and comment on the draft plan prior to submittal.

- The draft plan must be posted in full (except for discretionary sensitive information) on an existing county/jurisdiction website, or one created for the purpose of soliciting comments, for 30 days or the time prescribed by local law, whichever is greater, and the plan must describe efforts made to solicit public comments from potentially underserved areas where residents may not have access to a computer to view the website. The website must clearly identify how the public can comment on the plan, to include either specific contact information to send comments or a user-friendly form or survey.

**After NYS DHSES and FEMA Approval**

- Once designated Approvable Pending Adoption (APA) or Approved by FEMA, the final plan must be placed on the same website (cited above) in its entirety (except for discretionary sensitive information).
- Final payment will occur only after 50% of the participating jurisdictions have adopted the plan and provided adoption resolutions to NYS DHSES. For county-led hazard mitigation planning efforts, the county must be one of the adopting jurisdictions.

The chart below shows the requirements as they appear on the plan review tool used by NYS DHSES and FEMA Region II to determine whether a submitted plan meets federal and state requirements.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b>		
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>		<b>(section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS – NYS HAZARD MITIGATION PLANNING STANDARDS</b>				
These are required actions for plans developed with NYS DHSES-administered funds.				
H1. Do jurisdictions identify critical facilities, assess vulnerabilities, and ensure protection to a 0.02% flood event or worst-case scenario?				
H2. Does the plan include an annex for every jurisdiction within the County's boundaries?				
H3. Within each jurisdictional annex, are projects developed in accordance with the NYS DHSES Proposed Projects Table?				
H4. Was the draft plan posted for public comment?				
<b>Note:</b> The applicant is required to address the 2022 NYS Hazard Mitigation Planning Standards as required actions for a hazard mitigation plan developed with funds administered by NYS DHSES.				
<b>ELEMENT H: REQUIRED REVISIONS</b>				
<i>Please see opportunities for improvement</i>				





## APPENDIX I. DAM FAILURE (CONFIDENTIAL)

This is a confidential appendix that summarizes the quantitative vulnerability assessment conducted for the dam failure hazard in Warren County. This section contains information and details to support information provided in Section 5.4.1 – Dam Failure Profile which provides the information regarding dam failure in Warren County. Due to the sensitive nature of this information, details have been redacted. Contact the HMP Coordinator, for more information contact Ann Marie Mason Director, Warren County Office of Emergency Services at [masona@warrencountyny.gov](mailto:masona@warrencountyny.gov).





## APPENDIX J. PUBLIC COMMENT

This appendix provides documentation of public comment received following public review of the draft Warren County Hazard Mitigation Plan. Public feedback on the draft plan is an important part of the hazard mitigation planning process. Public comments have been addressed throughout the HMP as appropriate.

### J.1 PUBLIC COMMENTS ON THE DRAFT PLAN

This section contains the public comment responses from the public review of the draft Warren County Hazard Mitigation plan. Comments were received from four residents for the entire plan and for specific sections. The public comments are provided in the following summary, with personal information removed.

#### J.1.1 Comments on the Entire Plan

- **Comment 1:** Request for a way to search the entire document for keywords.
  - **Response:** The final plan will be one searchable document.
- **Comment 2:** Expressed concern with recommending backup generators that use fossil fuels. Recommended using battery power backup systems, especially for powering facilities with vulnerable populations.
  - **Response:** Warren County will evaluate the use of power storage batteries to provide backup power instead of fuel powered generators, where possible.
- **Comment 3:** Recommended web based educational and outreach webinars to allow for remote participation for residents.
  - **Response:** Live Citizen Preparedness Training is available through NYSDHSES in conjunction with the National Guard and hosted by the County. Similar training is offered by the state offers and is available on YouTube in 13 languages at this link: <https://www.dhSES.ny.gov/citizen-preparedness-corps>.

#### J.1.2 Comments on Section 4

- **Comment 4.1:** Suggest adding a map showing the over 65 years old population in the county.
  - **Response:** The over 65 population group is discussed in detail in the vulnerability section of the plan.
- **Comment 4.2:** Recommend that the plan emphasize that seniors are more vulnerable to disease within the mitigation goals regarding public health guidance.





- **Response:** Information was added to the plan about vulnerability for seniors in Section 4 in order to emphasize the mitigation recommendations.

### J.1.3 Comments on Section 5

- **Comment 5.1:** Suggested that more needs to be done to coordinate the use of generators for senior citizens during winter power outages.
  - **Response:** The County action item #2 addresses backup power for critical facilities which includes those that support senior citizens.

### J.1.4 Comments on Section 9

- **Comment 9.1:** Recommend that the adaptive capacity for disease needs to be strong in Queensbury and elsewhere.
  - **Response:** The adaptive capacity ranks were developed through a stakeholder review by the Hazard Mitigation Plan Steering Committee and each participating community as part of the planning process. This is a factor in determining the relative risk presented by each hazard of concern. A higher adaptive capacity will result in a reduction in the relative hazard ranking and may be discussed with each community as needed to support the prioritization of projects.
- **Comment 9.2:** Highlighted that more needs to be done to control the Schroon River as it continues to flood more every year.

- **Response 9.2:**

The Schroon River in Warren County is impounded in the Town of Horicon by the Starbuckville Dam. The original dam was developed for the purpose of commerce of logs to paper and pulp mills in Glens Falls and further downstream on the Hudson River. The dam was rebuilt in 2005. This dam creates a pool elevation that has been established and is controlled by the dam. Dam sluices may be open, closed or in a combination of, to maintain the established water level.

The Schroon River in Warren County has a large watershed that begins in Essex County at Elk Lake. With such a large watershed, the Schroon is susceptible to flooding at any time of the year, but generally springtime during runoff and early-late summer with spring rains. As stated, flooding may occur at any time of the year based on existing hydrologic and meteorological conditions.

Floodplains associated with the Schroon River are often inundated during spring and high flow events. The vast majority of these areas are fields or forested areas. Development such as homes and commercial ventures have been established in existing floodplains or flood prone areas.





FEMA is currently redeveloping floodplain maps for Warren County and this updated and more accurate information will be used to determine what steps the county and its municipalities may take to reduce flooding impacts for landowners, while maintaining the ability of the river flow and utilize its floodplains when necessary.

- **Comment 9.3:** Recommend that the maps for Queensbury are revised to be easier to read.
  - **Response:** Users may zoom into digital maps to enable better readability.